DRAFT

Environmental Impact Report for the Bonita Vista High School Track and Field Project

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~~JULY 2017~~FEBRUARY 2021

Printed on 30% post-consumer recycled material.

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ACRONYMS AND ABBRVIATIONS

Acronym/Abbreviation	Definition
AB	Assembly Bill
ADA	Americans with Disabilities Act
AERMOD	American Meteorological Society/EPA Regulatory Model
BMP	best management practice
BVHS	Bonita Vista High School
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CAFE	Corporate Average Fuel Economy
CalEEMod	California Emissions Estimator Model
CALGreen	California Green Building Standards Code
Caltrans	California Department of Transportation
CAP	Climate Action Plan
CARB	California Air Resources Board
CCR	California Code of Regulations
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CFC	chlorofluorocarbon
CH_4	methane
City	City of Chula Vista
CMP	Congestion Management Program
CNEL	community noise equivalent level
CNRA	California Natural Resources Agency
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
County	County of San Diego
CPUC	California Public Utilities Commission
CVMC	Chula Vista Municipal Code
dB	decibel
dBA	A-weighted decibel
District	Sweetwater Union High School District
DPM	diesel particulate matter
DSA	Division of the State Architect
DTSC	Department of Toxic Substances Control
EIA	U.S. Energy Information Administration
EIR	environmental impact report
EISA	Energy Independence and Security Act of 2007
EO	Executive Order
EPA	U.S. Environmental Protection Agency
EV	electric vehicle
FAA	Federal Aviation Administration
FTA	Federal Transit Administration

Acronym/Abbreviation	Definition
GHG	greenhouse gas
GWP	global warming potential
HFC	hydrofluorocarbon
HRA	Health Risk Assessment
Hz	Hertz
ips	inches per second
kWh	kilowatt-hours
LCFS	Low Carbon Fuel Standard
L_{dn}	day/night equivalent sound level
L_{eq}	equivalent continuous sound level
LOS	level of service
LUT	Land Use and Transportation
MM	Mitigation Measure
MMRP	Mitigation Monitoring and Reporting Program
MMT	million metric tons
mPa	micro-Pascal
mpg	miles per gallon
mph	miles per hour
MRZ	Mineral Resource Zone
MSCP	Multiple Species Conservation Program
MT	metric tons
MTS	Metropolitan Transit System
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NHTSA	National Highway Traffic Safety Administration
NO_2	nitrogen dioxide
NO_x	oxides of nitrogen
NOP	Notice of Preparation
O_3	ozone
OEHHA	Office of Environmental Health Hazard Assessment
OSHA	Occupational Safety and Health Administration
PA	public address
PDF	project design feature
PFC	perfluorocarbon
PM_{10}	particulate matter with an aerodynamic diameter equal to or less than 10 microns
$PM_{2.5}$	particulate matter with an aerodynamic diameter equal to or less than 2.5 microns
PPV	peak particle velocity
PRC	California Public Resources Code
project	Bonita Vista High School Track and Field Project
RAQS	Regional Air Quality Strategy
RFS	renewable fuel standard
RPS	Renewable Portfolio Standard

Acronym/Abbreviation	Definition
RTP	Regional Transportation Plan
RWQCB	Regional Water Quality Control Board
SANDAG	San Diego Association of Governments
SB	Senate Bill
SCIC	South Coastal Information Center
SCS	Sustainable Communities Strategy
SDAB	San Diego Air Basin
SDAPCD	San Diego Air Pollution Control District
SDG&E	San Diego Gas and Electric
SF_6	sulfur hexafluoride
SIP	State Implementation Plan
SLCP	short-lived climate pollutant
SO_2	sulfur dioxide
SPL	sound pressure level
SR	State Route
TAC	toxic air contaminant
VOC	volatile organic compound
ZEV	zero-emissions vehicle

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EXECUTIVE SUMMARY

ES.1 INTRODUCTION

This Environmental Impact Report (EIR) was prepared by the Sweetwater Union High School District (District) to address the potential significant environmental effects associated with construction and operation of the proposed Bonita Vista High School Track and Field Project (project) in the Sweetwater Union High School District. An EIR must contain a brief summary of the proposed project and its consequences in accordance with the California Environmental Quality Act (CEQA) and the 2019 State CEQA Guidelines (CEQA Guidelines). CEQA Guidelines Section 15123 requires that the summary identify each significant effect, the recommended mitigation measures, and the alternatives that would reduce or avoid the project's significant impacts on the environment. The summary also identifies "areas of controversy," including issues raised by public agencies and the public, and "issues to be resolved," including the choice among alternatives and whether or how to mitigate the significant impacts of the proposed project. This Executive Summary is intended to provide a brief description of the proposed project and its potential environmental impacts pursuant to CEQA and the CEQA Guidelines.

ES.1.1 Project Summary

The District proposes the Bonita Vista High School Track and Field Project on the existing Bonita Vista High School campus within the City of Chula Vista. The proposed project would involve the following components, which are presented separately and discussed in greater detail in the Chapter 3, Project Description, of this EIR:

- Installation of a new lighting system at the Bonita Vista High School (BVHS) football field that would consist of four 80-foot- to 90-foot-tall galvanized steel (or similar) poles (S1, S2, S3, and S4) that would be installed on the home and visitors side of the BVHS football field (i.e., two poles would be installed on each field side). LED luminaires would be installed on each pole at a mounting height of 90 feet and 25 feet. Specifically, S1 and S2 each have 6 LED 1200 and 10 LED 900 at 80 feet, 1 LED 400 at 60 feet, and 2 BT 575 at 16 feet. S3 and S4 each have 12 LED 1500 at 90 feet, 2 LED 400 at 75 feet, and 2 BT 575 at 25 feet.~~More specifically, 16 TLC (Total Lighting Control) LED 1150 fixtures (1,150 watts each fixture) would be installed at a 90-foot mounting height on the poles. In addition, one TLC LED 1150 fixture would be installed at a 25-foot mounting height on each pole. An electrical components enclosure would also be affixed to each pole and poles would be installed into the ground and anchored in place by a precast concrete base.~~
- Installation of a public address (PA) system that would consist of speakers on each lighting pole (for a total of four) and four 3,000-watt speakers installed on a proposed press box

structure. The press box would be a design component with the proposed bleacher system (see below)~~, and height would range between 10 and 20 feet off the ground~~. The press box would be located centrally along the top level of the home side bleachers. ~~Two~~ One of the speakers would be open and ~~two~~ three would be enclosed. ~~Two of the speakers would be aimed across the field toward the visitor's bleacher and two would be aimed toward the home bleachers.~~ There would be three intercom speakers on the west/north/east exterior of the concessions building (one per side).

Along with the components above, the District would complete a number of replacements, upgrades and improvements to BVHS's existing eastern athletic field. These components include replacement of the existing natural turf surface athletic field and dirt surface track with a synthetic grass system and an all-weather track surface; replacement of the existing permanent bleacher system (capacity for approximately 760 spectators) with new permanent steel bleachers (capacity for ~~2,000~~1,400 spectators on the home bleacher side and ~~1,000~~600 spectators on the visitor's bleacher side); and a point of entry plaza at the southern end of the existing football field that would include new ~~concrete and concrete paver areas,~~ and handicap-~~-~~accessible ramps and stairs with hand railing, irrigated ~~tree and shrub~~ landscape areas, and a new ~~ticket booth, and a~~ concessions and restroom building/ticket booth.

~~With the exception of the proposed lighting system and PA and speaker system, the components described above have received approval from the Department of General Services (Division of the State Architect).~~

In addition to the upgrades to the athletic facilities, the proposed project would include an increase in the facilities' frequency of use as a result of the increased availability afforded by the new, previously unavailable nighttime field lighting capabilities. For example, under current conditions, evening football games are held off-campus at nearby Southwestern College. The proposed nighttime lighting would accommodate regular use of the athletic field for games, practices, and events held after sunset.

ES.1.1.1 Project Location

The proposed project site is located in the City of Chula Vista, and encompasses one parcel (APN 5941302600). Specifically, the site is located at the northeast intersection of East H Street and Otay Lakes Road, within the jurisdictional boundaries of the City of Chula Vista and the County of San Diego. The project site is bound on the north and east by a residential community, on the south by East H Street, and on the west by Otay Lakes Road. Local access to the site is provided off of Otay Lakes Road and East H Street.

The project area is within the existing BVHS campus boundary. Bonita Vista High School is a public, 4-year (grades 9–12) high school located in the City of Chula Vista, California. The approximate 8.5-acre project site consists of the existing natural turf football field, dirt track and pole vault facilities, and permanent steel bleachers (capacity for approximately 760 spectators). In addition to fencing and landscaping, several modular one-story structures are included in the 8.5-acre site. Lastly, the project site extends to the south and west of the football field and encapsulates a portion of the campus's South Parking Lot.

BVHS is surrounded by residential land uses to the north and east, commercial uses to the west, and commercial and residential uses to the south.

ES.1.2 Summary of Significant Effects and Mitigation Measures that Reduce or Avoid Significant Effects

This EIR was prepared to assess the potentially significant effects on the environment that could result from implementation of the proposed project and its mitigation measures, which could be implemented to reduce impacts to less than significant. The EIR must also identify any impacts that cannot be mitigated. Pursuant to CEQA, a summary of the proposed project's potential impacts and recommended mitigation measures is provided in Table ES-1, below. The table also identifies the level of significance of each impact after implementation of the recommended mitigation measures.

Based on the data and conclusions of the EIR, implementation of the proposed project would not result in significant and unavoidable impacts~~ related to operational noise~~. The proposed project's impacts for all ~~other~~ issue areas were determined to be no impact or less than significant impact ~~without~~ with mitigation.

ES.1.3 Areas of Known Controversy

The CEQA Guidelines Section 15123(b)(2) requires that areas of controversy known to the lead agency, including issues raised by agencies and the public, be identified in the Executive Summary of the EIR. To determine the scope and extent of the environmental topics to be addressed in the Draft EIR, the District prepared a Notice of Preparation (NOP) dated October 28, 2016, and circulated it to interested public agencies, organizations, and individuals to receive input on the proposed project. A copy of the NOP is provided in Appendix A. Responses to the NOP received during the public scoping period expressed concern about increased lighting and glare in the project area, increased traffic and noise associated with nighttime use of the BVHS athletic fields, firework displays, and public safety during events. These concerns are addressed in Section 4.1, Aesthetics; Section 4.5~~2~~, Noise; Section 4.6~~3~~, Transportation and Traffic; and Chapter 5, Effects Not Found To Be Significant. In addition, Section 4.2, Air Quality; Section 4.3, Energy; Section 4.4, Greenhouse Gas Emissions; and Section 4.7, Tribal Cultural Resources, have been included in this Revised Draft EIR.

ES.1.4 Issues to Be Resolved by Decision-Making Body

~~As discussed in detail in Section 4.2, significant and unavoidable impacts to noise (operational) would occur as a result of implementation of the proposed project.~~ The District's Governing Board must review the project and determine if the proposed project, or one of the alternatives presented in Chapter 8, Alternatives, or some combination of the project components, should be adopted and implemented. If the proposed project is selected for adoption, the District's Governing Board will be required to certify the Final EIR, determine whether and how to mitigate significant impacts, and adopt associated findings (CEQA Guidelines Section 15091) for all significant impacts within the EIR. ~~Furthermore, a Statement of Overriding Considerations pursuant to CEQA Guidelines Section 15093 will be required for all impacts found to be significant and unavoidable.~~

ES.1.5 Project Alternatives

CEQA requires analysis of reasonable alternatives to a project that could potentially mitigate or avoid significant environmental impacts of the project while meeting the basic objectives of the project. Such an analysis should include the No Project Alternative to enable the District to weigh the advantages and disadvantages of proceeding with the proposed project. The following alternatives were considered for this EIR:

- No Project/No Build Alternative
- No Project – No Lighting and Amplification Alternative
- Relocated Alternative
- Lowered Field Elevation Alternative

ES.1.6 Mitigation Monitoring and Reporting Program

A Mitigation Monitoring and Reporting Program (MMRP) was prepared in accordance with Section 21081.6 of CEQA. The MMRP will be adopted by the District if the proposed project is approved. The MMRP will ensure compliance with the mitigation measures adopted by the District.

Table ES-1
Summary of Significant Impacts

Impact	Recommended Mitigation Measure	Level of Significance After Mitigation
4.5~~2~~ Noise: Construction		
Due to the proximity of construction activities to some off-site receptors (as close as 30 feet away) and the	**MM-NOI-1:** Prior to construction, the applicant shall implement the following construction noise management plan (CNMP) that establishes construction activity	Less than Significant

Table ES-1
Summary of Significant Impacts

Impact	Recommended Mitigation Measure	Level of Significance After Mitigation
duration sensitivity of predicted compliance with the FTA guidance-based 8-hour construction noise level threshold, there is potential that elevated construction noise levels may cause an annoyance to nearby sensitive receivers to the east.~~Construction activities would take place approximately 100 feet from the nearest school building, and as near as 10 to 15 feet from the closest existing residences. When excavation, grading, and construction of the visitor bleachers are occurring adjacent to the single-family residential homes to the west of the site, activities would likely be within 50 feet of the residential properties. Given the magnitude of the temporary increase in noise and vibration levels from project construction, this would be considered a potentially significant short-term impact absent mitigation.~~	restrictions in order to reliably achieve compliance with the Federal Transit Administration (FTA) 8-hour 80 dBA L_{eq} standard at the project property lines adjoining existing occupied properties to the west that are as close as 30 feet to the anticipated project construction activities. Components of the CNMP include the following: a. Potentially affected property owners shall be notified prior to construction activity within 100 feet of their property boundaries. b. The project applicant or its construction contractor shall make available a telephone hotline so that concerned neighbors in the community may call to report noise complaints. The CNMP shall include a process to investigate these complaints and, if determined to be valid, detail efforts to provide a timely resolution and response to the complainant, with a copy of resolution provided to the City of Chula Vista planning department. c. Duration and distances of mobile and stationary operating equipment involved in project construction shall comply with the following limitations by indicated phase: i. Demolition – Concrete Saw, Excavator, Dozer: • within 30 feet – not permitted • 30 to 50 feet – no more than 2 hours per 8-hour period • 50 to 75 feet – no more than 5 hours per 8-hour period • 75 to 90 feet – no more than 7 hours per 8-hour period • beyond 90 feet – no restriction ii. Site Preparation– excavator: • within 15 feet – not permitted • 15 to 30 feet – no more than 2 hour per 8-hour period • 30 to 50 feet – no more than 6 hours per 8-hour period • beyond 50 feet – no restriction iii. Grading– Excavator, Grader, Dozer, Backhoe: • within 30 feet – not permitted • 30 to 60 feet – no more than 1 hour per 8-hour period	

Table ES-1
Summary of Significant Impacts

Impact	Recommended Mitigation Measure	Level of Significance After Mitigation
	• 60 to 90 feet – no more than 4 hours per 8-hour period • beyond 90 feet – no restriction iv. Construction of Concessions & Restrooms– Manlift, Generator, Backhoe, Welder: • within 10 feet – not permitted • 10 to 30 feet – no more than 6 hour per 8-hour period • 30 to 40 feet – no more than 8 hours per 8-hour period • beyond 40 feet – no restriction v. Replacement of Track 1– Manlift, Generator, Backhoe, Welder: • within 10 feet – not permitted • 10 to 30 feet – no more than 6 hour per 8-hour period • 30 to 40 feet – no more than 8 hours per 8-hour period • beyond 40 feet – no restriction vi. Replacement of Turf Fields– Manlift, Generator, Backhoe, Welder: • within 10 feet – not permitted • 10 to 30 feet – no more than 6 hour per 8-hour period • 30 to 40 feet – no more than 8 hours per 8-hour period • beyond 40 feet – no restriction vii. Replacement of Track 2– Manlift, Generator, Backhoe, Welder: • within 10 feet – not permitted • 10 to 30 feet – no more than 6 hour per 8-hour period • 30 to 40 feet – no more than 8 hours per 8-hour period • beyond 40 feet – no restriction viii. Installation of Bleachers/Lighting/Other– Crane, Manlift, Generator, Backhoe, Welder: • within 10 feet – not permitted • 10 to 30 feet – no more than 4 hour per 8-hour period • 30 to 40 feet – no more than 7	

Table ES-1
Summary of Significant Impacts

Impact	Recommended Mitigation Measure	Level of Significance After Mitigation
	hours per 8-hour period • beyond 40 feet – no restriction ix. Paving 1– Concrete Mixer Truck, Roller, Paver: • within 15 feet – not permitted • 15 to 30 feet – no more than 3 hour per 8-hour period • 30 to 40 feet – no more than 7 hours per 8-hour period • beyond 40 feet – no restriction x. Paving 2– Concrete Mixer Truck, Roller, Paver: • within 15 feet – not permitted • 15 to 30 feet – no more than 3 hour per 8-hour period 30 to 40 feet – no more than 7 hours per 8-hour period ~~•~~ beyond 40 feet – no restriction~~Construction equipment shall be properly outfitted and maintained with feasible noise-reduction devices to minimize construction-generated noise~~**~~MM-NOI-2:~~** ~~Stationary noise sources such as generators or pumps shall be located not less than 100 feet away from noise-sensitive land uses, as feasible.~~ **~~MM-NOI-3:~~** ~~Laydown and construction vehicle staging areas shall be located not less than 100 feet away from noise-sensitive land uses, as feasible.~~ **~~MM-NOI-4:~~** ~~Loud demolition or site preparation activity (e.g., jackhammering, concrete sawing, asphalt removal, and large-scale grading operations) within 100 feet of a residential or academic building shall be conducted to commence not earlier than 7:30 a.m. (Monday through Friday) or 8 a.m. (Saturday and Sunday) nor continue past 7 p.m.~~ **~~MM-NOI-5:~~** ~~Loud construction activity within 100 feet of a residential or academic building shall be restricted to occur between 7:30 a.m. and 7 p.m., Monday through Friday, and~~	

Table ES-1
Summary of Significant Impacts

Impact	Recommended Mitigation Measure	Level of Significance After Mitigation
	~~8 a.m. and 7 p.m., Saturday and Sunday.~~ ~~**MM-NOI-6:** Electrically powered equipment shall be used instead of pneumatic or internal combustion powered equipment, where feasible.~~ ~~**MM-NOI-7:** Construction site and access road speed limits shall be established and enforced during the construction period.~~ ~~**MM-NOI-8:** The use of noise-producing signals, including horns, whistles, alarms, and bells, shall be for safety warning purposes only.~~ ~~**MM-NOI-9:** Construction hours, allowable workdays, and the phone number of the job superintendent shall be clearly posted at all construction entrances to allow surrounding property owners to contact the job superintendent. The on-site construction supervisor shall have the responsibility and authority to receive and resolve noise complaints. A clear appeal process to the school district shall be established prior to construction commencement that would allow for resolution of noise problems that cannot be immediately solved by the site supervisor.~~ ~~**MM-NOI-10:** Equipment shall not be left idling unless necessary.~~ ~~**MM-NOI-11:** Avoid the operation of heavy bull dozers and compactors within 25 feet of the residential/ school property line along the east side of the project site in order to avoid off-site vibration impacts.~~ ~~**MM-NOI-12:** The project contractor shall, to the extent feasible, schedule construction activities to minimize the simultaneous operation of construction equipment so as to reduce noise levels resulting from operating several pieces of high-noise-level equipment at the same time.~~	
4.52: Noise: Operations		
Without sound barriers, noise levels would generally exceed the maximum exterior noise levels established by the City's Municipal Code and as such, noise generated by project operations would be a potentially significant long-term impact.~~Based on the measurements~~	~~**MM-NOI-13:** Optimize the placement of speakers within the spectator stands for the home and visitor seating to achieve the lowest possible sound levels to achieve intelligible announcements during each sporting event.~~ **MM-NOI-2:** The installation of a permanent sound barrier (to mitigate noise emission from school-hosted events to the neighboring residential community to the east) shall be	Less than Significant ~~and Unavoidable~~

Table ES-1
Summary of Significant Impacts

Impact	Recommended Mitigation Measure	Level of Significance After Mitigation
~~recorded in the study area and a lack of topography or other barriers adjacent to the project site, noise from sports events (specifically football games) and band practices occurring once the proposed project is complete may be at least 60 dBA. This noise level would exceed the maximum exterior noise levels established by the City of Chula Vista's Municipal Code, and, as such, noise generated by project operations would be a potentially significant long-term impact.~~	as depicted or acoustically equivalent to those shown in Appendices C and D. It is intended to be a 4-foot-tall barrier behind the visitor bleachers top-most seating bench (or mounted on the top of the retaining wall behind the visitor bleachers, subject to final project design considerations). The sound reducing barrier should feature the following characteristics: • Constructed of solid (but possibly flexible, such as a mass-loaded vinyl fencing upgrade) materials, either single-wall or comprising multiple layers, with effective minimum sound transmission class (STC) of 20; and, • Minimized cracks and air gaps, by way of overlap or edge contact, where barriers comprise adjacent vertical panels or comparable separate elements. Sweetwater Union High School District or its contractor shall retain the services of a qualified acoustical consultant to review the final design and intended placement of barriers prior to construction. **MM-NOI-3:** Placement of public address (PA) speakers shall be as depicted/defined or acoustically equivalent to those in Appendices C and D, with sound emission levels per each of the three single speakers (or combinations of multiple units or arrays) electronically controlled to limit sound power to the lower of the following levels: • sound power values presented herein for the studied scenarios; or, • at a minimum level to provide adequate signal-to-noise ratio that enables intelligible announcements during each hosted sporting event. Sweetwater Union High School District or its contractor shall retain the services of a qualified acoustical consultant and/or audio engineering professional to review the final design and performance specification of the PA system speakers and controllers, and verify that amplified speech and public safety announcements should be at levels considered intelligible to visiting spectators and compliant with the sound power limits described herein. **MM-NOI-~~1~~4:** The public address system for the athletic fields/stadium shall not be operated later than 10:00 p.m.	

Table ES-1
Summary of Significant Impacts

Impact	Recommended Mitigation Measure	Level of Significance After Mitigation
	MM-NOI-15: Activities and other events involving substantial numbers of spectators hosted at the athletic fields / stadium shall conclude no later than 10:00 p.m. (when the allowable noise level drops by ~~ten (~~10~~)~~ A-weighted decibels equivalent continuous sound level per hour ~~(dBA_ LEQ hour)~~. **MM-NOI-16:** Air horns, sirens, ~~loud whistles,~~ [SK1]and other devices for noise making shall be prohibited from use at the athletic fields-/-stadium. **MM-NOI-17:** Prior to the commencement of each new semester, Sweetwater Union High School ~~the~~ District shall publish the schedule for events to be hosted at the athletic fields / stadium, providing notification to the adjacent neighbors regarding the availability of the schedule. The schedule may be published on the school web-site, with mailed or emailed notice to the neighbors with the web address. ~~**MM-NOI-18:** Band practices shall not be permitted on the new athletic field. Band practices shall continue to be held on the southern parking lot of the BVHS campus.~~	
	4.7, Tribal Cultural Resources (Construction)	
If grading, trenching and/or other ground-disturbing activity were to occur within native, undisturbed soils, impacts to tribal cultural resources would be potentially significant.	**MM-TCR-1:** A Native American monitor shall be present for project-related ground disturbing activities that occur within undisturbed native sediments. The monitor shall have the authority to redirect or stop work in the event of the discovery of a tribal cultural resource. If a tribal cultural resource is discovered, construction activities shall be stopped within 50 feet of the discovery until Sweetwater Union High School District can determine treatment measures, in consultation with consulting tribe(s).	Less than Significant

CHAPTER 1
INTRODUCTION

1.1 PURPOSE AND SCOPE OF THIS ENVIRONMENTAL IMPACT REPORT

An Environmental Impact Report (EIR) is an informational document that "will inform the public agency decision-makers and the public generally of the significant environmental effects of a project, identify possible ways to minimize the significant effects, and describe reasonable alternatives to the project" (Section 15121 of the California Environmental Quality Act (CEQA) Guidelines) (14 California Code of Regulations (CCR) 15000 et seq.). The purpose of this EIR is to analyze the potential environmental effects associated with development and operation of the proposed Bonita Vista High School (BVHS) Track and Field Project (project).

This BVHS Track and Field Project EIR is a project-level EIR. As stated in CEQA Guidelines Section 15161, a project EIR "should focus primarily on the changes in the environment that would result from the development project. The EIR shall examine all phases of the project including planning, construction and operation." Since specific project details, including details of overall planning, construction, and operation, are known at this time, a project level of analysis is appropriate. This EIR identifies and evaluates the potentially significant impacts that would result from implementation of the proposed project. This EIR is intended for use by both decision-makers and the public. It provides relevant information concerning the potential environmental impacts associated with construction and operation of the proposed track and field project.

As proposed, the Sweetwater Union High School District (District) would implement a number of replacements, upgrades, and improvements on Bonita Vista High School's existing athletic fields. Improvements would include replacement of the track with synthetic materials, replacement of the natural turf with artificial turf, additional stadium seating, a new ~~ticket booth~~concessions and restroom building, an ADA accessible entrance, a new public address (PA) and speaker system, and a new stadium lighting system to allow for sports games and other events to be held in the evening. Currently, football and other nighttime events are held across the street at the Southwestern College campus stadium. All other schools in the District have stadium lighting, and the community desires to have ~~equal~~ comparable amenities at BVHS.

As the designated lead agency, the District has assumed responsibility for preparing this document. The decision to implement the proposed project is within the purview of the District's Governing Board. When deciding whether to approve the proposed action, the Governing Board will use the information provided in this EIR to consider potential impacts to the physical environment associated with the project. The Governing Board will consider all written comments received on the Draft EIR during the 45-day public review period in making its decision whether to certify the

EIR as complete and in compliance with CEQA, and in making its determination whether to approve or deny the project. In the final review of the document, environmental considerations and economic and social factors will be weighed to determine the most appropriate course of action.

Agencies other than the District may use this EIR. According to CEQA, responsible agencies are those agencies that have discretionary approval over one or more action involved with development of the project. For the proposed project, this would include the San Diego Regional Water Quality Control Board.

Subsequent to certification of the Final EIR, agencies with permitting authority over all or portions of the project will use the Final EIR as the basis for their evaluation of environmental effects related to the project and for approval or denial of applicable permits. This EIR will be used in considering approval of the following discretionary actions necessary for implementation of the proposed project:

- The San Diego Regional Water Quality Control Board may use the Final EIR to approve a storm water pollution prevention plan.

Additional information regarding required permits and approvals is detailed in Section 3.5, Discretionary Actions, of this EIR.

1.2 CEQA REQUIREMENTS

1.2.1 CEQA Compliance

CEQA (California Public Resources Code, Section 21000 et seq.) requires preparation and certification of an EIR for any project that a lead agency determines may have a significant effect on the environment. According to Section 21002.1(a) of the CEQA statutes, "The purpose of an environmental impact report is to identify the significant effects on the environment of a project, to identify alternatives to the project and to indicate the manner in which those significant effects can be mitigated or avoided." CEQA also establishes mechanisms whereby the public and decision makers can be informed about the nature of the project being proposed, and the extent and types of impacts that the project and its alternatives would have on the environment if they were to be implemented.

This EIR was prepared in compliance with all criteria, standards, and procedures of the CEQA Guidelines (14 CCR 15000 et seq.) and pursuant to the District's environmental review procedures. This document was prepared as a project EIR pursuant to Section 15161 of the CEQA Guidelines, and represents the independent judgment of the District as lead agency (14 CCR 15050).

1.2.2 Notice of Preparation and Scoping

CEQA establishes mechanisms whereby the public and decision makers can be informed about the nature of the project being proposed and the extent and types of impacts that the project and its alternatives would have on the environment should the project or alternatives be implemented. Pursuant to Section 15082 of the CEQA Guidelines, the District circulated a Notice of Preparation (NOP) for the project on October 28, 2016. Public scoping meetings were conducted on November 17, 2016, in both the morning and evening, and the NOP public scoping period ended on November 29, 2016. A third project informational meeting was held on December 14, 2016.

Comments received during the NOP public scoping period were considered during preparation of this EIR. Based on the scope of the project as described in the NOP and comments received, the following issues were determined to be potentially significant, and are therefore addressed in Chapter 4, Environmental Analysis, of this document:

- Aesthetics
- Noise
- Transportation and Traffic

Additional CEQA-mandated environmental areas such as agriculture and forestry resources, air quality and greenhouse gas emissions, biological resources, cultural resources, geology and soils, hazards and hazardous materials, hydrology and water quality, land use, mineral resources, population and housing, public services, recreation, and utilities and service systems were found not to be significant. In addition, since the release of the Draft EIR in 2017, the CEQA Guidelines were revised and updated to include additional resources including energy resources and wildfire. These issues are addressed in Section 4.3, Energy, and Chapter 5, Effects Not Found to Be Significant, of this EIR. Other CEQA-mandated topics, such as cumulative impacts, growth inducement, alternatives, and significant irreversible changes, are addressed in subsequent sections.

Since the NOP was circulated in 2016, the project description has not been changed or modified in such a way that would potentially result in greater impacts than contemplated under the previous description. Further, the existing setting of the proposed project, including the project site and surrounding project area, remain largely the same, with the exception of cumulative projects, which are in various stages of implementation at Southwestern College and which have been addressed through the Southwestern College Master Plan. These projects are addressed in Chapter 6, Cumulative Effects.

1.2.3 Draft EIR

The proposed project Draft EIR was circulated for public review between July 19, 2017, and September 2, 2017. During that time, comments were received regarding noise and lighting. The project and Final EIR were placed on hold and remained so until fall 2019, when new architects and engineer/landscape architects redesigned the project, as described in Chapter 3, Project Description. As a result, the proposed project has been revised and this Recirculated Draft EIR prepared noting changes to the proposed project and analyzing impacts in accordance with CEQA.

In accordance with CEQA Guidelines, Section 15088.5, "When recirculating a revised EIR, either in whole or in part, the lead agency shall, in the revised EIR or by an attachment to the revised EIR, summarize the revisions made to the previously circulated draft EIR." The following provides a summary of the revisions made to the previously circulate draft EIR. The revisions are presented herein in strikeout/underline format for ease of reference.

Chapter 3, Project Description – The project description has been revised to reflect the revised plans for the Bonita Vista Track and Field improvements. These changes include a reduction in the total attendees from 3,000 to 2,000, a reduction in the scope of improvements to the concessions/ticket booth and restroom areas, and improvements to the parking lot field. Please refer to Table 3-1 for a summary of the project changes.

Section 4.1, Aesthetics – Section 4.1 has been revised to address the revised project design, including the revised lighting plan, project configuration, and reduced capacity.

Section 4.2, Air Quality – Section 4.2 has been added to the Recirculated Draft EIR to provide a complete analysis of the proposed project's potential impacts to air quality. This section is new but has not been shown in strikeout/underline.

Section 4.3, Energy - Section 4.3 has been added to the Recirculated Draft EIR to provide a complete analysis of the proposed project's potential impacts to energy. This section is new but has not been shown in strikeout/underline.

Section 4.4, Greenhouse Gas Emissions – Section 4.4 has been added to the Recirculated Draft EIR to provide a complete analysis of the proposed project's potential impacts to greenhouse gas emissions. This section is new but has not been shown in strikeout/underline.

Section 4.5, Noise – Section 4.5 has been revised to analyze the redesigned project, which includes a reduced capacity and reconfigured speakers.

Section 4.6, Transportation – Section 4.6 has been revised to address the 2018 CEQA Appendix G Guidelines related to vehicle miles traveled.

Section 4.7, Tribal Cultural Resources – Section 4.7 has been added to address the 2018 CEQA Appendix G Guidelines related to tribal cultural resources. This section is new but has not been shown in strikeout/underline.

Chapter 5, Effects Found Not to be Significant – Chapter 5 has been updated to address the 2018 CEQA Appendix G guidelines. New guidelines were added for wildfire, which are addressed in Section 5.13. Changes to guidelines related to biological resources, cultural resources, geology and soils, hazards and hazardous materials, hydrology and water quality, land use and planning, population and housing, and utilities and services systems were determined to not result in any new or further environmental impacts.

Chapter 6, Cumulative Effects – Section 6 has been updated to include additional cumulative projects at Southwestern College, southwest of the project site.

1.3 OVERVIEW OF EIR PROCESS

This Recirculated Draft EIR has been made available to members of the public, agencies, and interested parties for a 45-day public review in accordance with CEQA Guidelines Sections 15088.5 and 15105. Public review of the Recirculated Draft EIR is intended to focus "on the sufficiency of the document in identifying and analyzing the possible impacts on the environment and ways in which the significant effects of the project might be avoided or mitigated" (14 CCR 15204). The Notice of Completion of the Recirculated Draft EIR has been filed with the State Clearinghouse as required by CEQA Guidelines Section 15085.

In addition, the Notice of Availability of the Recirculated Draft EIR was distributed pursuant to CEQA Guidelines Section 15087. This EIR is available for review during the 45-day public review period ~~at~~ on the District ~~office~~website at http://www.sweetwaterschools.org., ~~the Bonita Vista High School office, and the following locations:~~

~~Chula Vista Public Library – Otay Ranch Branch~~

~~2015 Birch Road, Suite 409~~

~~Chula Vista, California 91915~~

~~County of San Diego Library – Bonita-Sunnyside Branch~~

~~4375 Bonita Road~~

~~Bonita, California 91902~~

~~During the public review period, the District will hold a meeting to provide the public an opportunity to comment on the Draft EIR. All members of the public and interested persons are welcome to attend and present their concerns. The address, date, and time of this meeting are as follows:~~

~~**Date:** August 17, 2017~~

~~**Time:** 6:00 p.m.~~

~~**Place:** Sweetwater Union High School District Board Room (1130 Fifth Avenue, Chula Vista, California 91911)~~

Once the 45-day public review period has concluded, the District will review all public comments on the Recirculated Draft EIR (including comments on both the 2017 Draft EIR and Recirculated Draft EIR), provide a written response to comments, and authorize revisions to the Recirculated Draft EIR text, if necessary. The final Mitigation Monitoring and Reporting Program will be incorporated into the Final EIR, and will include monitoring team qualifications, specific monitoring activities, a reporting system, and criteria for evaluating the success of the mitigation measures. Mitigation measures contained in the EIR will be developed in consideration of future monitoring requirements, and will be written in sufficient detail to address impacts of the proposed project, referencing the appropriate implementing permits such as grading permits, final maps, and landscape plans. The Final EIR will include all comment letters received, the final response to comments, a Final EIR preface, and, if applicable, edits made to the EIR as a result of public review. The Governing Board will then make decisions concerning certification of the Final EIR, Findings and Statement of Overriding Considerations, and adoption of a Mitigation Monitoring and Reporting Program.

1.4 AREAS OF KNOWN CONTROVERSY

Responses to the NOP received during the public scoping period expressed concern about increased lighting and glare in the project area, and increased traffic and noise associated with nighttime use of the BVHS athletic fields. These concerns are addressed in Section 4.1, Aesthetics; Section ~~4.2~~4.5, Noise; and Section ~~4.3~~4.6, Transportation and Traffic.

1.5 ORGANIZATION AND CONTENT OF THIS EIR

This EIR is organized to provide a comprehensive project analysis of the potentially significant environmental impacts, mitigation measures, and alternatives for the proposed project. To describe the direct, indirect, and cumulative impacts; mitigation measures; and alternatives for the proposed project, this EIR is organized as follows:

- An Executive Summary of the EIR is provided at the beginning of this document. This summary outlines the conclusions of the environmental analysis and identifies alternatives analyzed in the EIR. This section also includes a table summarizing all environmental impacts identified in this EIR, along with the associated mitigation measures proposed to reduce or avoid each impact.
- Chapter 1, Introduction, serves as a forward to this EIR, introducing the project, the applicable environmental review procedures, and the format of the EIR.
- Chapter 2, Environmental Setting, describes the project location and physical environmental setting in and around which the proposed project is situated.
- Chapter 3, Project Description, provides a thorough description of the proposed project elements, the purpose and need for the project, project objectives, and required discretionary approvals.
- Chapter 4, Environmental Analysis, provides a project-level analysis of the potentially significant environmental impacts identified for the proposed project, and proposed mitigation measures to reduce or avoid any potentially significant impacts.
- Chapter 5, Effects Not Found to Be Significant, addresses environmental areas for which no significant impacts were identified.
- Chapter 6, Cumulative Effects, discusses the cumulative impacts of the project in combination with the impacts of other projects in the vicinity.
- Chapter 7, Other CEQA Requirements, addresses significant environmental effects that cannot be avoided, the significant irreversible environmental changes that would result from implementation of the proposed project, and growth-inducing impacts associated with the proposed project.
- Chapter 8, Alternatives, discusses alternatives to the proposed project, including a No Project Alternative.
- Chapter 9, Mitigation Monitoring and Reporting Program, details monitoring team qualifications, specific monitoring activities, a reporting system, and success criteria for the mitigation measures proposed in Chapter 4.
- Chapter 10, List of Preparers, gives names and contact information of those responsible for writing this EIR.
- Appendices include various technical studies and correspondence prepared for the proposed project, as listed in the Table of Contents.

The District, as the designated lead agency for the proposed project, is responsible for implementing mitigation measures that are required by the proposed project. In addition, the District is responsible for enforcing and verifying that each mitigation measure is implemented as required.

CHAPTER 2
ENVIRONMENTAL SETTING

In accordance with Section 15125 of the California Environmental Quality Act (CEQA) Guidelines (14 CCR 15000 et seq.), this chapter provides a description of the general environmental setting for the project area, including existing site conditions and land uses, and surrounding land uses at the time the Notice of Preparation was published. Detailed environmental setting descriptions for each environmental issue area are provided in Chapter 4, Environmental Analysis, of this Environmental Impact Report (EIR).

2.1 LOCATION

The proposed Bonita Vista High School Track and Field Project (project) site is located in the City of Chula Vista, California, and encompasses one parcel (APN 5941302600). Specifically, the site is located at the northeast intersection of East H Street and Otay Lakes Road within the jurisdictional boundaries of the City of Chula Vista and the County of San Diego. The project site is bound on the north and east by a residential community, on the south by East H Street, and on the west by Otay Lakes Road. Otay Lakes Road and East H Street provide local access to the site. See Figure 2-1, Regional Map, and Figure 2-2, Vicinity Map, for regional and local maps of the project site and surrounding area.

The project area is within the existing Bonita Vista High School (BVHS) campus boundary, and the project site consists of the football field and surrounding track and permanent bleachers. As an existing athletic facility, the project site has been entirely previously disturbed and developed. Figure 2-3, BVHS Campus Boundary, depicts the BVHS campus boundary.

2.2 EXISTING SITE CHARACTERISTICS

2.2.1 Existing Conditions

BVHS is a public, 4-year (grades 9–12) high school located in the City of Chula Vista. The approximately 8.5-acre project site consists of the existing natural turf football field, dirt track and pole vault facilities, and permanent steel bleachers (capacity for approximately 760 spectators). In addition to fencing and landscaping, several modular one-story structures are included on the 8.5-acre site. Lastly, the project site extends to the south and west of the football field and encapsulates a portion of the campus's South Parking Lot.

2.3 REGIONAL SETTING AND SURROUNDING LAND USES

BVHS and the project site are located within the City of Chula Vista and southern San Diego County (see Figure 2-1, Regional Map). BVHS is surrounded by residential land uses to the north and east, commercial uses to the west, and commercial and residential uses to the south. A series of canyons, including Bonita Long Canyon, mark the landscape located to the north and northwest of BVHS. Bonita Long Canyon acts as a barrier between BVHS and residential neighborhoods on the southern edge of the canyon and residential neighborhoods on the northern edge of the canyon. In addition to a small strip commercial retail center featuring fast food and professional services, a church and single-family residences are located to the south of BVHS across East H Street. A neighborhood commercial retail center anchored by a Ralph's grocery store and Rite-Aid pharmacy and a two-story multi-family apartment complex are located to the west across Otay Lakes Road. Discovery Park, an approximate 20-acre neighborhood park featuring ball fields, open green space, picnic areas, restrooms, and a soccer field, is located immediately east of the Ralph's and Rite-Aid shopping center. Southwestern College, a public 2-year community college situated on a 150-acre campus, is located southwest of BVHS, across the East H Street and Otay Lakes Road intersection. In addition to classroom, administrative, and library facilities, Southwestern College has a large football stadium (i.e., DeVore Stadium). DeVore Stadium features a press box, locker room with weight room facilities, descending concrete seating, and a synthetic turf surface field with stadium lighting. The lighting system consists of six tall stadium light poles with pole-top luminaire assemblies supporting two banks of five general purpose and high-powered light emitting diode (LED) flood lamp fixtures (10 lamps each pole).

Figure 2-4, Surrounding Land Uses, depicts the project site and land uses in the surrounding area.

2.4 APPLICABLE GENERAL PLANS AND REGIONAL PLANS

Section 15125(d) of the CEQA Guidelines requires that an EIR include a discussion of any inconsistencies between the proposed project and applicable general plans and regional plans. Chapter 4, Environmental Analysis, of this EIR includes a discussion of the proposed project's consistency with applicable local and regional plans and policies within each issue area. Applicable plans and policies are summarized below.

2.4.1 Local Plans

2.4.1.1 City of Chula Vista

General Plan

BVHS is located in the City of Chula Vista's East Planning Area, and is designated for Public & Quasi-Public Use by the General Plan (City of Chula Vista 2005). According to the General Plan Land Use and Transportation Element, the Public & Quasi-Public land use designation is intended for schools, churches, hospitals, civic centers, fire stations, libraries, public utilities, and other public uses.

Figure 2-5 depicts the General Plan land use designation applied to BVHS and the surrounding area.

Zoning Ordinance

The City of Chula Vista (City) has zoned the BVHS property for Single-Family Residence Uses (R1). Pursuant to Chula Vista Municipal Code Section 19.24.020, principal permitted uses in the R-1 zone include one single-family dwelling unit on any lot, factory-built homes/mobile homes, and large family day care homes. Pursuant to Municipal Code Section 19.24.040(E), unclassified uses, including colleges, universities, private schools, and elementary and secondary public schools (see Municipal Code Section 19.54.020(D)), are permitted within the R-1 zone but are subject to conditional use permits.

Municipal Code

The City's noise regulations (Municipal Code Chapter 19.68) restrict land-use-related noise-generating activities and operations to help avoid noise nuisances in the community. Section 19.68.030 establishes the maximum allowable exterior noise limits based on the classification of the receiving land use. These standards typically apply to stationary sources, such as noise from mechanical equipment or event noise, as opposed to traffic noise. For instance, a school, commercial enterprise, or industrial operation must not generate noise that exceeds a certain specified noise level at any property boundary where an adjacent residential use exists. As a noise-receiving land use, single-family residential property maximum exterior noise exposure must not exceed 45 A-weighted decibels (dBA) (1-hour L_{eq}) from 10 p.m. to 7 a.m., and 55 dBA (1-hour L_{eq}) from 7 a.m. to 10 p.m. For multi-family residential, the exposure limits are 50 dBA (10 p.m.–7 a.m.) and 60 dBA (7 a.m.–10 p.m.). For commercial, the exposure limits are 60 dBA (10 p.m.–7 a.m.) and 65 dBA (7 a.m.–10 p.m.), and for light industry the exposure limits are 70 dBA (10 p.m.–7 a.m.) and 70 dBA (7 a.m.–10 p.m.). A-weighted sound level (dBA) means the sound level in decibels as measured on a sound meter using the A-weighting network. Equivalent sound level (L_{eq}) means the average sound level measured over a stated time period.

Chapter 17.28, Unnecessary Lights, of the City's Municipal Code provides "reasonable restrictions and limitations upon the use of lighting in or near the residential zones of the City so as to prevent lighting from creating a nuisance to residents within said residential zones." Regarding potential issues concerning lighting in or near residential areas, Section 17.28.010(D) states that "by virtue of its intensity, brightness, direction, duration and hours of operation, [lighting] can constitute a nuisance to adjacent residential dwellers."

2.4.2 Regional Plans

County of San Diego Light Pollution Code

The County of San Diego (County) establishes regulations pertaining to the minimization of lighting pollution and preservation of dark skies in Title 5, Chapter 2, Light Pollution, in the San

Diego County Code of Regulatory Ordinances (San Diego County Code of Regulatory Ordinances Sections 51.201–51.209). Sections 51.201 through 51.209 of the County Code are also collectively referred to as the Light Pollution Code. The regulations of the Light Pollution Code only apply to land uses and properties within the unincorporated portions of San Diego County; therefore, they are not requirements for the proposed project. However, in consideration of potential regional influences of lighting effects, these regulations are presented in this analysis and provide guidance for the analysis of potential effects to dark skies. Specifically, the County identifies Palomar Mountain and Mount Laguna observatories as valuable resources that should be protected from the effects of light pollution. Lamp type and shielding requirements for outdoor lighting fixtures are provided in the County's Outdoor Light Control Ordinance for the preservation of dark skies surrounding these resources within a 15-mile radius (Zone A) or outside of a 15-mile radius of the observatories (Zone B).

Water Quality Control Plan for the San Diego Basin

The U.S. Environmental Protection Agency has delegated responsibility for the implementation of portions of the Clean Water Act to the State Water Resources Control Board and the Regional Water Quality Control Boards (RWQCBs), including water quality control planning and control programs such as the National Pollutant Discharge Elimination System program. The National Pollutant Discharge Elimination System program is a set of permits designed to implement the Clean Water Act that apply to various activities that generate pollutants with potential to impact water quality.

The RWQCB adopted a Water Quality Control Plan for the San Diego Basin (Basin Plan) (RWQCB San Diego 2016). This Basin Plan sets forth water quality objectives for constituents that could potentially cause an adverse impact on the beneficial uses of water. The Basin Plan is designed to preserve and enhance the quality of water resources in the San Diego region. The purpose of the Basin Plan is to designate beneficial uses of the region's surface water and groundwater, designate water quality objectives for the reasonable protection of those uses, and establish an implementation plan to achieve the objectives. The Basin Plan incorporates by reference all applicable State Water Resources Control Board and RWQCB plans and policies.

Projects resulting in discharges, whether to land or water, are subject to Section 13263 of the California Water Code and are required to obtain approval of Waste Discharge Requirements from the RWQCBs. During both construction and operation, private and public development projects are required to include stormwater best management practices to reduce pollutants discharged from the project site to the maximum extent practicable.

2.5 REFERENCES

City of Chula Vista. 2005. City of Chula Vista General Plan, Land Use Element. Adopted December 13, 2005.

Chula Vista, California, Municipal Code Section 17.28. Unnecessary Lights.

Chula Vista, California, Municipal Code Section 19.24. R-1 – Single-Family Residence Zone.

Chula Vista, California, Municipal Code Section 19.54. Unclassified Uses.

Chula Vista, California, Municipal Code Section 19.68. Performance Standards and Noise Control.

San Diego County, California, County Code of Regulatory Ordinances, Title 5, Chapter 2: Light Pollution.

RWQCB San Diego (Regional Water Quality Control Board). 2016. Water Quality Control Plan for the San Diego Basin.

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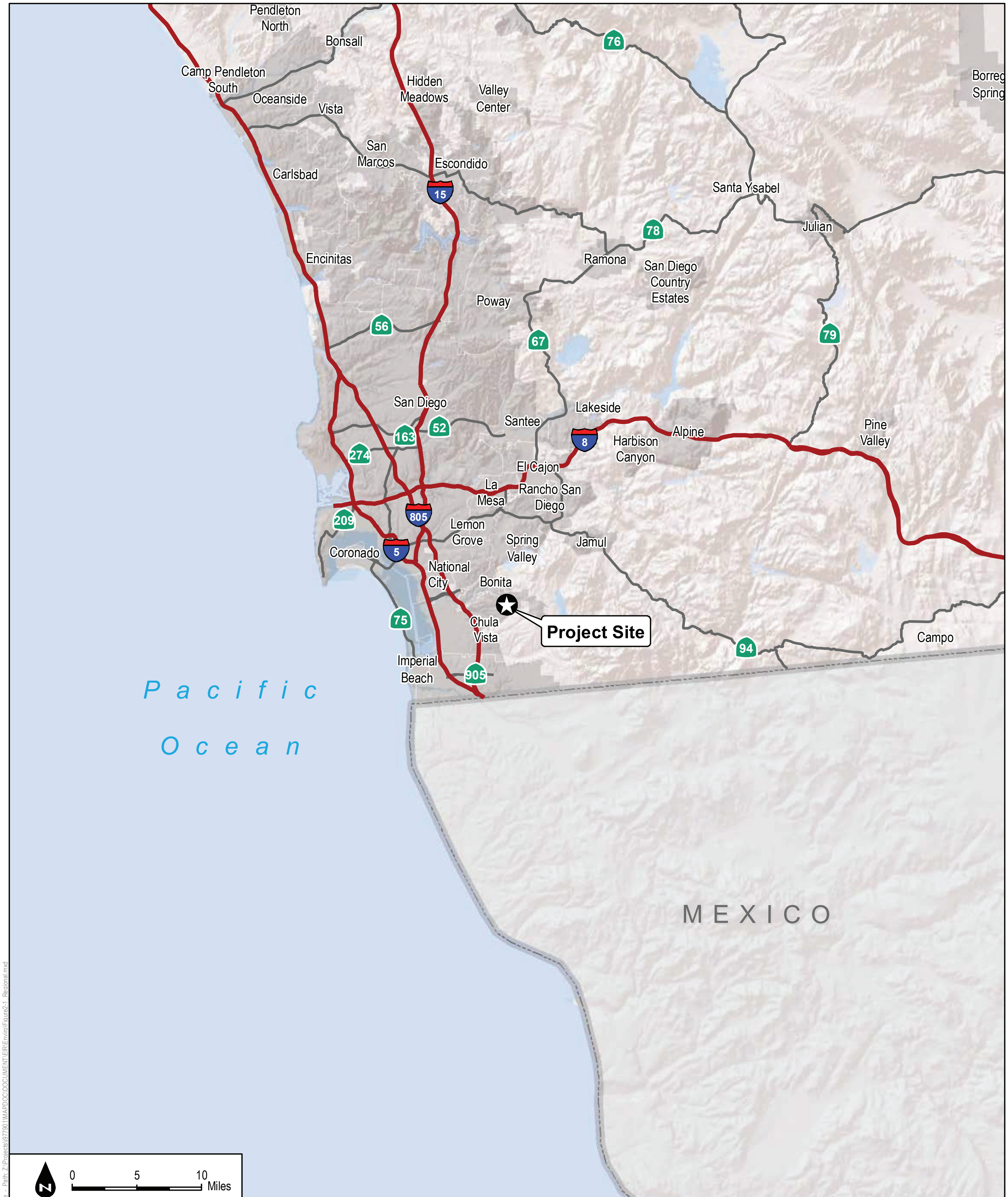

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FIGURE 2-1

Regional Map

Bonita Vista High School Track and Field Project

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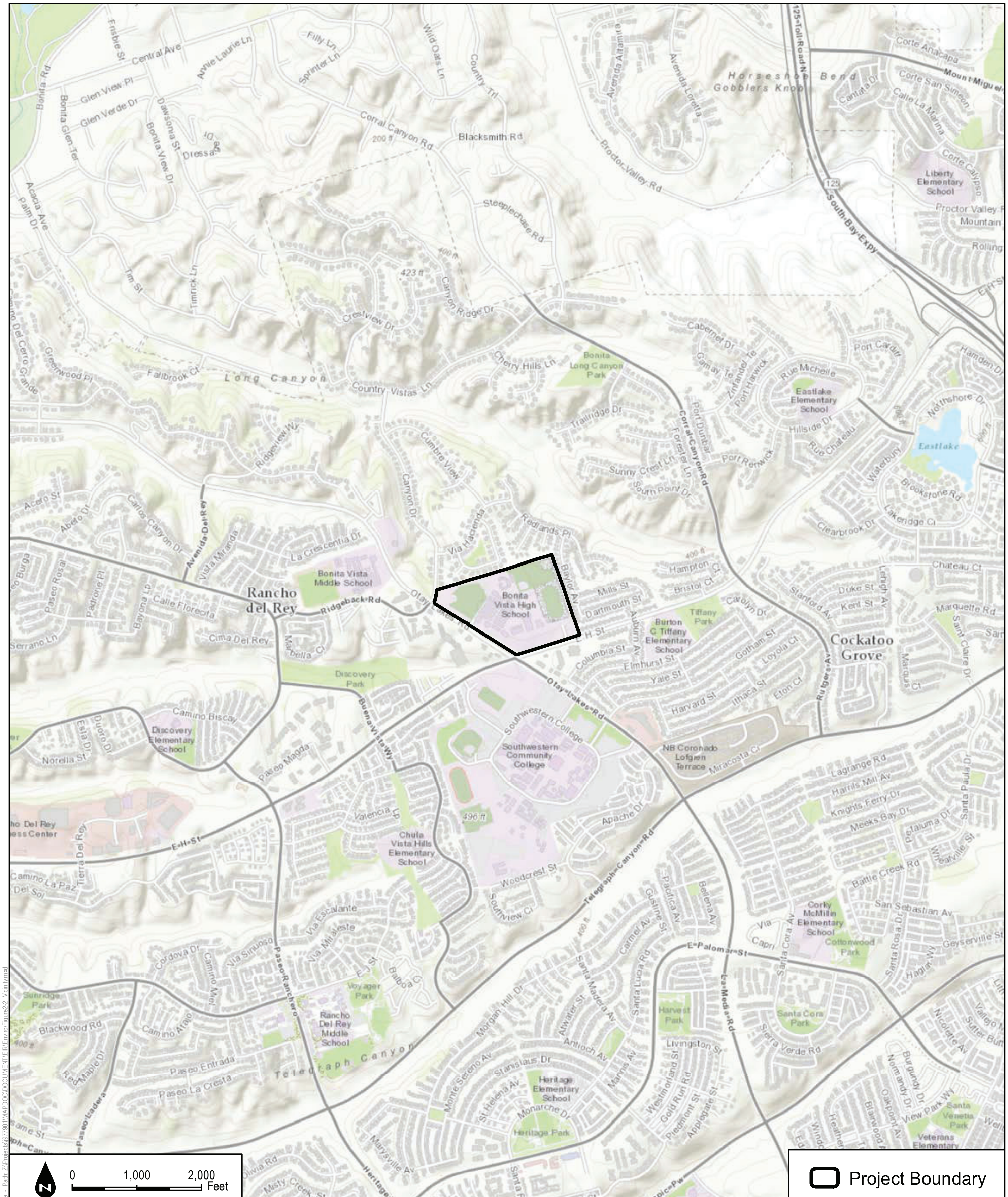

SOURCE: ESRI Topographic Basemap;
USGS 7.5-Minute Series National City Quadrangle, Township 17S, Range 1W, Section 32;
USGS 7.5-Minute Series Jamul Mountains Quadrangle, Township 17S, Range 1W, Section 33

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FIGURE 2-2
Vicinity Map

Bonita Vista High School Track and Field Project

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SOURCE: Bing Maps (Accessed 2017)

FIGURE 2-3

BVHS Campus Boundary

Bonita Vista High School Track and Field Project

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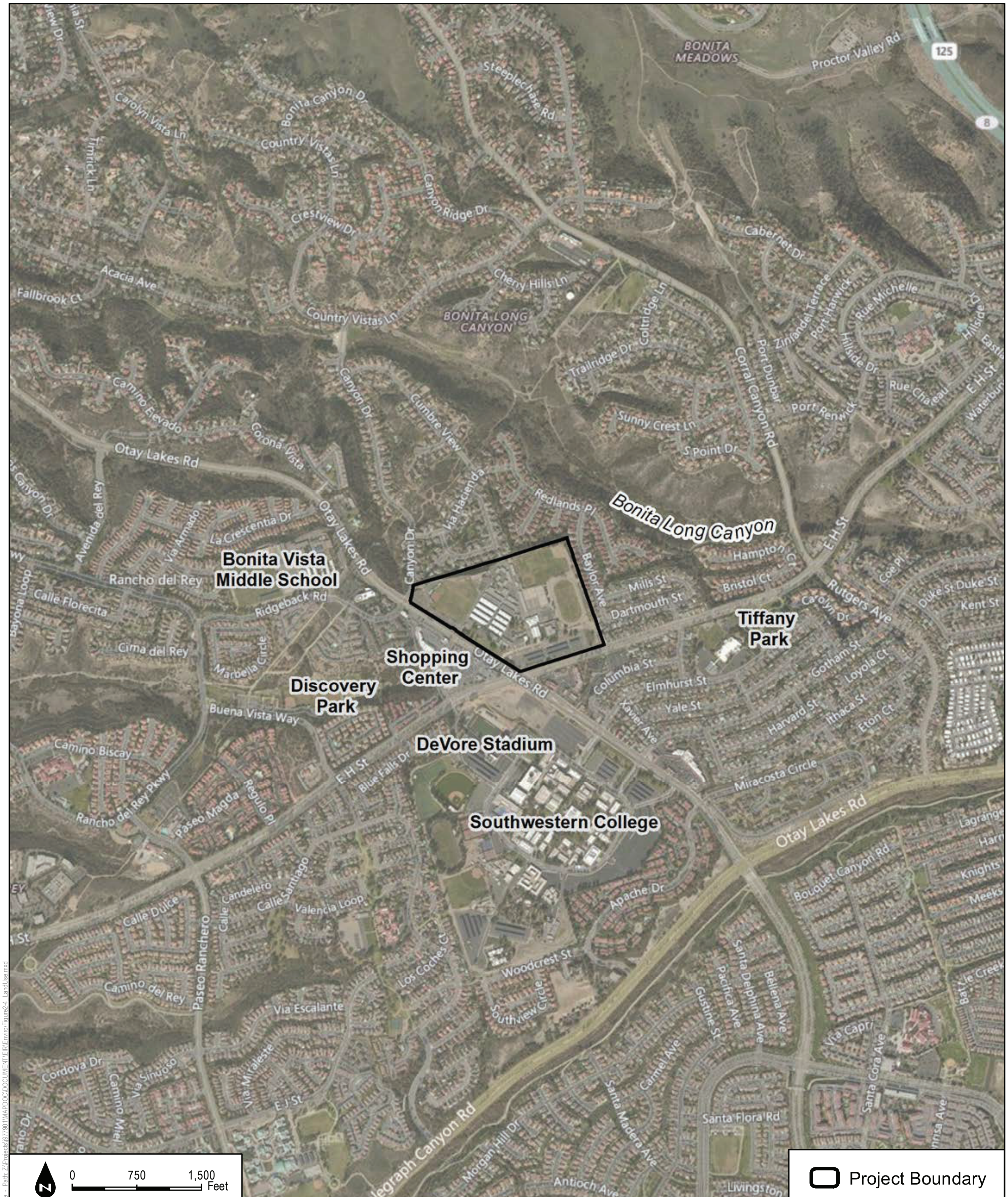

SOURCE: Bing Maps (Accessed 2017); City of Chula Vista

FIGURE 2-4

Surrounding Land Uses

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Bonita Vista High School Track and Field Project

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DUDEK

SOURCE: Bing Maps (Accessed 2017); City of Chula Vista GIS (2008)

FIGURE 2-5

General Plan Land Use Designations

Bonita Vista High School Track and Field Project

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CHAPTER 3
PROJECT DESCRIPTION

This chapter describes the purpose and objectives of the proposed Bonita Vista High School (BVHS) Track and Field Project (project), and provides a detailed description of the project's major components and various characteristics. This chapter also lists the discretionary actions required to implement the project.

3.1 PROJECT BACKGROUND

In 2013, the Sweetwater Union School District (District) Board entered into an agreement with NTD Architecture to prepare architectural drawings and specifications for the Bonita Vista High School – Artificial Turf/Track Project. Architectural plans for the Artificial Turf/Track Project were prepared by NTD Architecture throughout 2013, and the State of California Department of General Services, Division of the State Architect approved drawings and specifications for construction of the project in 2014. Specifically, plans were approved in June 2014 for a restroom/concession building, ticket booth building, new bleachers, track and field improvements, and a new Americans with Disabilities Act (ADA) compliant ramp in the proposed point-of-entry plaza.

In 2017, the District circulated a Draft Environmental Impact Report (EIR) for public review. Public comments were received regarding noise, lighting, traffic, and Tribal/cultural resources. The project and certification of the Final EIR were placed on hold and remained so until fall 2019, when a new architect (Lord Architecture) and new engineer/landscape architects were retained by the District to reconsider the project design. Accordingly, the proposed project, while maintaining similar uses, was completely revised and represents a total redesign. See Table 3-1.

Table 3-1
Summary of Project Changes

Project Component	2017 Draft EIR	Current Project
Bleachers (proposed)	2,000 persons capacity (home side) 1,000 persons capacity (visitor side)	717 persons capacity (home side) 297 persons capacity (visitor side)
Bleachers (future expansion)	N/A	683 person expansion / 1,400 persons total capacity (home side) 303 person expansion / 600 persons total capacity (visitor side)
Entry Area	Point of Entry Plaza (includes access ramps, concessions, restrooms, ticket booth, and hardscape)	Building/Entry Area with Concessions (includes access ramps, concessions, restrooms, storage, ticket booth, hardscape, and overhead shade structures)
Landscaping	To be located south of Point of Entry Plaza	To be located south and north of Building/Entry Area (includes picnic area)

Table 3-1
Summary of Project Changes

Project Component	2017 Draft EIR	Current Project
Additional Facilities	N/A	Discus and Shot Put/Shot Put Landing Area (north of football field) Infilled Synthetic Turf Practice Area (south of field and east of parking lot); to be available for school and community use
Lighting	Four, 90-foot tall galvanized steel (or similar) poles supporting 16 total LED fixtures (field lighting) Lighting installed at Point of Entry Plaza	Four, galvanized steel (or similar) light poles up to 90-feet, supporting between 14 and 17 LED light fixtures (field lighting) Lighting installed at Building Entry Area

Note: N/A = not applicable.

While many of the components are similar or the same as the previously analyzed project, the proposed project has been revised, and this Recirculated Draft EIR has been prepared to describe and analyze the proposed project, noting changes and analyzing impacts in accordance with the California Environmental Quality Act (CEQA).

3.2 PROJECT LOCATION

The proposed project site is located in the City of Chula Vista, and encompasses one parcel (APN 594-130-26-00). Specifically, the site is located at the northeast intersection of East H Street and Otay Lakes Road, within the jurisdictional boundaries of the City of Chula Vista and the County of San Diego. The project site is bound on the north and east by a residential community, on the south by East H Street, and on the west by Otay Lakes Road. Local access to the site is provided off of Otay Lakes Road and East H Street. See Figure 2-1, Regional Map, and Figure 2-2, Vicinity Map, in Chapter 2, Environmental Setting, of this environmental impact report (EIR).

The project area is within the existing BVHS campus boundary, and the project site consists of the football field and surrounding track and permanent bleachers area. As an existing athletic facility, the project site has been entirely previously disturbed and developed. See Figure 2-3, BVHS Campus Boundary, in Chapter 2.

3.3 PURPOSE OF THE PROJECT AND OBJECTIVES

~~The California Environmental Quality Act (~~CEQA~~)~~ requires that an EIR include a statement of the project objectives (see the CEQA Guidelines at 14 CCR 15124(b)). Objectives for the proposed project are as follows:

- To construct athletic facilities that are consistent with the athletic facilities in other District schools.

- To limit the academic disturbances for students by providing additional evening hours for practice and events.
- To allow Bonita Vista High School ~~teams to play~~ evening ~~games~~ events ~~at their home field rather than using an off~~at an on-campus facility within the control of the District.
- To increase student pride and school spirit~~, since the sports lights would allow Bonita Vista's evening "home" football games to be played at their home campus~~. The effects of increased school spirit and pride are many, including students respecting the school and each other, which results in a better educational experience.
- To provide an opportunity for more working parents to attend athletic events.
- To construct safer facilities for fans attending as well as be ADA compliant.

3.4 DESCRIPTION OF THE PROPOSED PROJECT

3.4.1 Project Components

The purpose of the proposed project is to complete a number of replacements, upgrades, and improvements to BVHS's existing eastern athletic field. Improvements would include construction of a new ~~ticket booth building, concessions~~ building that would include concessions, men's and women's restrooms, storage, and a~~and~~ point-of-entry plaza to include an ADA accessible entrance (for both home and visitors). Further improvements would be made such as~~,~~ landscaping, entry lighting, ~~and~~ fencing, ~~and~~ installation of BVHS signage~~ on the new ticket booth buildings and restrooms/concessions building~~, and shade canopies. ~~Further, t~~The proposed project would also include replacement of the existing dirt track surface with synthetic materials;~~,~~ replacement of the natural turf field with a synthetic grass system;~~,~~ installation of new metal stadium bleachers to accommodate approximately 739 persons on the home side and 301 persons on the visitor side, for a total of ~~3,000~~1,040 people (the bleachers would increase existing capacity by approximately ~~2,400~~ 280 people), with the potential to expand to up to 1,400 persons total capacity on the home side and 600 persons total capacity on the visitor side, for a maximum of approximately 2,000 persons (increasing existing capacity by approximately 1,240 people);~~,~~ installation of a ~~new~~ public address (PA) and speaker system;~~,~~ installation of a new scoreboard;~~,~~ and installation of a new stadium lighting system. The proposed project would also relocate shot put and discus throwing rings/circles and landing areas north of the football field, and create a paved practice area east of the existing parking lot. The proposed project would allow for evening BVHS sporting events/practices and other miscellaneous events to be held on campus throughout the year. Currently, ~~evening football practices and~~varsity football games ~~and other sporting events~~ are held at nearby Southwestern College. Figure 3-1, BVHS Track and Field – Existing Layout, and Figure 3-2, BVHS Track and Field Layout – Proposed Improvements, depict the existing BVHS track and field area and proposed improvements.

The new BVHS athletic field would experience use throughout the school year, with the heaviest use anticipated to occur during the fall and winter sports seasons. During the fall sports season in the evening hours, the proposed BVHS athletic field would be used for regular season and, potentially, playoff football games; football practices; and field hockey games. During the winter sports season in the evening hours, the athletic field would be used for boys' and girls' soccer practices and soccer games. As such, the lights would generally be on every night from November through February from dusk until approximately 10 p.m. ~~Finally, d~~During evening hours in the spring sports season, the athletic field would be used for boys' and girls' lacrosse games and track meets. The athletic field also has the potential to be used for band practices and miscellaneous evening and daytime events throughout the year, including community uses. For example, youth sports organizations in the local community, including San Diego Pop Warner, may use the field during their respective seasons. Table 3-2~~1, Approximate Volume of Nighttime Events Requiring Lighting by Season,~~ lists the anticipated number of events that would use nighttime lighting at BVHS during the school year.

Table 3-2~~1~~
Approximate Volume of Nighttime Events Requiring Lighting by Season

Fall (August–November)	Winter* (November–March)	Spring (March–May)
10 Girls Field Hockey Games 6 Varsity Football Games 1–2 Varsity Football Playoff Games 2 Junior Varsity Football Games	14 Girls Soccer Games 14 Boys Soccer Games	12 Girls Lacrosse Games 12 Boys Lacrosse Games 3 Track Meets

Source: ~~Heinz, pers. comm. 2017.~~ Arciaga, pers. comm. 2020.
Notes:
* The lights would generally be on every night from November through February during the winter school season.
As needed by BVHS and the District, miscellaneous events may be held in the evening throughout the year and would use the field lighting system. During use throughout the school year, lights would generally be on from dusk until approximately 10 p.m.
Practices for all CIF sports may occur during evening hours and may use stadium lights.

The proposed project would be accessed via two primary access points: one along East H Street and the other along Otay Lakes Road. The primary access point along East H Street already includes a signalized intersection with a single left-turn lane from eastbound traffic on East H Street, and a single right-turn lane into the site from westbound traffic on East H Street. Additionally, exiting traffic would be able to turn left or right onto East H Street. The second primary access point along Otay Lakes Road is a single right-turn lane into the site from northbound traffic on Otay Lakes Road, with no access for southbound traffic. Exiting traffic is only able to turn right onto Otay Lakes Road. These existing two access points would not need to be improved as a result of the proposed project.

Track and Field Replacement

As proposed, the existing dirt surface track would be removed and replaced with all-weather rubberized track surfacing. Further, the existing natural turf field would be removed and replaced with a synthetic grass system. In addition, the grassy field at the end of the parking lot would be removed and replaced with asphalt concrete paving. The system would consist of spined or ridged 2.5-inch-tall monofilament polyethylene fiber and a resilient infill system consisting of sand and rubber (~~NTD~~ Lord Architecture ~~2014~~2020~~a~~). The selected complete synthetic grass system would be subject to the District's synthetic turf playing field specifications, which details preapproved products and materials, guaranteed warrantees, installation requirements, and other items.

Prior to installation of the replacement track and field, a system of drains and basins would be installed to facilitate adequate drainage of these surfaces during storm events.

Lighting

The proposed project would include installation of a new lighting system at the BVHS football field. As proposed, the system would consist of four, 80- to~~four~~ 90-foot-tall galvanized steel (or similar) poles that would be installed on the home and visitor sides of the BVHS football field (i.e., two poles would be installed on each side). Pole locations are identified as ~~F1, F2, F3, and F4~~S1, S2, S3, and S4 in the photometric study prepared for the proposed project (Musco Lighting ~~2016~~2020). As proposed, LED luminaires would be installed on each pole at various mounting heights ~~of~~ ranging from 90 feet ~~and~~ to ~~25~~15 feet. ~~More specifically, 16 TLC (Total Lighting Control) LED-1150 fixtures (1,150 watts each fixture) would be installed at a 90-foot mounting height on poles F1, F2, F3, and F4, and one TLC-LED-1150 fixture would be installed at a 25-foot mounting height on each pole.~~ Specifically, S1 and S2 each have 6 LED 1200 and 10 LED 900 at 80 feet, 1 LED 400 at 60 feet, and 2 BT 575 at 16 feet. S3 and S4 each have 12 LED 1500 at 90 feet, 2 LED 400 at 75 feet, and 2 BT 575 at 25 feet. An electrical components enclosure would also be affixed to each pole, and poles would be installed into the ground and anchored in place by a precast concrete base. New lighting would also be installed at the proposed point-of-entry plaza and would be mounted onto the exterior of the new ~~ticket booth/~~, concessions~~,~~/ ~~and~~ restroom building~~s~~.~~,~~ ~~but a~~Athletic field lighting would be the primary source of new lighting associated with the proposed project.

Bleachers

The existing ~~permanent~~ bleachers have capacity for approximately 760 people. As proposed, the existing bleachers would be removed and new permanent bleachers with capacity for approximately 739 persons on the home side and 301 persons on the visitor side, for a total of 1,040 people (i.e., an increase of approximately 280 people above the existing capacity), would be installed.

The bleachers would be designed and engineered to have the potential to expand to a maximum of approximately ~~3,000~~2,000 people (home and visitor bleachers combined)~~ would be installed~~. Of the potential ~~3,000~~2,000-person capacity, seating for approximately ~~2,000~~1,400 people would be provided on the home bleacher side, and seating for approximately ~~1,000~~600 people would be provided on the visitor side (~~Moen, pers. comm. 2016~~Lord Architecture 2020). The highest attendance at events is expected during football games.

Bleachers would include guardrails with chain-link infill at all locations where the walking surface is 30 inches or greater above grade. Bleachers on both the home and visitor side would include ADA-compliant ramps. The proposed bleacher system may include up to ~~five~~ eight ascending rows of seating at full buildout. A new, centrally located press box with team-color paneling would be constructed along the top row of the home spectator side bleachers.

Public Address System

The improvements to the athletic field would include installation of a press box on the home spectator side of the field, with speakers mounted on the structure. The proposed PA system would consist of four 3,000-watt speakers that would be installed on the press box. The press box would be approximately 20 feet off the ground and located centrally along the top level of the home side bleachers. ~~Two~~ One of the speakers would be open and ~~two~~ three would be enclosed.~~ Two of the speakers would be aimed across the field toward the visitor bleachers, and two would be aimed toward the home bleachers (Manzano, pers. comm. 2016)~~.

~~Clem Manzano, a supervisor at Sweetwater Union High School District, stated that the proposed wattage and sound quality of the speaker system "is necessary for lockdown and other emergencies" (Manzano, pers. comm. 2016). Manzano indicated that t~~The PA system ~~may~~ would be used for physical education classes during the day~~,~~ and would also broadcast daily announcements, such as the Pledge of Allegiance, and bells to indicate class time. These activities would be temporary in nature, only lasting a few seconds (~~Manzano~~Quirk, pers. comm. ~~2016~~2020).

The speakers on the press box are expected to cover the home spectator side of the field and the visitor spectator stands on the other side of the field. ~~To provide appropriate sound levels in the visitor stands, this speaker system would also be clearly audible in the exterior residential areas that are adjacent to the project site.~~ Speakers are also proposed on each of the light poles (S1, S2, S3 and S4). A total of three (3) intercom speakers are also proposed on the West/North/East exterior of the Concessions building (1 per side).

During football games, the stadium would experience the highest attendance numbers. The maximum number of people expected for any event is approximately ~~3~~2,200 people, which would include standing room areas (Quirk, pers. comm. 2020~~Manzano, pers. comm. 2016~~). Because this is only expected to occur one time annually (likely during the homecoming football game), the analysis contained herein is based on the capacity of 2,000 event attendees, which represents the typical worst-case condition.

The athletic field is also expected to be used for marching band fieldshow practices during the week, which would typically last from 6 p.m. to 9 p.m. For these practices, the stadium PA system would be used for instruction, for an electronic metronome, and for amplified music (Llamas, pers. comm. 2017). In addition to evening practices, marching band practices are held during school off-session days, including on Saturdays (Manzano, pers. comm. 2016).

Point of Entry Plaza

A new point-of-entry plaza is proposed near the southern end of the athletic field area on currently vacant land just north of the parking lot. The plaza would include new concrete and concrete paver areas, ~~handicap-~~accessible ramps, stairs with hand railings, irrigated tree and shrub landscape areas, ~~a new ticket booth,~~ and a concessions and restroom building. Ramps and stairs would direct visitors toward ~~the proposed ticket booth and~~ separate home and visitors stadium entry gates. New lighting, including exterior structure mounted downlights~~,~~ and pole lights, ~~bollards with internal lighting elements, and in-grade upward-directed ground floodlighting,~~ would be installed within the point-of-entry plaza for general illumination and security during nighttime events.

The restroom and concessions building would be a single-story (approximately ~~17~~ 16 feet high at the tallest point), concrete masonry unit ~~(CMU)~~ structure of approximately ~~1,600~~2,428 square feet with ~~galvanized steel trim~~an architectural metal panel system, steel gate doors, backlight decorative grill, and other metal elements. ~~The ticket booth building~~Shade structures on either side of the concessions and restroom building would be ~~a single-story (~~approximately ~~21~~ 13 feet high at the tallest point~~)~~ ~~CMU structure of~~and cover approximately ~~200~~272 square feet each. A ~~prefinished sheet metal~~single-ply PVC roof would be installed atop the concessions and restroom ~~ticket booth~~ building. Existing electrical, water, and sewer utilities in the vicinity would be extended to the plaza and ~~individual~~ new building~~s~~ (~~NTD~~ Lord Architecture ~~2014b~~2020).

In addition, new gates and fencing would be installed, and BVHS signage would be installed throughout the point-of-entry on new structures and on select fences.

3.4.2 Athletic Field Operations

School Use of Athletic Field

The proposed athletic field is anticipated to accommodate uses and events typical of other contemporary high school athletic facilities. These uses can include high school sports practices and competitions (games); special high school events such as graduation, playoff games, and pep rallies; community uses (such as club sports); and other various uses. Compared to the existing high school field, use of the athletic field is expected to be expanded. This would occur due to increased demand (~~from an expanding athletic program and~~ because the new synthetic field may be preferred over other ~~older~~ natural turf fields) and because the lights would accommodate usage after sunset.

Approving and scheduling use of the athletic field is under the ultimate authority of the District Board of Education. However, the principal and Associated Student Body Dean of BVHS have responsibility for coordinating and scheduling day-to-day usage. The schedule for using the athletic field has the potential to change every year as athletic programs expand and change and as different needs and events are identified. Therefore, it is difficult to forecast what the likely usage of the proposed new athletic field will be. There is generally no restriction on the principal's ability to schedule use of the field. To provide a conservative assessment of potential impacts, this EIR assumes that the athletic field as proposed would be available for use any day of the week up until a mandatory cutoff time for the lights of 10 p.m. This cut-off time acknowledges that nighttime events typically end at 10 p.m., while also providing assessment of impacts when extenuating circumstances, such as an injury or rain/inclement weather delay of a football game or other event, unforeseeably delays completion of an event.

The typical, but not limited to, on-campus nighttime events on the athletic field that would require lighting are provided in Table 3-2~~1~~. In addition to these events, practices ~~(e.g., track and field, marching band, color guard, cheerleading)~~ would also occur on the athletic field and would require use of the stadium lighting system.

Third-Party Use of Athletic Field

The District may also allow third parties to use the upgraded stadium in the future in accordance with California Education Code 38131 (State of California 1996) and District Board Policy 1330, Use of School Facilities; Administrative Regulation 1330, Use of School Facilities; and Administrative Regulation 1330.1, Artificial Turf (District 2017). Under California Education Code 38131, organizations, clubs, and associations formed for recreational, educational, political, economic, artistic, or moral purposes are permitted by state law and District policy to use school buildings and grounds. The District's School Board, in accordance with Board Policy 1330, Administrative Regulation 1330, and Administrative Regulation 1330.1, adopted District field use policies to address the specific needs of BVHS. Use of BVHS facilities by non-District groups is subject to District Administrative Procedures that govern the use of buildings, grounds, and equipment.

Upon receipt of a facilities use request from an outside group, the District considers whether the proposed use is appropriate for the requested facility considering the potential impact on the school and the community, and the availability of sufficient parking, security, custodial services, restrooms, and other services needed to accommodate the use. The District may direct an outside group to a facility that is most appropriate for the proposed use, taking into account the above factors (District 2017).

3.4.3 Project Construction

The proposed project is anticipated to be constructed within an approximate 8-month period~~ (Tittle, pers. comm. 2016)~~. The first phase of construction would consist of construction mobilization (e.g., transportation for contractor's personnel, equipment, and operating supplies to the site; establishment of temporary offices or other general facilities for contractor's operations) and would last for approximately 1 month. Demolition of existing facilities and work areas would occur next and would also last for approximately 1 month; this would be followed by rough grading activities, which would occur over an approximately 2- to 3-week period. Rough grading would be followed by trenching and installation for utilities and drainage (1.5 months), and construction of the point-of-entry plaza (4 months), including pouring concrete; installing pavers, irrigation, and planting; constructing buildings; and installing signage. In addition to the point-of-entry elements, turf, track, bleacher, and lighting installation (1.5 months) would occur near the end of the construction phase and prior to punch list items (work that still needs to be completed) and cleanup (1 month).

Based on previous project experience, turf installation may require up to six workers and would likely consist of a combination of machine and hand work. The artificial turf field would consist of a vertical draining, porous stone aggregate base underneath a complete synthetic grass system consisting of spine or ridged 2.5-inch tall monofilament polyethylene fiber. A resilient infill system, consisting of sand and rubber, would also be installed on top of the fiber (~~NTD ~~Lord Architecture ~~2014~~2020~~a~~).

Track installation may also require approximately six workers and require field spreaders, forklifts, and backhoes. The synthetic track surface would consist of a polyurethane bound impermeable Styrene Butadiene Rubber (SBR) base mat surface with a two-component colored polyurethane structural spray finish (~~NTD ~~Lord Architecture ~~2014~~2020~~a~~).

3.4.4 PROJECT DESIGN FEATURES AND CONSTRUCTION MEASURES

The following project design features (PDFs) and construction measures would be implemented by the District:

- **PDF-AES-1:** Stadium lights shall be dimmed during event breakdown and turned off as soon as possible following an event. Lights shall be extinguished in a safe and practicable manner following completion of the game or practice begun in daylight and by no later than 10:00 p.m.~~ Stadium lights shall include a design feature to allow the upward-facing luminaires to be turned on and off independent of the main downward-facing field lights.~~
- **PDF-AQ-1:** To further reduce less-than-significant impacts to air quality, the following standard construction measures would be implemented as part of the proposed project:
  - On-road trucks and other mobile equipment shall be properly tuned and maintained to manufacturers' specifications to ensure minimum emissions under normal operations.

- Vehicle speeds shall be limited to 15 miles per hour (mph) on unpaved (no gravel or similar surfacing material) roads.
- Water or chemical dust suppressants shall be applied to unstabilized disturbed areas and/or unpaved roadways in sufficient quantity and frequency to maintain a stabilized surface.
- Exposed stockpiles of soil and other excavated materials shall be contained within perimeter silt fencing, watered, treated with soil binders, or covered as necessary.
- To the extent feasible, unnecessary construction vehicle and idling time shall be minimized.

- **PDF-NOI-1:** The public address (PA) system shall incorporate the following features:
  - All speakers installed on the loudspeaker poles shall have defined coverage patterns and be mounted in a way that the aiming of speakers can be adjusted at the time of installation both vertically and horizontally to maximize sound control of sound coverage. The direction of the speakers shall maximize the focus of the sound within the stadium.
  - The coverage patterns of loudspeakers shall be adjusted to fit the minimal area of coverage to maximize the sound levels for the audience and minimize the bleed over into the adjacent areas.
  - Each loudspeaker cluster (at each of the four poles) shall have independent paramatic equalization, allowing individual adjustment of frequency content. In addition, the audio system shall be programmed to provide compression and limiting that shall control the maximum sound output level.
  - The bleacher and field speaker systems shall be activated independently via local control. This may be used to allow for use of all speakers or a portion of the speakers, depending on the needs of the event.
  - Connection to the existing audio mixer used at the school shall be provided with the system to adjust inputs and microphones and control the levels.
  - The overall system volume shall be adjusted and the maximum output shall be limited by a digital signal processor. Also, volume controls shall be locked to prevent unauthorized adjustment.
- **PDF-PS-1**: In coordination with the Chula Vista Police Department, the District shall prepare an athletic event Security Plan that shall be implemented during nighttime athletic events at the BVHS track and field. The Security Plan shall consist of items, including clear procedures, roles, and responsibilities for adult supervisors and staffing for pre-, during, and post-event timelines; procedures for advance ticket sales and on-site ticket sales; a detailed plan for parking procedures, traffic flow, parking lot staffing during entire game, and related issues; advance assessments of physical security needs and strategies; and policies related to admission, limitations of items that can be carried in (e.g., purses, book

bags, backpacks), right to search spectators at admission point (e.g., metal detector scans, bag searches), and no passes out and back in once admitted; policies related to spectator conduct; and other security protocols. The Safety Plan shall also address additional staffing and supervisory needs and security protocols to be employed during larger crowd events.

3.5 DISCRETIONARY ACTIONS

3.5.1 Lead Agency Approval

The District's Governing Board must certify the proposed EIR before taking any action on the proposed project. The Governing Board will consider the information contained in this EIR when making a decision to approve or deny the proposed project. The analysis in this EIR is intended to provide environmental review for the whole of the project, including mitigation measures for planning, site clearing, excavation, grading, construction, and ongoing operation of the proposed project in accordance with CEQA requirements.

Prior to approving the project, the lead agency will certify that the EIR has been completed in compliance with CEQA; the EIR was presented to the decision-making body of the lead agency, and the decision-making body reviewed and considered the information contained in the EIR prior to approving the proposed project; and the EIR reflects the lead agency's independent judgment and analysis (CEQA Guidelines Section 150910).

3.5.2 Other Required Permits and Approvals

A public agency other than the lead agency that has discretionary approval power over the project is a Responsible Agency, as defined by CEQA Guidelines Section 15381. The Responsible Agencies and their corresponding approvals for the proposed project are as follows:

State of California

- Department of Toxic Substances Control (determination of "No Further Action")

Local Agencies

- Chula Vista Fire Department (Emergency Access Plan, fire hydrants, fuel modification zones; determination of "No Further Approval Required")

3.6 REFERENCES

14 CCR 15000–15387 and Appendix A–L. Guidelines for Implementation of the California Environmental Quality Act, as amended.

Arciaga, T. 2020. Re: BVH Track & Field - athletics nighttime events info. Email between T. Arciaga (Sweetwater Union High School District) and S. Kilkenny (Dudek). October 27, 2020.

District (Sweetwater Union High School District). 2017. School Board Policies & Regulations. Accessed July 2017. https://schoolboard.sweetwaterschools.org/policies/.

~~Heinz, Joe. 2017. Personal communication (email) between J. Heinz (Sweetwater Union High School District Coordinator of Athletics) and L. Moen (Planning & Construction Department, Sweetwater Union High School District) on March 7, 2017, "RE: Stadium Light Usage for SUSHD Athletic Contests."~~

Llamas, James. 2017. "BVH-Draft EIR." Personal communication (email) between R. Pietila-Wiggs (Assistant Principal, Bonita Vista High School) and J. Llamas (Band Director, Bonita Vista High School). January 20, 2017.

Lord Architecture. 2020. *Sweetwater Union High School District – Bonita Vista High School Stadium Concession and Restroom Building*. June 5, 2020.

Manzano, Clem. 2016. RE: BVH Art. Track and Field – PA System Conference Call. Email from C. Manzano (Sweetwater Union High School District Electronic Shop Supervisor) to J. Saunders, C. Fernandes, and C. Barnobi (Dudek). September 29 and 30, 2016.

~~Moen, Larry P. 2016. Personal communication (email) between L. Moen (Planning & Construction Department, Sweetwater Union High School District) and J. Saunders (Dudek) on November 30, 2016, "RE: BVHS Athletic Field Improvement Project capacity of new bleachers."~~

Musco Lighting. 2020~~16~~. Photometric Study for the Bonita Vista High School Athletic Fields Improvement Project. ~~November 16, 2016.~~

~~NTD Architecture. 2014a. Project Manual for the Construction of Bonita Vista High School Artificial Track + Field for the Sweetwater Union High School District. DSA Submittal. June 2, 2014.~~

~~NTD Architecture. 2014b. Bonita Vista High School Artificial Track + Field for the Sweetwater Union High School District. DSA Plan Submittal (Civil, Landscape, Track & Field Design, Architectural, Structural Plumbing Electrical, and Exterior Bleachers). May 20, 2014.~~

Quirk, J. 2020. RE: BVH Art. Track and Field – PA System Conference Call. Conference call between J. Quirk (Sweetwater Union High School District Electronic Shop Supervisor) and S. Kilkenny (Dudek). November 6, 2020.

State of California. 1996. Education Code, Title 2, Article 2, Use of School Property. http://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?lawCode= EDC& sectionNum=38131.

~~Tittle, Jay R. 2016. Personal communication between J. Tittle (Little Diversified Architectural Consulting), L. Moen (Planning & Construction Department, Sweetwater Union High School District), and J. Saunders (Dudek) on December 9, 2016, "RE: Construction Schedule."~~

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SOURCE: Bing Maps (Accessed 2017)

FIGURE 3-1

BVHS Track and Field - Existing Layout

DUDEK

Bonita Vista High School Track and Field Project

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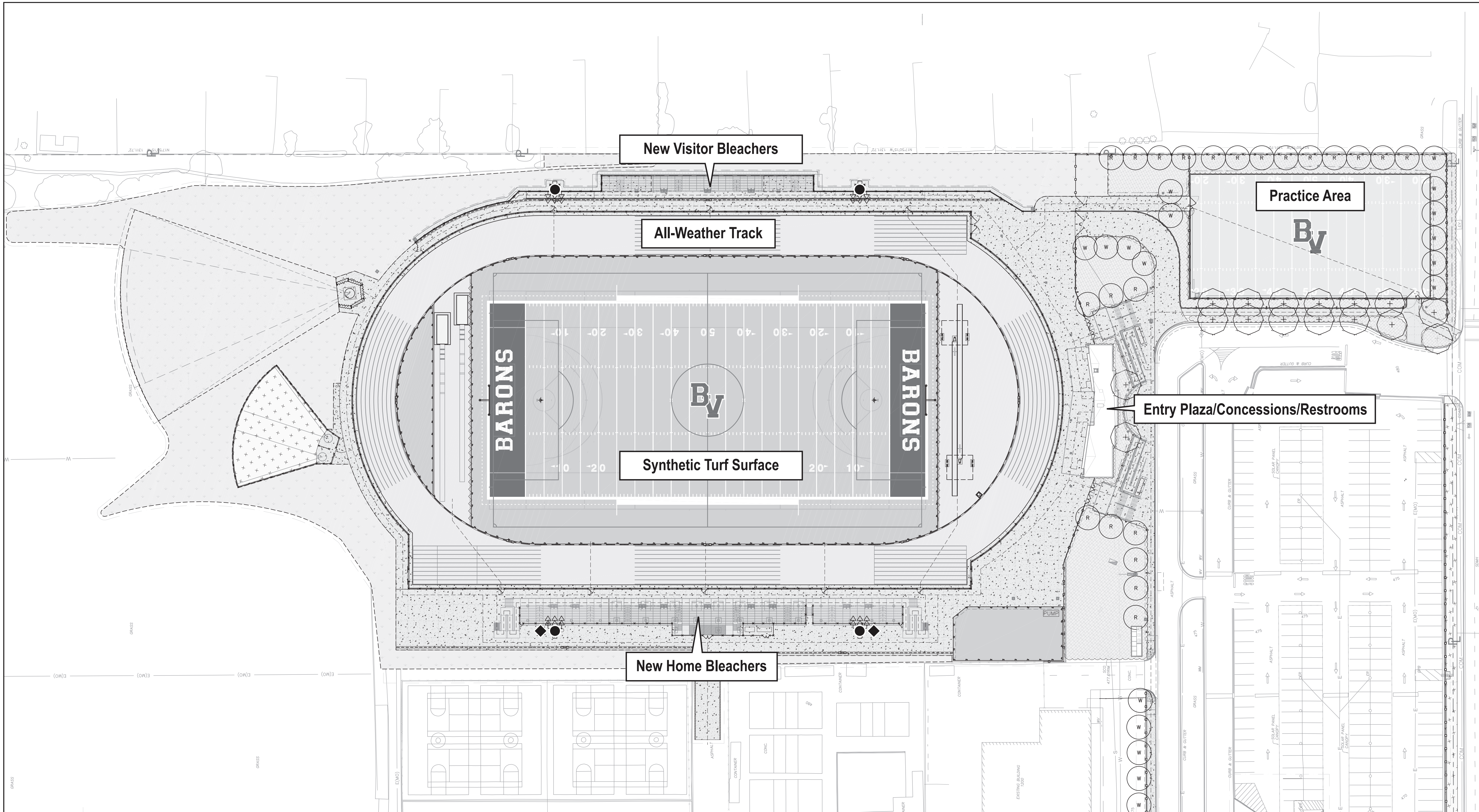

● Light Poles
◆ Speakers

DUDEK

SOURCE: Musco 2016

FIGURE 3-2
BVHS Track and Field - Proposed Improvements

Bonita Vista High School Track and Field Project

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CHAPTER 4
ENVIRONMENTAL ANALYSIS

This chapter of the Environmental Impact Report (EIR) provides discussions of those effects that through the course of analyzing the environmental effects associated with the proposed Bonita V~~v~~ista High School Track and Field Project (project) were identified as potentially significant. Each environmental issue area describes existing conditions, regulatory setting, analysis of project effects and determination as to significance, mitigation (as applicable), and level of significance after mitigation. The environmental issue areas addressed in Chapter 4 are as follows:

- Aesthetics (Section 4.1)
- Air Quality (Section 4.2)
- Energy (Section 4.3)
- Greenhouse Gas Emissions (4.4)
- Noise (Section 4.5)
- Transportation (Section 4.6)
- Tribal Cultural Resources (Section 4.7)

4.1 AESTHETICS

This section describes the existing visual setting of the proposed Bonita Vista High School (BVHS) Track and Field Project (project) site and vicinity, identifies associated regulatory requirements, and evaluates potential impacts related to implementation of the proposed project. Existing condition ~~I~~information contained in this section is based on site visits, review of site photos, and review of the site and surrounding area via the Google Earth computer program. Project information and characterization of project components in this section, including the type of stadium lighting and placement of stadium lighting, is based on review of schematic design drawings prepared for the project and dated June 6, 2020 (Lord Architecture 2020), and the conceptual site plan and renderings for the proposed practice area shared with Dudek in August 2020. The technical data concerning light trespass presented in this section are ~~summarized from the Lighting Study for the Bonita Vista High School Track and Field Project prepared by Dudek and dated November 22, 2016 (Lighting Study; Appendix A of this environmental impact report (EIR)). Further, the Lighting Study summarizes and incorporat~~based on review of ~~es the Photometric Study~~the illumination summary prepared for the project by Musco ~~Sports~~ Lighting~~,~~ and dated ~~November 16, 2016~~May 11, 2020 (Musco Lighting 202~~0~~~~16~~). ~~Information regarding the type of stadium lighting and placement of stadium lighting for the proposed project was obtained from the project improvement plans (see Figure 3-2 in Chapter 3 of this EIR), the 2014 Division of the State Architect (DSA) project plan submittal (NTD Architecture 2014), and the Photometric Study (Musco Lighting 2016).~~

~~4.1.1 Project Overview~~

~~The proposed project site encompasses the eastern athletic field area and a portion of the South Parking Lot on the Bonita Vista High School (BVHS) campus, which the City of Chula Vista (City). Specifically, the campus is located at the northeast intersection of East H Street and Otay Lakes Road, within the jurisdictional boundaries of the City and San Diego County (the County).~~

~~As proposed, the project would involve the completion of a number of replacements, upgrades, and improvements to BVHS's existing eastern athletic field. Improvements would include construction of a new ticket booth building; concessions building; men's and women's restrooms; and a point-of-entry plaza, including landscaping, lighting, and fencing; as well as installation of BVHS signage on the new ticket booth buildings and restrooms/concessions building. Further, the proposed project would include replacement of the existing dirt track surface with synthetic materials, replacement of the turf natural field with a synthetic turf product, removal of existing bleachers and installation of new permanent metal stadium bleachers to accommodate approximately 3,000 people, and installation of a new public address (PA) sound system, a new scoreboard, and a new field lighting system that will allow evening BVHS events to be held on campus. Currently, evening football practices and games and other uses occur at the nearby Southwestern College. Because all other schools in the Sweetwater Union High School District (District) have stadium lighting, the community desires to have equal amenities at BVHS.~~

~~With the exception of the proposed field lighting system and the PA sound system, components of the proposed project have been approved by the District's Board of Trustees and the DSA. Although this EIR focuses on the potential effects of the proposed field lighting system and the PA sound system, the other proposed athletic field improvements at BVHS are also assessed to accurately analyze the whole of the action.~~

~~Refer to Chapter 3, Project Description, for additional detail regarding the proposed project.~~

~~4.1.2~~ ~~E~~Existing Conditions

The following discussion is organized consistent with the aesthetic resources guidelines established by Appendix G, Environmental Checklist Form, of the 2020 California Environmental Quality Act (CEQA) Statute and Guidelines.

Scenic Vistas

Chapter 5, Land use and Transportation Element, of the Chula Vista Vision 2020 General Plan (General Plan), discusses the scenic resources and open space network of the City of Chula Vista (City). Scenic views and vistas are included within the scenic resources category and are described in the General Plan. In establishing the importance of scenic views, the ~~According to the City's~~ General Plan states that~~,~~ "scenic views and open space contribute positively to a city's image and foster community pride" and also "help to relieve the stress of living in a fast paced urban environment" (City of Chula Vista 2005). The General Plan~~-~~ identifies scenic resources and identifies ~~designated valued scenic vistas and open spaces include~~ the Otay River, ~~and~~ Sweetwater River Valleys, Upper and Lower Otay Lakes, Sweetwater Reservoir, San Miguel Mountain/Mother Miguel Mountain, and the San Diego Bay as valued scenic vistas and open spaces (City of Chula Vista 2005).

For purposes of this analysis, long, particularly broad, and unencumbered views to scenic resources identified in the General Plan are considered scenic vistas. ~~With the exception of f~~Fleeting and partially obscured public views to Mother Miguel Mountain and San Miguel Mountain and ~~/Mother Miguel Mountain~~ are available from Otay Lakes Road (from Ridgeback Road south to the BVHS driveway) and East H Street (at Otay Lakes Road and the BVHS driveway near the southeastern corner of campus). Mother Miguel Mountain and San Miguel Mountain are located approximately 3.2 and 4.8 miles to the northeast, respectively, of the BVHS campus. Given their topographical prominence, these resources are also visible from other roads (public and private), residences, and uses in the area surrounding the BVHS campus.

None of the other scenic vistas specifically identified in the General Plan (i.e., Otay River, Sweetwater River Valleys, Upper and Lower Otay Lakes, Sweetwater Reservoir, and the San Diego Bay~~-~~) are ~~scenic resources identified in the General Plan are not~~ readily visible from public roadways or residences in the immediate project area.

While not identified in the City's General Plan, Otay Mountain and Lyons Peak are distant yet visible from southbound Otay Lakes Road and eastbound ~~-~~East H Street. Otay Mountain and Lyons Peak are located 9.6 miles to the southeast and over 14 miles to the northeast, respectively, of the BVHS campus.

Scenic Highways

~~Both the California Department of Transportation (Caltrans) and the City designate roadways as scenic highways.~~ Within San Diego County, the California Department of Transportation ~~Caltrans~~ has designated five roadways as officially designated state scenic highways. —State Route (SR) 75, SR-78 (through Anza Borrego Desert State Park), SR-125 (from SR-94 near Spring Valley to Interstate [I]- 8 near La Mesa), SR-52 (from Santo Road to near Mast Boulevard in Santee), and SR-163 (through Balboa Park)~~— as officially designated state scenic highways~~ are designated state scenic highways (Caltrans 2020a~~016~~). Located approximately 1.5 miles east of BVHS, SR-125 is the closest officially designated state scenic highway to the project site. The nearest eligible state scenic highway, I-5, is located approximately 5.75 miles to the west of BVHS.

Several local roads offering ~~Select roadways where~~ ~~“~~views of unique natural features and roadway characteristics, including enhanced landscaping, adjoining natural slopes, or special design features that make travelling a pleasant visual experience~~”~~ ~~are~~ have been designated by the City as scenic roadways (City of Chula Vista 2005). Designated scenic roadways in the project area include Otay Lakes Road (from Bonita Road to Telegraph Canyon Road; includes the approximately 0.3-mile segment of Otay Lakes Road that parallels BVHS on the west) and East H Street (from ~~Interstate~~ I-805 to Mount Miguel Road; includes the approximately 0.2-mile segment of East H Street that parallels BVHS on the south). BVHS is visible from both these roadways. While the visible landscape consists of an urbanized setting that includes education uses (i.e., BVHS and nearby Southwestern College), commercial shopping centers, and residences, unique natural features (i.e., distant mountain terrain) are also detectable in views from Otay Lakes Road and East H Street near the BVHS campus. For example, Lyons Peak (located over 14 miles away) is partially detectable in views from eastbound East H Street along the BVHS frontage. From southbound Otay Lakes Road, the broad silhouette of foothills of Otay Mountain (located over 9 miles away) are partially detectable in views. In addition, and as discussed above under Scenic Vistas, San Miguel Mountain and Mother Miguel Mountain are visible from segments of Otay Lakes Road and East H Street paralleling the BVHS campus. ~~Telegraph Canyon Road/Otay Lakes Road (from Interstate 805 to Lower Otay Lake Olympic Parkway) is also a designated scenic roadway within 1 mile of BVHS; however, due to intervening mesa terrain to the north, the project site is not visible from the roadway.~~

The nearest scenic ~~Scenic~~ highways and roadways (i.e., SR-125, Otay Lakes Road, and East H Street) in the project area are identified on Figure 4.1-1, Scenic Roadways.

Visual Character

Photographs of the project site and surrounding area were taken during preparation of this EIR to aid in the characterization of existing visual character and quality. All photographs referenced and included in this section were taken with a GPS-enabled smartphone camera. The location of photographs referenced below is depicted on Figure 4.1-2, Existing Conditions Photograph Map.

Project Site

~~The BVHS campus and its surroundings are illustrated on Figure 4.1-2, Project Site and Surrounding Area.~~ The project site is located on the eastern portion of campus and primarily ~~is composed~~consists of the ~~BVHS turf~~ football field and surrounding dirt track, home side bleachers, adjacent areas to the north ~~occupied by~~support a field scoreboard and pole vault pit, site ~~approximately 760-person capacity bleachers, various structures,~~ landscaping, and fencing~~,~~. In addition, the project site also encompasses ~~and~~ a previously disturbed strip of land located south of the low, white painted wall to the south of the field and track, north of the parking lot and west of nearby residential development. ~~portion of the campus’s South Parking Lot.~~ Lastly, a portion of the fields located to the north of the football field would also be within the boundary of the project site.

The rectangular football field is within an oval-shaped turf area. While irrigated and maintained, during the site visit several patches of yellowish dry grass were observed, as were areas of repeated, heavy use. Soccer goals and football goal posts were observed on the field during the site visit conducted by Dudek (see Figure 4.1-3, Project Site [Photos A and B], for images of the football field and track). An oval-shaped band of dirt surrounds the football field area and comprises the campus track. The navy -blue football field scoreboard, a simple rectangular board with space for home and guest score, time remaining, and other football-specific information, is supported by four metal piers and is located north of the track (see Photo A, Figure 4.1-3). Four mature pine trees are located to the immediate north of the scoreboard and the pole vault runway is located to the south.

A low chain-link fence parallels the track on the west and a dark blue coated metal bleacher system is installed west of the chain-link fence, aligned with the football field’s 50-yard line. The bleacher system features approximately 10 rows of backless seating and is approximately 20–25 feet high. The total combined capacity for the bleacher system is 760 persons. While the bleacher system is located on the west side (home side) of the football field, no seating is currently provided on the east side (visitor~~’~~s’ side) of the field. Rather, the relatively flat terrain extending east from the grass football field transitions to a rising, partially vegetated embankment that, at the top, is approximately 10 feet higher in elevation that the football field. The embankment to the east of the football field is detectable in Figure 4.1-3 (see Photos A and B).

Mature trees are scattered along the western and southern boundary of the football field and chain-link fencing is installed to separate recreation courts (i.e., tennis and basketball) and a previous building site~~)~~ from the football field. In addition to chain-link fencing, shrubs, palm trees and a low, white painted wall are installed approximately 120 feet south of the southern football goal post. Black block text proclaiming “Bonita Vista: Home of the Barons” is affixed to the south façade of the wall. This general area is abutted by a wide strip of dirt (a section has been paved over) that extends to the east towards residential properties and then turns to the south towards East H Street. Low weedy plants are scattered across the dirt area. A small, semi-circular area of grass surrounded by paved surfaces is located to the west of this undeveloped dirt area (see Figure 4.1-3, Photo D). A single, mature pine tree is located within the semicircular area.

Lastly, athletic fields covered with irrigated grasses, patches of exposed soils, and a semi-circular dirt surface are located to the north of the football. The fields are located atop elevated terrain that is higher relative to adjacent residences to the east and north.

~~The paved South Parking Lot is dotted with tall, mature trees; has several long, solar-panel-covered parking canopies; and encompasses the majority of the campus's frontage along East H Street.~~ Surrounding Area

The project site borders residential uses to the north and east, a campus parking lot and East H Street to the south, and the BVHS campus to the west. Residential uses are located to the north and east of the campus baseball field and additional residences are located to the south of East H Street (these uses are buffered from East H Street by a small commercial shopping center and a church).

~~Surface parking lots and occasional landscaping, consisting of clustered palm trees (Arecaceae), peppertrees (*Schinus* sp.), and pine trees (*Pinus* sp.), are located along the south and west perimeters of the campus. The BVHS campus abuts s~~Single-family residential neighborhoods are located to the immediate north and east of the project site and BVHS campus. On the east, the campus boundary and project site parallel an established single-family residential neighborhood that includes one- and two-story homes. Figure 4.1-4, Surrounding Area (Photos E and F), illustrates the character of the residential neighborhoods nearest to the BVHS campus. The project site shares a fence with 12 private residential properties that are located approximately 10 feet higher in elevation than the project site. ~~, with recreational fields including the existing football field and track acting as a buffer between residences and school buildings/facilities.~~ Residential neighborhoods to the ~~- immediate~~ north and east ~~occupy a relatively small developed are~~are located atop a relatively narrow mesa landform that~~a~~ gradually ~~that is bordered by~~descends towards Bonita Long Canyon (a narrow canyon that cuts through the landscape in a northwest–southeast direction) on the east and north. ~~Residential development tends to be terraced and step down from the edge and into Bonita Vista Canyon.~~Homes nearest to the project site are located on landscaped lots accessible via a network of unstriped neighborhood roads.

In addition to the campus's student parking lot that features solar panel covered canopies and limited perimeter landscaping, East H Street, a shopping center, and a church are located to the south of the project site. East H Street is a four-lane (two -lanes in each direction) east–west road that includes turn pockets, bicycle lanes, a raised median with segments of hardscape and landscaping, and sidewalks. Located south of East H Street and east of Otay Lakes Road, the small shopping center (Otay Lakes Plaza) is marked by perimeter landscaping, a central surface parking lot, freestanding buildings on the perimeter, and a long, j-shaped building supporting multiple business. Downward oriented~~,~~ overhead lighting is spread throughout the parking lot. Landscaping consists of maintained turf and hedges and, occasionally, trees near center entrances and within parking lot islands. Uses within the shopping center are predominantly restaurants and personal services (e.g., barbershop, spas, salon, dentist office, etc.) that are housed in rectangular single-story structures clad in beige painted stucco and illuminated signage. Building roofs include sloped red-tiled roof and flat corniced sections. A single-story church is located to the east of the shopping center on a landscape property that includes tall pine trees. The blocky, tan brick structure is located on an elevated property situated approximately 7 to 10 feet higher in elevation than adjacent East H Street and is bordered by single-family residential uses to the east and south.

A neighborhood shopping center (Bonita Point Plaza) is located to the west of the BVHS campus and west of Otay Lakes Road. The local terrain falls to the west such that the shopping center is generally situated approximately 8 to 10 feet lower in elevation than adjacent Otay Lakes Road. Anchored by a grocery store and pharmacy, the shopping center features freestanding structures and businesses (primarily banking institutions and vehicle services) along the perimeter and a connected, single-story building that extends north from the larger grocery store and houses multiple businesses. The primarily one-story structures are clad in stucco painted in white and earth-tones (~~ing a~~beige, brown, and dull red) and are ~~large surface~~ separated from Otay Lakes Road by a surface parking lot bordered by sidewalk and a narrow strip of ornamental landscaping~~parking lot surrounding by various commercial retail uses anchored by a Ralphs grocery store and a Rite Aid pharmacy is located to the west across Otay Lakes Road~~. The shopping center features numerous professional service business and fast casual eating options. Downward oriented~~,~~ overhead lighting is installed throughout the center's parking lot. Photo G on Figure 4.1-4 depicts the visual character of the Bonita Point Plaza ~~A smaller commercial center with several restaurants, medical offices, and automotive businesses is located to the south across East H Street. The shopping centers are landscaped and bordered by sidewalks along street frontages.~~

While not adjacent to the project site, ~~BVHS is a public 4-year high school located in a largely suburban residential neighborhood featuring primarily single-family development but also containing multi-family complexes. Residential land uses are supported by neighborhood and regional shopping centers, schools, and neighborhood parks that are distributed throughout the surrounding area but tend to be concentrated along Otay Lakes Road and East H Street.~~ Southwestern College is located to the southwest of the BVHS and at the southwestern corner of the Otay Lakes Road/East H Street intersection. ~~, a~~A large community college with a 156-acre main campus and an annual enrollment of approximately 19,000 students, Southwest College is located approximately 200 feet to the southwest of the BVHS campus~~ and across the Otay Lakes Road/East H Street intersection~~. Campus buildings are generally centrally located and buffered from nearby residential land uses by recreational facilities, including softball and baseball fields, several ~~natural~~ grass and artificial turf practice fields, an aquatics center, ~~and~~ and a ~~a l~~large ~~sunken~~ football stadium (DeVore Stadium) that features an artificial turf surface and~~at is flanked by~~ multiple rows of~~ rows of ascending~~ concrete bleacher seats. The football field is located approximately 20 feet lower in elevation than the adjacent aquatics center (to the east), parking lot (to the west), and~~ and a~~ three--story concrete and glass campus building (to the south)~~training facility~~. The stadium also has banks of field lighting supported by six tall metal poles (and pole mounted speakers) that are used for nighttime practices, athletic events (including BVHS sporting events), and miscellaneous evening events that may be held throughout the year. Devore

Stadium is shown in Photo H on Figure 4.1-4. Outdoor pools at the adjacent ~~The~~aquatics center also features banks of outdoor lighting supported by six tall metal poles. ~~project site and surrounding area are located atop and on the slopes of an elevated mesa landform that is traversed by a series of primarily east–west-trending canyons, including Bonita Long Canyon, which is approximately 700 feet northeast of BVHS.~~

Lighting and Glare

Except for the softball field located in the northwest corner of campus, recreational facilities at BVHS do not include overhead lighting for evening and nighttime events. Overhead lighting is, however, distributed throughout the campus, including at the student and staff parking lots.

The two main roadways adjacent to the BVHS campus are East H Street and Otay Lakes Road. ~~Within the vicinity of the project site, e~~Existing lighting sources ~~on East H Street consist~~along and adjacent to these corridors include ~~of~~ traffic signals, ~~that span the Otay Lakes/East H Street intersection and~~ overhead streetlights, ~~installed along the north and south edges of East H Street from the intersection east to Auburn Avenue. Similarly, existing lighting sources along Otay Lakes Road consist of traffic signals that span the Otay Lakes Road/East H Street intersection~~parking lot lighting (at the adjacent neighborhood shopping center [Bonita Vista Plaza]), and illuminated signage affixed to commercial businesses and on low entry monuments ~~and the Otay Lakes Road/Rite Aid shopping center access driveway intersection, and overhead streetlights installed along the north and south edges of Otay Lakes Road~~. Specifically, the large parking lot at Bonita Vista Plaza includes approximately 36 overhead lights and interior lighting emanates from each of the center's storefronts.

Exterior lighting sources in the residential neighborhood to the east of the project site are generally limited to security lighting installed on the façade of individual homes. However, ~~Although limited in number,~~several tall overhead streetlights are installed along Baylor Avenue (a narrow, unstriped north–south road that borders the nearest homes to the east of the project site) ~~and within the single-family residential neighborhood located immediately east of the proposed project site~~. ~~In addition, exterior lighting is installed over or adjacent to garage and front doors and interior lighting also contributes to the existing nighttime lighting environment in the proposed project area.~~ Similar sources of lighting are also ~~installed~~ present in the single-family residential neighborhoods to the north of the project site and BVHS campus.

~~The nearby~~Located approximately 0.25 miles to the southwest of the project site, events at DeVore Stadium on the Southwestern College ~~campus features a large, sunken football stadium with a synthetic turf surface field and~~are supported by six tall stadium light poles. Each of the light poles has a pole-top luminaire assembly that ~~supports~~ includes two banks of five general-purpose high-powered LED floodlamp fixtures (10 lamps on each pole) that are directed onto the playing field surface. The football stadium is used for Southwestern College football team night games and practices during the 4-month football season (August to November) and occasionally throughout the year for other sports and campus events. Additional sources of lighting on the Southwestern College campus include overhead parking lot and interior roadway lighting, walkway lighting, exterior lighting mounted on classrooms and other campus buildings, and motor vehicle headlights.

Commercial retail uses to the south and west of BVHS also generate noticeable nighttime lighting~~ in the project area~~. ~~A retail shopping center is located south of Bonita Vista High School across East H Street.~~ In addition to interior lighting in each of eight building suites, the shopping center~~'s~~ to the south of the project site and East H Street includes a surface parking ~~lot~~lot with overhead lighting. Specifically, the parking lot includes approximately 10 overhead light-pole assemblies that contribute nighttime lighting to the local area. ~~Another retail shopping center, Bonita Vista Plaza, is located across Otay Lakes Road from the project site. Bonita Vista Plaza has a large parking lot containing approximately 36 overhead lights, and interior lighting emanates from each of the center's storefronts. Lighting from these commercial retail centers contributes to the existing nighttime lighting conditions in the project area.~~

4.1.2~~3~~ Relevant Plans, Policies, and Ordinances

Federal

There are no federal plans, policies, or ordinances related to aesthetics that are specifically applicable to the proposed project.

State

Division of the State Architect

The DSA reviews construction projects for compliance with the California Building Standards Code, as contained in Title 24 of the California Code of Regulations. The review consists of design review (construction plans, specifications, and other documents) and oversight of project construction and applies to the following:

- K–12 public schools
- Community colleges
- State-owned and leased essential services buildings

As a grade 9–12 public school, improvements and/or new construction on the BVHS campus is subject to DSA design review and oversight of project construction. As stated in Chapter 3 of this EIR, drawings and specifications for components of the proposed project, including a new restroom/concession building, ticket booth building, bleachers, track and field improvements, and a new ADA-compliant ramp in the proposed point-of-entry plaza, were approved by the DSA in 2014.

California Department of Transportation~~Caltrans~~ Scenic Highway Program

The California Scenic Highway Program was created in 1963 with the intent to "~~"~~protect and enhance the natural scenic beauty of California highways and adjacent corridors, through special conservation treatment"~~"~~ (Caltrans 2020b~~08~~). The scenic highway program identifies officially designated and eligible state scenic highways. The state laws governing the Scenic Highway Program are found in the Streets and Highways Code, Section 260 through 263. ~~The state laws that govern the Scenic Highway Program are Sections 260 through 263 of the California Streets and Highways Code. Highways that are eligible for state scenic designation consist of those listed in Section 263 of the Streets and Highways Code. If a highway is not listed in Section 263 of the Streets and Highway Code, it is the responsibility of local jurisdictions to apply for scenic highway eligibility, and additions to Section 263 can only be made through legislative action (Caltrans 2008). The Scenic Highway Program includes both officially designated scenic highways and highways that are eligible for designation. A highway may be designated as scenic based on aesthetic quality of viewable landscape, extent of views of the natural landscape, and the degree to which development impedes these views.~~

As previously stated in Section 4.1.1, Existing Conditions, the nearest officially designated state scenic highway (SR-125) is located approximately 1.5 miles east of the BVHS campus. I-5, the nearest eligible state scenic highway, is located approximately 5.75 miles to the west of the project site.

~~Once a state route is in Streets and Highways Code Section 263, it may be nominated for official designation by the local governing body with jurisdiction over the lands adjacent to the proposed scenic highway. Preparation of a visual assessment and Scenic Highway Proposal (which must include a letter of intent from the local governing body, topographic and zoning maps, and a narrative description of the scenic elements in the corridor that includes a discussion of any visual intrusions on scenic views) is required and must be submitted with the application to nominate eligible scenic highways for official designation (Caltrans 2008).~~

Local

Sweetwater Union High School District Board Policies and Resolutions

As established by Sweetwater Union High School District (District) Board Policy 1330(a), district facilities and grounds are a "community resource" and their use by community groups for purposes provided for in the Civic Center Act is authorized when such use does not interfere with school activities (District 2020a). In addition to regulations, use of district facilities by community groups is subject to availability and a fee schedule. For example, the current fair rental value for a grass field is $30 per hour (2 hour minimum) and a football stadium with lights is $125 per hour (2 hour minimum).

Also, Administrative Regulation 1330.1(a) dictates the use of artificial turf on district facilities (primarily recreational fields). Athletics and rotated activities are approved activities for artificial turf installation and Administrative Regulation 1330.1(a) contains additional policies pertaining to acceptable footwear, vehicles on artificial turf, and maintenance and care (District 2020b).

City of Chula Vista General Plan

In addition to identifying scenic vistas and designated scenic roadways (see Section 4.1.2, Existing Conditions, for further detail) the Land Use and Transportation ~~(LUT)~~ Element of the City's General Plan contains policies aimed at achieving three overarching goals: (1) safe, healthy, walkable, and vibrant communities with a balance of jobs and housing; (2) a mix of land uses that meets community needs and generates sufficient revenue for public facilities, services, and amenities; and (3) a sustainable circulation/mobility system that provides transportation choices and is well integrated with the City's land uses (City of Chula Vista 2005).

The following policies of the City's General Plan Land Use and Transportation ~~LUT~~ Element concern aesthetics/visual resources and are therefore relevant to the proposed project (City of Chula Vista 2005):

Policy LUT 6.2: Require that proposed development plans and projects consider and minimize project impacts upon surrounding neighborhoods.

Policy LUT 13.1: Identify and protect important public viewpoints and viewsheds throughout the Planning Area, including features within and outside the planning area, such as: mountain; native habitat areas; San Diego Bay; and historic resources.

~~Policy LUT 13.4 concerns design review for any discretionary project adjacent to a scenic route. Because the proposed project is not subject to the City's discretionary review or design review process (instead, the proposed project is subject to DSA design review and oversight of construction), Policy LUT 13.4 is not particularly applicable to the proposed project.~~

City of Chula Vista Municipal Code

~~Section 15.26.020, Outdoor Lighting Zones, of the City's Municipal Code establishes an outdoor lighting zones map for the City. The outdoor lighting zones map amended state default lighting zones for certain areas of the City. The map is kept on file with the City Planning and Building Department.~~

Chapter 17.28.010, Unnecessary Lights: Purpose and Intent of Provisions, of the City's Municipal Code provides "reasonable restrictions and limitations upon the use of lighting in or near the residential zones of the City so as to prevent lighting from creating a nuisance to residents within said residential zones" (~~City of Chula Vista 20~~CVMC 17.28.010~~16~~). ~~In regard to~~Regarding potential issues concerning lighting in or near residential areas, Section 17.28.010(D) states that "by virtue of its intensity, brightness, direction, duration and hours of operation, [lighting] can constitute a nuisance to adjacent residential dwellers." ~~(City of Chula Vista 2016).~~ Although the Municipal Code does not address lighting for facilities within the Public & Quasi Public zone (the underlying zoning and land use designation of BVHS), Section 17.28.030 establishes lighting regulations for residential districts. Adjacent properties to the east and north of BVHS are designated for low-~~–~~medium residential and low residential use and consist of existing single-family residential properties. Pursuant to Section 17.28.030~~3~~, "it is unlawful for any person in a residential zone to maintain lighting upon premises under his ownership or control for any purpose between the hours of 11:00 p.m. and 6:00 a.m. in a manner so that the beams, rays, reflections or diffusions from the lighting spill out, over or onto adjoining or neighboring residential properties." ~~(City of Chula Vista 2016).~~ In addition, Section 17.28.060 states that lighting that is unshielded or directed such that beams focus directly on adjacent residential properties ~~is prohibited at all times~~is always prohibited.

County of San Diego Outdoor Light Pollution Code

The County of San Diego (County) establishes regulations pertaining to the minimization of lighting pollution and preservation of dark skies in Title 5, Chapter 2, Light Pollution, in the San Diego County Code of Regulatory Ordinances (San Diego County Code of Regulatory Ordinances, Section 51.201 et seq.). Sections 51.201 through 51.209 of the San Diego County Code are also collectively referred to as the Light Pollution Code. The regulations of the Light Pollution Code only apply to land uses and properties within the unincorporated portions of the County; therefore, they are not requirements for the proposed project. However, in consideration of potential regional influences of lighting effects, these regulations are presented in this analysis and provide guidance for the analysis of potential effects to dark skies. Specifically, the Palomar Mountain and Mount Laguna Observatories have been identified by the County as valuable resources that should be protected from the effects of light pollution. Lamp type and shielding requirements for outdoor lighting fixtures are provided in the County's Outdoor Light Control Ordinance for the preservation of dark skies surrounding these resources within a 15-mile radius of observatories ("Zone A") or outside a 15-mile radius of observatories ("Zone B"). BVHS is located approximately 50 miles from the Palomar Mountain Observatory and 38 miles from the Mount Laguna Observatory and is thus situated in Zone B.

Further, the Light Pollution Code differentiates outdoor lighting by primary use and categorizes lighting into one of three classes. For example, Class I lighting consists of outdoor lighting for outdoor sales or eating areas or recreation facilities, and Class II lighting includes outdoor lighting for walkways, roadways, and parking lots. Class III lighting consists of outdoor lighting for decorative effects. Proposed field lighting at BVHS would be considered Class I lighting and all other proposed lighting (entry plaza lighting, exterior mounted lighting on new structures, etc.) would be considered Class II lighting.

Lastly, Section 51.206 (a)(4), Hours of Operation, of the Light Pollution Code provides that all Class I lighting shall be off between 11:00 p.m. and sunrise, with the exception that lighting at an outdoor recreational facility may remain on to allow an organized recreational event in progress to be completed, provided the event and the facility are not violating the terms of any permit issued by the County or any law or regulation.

County of San Diego Guidelines for Determining Significance and Report Format and Content Requirements: Dark Skies and Glare

While not subject to the land use jurisdiction of the County, the County's Guidelines for Determining Significance and Report Format and Content Requirements: Dark Skies and Glare was reviewed to further understand concerns regarding dark skies and glare and identify more specific thresholds compared to the general guidelines established by Appendix G of the CEQA Guidelines.

The County acknowledges that "rapid growth and urban sprawl in southern California has resulted in significant increases in nighttime light, which is produced primarily by upward pointing or upward reflected light from outdoor lighting. This type of lighting illuminates the nighttime sky from below, just as the sun does from above in the daytime and can be detrimental to astronomical observations by impacting dark skies. Nighttime light that spills outside its intended area and lighted signs can be annoying to neighbors and potentially harmful to motorists, cyclists, and pedestrians" (County of San Diego 2009).

According to the County, the following significance guidelines should guide the evaluation of whether a significant impact to dark skies or from glare will occur as a result of project implementation (County of San Diego 2009):

- Would the project install outdoor light fixtures that do not conform to the lamp type and shielding requirements described in Section 59.105 (Requirements for Lamp Source and Shielding) and are not otherwise exempted pursuant Section 59.108 or Section 59.109 of the San Diego County Light Pollution Code?
- Would the project operate Class I or Class III outdoor lighting between 11:00 p.m. and sunrise that is not otherwise exempted pursuant Section 59.108 or Section 59.109 of the San Diego County Light Pollution Code?
- Would the project generate light trespass that exceeds 0.2 foot-candles measured five feet onto the adjacent property?

- Would the project install highly reflective building materials, including but not limited to reflective glass and high-gloss surface color, that will create daytime glare and be visible from roadways, pedestrian walkways or areas frequently used for outdoor activities on adjacent properties?
- Does the project not conform to applicable Federal, State or local statute or regulation related to dark skies or glare, including but not limited to the San Diego County Light Pollution Code?

4.1.34 Thresholds of Significance

The significance criteria used to evaluate the proposed project's impacts to aesthetics were based on Appendix G of the 2020~~19~~ ~~California Environmental Quality Act (~~CEQA~~)~~ Guidelines (14 CCR 15000 et seq.). According to Appendix G and except as provided in California Public Resources Code, Section 21099, a significant impact related to aesthetics would occur as a result of project implementation if the project would:

1. Have a substantial adverse effect on a scenic vista.
2. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.
3. In non-urbanized areas, ~~S~~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 ~~publically~~publicly accessible vantage point.)~~.~~ In an urbanized area, conflict with applicable zoning and other regulations governing scenic quality.
4. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

In accordance with California Public Resources Code, Section 21071, an urbanized area is an incorporated area that has a population of at least 100,000 persons or, if less than 100,000 persons, if the population of that city and not more than two contiguous incorporated cities combined equals at least 100,000 persons. According to the State Department of Finance, the City of Chula Vista (as of January 1, 2020) had a total population of 272,202 (Department of Finance 2020). As such, the City of Chula Vista is an urbanized area and potential conflicts with applicable zoning and other regulations governing scenic quality is the appropriate threshold of significance.

Although the County is neither the lead agency nor a responsible agency for the proposed project, the lighting thresholds of the County's Guidelines for Determining Significance and Report Format and Content Requirements: Dark Skies and Glare (Dark Skies and Glare Guidelines; County of San Diego 2009) are addressed in addition to Appendix G of the CEQA Guidelines. According to the Dark Skies and Glare Guidelines, a project would generally be considered to have a significant effect if it proposes any of the following, absent specific evidence to the contrary:

1. The project will install outdoor light fixtures that do not conform to the lamp type and shielding requirements described in Section 59.105 (Requirements for Lamp Source and Shielding) and are not otherwise exempted pursuant Section 59.108 or Section 59.109 of the San Diego County Light Pollution Code.
2. The project will operate Class I or Class III outdoor lighting between 11:00 p.m. and sunrise that is not otherwise exempted pursuant Section 59.108 or Section 59.109 of the San Diego County Light Pollution Code.
3. The project will generate light trespass that exceeds 0.2 foot-candles measured five feet onto the adjacent property.

Because ~~one of the~~a primary component~~s~~ of the proposed project is new field lighting ~~and this component~~that would be installed near residential neighborhoods, use of a quantitative threshold for light trespass more ~~directly~~ specifically addresses the ~~potential for~~severity of potential off-site lighting impacts. Therefore, both the lighting thresholds of Appendix G of the CEQA Guidelines and those for the County's Dark Skies and Glare Guidelines are addressed below.

4.1.4~~5~~ Impacts Analysis

Would the project have a substantial adverse effect on a scenic vista?

The City's ~~As stated in Section 4.1.2, San Miguel Mountain/Mother Miguel Mountain is the only~~General Plan identifies San Miguel Mountain and Mother Miguel Mountain as scenic resources ~~identified in the General Plan~~ that are~~is~~ visible from public roadways ~~(i.e., Otay Lakes Road and East H Street)~~ and residences in the immediate project area. ~~BVHS is located in a suburban neighborhood of the City; more specifically, the campus is located at the northeastern corner of the Otay Lakes Road/East H Street intersection. BVHS is bounded by developed, four-lane roadways to the west and south and by single-family residential development to the north and east.~~Specifically~~ R~~, relatively long (albeit brief and regularly screened) views across the BVHS campus to the San Miguel Mountain and ~~n/~~Mother Miguel Mountain are available to ~~passing~~ south and northbound Otay Lakes Road motorists ~~on Otay Lakes Road~~from approximately Ridgeback Road/Canyon Drive to the westerly campus intersection/driveway (a distance of approximately 275 feet). Along this segment, the prominent mountain terrain is regularly screened by ornamental trees, rising foreground terrain, and structures and fencing at the BVHS softball field. Because field improvements, including (up to approximately~~ to~~ 90-foot-high each) high poles supporting field lights, would not be within motorists' line of sight to San Miguel Mountain and Mother Miguel Mountain (the football field is located to the east and southeast of this segment of Otay Lakes Road and the prominent mountains are located to the northeast), proposed improvements would not block or substantially interrupt or detract from existing views to the General Plan identified scenic resources. Other project components including entry area facilities, site landscaping, the asphalt concrete paved, fenced practice area, and the stockpiles/low hills proposed in the northeast corner of campus would not be visible from Otay Lakes Road due to intervening campus terrain and development. Therefore, impacts to existing views from Otay Lakes Road to General Plan identified scenic resources would be less than significant.

San Miguel Mountain and Mother Miguel Mountain are also briefly visible from the segment of eastbound East H Street that fronts the BVHS campus. Specifically, San Miguel Mountain is detectable in northwesterly views above the solar panel covered campus parking lot. In addition to the solar panel canopies, tall ornamental trees planted along the southern campus perimeter regularly obscure distant mountainous terrain to the northwest from views of eastbound motorists. Tall campus perimeter landscaping is not present beginning approximately 450 feet east of the East H Street/Otay Lakes Road intersection and from this point east to the southern campus driveway (approximately 360 feet), visibility to San Miguel Mountain is improved. Through this improved viewing corridor, field lights, bleachers and other project components located at the football field (located to the north of East H Street) are not within motorists' line of site to San Miguel Mountain (located to the northwest). Similarly, proposed low hills to the north of the football field area would not be within motorist's line of sight to San Miguel Mountain. Further, existing mountain views are occasionally interrupted by vertical elements including streetlights, parking lot lights, and public and private landscaping.

Along the identified 360-foot-long viewing corridor, distant San Miguel Mountain is visible above foreground residential homes that are located southeast of the project site. Project components in the southern portion of the project site, including (1) the paved practice area with egress sidewalk lighting~~,~~ and (2) the entry area with concessions and restroom facilities, would be visible from East H Street. Proposed overhead egress lighting would be installed along a sidewalk to the west of the fenced practice area and would illuminate two gated entrances. See Figure 4.1-6, Conceptual Site Plan and Rendering of Practice Field. Lighting would be supported by metallic poles (approximately 15- to 20-feet high) and the concessions/restroom facility building would be approximately 16 feet high (as measured from finished floor to top of parapet). Light poles would display a thin profile consistent with taller campus parking lot lighting and streetlights currently visible from East H Street. In addition, small landscape trees (Crape Myrtle or similar) are proposed around the perimeter of the practice area (see Figure 4.1-6) and to the east and west of the concessions/restroom facility building. Consistent with existing landscape maintenance on campus, new trees would be regularly maintained; because the installation of smaller trees is proposed, substantial view blockage of long duration is not anticipated. As such, components in the southern portion of the project site would not include prominent vertical elements that would substantially block or interrupt partially obstructed views to San Miguel Mountain and Mother Miguel Mountain. Impacts would be less than significant.

While not identified in the City's General Plan, Otay Mountain and Lyons Peak are distant yet visible from southbound Otay Lakes Road and eastbound East H Street. Improvements proposed in the southern portion of the BVHS campus would not be detectable in southerly views from Otay Lakes Road towards Otay Mountain. Improvements would be in the peripheral view of eastbound East H Street motorists; however, project components including field lights, entry area facilities, fenced practice area and egress sidewalk lighting and landscaping would not be within the direct line of sight to Lyons Peak. In addition, and under existing conditions, Lyons Peak is partially screened from view by landscaping located along the East H Street corridor. Therefore, proposed improvements at BVHS would not substantially affect existing views to Otay Mountain and Lyons peak. Impacts would be less than significant.

~~and the distant silhouette of Cowles Mountain may be detected by passing East H Street motorists. However, the duration of available views is brief and views tend to be interrupted by BVHS campus perimeter landscaping and campus buildings/structures, including solar-panel-covered canopies in the campus's South Parking Lot (which is immediately north of East H Street). In addition, the local terrain tends to slope upwards east of Otay Lakes Road and as a result, campus athletic fields and buildings/structures are located at a greater elevation than the roadway surface, which restricts the length of views.~~

~~Given that the approach to BVHS and areas adjacent to BVHS does not afford opportunities for particularly open and broad views to General Plan-designated scenic resources, and due to the thin vertical profile of field lighting poles that are not anticipated to substantially obstruct distant topographical features from the view of passing Otay Lakes Road and East H Street motorists and area residents, impacts on scenic vistas would not be substantial. Further, due to the presence of existing solar-panel-covered parking canopies, landscaping in and near the South Parking Lot, and tall trees at the northern end of the athletic field near the scoreboard, the introduction of point-of-entry plaza elements including landscaping and restroom/concession and ticket booth structures along the southern end of the athletic field would not substantially alter or degrade the currently obstructed views to distant topographical features afforded to passing East H Street motorists. Therefore, implementation of the proposed project would not have a substantial adverse effect on a scenic vista and impacts would be less than significant.~~

Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

~~Anticipated impacts to existing views from Otay Lakes Road and East H Street (i.e., locally designated scenic roadways) were described previously under scenic vista effects. Because the~~

~~scenic highway threshold is specific to state scenic highways, locally designated scenic roadways are not considered in the impacts analysis below.~~

SR-125 is the closest officially designated state scenic highway to the project site and is located approximately 1.5 miles east of BVHS. Due to distance, the presence of bermed land, and upward-sloping canyon slopes west of SR-125, ~~the majority of~~most of the proposed improvements at BVHS would not be visible from the state route. Near the Proctor Valley Road undercrossing~~ of SR-125~~, the silhouettes of four light poles installed on BVHS ~~southbound state route motorists~~ may be visible to southbound SR-125 motorists over an approximate 1,000--foot -long segment of the state route. ~~be afforded brief views to the new field lights installed at BVHS.~~ However, from SR-125, the campus is approximately 1.4 miles away, views to proposed field lights would be experienced briefly by highway motorists, and~~ implementation of the proposed project~~ campus improvements would not result in damage to scenic features in the viewshed such as foreground canyon terrain and vegetation. Further, similar vertical structures (i.e., power poles) are currently located in west-oriented views towards the campus and due to prominent height and location atop canyon terrain, several structures are silhouetted against the sky. ~~p~~Proposed improvements at BVHS would also not damage rock outcroppings or historic buildings as ~~(~~these resources are not present ~~within the project site~~on the BVHS campus~~)~~. Lastly, vegetation removal occurring within the limits of the project site would not be visible to motorists on SR-125 due to intervening terrain and development. Because implementation of the proposed project would not substantially damage scenic resources within a state scenic highway, impacts would be less than significant.

Due to distance and intervening development and terrain, the project site is not visible from I-5. As such, no impacts to existing views from I-5 (an eligible state scenic highway) would occur.

Anticipated impacts to existing views from locally designated scenic roads including Otay Lakes Road and East H Street ~~(i.e., locally designated scenic roadways)~~ were described previously under scenic vista effects. In addition, local roads are not components of the state scenic highway program. ~~Because the scenic highway threshold is specific to state scenic highways, locally designated scenic roadways are not considered in the impacts analysis below.~~Therefore, potential impacts to locally designated scenic roads are not addressed within this threshold. Please refer to the scenic vista threshold discussion above.

~~Would the project substantially degrade the existing visual character or quality of the site and its surroundings?~~ In non-urbanized areas, would the project 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?

While the City of Chula Vista is not listed as an "urbanized area" by the U.S. Census Bureau, the current estimated population of the City is 271,411 (U.S. Census Bureau 2019; ~~State of~~ California Department of Finance 2020). As such, the City is considered an urbanized area for purposes of this analysis. As such, the focus of the analysis below concerns potential project conflicts with applicable zoning and other regulations governing scenic quality. ~~.~~

As agencies of the state for the local operation of a statewide school system, school districts are generally exempt and not subject to local regulations. For example, the City applies the Single-Family Residence Uses (R1) zone to the BVHS campus and surrounding single-family residential lands. Pursuant to Municipal Code Section 19.24.040(E), unclassified uses, including colleges, universities, private schools, and elementary and secondary public schools (see Municipal Code Section 19.54.020[D]), are permitted within the R-1 zone but are subject to conditional use permits. Despite the requirements of the municipal code, the District has not been required to process a conditional use permit with the City for continued operation of the BVHS campus. While the District is not generally subject to City general plan policies and zoning regulations, an analysis with relevant policies and regulations identified in Section 4.1.2 is provided below for general informational purposes.

- **General Plan Policy LUT 6.2:** Require that proposed development plans and projects consider and minimize project impacts upon surrounding neighborhoods.

Analysis. In addition to potential aesthetic impacts, impacts related to air quality, energy, greenhouse gas emissions, noise generation, traffic, and tribal cultural resources are assessed in this EIR. Specific to aesthetics, this section considers potential impacts to existing scenic views and vistas, conflicts with applicable scenic quality regulations, and substantial light and glare that would adversely affect day and/or nighttime views in the area.

Proposed project facilities are depicted in Figure 4.1-5, Conceptual Renderings of Project Facilities. As depicted in the figure, the District intends to modernize the existing BVHS football field and bleachers and improve the experience of athletes, parents, and visitors. In addition to the installation of a new artificial turf field and all-weather track surface, a new and expanded bleacher system is proposed for the home side of the field. A smaller bleacher system is proposed for the visitor side (bleachers are not currently present on the visitors' side). Field lights would be supported by four light poles (up to approximately ~~to~~ 90-foot-high each) installed to the east and west of the field and would be utilized by BVHS and accessible for community use. When in use, field lights would be shut off no later than 10:00 p.m.

A formal entry is proposed at the southern end of the football field. The entry area would be ADA accessible, would feature entrances for home and visitors' sides, and would include covered concessions and restroom facilities. Compared to the existing conditions of the BVHS football field (see Figure 4.1-3), the visual quality of the Project site would be improved once all components are installed. The current visual setting of the existing turf field, dirt track, and small bleacher system would be replaced by a modern, more aesthetically pleasing and integrated facility designed with cohesive elements, including the application of school colors and use of relatively low, horizontal lines.

Regarding lighting, field lighting would display a bright, blue-white light and would generate a luminaire output of between 52,000 lumens and 160,000 lumens. A photometric study was prepared for proposed field lighting with the intent of characterizing calculated lighting levels/light trespass at the campus boundary (including at the nearby property line to the east). Design components, including luminaire type, mounting height, number of luminaires per pole, inclusion of hoods or shields, and precision focus/angling, are accounted for in lighting level calculations. Based on the illumination summary prepared for project field lighting, maximum lighting levels at the campus's eastern property line would be 0.09 foot-candles and the average lighting levels at the campus boundary would be 0.0136 foot-candles (Musco Lighting 2020). While the City does not have a light trespass threshold, calculated light trespass would be below the County's quantitative threshold of 0.2 foot-candles as measured 5 feet onto the adjacent property line.

Regarding glare, field lighting fixtures/luminaires would be shielded and focused on the playing field (and track surface) and bleachers. Further, field lights would operate during hours of active use and within the permitted timeframes established by the San Diego County Light Pollution Code. While there may be potential for field lighting to be scattered or reflected, such as by certain atmospheric conditions (e.g., fog or clouds) or aerosols in the air including dust or pollen, which could create nuisance glare, use restrictions, the use of shields, and downward focus of fixtures (measures suggested by the Illuminating Engineering Society of North America to minimize glare) would limit nighttime glare.

Because this EIR considers project impacts and the project has been designed to minimize impacts to surrounding neighborhoods to the extent practicable, the project would be consistent with Policy LUT 6.2. As such, impacts would be less than significant.

- **General Plan Policy LUT 13.1:** Identify and protect important public viewpoints and viewsheds throughout the Planning Area, including features within and outside the planning area, such as: mountain; native habitat areas; San Diego Bay; and historic resources.

Analysis. Important public viewpoints and viewshed throughout the City are identified in the General Plan. As discussed in the scenic vista analysis above, views to distant mountains including San Miguel Mountain, Mother Miguel Mountain, Lyons Peak, and Otay Mountain are available from public roads and private residences in the vicinity of the BVHS campus. Because CEQA does not generally protect views from private residences, the scenic vista analysis focuses on views to mountainous terrain available from public vantage points and specifically~~,~~ roads lining the west and south perimeter of the BVHS campus. Project effects to existing views to San Miguel Mountain, Mother Miguel Mountain, Lyons Peak, and Otay Mountain were determined to be less than significant (refer to the scenic vista threshold analysis above). Since existing views from public roads in near BVHS would not be adversely affected, views would be protected consistent with the intent of Policy LUT 13.1.

In addition to nearby roads, views from more distant locations including roads, recreation areas, sidewalks, and other locations in the public realm would be protected. With increased distance, the prominence of project components (specifically, the up to approximately 90-foot--tall light poles and associated lights) would be reduced and would attract less attention in views towards distant mountain terrain. In addition, field lights would be shielded and directed downward to maximize illumination of playing surfaces and minimize opportunities for skyglow and light trespass. The use of field lighting would also be extinguished following BVHS games or practices by no later than 10:00 p.m. during active use. Field and stadium light use by community groups on the weekends or generally, when not in conflict with campus use, would also be restricted and extinguished by no later than 10:00 p.m. Community group use is subject to administrative staff approval, availability, and payment of rental fees. Lastly, tall project components (i.e., light poles) would be visible within a wider viewshed containing existing vertical elements of similar height such as light poles, streetlights, and ornamental trees.

- **Chapter 17.28, Unnecessary Lights**, of the City's Municipal Code includes restrictions and limitations upon the use of lighting in or near the residential zones of the City to prevent lighting from creating a nuisance to residents (City of Chula Vista 2016). Specifically and pursuant to Section 17.28.0303, the Municipal Code finds that it is "unlawful for any person in a residential zone to maintain lighting upon premises under his ownership or control for any purpose between the hours of 11:00 p.m. and 6:00 a.m. in a manner so that the beams, rays, reflections or diffusions from the lighting spill out, over or onto adjoining or neighboring residential properties" (City of Chula Vista 2016). Lastly, Section 17.28.060 states that lighting that is unshielded or directed such that beams focus directly on adjacent residential properties is always prohibited.

Analysis. Project components, including proposed field lighting, are described in detail in Chapter 3, Project Description, of this EIR. As discussed therein, proposed field lights would generally be on every night from November through February from dusk until approximately 10:00 p.m. During the spring season (March to May), the athletic field would be used for boys' and girls' lacrosse games and track meets and lights would generally be operable from dusk until approximately 10:00 p.m. The athletic field also has the potential to be used for band practices and miscellaneous evening and daytime events throughout the year, including community use when such use has not been suspended such as during a public health order. During weekend use by the school and/or community, field and field light use would cease by 10:00 p.m. at the latest and would be subject to administrative staff approval, availability, and payment of rental fees. As project lighting, including field lights, would not operate between the hours of 11:00 p.m. and 6:00 a.m., project light usage would be consistent with Municipal Code Section 17.28.0303.

Regarding Section 17.28.060 of the Municipal Code, all luminaires installed atop light poles at BVHS would include hooded/shielded housing and would be directed onto the football field, track, and bleacher areas to provide appropriate lighting levels. For optimal illumination of the playing surface, track, and other locations within the project boundary, field lights would be focused on the project site and would not be focused (either directly or indirectly) onto adjacent residential properties. Additional detail regarding the operation of project lighting and anticipated light trespass onto adjacent residential properties to the east of the football field is provided in the light and glare threshold analysis below.

Because the operation of project-related lighting would be consistent with Sections 17.28.0303 and 17.28.060 of the City Municipal Code regulating the unnecessary lighting, conflicts with scenic regulations in the Municipal Code would be less than significant.

~~Proposed improvements to the BVHS athletic field are depicted on Figure 4.1-3, BVHS Track and Field – Proposed Improvements. Although BVHS proposes to replace the existing dirt track and natural turf athletic field with all-weather, synthetic surfaces, add new bleachers that would increase the seating capacity by over 2,000 people, and introduce a new field lighting and PA sound system, the project site currently functions as the campus's football and track and field athletic facility. As proposed, existing athletic facilities and the experience of attending an athletic event on campus would be improved, seating opportunities would be enhanced, and the campus would have the opportunity to use the field for night practices and athletic events. In addition, other evening events may be held on the field throughout the year. As depicted on Figure 4.1-4, BVHS Track and Field Improvements – Conceptual Images, the proposed project would alter the appearance of the existing football field and track; however, it would also modernize these facilities and provide for increased on-campus use.~~

~~Enhanced seating opportunities, a new PA sound system, and new field lighting would entail the introduction of increased and/or new noise sources and nighttime lighting elements to the project site and its surroundings, and those effects are addressed elsewhere in this EIR (see Section 4.2, Noise, for anticipated noise effects and the light and glare threshold below and Appendix A for a discussion of lighting effects). Despite the potential for nuisance noise and nighttime lighting, the introduction of proposed improvements and features to an existing athletic facility that already experiences similar year-round programming (with the exception of nighttime use) would not substantially degrade the existing visual character or quality of the site and its surroundings. New lighting poles would display a tall, vertical form that would rise~~ up to ~~approximately 90 feet over the football field and track and new bleachers (2,000-person-capacity seating for BVHS spectators and 1,000-person-capacity seating for visiting school spectators) would be wider and taller than the existing, approximately 760-person-capacity BVHS spectator bleachers; however, these elements would support athletic events and programming that currently occur on site. Further, the increased activity and presence of additional spectators on the project site would generally be limited to weekly or bi-weekly games lasting a matter of hours, and the lighting and PA sound system would not operate beyond 10 p.m. and would not operate outside of games and practices or other special events. The field would be used throughout the school year during evening hours; however, the majority of nighttime use would be for various team practices, which are not anticipated to draw the same number of spectators as scheduled games. Therefore, because improvements are proposed at an existing campus athletic facility and the new elements are commonplace on high school campuses throughout the District and County, impacts to the existing visual character or quality of the project site and its surroundings would be less than significant.~~

~~As stated previously, potential noise effects are described in Section 4.2, and potential traffic-related impacts are assessed in Section 4.3. Impacts to other issue areas, including Land Use, Hazards and Hazardous Materials, and Utilities and Service Systems, were determined to be less than significant and are described in more detail in Chapter 5.~~

Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Lighting

~~As further detailed in the Lighting Study for the proposed project (see Appendix A), t~~The new lighting system installed at the BVHS athletic field would comply with the applicable County of San Diego Outdoor Light Pollution Code Zone B lamp type and shielding requirements for Class I lighting. Specifically, all field lighting fixtures would be fully shielded. Project lighting ~~and~~ would also comply with County Light Pollution Code and City Municipal Code regulations governing hours of operation for Class I lighting. All project-related lighting would be off between 11:00 p.m. and sunrise. In addition, ~~light emitted~~illumination associated with the operation of new field lights ~~from the new lighting system at BVHS~~ would not exceed the County's ~~applicable~~ light trespass/spillover foot-candle significance threshold ~~established by the County to protect~~for adjacent properties from lighting impacts. As depicted on ~~the illumination summary figures of the Photometric Study~~Figure 4.1-7, Light Trespass, light trespass (i.e., light extending beyond the project site boundary to adjacent properties) associated with ~~(Musco Lighting 2016),~~ the new field lights~~ing~~ ~~system would generate light trespass~~was calculated to be ~~calculated to be approximately~~ 0.09~~5~~ ~~(or less)~~ foot-candles (or less) ~~measured~~ at the adjacent residential property line to the east. Light trespass ~~of the athletic field and 0.00 foot-candles measured~~ at the residential property line to the north of the football and baseball~~athletic~~ fields (see Figures 4.1-~~5~~ 7, Light Trespass) was calculated to be 0.00 foot-candles~~and 4.1-6, Calculated Horizontal Foot-Candles at 5 Feet beyond Eastern/Northern Property Line)~~. At the nearest residential property lines to the east and north, ~~Both~~ the horizontal foot-candle measurements associated with ~~residential properties to the north and east of the BVHS athletic field depicted are shown~~new field lights would ~~to~~ be less than the 0.2 foot-candle significance threshold identified by the County (County of San Diego 2009)~~ for significant light trespass impacts~~. Further, field lighting would include hooded fixtures that would shield light emitted by new lamps and minimize the potential for skyglow. Thus, the operation of field lights would result in less than significant light trespass and lighting impacts.

Although a specific lighting schedule for proposed Class II lighting sources at the ~~point of~~ entry ~~plaza~~ area featuring concessions and restroom facilities and the practice area ~~and new structures~~ has not yet been developed, most new ~~lamps~~ lighting fixtures are anticipated to include hooded ~~fixtures~~ housing/shields that would ~~maximize useful light~~direct light onto active use areas and minimize trespass light and potential for skyglow. Egress lighting sources along a sidewalk adjacent to the western extent of the fenced practice area would be limited in number, would not be focused onto nearby residential uses, and use would be restricted to the hours of morning to evening/night. -Given the limited area required to be illuminated and associated limited number of fixtures, entry and practice area sidewalk lighting would result in less than significant lighting impacts.

Based on the rationale provided above, the combined effect of new lighting operating on the project site would have a less than significant impact on nighttime views in the area.

~~As such, design and operation of the new field lighting system and lighting elements at the point of entry plaza would result in less-than-significant impacts associated with lighting (i.e., impacts to dark skies and existing nighttime views of adjacent properties due to light spillover) and glare.~~ **Glare**

Glare is a visual sensation caused by excessive and uncontrolled brightness. Glare can be uncomfortable (discomfort glare) or disabling (disability glare). Proposed field lights would be supported by up to approximately 90-foot--tall poles. The mounting height of luminaries/lighting fixtures would generally be 80-90 feet (several located along the east/visitor~~'~~s' side would be mounted at a height of 90 feet). In total, the four light poles to be installed around the proposed football field would support approximately 66 lighting fixtures.

As detailed above, proposed field lighting of the BVHS football field has been calculated to be less than the County's light trespass threshold of 0.2 -foot-candles at the campus boundary. In addition, new lighting would be installed with precision to ensure that field, track, and bleacher lighting is optimized~~,~~ and spill lighting and glare is minimized. Field lights would also be mounted at heights of up to approximately 90 feet high on support poles, which would increase the effectiveness of controlling spill light and allow for more controlled light distribution. In addition, field light fixtures would be hooded and directed downward onto the project site such that nighttime glare would be minimized by disrupting (to the extent practicable) direct line of sight to lighting fixtures. Lastly, use of field lights would be restricted to between dusk and 10:00 p.m. during times of active and permitted use.

While there may be potential for field lighting to be scattered or reflected, such as by certain atmospheric conditions (e.g., fog or clouds)~~,~~ or aerosols in the air, including dust or pollen, which could create nuisance glare, use restrictions, the use of shields, and downward focus of fixtures (measures suggested by the Illuminating Engineering Society of North America to minimize glare) would limit nighttime glare. As such, nighttime views in the area would not be substantially affected and glare impacts associated with the project would be less than significant.

4.1.5~~6~~ Mitigation Measures

All impacts would be less than significant and no mitigation measures are proposed or required.

4.1.6~~7~~ Level of Significance After Mitigation

All impacts would be less than significant and no mitigation measures are proposed or required.

4.1.7~~8~~ References

14 CCR 15000–15387 and Appendices A–L. Guidelines for Implementation of the California Environmental Quality Act, as amended.

~~Caltrans (California Department of Transportation). 2008. "Scenic Highway Guidelines." Caltrans Landscape Architecture Program, Division of Design. October 2008.~~

Caltrans (California Department of Transportation). 2020a~~16~~. Lists of Eligible and Officially Designated Scenic Highways. www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/sdiego.htm. ~~"Scenic Highways: San Diego County."~~ Accessed ~~December 2, 2016~~August 17, 2020. ~~www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/sdiego.htm.~~

Caltrans. 2020b. "Scenic Highway Guidelines." Caltrans Landscape Architecture Program, Division of Design. October 2008.

City of Chula Vista. 2005. Chula Vista General Plan: Vision 2020. Adopted December 13, 2005. Amended March 2015.

City of Chula Vista. 2016. Municipal Code Chapter 17.28. Unnecessary Lights.

County of San Diego. 2009. *County of San Diego Guidelines for Determining Significance and Report Format and Content Requirements: Dark Skies and Glare*. Adopted July 30, 2007, and modified January 15, 2009.

Department of Finance. 2020. *Report E-1 Population Estimates for Cities, Counties, and the State. January 1, 2019 and 2020*. Released May 1, 2020. ~~http://www.dof.ca.gov/Forecasting/Demographics/Estimates/e-1/~~http://www.dof.ca.gov/Forecasting/Demographics/Estimates/e-1/.

District (Sweetwater Union High School District). 2020a. Board Policy 1330 Community Relations. Accessed August 17, 2020. http://www.gamutonline.net/district/sweetwater/.

District. 2020b. Board Policy 2020b. Board Policy 1330.1 Artificial Turf. Accessed August 17, 2020. http://www.gamutonline.net/district/sweetwater/.

Lord Architecture. 2020. *Sweetwater Union High School District Bonita Vista High School – Stadium Concession and Restroom Building. Design Development*. June 5, 2020.

Musco Lighting. 2020~~16~~. ~~*Photometric Study*~~*Illumination Summary for the Bonita Vista High School Athletic Fields Improvement Project*. ~~November 16, 2016~~May 11, 2020.

~~NTD Architecture. 2014 Bonita Vista High School Artificial Track + Field for the Sweetwater Union High School District. DSA Plan Submittal (Civil, Landscape, Track & Field Design, Architectural, Structural Plumbing Electrical, and Exterior Bleachers). May 20, 2014.~~

San Diego County. Code of Regulatory Ordinances, Sections 51.201–51.209. Light Pollution Code.

~~Sweetwater Union High School District (SUHSD). 2020a. Board Policy 1330 Community Relations. Accessed August 17, 2020. http://www.gamutonline.net/district/sweetwater/. Accessed August 17, 2020.~~

~~SUHSD. 2020b. Board Policy 2020b. Board Policy 1330.1 Artificial Turf. Accessed August 17, 2020.. Accessed August 17, 2020.~~

U.S. Census Bureau. 2019. "2010 Census Urban and Rural Classification and Urban Area Criteria." Las updated December 2, 2019. Accessed April 2020. https://www.census.gov/programs-surveys/geography/guidance/geo-areas/urban-rural/2010-urban-rural.html.

DUDEK

SOURCE: Bing Maps (Accessed 2016)

FIGURE 4.1-1

Scenic Roadways

Bonita Vista High School Track and Field Project

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SOURCE: Bing Maps (Accessed 2016)

FIGURE 4.1-2

Existing Conditions Photograph Map

Bonita Vista High School Track and Field Project

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Photo A: Football Field, Track, and Scoreboard

Photo B: Football Field and Track

Photo C: Home Side Bleachers

Photo D: Southeast Corner of Project Site

SOURCE: Dudek 2017

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FIGURE 4.1-3
Project Site

Bonita Vista High School Track and Field Project

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Photo E: Baylor Avenue Residences

Photo F: Baylor Avenue north to Bonita Long Canyon

Photo G: Bonita Point Plaza Shopping Center

Photo H: Devore Stadium (Southwestern College)

SOURCE: Dudek 2017

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FIGURE 4.1-4
Surrounding Area

Bonita Vista High School Track and Field Project

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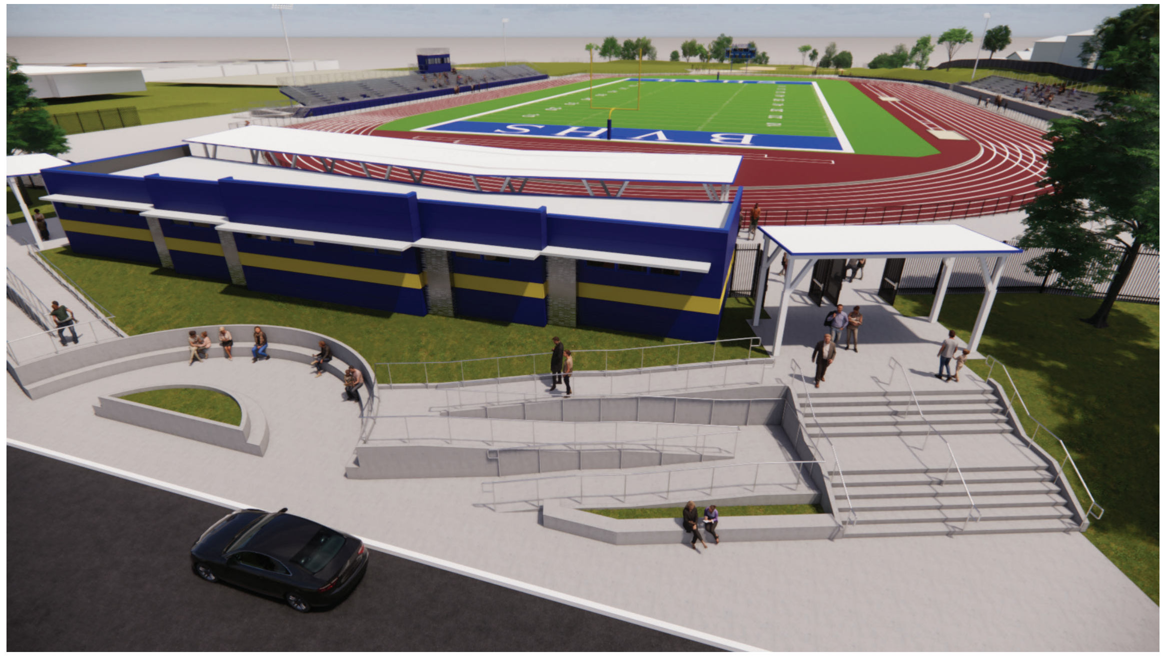
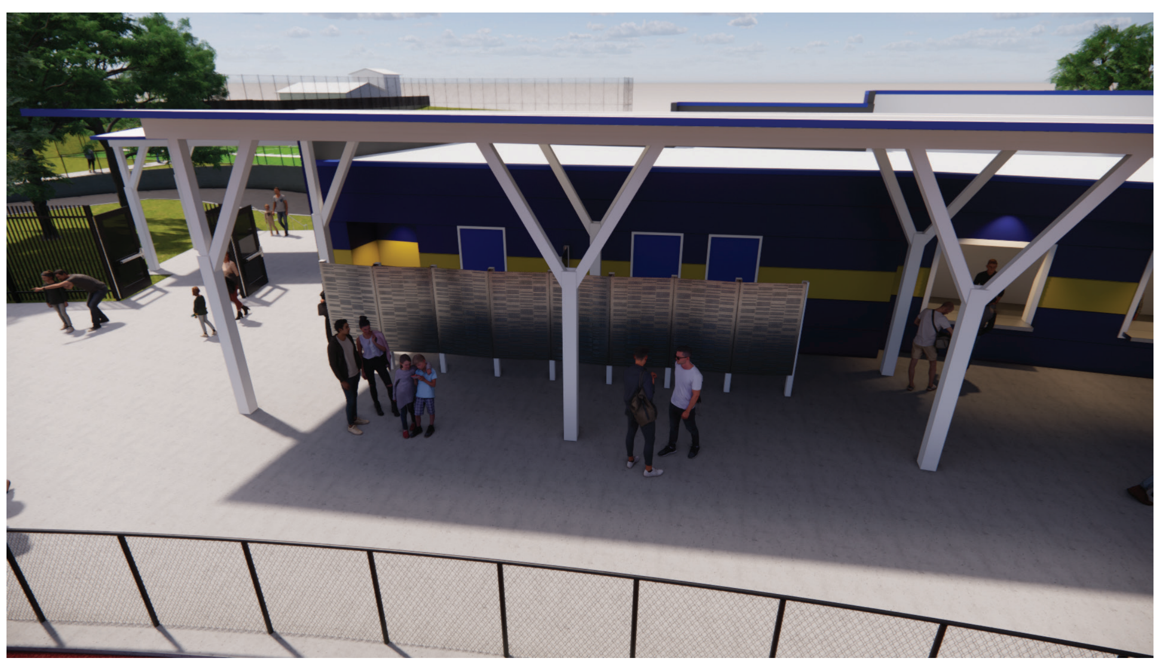
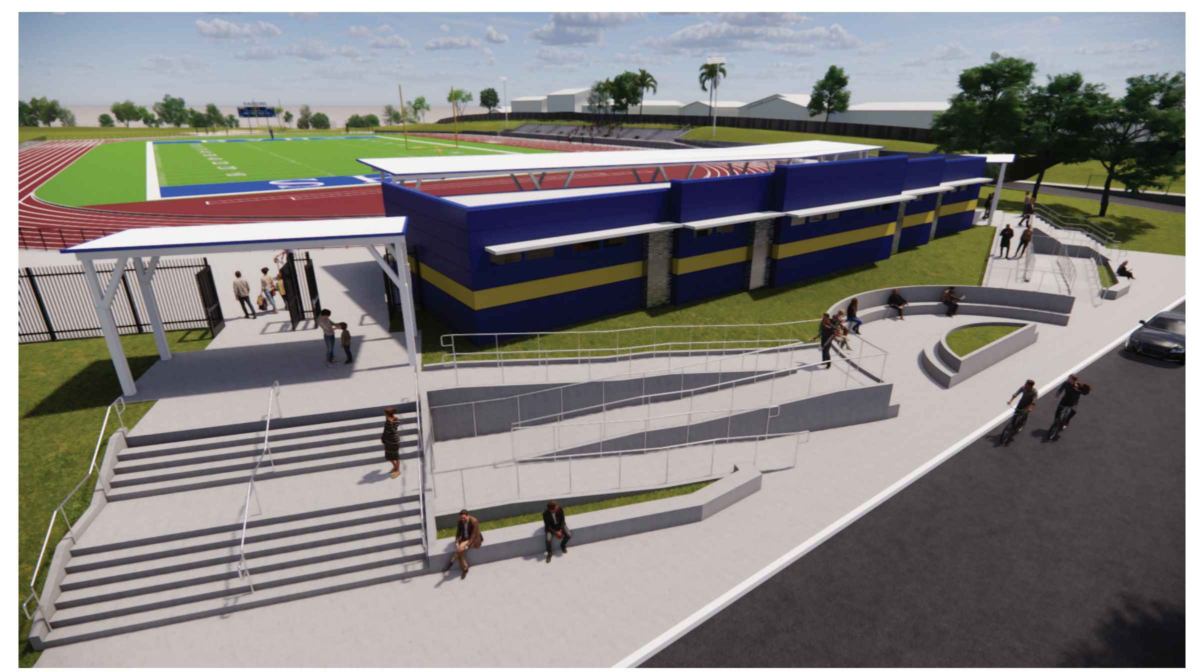


EAST ENTRY LEVEL

HOME BLEACHERS SIDE VIEW



NORTH VIEW TO CONCESSIONS AND RESTROOMS



WEST ENTRY LEVEL - WEST

SOURCE: Lord Architecture Inc. (2020)

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FIGURE 4.1-5

Conceptual Renderings of Project Facilities

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SOURCE: Lord Architecture Inc. (2020)

FIGURE 4.1-6

Conceptual Site Plan and Rendering of Practice Field

Bonita Vista High School Track and Field Project

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EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
2	F1-F2	80'	-	80'	TLC-LED-1200	5	5	0
				80'	TLC-LED-1500	1	1	0
				80'	TLC-LED-400	1	0	1
				80'	TLC-LED-900	10	10	0
2	F3-F4	90'	-	25'	TLC-BT-575	2	2	0
				80'	TLC-LED-400	2	0	2
				90'	TLC-LED-1500	12	12	0
4	TOTALS					66	60	6

ILLUMINATION SUMMARY

HORIZONTAL FOOTCANDLES

	Entire Grid
Scan Average:	**0.0136**
Maximum:	0.09
Minimum:	0.00
No. of Points:	97

LUMINAIRE INFORMATION

Color / CRI:	5700K - 75 CRI
Luminaire Output:	160,000 / 52,000 / 89,600 / 136,000 lumen
No. of Luminaires:	**60**
Total Load:	68.98 kW

Lumen Maintenance

Luminaire Type	L90 hrs	L80 hrs	L70 hrs
TLC-LED-1500	>120,000	>120,000	>120,000
TLC-BT-575	>120,000	>120,000	>120,000
TLC-LED-900	>120,000	>120,000	>120,000
TLC-LED-1200	>120,000	>120,000	>120,000

Reported per TM-21-11. See luminaire datasheet for details.

DUDEK

SOURCE: Musco Lighting (2020)

FIGURE 4.1-7
Light Trespass

Bonita Vista High School Track and Field Project

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4.2 AIR QUALITY

This section describes the existing air quality setting of the project site, identifies associated regulatory requirements, and evaluates potential impacts related to implementation of the proposed Bonita Vista High School (BVHS) Track and Field Project (project).

4.2.1 Existing Conditions

The project area is located within the San Diego Air Basin (SDAB) and is subject to the San Diego Air Pollution Control District (SDAPCD) guidelines and regulations. The SDAB is one of 15 air basins that geographically divide the State of California. The weather of the San Diego region, as in most of Southern California, is influenced by the Pacific Ocean and its semi-permanent high-pressure systems that result in dry, warm summers and mild, occasionally wet winters. The average temperature ranges (in degrees Fahrenheit) from the mid-40s to the high 90s. Most of the region's precipitation falls from November to April with infrequent (approximately 10%) precipitation during the summer. The average seasonal precipitation along the coast is approximately 10 inches; the amount increases with elevation as moist air is lifted over the mountains to the east.

The topography in the San Diego region varies greatly, from beaches on the west to mountains and desert on the east. Along with local meteorology, the topography influences the dispersal and movement of pollutants in the SDAB. The mountains to the east prohibit dispersal of pollutants in that direction and help trap them in inversion layers as described in the next section.

The interaction of ocean, land, and the Pacific High Pressure Zone maintains clear skies for much of the year and influences the direction of prevailing winds (westerly to northwesterly). Local terrain is often the dominant factor inland, and winds in inland mountainous areas tend to blow through the valleys during the day and down the hills and valleys at night.

Meteorological and Topographical Conditions

The SDAB lies in the southwest corner of California, comprises the entire San Diego region, covers approximately 4,260 square miles, and is an area of high air pollution potential. The SDAB experiences warm summers, mild winters, infrequent rainfalls, light winds, and moderate humidity. This usually mild climatological pattern is interrupted infrequently by periods of extremely hot weather, winter storms, or Santa Ana winds.

The SDAB experiences frequent temperature inversions. Subsidence inversions occur during the warmer months as descending air associated with the Pacific High Pressure Zone meets cool marine air. The boundary between the two layers of air creates a temperature inversion that traps pollutants. Another type of inversion, a radiation inversion, develops on winter nights when air near the ground cools by heat radiation and air aloft remains warm. The shallow inversion layer formed between these two air masses also can trap pollutants. As the pollutants become more concentrated in the atmosphere, photochemical reactions occur that produce ozone (O_3), commonly known as smog.

Light daytime winds, predominantly from the west, further aggravate the condition by driving air pollutants inland, toward the mountains. During the fall and winter, air quality problems are created due to carbon monoxide (CO) and oxides of nitrogen (NO_x) emissions. CO concentrations are generally higher in the morning and late evening. In the morning, CO levels are elevated due to cold temperatures and the large number of motor vehicles traveling. Higher CO levels during the late evenings are a result of stagnant atmospheric conditions trapping CO in the area. Since CO is produced almost entirely from automobiles, the highest CO concentrations in the basin are associated with heavy traffic. Nitrogen dioxide (NO_2) levels are also generally higher during fall and winter days when O_3 concentrations are lower.

Under certain conditions, atmospheric oscillation results in the offshore transport of air from the Los Angeles region to San Diego County (County). This often produces high O_3 concentrations, as measured at air pollutant monitoring stations within the County. The transport of air pollutants from Los Angeles to San Diego has also occurred within the stable layer of the elevated subsidence inversion, where high levels of O_3 are transported.

The local climate in the southern part of the County is characterized as semi-arid with consistently mild, warmer temperatures throughout the year. The average summertime high temperature in the region is approximately 81°F, with highs approaching 80°F in August on average, and record highs approaching 104°F in August. The average wintertime low temperature is approximately 43.8°F, although record lows have approached 32°F in January. Average precipitation in the local area is approximately 9.7 inches per year, with the bulk of precipitation falling between December and March (WRCC 2017).

4.2.1.1 Pollutants and Effects

Criteria Air Pollutants

Criteria air pollutants are defined as pollutants for which the federal and state governments have established ambient air quality standards, or criteria, for outdoor concentrations to protect public health. The federal and state standards have been set, with an adequate margin of safety, at levels above which concentrations could be harmful to human health and welfare. These standards are designed to protect the most sensitive persons from illness or discomfort. Pollutants of concern include O_3, NO_2, CO, sulfur dioxide (SO_2), particulate matter with an aerodynamic diameter less than or equal to 10 microns (PM_{10}), particulate matter with an aerodynamic diameter less than or equal to 2.5 microns ($PM_{2.5}$), and lead. These pollutants, as well as toxic air contaminants (TACs), are discussed in the following paragraphs.[1] In California, sulfates, vinyl chloride, hydrogen sulfide, and visibility-reducing particles are also regulated as criteria air pollutants.

Ozone. O_3 is a strong-smelling, pale blue, reactive, toxic chemical gas consisting of three oxygen atoms. It is a secondary pollutant formed in the atmosphere by a photochemical process involving the sun's energy and O_3 precursors. These precursors are mainly NO_x and volatile organic compounds (VOCs). The maximum effects of precursor emissions on O_3 concentrations usually occur several hours after they are emitted and many miles from the source. Meteorology and terrain play major roles in O_3 formation, and ideal conditions occur during summer and early autumn on days with low wind speeds or stagnant air, warm temperatures, and cloudless skies. O_3 exists in the upper atmosphere O_3 layer (stratospheric O_3) and at the Earth's surface in the troposphere (ground-level O_3).[2] The O_3 that the U.S. Environmental Protection Agency (EPA) and the California Air Resources Board (CARB) regulate as a criteria air pollutant is produced close to the ground level, where people live, exercise, and breathe. Ground-level O_3 is a harmful air pollutant that causes numerous adverse health effects and is thus considered "bad" O_3. Stratospheric, or "good," O_3 occurs naturally in the upper atmosphere, where it reduces the amount of ultraviolet light (i.e., solar radiation) entering the Earth's atmosphere. Without the protection of the beneficial stratospheric O_3 layer, plant and animal life would be seriously harmed.

O_3 in the troposphere causes numerous adverse health effects; short-term exposures (lasting for a few hours) to O_3 at levels typically observed in Southern California can result in breathing pattern changes, reduction of breathing capacity, increased susceptibility to infections, inflammation of the lung tissue, and some immunological changes (EPA 2013).

Inhalation of O_3 causes inflammation and irritation of the tissues lining human airways, causing and worsening a variety of symptoms. Exposure to O_3 can reduce the volume of air that the lungs breathe in, thereby causing shortness of breath. O_3 in sufficient doses increases the permeability of lung cells, rendering them more susceptible to toxins and microorganisms. The occurrence and severity of health effects from O_3 exposure vary widely among individuals, even when the dose and the duration of exposure are the same. Research shows adults and children who spend more time outdoors participating in vigorous physical activities are at greater risk from the harmful health effects of O_3 exposure. While there are relatively few studies on the effects of O_3 on children, the available studies show that children are no more or less likely to suffer harmful effects than adults. However, there are a number of reasons why children may be more susceptible to O_3 and other pollutants. Children and teens spend nearly twice as much time outdoors and engaged in

[1] The descriptions of the criteria air pollutants and associated health effects are based on the U.S. Environmental Protection Agency's (EPA's) Criteria Air Pollutants (EPA 2018) and the California Air Resources Board's (CARB's) Glossary of Air Pollutant Terms (CARB 2019a).

[2] The troposphere is the layer of the Earth's atmosphere nearest to the surface of the Earth. The troposphere extends outward about 5 miles at the poles and about 10 miles at the equator.

vigorous activities as adults. Children breathe more rapidly than adults and inhale more pollution per pound of their body weight than adults. Also, children are less likely than adults to notice their own symptoms and avoid harmful exposures. Further research may be able to better distinguish between health effects in children and adults. Children, adolescents, and adults who exercise or work outdoors, where O_3 concentrations are the highest, are at the greatest risk of harm from this pollutant (CARB 2019b).

Nitrogen Dioxide. NO_2 is a brownish, highly reactive gas that is present in all urban atmospheres. The major mechanism for the formation of NO_2 in the atmosphere is the oxidation of the primary air pollutant nitric oxide, which is a colorless, odorless gas. NO_x plays a major role, together with VOCs, in the atmospheric reactions that produce O_3. NO_x is formed from fuel combustion under high temperature or pressure. In addition, NO_x is an important precursor to acid rain and may affect both terrestrial and aquatic ecosystems. The two major emissions sources are transportation and stationary fuel combustion sources such as electric utility and industrial boilers.

A large body of health science literature indicates that exposure to NO_2 can induce adverse health effects. The strongest health evidence, and the health basis for the ambient air quality standards for NO_2, results from controlled human exposure studies that show that NO_2 exposure can intensify responses to allergens in allergic asthmatics. In addition, a number of epidemiological studies have demonstrated associations between NO_2 exposure and premature death, cardiopulmonary effects, decreased lung function growth in children, respiratory symptoms, emergency room visits for asthma, and intensified allergic responses. Infants and children are particularly at risk because they have disproportionately higher exposure to NO_2 than adults due to their greater breathing rate for their body weight and their typically greater outdoor exposure duration. Several studies have shown that long-term NO_2 exposure during childhood, the period of rapid lung growth, can lead to smaller lungs at maturity in children with higher levels of exposure compared to children with lower exposure levels. In addition, children with asthma have a greater degree of airway responsiveness compared with adult asthmatics. In adults, the greatest risk is to people who have chronic respiratory diseases, such as asthma and chronic obstructive pulmonary disease (CARB 2019c).

Carbon Monoxide. CO is a colorless, odorless gas formed by the incomplete combustion of hydrocarbon, or fossil fuels. CO is emitted almost exclusively from motor vehicles, power plants, refineries, industrial boilers, ships, aircraft, and trains. In urban areas, such as the project location, automobile exhaust accounts for the majority of CO emissions. CO is a nonreactive air pollutant that dissipates relatively quickly; therefore, ambient CO concentrations generally follow the spatial and temporal distributions of vehicular traffic. CO concentrations are influenced by local meteorological conditions—primarily wind speed, topography, and atmospheric stability. CO from motor vehicle exhaust can become locally concentrated when surface-based temperature inversions are combined with calm atmospheric conditions, which is a typical situation at dusk in urban areas from November to February. The highest levels of CO typically occur during the colder months of the year, when inversion conditions are more frequent.

CO is harmful because it binds to hemoglobin in the blood, reducing the ability of blood to carry oxygen. This interferes with oxygen delivery to the body's organs. The most common effects of CO exposure are fatigue, headaches, confusion and reduced mental alertness, light-headedness, and dizziness due to inadequate oxygen delivery to the brain. For people with cardiovascular disease, short-term CO exposure can further reduce their body's already compromised ability to respond to the increased oxygen demands of exercise, exertion, or stress. Inadequate oxygen delivery to the heart muscle leads to chest pain and decreased exercise tolerance. Unborn babies whose mothers experience high levels of CO exposure during pregnancy are at risk of adverse developmental effects. Unborn babies, infants, elderly people, and people with anemia or with a history of heart or respiratory disease are most likely to experience health effects with exposure to elevated levels of CO (CARB 2019d).

Sulfur Dioxide. SO_2 is a colorless, pungent gas formed primarily from incomplete combustion of sulfur-containing fossil fuels. The main sources of SO_2 are coal and oil used in power plants and industries; as such, the highest levels of SO_2 are generally found near large industrial complexes. In recent years, SO_2 concentrations have been reduced by the increasingly stringent controls placed on stationary source emissions of SO_2 and limits on the sulfur content of fuels.

Controlled human exposure and epidemiological studies show that children and adults with asthma are more likely to experience adverse responses with SO_2 exposure, compared with the non-asthmatic population. Effects at levels near the 1-hour standard are those of asthma exacerbation, including bronchoconstriction accompanied by symptoms of respiratory irritation such as wheezing, shortness of breath, and chest tightness, especially during exercise or physical activity. Also, exposure to elevated levels of SO_2 (above 1 part per million) results in increased incidence of pulmonary symptoms and disease, decreased pulmonary function, and increased risk of mortality. The elderly and people with cardiovascular disease or chronic lung disease (such as bronchitis or emphysema) are most likely to experience these adverse effects (CARB 2019e).

SO_2 is of concern both because it is a direct respiratory irritant and because it contributes to the formation of sulfate and sulfuric acid in particulate matter (NRC 2005). People with asthma are of particular concern, both because they have increased baseline airflow resistance and because their SO_2-induced increase in airflow resistance is greater than in healthy people, and it increases with the severity of their asthma (NRC 2005). SO_2 is thought to induce airway constriction via neural reflexes involving irritant receptors in the airways (NRC 2005).

Particulate Matter. Particulate matter pollution consists of very small liquid and solid particles floating in the air, which can include smoke, soot, dust, salts, acids, and metals. Particulate matter can form when gases emitted from industries and motor vehicles undergo chemical reactions in the atmosphere. $PM_{2.5}$ and PM_{10} represent fractions of particulate matter. Coarse particulate matter (PM_{10}) consists of particulate matter that is 10 microns or less in diameter and is about 1/7 the thickness of a human hair. Major sources of PM_{10} include crushing or grinding operations; dust stirred up by vehicles traveling on roads; wood-burning stoves and fireplaces; dust from construction, landfills, and agriculture; wildfires and brush/waste burning; industrial sources; windblown dust from open lands; and atmospheric chemical and photochemical reactions. Fine particulate matter ($PM_{2.5}$) consists of particulate matter that is 2.5 microns or less in diameter and is roughly 1/28 the diameter of a human hair. $PM_{2.5}$ results from fuel combustion (e.g., from motor vehicles and power generation and industrial facilities), residential fireplaces, and woodstoves. In addition, $PM_{2.5}$ can be formed in the atmosphere from gases such as sulfur oxides, NO_x, and VOCs.

$PM_{2.5}$ and PM_{10} pose a greater health risk than larger-size particles. When inhaled, these tiny particles can penetrate the human respiratory system's natural defenses and damage the respiratory tract. $PM_{2.5}$ and PM_{10} can increase the number and severity of asthma attacks, cause or aggravate bronchitis and other lung diseases, and reduce the body's ability to fight infections. Very small particles of substances such as lead, sulfates, and nitrates can cause lung damage directly or be absorbed into the bloodstream, causing damage elsewhere in the body. Additionally, these substances can transport adsorbed gases such as chlorides or ammonium into the lungs, also causing injury. Whereas PM_{10} tends to collect in the upper portion of the respiratory system, $PM_{2.5}$ is so tiny that it can penetrate deeper into the lungs and damage lung tissue. Suspended particulates also damage and discolor surfaces on which they settle and produce haze and reduce regional visibility.

A number of adverse health effects have been associated with exposure to both $PM_{2.5}$ and PM_{10}. For $PM_{2.5}$, short-term exposures (up to 24-hour duration) have been associated with premature mortality, increased hospital admissions for heart or lung causes, acute and chronic bronchitis, asthma attacks, emergency room visits, respiratory symptoms, and restricted activity days. These adverse health effects have been reported primarily in infants, children, and older adults with preexisting heart or lung diseases. In addition, of all of the common air pollutants, $PM_{2.5}$ is associated with the greatest proportion of adverse health effects related to air pollution, both in the United States and worldwide based on the World Health Organization's Global Burden of Disease Project. Short-term exposures to PM_{10} have been associated primarily with worsening of respiratory diseases, including asthma and chronic obstructive pulmonary disease, leading to hospitalization and emergency department visits (CARB 2017).

Long-term exposure (months to years) to $PM_{2.5}$ has been linked to premature death, particularly in people who have chronic heart or lung diseases, and reduced lung function growth in children. The effects of long-term exposure to PM_{10} are less clear, although several studies suggest a link between long-term PM_{10} exposure and respiratory mortality. The International Agency for

Research on Cancer published a review in 2015 that concluded that particulate matter in outdoor air pollution causes lung cancer (CARB 2017).

Lead. Lead in the atmosphere occurs as particulate matter. Sources of lead include leaded gasoline; the manufacturing of batteries, paints, ink, ceramics, and ammunition; and secondary lead smelters. Prior to 1978, mobile emissions were the primary source of atmospheric lead. Between 1978 and 1987, the phaseout of leaded gasoline reduced the overall inventory of airborne lead by nearly 95%. With the phaseout of leaded gasoline, secondary lead smelters, battery recycling, and manufacturing facilities are becoming lead-emissions sources of greater concern.

Prolonged exposure to atmospheric lead poses a serious threat to human health. Health effects associated with exposure to lead include gastrointestinal disturbances, anemia, kidney disease, and in severe cases, neuromuscular and neurological dysfunction. Of particular concern are low-level lead exposures during infancy and childhood. Such exposures are associated with decrements in neurobehavioral performance, including intelligence quotient (IQ) performance, psychomotor performance, reaction time, and growth. Children are highly susceptible to the effects of lead.

Sulfates. Sulfates are the fully oxidized form of sulfur, which typically occur in combination with metals or hydrogen ions. Sulfates are produced from reactions of SO_2 in the atmosphere and can result in respiratory impairment, as well as reduced visibility.

Vinyl Chloride. Vinyl chloride is a colorless gas with a mild, sweet odor, which has been detected near landfills, sewage plants, and hazardous waste sites, due to the microbial breakdown of chlorinated solvents. Short-term exposure to high levels of vinyl chloride in air can cause nervous system effects, such as dizziness, drowsiness, and headaches. Long-term exposure through inhalation can cause liver damage, including liver cancer.

Hydrogen Sulfide. Hydrogen sulfide is a colorless and flammable gas that has a characteristic odor of rotten eggs. Sources of hydrogen sulfide include geothermal power plants, petroleum refineries, sewers, and sewage treatment plants. Exposure to hydrogen sulfide can result in nuisance odors, as well as headaches and breathing difficulties at higher concentrations.

Visibility-Reducing Particles. Visibility-reducing particles are any particles in the air that obstruct the range of visibility. Effects of reduced visibility can include obscuring the viewshed of natural scenery, reducing airport safety, and discouraging tourism. Sources of visibility-reducing particles are the same as for $PM_{2.5}$ described above.

Volatile Organic Compounds. Hydrocarbons are organic gases that are formed from hydrogen and carbon and sometimes other elements. Hydrocarbons that contribute to formation of O_3 are referred to and regulated as VOCs (also referred to as reactive organic gases). Combustion engine exhaust, oil refineries, and fossil-fueled power plants are the sources of hydrocarbons. Other sources of hydrocarbons include evaporation from petroleum fuels, solvents, dry cleaning solutions, and paint.

The primary health effects of VOCs result from the formation of O_3 and its related health effects. High levels of VOCs in the atmosphere can interfere with oxygen intake by reducing the amount of available oxygen through displacement. Carcinogenic forms of hydrocarbons, such as benzene, are considered TACs. There are no separate health standards for VOCs as a group.

Non-Criteria Air Pollutants

Toxic Air Contaminants. A substance is considered toxic if it has the potential to cause adverse health effects in humans, including increasing the risk of cancer upon exposure, or acute and/or chronic noncancer health effects. A toxic substance released into the air is considered a TAC. TACs are identified by federal and state agencies based on a review of available scientific evidence. In the State of California, TACs are identified through a two-step process that was established in 1983 under the Toxic Air Contaminant Identification and Control Act. This two-step process of risk identification and risk management and reduction was designed to protect residents from the health effects of toxic substances in the air. In addition, the California Air Toxics "Hot Spots" Information and Assessment Act, Assembly Bill (AB) 2588, was enacted by the legislature in 1987 to address public concern over the release of TACs into the atmosphere. The law requires facilities emitting toxic substances to provide local air pollution control districts with information that will allow an assessment of the air toxics problem, identification of air toxics emissions sources, location of resulting hotspots, notification of the public exposed to significant risk, and development of effective strategies to reduce potential risks to the public over 5 years.

Examples include certain aromatic and chlorinated hydrocarbons, certain metals, and asbestos. TACs are generated by a number of sources, including stationary sources, such as dry cleaners, gas stations, combustion sources, and laboratories; mobile sources, such as automobiles; and area sources, such as landfills. Adverse health effects associated with exposure to TACs may include carcinogenic (i.e., cancer-causing) and noncarcinogenic effects. Noncarcinogenic effects typically affect one or more target organ systems and may be experienced on either short-term (acute) or long-term (chronic) exposure to a given TAC.

Diesel Particulate Matter. Diesel particulate matter (DPM) is part of a complex mixture that makes up diesel exhaust. Diesel exhaust is composed of two phases, gas and particle, both of which contribute to health risks. More than 90% of DPM is less than 1 micrometer in diameter (about 1/70th the diameter of a human hair), and thus is a subset of $PM_{2.5}$. DPM is typically composed of carbon particles ("soot," also called black carbon) and numerous organic compounds, including over 40 known cancer-causing organic substances. Examples of these chemicals include polycyclic aromatic hydrocarbons, benzene, formaldehyde, acetaldehyde, acrolein, and 1,3-

butadiene. The CARB classified "particulate emissions from diesel-fueled engines" (i.e., DPM) (17 CCR 93000) as a TAC in August 1998. DPM is emitted from a broad range of diesel engines: on-road diesel engines of trucks, buses, and cars and off-road diesel engines including locomotives, marine vessels, and heavy-duty construction equipment, among others. Approximately 70% of all airborne cancer risk in California is associated with DPM (CARB 2000). To reduce the cancer risk associated with DPM, CARB adopted a diesel risk reduction plan in 2000 (CARB 2000). Because it is part of $PM_{2.5}$, DPM also contributes to the same non-cancer health effects as $PM_{2.5}$ exposure. These effects include premature death; hospitalizations and emergency department visits for exacerbated chronic heart and lung disease, including asthma; increased respiratory symptoms; and decreased lung function in children. Several studies suggest that exposure to DPM may also facilitate development of new allergies. Those most vulnerable to non-cancer health effects are children whose lungs are still developing and the elderly who often have chronic health problems.

Odorous Compounds. Odors are generally regarded as an annoyance rather than a health hazard. Manifestations of a person's reaction to odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache). The ability to detect odors varies considerably among the population and, overall, is quite subjective. People may have different reactions to the same odor. An odor that is offensive to one person may be perfectly acceptable to another (e.g., coffee roaster). An unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. Known as odor fatigue, a person can become desensitized to almost any odor, and recognition may only occur with an alteration in the intensity. The occurrence and severity of odor impacts depend on the nature, frequency, and intensity of the source; wind speed and direction; and the sensitivity of receptors.

Valley Fever. Coccidioidomycosis, more commonly known as "Valley Fever," is an infection caused by inhalation of the spores of the *Coccidioides immitis* fungus, which grows in the soils of the southwestern United States. When fungal spores are present, any activity that disturbs the soil, such as digging, grading, or other earth-moving operations, can cause the spores to become airborne and thereby increase the risk of exposure. The ecologic factors that appear to be most conducive to survival and replication of the spores are high summer temperatures, mild winters, sparse rainfall, and alkaline sandy soils.

Valley Fever is not considered highly endemic to San Diego. Per the San Diego County Health and Human Services Agency, the 10-year average (2009–2018) for Coccidioidomycosis cases in the County of San Diego is 5.5 cases per 100,000 people per year.

Even if present at a site, earth-moving activities may not result in increased incidence of Valley Fever. Propagation of *Coccidioides immitis* is dependent on climatic conditions, with the potential for growth and surface exposure highest following early seasonal rains and long dry spells.

Coccidioides immitis spores can be released when filaments are disturbed by earth-moving activities, although receptors must be exposed to and inhale the spores to be at increased risk of developing Valley Fever. Moreover, exposure to *Coccidioides immitis* does not guarantee that an individual will become ill—approximately 60% of people exposed to the fungal spores are asymptomatic and show no signs of an infection (USGS 2000).

Sensitive Receptors

Some land uses are considered more sensitive to changes in air quality than others, depending on the population groups and the activities involved. People most likely to be affected by air pollution include children, the elderly, athletes, and people with cardiovascular and chronic respiratory diseases. Facilities and structures where these air pollution-sensitive people live or spend considerable amounts of time are known as sensitive receptors. Land uses where air pollution–sensitive individuals are most likely to spend time include schools and schoolyards, parks and playgrounds, daycare centers, nursing homes, hospitals, and residential communities (sensitive sites or sensitive land uses) (CARB 2005). The SDAPCD identifies sensitive receptors as those who are especially susceptible to adverse health effects from exposure to toxic air contaminants, such as children, the elderly, and the ill. Sensitive receptors include schools (grades kindergarten through 12), day care centers, nursing homes, retirement homes, health clinics, and hospitals (SDAPCD 2015a). The closest sensitive receptors to the project site are residences adjacent to the eastern and northern property boundaries.

4.2.2 Relevant Plans, Policies, and Ordinances

Federal

Criteria Air Pollutants

The federal Clean Air Act (CAA), passed in 1970 and last amended in 1990, forms the basis for the national air pollution control effort. The EPA is responsible for implementing most aspects of the CAA, including the setting of the National Ambient Air Quality Standards (NAAQS) for major air pollutants, hazardous air pollutant standards, approval of state attainment plans, motor vehicle emission standards, stationary source emission standards and permits, acid rain control measures, stratospheric O_3 protection, and enforcement provisions.

Under the CAA, NAAQS are established for the following criteria pollutants: O_3, CO, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and lead. The NAAQS describe acceptable air quality conditions designed to protect the health and welfare of the citizens of the nation. The CAA requires the EPA to reassess the NAAQS at least every 5 years to determine whether adopted standards are adequate to protect public health based on current scientific evidence. States with areas that exceed the NAAQS must prepare State Implementation Plans (SIPs) that demonstrate how those areas will attain the standards within mandated time frames.

Hazardous Air Pollutants

The 1977, federal CAA amendments required the EPA to identify national emission standards for hazardous air pollutants to protect public health and welfare. Hazardous air pollutants include certain volatile organic chemicals, pesticides, herbicides, and radionuclides that present a tangible hazard, based on scientific studies of exposure to humans and other mammals. Under the 1990 CAA amendments, which expanded the control program for hazardous air pollutants, 189 substances and chemical families were identified as hazardous air pollutants.

State

Criteria Air Pollutants

The federal CAA delegates the regulation of air pollution control and the enforcement of the NAAQS to the states. In California, the task of air quality management and regulation has been legislatively granted to the CARB, with subsidiary responsibilities assigned to air quality management districts and air pollution control districts at the regional and county levels. CARB, which became part of the California Environmental Protection Agency in 1991, is responsible for ensuring implementation of the California Clean Air Act of 1988, responding to the CAA, and regulating emissions from motor vehicles and consumer products.

CARB has established California Ambient Air Quality Standards (CAAQS), which are generally more restrictive than the NAAQS. The CAAQS describe adverse conditions; that is, pollution levels must be below these standards before a basin can attain the standard. Air quality is considered “in attainment” if pollutant levels are continuously below the CAAQS and violate the standards no more than once each year. The CAAQS for O_3, CO, SO_2 (1-hour and 24-hour), NO_2, PM_{10}, $PM_{2.5}$, and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. The NAAQS and CAAQS are presented in Table 4.2-1.

Table 4.2-1
Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[a]	National Standards[b]	
		Concentration[c]	*Primary[c,d]*	*Secondary[c,e]*
O_3	1 hour	0.09 ppm (180 $\mu g/m^3$)	—	Same as Primary Standard[f]
	8 hours	0.070 ppm (137 $\mu g/m^3$)	0.070 ppm (137 $\mu g/m^3$)[f]	
NO_2[g]	1 hour	0.18 ppm (339 $\mu g/m^3$)	0.100 ppm (188 $\mu g/m^3$)	Same as Primary Standard
	Annual Arithmetic Mean	0.030 ppm (57 $\mu g/m^3$)	0.053 ppm (100 $\mu g/m^3$)	
CO	1 hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)	None
	8 hours	9.0 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)	

Table 4.2-1
Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[a]	National Standards[b]	
		Concentration[c]	*Primary[c,d]*	*Secondary[c,e]*
SO_2[h]	1 hour	0.25 ppm (655 μg/m³)	0.075 ppm (196 μg/m³)	—
	3 hours	—	—	0.5 ppm (1,300 μg/m³)
	24 hours	0.04 ppm (105 μg/m³)	0.14 ppm (for certain areas)[g]	—
	Annual	—	0.030 ppm (for certain areas)[g]	—
PM_{10}[i]	24 hours	50 μg/m³	150 μg/m³	Same as Primary Standard
	Annual Arithmetic Mean	20 μg/m³	—	
$PM_{2.5}$[i]	24 hours	—	35 μg/m³	Same as Primary Standard
	Annual Arithmetic Mean	12 μg/m³	12.0 μg/m³	15.0 μg/m³
Lead[j,k]	30-day Average	1.5 μg/m³	—	—
	Calendar Quarter	—	1.5 μg/m³ (for certain areas)[k]	Same as Primary Standard
	Rolling 3-Month Average	—	0.15 μg/m³	
Hydrogen sulfide	1 hour	0.03 ppm (42 μg/m³)	—	—
Vinyl chloride[j]	24 hours	0.01 ppm (26 μg/m³)	—	—
Sulfates	24 hours	25 μg/m³	—	—
Visibility reducing particles	8 hour (10:00 a.m. to 6:00 p.m. PST)	Insufficient amount to produce an extinction coefficient of 0.23 per kilometer due to the number of particles when the relative humidity is less than 70%	—	—

Source: CARB 2016a.

Notes: μg/m³ = micrograms per cubic meter; mg/m³= milligrams per cubic meter; ppm = parts per million by volume; O_3 = ozone; NO_2 = nitrogen dioxide; CO = carbon monoxide; SO_2 = sulfur dioxide; PM_{10} = particulate matter with an aerodynamic diameter less than or equal to 10 microns; $PM_{2.5}$ = particulate matter with an aerodynamic diameter less than or equal to 2.5 microns.

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

b National standards (other than O_3, NO_2, SO_2, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once per year. The O_3 standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over 3 years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 μg/m³ is equal to or less than 1. For $PM_{2.5}$, the 24-hour standard is attained when 98% of the daily concentrations, averaged over 3 years, are equal to or less than the standard.

c Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based on a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

d National Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.

[e] National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

[f] On October 1, 2015, the national 8-hour O_3 primary and secondary standards were lowered from 0.075 to 0.070 ppm.

[g] To attain the national 1-hour standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 parts per billion (ppb). Note that the national 1-hour standard is in units of ppb. California standards are in units of ppm. To directly compare the national 1-hour standard to the California standards, the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.

[h] On June 2, 2010, a new 1-hour SO_2 standard was established, and the existing 24-hour and annual primary standards were revoked. To attain the national 1-hour standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until 1 year after an area is designated for the 2010 standard, except that in areas designated nonattainment of the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

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

[j] California Air Resources Board has identified lead and vinyl chloride as toxic air contaminants with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

[k] The national standard for lead was revised on October 15, 2008, to a rolling 3-month average. The 1978 lead standard (1.5 $\mu g/m^3$ as a quarterly average) remains in effect until 1 year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

Toxic Air Contaminants

The state Air Toxics Program was established in 1983 under AB 1807. The California TAC list identifies more than 700 pollutants, of which carcinogenic and noncarcinogenic toxicity criteria have been established for a subset of these pollutants pursuant to the California Health and Safety Code. In accordance with AB 2728, the state list includes the (federal) hazardous air pollutants. In 1987, the legislature enacted the Air Toxics "Hot Spots" Information and Assessment Act of 1987 (AB 2588) to address public concern over the release of TACs into the atmosphere. AB 2588 requires facilities emitting toxic substances to provide local air pollution control districts with information that will allow an assessment of the air toxics problem, identification of air toxics emissions sources, location of resulting hotspots, notification of the public exposed to significant risk, and development of effective strategies to reduce potential risks to the public over 5 years. TAC emissions from individual facilities are quantified and prioritized. High-priority facilities are required to perform a health risk assessment, and if specific thresholds are exceeded, the facility operator is required to communicate the results to the public in the form of notices and public meetings.

In 2000, CARB approved a comprehensive Diesel Risk Reduction Plan to reduce diesel emissions from both new and existing diesel-fueled vehicles and engines (CARB 2000). The regulation is anticipated to result in an 80% decrease in statewide diesel health risk in 2020 compared with the diesel risk in 2000. Additional regulations apply to new trucks and diesel fuel, including the On-Road Heavy Duty Diesel Vehicle (In-Use) Regulation, the On-Road Heavy Duty (New) Vehicle Program, the In-Use Off-Road Diesel Vehicle Regulation, and the New Off-Road Compression-Ignition (Diesel) Engines and Equipment Program. These regulations and programs have timetables by which manufacturers must comply and existing operators must upgrade their diesel-powered equipment. There are several airborne toxic control measures that reduce diesel emissions, including In-Use Off-Road Diesel-Fueled Fleets (13 CCR 2449 et seq.) and In-Use On-Road Diesel-Fueled Vehicles (13 CCR 2025).

California Health and Safety Code Section 41700

Section 41700of the Health and Safety Code states that a person shall not discharge from any source whatsoever quantities of air contaminants or other material that cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public; or that endanger the comfort, repose, health, or safety of any of those persons or the public; or that cause, or have a natural tendency to cause, injury or damage to business or property. This section also applies to sources of objectionable odors.

Local

San Diego Air Pollution Control District

While CARB is responsible for the regulation of mobile emission sources within the state, local air quality management districts and air pollution control districts are responsible for enforcing standards and regulating stationary sources. The project area is located within the SDAB and is subject to the guidelines and regulations of the SDAPCD.

In the County, O_3 and particulate matter are the pollutants of main concern, since exceedances of state ambient air quality standards for those pollutants are experienced here in most years. For this reason, the SDAB has been designated as a nonattainment area for the state PM_{10}, $PM_{2.5}$, and O_3 standards. The SDAB is also a federal O_3 attainment (maintenance) area for 1997 8-hour O_3 standard, an O_3 nonattainment area for the 2008 8-hour O_3 standard, and a CO maintenance area (western and central part of the SDAB only, including the project area).

Federal Attainment Plans

In December 2016, the SDAPCD adopted an update to the Eight-Hour Ozone Attainment Plan for San Diego County (2008 O_3 NAAQS). The 2016 Eight-Hour Ozone Attainment Plan for San Diego County indicated that local controls and state programs would allow the region to reach attainment of the federal 8-hour O_3 standard (1997 O_3 NAAQS) by 2018 (SDAPCD 2016a). In this plan, SDAPCD relies on the Regional Air Quality Strategy (RAQS) to demonstrate how the region will comply with the federal O_3 standard. The RAQS details how the region will manage and reduce O_3 precursors (NO_x and VOCs) by identifying measures and regulations intended to reduce these pollutants. The control measures identified in the RAQS generally focus on stationary sources; however, the emissions inventories and projections in the RAQS address all potential sources, including those under the authority of CARB and the EPA. Incentive programs for reduction of emissions from heavy-duty diesel vehicles, off-road equipment, and school buses are also established in the RAQS.

Currently, the County is designated as moderate nonattainment for the 2008 NAAQS and maintenance for the 1997 NAAQS. As documented in the 2016 8-Hour Ozone Attainment Plan for San Diego County, the County has a likely chance of obtaining attainment due to the transition to low-emission cars, stricter new source review rules, and continuing the requirement of general conformity for military growth and the San Diego International Airport. The County will also continue emission control measures, including ongoing implementation of existing regulations in O_3 precursor reduction to stationary and area-wide sources, subsequent inspections of facilities and sources, and the adoption of laws requiring Best Available Retrofit Control Technology for control of emissions (SDAPCD 2016a).

SDAPCD has prepared the 2020 Plan for Attaining the National Ambient Air Quality Standards for Ozone in San Diego County (2020 Attainment Plan) that demonstrates how the region will further reduce air pollutant emissions in order to attain the current NAAQS for O_3. The 2020 Attainment Plan was approved by the SDAPCD on October 14, 2020. On November 19, 2020, CARB adopted the 2020 Attainment Plan for attaining the Federal 8-hour 75 parts per billion and 70 parts per billion O_3 standards and projects attainment for the standards by 2026 and 2032, respectively (SDAPCD 2020). The 2020 Attainment Plan will be submitted to the EPA as a revision to the California SIP for attaining the O_3 NAAQS.

State Attainment Plans

The SDAPCD and the San Diego Association of Governments (SANDAG) are responsible for developing and implementing the clean air plan for attainment and maintenance of the ambient air quality standards in the SDAB. The RAQS for the SDAB was initially adopted in 1991 and is updated on a triennial basis, most recently in 2016 (SDAPCD 2016b). The RAQS outlines SDAPCD's plans and control measures designed to attain the state air quality standards for O_3. The RAQS relies on information from CARB and SANDAG, including mobile and area source emissions, as well as information regarding projected growth in the County and the cities in the County, to forecast future emissions and then determine from that the strategies necessary for the reduction of emissions through regulatory controls. CARB mobile source emission projections and SANDAG growth projections are based on population, vehicle trends, and land use plans developed by the County and the cities in the County as part of the development of their general plans (SANDAG 2017a, 2017b).

In December 2016, the SDAPCD adopted the revised RAQS for the County. Since 2007, the San Diego region reduced daily VOC emissions and NO_x emissions by 3.9% and 7.0%, respectively; the SDAPCD expects to continue reductions through 2035 (SDAPCD 2016b). These reductions were achieved through implementation of six VOC control measures and three NO_x control measures adopted in the SDAPCD's 2009 RAQS (SDAPCD 2009a); in addition, the SDAPCD is considering additional measures, including three VOC measures and four NO_x control measures to reduce 0.3 daily tons of VOC and 1.2 daily tons of NO_x, provided they are found to be feasible region-wide. In addition, SDAPCD has implemented nine incentive-based programs, has worked with SANDAG to implement regional transportation control measures, and has reaffirmed the state emission offset repeal.

In regards to particulate matter emissions reduction efforts, in December 2005, the SDAPCD prepared a report titled Measures to Reduce Particulate Matter in San Diego County to address implementation of Senate Bill 656 in San Diego County (Senate Bill 656 required additional controls to reduce ambient concentrations of PM_{10} and $PM_{2.5}$) (SDAPCD 2005). In the report, SDAPCD evaluated implementation of source-control measures that would reduce particulate matter emissions associated with residential wood combustion; various construction activities including earthmoving, demolition, and grading; bulk material storage and handling; carryout and trackout removal and cleanup methods; inactive disturbed land; disturbed open areas; unpaved parking lots/staging areas; unpaved roads; and windblown dust (SDAPCD 2005).

SDAPCD Rules and Regulations

As stated above, the SDAPCD is responsible for planning, implementing, and enforcing federal and state ambient standards in the SDAB. The following rules and regulations apply to all sources in the jurisdiction of SDAPCD and would apply to the project:

SDAPCD Regulation IV: Prohibitions; Rule 50: Visible Emissions. Prohibits discharge into the atmosphere from any single source of emissions whatsoever any air contaminant for a period or periods aggregating more than 3 minutes in any period of 60 consecutive minutes, which is darker in shade than that designated as Number 1 on the Ringelmann Chart, as published by the U.S. Bureau of Mines, or of such opacity as to obscure an observer's view to a degree greater than does smoke of a shade designated as Number 1 on the Ringelmann Chart (SDAPCD 1997).

SDAPCD Regulation IV: Prohibitions; Rule 51: Nuisance. Prohibits the discharge, from any source, of such quantities of air contaminants or other materials that cause or have a tendency to cause injury, detriment, nuisance, annoyance to people and/or the public, or damage to any business or property (SDAPCD 1969).

SDAPCD Regulation IV: Prohibitions; Rule 55: Fugitive Dust. Regulates fugitive dust emissions from any commercial construction or demolition activity capable of generating fugitive dust emissions, including active operations, open storage piles, and inactive disturbed areas, as well as track-out and carry-out onto paved roads beyond a project area (SDAPCD 2009b).

SDAPCD Regulation IV: Prohibitions; Rule 67.0.1: Architectural Coatings. Requires manufacturers, distributors, and end users of architectural and industrial maintenance coatings to reduce VOC emissions from the use of these coatings, primarily by placing limits on the VOC content of various coating categories (SDAPCD 2015a). Construction and operation of the project would include application of architectural coatings (e.g., paint and other finishes), which are subject to SDAPCD Rule 67.0.1.

San Diego Association of Governments

SANDAG is the regional planning agency for the County and serves as a forum for regional issues relating to transportation, the economy, community development, and the environment. SANDAG serves as the federally designated metropolitan planning organization for the County. With respect to air quality planning and other regional issues, SANDAG has prepared San Diego Forward: The Regional Plan (Regional Plan) for the San Diego region (SANDAG 2015). The Regional Plan combines the big-picture vision for how the region will grow over the next 35 years with an implementation program to help make that vision a reality. The Regional Plan, including its Sustainable Communities Strategy, is built on an integrated set of public policies, strategies, and investments to maintain, manage, and improve the transportation system so that it meets the diverse needs of the San Diego region through 2050.

In regards to air quality, the Regional Plan sets the policy context in which SANDAG participates, responds to the air district’s air quality plans, and builds off the air district’s air quality plan processes that are designed to meet health-based criteria pollutant standards in several ways (SANDAG 2015). First, it complements air quality plans by providing guidance and incentives for public agencies to consider best practices that support the technology-based control measures in air quality plans. Second, the Regional Plan emphasizes the need for better coordination of land use and transportation planning, which heavily influences the emissions inventory from the transportation sectors of the economy. This also minimizes land use conflicts, such as residential development near freeways, industrial areas, or other sources of air pollution.

On September 23, 2016, SANDAG’s Board of Directors adopted the final 2016 Regional Transportation Improvement Program. The 2016 Regional Transportation Improvement Program is a multibillion dollar, multiyear program of proposed projects for major transportation projects in the San Diego region. Transportation projects funded with federal, state, and TransNet (the San Diego transportation sales tax program) must be included in an approved Regional Transportation Improvement Program. The programming of locally funded projects also may be programmed at the discretion of the agency. The 2016 Regional Transportation Improvement Program covers five fiscal years and incrementally implements the Regional Plan (SANDAG 2016).

Chula Vista General Plan

In the Environmental Element of the Chula Vista Vision 2020 General Plan, the City outlines in Chapter 3.1.6, Promoting Clean Air, the background of air quality in the region and the following objectives and policies related to air quality (City of Chula Vista 2005):

Objective E 6: Improve local air quality and reduce greenhouse gas emissions by minimizing the release of air pollutants and toxic air contaminants and limiting the exposure of people to such pollutants.

Objective E 6B: Prioritize greening efforts to keep air, water, and land clean.

Air Quality Conditions

Regional and Local Air Quality Conditions

<u>SDAB Attainment Designations</u>

Pursuant to the 1990 federal CAA amendments, the EPA classifies air basins (or portions thereof) as "attainment" or "nonattainment" for each criteria air pollutant, based on whether the NAAQS have been achieved. Generally, if the recorded concentrations of a pollutant are lower than the standard, the area is classified as attainment for that pollutant. If an area exceeds the standard, the area is classified as nonattainment for that pollutant. If there is not enough data available to determine whether the standard is exceeded in an area, the area is designated as "unclassified" or "unclassifiable." The designation of "unclassifiable/attainment" means that the area meets the standard or is expected to be meet the standard despite a lack of monitoring data. Areas that achieve the standards after a nonattainment designation are redesignated as maintenance areas and must have approved Maintenance Plans to ensure continued attainment of the standards. The California Clean Air Act, like its federal counterpart, called for the designation of areas as attainment or nonattainment, but based on CAAQS rather than the NAAQS. Table 4.2-2 depicts the current attainment status of the project site with respect to the NAAQS and CAAQS.

Table 4.2-2
San Diego Air Basin Attainment Classification

Pollutant	Designation/Classification	
	Federal Standards	*State Standards*
Ozone (O_3) – 1 hour	Attainment	**Nonattainment**
O_3 – (8 hour)	**Nonattainment (moderate)**	**Nonattainment**
Nitrogen Dioxide (NO_2)	Unclassifiable/attainment	Attainment
Carbon Monoxide (CO)	Attainment (maintenance)	Attainment
Sulfur Dioxide (SO_2)	Unclassifiable/attainment	Attainment
Coarse Particulate Matter (PM_{10})	Unclassifiable/attainment	**Nonattainment**

Table 4.2-2
San Diego Air Basin Attainment Classification

Pollutant	Designation/Classification	
	Federal Standards	*State Standards*
Fine Particulate Matter ($PM_{2.5}$)	Unclassifiable/attainment	**Nonattainment**
Lead	Unclassifiable/attainment	Attainment
Hydrogen Sulfide	No federal standard	Attainment
Sulfates	No federal standard	Unclassified
Visibility-Reducing Particles	No federal standard	Unclassified
Vinyl Chloride	No federal standard	No designation

Sources: EPA 2016 (federal); CARB 2016b (state).
Notes:
Attainment = meets the standards; Attainment (maintenance) = achieve the standards after a nonattainment designation; Nonattainment = does not meet the standards; Unclassified or Unclassifiable = insufficient data to classify; Unclassifiable/attainment = meets the standard or is expected to be meet the standard despite a lack of monitoring data.
If nonattainment for federal standards, a clarifying classification will be provided indicating the severity of the nonattainment status.

In summary, the SDAB is designated as an attainment area for the 1997 8-hour O_3 NAAQS and as a nonattainment area for the 2008 8-hour O_3 NAAQS. The SDAB is designated as a nonattainment area for O_3, PM_{10}, and $PM_{2.5}$ CAAQS. The portion of the SDAB where the proposed project would be located is designated as attainment or unclassifiable/unclassified for all other criteria pollutants under the NAAQS and CAAQS.

Local Ambient Air Quality

CARB, air districts, and other agencies monitor ambient air quality at approximately 250 air quality monitoring stations across the state. Local ambient air quality is monitored by the SDAPCD. The SDAPCD operates a network of ambient air monitoring stations throughout the County, which measure ambient concentrations of pollutants and determine whether the ambient air quality meets the CAAQS and the NAAQS. The nearest SDAPCD-operated monitoring station is the Chula Vista monitoring station, which is located approximately 3.6 miles west of the project site. This site was used to show the background ambient air quality for O_3, PM_{10}, $PM_{2.5}$, and NO_2. The closest monitoring site that measures CO and SO_2 is the First Street monitoring station in El Cajon, which is about 10.5 miles northeast of the project. The most recent background ambient air quality data and number of days exceeding the ambient air quality standards from 2016 to 2018 are presented in Table 4.2-3.

Table 4.2-3
Local Ambient Air Quality Data

Averaging Time	Unit	Agency/ Method	Ambient Air Quality Standard	Measured Concentration by Year			Exceedances by Year		
				2016	*2017*	*2018*	*2016*	*2017*	*2018*
Ozone (O_3) – Chula Vista									
Maximum 1-hour concentration	ppm	State	0.09	0.073	0.085	0.076	0	0	0
Maximum 8-hour concentration	ppm	State	0.070	0.069	0.075	0.064	0	1	0
		Federal	0.070	0.068	0.074	0.065	0	1	0
Nitrogen Dioxide (NO_2) – Chula Vista									
Maximum 1-hour concentration	ppm	State	0.18	0.054	0.057	0.052	0	0	0
		Federal	0.100	0.054	0.057	0.052	0	0	0
Annual concentration	ppm	State	0.030	0.009	ND	0.009	—	—	—
		Federal	0.053	0.009	0.009	0.009	—	—	—
Carbon Monoxide (CO) – 533 First Street, El Cajon									
Maximum 1-hour concentration	ppm	State	20	1.6	1.5	1.4	0	0	0
		Federal	35	1.6	1.5	1.4	0	0	0
Maximum 8-hour concentration	ppm	State	9.0	1.3	1.4	1.1	0	0	0
		Federal	9	1.3	1.4	1.1	0	0	0
Sulfur Dioxide (SO_2) – 533 First Street, El Cajon									
Maximum 1-hour concentration	ppm	Federal	0.075	0.0006	0.0011	0.0035	0	0	0
Maximum 24-hour concentration	ppm	Federal	0.14	0.0002	0.0004	0.0004	0	0	0
Annual concentration	ppm	Federal	0.030	0.00008	0.00011	0.0001	0	0	0
Coarse Particulate Matter (PM_{10})[a] – Chula Vista									
Maximum 24-hour concentration	$\mu g/m^3$	State	50	48.0	61.0	45.0	0.0 (0)	6.5 (1)	ND (0)
		Federal	150	48.0	59.0	45.0	0.0 (0)	0.0 (0)	0.0 (0)
Annual concentration	$\mu g/m^3$	State	20	21.8	21.7	ND	—	—	—
Fine Particulate Matter ($PM_{2.5}$)[a] – Chula Vista									
Maximum 24-hour concentration	$\mu g/m^3$	Federal	35	23.9	42.7	41.9	0.0 (0)	ND (1)	2.7 (1)
Annual concentration	$\mu g/m^3$	State	12	23.9	42.7	41.9	—	—	—
		Federal	12.0	8.7	ND	9.9	—	—	—

Sources: CARB 2019f; EPA 2019a.

Notes: ppm = parts per million; — = not available; $\mu g/m3$ = micrograms per cubic meter; ND = insufficient data available to determine the value. Data taken from CARB iADAM (http://www.arb.ca.gov/adam) and Environmental Protection Agency AirData (http://www.epa.gov/airdata/) represent the highest concentrations experienced over a given year.

Daily exceedances for particulate matter are estimated days because PM_{10} and $PM_{2.5}$ are not monitored daily. All other criteria pollutants did not exceed federal or state standards during the years shown. There is no federal standard for 1-hour O_3, annual PM_{10}, or 24-hour SO_2, nor is there a state 24-hour standard for $PM_{2.5}$.

[a] Measurements of PM_{10} and $PM_{2.5}$ are usually collected every 6 days and every 1 to 3 days, respectively. Number of days exceeding the standards is a mathematical estimate of the number of days concentrations would have been greater than the level of the standard had each day been monitored. The numbers in parentheses are the measured number of samples that exceeded the standard.

4.2.3 Thresholds of Significance

Based on the significance criteria established by Appendix G of the 2019 California Environmental Quality Act Guidelines (14 CCR 15000 et seq.) and the City of Chula Vista, a significant impact related to air quality would generally occur as a result of project implementation if the project would:

1. Conflict with or obstruct implementation of the applicable air quality plan.
2. Result in a cumulatively considerable net increase or any criteria pollutant for which the project region if non-attainment under an applicable federal or state ambient air quality standard.
3. Expose sensitive receptors to substantial pollutant concentrations.
4. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

The City of Chula Vista evaluated project emissions based on the quantitative emission thresholds established by the South Coast Air Quality Management District. The South Coast Air Quality Management District sets forth quantitative emission significance thresholds below which a project would not have a significant impact on ambient air quality. It should be noted that the use of these significance thresholds is conservative, as the South Coast Air Quality Management District's significance thresholds were originally based on the South Coast Air Basin extreme O_3 nonattainment status for the 1-hour NAAQS, whereas the SDAB was designated as an attainment area for the 1-hour NAAQS. Project-related air quality impacts estimated in this environmental analysis would be considered significant if any of the applicable significance thresholds presented in Table 4.2-4 are exceeded.

Table 4.2-4
City of Chula Vista Air Quality Significance Thresholds

Criteria Pollutants Mass Daily Thresholds		
Pollutant	*Construction (pounds per day)*	*Operation (pounds per day)*
VOCs	75	55
NO_x	100	55
CO	550	550
SO_x	150	150
PM_{10}	150	150
$PM_{2.5}$	55	55
Lead[a]	3	3

Source: SCAQMD 2015.
Notes: VOC = volatile organic compounds; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter.

GHG emissions thresholds for industrial projects, as added in the March 2015 revision to the South Coast Air Quality Management District Air Quality Significance Thresholds, were not include included in Table 4 as they will be addressed within the greenhouse gas emissions analysis and not the air quality study.

[a] The phaseout of leaded gasoline started in 1976. Since gasoline no longer contains lead, the project is not anticipated to result in impacts related to lead; therefore, it is not discussed in this analysis.

The thresholds listed in Table 4.2-4 represent screening-level thresholds that can be used to evaluate whether project-related emissions could cause a significant impact on air quality. Emissions below the screening-level thresholds would not cause a significant impact. For nonattainment pollutants, if emissions exceed the thresholds shown in Table 4.2-4, the project could have the potential to result in a cumulatively considerable net increase in these pollutants and, thus, could have a significant impact on the ambient air quality.

With respect to odors, SDAPCD Rule 51 (Public Nuisance) prohibits emission of any material that causes nuisance to a considerable number of persons or endangers the comfort, health, or safety of any person. A project that proposes a use that would produce objectionable odors would be deemed to have a significant odor impact if it would affect a considerable number of off-site receptors.

Approach and Methodology

Construction

Emissions from the construction of the project were estimated using the California Emissions Estimator Model (CalEEMod) Version 2016.3.2 (CAPCOA 2017). CalEEMod is a statewide computer model developed in cooperation with air districts throughout the state to quantify criteria air pollutant emissions associated with the construction and operational activities from a variety of land use projects, such as residential, commercial, and industrial facilities.

Construction scenario assumptions, including phasing, equipment mix, and vehicle trips, were based on information provided by the applicant and CalEEMod generated default values. Complete detailed construction assumptions are included in Appendix A. Implementation of the project would include replacement of the existing track with synthetic materials, replacement of the natural turf with artificial turf, additional stadium seating, a new concessions and restroom building, an Americans with Disabilities Act–accessible entrance, a new public address and speaker system, and a new stadium lighting system to allow for sports games and other events to be held in the evening. Currently, football games and other nighttime events are held across the street at the Southwestern College campus stadium.

For purposes of estimating project emissions, and based on information provided by applicant, it is assumed that construction of the project would occur over an approximately 6-month period, beginning in April 2021 and ending in October 2021. The analysis contained herein is based on the assumptions outlined in Table 4.2-5 (duration of phases is approximate). The project schedule was based on information provided by the project applicant.

Table 4.2-5
Construction Phasing Assumptions

Project Construction Phase	Construction Start Month/Year	Construction End Month/Year
Demolition	04/19/2021	05/07/2021
Site Preparation	05/10/2021	05/21/2021
Grading	05/24/2021	06/09/2021
Construction of Concessions and Restrooms	06/07/2021	09/10/2021
Replacement of Track 1	06/23/2021	06/29/2021
Replacement of Turf Fields	06/30/2021	07/29/2021
Replacement of Track 2	07/30/2021	08/19/2021
Installation of Bleachers/Lighting/Other	09/01/2021	10/01/2021
Paving 1	09/13/2021	09/24/2021
Paving 2	10/04/2021	10/29/2021

Notes: See Appendix A for details.

The construction equipment mix used for estimating the construction emissions of the project was generated by CalEEMod default and is shown in Table 4.2-6. For this analysis, it was assumed that heavy construction equipment would operate 5 days a week during project construction.

Table 4.2-6
Construction Scenario Assumptions

Construction Phase	One-Way Vehicle Trips			Equipment		
	Average Daily Worker Trips	*Average Daily Vendor Truck Trips*	*Total Haul Truck Trips*	*Equipment Type*	*Quantity*	*Usage Hours*
Demolition	15	0	3	Concrete/Industrial Saws	1	8
				Excavators	2	8
				Rubber Tired Dozers	1	8
Site Preparation	18	0	0	Rubber Tired Dozers	1	8
				Tractors/Loaders/Backhoes	1	8
Grading	15	0	6	Excavators	2	8
				Graders	2	8
				Rubber Tired Dozers	1	8
				Tractors/Loaders/Backhoes	3	8

Table 4.2-6
Construction Scenario Assumptions

Construction Phase	One-Way Vehicle Trips			Equipment		
	Average Daily Worker Trips	*Average Daily Vendor Truck Trips*	*Total Haul Truck Trips*	*Equipment Type*	*Quantity*	*Usage Hours*
Construction of Concessions and Restrooms	20	4	0	Forklifts	3	8
				Generator Sets	1	8
				Tractors/Loaders/Backhoes	3	7
				Welders	1	8
Replacement of Track 1	10	3	0	Forklifts	3	8
				Paving Equipment	1	8
Replacement of Turf Fields	10	3	0	Forklifts	2	8
Replacement of Track 2	10	3	0	Forklifts	3	8
				Paving Equipment	1	8
Installation of Bleachers/Lighting/Other	20	10	0	Aerial Lifts	1	7
				Cranes	1	7
				Forklifts	3	8
				Excavators	1	8
				Welders	1	8
Paving 1	15	2	0	Pavers	1	8
				Paving Equipment	1	8
				Rollers	1	8
Paving 2	15	2	0	Pavers	1	8
				Paving Equipment	1	8
				Rollers	1	8

Notes: See Appendix A for details.

Construction worker and vendor estimates by construction phase were generated by CalEEMod. Construction of project components would be subject to SDAPCD Rule 55, Fugitive Dust Control. This rule requires that construction of project components include steps to restrict visible emissions of fugitive dust beyond the property line (SDAPCD 2009b). Compliance with Rule 55 would limit fugitive dust (PM_{10} and $PM_{2.5}$) that may be generated during grading and construction activities. It is assumed that any excavated soils would be balanced on site, with little to no import or export of soils required.

The application of architectural coatings, such as exterior/interior paint and other finishes, would also produce VOC emissions; however, the contractor is required to procure architectural coatings from a supplier in compliance with the requirements of SDAPCD Rule 67.0.1, Architectural Coatings. This rule requires manufacturers, distributors, and end users of architectural and industrial maintenance coatings to reduce VOC emissions from the use of these coatings, primarily by placing limits on the VOC content of various coating categories (SDAPCD 2015a). The project would comply with SDAPCD Rule 67.0.1 through the incorporation of low-VOC architectural coatings. The VOC content assumed for the analysis includes 50 grams per liter for interior coatings and 100 grams/liter for exterior coatings.

A detailed depiction of the construction schedule—including information regarding subphases and equipment used during each subphase—is included in Appendix A of this Environmental Impact Report.

Health Risk Assessment

As a precautionary measure, a Health Risk Assessment (HRA) was performed to assess the impact of construction on sensitive receptors proximate to the project. This report includes an HRA associated with emissions from construction of the project based on the methodologies prescribed in the Office of Environmental Health Hazard Assessment (OEHHA) Air Toxics Hot Spots Program Risk Assessment Guidelines – Guidance Manual for Preparation of Health Risk Assessments (OEHHA 2015). To implement the OEHHA Guidelines based on project information, the SDAPCD has developed a three-tiered approach where each successive tier is progressively more refined, with fewer conservative assumptions. The SDAPCD Supplemental Guidelines for Submission of Air Toxics "Hot Spots" Program Health Risk Assessments provides guidance with which to perform HRAs within the SDAB (SDAPCD 2015b).

Health effects from carcinogenic air toxics are usually described in terms of cancer risk. The SDAPCD recommends a carcinogenic (cancer) risk threshold of 10 in one million. Additionally, some TACs increase non-cancer health risk due to long-term (chronic) exposures. The Chronic Hazard Index is the sum of the individual substance chronic hazard indices for all TACs affecting the same target organ system. The SDAPCD recommends a Chronic Hazard Index significance threshold of 1.0 (project increment). The exhaust from diesel engines is a complex mixture of gases, vapors, and particles, many of which are known human carcinogens. DPM has established cancer risk factors and relative exposure values for long-term chronic health hazard impacts. No short-term, acute relative exposure level has been established for DPM; therefore, acute impacts of DPM are not addressed in this assessment. This HRA evaluated the risk to future residents from diesel emissions from exhaust from on-site construction equipment and diesel haul and vendor trucks.

The dispersion modeling of DPM was performed using the American Meteorological Society/EPA Regulatory Model (AERMOD), which is the model SDAPCD requires for atmospheric dispersion of emissions. AERMOD is a steady-state Gaussian plume model that incorporates air dispersion based on planetary boundary layer turbulence structure and scaling concepts, including treatment of surface and elevated sources, building downwash, and simple and complex terrain (EPA 2019b). For the project, AERMOD was run with all sources emitting unit emissions (1 gram per second) to obtain the "X/Q" values. X/Q is a dispersion factor that is the average effluent concentration normalized by source strength and is used as a way to simplify the representation of emissions from many sources. The X/Q values of ground-level concentrations were determined for construction emissions using AERMOD and the maximum concentrations determined for the 1-hour and period-averaging periods. Principal parameters of this modeling are presented in Table 4.2-7.

Table 4.2-7
AERMOD Principal Parameters

Parameter	Details
Meteorological Data	The latest 3-year meteorological data (2016–2018) for the Donovan State Prison from SDAPCD were downloaded and then input to AERMOD. For cancer or chronic noncancer risk assessments, the average cancer risk of all years modeled was used.
Urban versus Rural Option	Urban areas typically have more surface roughness, as well as structures and low-albedo surfaces that absorb more sunlight—and thus more heat—relative to rural areas. However, based on the SDAPCD guidelines, the rural dispersion option was selected due to the project's proximity to the ocean.
Terrain Characteristics	The terrain in the vicinity of the modeled project site is generally flat. The elevation of the modeled site is approximately 480 feet above sea level. Digital elevation model files were imported into AERMOD so that complex terrain features were evaluated as appropriate (National Elevation Dataset 1/3 – 10 meter resolution).
Emission Sources and Release Parameters	Air dispersion modeling of DPM emissions was conducted assuming the equipment would operate in accordance with the modeling scenario estimated in CalEEMod (Appendix A). The DPM emissions were modeled as a series of volume sources.
Source Release Characterizations	For modeling construction emissions dispersion using AERMOD, it was assumed that the total project area would operate in accordance with the respective construction schedules. A unit emission rate of 1.0 gram per second was normalized over the number of volume sources for each AERMOD run.
Discrete Receptors	A uniform Cartesian grid was placed over the project site with 20-meter spacing (1,000 meters by 1,000 meters) and converted into discrete Cartesian receptors to represent existing sensitive receptors adjacent to the site.

Notes: SDAPCD = San Diego Air Pollution Control District; AERMOD = American Meteorological Society/U.S. Environmental Protection Agency Regulatory Model; DPM = diesel particulate matter; CalEEMod = California Emissions Estimator Model.
See Appendix A.

Dispersion model plotfiles from AERMOD were then imported into CARB's Hotspots Analysis and Reporting Program Version 2 to determine health risk, which requires peak 1-hour emission rates and annual-averaged emission rates for all pollutants for each modeling source. For the residential health risk, the HRA assumes exposure would start in the third trimester of pregnancy. Based on the HRA included in Appendix A, the maximally exposed individual resident would be located at the northeastern corner of the project site. The results of the HRA are provided in Section 4.2.4, and detailed results and methodology are provided in Appendix A.

Operation

Following construction, athletic and special events that currently occur off campus would begin occurring on campus. Changes in event location are summarized in Chapter 3, Project Description.

In addition, the project would result in general maintenance activities that currently occur on campus, such as landscaping, general repairs, natural turf field maintenance, and trash removal. Maintenance also would include replacement of light fixtures and artificial turf. Because the project would relocate events from the adjacent Southwestern College campus to on campus as further described in Section 4.6, Transportation, net mobile source emissions are not anticipated to increase as a result of the transfer of events from the Southwestern College campus stadium.

Project Design Features

Sweetwater Union High School District would implement Project Design Features (PDFs) as an environmentally sensitive practice to minimize adverse effects from construction activities. The relevance to specific impact topics is detailed in Section 4.2.4.

PDF-AQ-1 **Construction Equipment.** Prior to the start of construction activities, the project applicant, or its designee, shall ensure that all 75 horsepower or greater diesel-powered equipment are powered with California Air Resources Board (CARB) certified Tier 4 Interim engines, except where the project applicant establishes to the satisfaction of the City of Chula Vista that Tier 4 Interim equipment is not available. In the case where the applicant is unable to secure a piece of equipment that meets the Tier 4 Interim requirement, the applicant may use CARB-certified Tier 3 engines with the most effective Verified Diesel Emission Control Strategies available for the engine type, such as Level 3 Diesel Particulate Filters. Alternatively, the use of equipment that includes electric or alternatively fueled equipment (i.e., non-diesel) would meet this requirement.

4.2.4 Impacts Analysis

Would the project conflict with or obstruct implementation of the applicable air quality plan?

The SDAPCD and SANDAG are responsible for developing and implementing the clean air plans for attainment and maintenance of the ambient air quality standards in the basin—specifically, the SIP and RAQS.[3] The federal O_3 maintenance plan, which is part of the SIP, was adopted in 2012. The most recent O_3 attainment plan was adopted in 2016. The SIP includes a demonstration that current strategies and tactics will maintain acceptable air quality in the SDAB based on the NAAQS. The RAQS was initially adopted in 1991 and is updated on a triennial basis (most recently in 2016). The RAQS outlines SDAPCD's plans and control measures designed to attain the state air quality standards for O_3. The SIP and RAQS rely on information from CARB and SANDAG, including mobile and area source emissions, as well as information regarding projected growth in the County as a whole and the cities in the County,

3 For the purpose of this discussion, the relevant federal air quality plan is the ozone maintenance plan (SDAPCD 2016a). The RAQS is the applicable plan for purposes of state air quality planning. Both plans reflect growth projections in the SDAB.

to project future emissions and determine the strategies necessary for the reduction of emissions through regulatory controls. CARB mobile source emission projections and SANDAG growth projections are based on population, vehicle trends, and land use plans developed by the County and the cities in the County as part of the development of their general plans.

If a project proposes development that is greater than that anticipated in the local plan and SANDAG's growth projections, the project might be in conflict with the SIP and RAQS and may contribute to a potentially significant cumulative impact on air quality. The project would allow existing BVHS team sports activities and special events that currently occur off site to occur on the BVHS campus. Net vehicle trips are not anticipated to increase as a result of the transfer of events from the Southwestern College campus stadium to BVHS. Therefore, the project would not exceed the growth assumptions contained in the SIP and RAQS and impacts would be considered less than significant.

Would the project result in a cumulatively considerable net increase or any criteria pollutant for which the project region if non-attainment under an applicable federal or state ambient air quality standard?

Air pollution is largely a cumulative impact. The nonattainment status of regional pollutants is a result of past and present development, and the SDAPCD develops and implements plans for future attainment of ambient air quality standards. Based on these considerations, project-level thresholds of significance for criteria pollutants are relevant in the determination of whether a project's individual emissions would have a cumulatively significant impact on air quality.

The SDAB is a nonattainment area for O_3 under the NAAQS and CAAQS. The poor air quality in the SDAB is the result of cumulative emissions from motor vehicles, off-road equipment, commercial and industrial facilities, and other emission sources. Projects that emit these pollutants or their precursors (i.e., VOCs and NO_x for O_3) potentially contribute to poor air quality. In analyzing cumulative impacts from a project, the analysis must specifically evaluate the project's contribution to the cumulative increase in pollutants for which the SDAB is designated as nonattainment for the CAAQS and NAAQS. If the project does not exceed thresholds and is determined to have less than significant project-specific impacts, it may still contribute to a significant cumulative impact on air quality if the emissions from the project, in combination with the emissions from other proposed or reasonably foreseeable future projects, are in excess of established thresholds. However, a project would only be considered to have a significant cumulative impact if the project's contribution accounts for a significant proportion of the cumulative total emissions (i.e., it represents a "cumulatively considerable contribution" to the cumulative air quality impact).

Additionally, for the SDAB, the RAQS serves as the long-term regional air quality planning document for the purpose of assessing cumulative operational emissions in the basin to ensure the

SDAB continues to make progress toward NAAQS- and CAAQS-attainment status. As such, cumulative projects located in the San Diego region would have the potential to result in a cumulative impact to air quality if, in combination, they would conflict with or obstruct implementation of the RAQS. Similarly, individual projects that are inconsistent with the regional planning documents upon which the RAQS is based would have the potential to result in cumulative operational impacts if they represent development and population increases beyond regional projections.

The SDAB has been designated as a federal nonattainment area for O_3 and a state nonattainment area for O_3, PM_{10}, and $PM_{2.5}$. The nonattainment status is the result of cumulative emissions from all sources of these air pollutants and their precursors within the basin. As discussed previously, the project would not exceed significance thresholds during construction or operation. As such, the project would result in less than significant impacts to air quality relative to emissions.

Construction of the project would result in the temporary addition of pollutants to the local airshed caused by on-site sources (i.e., off-road construction equipment, soil disturbance, and VOC off-gassing) and off-site sources (worker vehicle trips). Construction emissions can vary substantially day to day, depending on the level of activity, the specific type of operation, and, for dust, the prevailing weather conditions.

Criteria air pollutant emissions associated with construction activity were quantified using CalEEMod. Default values provided by the program were used where detailed project information was not available. A detailed depiction of the construction schedule—including information regarding phasing, equipment used during each phase, haul trucks, vendor trucks, and worker vehicles—is included in Section 4.2.3. The information contained in Appendix A was used as CalEEMod inputs.

Implementation of the project would generate air pollutant emissions from entrained dust, off-road equipment, vehicle emissions, and asphalt pavement application. Entrained dust results from the exposure of earth surfaces to wind from the direct disturbance and movement of soil, resulting in PM_{10} and $PM_{2.5}$ emissions. The project is subject to SDAPCD Rule 55, Fugitive Dust Control. This rule requires that the project take steps to restrict visible emissions of fugitive dust beyond the property line. Compliance with Rule 55 would limit fugitive dust (PM_{10} and $PM_{2.5}$) generated during grading and construction activities. To account for dust control measures in the calculations, it was assumed that the active sites would be watered at least two times daily, resulting in an approximately 55% reduction of particulate matter.

Exhaust from internal combustion engines used by construction equipment and worker vehicles would result in emissions of VOC, NO_x, CO, sulfur oxides, PM_{10}, and $PM_{2.5}$. The application of asphalt pavement and architectural coatings would also produce VOC emissions.

Table 4.2-8 shows the estimated maximum daily construction emissions associated with construction of the project. Complete details of the emissions calculations are provided in Appendix A of this document.

Table 4.2-8
Estimated Maximum Daily Construction Criteria Air Pollutant Emissions

Year	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	pounds per day					
2021	4.67	46.62	36.80	0.07	4.29	2.95
Chula Vista Threshold	*75*	*100*	*550*	*150*	*150*	*55*
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

Notes: VOC = volatile organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter.
See Appendix A for complete results.
The values shown are the maximum summer or winter daily emissions results from California Emissions Estimator Model. Although not considered mitigation, these emissions reflect California Emissions Estimator Model "mitigated" output, which accounts for the required compliance with SDAPCD Rule 55 (Fugitive Dust) and Rule 67.0.1 (Architectural Coatings).

As shown in Table 4.2-8, daily construction emissions would not exceed the City of Chula Vista's significance thresholds. Therefore, impacts during construction would be less than significant.

Regarding long-term cumulative operational emissions in relation to consistency with local air quality plans, the SIP and RAQS serve as the primary air quality planning documents for the state and SDAB, respectively. The SIP and RAQS rely on SANDAG growth projections based on population, vehicle trends, and land use plans developed by the cities and the County as part of the development of their general plans. Therefore, projects that propose development that is consistent with the growth anticipated by local plans would be consistent with the SIP and RAQS and would not be considered to result in cumulatively considerable impacts from operational emissions. The project would not include any stationary sources of air emissions. Vehicle trips associated with operation and maintenance of the athletic fields would continue to occur as they do under existing conditions; events would move from Southwestern College to Bonita Vista High School, but the same number of vehicular trips are expected. The only change to vehicle trips would be a re-distribution of trips that would occur with relocation of athletic and special events to the BVHS campus as described in Section 4.6. While a small change, either increase or decrease, could occur in vehicle emissions from the re-distribution of trips within the transportation network, the project would not result in a cumulatively considerable contribution to regional O_3 concentrations or other criteria pollutant emissions. Impacts associated with project-generated operational criteria air pollutant emissions would be **less than significant**.

Would the project expose sensitive receptors to substantial pollutant concentrations?

Air quality varies as a direct function of the amount of pollutants emitted into the atmosphere, the size and topography of the air basin, and the prevailing meteorological conditions. Air quality problems arise when the rate of pollutant emissions exceeds the rate of dispersion. Reduced visibility, eye irritation, and adverse health impacts upon those persons termed sensitive receptors are the most serious hazards of existing air quality conditions in the area. Some land uses are considered more sensitive to changes in air quality than others, depending on the population groups and the activities involved. People most likely to be affected by air pollution, as identified by CARB, include children, the elderly, athletes, and people with cardiovascular and chronic respiratory diseases. As such, sensitive receptors include residences, schools, playgrounds, child-care centers, athletic facilities, long-term health-care facilities, rehabilitation centers, convalescent centers, and retirement homes. The closest sensitive receptors to the project are residences adjacent to the eastern and northern property boundaries.

Health Impacts of Toxic Air Contaminants

Incremental cancer risk is the net increased likelihood that a person continuously exposed to concentrations of TACs resulting from a project over a 9-, 30-, and 70-year exposure period would contract cancer based on the use of standard OEHHA risk-assessment methodology (OEHHA 2015). In addition, some TACs have non-carcinogenic effects. TACs that would potentially be emitted during construction activities would be DPM emitted from heavy-duty construction equipment and heavy-duty trucks. Heavy-duty construction equipment and diesel trucks are subject to CARB Airborne Toxic Control Measures to reduce DPM emissions. According to the OEHHA, HRAs should be based on a 30-year exposure duration based on typical residency period; however, such assessments should be limited to the period/duration of activities associated with the project (OEHHA 2015). Thus, the duration of proposed construction activities (approximately 6 months) would only constitute a small percentage of the total long-term exposure period and would not result in exposure of proximate sensitive receptors to substantial TACs. After construction is completed there would be no long-term source of TAC emissions during operation.

However, as a precautionary measure, an HRA was performed to evaluate the risk from diesel exhaust emissions on existing sensitive receptors from construction activities. The HRA methodology was further described in Section 4.2.3 and the detailed assessment is provided in Appendix A. Sweetwater Union High School District would utilize Tier 4 interim equipment and/or diesel equipment with DPM filters per PDF-AQ-1 (see Section 4.2.3). Combined use of Tier 4 interim equipment and DPM filters can reduce DPM and NO_x emissions. Table 4.2-9 shows the results of the HRA after the implementation of PDF-AQ-1.

Table 4.2-9
Summary of Maximum Construction Cancer and Chronic Health Risks

Impact Parameter	Units	Proposed Project Impact	CEQA Threshold	Level of Significance
Maximally Exposed Individual Resident				
Cancer Risk	Per Million	4.69	10.0	Less than Significant
HIC	Not Applicable	0.01	1.0	Less than Significant
Maximally Exposed School Receptor				
Cancer Risk	Per Million	0.77	10.0	Less than Significant
HIC	Not Applicable	0.01	1.0	Less than Significant

Sources: Appendix A.
Notes: CEQA = California Environmental Quality Act; HIC = Chronic Hazard Index.

As shown in Table 4.2-9, the HRA results show cancer risks less than the 10 in one million threshold and chronic hazard indices less than the 1.0 threshold. Impacts would be less than significant.

Health Impacts of Carbon Monoxide

Mobile-source impacts occur on two basic scales of motion. Regionally, project-related travel will add to regional trip generation and increase the vehicle miles traveled within the local airshed and the SDAB. As previously discussed, the project would result in the re-distribution of vehicle trips that would occur with relocation of athletic and special events to the BVHS campus. If such traffic occurs during periods of poor atmospheric ventilation, consists of a large number of vehicles "cold-started" and operating at pollution-inefficient speeds, and operates on roadways already crowded with non-project traffic, there is a potential for the formation of microscale CO "hotspots" in the area immediately around points of congested traffic. Because of continued improvement in mobile emissions at a rate faster than the rate of vehicle growth and/or congestion, the potential for CO hotspots in the SDAB is steadily decreasing; a quantitative analysis is not required for the project. In addition, the local area traffic is not expected to substantially change, and existing intersection operations (as measured by level of service) and roadway segment volumes would generally be maintained, as discussed in Section 4.6. Background CO levels in the area, as shown in Table 4.2-3, are less than 14% of the 1- and 8-hour CAAQS and would be expected to improve further due to reductions in motor vehicle emissions.

Therefore, a CO hotspot analysis is not needed and the project would have a less than significant impact.

Health Impacts of Other Criteria Air Pollutants

Construction and operation of the project would not result in emissions that exceed the SDAPCD's emission thresholds for any criteria air pollutants. Regarding VOCs, some VOCs are associated with motor vehicles and construction equipment, while others are associated with architectural coatings, the emissions of which would not result in the exceedances of the SDAPCD's thresholds.

Generally, the VOCs in architectural coatings are of relatively low toxicity. Additionally, SDAPCD Rule 67.0.1 restricts the VOC content of coatings for both construction and operational applications.

Furthermore, VOCs and NO_x are precursors to O_3, for which the SDAB is designated as nonattainment with respect to the NAAQS and CAAQS (the SDAB is designated by the EPA as an attainment area for the 1-hour O_3 NAAQS standard and 1997 8-hour NAAQS standard). The health effects associated with O_3, as discussed in Section 4.2.2, are generally associated with reduced lung function. The contribution of VOCs and NO_x to regional ambient O_3 concentrations is the result of complex photochemistry. The increases in O_3 concentrations in the SDAB due to O_3 precursor emissions tend to be found downwind from the source location to allow time for the photochemical reactions to occur. However, the potential for exacerbating excessive O_3 concentrations would also depend on the time of year that the VOC emissions would occur, because exceedances of the O_3 ambient air quality standards tend to occur between April and October when solar radiation is highest.

Regarding NO_2, according to the construction emissions analysis, construction of the proposed project would not contribute to exceedances of the NAAQS and CAAQS for NO_2. As described in Section 4.2.2, health impacts from exposure to NO_2 and NO_x are associated with respiratory irritation, which may be experienced by nearby receptors during the periods of heaviest use of off-road construction equipment. However, these operations would be relatively short term. Additionally, off-road construction equipment would operate at various portions of the site and would not be concentrated in one portion of the site at any one time. Construction of the project would not require any stationary emission sources that would create substantial, localized NO_x impacts. Therefore, health impacts would be considered less than significant.

The VOC and NO_x emissions, as described previously, would minimally contribute to regional O_3 concentrations and its associated health effects. In addition to O_3, NO_x emissions would not contribute to potential exceedances of the NAAQS and CAAQS for NO_2. As shown in Table 4.2-3, the existing NO_2 concentrations in the area are well below the NAAQS and CAAQS standards. Thus, it is not expected that the project's NO_x emissions would result in exceedances of the NO_2 standards or contribute to the associated health effects. CO tends to be a localized impact associated with congested intersections. The associated CO hotspots were discussed previously as a less than significant impact. Thus, the project's CO emissions would not contribute to significant health effects associated with this pollutant. Likewise, PM_{10} and $PM_{2.5}$ would not contribute to potential exceedances of the NAAQS and CAAQS for particulate matter, would not obstruct the SDAB from coming into attainment for these pollutants, and would not contribute to significant health effects associated with particulates.

Based on the preceding considerations, health impacts associated with criteria air pollutants would be less than significant.

Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

The State of California Health and Safety Code, Division 26, Part 4, Chapter 3, Section 41700 and SDAPCD Rule 51, commonly referred to as public nuisance law, prohibits emissions from any source whatsoever in such quantities of air contaminants or other material that cause injury, detriment, nuisance, or annoyance to the public health or damage to property. Projects required to obtain permits from SDAPCD are evaluated by SDAPCD staff for potential odor nuisance, and conditions may be applied (or control equipment required) where necessary to prevent occurrence of public nuisance.

Section 19.66.090, Odors, of the Chula Vista Municipal Code requires that no emission shall be permitted of odorous gases or other odorous matter in such quantities as to be readily detectable at the points of measurement specified in Chula Vista Municipal Code Section 19.66.060(A). Any process that may involve the creation or emission of any odors shall be provided with an adequate secondary safeguard system of control, so that control will be maintained if the primary safeguard system should fail (City of Chula Vista 1969). SDAPCD Rule 51 (Public Nuisance) also prohibits emission of any material that causes nuisance to a considerable number of persons or endangers the comfort, health, or safety of any person. A project that proposes a use that would produce objectionable odors would be deemed to have a significant odor impact if it would affect a considerable number of off-site receptors. Odor issues are very subjective by the nature of odors themselves and due to the fact that their measurements are difficult to quantify. As a result, this guideline is qualitative and will focus on the existing and potential surrounding uses and location of sensitive receptors.

The occurrence and severity of potential odor impacts depends on numerous factors: the nature, frequency, and intensity of the source; the wind speeds and direction; and the sensitivity of receiving location each contribute to the intensity of the impact. Although offensive odors seldom cause physical harm, they can be annoying, cause distress among the public, and generate citizen complaints.

Odors would be potentially generated from vehicles and equipment exhaust emissions during construction. Potential odors produced during construction would be attributable to concentrations of unburned hydrocarbons from tailpipes of construction equipment, architectural coatings, and asphalt pavement application. Such odors would disperse rapidly from the project site and generally occur at magnitudes that would not affect substantial numbers of people. Therefore, impacts associated with odors during construction would be less than significant**.**

Land uses and industrial operations associated with odor complaints include agricultural uses, wastewater treatment plants, food-processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding (SCAQMD 1993). The project does not include any of the land uses typically associated with odor complaints. Therefore, project operations would result in an odor impact that would be less than significant.

4.2.5 Mitigation Measures

All impacts would be less than significant and no mitigation measures are proposed or required.

4.2.6 Level of Significance After Mitigation

All impacts would be less than significant and no mitigation measures are proposed or required.

4.2.7 References

13 CCR 2025. Regulation to Reduce Emissions of Diesel Particulate Matter, Oxides of Nitrogen and Other Criteria Pollutants, from In-Use Heavy-Duty Diesel-Fueled Vehicles.

13 CCR 2449–2449.3 and Appendix A. General Requirements for In-Use Off-Road Diesel-Fueled Fleets.14 CCR 15000–15387 and Appendices A–L. Guidelines for Implementation of the California Environmental Quality Act, as amended.

14 CCR 15000–15387 and Appendices A–L. Guidelines for Implementation of the California Environmental Quality Act, as amended.

17 CCR 93000. Substances Identified as Toxic Air Contaminants. In Subchapter 7, Toxic Air Contaminants.

CAPCOA (California Air Pollution Control Officers Association). 2017. *California Emissions Estimator Model (CalEEMod) User's Guide Version 2016.3.2*. Prepared by Trinity Consultants and the California Air Districts. Accessed October 2017. http://www.aqmd.gov/docs/default-source/caleemod/upgrades/2016.3/01_user-39-s-guide2016-3-1.pdf?sfvrsn=2.

CARB (California Air Resources Board). 2000. *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles*. October 2000. Accessed August 2016. http://www.arb.ca.gov/diesel/documents/rrpfinal.pdf.

CARB. 2005. *Air Quality and Land Use Handbook: A Community Health Perspective*. April 2005. Accessed August 2016. http://www.arb.ca.gov/ch/landuse.htm.

CARB. 2016a. "Ambient Air Quality Standards." May 4, 2016. http://www.arb.ca.gov/research/aaqs/aaqs2.pdf.

CARB. 2016b. "Area Designation Maps/State and National." Last updated May 5, 2016. http://www.arb.ca.gov/desig/adm/adm.htm.

CARB. 2017. Inhalable Particulate Matter and Health (PM2.5 and PM10). Page last reviewed August 10, 2017. Accessed May 2019. https://www.arb.ca.gov/research/aaqs/common-pollutants/pm/pm.htm.

CARB. 2019a. "Glossary of Air Pollutant Terms". https://ww2.arb.ca.gov/about/glossary.

CARB. 2019b. "Ozone & Health." https://ww2.arb.ca.gov/resources/ozone-and-health.

CARB. 2019c. "Nitrogen Dioxide & Health." https://ww2.arb.ca.gov/resources/nitrogen-dioxide-and-health.

CARB. 2019d. "Carbon Monoxide & Health." https://ww2.arb.ca.gov/resources/carbon-monoxide-and-health.

CARB. 2019e. "Sulfur Dioxide & Health." https://ww2.arb.ca.gov/resources/sulfur-dioxide-and-health.

CARB. 2019f. "iADAM Air Quality Data Statistics." Accessed July 2019. http://arb.ca.gov/adam.

City of Chula Vista. 1969. Chula Vista Municipal Code Section 19.66.090, Odors. Accessed November 2017. http://www.codepublishing.com/CA/ChulaVista/#!/ChulaVista19/ChulaVista1966.html#19.66.090.

City of Chula Vista. 2005. *City of Chula Vista General Plan*. Amended March 2015. Accessed October 2017. http://www.chulavistaca.gov/departments/development-services/planning/general-plan.

EPA. 2013. *Integrated Science Assessment of Ozone and Related Photochemical Oxidants*. U.S. EPA, EPA/600R-10/076F, 2013.

EPA. 2016. "EPA Region 9 Air Quality Maps and Geographic Information." Last updated April 27, 2016. Accessed August 2016. http://www.epa.gov/region9/air/maps/.

EPA. 2018. "Criteria Air Pollutants" Last updated March 8, 2018. https://www.epa.gov/criteria-air-pollutants.

EPA. 2019a. "AirData: Access to Air Pollution Data." Last updated February 23, 2016. Accessed August 2016. http://www.epa.gov/airdata/ad_rep_mon.html.

EPA. 2019b. AERMOD Version 16216r & Implementation Guide. Accessed August 2017. https://www3.epa.gov/ttn/scram/models/aermod/aermod_implementation_guide.pdf.

NRC (National Research Council of the National Academies). 2005. *Interim Report of the Committee on Changes in New Source Review Programs for Stationary Sources of Air Pollutants*. Washington, DC: The National Academies Press. Accessed May 2019. https://doi.org/10.17226/11208.

OEHHA (Office of Environmental Health Hazard Assessment). 2015. Air Toxics Hot Spots *Program. Risk Assessment Guidelines. Guidance Manual for Preparation of Health Risk Assessments*. February 2015. Accessed October 2017. http://oehha.ca.gov/air/hot_spots/2015/2015GuidanceManual.pdf.

SANDAG (San Diego Association of Governments). 2015. *San Diego Forward: The Regional Plan*. October 2015. Accessed April 2017. http://www.sdforward.com/pdfs/RP_final/The%20Plan%20-%20combined.pdf.

SANDAG. 2016. *2016 Regional Transportation Improvement Program*. Accessed November 2016. http://www.sandag.org/uploads/publicationid/publicationid_2071_21174.pdf.

SANDAG. 2017a. *Series 13: 2050 Regional Growth Forecast.* Accessed June 2017. http://www.sandag.org/index.asp?classid=12&subclassid=84&projectid=503&fuseaction=projects.detail.

SANDAG. 2017b. *2050 Regional Transportation Plan.* Accessed June 2017. http://www.sandag.org/index.asp?projectid=349&fuseaction=projects.detail.

SCAQMD (South Coast Air Quality Management District). 1993. *CEQA Air Quality Handbook*.

SCAQMD. 2015. "SCAQMD Air Quality Significance Thresholds." Originally published in *CEQA Air Quality Handbook*, Table A9-11-A. Revised March 2015. http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf?sfvrsn=2.

SDAPCD (San Diego Air Pollution Control District). 1969. Rules and Regulations. Regulation IV. Prohibitions. Rule 51. Nuisance. Effective January 1, 1969.

SDAPCD. 1997. Rules and Regulations. Regulation IV. Prohibitions. Rule 50. Visible Emissions. Effective August 13, 1997. Accessed June 2017. http://www.sandiegocounty.gov/content/dam/sdc/apcd/PDF/Rules_and_Regulations/Prohibitions/APCD_R50.pdf.

SDAPCD. 2005. *Measures to Reduce Particulate Matter in San Diego County*. December 2005. Accessed October 2017. https://www.sandiegocounty.gov/content/dam/sdc/apcd/PDF/Air%20Quality%20Planning/PM-Measures.pdf.

SDAPCD. 2009a. *2009 Regional Air Quality Strategy Revision*. April 2009. Accessed October 2017. http://www.sdapcd.org/content/dam/sdc/apcd/PDF/Air%20Quality%20Planning/2009-RAQS.pdf.

SDAPCD. 2009b. SDAPCD Regulation IV: Prohibitions; Rule 55: Fugitive Dust. June 24, 2009. Accessed October 2017. http://www.sandiegocounty.gov/content/dam/sdc/apcd/PDF/Rules_and_Regulations/Prohibitions/APCD_R55.pdf.

SDAPCD. 2015a. SDAPCD Regulation IV: Prohibitions; Rule 67.0.1: Architectural Coatings. June 24. Accessed May 2017. https://www.sandiegocounty.gov/content/dam/sdc/apcd/PDF/Rules_and_Regulations/Prohibitions/APCD_R67-0-1.pdf.

SDAPCD. 2015b. *Supplemental Guidelines for Submission of Air Toxics "Hot Spots" Program Health Risk Assessments (HRAs)*. June 2015. Accessed May 2017. http://www.sdapcd.org/content/dam/sdc/apcd/PDF/Misc/APCD_HRA_Guidelines.pdf.

SDAPCD. 2016a. *2008 Eight-Hour Ozone Attainment Plan for San Diego County*. Updated December 2016. http://www.sdapcd.org/content/dam/sdc/apcd/PDF/Air%20Quality %20Planning/8-Hr-O3%20Attain%20Plan-08%20Std.pdf.

SDAPCD. 2016b. *2016 Revision of the Regional Qir Quality Strategy for San Diego County*. December 2016. Accessed June 2017. http://www.sdapcd.org/content/dam/sdc/apcd/PDF/Air%20Quality%20Planning/2016%20RAQS.pdf.

SDAPCD. 2020. *2020 Plan for Attaining the National Ambient Air Quality Standards for Ozone in San Diego County*. Draft July 2020. https://www.sdapcd.org/content/dam/sdc/apcd/PDF/Air%20Quality%20Planning/SIP/SIP%20Att%20A%20(Attainment%20Plan)%20-%20Severe_Workshop%20Clean_reduced.pdf.

USGS (United States Geological Survey). 2000. *Operational Guidelines (version 1.0) for Geological Fieldwork in Areas 1 Endemic for Coccidioidomycosis (Valley Fever).*

WRCC (Western Region Climate Center). 2017. Climate Summary for Chula Vista, California. Accessed October 2017. https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca1758.

4.3 ENERGY

This section describes the existing energy setting of the project site, identifies associated regulatory requirements, and evaluates potential impacts related to implementation of the proposed Bonita Vista High School (BVHS) Track and Field Project (project).

4.3.1 Existing Conditions

Electricity

The production of electricity requires the consumption or conversion of non-renewable energy resources, including oil, gas, coal, and nuclear resources, into electrical energy. Renewable energy resources are also used, including water, wind, solar, and geothermal sources. The delivery of electricity involves a number of system components, including power generation facilities, transmission lines, and substations and transformers that lower the voltage to a level appropriate for distribution lines to the end user. Electrical power is generally measured in watts, while energy use is measured in watt-hours. For example, if a light bulb has a capacity rating of 100 watts, the energy required to keep the bulb on for 1 hour would be 100 watt-hours. On a utility scale, a generator's capacity is typically rated in megawatts, which is one million watts, while energy usage is measured in megawatt-hours.

According to the U.S. Energy Information Administration (EIA), California used approximately 255,224 gigawatt hours of electricity in 2018 (EIA 2019a). By sector in 2018, commercial uses utilized 45% of the state's electricity, followed by 35% for residential uses, and 19% for industrial uses (EIA 2019a). Electricity usage in California for different land uses varies substantially by the types of uses in a building, type of construction materials used in a building, and the efficiency of all electricity-consuming devices within a building. Due to the state's energy efficiency building standards and efficiency and conservation programs, California's electricity use per capita in the residential sector is lower than any other state except Hawaii (EIA 2020).

San Diego Gas and Electric (SDG&E), a subsidiary of Sempra Energy, provides electric services to 3.6 million customers through 1.4 million electric meters located in a 4,100-square-mile service area that includes the San Diego County (County) and southern Orange County (SDG&E 2016). SDG&E would provide electricity to the project. According to SDG&E, customers consumed approximately 19 billion kilowatt-hours (kWh) of electricity in 2018 (CEC 2019a). SDG&E receives electric power from a variety of sources. According to the California Public Utilities Commission (CPUC) 2019 California Renewable Portfolio Standard (RPS) Annual Report, 44% of SDG&E's power came from eligible renewable energy sources in 2018, including biomass/waste, geothermal, small hydroelectric, solar, and wind sources (CPUC 2019a). The EIA determined that in 2018, approximately 38.6% (31,353 megawatts) of electric power was generated by a renewable source (i.e. geothermal, hydroelectric, biomass, solar thermal and photovoltaic, and wind) (EIA 2018).

The California RPS Program establishes a goal for California to increase the amount of electricity generated from renewable energy resources to 20% by 2010 and to 33% by 2020. Recent legislation revised the current RPS target for California to obtain 50% of total retail electricity sales from renewable sources by 2030, with interim targets of 40% by 2024, and 45% by 2027 (CPUC 2016). In the County, SDG&E reported an annual electrical consumption of approximately 20 billion kWh in 2018, with 12.9 billion kWh for non-residential use and 6.9 billion kWh for residential use (CEC 2019b).

Natural Gas

Natural gas is a combustible mixture of hydrocarbon compounds (primarily methane) used as a fuel source. The majority of the natural gas consumed in California is obtained from sources located outside the state and delivered through high-pressure transmission pipelines. Natural gas provides almost one-third of the state's total energy requirements and is used in electricity generation, space heating, cooking, water heating, industrial processes, and as a transportation fuel. Natural gas is measured in terms of cubic feet.

According to EIA, California used approximately 2,136,907 million cubic feet of natural gas in 2018 (EIA 2019b). The majority of California's natural gas customers are residential and small commercial customers (core customers). These customers accounted for approximately 32% of the natural gas delivered by California utilities (CPUC 2019b). Large consumers, such as electric generators and industrial customers (noncore customers), accounted for approximately 70% of the natural gas delivered by California utilities in 2017 (EIA 2019b).

SDG&E provides natural gas service to the Counties of San Diego and Orange and would provide natural gas to the project. SDG&E is a wholesale customer of Southern California Gas and currently receives all of its natural gas from Southern California Gas. As of 2018, approximately 482 million therms[1] were used in the SDG&E service area per year (CEC 2019c). By 2020, natural gas demand is anticipated to be approximately 531 million therms per year in Southern California Gas's service area (CEC 2017). The total capacity of natural gas available to SDG&E in 2020 is estimated to be 395 million cubic feet per day. In 2024, the total capacity available is estimated to be 574 million cubic feet per day[2] (California Gas and Electric Utilities 2018). Within the County, annual natural gas consumption is approximately 483 million therms (CEC 2019d).

Petroleum

Petroleum-based fuels currently account for 90% of California's transportation energy sources. Over the last decade, California has implemented several policies, rules, and regulations to improve vehicle

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1 One therm is equal to 100,000 British thermal units or 100 thousand British thermal units.
2 One cubic foot of natural gas has approximately 1,020 BTUs of natural gas or 1.02 kBTUs of natural gas.

efficiency, increase the development and use of alternative fuels, reduce air pollutants and greenhouse gases (GHGs) from the transportation sector, and reduce vehicle miles traveled. Accordingly, gasoline consumption in California has declined. The California Energy Commission (CEC) predicts that the demand for gasoline will continue to decline over the next 10 years and there will be an increase in the use of alternative fuels. According to EIA, California used approximately 683 million barrels of petroleum in 2018, with the majority (681 million barrels) used for the transportation sector (EIA 2019c). This total annual consumption equates to a daily use of approximately 1.9 million barrels of petroleum. There are 42 U.S. gallons in a barrel, so California consumes approximately 78.6 million gallons of petroleum per day, adding up to an annual consumption of 28.7 billion gallons of petroleum. In California, petroleum fuels refined from crude oil are the dominant source of energy for transportation sources. Petroleum usage in California includes petroleum products such as motor gasoline, distillate fuel, liquefied petroleum gases, and jet fuel. California has implemented policies to improve vehicle efficiency and to support use of alternative transportation, which are described in Section 4.3.2.

4.3.2 Relevant Plans, Policies, and Ordinances

Federal, state, and local agencies regulate energy use and consumption through various means and programs. On the federal level, the U.S. Department of Transportation, the U.S. Department of Energy, and the U.S. Environmental Protection Agency (EPA) are three federal agencies with substantial influence over energy policies and programs. On the state level, CPUC and CEC are two agencies with authority over different aspects of energy. Relevant federal, state, and local energy-related regulations are summarized below.

Federal

Federal Energy Policy and Conservation Act. In 1975, Congress enacted the Federal Energy Policy and Conservation Act, which established the first fuel economy standards for on-road motor vehicles in the United States. Pursuant to the act, the National Highway Traffic Safety Administration is responsible for establishing additional vehicle standards. In 2012, new fuel economy standards for passenger cars and light trucks were approved for model years 2017 through 2021 (77 FR 62624–63200). Fuel economy is determined based on each manufacturer's average fuel economy for the fleet of vehicles available for sale in the United States.

Energy Independence and Security Act of 2007. On December 19, 2007, the Energy Independence and Security Act of 2007 (EISA) was signed into law. In addition to setting increased Corporate Average Fuel Economy standards for motor vehicles, the act includes other provisions related to energy efficiency:

- Renewable fuel standard (RFS) (Section 202)
- Appliance and lighting efficiency standards (Sections 301–325)
- Building energy efficiency (Sections 411–441)

This federal legislation requires ever-increasing levels of renewable fuels (the RFS) to replace petroleum (EPA 2017). The EPA is responsible for developing and implementing regulations to ensure that transportation fuel sold in the United States contains a minimum volume of renewable fuel. The RFS program regulations were developed in collaboration with refiners, renewable fuel producers, and many other stakeholders.

The RFS program was created under the Energy Policy Act of 2005 and established the first renewable fuel volume mandate in the United States. As required under the act, the original RFS program (RFS1) required 7.5 billion gallons of renewable fuel to be blended into gasoline by 2012. Under the EISA, the RFS program was expanded in several key ways that lay the foundation for achieving significant reductions in GHG emissions from the use of renewable fuels, reducing imported petroleum, and encouraging the development and expansion of the renewable fuels sector in the United States. The updated program is referred to as RFS2 and includes the following:

- EISA expanded the RFS program to include diesel in addition to gasoline.
- EISA increased the volume of renewable fuel required to be blended into transportation fuel from 9 billion gallons in 2008 to 36 billion gallons by 2022.
- EISA established new categories of renewable fuel and set separate volume requirements for each one.
- EISA required the EPA to apply lifecycle GHG performance threshold standards to ensure that each category of renewable fuel emits fewer GHGs than the petroleum fuel it replaces.

Additional provisions of the EISA address energy savings in government and public institutions, research for alternative energy, additional research in carbon capture, international energy programs, and the creation of "green" jobs.

U.S. Environmental Protection Agency and National Highway Traffic Safety Administration Joint Rule for Vehicle Standards. On April 1, 2010, the EPA and the National Highway Traffic Safety Administration (NHTSA) announced a joint final rule to establish a national program consisting of new standards for light-duty vehicles for model years 2012 through 2016. The joint rule is intended to reduce GHG emissions and improve fuel economy. The EPA promulgated the first-ever national GHG emissions standards under the Clean Air Act, and NHTSA promulgated Corporate Average Fuel Economy (CAFE) standards under the Energy Policy and Conservation Act. This final rule follows the EPA and Department of Transportation's joint proposal on September 15, 2009, and is the result of the President Obama's May 2009 announcement of a national program to reduce GHGs and improve fuel economy. The final rule became effective on July 6, 2010 (EPA and NHTSA 2010).

The EPA GHG standards require new passenger cars, light-duty trucks, and medium-duty passenger vehicles to meet an estimated combined average emissions level of 250 grams of carbon dioxide (CO_2) per mile in model year 2016, equivalent to 35.5 miles per gallon (mpg) if the automotive industry were to meet this CO_2 level through fuel economy improvements alone. The CAFE standards for passenger cars and light trucks were phased in between 2012 and 2016, with the final standards equivalent to 37.8 mpg for passenger cars and 28.8 mpg for light trucks, resulting in an estimated combined average of 34.1 mpg. Together, these standards will cut GHG emissions by an estimated 960 million metric tons and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program. The rules will simultaneously reduce GHG emissions, improve energy security, increase fuel savings, and provide clarity and predictability for manufacturers (EPA and NHTSA 2010).

In August 2012, the EPA and NHTSA approved a second round of GHG and CAFE standards for model years 2017 and beyond (EPA and NHTSA 2012). These standards will reduce motor vehicle GHG emissions to 163 grams of CO_2 per mile, which is equivalent to 54.5 mpg if this level were achieved solely through improvements in fuel efficiency, for cars and light-duty trucks by model year 2025. A portion of these improvements, however, will likely be made through improvements in air-conditioning leakage and through use of alternative refrigerants, which would not contribute to fuel economy. The first phase of the CAFE standards (for model years 2017 to 2021) are projected to require, on an average industry fleet-wide basis, a range from 40.3 to 41.0 mpg in model year 2021. The second phase of the CAFE program (for model years 2022 to 2025) is projected to require, on an average industry fleet-wide basis, a range from 48.7 to 49.7 mpg in model year 2025. The second phase of standards has not been finalized due to the statutory requirement that NHTSA set average fuel economy standards not more than five model years at a time. The regulations also include targeted incentives to encourage early adoption and introduction into the marketplace of advanced technologies to dramatically improve vehicle performance, including the following:

- Incentives for electric vehicles, plug-in hybrid electric vehicles, and fuel cell vehicles
- Incentives for hybrid technologies for large pickups and for other technologies that achieve high fuel economy levels on large pickups
- Incentives for natural gas vehicles
- Credits for technologies with potential to achieve real-world GHG reductions and fuel economy improvements that are not captured by the standards' test procedures

In August 2018, EPA and NHTSA proposed to amend certain fuel economy and GHG standards for passenger cars and light trucks and establish new standards for model years 2021 through 2026. Compared to maintaining the post-2020 standards now in place, the 2018 proposal would increase U.S. fuel consumption by about half a million barrels per day (2%–3% of total daily consumption, according to EIA) and would impact the global climate by 3/1000th of one degree Celsius by 2100

(EPA and NHTSA 2018). California and other states have stated their intent to challenge federal actions that would delay or eliminate GHG reduction measures and have committed to cooperating with other countries to implement global climate change initiatives. Thus, the timing and consequences of the 2018 federal proposal are speculative at this time.

State

The discussion below focuses primarily on those policies, regulations, and laws that directly pertain to energy-related resources. Refer to Section 4.4, Greenhouse Gas Emissions, of this Environmental Impact Report, which addresses various policies, regulations, and laws targeted to the reduction of GHG emissions that are expected to achieve co-benefits in the form of reduced demand for energy-related resources and enhanced efficiencies in the consumption of energy-related resources.

Warren-Alquist Act. The California Legislature passed the Warren-Alquist Act in 1974. The Warren-Alquist Act created the CEC. The legislation also incorporated the following three key provisions designed to address the demand side of the energy equation:

- It directed the CEC to formulate and adopt the nation's first energy conservation standards for both buildings constructed and appliances sold in California.
- The act removed the responsibility of electricity demand forecasting from the utilities, which had a financial interest in high demand projections, and transferred it to a more impartial CEC.
- The CEC was directed to embark on an ambitious research and development program, with a particular focus on fostering what were characterized as non-conventional energy sources.

State of California Energy Action Plan. The CEC and CPUC approved the first State of California Energy Action Plan in 2003. The plan established shared goals and specific actions to ensure that adequate, reliable, and reasonably priced electrical power and natural gas supplies are provided, and identified policies, strategies, and actions that are cost-effective and environmentally sound for California's consumers and taxpayers. In 2005, a second Energy Action Plan was adopted by the CEC and CPUC to reflect various policy changes and actions of the prior 2 years.

At the beginning of 2008, the CEC and CPUC determined that it was not necessary or productive to prepare a new energy action plan. This determination was based in part on a finding that the state's energy policies have been significantly influenced by the passage of Assembly Bill (AB) 32, the California Global Warming Solutions Act of 2006 (discussed below). Rather than produce a new energy action plan, the CEC and CPUC prepared an update that examines the state's ongoing actions in the context of global climate change.

Senate Bill 1078 (2002). This bill established the California RPS Program and required that a retail seller of electricity purchase a specified minimum percentage of electricity generated by eligible renewable energy resources as defined in any given year, culminating in a 20% standard by December 31, 2017. These retail sellers include electrical corporations, community choice aggregators, and electric service providers. The bill relatedly required the CEC to certify eligible renewable energy resources, design and implement an accounting system to verify compliance with the RPS by retail sellers, and allocate and award supplemental energy payments to cover above-market costs of renewable energy.

Senate Bills 107 (2006), X1-2 (2011), 350 (2015) and 100 (2018). Senate Bill (SB) 107 (2006) accelerated the RPS established by SB 1078 by requiring that 20% of electricity retail sales be served by renewable energy resources by 2010 (not 2017). Additionally, SB X1-2 (2011) requires all California utilities to generate 33% of their electricity from eligible renewable energy resources by 2020. Specifically, SB X1-2 sets a three-stage compliance period: by December 31, 2013, 20% shall come from renewables; by December 31, 2016, 25% shall come from renewables; and by December 31, 2020, 33% shall come from renewables.

SB 350 (2015) requires retail seller and publicly owned utilities to procure 50% of their electricity from eligible renewable energy resources by 2030, with interim goals of 40% by 2024 and 45% by 2027.

SB 100 (2018) accelerated and expanded the standards set forth in SB 350 by establishing that 44% of the total electricity sold to retail customers in California per year by December 31, 2024, 52% by December 31, 2027, and 60% by December 31, 2030 be secured from qualifying renewable energy sources. SB 100 also states that it is the policy of the state that eligible renewable energy resources and zero-carbon resources supply 100% of the retail sales of electricity to California. This bill requires that the achievement of 100% zero-carbon electricity resources does not increase the carbon emissions elsewhere in the western grid and that the achievement not be achieved through resource shuffling.

Consequently, utility energy generation from non-renewable resources is expected to be reduced based on implementation of the RPS requirements described above. The project's reliance on non-renewable energy sources would be reduced accordingly.

Assembly Bill 1007 (2005). AB 1007 (2005) required the CEC to prepare a statewide plan to increase the use of alternative fuels in California (State Alternative Fuels Plan). The CEC prepared the plan in partnership with the California Air Resources Board (CARB) and in consultation with the other state, federal, and local agencies. The plan assessed various alternative fuels and developed fuel portfolios to meet California's goals to reduce petroleum consumption, increase alternative fuels use, reduce GHG emissions, and increase in-state production of biofuels without causing a significant degradation of public health and environmental quality.

Assembly Bill 32 (2006) and Senate Bill 32 (2016). In 2006, the Legislature enacted AB 32, the California Global Warming Solutions Act of 2006. AB 32 requires California to reduce its GHG emissions to 1990 levels by 2020. In 2016, the Legislature enacted SB 32, which extended the horizon year of the state's codified GHG reduction planning targets from 2020 to 2030, requiring California to reduce its GHG emissions to 40% below 1990 levels by 2030. In accordance with AB 32 and SB 32, CARB prepares scoping plans to guide the development of statewide policies and regulations for the reduction of GHG emissions. Many of the policy and regulatory concepts identified in the scoping plans focus on increasing energy efficiencies and the use of renewable resources and reducing the consumption of petroleum-based fuels (such as gasoline and diesel). As such, the state's GHG emissions reduction planning framework creates co-benefits for energy-related resources.

CCR Title 24, Part 6. Title 24 of the California Code of Regulations (CCR) was established in 1978 and serves to enhance and regulate California's building standards. While not initially promulgated to reduce GHG emissions, Part 6 of Title 24 specifically established Building Energy Efficiency Standards that are designed to ensure new and existing buildings in California achieve energy efficiency and preserve outdoor and indoor environmental quality. These energy efficiency standards are reviewed every few years by the Building Standards Commission and the CEC (and revised if necessary) (California Public Resources Code, Section 25402[b][1]). The regulations receive input from members of industry, as well as the public, with the goal being the "reducing of wasteful, uneconomic, inefficient, or unnecessary consumption of energy" (California Public Resources Code, Section 25402). These regulations are carefully scrutinized and analyzed for technological and economic feasibility (California Public Resources Code, Section 25402[d]) and cost effectiveness (California Public Resources Code, Sections 25402[b][2] and [b][3]). As a result, these standards save energy, increase electricity supply reliability, increase indoor comfort, avoid the need to construct new power plants, and help preserve the environment.

The current Title 24 standards are the 2019 Title 24 Building Energy Efficiency Standards, which became effective January 1, 2020. In general, single-family residences built to the 2019 standards are anticipated to use approximately 7% less energy due to energy efficiency measures than those built to the 2016 standards; once rooftop solar electricity generation is factored in, single-family residences built under the 2019 standards will use approximately 53% less energy than those under the 2016 standards (CEC 2018). Nonresidential buildings built to the 2019 standards are anticipated to use an estimated 30% less energy than those built to the 2016 standards (CEC 2018).

CCR Title 24, Part 11. In addition to the CEC's efforts, in 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (Part 11 of Title 24) is commonly referred to as CALGreen and establishes minimum mandatory standards as well as voluntary standards pertaining to the planning and design of sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and interior air quality. The CALGreen standards took effect in January 2011 and instituted mandatory minimum environmental performance standards for all ground-up, new construction of commercial, low-rise residential and state-owned buildings and schools and hospitals. The CALGreen 2016 standards became effective January 1, 2017.

The CALGreen standards also include voluntary efficiency measures that are provided at two separate tiers and implemented at the discretion of local agencies and applicants. CALGreen's Tier 1 standards call for a 15% improvement in energy requirements, stricter water conservation, 65% diversion of construction and demolition waste, 10% recycled content in building materials, 20% permeable paving, 20% cement reduction, and cool/solar-reflective roofs. CALGreen's more rigorous Tier 2 standards call for a 30% improvement in energy requirements, stricter water conservation, 80% diversion of construction and demolition waste, 15% recycled content in building materials, 30% permeable paving, 25% cement reduction, and cool/solar-reflective roofs.

The California Building Standards Commission approved amendments to the voluntary measures of the CALGreen standards in December 2018. The 2019 CALGreen standards became effective January 1, 2020. As with the 2019 Title 24 standards, the 2019 CALGreen standards focus on building energy efficiency. The 2019 CALGreen standards are the current applicable standards. For nonresidential projects, some of the key mandatory CALGreen 2019 standards involve requirements related to bicycle parking, designated parking for clean air vehicles, electric vehicle charging stations, shade trees, water conserving plumbing fixtures and fittings, outdoor potable water use in landscaped areas, recycled water supply systems, construction waste management, excavated soil and land clearing debris, and commissioning (24 CCR 11). For high-rise residential buildings (i.e., more than 4 floors), the non-residential measures generally apply.

CCR Title 20. Title 20 of the CCR requires manufacturers of appliances to meet state and federal standards for energy and water efficiency. The CEC certifies an appliance based on a manufacturer's demonstration that the appliance meets the standards. New appliances regulated under Title 20 include refrigerators, refrigerator-freezers, and freezers; room air conditioners and room air-conditioning heat pumps; central air conditioners; spot air conditioners; vented gas space heaters; gas pool heaters; plumbing fittings and plumbing fixtures; fluorescent lamp ballasts; lamps; emergency lighting; traffic signal modules; dishwaters; clothes washers and dryers; cooking products; electric motors; low-voltage dry-type distribution transformers; power supplies; televisions and consumer audio and video equipment; and battery charger systems. Title 20 presents protocols for testing each type of appliance covered under the regulations. Appliances must meet the standards for energy performance, energy design, water performance, and water design. Title 20 contains three types of standards for appliances: federal and state standards for federally regulated appliances, state standards for federally regulated appliances, and state standards for non-federally regulated appliances.

State Vehicle Standards. In a response to the transportation sector accounting for more than half of California's CO_2 emissions, AB 1493 was enacted in 2002. AB 1493 required CARB to set GHG emission standards for passenger vehicles, light-duty trucks, and other vehicles determined by the state board to be vehicles whose primary use is noncommercial personal transportation in the state. The bill required that CARB set GHG emission standards for motor vehicles manufactured in 2009 and all subsequent model years. The 2009–2012 standards resulted in a reduction in approximately 22% GHG emissions compared to emissions from the 2002 fleet, and the 2013–2016 standards resulted in a reduction of approximately 30%.

In 2012, CARB approved a new emissions-control program for model years 2017 through 2025. The program combines the control of smog, soot, and global warming gases and requirements for greater numbers of zero-emission vehicles into a single package of standards called Advanced Clean Cars. By 2025, when the rules would be fully implemented, new automobiles would emit 34% fewer global warming gases and 75% fewer smog-forming emissions (CARB 2011).

Although the focus of the state's vehicle standards is on the reduction of air pollutants and GHG emissions, one co-benefit of implementation of these standards is a reduced demand for petroleum-based fuels.

Senate Bill 375. The Sustainable Communities and Climate Protection Act of 2008, or SB 375, coordinates land use planning, regional transportation plans, and funding priorities to help California meet its GHG emissions reduction mandates. As codified in California Government Code, Section 65080, SB 375 requires metropolitan planning organizations (San Diego Association of Governments) to include a sustainable communities strategy in its regional transportation plan. The main focus of the sustainable communities strategy is to plan for growth in a fashion that will ultimately reduce GHG emissions, but the strategy is also a part of a bigger effort to address other development issues within the general vicinity, including transit and vehicle miles traveled, which influence the consumption of petroleum-based fuels.

Local

Chula Vista Green Building Standards. Consistent with Measure 4 of the Chula Vista Climate Protection Measures, the City Council adopted the Green Building Standards Ordinance (Ordinance No. 3140) on October 6, 2009, which became effective November 5, 2009. The Green Building Standards Ordinance includes standards for energy efficiency, pollutant controls, interior moisture control, improved indoor air quality and exhaust, indoor water conservation, stormwater management, and construction waste reduction and recycling.

Building permit applications are required to indicate on project construction plans and specifications the Green Building Standards measures that comply with the ordinance. Prior to final building approval or issuance of a certificate of occupancy, the building official reviews the information submitted by the applicant and determines whether the applicant has constructed the project in accordance with the permitted plans and documents, and whether the plans are in compliance with the Green Building Standards. In 2013, Chula Vista adopted CALGreen for residential and non-residential development effective January 1, 2014.

Chapter 15.12, Green Building Standards. CALGreen was adopted as the Green Building Code of the City of Chula Vista (City) for enhancing the design and construction of buildings, building additions, and alterations through the use of building concepts that have a reduced negative impact or positive environmental impact and encouraging sustainable construction practices, excepting such portions as are hereinafter deleted, modified, or amended.

Chula Vista Increased Energy Efficiency Standards. On January 26, 2010, the City Council adopted the Increased Energy Efficiency Standards Ordinance (Ordinance No. 3149). This ordinance became effective February 26, 2010, as Section 15.26 of the Municipal Code. Permit applications are required to comply with these energy efficiency standards.

Chula Vista Municipal Code Section 15.26.030 requires permit applications to comply with increased energy efficiency standards that achieve 15% to 20% greater efficiency than the requirements of the Title 24 2008 standards, depending on climate zone. The City falls within two climate zones, Zone 7 and Zone 10. The project site is within Zone 7. For Zone 7, the code requires the following:

- All new low-rise residential building or additions, remodels or alterations to existing low-rise residential buildings where the additions, remodels or alterations are greater than 1,000 square feet of conditional floor area, shall use at least 15% less energy than the 2008 Title 24 Building Energy Efficiency Standards allow; and
- All new non-residential, high-rise residential or hotel/motel buildings, or additions, remodels or alterations to existing non-residential, high-rise residential or hotel/motel buildings where the additions, remodels or alterations are greater than 10,000 square feet of conditioned floor area, shall use at least 15% less energy than the 2008 Title 24 Building Energy Efficiency Standards.
- No city building permit shall be issued unless the permit application demonstrates to the Building Official compliance with the requirements of Section 15.26.030. Compliance is to be demonstrated based on a performance approach, using a CEC-approved energy compliance software program, as specified in the Title 24 2008 Building Energy Efficiency Standards.

In 2013, Chula Vista adopted the Energy Code for Residential and Non-Residential development, effective July 1, 2014. Energy efficiency measures adopted by the Chula Vista Municipal Code are as follows:

- **Section 15.26.010, California Energy Code**. The California Energy Code is adopted as the energy code of the City for the purpose of regulating building design and construction standards to increase efficiency in the use of energy for new residential and nonresidential buildings.

- **Section 15.26.020, Outdoor Lighting Zones**. The City has adopted an outdoor lighting zones map amending state default lighting zones as applied to certain areas of the City. The location of outdoor lighting zones in the City are per the adopted Outdoor Lighting Zones Map, dated September 2, 2005, and kept on file with the City Planning and Building Department.

City of Chula Vista Clean Transportation Energy Roadmap (2012). The Clean Transportation Energy Roadmap can serve as a resource for the City as it continues to promote clean transportation measures, both in its municipal operations and in the community. The Roadmap identifies petroleum reduction measures and tools specific to the City that generally result in cost savings and benefits to the environment, including the following:

- An assessment of alternative fuel vehicles and fuel availability for the City's vehicle fleet
- Commuter programs, including vanpools, carpools, and teleworking that the City could promote to its employees
- Online tools to establish a baseline of petroleum consumed and GHGs emitted from employee commutes, as well as annual tracking tools
- Smart growth and active transportation policies that enhance local walking and biking options
- Outreach materials on clean transportation programs that can be shared with local residents, schools, and businesses

The Roadmap also recognizes the significant steps that the City has taken already. Since 2000, Chula Vista has been implementing a Climate Action Plan (CO_2 Reduction Plan) that includes measures to reduce energy and fuel use at municipal facilities and throughout the community.

City of Chula Vista General Plan. The Chula Vista Vision 2020 General Plan (City of Chula Vista 2005) includes various policies related to energy conservation (both directly and indirectly). Applicable policies from the Environmental Element include the following:

Policy E-6.7: Encourage innovative energy conservation practices and air quality improvements in new development and redevelopment projects consistent with the City's Air Quality Improvement Plan Guidelines or its equivalent, pursuant to the City's Growth Management Program.

Policy E-7.1: Promote development of regulations and building design standards that maximize energy efficiency through appropriate site and building design and through the use of energy-efficient materials, equipment, and appliances.

Policy E-7.6: Encourage the construction and operation of green buildings, considering such programs as the Leadership in Energy and Environmental Design (LEED) Green Building Rating System.

Policy E-7.8: Ensure that residential and non-residential construction complies with all applicable City of Chula Vista energy efficiency measures and other green building measures that are in effect at the time of discretionary permit review and approval or building permit issuance, whichever is applicable.

Policy E-8.1: Promote efforts to reduce waste, minimize the need for additional landfills, and provide economically and environmentally sound resource recovery, management, and disposal facilities.

4.3.3 Thresholds of Significance

Based on the significance criteria established by Appendix G of the 2019 California Environmental Quality Act Guidelines (14 CCR 15000 et seq.) and the City of Chula Vista, a significant impact related to noise would generally occur as a result of project implementation if the project would:

1. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.
2. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

Approach and Methodology

California Emissions Estimator Model (CalEEMod) Version 2016.3.2 (CAPCOA 2017) was used to estimate the potential project energy consumption during construction. Construction of the project would result in petroleum consumption, primarily associated with use of off-road construction equipment, on-road hauling and vendor (material delivery) trucks, and worker vehicles. All details specific to construction and operation are discussed in Section 4.2, Air Quality, specifically in the subsection Approach and Methodology (Construction Emissions), are also applicable for the estimation of construction-related energy consumption. Following construction, athletic and special events that currently occur off-campus would begin occurring on campus. The project would result in general maintenance activities that currently occur on campus, such as landscaping, general repairs, natural turf field maintenance, and trash removal. Maintenance also would include replacement of light fixtures and artificial turf. Because the project would relocate events on campus, net mobile source emissions are not anticipated to increase as a result of the transfer of events from the Southwestern College campus stadium.

4.3.4 Impacts Analysis

Would the project result in in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

Electricity

Construction

Temporary electric power for lighting, heating/cooling, and electronic equipment, such as computers inside temporary construction trailers, as well as lighting for construction activities, would be required during short-term construction activities. The electricity demand at any given time would vary throughout the construction period based on the construction activities being performed and would cease upon completion of construction. When not in use, electric equipment would be powered off so as to avoid unnecessary energy consumption. All sources of electricity would be from existing power lines that serve the site and no new infrastructure would be required. There is nothing unusual about the project that would result in a wasteful, inefficient, and unnecessary use of electrical energy. The electricity used for construction activities would be temporary and would have a negligible contribution to the project's overall energy consumption. Impacts to electricity during construction would be less than significant, and no mitigation is required.

Operations

Energy-consuming equipment anticipated to be used during operation of the project includes mechanical and electrical equipment associated with the restroom and concessions building, the public address and speaker system, new scoreboard, and track and field stadium lighting. The track and field stadium lighting system would comprise TLC (Total Lighting Control)-LED-1150 fixtures (1,150 watts per fixture). New lighting would also be installed at the proposed point-of-entry plaza and would be mounted onto the exterior of the new ticket booth/concessions/restroom building. Athletic field lighting would be the primary source of new lighting associated with the project. The new building and other support structures would be designed in accordance with applicable design standards, including Title 24 Building Energy Efficiency Standards for non-residential buildings. It is noted that the project would not constitute new energy consumption that would be associated with operations, as the existing events proposed to occur at the project currently occur at the nearby Southwestern College. Therefore, electricity requirements for project operation would not represent new energy demands, but rather would redistribute energy demands from Southwestern College to the BVHS campus. Therefore, impacts related to operational electricity use would be less than significant.

Natural Gas

Construction

Natural gas is not anticipated to be required during construction of the project. Fuels used for construction would primarily consist of diesel and gasoline, which are discussed below under the Petroleum subsection. Any minor amounts of natural gas that may be consumed as a result of project construction would be minimal and would have a negligible contribution to the project's overall energy consumption.

Operations

As with construction activities, natural gas is not anticipated to be required once operational. The project would develop a new restroom/concession building, scoreboard, track and field stadium lights, and public address system. As such, operational activities would be essentially the same as those that occur under existing conditions and would be less than significant.

Petroleum

Construction

Petroleum would be consumed throughout construction of the project. Fuel consumed by construction equipment would be the primary energy resource expended over the course of construction, and vehicle miles traveled associated with the transportation of construction materials and construction worker commutes would also result in petroleum consumption. Heavy-duty construction equipment associated with construction activities, vendor trucks, and haul trucks would rely on diesel fuel. Construction workers would travel to and from the project site throughout the duration of construction. It was assumed that construction workers would travel in gasoline-powered vehicles.

Heavy-duty construction equipment of various types would be used during construction. CalEEMod was used to estimate construction equipment usage. Based on that analysis, diesel-fueled construction equipment would operate for an estimated 11,470 hours, as summarized in Table 4.3-1.

Table 4.3-1
Hours of Operation for Construction Equipment

Phase	Hours of Equipment Use
Demolition	480
Site Preparation	160
Grading	832
Construction of Concessions and Restrooms	4,270
Replacement of Track 1	160

Table 4.3-1
Hours of Operation for Construction Equipment

Phase	Hours of Equipment Use
Replacement of Turf Fields	352
Replacement of Track 2	240
Installation of Bleachers/Lighting/Other	1,035
Paving 1	240
Paving 2	480
Total	**8,249**

Source: Appendix A.

Fuel consumption from construction equipment was estimated by converting the total CO_2 emissions from each construction phase to gallons using conversion factors for CO_2 to gallons of gasoline or diesel. The conversion factor for gasoline is 8.78 kilograms per metric ton CO_2 per gallon, and the conversion factor for diesel is 10.21 kilograms per metric ton CO_2 per gallon (The Climate Registry 2020). The estimated diesel fuel use from construction equipment is shown in Table 4.3-2.

Table 4.3-2
Construction Equipment Diesel Demand

Phase	Pieces of Equipment	Equipment CO_2 (MT)	kg CO_2/Gallon	Gallons
Demolition	4	16.47	10.21	1,613.12
Site Preparation	2	5.16	10.21	505.29
Grading	8	23.86	10.21	2,336.89
Construction of Concessions and Restrooms	8	65.91	10.21	6,455.76
Replacement of Track 1	4	1.90	10.21	186.27
Replacement of Turf Fields	2	2.95	10.21	289.36
Replacement of Track 2	4	0.86	10.21	84.51
Installation of Bleachers/Lighting/Other	6	17.79	10.21	1,741.93
Paving 1	3	5.01	10.21	490.29
Paving 2	3	10.01	10.21	980.58
			Total	**14,684.00**

Notes: CO_2 = carbon dioxide; MT = metric ton; kg = kilogram.
Source: Appendix A.

Fuel consumption from worker and vendor truck trips was estimated by converting the total CO_2 emissions from the construction phase to gallons using the conversion factors for CO_2 to gallons of gasoline or diesel. Worker vehicles are assumed to be gasoline fueled, whereas vendor and haul trucks are assumed to be diesel fueled. The estimated fuel use for worker vehicles, vendor, and haul trucks are presented in Table 4.3-3, Table 4.3-4, and Table 4.3-5, respectively.

Table 4.3-3
Construction Worker Gasoline Demand

Phase	Trips	Vehicle CO_2 (MT)	kg CO_2/Gallon	Gallons
Demolition	225	0.79	8.78	89.83
Site Preparation	180	0.63	8.78	71.86
Grading	195	0.68	8.78	77.85
Construction of Concessions and Restrooms	1,400	4.91	8.78	558.91
Replacement of Track 1	50	0.18	8.78	19.94
Replacement of Turf Fields	220	0.77	8.78	87.77
Replacement of Track 2	150	0.53	8.78	59.84
Installation of Bleachers/Lighting/Other	460	1.61	8.78	183.51
Paving 1	150	0.53	8.78	59.84
Paving 2	300	1.05	8.78	119.68
			Total	**1,329.02**

Notes: CO_2 = carbon dioxide; MT = metric ton; kg = kilogram.
Source: Appendix A.

Table 4.3-4
Construction Vendor Diesel Demand

Phase	Trips	Vehicle CO_2 (MT)	kg CO_2/Gallon	Gallons
Demolition	0	0.00	10.21	0.00
Site Preparation	0	0.00	10.21	0.00
Grading	0	0.00	10.21	0.00
Construction of Concessions and Restrooms	280	3.67	10.21	359.16
Replacement of Track 1	15	0.20	10.21	19.21
Replacement of Turf Fields	66	1.73	10.21	169.31
Replacement of Track 2	45	0.59	10.21	57.61
Installation of Bleachers/Lighting/Other	230	3.01	10.21	294.48
Paving 1	20	0.26	10.21	25.65
Paving 2	40	0.52	10.21	51.31
			Total	**976.73**

Notes: CO_2 = carbon dioxide; MT = metric ton; kg = kilogram.
Source: Appendix A.

Table 4.3-5
Construction Haul Diesel Demand

Phase	Trips	Vehicle CO_2 (MT)	kg CO_2/Gallon	Gallons
Demolition	3	0.11	10.21	11.19
Site Preparation	0	0.00	10.21	0.00

Table 4.3-5
Construction Haul Diesel Demand

Phase	Trips	Vehicle CO_2 (MT)	kg CO_2/Gallon	Gallons
Grading	6	0.23	10.21	22.38
Construction of Concessions and Restrooms	0	0.00	10.21	0.00
Replacement of Track 1	0	0.00	10.21	0.00
Replacement of Turf Fields	0	0.00	10.21	0.00
Replacement of Track 2	0	0.00	10.21	0.00
Installation of Bleachers/Lighting/Other	0	0.00	10.21	0.00
Paving 1	0	0.00	10.21	0.00
Paving 2	0	0.00	10.21	0.00
			Total	**33.57**

Notes: CO_2 = carbon dioxide; MT = metric ton; kg = kilogram.
Source: Appendix A.

As shown in Tables 4.3-2 through 4.3-5, the project is estimated to consume approximately 17,023 gallons of petroleum during the construction phase. For disclosure, by comparison, approximately 14 billion gallons of petroleum would be consumed in California over the course of the project's construction phase, based on the California daily petroleum consumption estimate of approximately 78.6 million gallons per day (EIA 2019c). Thus, the total expected petroleum use from the project's construction represents approximately 0.000001% of California's consumption of petroleum over the construction duration. In accordance CARB's Airborne Toxics Control Measure, the project would be required to restrict heavy-duty diesel vehicle idling time to 5 minutes, which would reduce petroleum usage. Overall, because petroleum use during construction would be temporary and would not be wasteful or inefficient, impacts would be less than significant.

Operations

Motor vehicle trips associated with spectators to and from the track and field for sporting events and other activities would utilize energy in the form of petroleum. In addition, the project would require vehicle trips associated with operation and maintenance of the athletic fields, which would continue to occur as they do under existing conditions. Notably, the project would result in a re-distribution of vehicle trips that would occur with the transfer of athletic and special events from Southwestern College to the BVHS campus. Therefore, the net new trips associated with the project is expected to be minimal. Furthermore, over the lifetime of the project, the fuel efficiency of the vehicles being used by the visitors, students, and workers is expected to increase. As such, the amount of petroleum consumed as a result of vehicular trips to and from the project site during operation would decrease over time. There are numerous regulations in place that require and encourage increased fuel efficiency. For example, CARB has adopted an approach to passenger vehicles by combining the control of smog-causing pollutants and GHG emissions into a single, coordinated package of standards. The approach also includes efforts to support and accelerate the number of plug-in hybrids and zero-emissions vehicles in California (CARB 2013).

In summary, energy requirements from project operations would not represent new energy demands; notably, the project would redistribute the existing energy demand that currently occurs at Southwestern College to the BVHS Campus. Given these considerations, the consumption of energy resources (including electricity, natural gas, and petroleum) during the project construction and operation would not be inefficient or wasteful and would result in a less than significant impact.

Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

The project's maintenance and worker vehicles would meet the applicable standards of AB 1493 (vehicles manufactured 2009 or later), and as a result would likely consume less energy as fuel efficiency standards are increased and vehicles are replaced. In addition, the project would comply with all applicable regulatory requirements of Title 24 of CCR, which contains energy efficiency standards for residential and nonresidential buildings based on a state mandate to reduce California's energy demand. Specifically, Title 24 addresses a number of energy efficiency measures that impact energy used for lighting, water heating, heating, and air conditioning, including the energy impact of the building envelope such as windows, doors, wall/floor/ceiling assemblies, and roofs. Part 6 of Title 24 specifically establishes energy efficiency standards for residential and nonresidential buildings constructed in the State of California in order to reduce energy demand and consumption. Part 11 of Title 24 also includes CALGreen, which established mandatory minimum environmental performance standards for new construction projects. The project would comply with Part 6 and Part 11 of Title 24, per state regulations.

Additionally, the project would receive electricity from SDG&E, which is mandated to comply with SB 100. This policy requires that eligible renewable energy resources and zero-carbon resources supply 100% of the retail sales of electricity to California and that the zero-carbon electricity resources do not increase the carbon emissions elsewhere in the western grid and that the achievement not be achieved through resource shuffling. Thus, the project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency; therefore, impacts during construction and operation of the project would be less than significant.

4.3.5 Mitigation Measures

All impacts would be less than significant and no mitigation measures are proposed or required.

4.3.6 Level of Significance After Mitigation

All impacts would be less than significant and no mitigation measures are proposed or required.

4.3.7 References

77 FR 62624–63200. Final Rule: "2017 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emissions and Corporate Average Fuel Economy Standards." October 15, 2012.

California Gas and Electric Utilities. 2018. *2018 California Gas Report*. https://www.sdge.com/sites/default/files/regulatory/2018%20California%20Gas%20Report.pdf.

CAPCOA (California Air Pollution Control Officers Association). 2017. *California Emissions Estimator Model (CalEEMod) User's Guide Version 2016.3.2.* Prepared by Trinity Consultants and the California Air Districts. November 2017. http://www.caleemod.com.

CARB (California Air Resources Board). 2011. "Facts About the Advanced Clean Cars Program." Revised November 9, 2011. Accessed May 2019.

CARB. 2013. "Clean Car Standards – Pavley, Assembly Bill 1493." Last reviewed May 6, 2013. Accessed December 2017. http://arb.ca.gov/cc/ccms/ccms.htm.

CEC (California Energy Commission). 2017. *California Energy Demand 2018-2028 Preliminary Forecast*. CEC-200-2017-006-SD. January 2017. Accessed February 9, 2018. http://docketpublic.energy.ca.gov/PublicDocuments/17-IEPR-03/TN220615_20170809T083759_California_Energy_Demand_20182028_Preliminary_Forecast.pdf.

CEC. 2018. *2019 Building Efficiency Standards Fact Sheet*. March 2018. Accessed January 2020. https://www.energy.ca.gov/title24/2019standards/documents/2018_Title_24_2019_Building_Standards_FAQ.pdf.

CEC. 2019a. "Electricity Consumption by Entity." Accessed June 2019. http://www.ecdms.energy.ca.gov/elecbyutil.aspx.

CEC. 2019b. "Electricity Consumption by County." Accessed June 2019. http://ecdms.energy.ca.gov/elecbycounty.aspx.

CEC. 2019c. "Gas Consumption by County." Accessed June 2019. http://ecdms.energy.ca.gov/gasbycounty.aspx.

CEC. 2019d. "Gas Consumption by Entity." Accessed June 2019. http://www.ecdms.energy.ca.gov/gasbyutil.aspx.

City of Chula Vista. 2005. *City of Chula Vista General Plan*. Amended March 2015. Accessed October 2017. http://www.chulavistaca.gov/departments/development-services/planning/general-plan.

CPUC (California Public Utilities Commission). 2016. *Biennial RPS Program Update*. January 1, 2016.

CPUC. 2019a. *2019 Renewable Portfolio Standard Annual Report*. November 2019. Accessed January 2020. https://www.cpuc.ca.gov/uploadedFiles/CPUC_Public_Website/Content/Utilities_and_Industries/Energy_-_Electricity_and_Natural_Gas/2019%20RPS%20Annual%20Report.pdf

CPUC. 2019b. "Natural Gas and California." Accessed May 2019. http://www.cpuc.ca.gov/natural_gas/.

EIA (U.S. Energy Information Administration). 2018. "Existing Nameplate and Net Summer Capacity by Energy Source, Producer Type, and State (EIA-860)." Accessed July 2020. https://www.eia.gov/electricity/data/state/.

EIA. 2019a. "State Electricity Profiles – California Electricity Profile 2018." January 8, 2019. Accessed January 2020. https://www.eia.gov/electricity/state/california/index.php.

EIA. 2019b. "Natural Gas Consumption by End Use." April 2019. Accessed January 2020. https://www.eia.gov/dnav/ng/ng_cons_sum_a_EPG0_VC0_mmcf_a.htm.

EIA. 2019c. "California State Profile and Energy Estimates – Table F16: Total Petroleum Consumption Estimates, 2017." Accessed January 2020. https://www.eia.gov/state/seds/data.php?incfile=/state/seds/sep_fuel/html/fuel_use_pa.html&sid=US&sid=CA.

EIA. 2020. "California State Energy Profile." Last updated January 2020. Accessed March 2020. https://www.eia.gov/state/print.php?sid=CA.

EPA (U.S. Environmental Protection Agency). 2017. "Overview for Renewable Fuel Standard." Last updated June 7, 2017. Accessed June 2019. https://www.epa.gov/renewable-fuel-standard-program/overview-renewable-fuel-standard.

EPA and NHTSA (U.S. Environmental Protection Agency and National Highway Traffic Safety Administration. 2010. *Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards; Final Rule*. EPA–HQ–OAR–2009–0472. NHTSA-2009-0059. http://www.gpo.gov/fdsys/pkg/FR-2010-05-07/pdf/2010-8159.pdf.

EPA and NHTSA. 2012. *2017 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emissions and Corporate Average Fuel Economy Standards*. EPA–HQ–OAR–2010–0799, NHTSA-2010-0131.

EPA and NHTSA. 2018. *The Safer Affordable Fuel-Efficient 'SAFE' Vehicles Rule for Model Years 2021-2026 Passenger Vehicles and Light Trucks*. Proposed Rule August 2018. Accessed May 2019. https://www.govinfo.gov/content/pkg/FR-2018-08-24/pdf/2018-16820.pdf.

SDG&E (San Diego Gas and Electric). 2016. "Company Facts." Accessed 2019. http://www.sdge.com/aboutus.

The Climate Registry. 2020. Default Emission Factors. May 1. Accessed April 2020. https://www.theclimateregistry.org/wp-content/uploads/2020/04/The-Climate-Registry-2020-Default-Emission-Factor-Document.pdf.

4.4 GREENHOUSE GAS EMISSIONS

This section describes the existing greenhouse gas (GHG) setting of the project site, identifies associated regulatory requirements, and evaluates potential impacts related to implementation of the proposed Bonita Vista High School (BVHS) Track and Field Project (project).

4.4.1 Existing Conditions

The Greenhouse Effect

Climate change refers to any significant change in measures of climate, such as temperature, precipitation, or wind patterns, lasting for an extended period of time (decades or longer). The Earth’s temperature depends on the balance between energy entering and leaving the planet’s system. Many factors, both natural and human, can cause changes in Earth’s energy balance, including variations in the sun's energy reaching Earth, changes in the reflectivity of Earth’s atmosphere and surface, and changes in the greenhouse effect, which affects the amount of heat retained by Earth’s atmosphere (EPA 2017).

The greenhouse effect is the trapping and build-up of heat in the atmosphere (troposphere) near the Earth’s surface. The greenhouse effect traps heat in the troposphere through a threefold process as follows: Short-wave radiation emitted by the sun is absorbed by the Earth, the Earth emits a portion of this energy in the form of long-wave radiation, and GHGs in the upper atmosphere absorb this long-wave radiation and emit it into space and toward the Earth. The greenhouse effect is a natural process that contributes to regulating the Earth’s temperature and creates a pleasant, livable environment on the Earth. Human activities that emit additional GHGs to the atmosphere increase the amount of infrared radiation that gets absorbed before escaping into space, thus enhancing the greenhouse effect and causing the Earth’s surface temperature to rise.

The scientific record of the Earth’s climate shows that the climate system varies naturally over a wide range of time scales and that, in general, climate changes prior to the Industrial Revolution in the 1700s can be explained by natural causes, such as changes in solar energy, volcanic eruptions, and natural changes in GHG concentrations. Recent climate changes, in particular the warming observed over the past century, however, cannot be explained by natural causes alone. Rather, it is extremely likely that human activities have been the dominant cause of that warming since the mid-twentieth century and is the most significant driver of observed climate change (IPCC 2013; EPA 2017). Human influence on the climate system is evident from the increasing GHG concentrations in the atmosphere, positive radiative forcing, observed warming, and improved understanding of the climate system (IPCC 2013). The atmospheric concentrations of GHGs have increased to levels unprecedented in the last 800,000 years, primarily from fossil fuel emissions and secondarily from emissions associated with land use changes (IPCC 2013). Continued emissions of GHGs will cause further warming and changes in all components of the climate system, which is discussed further in the subsection Potential Effects of Climate Change.

Greenhouse Gases

A GHG is any gas that absorbs infrared radiation in the atmosphere; in other words, GHGs trap heat in the atmosphere. As defined in California Health and Safety Code Section 38505(g), for purposes of administering many of the state's primary GHG emissions reduction programs, GHGs include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF_6), and nitrogen trifluoride (see also 14 CCR 15364.5).[1] Some GHGs, such as CO_2, CH_4, and N_2O, occur naturally and are emitted into the atmosphere through natural processes and human activities. Of these gases, CO_2 and CH_4 are emitted in the greatest quantities from human activities. Manufactured GHGs, which have a much greater heat-absorption potential than CO_2, include fluorinated gases, such as HFCs, PFCs, and SF_6, which are associated with certain industrial products and processes. The following paragraphs provide a summary of the most common GHGs and their sources.[2]

Carbon Dioxide. CO_2 is a naturally occurring gas and a byproduct of human activities and is the principal anthropogenic GHG that affects the Earth's radiative balance. Natural sources of CO_2 include respiration of bacteria, plants, animals, and fungus; evaporation from oceans; volcanic out-gassing; and decomposition of dead organic matter. Human activities that generate CO_2 are from the combustion of fuels such as coal, oil, natural gas, and wood and changes in land use.

Methane. CH_4 is produced through both natural and human activities. CH_4 is a flammable gas and is the main component of natural gas. Methane is produced through anaerobic (without oxygen) decomposition of waste in landfills, flooded rice fields, animal digestion, decomposition of animal wastes, production and distribution of natural gas and petroleum, coal production, and incomplete fossil fuel combustion.

Nitrous Oxide. N_2O is produced through natural and human activities, mainly through agricultural activities and natural biological processes, although fuel burning and other processes also create N_2O. Sources of N_2O include soil cultivation practices (microbial processes in soil and water), especially the use of commercial and organic fertilizers; manure management; industrial processes (such as in nitric acid production, nylon production, and fossil-fuel-fired power plants); vehicle emissions; and use as a propellant (such as in rockets, racecars, and aerosol sprays).

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1 Climate forcing substances include GHGs and other substances such as black carbon and aerosols. This discussion focuses on the seven GHGs identified in the California Health and Safety Code Section 38505, because impacts associated with other climate forcing substances are not evaluated herein.

2 The descriptions of GHGs are summarized from the Intergovernmental Panel on Climate Change's Second Assessment Report and Fourth Assessment Report (IPCC 1995, 2007), the California Air Resources Board's Glossary of Terms Used in GHG Inventories (CARB 2016), and the U.S. Environmental Protection Agency's Glossary of Climate Change Terms (EPA 2016).

Fluorinated Gases. Fluorinated gases are synthetic powerful GHGs emitted from many industrial processes. Fluorinated gases are commonly used as substitutes for stratospheric ozone-depleting substances (e.g., chlorofluorocarbons [CFCs], hydrochlorofluorocarbons [HCFCs], and halons). The most prevalent fluorinated gases include the following:

- **Hydrofluorocarbons:** HFCs are compounds containing only hydrogen, fluorine, and carbon atoms. HFCs are synthetic chemicals used as alternatives to ozone-depleting substances in serving many industrial, commercial, and personal needs. HFCs are emitted as byproducts of industrial processes and are used in manufacturing.
- **Perfluorocarbons:** PFCs are a group of human-made chemicals composed of carbon and fluorine only. These chemicals were introduced as alternatives, with HFCs, to the ozone depleting substances. The two main sources of PFCs are primary aluminum production and semiconductor manufacturing. Since PFCs have stable molecular structures and do not break down through the chemical processes in the lower atmosphere, these chemicals have long lifetimes, ranging between 10,000 and 50,000 years.
- **Sulfur Hexafluoride:** SF_6 is a colorless gas soluble in alcohol and ether and slightly soluble in water. SF_6 is used for insulation in electric power transmission and distribution equipment, semiconductor manufacturing, the magnesium industry, and as a tracer gas for leak detection.
- **Nitrogen Trifluoride:** Nitrogen trifluoride is used in the manufacture of a variety of electronics, including semiconductors and flat panel displays.

Chlorofluorocarbons. CFCs are synthetic chemicals that have been used as cleaning solvents, refrigerants, and aerosol propellants. CFCs are chemically unreactive in the lower atmosphere (troposphere) and the production of CFCs was prohibited in 1987 due to the chemical destruction of stratospheric ozone (O_3).

Hydrochlorofluorocarbons. HCFCs are a large group of compounds, whose structure is very close to that of CFCs—containing fluorine, chlorine, and carbon atoms—but including one or more hydrogen atoms. Like HFCs, HCFCs are used in refrigerants and propellants. HCFCs were also used in place of CFCs for some applications; however, their use in general is being phased out.

Black Carbon. Black carbon is a component of fine particulate matter, which has been identified as a leading environmental risk factor for premature death. It is produced from the incomplete combustion of fossil fuels and biomass burning, particularly from older diesel engines and forest fires. Black carbon warms the atmosphere by absorbing solar radiation, influences cloud formation, and darkens the surface of snow and ice, which accelerates heat absorption and melting. Black carbon is a short-lived species that varies spatially, which makes it difficult to quantify the global warming potential. Diesel particulate matter emissions are a major source of black carbon and are toxic air contaminants that have been regulated and controlled in California for several decades to protect public health. In relation to declining diesel particulate matter from the California Air Resources Board (CARB) regulations pertaining to diesel engines, diesel fuels, and burning activities, CARB estimates that annual black carbon emissions in California have reduced by 70% between 1990 and 2010, with 95% control expected by 2020 (CARB 2014).

Water Vapor. The primary source of water vapor is evaporation from the ocean, with additional vapor generated by sublimation (change from solid to gas) from ice and snow, evaporation from other water bodies, and transpiration from plant leaves. Water vapor is the most important, abundant, and variable GHG in the atmosphere and maintains a climate necessary for life.

Ozone. Tropospheric O_3, which is created by photochemical reactions involving gases from both natural sources and human activities, acts as a GHG. Stratospheric O_3, which is created by the interaction between solar ultraviolet radiation and molecular oxygen, plays a decisive role in the stratospheric radiative balance. Depletion of stratospheric O_3, due to chemical reactions that may be enhanced by climate change, results in an increased ground-level flux of ultraviolet-B radiation.

Aerosols. Aerosols are suspensions of particulate matter in a gas emitted into the air through burning biomass (plant material) and fossil fuels. Aerosols can warm the atmosphere by absorbing and emitting heat and can cool the atmosphere by reflecting light.

Global Warming Potential

Gases in the atmosphere can contribute to climate change both directly and indirectly. Direct effects occur when the gas itself absorbs radiation. Indirect radiative forcing occurs when chemical transformations of the substance produce other GHGs, when a gas influences the atmospheric lifetimes of other gases, and/or when a gas affects atmospheric processes that alter the radiative balance of the Earth (e.g., affect cloud formation or albedo) (EPA 2016). The Intergovernmental Panel on Climate Change developed the global warming potential (GWP) concept to compare the ability of each GHG to trap heat in the atmosphere relative to another gas. The GWP of a GHG is defined as the ratio of the time-integrated radiative forcing from the instantaneous release of 1 kilogram of a trace substance relative to that of 1 kilogram of a reference gas (IPCC 2014). The reference gas used is CO_2; therefore, GWP-weighted emissions are measured in metric tons (MT) of CO_2 equivalent (CO_2e).

The current version of the California Emissions Estimator Model (CalEEMod) (Version 2016.3.2) (CAPCOA 2017) assumes that the GWP for CH_4 is 25 (so emissions of 1 MT of CH_4 are equivalent to emissions of 25 MT of CO_2), and the GWP for N_2O is 298, based on the Intergovernmental Panel on Climate Change's Fourth Assessment Report (IPCC 2007). The GWP values identified in CalEEMod were applied to the proposed project.

Contributions to Greenhouse Gas Emissions

Per the U.S. Environmental Protection Agency (EPA) Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2018 (EPA 2020), total United States GHG emissions were approximately 6,676.6 million MT (MMT) CO_2e in 2018. The primary GHG emitted by human activities in the United States was CO_2, which represented approximately 81.3% of total GHG emissions (5,428.1 MMT CO_2e). The largest source of CO_2, and of overall GHG emissions, was fossil-fuel combustion, which accounted for approximately 92.8% of CO_2 emissions in 2018 (5,031.8 MMT CO_2e). Relative to 1990, gross United States GHG emissions in 2018 are higher by 3.7%, down from a high of 15.2% above 1990 levels in 2007. GHG emissions decreased from 2017 to 2018 by 2.9% (188.4 MMT CO_2e) and overall, net emissions in 2018 were 10.2% below 2005 levels (EPA 2020).

According to California's 2000–2017 GHG emissions inventory (2019 edition), California emitted 424.10 MMT CO_2e in 2017, including emissions resulting from out-of-state electrical generation (CARB 2019). The sources of GHG emissions in California include transportation, industrial uses, electric power production from both in-state and out-of-state sources, commercial and residential uses, agriculture, high GWP substances, and recycling and waste. The California GHG emission source categories (as defined in CARB's 2008 Scoping Plan) and their relative contributions in 2017 are presented in Table 4.4-1.

Table 4.4-1
GHG Emissions Sources in California

Source Category	Annual GHG Emissions (MMT CO_2e)	Percent of Total[a]
Transportation	169.86	40%
Industrial uses	89.40	21%
Electricity (in state)	38.45	9%
Electricity (imports)	23.94	6%
Agriculture	32.42	8%
Residential	26.00	6%
Commercial	15.14	4%
High global-warming potential substances	19.99	5%
Recycling and waste	8.89	2%
Total	**424.19**	**100%**

Source: CARB 2019.
Notes: GHG = greenhouse gas; MMT CO_2e = million metric tons of carbon dioxide equivalent.
Emissions reflect the 2017 California GHG inventory.
[a] Percentage of total has been rounded, and total may not sum due to rounding.

During the 2000 to 2017 period, per capita GHG emissions in California have continued to drop from a peak in 2001 of 14.1 MT per person to 10.7 MT per person in 2017, representing a 24% decrease. In addition, total GHG emissions in 2017 were approximately 5 MMT CO_2e less than 2016 emissions. The declining trend in GHG emissions, coupled with programs that will continue to provide additional GHG reductions going forward, demonstrates that California is just below the 2020 target of 431 MMT CO_2e (CARB 2019).

According to the GHG inventory data compiled by the Energy Policy Initiative Center, in 2010, San Diego County emitted 34.5 MMT CO_2e (EPIC 2013). As outlined in Table 4.4-2, on-road transportation created 42% of these emissions. Similar to emissions trends statewide, electricity generation is the second biggest emitter.

Table 4.4-2
San Diego County GHG Emissions by Sectors

Source Category	Annual GHG Emissions (MMT CO_2e)	Percent of Total
On-road transportation	14.4	42%
Electricity generation	8.3	24%
Natural gas end uses	2.9	8%
Off-road equipment and vehicles	1.4	4%
Civil aviation	1.9	5%
Industrial processes and products	1.8	5%
Waste	0.6	2%
Water-borne navigation	0.1	<1%
Rail	0.32	<1%
Other fuels	1.58	5%
Agriculture (livestock)	0.05	<1%
Wildfires	0.28	<1%
Development (loss of vegetation)	0.18	<1%
Sequestration from land cover	0.66	2%
Total	**34.5**	**100%**

Source: EPIC 2013.
Note: GHG = greenhouse gas; MMT CO_2e = million metric tons of carbon dioxide equivalent.

The City of Chula Vista (City) updated their GHG inventory in 2016 as part of their climate action program; the GHG inventory is summarized in Table 4.4-3.

Table 4.4-3
Chula Vista GHG Emissions by Sectors

Source Category	Annual GHG Emissions (MT CO_2e)	Percent of Total
Community Analysis		
Transportation	681,000	59.1
Energy Use	416,000	36.1
Solid Waste	41,000	3.6
Potable Water	11,000	1.0
Wastewater	3,000	0.3
Subtotal	*1,152,000*	*100*

Table 4.4-3
Chula Vista GHG Emissions by Sectors

Source Category	Annual GHG Emissions (MT CO_2e)	Percent of Total
Municipal Analysis		
Transportation	3,176	32.6
Energy Use	3,825	39.3
Solid Waste	2,055	21.1
Potable Water	684	7.0
Subtotal	*9,740*	*100*

Source: City of Chula Vista 2016.
Note: GHG = greenhouse gas; MT CO_2e = metric tons of carbon dioxide equivalent.

Potential Effects of Climate Change

Globally, climate change has the potential to affect numerous environmental resources through uncertain impacts related to future air temperatures and precipitation patterns. The 2014 Intergovernmental Panel on Climate Change Synthesis Report indicated that warming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia. Signs that global climate change has occurred include warming of the atmosphere and ocean, diminished amounts of snow and ice, and rising sea levels (IPCC 2014).

In California, climate change impacts have the potential to affect sea level rise, agriculture, snowpack and water supply, forestry, wildfire risk, public health, and electricity demand and supply (CCCC 2006). The primary effect of global climate change has been a 0.2°C rise in average global tropospheric temperature per decade, determined from meteorological measurements worldwide between 1990 and 2005. Scientific modeling predicts that continued emissions of GHGs at or above current rates would induce more extreme climate changes during the twenty-first century than were observed during the twentieth century. A warming of about 0.2°C (0.36°F) per decade is projected, and there are identifiable signs that global warming could be taking place.

Although climate change is driven by global atmospheric conditions, climate change impacts are felt locally. A scientific consensus confirms that climate change is already affecting California. The average temperatures in California have increased, leading to more extreme hot days and fewer cold nights; shifts in the water cycle have been observed, with less winter precipitation falling as snow and both snowmelt and rainwater running off earlier in the year; sea levels have risen; and wildland fires are becoming more frequent and intense due to dry seasons that start earlier and end later (CAT 2010).

An increase in annual average temperature is a reasonably foreseeable effect of climate change. Observed changes over the last several decades across the western United States reveal clear signals of climate change. Statewide average temperatures increased by about 1.7°F from 1895 to 2011, and warming has been greatest in the Sierra Nevada (CCCC 2012). By 2050, California is projected to warm by approximately 2.7°F above 2000 averages, a threefold increase in the rate of warming over the last century. By 2100, average temperatures could increase by 4.1°F to 8.6°F, depending on emissions levels. Springtime warming—a critical influence on snowmelt—will be particularly pronounced. Summer temperatures will rise more than winter temperatures, and the increases will be greater in inland California, compared to the coast. Heat waves will be more frequent, hotter, and longer. There will be fewer extremely cold nights (CCCC 2012). A decline of Sierra snowpack, which accounts for approximately half of the surface water storage in California and much of the state's water supply, by 30% to as much as 90% is predicted over the next 100 years (CAT 2006).

Model projections for precipitation over California continue to show the Mediterranean pattern of wet winters and dry summers with seasonal, year-to-year, and decade-to-decade variability. For the first time, however, several of the improved climate models shift toward drier conditions by the mid-to-late 21st century in Central and, most notably, Southern California. By late-century, all projections show drying, and half of them suggest 30-year average precipitation will decline by more than 10% below the historical average (CCCC 2012).

Wildfire risk in California will increase as a result of climate change. Earlier snowmelt, higher temperatures, and longer dry periods over a longer fire season will directly increase wildfire risk. Indirectly, wildfire risk will also be influenced by potential climate-related changes in vegetation and ignition potential from lightning. However, human activities will continue to be the biggest factor in ignition risk. It is estimated that the long-term increase in fire occurrence associated with a higher emissions scenario is substantial, with increases in the number of large fires statewide ranging from 58% to 128% above historical levels by 2085. Under the same emissions scenario, estimated burned area will increase by 57% to 169%, depending on the location (CCCC 2012).

Reduction in the suitability of agricultural lands for traditional crop types may occur. While effects may occur, adaptation could allow farmers and ranchers to minimize potential negative effects on agricultural outcomes by adjusting timing of plantings or harvesting and changing crop types.

Public health–related effects of increased temperatures and prolonged temperature extremes, including heat stroke, heat exhaustion, and exacerbation of existing medical conditions, could be particular problems for the elderly, infants, and those who lack access to air conditioning or cooled spaces (CNRA 2009a).

A summary of current and future climate change impacts to resource areas in California, as discussed in Safeguarding California: Reducing Climate Risk (CNRA 2014), is provided below.

Agriculture. The impacts of climate change on the agricultural sector are far more severe than the typical variability in weather and precipitation patterns that occur year to year. Some of the specific challenges faced by the agricultural sector and farmers include more drastic and unpredictable precipitation and weather patterns; extreme weather events that range from severe flooding to extreme drought and destructive storm events; significant shifts in water availably and water quality; changes in pollinator lifecycles; temperature fluctuations, including extreme heat stress and decreased chill hours; increased risks from invasive species and weeds, agricultural pests, and plant diseases; and disruptions to the transportation and energy infrastructure supporting agricultural production. These challenges and associated short-term and long-term impacts can have both positive and negative effects on agricultural production. Nonetheless, it is predicted that current crop and livestock production will suffer long-term negative effects resulting in a substantial decrease in the agricultural sector if not managed or mitigated (CNRA 2014).

Biodiversity and Habitat. The state's extensive biodiversity stems from its varied climate and assorted landscapes, which have resulted in numerous habitats where species have evolved and adapted over time. Specific climate change challenges to biodiversity and habitat include species migration in response to climatic changes; range shift and novel combinations of species; pathogens, parasites and disease; invasive species; extinction risks; changes in the timing of seasonal life-cycle events; food web disruptions; and threshold effects (i.e., a change in the ecosystem that results in a "tipping point" beyond which irreversible damage or loss has occurs). Habitat restoration, conservation, and resource management across California and through collaborative efforts among public, private, and nonprofit agencies has assisted in the effort to fight climate change impacts on biodiversity and habitat. One of the key measures in these efforts is ensuring species' ability to relocate as temperature and water availability fluctuate as a result of climate change, based on geographic region.

Energy. The energy sector provides California residents with a supply of reliable and affordable energy through a complex integrated system. Specific climate change challenges for the energy sector include temperature, fluctuating precipitation patterns, increasing extreme weather events, and sea level rise. Increasing temperatures and reduced snowpack negatively impact the availability of a steady flow of snowmelt to hydroelectric reservoirs. Higher temperatures also reduce the capacity of thermal power plants since power plant cooling is less efficient at higher ambient temperatures. Natural gas infrastructure in coastal California is threatened by sea level rise and extreme storm events (CNRA 2014).

Forestry. Forests occupy approximately 33% of California's 100 million acres and provide key benefits such as wildlife habitat, absorption of CO_2, renewable energy, and building materials. The most significant climate change related risk to forests is accelerated risk of wildfire and more frequent and severe droughts. Droughts have resulted in a greater number of large scale tree mortalities and combined with increasing temperatures have led to an overall increase in wildfire risks. Increased wildfire intensity subsequently increases public safety risks; property damage, fire suppression, and emergency response costs; watershed and water quality impacts, and vegetation conversions. These factors contribute to decreased forest growth, geographic shifts in tree distribution, loss of fish and wildlife habitat, and decreased carbon absorption. Climate change may result in increased establishment of non-native species, particularly in rangelands where invasive species are already a problem. Invasive species may be able to exploit temperature or precipitation changes, or quickly occupy areas denuded by fire, insect mortality, or other climate change effects on vegetation (CNRA 2014).

Ocean and Coastal Ecosystems and Resources. Sea level rise, changing ocean conditions, and other climate change stressors are likely to exacerbate long-standing challenges related to ocean and coastal ecosystems in addition to threatening people and infrastructure located along the California coastline and in coastal communities. Sea level rise, more frequent and severe coastal storms, and erosion are threatening vital infrastructure such as roads, bridges, power plants, ports and airports, gasoline pipes, and emergency facilities as well as negatively impacting the coastal recreational assets such as beaches and tidal wetlands. Water quality and ocean acidification threaten the abundance of seafood and other plant and wildlife habitats throughout California and globally (CNRA 2014).

Public Health. Climate change can impact public health through various environmental changes and is the largest threat to human health in the twenty-first century. Changes in precipitation patterns affect public health primarily through potential for altered water supplies and extreme events such as heat, floods, droughts, and wildfires. Increased frequency, intensity, and duration of extreme heat and heat waves is likely to increase the risk of mortality due to heat related illness and exacerbate existing chronic health conditions. Other extreme weather events are likely to negatively impact air quality and increase or intensify respiratory illness such as asthma and allergies. Additional health impacts that may be impacted by climate change include cardiovascular disease, vector-borne diseases, mental health impacts, and malnutrition injuries. Increased frequency of these ailments is likely to subsequently increase the direct risk of injury and/or mortality (CNRA 2014).

Transportation. Residents of California rely on airports, seaports, public transportation, and an extensive roadway network to gain access to destinations, goods, and services. While the transportation industry is a source of GHG emissions, it is also vulnerable to climate change risks. Particularly, sea level rise and erosion threaten many coastal California roadways, airports, seaports, transit systems, bridge supports, and energy and fueling infrastructure. Increasing temperatures and extended periods of extreme heat threaten the integrity of the roadways and rail lines. High temperatures cause the road surfaces to expand, which leads to increased pressure and pavement buckling. High temperatures can also cause rail breakages, which could lead to train derailment. Other forms of extreme weather events, such as extreme storm events, can negatively impact infrastructure, which can impair movement of peoples and goods, or potentially block evacuation routes and emergency access roads. Increased wildfires, flooding, erosion risks, landslides, mudslides, and rockslides can all profoundly impact the transportation system and pose a serious risk to public safety (CNRA 2014).

Water. Water resources in California support residences, plants, wildlife, farmland, landscapes, and ecosystems and bring trillions of dollars in economic activity. Climate change could seriously impact the timing, form, and amount of precipitation; runoff patterns; and frequency and severity of precipitation events. Higher temperatures reduce the amount of snowpack and lead to earlier snowmelt, which can affect water supply availability, natural ecosystems, and winter recreation. Water supply availability during the intense dry summer months is heavily dependent on the snowpack accumulated during the winter. Increased risk of flooding is associated with a variety of public health concerns including water quality, public safety, property damage, displacement, and post-disaster mental health problems. Prolonged and intensified droughts can also negatively affect groundwater reserves and result in increased overdraft and subsidence. Droughts can also negatively impact agriculture and farmland throughout the state. The higher risk of wildfires can lead to increased erosion, which can negatively impact watersheds and result in poor water quality. Water temperatures are also prone to increase, which can negatively affect wildlife that rely on a specific range of temperatures for suitable habitat.

In March 2016, the California Natural Resources Agency (CNRA) released Safeguarding California: Implementation Action Plans, a document that shows how California is acting to convert the recommendations contained in the 2014 Safeguarding California plan into actions (CNRA 2016). Additionally, in May 2017, CNRA released the draft Safeguarding California Plan: 2017 Update, which is a survey of current programmatic responses for climate change and contains recommendations for further actions (CNRA 2017).

CNRA released Safeguarding California Plan: 2018 Update in January 2018, which provides a roadmap for state agencies to protect communities, infrastructure, services, and the natural environment from climate change impacts. The 2018 Safeguarding California Plan includes 69 recommendations across 11 sectors and more than 1,000 ongoing actions and next steps developed by scientific and policy experts across 38 state agencies (CNRA 2018). As with previous state adaptation plans, the 2018 Update addresses the following: acceleration of warming across the state; more intense and frequent heat waves; greater riverine flows; accelerating sea level rise; more intense and frequent drought; more severe and frequent wildfires; more severe storms and extreme weather events; shrinking snowpack and less overall precipitation; and ocean acidification, hypoxia, and warming.

4.4.2 Relevant Plans, Policies, and Ordinances

Federal

Massachusetts v. EPA

In *Massachusetts v. EPA* (April 2007), the U.S. Supreme Court directed the EPA administrator to determine whether GHG emissions from new motor vehicles cause or contribute to air pollution that may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision. In December 2009, the administrator signed a final rule with the following two distinct findings regarding GHGs under Section 202(a) of the federal Clean Air Act:

- The administrator found that elevated concentrations of GHGs—CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6—in the atmosphere threaten the public health and welfare of current and future generations. This is the “endangerment finding.”
- The administrator further found the combined emissions of GHGs—CO_2, CH_4, N_2O, and HFCs—from new motor vehicles and new motor vehicle engines contribute to the GHG air pollution that endangers public health and welfare. This is the “cause or contribute finding.”

These two findings were necessary to establish the foundation for regulation of GHGs from new motor vehicles as air pollutants under the Clean Air Act.

Energy Independence and Security Act

The Energy Independence and Security Act of 2007 (December 2007), among other key measures, would do the following, which would aid in the reduction of national GHG emissions (EPA 2007):

- Increase the supply of alternative fuel sources by setting a mandatory Renewable Fuel Standard requiring fuel producers to use at least 36 billion gallons of biofuel in 2022.
- Set a target of 35 miles per gallon for the combined fleet of cars and light trucks by model year 2020 and direct the National Highway Traffic Safety Administration (NHTSA) to establish a fuel economy program for medium- and heavy-duty trucks and create a separate fuel economy standard for work trucks.
- Prescribe or revise standards affecting regional efficiency for heating and cooling products and procedures for new or amended standards, energy conservation, energy efficiency labeling for consumer electronic products, residential boiler efficiency, electric motor efficiency, and home appliances.

Federal Vehicle Standards

In response to the U.S. Supreme Court ruling discussed above, the Bush administration issued Executive Order (EO) 13432 in 2007 directing the EPA, the Department of Transportation, and the Department of Energy to establish regulations that reduce GHG emissions from motor vehicles, non-road vehicles, and non-road engines by 2008. In 2009, the NHTSA issued a final rule regulating fuel efficiency and GHG emissions from cars and light-duty trucks for model year 2011, and in 2010, the EPA and NHTSA issued a final rule regulating cars and light-duty trucks for model years 2012–2016 (75 FR 25324–25728).

In 2010, President Obama issued a memorandum directing the Department of Transportation, Department of Energy, EPA, and NHTSA to establish additional standards regarding fuel efficiency and GHG reduction, clean fuels, and advanced vehicle infrastructure. In response to this directive, the EPA and NHTSA proposed stringent, coordinated federal GHG and fuel economy standards for model years 2017–2025 light-duty vehicles. The proposed standards projected to achieve 163 grams/mile of CO_2 in model year 2025, on an average industry fleet-wide basis, which is equivalent to 54.5 miles per gallon if this level were achieved solely through fuel efficiency. The final rule was adopted in 2012 for model years 2017–2021 (77 FR 62624–63200), and NHTSA intends to set standards for model years 2022–2025 in a future rulemaking.

In addition to the regulations applicable to cars and light-duty trucks described above, in 2011, the EPA and NHTSA announced fuel economy and GHG standards for medium- and heavy-duty trucks for model years 2014–2018. The standards for CO_2 emissions and fuel consumption are tailored to three main vehicle categories: combination tractors, heavy-duty pickup trucks and vans, and vocational vehicles. According to the EPA, this regulatory program will reduce GHG emissions and fuel consumption for the affected vehicles by 6%–23% over the 2010 baselines (76 FR 57106–57513).

In August 2016, the EPA and NHTSA announced the adoption of the phase two program related to the fuel economy and GHG standards for medium- and heavy-duty trucks. The phase two program will apply to vehicles with model year 2018 through 2027 for certain trailers and model years 2021 through 2027 for semi-trucks, large pickup trucks, vans, and all types of sizes of buses and work trucks. The final standards are expected to lower CO_2 emissions by approximately 1.1 billion MT and reduce oil consumption by up to 2 billion barrels over the lifetime of the vehicles sold under the program (EPA and NHTSA 2016).

In August 2018, EPA and NHTSA proposed to amend certain fuel economy and GHG standards for passenger cars and light trucks and establish new standards for model years 2021 through 2026. Compared to maintaining the post-2020 standards now in place, the 2018 proposal would increase U.S. fuel consumption by about half a million barrels per day (2%–3% of total daily consumption, according to the Energy Information Administration) and would impact the global climate by 3/1000th of one degree Celsius by 2100 (EPA and NHTSA 2018). California and other states have stated their intent to challenge federal actions that would delay or eliminate GHG reduction measures and have committed to cooperating with other countries to implement global climate change initiatives. Thus, the timing and consequences of the 2018 federal proposal are speculative at this time.

On September 27, 2019, EPA and NHTSA published the “Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule Part One: One National Program” (84 FR 51,310), which became effective November 26, 2019. The Part One Rule revokes California’s authority to set its own GHG emissions standards and set zero-emission vehicle mandates in California. On March 31, 2020, the EPA and NHTSA issued Part Two of the SAFE Rule. The Part Two Rule sets CO_2 emissions standards and corporate average fuel economy standards for passenger vehicles and light duty trucks for model years 2021 through 2026. This issue is evolving as California and 22 other states, as well as the District of Columbia and four cities, filed suit against the EPA and a petition for reconsideration of the rule on November 26, 2019.

State

The statewide GHG emissions regulatory framework is summarized below by category: state climate change targets, building energy, renewable energy and energy procurement, mobile sources, solid waste, water, and other state regulations and goals. The following text describes EOs, legislation, regulations, and other plans and policies that would directly or indirectly reduce GHG emissions and/or address climate change issues.

State Climate Change Targets

The state has taken a number of actions to address climate change. These include EOs, legislation, and CARB plans and requirements. These are summarized below.

EO S-3-05. EO S-3-05 (June 2005) established the following statewide goals: GHG emissions should be reduced to 2000 levels by 2010, to 1990 levels by 2020, and to 80% below 1990 levels by 2050.

Assembly Bill (AB) 32 and CARB’s Climate Change Scoping Plan. In furtherance of the goals established in EO S-3-05, the legislature enacted AB 32, the California Global Warming Solutions Act of 2006. AB 32 requires California to reduce its GHG emissions to 1990 levels by 2020.

Under AB 32, CARB is responsible for and is recognized as having the expertise to carry out and develop the programs and requirements necessary to achieve the GHG emissions reduction mandate of AB 32. Under AB 32, CARB must adopt regulations requiring the reporting and verification of statewide GHG emissions from specified sources. This program is used to monitor and enforce compliance with established standards. CARB also is required to adopt rules and regulations to achieve the maximum technologically feasible and cost-effective GHG emission reductions. AB 32 relatedly authorized CARB to adopt market-based compliance mechanisms to meet the specified requirements. Finally, CARB is ultimately responsible for monitoring compliance and enforcing any rule, regulation, order, emission limitation, emission reduction measure, or market-based compliance mechanism adopted.

In 2007, CARB approved a limit on the statewide GHG emissions level for year 2020 consistent with the determined 1990 baseline (427 MMT CO_2e). CARB's adoption of this limit is in accordance with California Health and Safety Code Section 38550.

Further, in 2008, CARB adopted the Climate Change Scoping Plan: A Framework for Change (Scoping Plan) in accordance with California Health and Safety Code Section 38561. The Scoping Plan establishes an overall framework for the measures that will be adopted to reduce California's GHG emissions for various emission sources/sectors to 1990 levels by 2020. The Scoping Plan evaluates opportunities for sector-specific reductions, integrates all CARB and Climate Action Team early actions and additional GHG reduction features by both entities, identifies additional measures to be pursued as regulations, and outlines the role of a cap-and-trade program. The key elements of the Scoping Plan include the following (CARB 2008):

1. Expanding and strengthening existing energy efficiency programs, as well as building and appliance standards.
2. Achieving a statewide renewable energy mix of 33%.
3. Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system and caps sources contributing 85% of California's GHG emissions.
4. Establishing targets for transportation-related GHG emissions for regions throughout California, and pursuing policies and incentives to achieve those targets.
5. Adopting and implementing measures pursuant to existing state laws and policies, including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard (LCFS).
6. Creating targeted fees, including a public goods charge on water use, fees on high GWP gases, and a fee to fund the administrative costs of the State of California's long-term commitment to AB 32 implementation.

In the Scoping Plan, CARB determined that achieving the 1990 emissions level in 2020 would require a reduction in GHG emissions of approximately 28.5% from the otherwise projected 2020 emissions level, that is, those emissions that would occur in 2020, absent GHG-reducing laws and regulations (referred to as "Business-As-Usual"). For purposes of calculating this percent reduction, CARB assumed that all new electricity generation would be supplied by natural gas plants, no further regulatory action would impact vehicle fuel efficiency, and building energy efficiency codes would be held at 2005 standards.

In the 2011 Final Supplement to the Scoping Plan's Functional Equivalent Document, CARB revised its estimates of the projected 2020 emissions level in light of the economic recession and the availability of updated information about GHG reduction regulations. Based on the new economic data, CARB determined that achieving the 1990 emissions level by 2020 would require a reduction in GHG emissions of 21.7% (down from 28.5%) from the Business-As-Usual conditions. When the 2020 emissions level projection was updated to account for newly implemented regulatory measures, including Pavley I (model years 2009–2016) and the Renewables Portfolio Standard (RPS) (CPUC 2015), CARB determined that achieving the 1990 emissions level in 2020 would require a reduction in GHG emissions of 16% (down from 28.5%) from the Business-As-Usual conditions.

More recently, in 2014, CARB adopted the First Update to the Climate Change Scoping Plan: Building on the Framework (First Update). The stated purpose of the First Update is to "highlight California's success to date in reducing its GHG emissions and lay the foundation for establishing a broad framework for continued emission reductions beyond 2020, on the path to 80% below 1990 levels by 2050" (CARB 2014b). The First Update found that California is on track to meet the 2020 emissions reduction mandate established by AB 32 and noted that California could reduce emissions further by 2030 to levels squarely in line with those needed to stay on track to reduce emissions to 80% below 1990 levels by 2050 if the state realizes the expected benefits of existing policy goals.

In conjunction with the First Update, CARB identified "six key focus areas comprising major components of the state's economy to evaluate and describe the larger transformative actions that will be needed to meet the state's more expansive emission reduction needs by 2050" (CARB 2014b). Those six areas are (1) energy, (2) transportation (vehicles/equipment, sustainable communities, housing, fuels, and infrastructure), (3) agriculture, (4) water, (5) waste management, and (6) natural and working lands. The First Update identifies key recommended actions for each sector that will facilitate achievement of EO S-3-05's 2050 reduction goal.

CARB's research efforts presented in the First Update indicate that it has a "strong sense of the mix of technologies needed to reduce emissions through 2050" (CARB 2014b). Those technologies include energy demand reduction through efficiency and activity changes; large-scale electrification of on-road vehicles, buildings, and industrial machinery; decarbonizing electricity and fuel supplies; and the rapid market penetration of efficient and clean energy technologies.

As part of the First Update, CARB recalculated the state's 1990 emissions level using more recent GWPs identified by the Intergovernmental Panel on Climate Change. Using the recalculated 1990 emissions level (431 MMT CO_2e) and the revised 2020 emissions level projection identified in the 2011 Final Supplement, CARB determined that achieving the 1990 emissions level by 2020 would require a reduction in GHG emissions of approximately 15% (instead of 28.5% or 16%) from the Business-As-Usual conditions.

On January 20, 2017, CARB released The 2017 Climate Change Scoping Plan Update (Second Update) for public review and comment (CARB 2017). This update presents CARB's strategy for achieving the state's 2030 GHG target as established in Senate Bill (SB) 32 (discussed below), including continuing the cap-and-trade program through 2030, and includes a new approach to reduce GHGs from refineries by 20%. The Second Update incorporates approaches to cutting short-lived climate pollutants (SLCPs) under the Short-Lived Climate Pollutant Reduction Strategy (a planning document that was adopted by CARB in March 2017), acknowledges the need for reducing emissions in agriculture, and highlights the work underway to ensure that California's natural and working lands increasingly sequester carbon. During development of the Second Update, CARB held a number of public workshops in the natural and working lands, agriculture, energy, and transportation sectors to inform development of the 2030 Scoping Plan Update (CARB 2016). When discussing project-level GHG emissions reduction actions and thresholds, the Second Update states "achieving no net increase in GHG emissions is the correct overall objective, but it may not be appropriate or feasible for every development project. An inability to mitigate a project's GHG emissions to zero does not necessarily imply a substantial contribution to the cumulatively significant environmental impact of climate change under [the California Environmental Quality Act] CEQA" (CARB 2017). The Final Proposed Scoping Plan Update was adopted by CARB's Governing Board on December 14, 2017.

EO B-30-15. EO B-30-15 (April 2015) identified an interim GHG reduction target in support of targets previously identified under S-3-05 and AB 32. EO B-30-15 set an interim target goal of reducing statewide GHG emissions to 40% below 1990 levels by 2030 to keep California on its trajectory toward meeting or exceeding the long-term goal of reducing statewide GHG emissions to 80% below 1990 levels by 2050 as set forth in S-3-05. To facilitate achievement of this goal, EO B-30-15 calls for an update to CARB's Scoping Plan to express the 2030 target in terms of MMT CO_2e. The EO also calls for state agencies to continue to develop and implement GHG emission reduction programs in support of the reduction targets. EO B-30-15 does not require local agencies to take any action to meet the new interim GHG reduction target.

SB 32 and AB 197. SB 32 and AB 197 (enacted in 2016) are companion bills that set new statewide GHG reduction targets, make changes to CARB's membership and increase legislative oversight of CARB's climate change–based activities, and expand dissemination of GHG and other air quality-related emissions data to enhance transparency and accountability. More specifically, SB 32 codified the 2030 emissions reduction goal of EO B-30-15 by requiring CARB to ensure that statewide GHG emissions are reduced to 40% below 1990 levels by 2030. AB 197 established the Joint Legislative Committee on Climate Change Policies, consisting of at least three members of the Senate and three members of the Assembly, in order to provide ongoing oversight over implementation of the state's climate policies. AB 197 also added two members of the legislature to CARB as nonvoting members; required CARB to make available and update (at least annually via its website) emissions data for GHGs, criteria air pollutants, and toxic air contaminants from reporting facilities; and required CARB to identify specific information for GHG emissions reduction measures when updating the Scoping Plan.

SB 605 and SB 1383. SB 605 (2014) requires CARB to complete a comprehensive strategy to reduce emissions of SLCPs in the state, and SB 1383 (2016) requires CARB to approve and implement that strategy by January 1, 2018. SB 1383 also establishes specific targets for the reduction of SLCPs (40% below 2013 levels by 2030 for CH_4 and HFCs and 50% below 2013 levels by 2030 for anthropogenic black carbon) and provides direction for reductions from dairy and livestock operations and landfills. Accordingly, and as mentioned above, CARB adopted its SLCP Reduction Strategy in March 2017. The SLCP Reduction Strategy establishes a framework for the statewide reduction of emissions of black carbon, CH_4, and fluorinated gases.

Building Energy

Title 24, Part 6. Title 24 of the California Code of Regulations was established in 1978 and serves to enhance and regulate California's building standards. While not initially promulgated to reduce GHG emissions, Part 6 of Title 24 specifically established Building Energy Efficiency Standards that are designed to ensure new and existing buildings in California achieve energy efficiency and preserve outdoor and indoor environmental quality. These energy efficiency standards are reviewed every few years by the Building Standards Commission and the California Energy Commission (CEC) (and revised if necessary) (California Public Resources Code, Section 25402[b][1]). The regulations receive input from members of industry and the public, with the goal of "reducing of wasteful, uneconomic, inefficient, or unnecessary consumption of energy" (California Public Resources Code, Section 25402). These regulations are carefully scrutinized and analyzed for technological and economic feasibility (California Public Resources Code, Section 25402[d]) and cost effectiveness (California Public Resources Code, Sections 25402[b][2] and [b][3]). As a result, these standards save energy, increase electricity supply reliability, increase indoor comfort, avoid the need to construct new power plants, and help preserve the environment.

The current Title 24 standards are the 2019 Title 24 Building Energy Efficiency Standards, which became effective January 1, 2020. In general, single-family residences built to the 2019 standards are anticipated to use approximately 7% less energy due to energy efficiency measures than those built to the 2016 standards; once rooftop solar electricity generation is factored in, single-family residences built under the 2019 standards will use approximately 53% less energy than those under the 2016 standards (CEC 2018). Nonresidential buildings built to the 2019 standards are anticipated to use an estimated 30% less energy than those built to the 2016 standards due mainly to lighting upgrades (CEC 2018).

Title 24, Part 11. In addition to the CEC's efforts, in 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (24 CCR 11) is commonly referred to as CALGreen and establishes minimum mandatory standards and voluntary standards pertaining to the planning and design of sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and interior air quality. CALGreen took effect in January 2011 and instituted mandatory minimum environmental performance standards for all ground-up, new construction of commercial, low-rise residential, and state-owned buildings, schools, and hospitals. CALGreen 2019 went into effect on January 1, 2020, and continue to improve upon the 2016 CALGreen standards for new construction of, and additions and alterations to, residential and nonresidential buildings.

Title 20. Title 20 of the California Code of Regulations requires manufacturers of appliances to meet state and federal standards for energy and water efficiency. The CEC certifies an appliance based on a manufacturer's demonstration that the appliance meets the standards. New appliances regulated under Title 20 include refrigerators, refrigerator-freezers, and freezers; room air conditioners and room air-conditioning heat pumps; central air conditioners; spot air conditioners; vented gas space heaters; gas pool heaters; plumbing fittings and plumbing fixtures; fluorescent lamp ballasts; lamps; emergency lighting; traffic signal modules; dishwaters; clothes washers and dryers; cooking products; electric motors; low-voltage dry-type distribution transformers; power supplies; televisions and consumer audio and video equipment; and battery charger systems. Title 20 presents protocols for testing each type of appliance covered under the regulations and appliances must meet the standards for energy performance, energy design, water performance, and water design. Title 20 contains three types of standards for appliances: federal and state standards for federally regulated appliances, state standards for federally regulated appliances, and state standards for non-federally regulated appliances.

AB 1109. Enacted in 2007, AB 1109 required the CEC to adopt minimum energy efficiency standards for general-purpose lighting to reduce electricity consumption 50% for indoor residential lighting and 25% for indoor commercial lighting.

Renewable Energy and Energy Procurement

SB 1078. SB 1078 (September 2002) established the RPS program, which required an annual increase in renewable generation by the utilities equivalent to at least 1% of sales, with an aggregate goal of 20% by 2017. This goal was subsequently accelerated, requiring utilities to obtain 20% of their power from renewable sources by 2010 (see SB 107, EO S-14-08, and S-21-09).

SB 1368. SB 1368 (September 2006) required the CEC to develop and adopt regulations for GHG emission performance standards for the long-term procurement of electricity by local publicly owned utilities. These standards must be consistent with the standards adopted by the California Public Utilities Commission.

SB X1 2. SB X1 2 (2011) expanded the RPS by establishing that 20% of the total electricity sold to retail customers in California per year by December 31, 2013, and 33% by December 31, 2020, and in subsequent years be secured from qualifying renewable energy sources. Under the bill, a renewable electrical generation facility is one that uses biomass, solar thermal, photovoltaic, wind, geothermal, fuel cells using renewable fuels, small hydroelectric generation of 30 megawatts or less, digester gas, municipal solid waste conversion, landfill gas, ocean wave, ocean thermal, or tidal current, and that meets other specified requirements with respect to its location. In addition to the retail sellers previously covered by the RPS, SB X1 2 added local, publicly owned electric utilities to the RPS.

SB 350. SB 350 (October 2015) further expanded the RPS by establishing a goal of 50% of the total electricity sold to retail customers in California per year being secured from qualifying renewable energy sources by December 31, 2030. In addition, SB 350 included the goal to double the energy efficiency savings in electricity and natural gas final end uses (e.g., heating, cooling, lighting, or class of energy uses on which an energy-efficiency program is focused) of retail customers through energy conservation and efficiency. The bill also requires the California Public Utilities Commission, in consultation with the CEC, to establish efficiency targets for electrical and gas corporations consistent with this goal.

SB 100. SB 100 (2018) increased the standards set forth in SB 350 establishing that 44% of the total electricity sold to retail customers in California per year by December 31, 2024, 52% by December 31, 2027, and 60% by December 31, 2030, be secured from qualifying renewable energy sources. SB 100 states that it is the policy of the state that eligible renewable energy resources and zero-carbon resources supply 100% of the retail sales of electricity to California. This bill requires that the achievement of 100% zero-carbon electricity resources do not increase the carbon emissions elsewhere in the western grid and that the achievement not be achieved through resource shuffling.

Mobile Sources

EO S-1-07. EO S-1-07 (January 2007, implementing regulation adopted in April 2009) sets a declining LCFS for GHG emissions measured in CO_2e grams per unit of fuel energy sold in California. The target of the LCFS is to reduce the carbon intensity of California passenger vehicle fuels by at least 10% by 2020 (17 CCR 95480 et seq.). In 2018, CARB amended the LCFS to require a 20% reduction in carbon intensity by 2030. The carbon intensity measures the amount of GHG emissions in the lifecycle of a fuel, including extraction/feedstock production, processing, transportation, and final consumption, per unit of energy delivered.

SB 375. SB 375 (September 2008) addresses GHG emissions associated with the transportation sector through regional transportation and sustainability plans. SB 375 requires CARB to adopt regional GHG reduction targets for the automobile and light-truck sector for 2020 and 2035 and to update those targets every 8 years. SB 375 requires the state's 18 regional metropolitan planning organizations to prepare a Sustainable Communities Strategy (SCS) as part of their Regional Transportation Plan (RTP) that will achieve the GHG reduction targets set by CARB. If a metropolitan planning organization is unable to devise an SCS to achieve the GHG reduction target, the organization must prepare an Alternative Planning Strategy demonstrating how the GHG reduction target would be achieved through alternative development patterns, infrastructure, or additional transportation measures or policies.

Pursuant to Government Code Section 65080(b)(2)(K), an SCS does not (i) regulate the use of land; (ii) supersede the land use authority of cities and counties; or (iii) require that a city's or county's land use policies and regulations, including those in a general plan, be consistent with it. Nonetheless, SB 375 makes regional and local planning agencies responsible for developing those strategies as part of the federally required metropolitan transportation planning process and the state-mandated housing element process.

In 2010, CARB adopted the SB 375 targets for the regional metropolitan planning organizations. The targets for the San Diego Association of Governments (SANDAG) are a 7% reduction in emissions per capita by 2020 and a 13% reduction by 2035.

SANDAG completed and adopted its 2050 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) in October 2011 (SANDAG 2011). In November 2011, CARB, by resolution, accepted SANDAG's GHG emissions quantification analysis and determination that, if implemented, the SCS would achieve CARB's 2020 and 2035 GHG emissions reduction targets for the region.

After SANDAG's 2050 RTP/SCS was adopted, a lawsuit was filed by the Cleveland National Forest Foundation and others. The matter is pending before the California Supreme Court (Case No. S223603) for determination of whether an environmental impact report for an RTP must include an analysis of the plan's consistency with the GHG reduction goals reflected in EO S-3-05 to comply with CEQA.

Although the environmental impact report for SANDAG's 2050 RTP/SCS is pending before the California Supreme Court, in 2015, SANDAG adopted the next iteration of its RTP/SCS in accordance with statutorily mandated timelines, and no subsequent litigation challenge was filed. More specifically, in October 2015, SANDAG adopted San Diego Forward: The Regional Plan. Like the 2050 RTP/SCS, this planning document meets CARB's 2020 and 2035 reduction targets for the region (SANDAG 2015). In December 2015, CARB, by resolution, accepted SANDAG's GHG emissions quantification analysis and determination that, if implemented, the SCS would achieve CARB's 2020 and 2035 GHG emissions reduction targets for the region.

Advanced Clean Cars Program. In January 2012, CARB approved the Advanced Clean Cars Program, a new emissions-control program for model years 2015 through 2025. The program combines the control of smog- and soot-causing pollutants and GHG emissions into a single coordinated package. The package includes elements to reduce smog-forming pollution, reduce GHG emissions, promote clean cars, and provide the fuels for clean cars (CARB 2011). To improve air quality, CARB has implemented new emission standards to reduce smog-forming emissions beginning with 2015 model year vehicles. It is estimated that in 2025, cars will emit 75% less smog-forming pollution than the average new car sold before 2012. To reduce GHG emissions, CARB, in conjunction with the EPA and the NHTSA, has adopted new GHG standards for model year 2017 to 2025 vehicles; the new standards are estimated to reduce GHG emissions by 34% in 2025. The zero-emissions vehicle (ZEV) program will act as the focused technology of the Advanced Clean Cars program by requiring manufacturers to produce increasing numbers of ZEVs and plug-in hybrid electric vehicles (EVs) in the 2018 to 2025 model years.

EO B-16-12. EO B-16-12 (2012) directs state entities under the governor's direction and control to support and facilitate development and distribution of ZEVs. This EO also sets a long-term target of reaching 1.5 million ZEVs on California's roadways by 2025. On a statewide basis, EO B-16-12 also establishes a GHG emissions reduction target from the transportation sector equaling 80% less than 1990 levels by 2050. In furtherance of this EO, the governor convened an interagency working group on ZEVs that has published multiple reports regarding the progress made on the penetration of ZEVs in the statewide vehicle fleet.

AB 1236. AB 1236 (2015) requires local land use jurisdictions to approve applications for the installation of EV charging stations, as defined, through the issuance of specified permits, unless there is substantial evidence in the record that the proposed installation would have a specific, adverse impact upon the public health or safety and there is no feasible method to satisfactorily mitigate or avoid the specific, adverse impact. The bill provides for appeal of that decision to the planning commission, as specified. AB 1236 requires local land use jurisdictions with a population of 200,000 or more residents to adopt an ordinance, by September 30, 2016, which creates an expedited and streamlined permitting process for EV charging stations, as specified. The City added Section 86.0151, Electric Vehicle Parking Regulations, to its Municipal Code in August 2015 in response to the AB 1236 requirements.

SB 350. In 2015, SB 350—the Clean Energy and Pollution Reduction Act—was enacted into law. As one of its elements, SB 350 established a statewide policy for widespread electrification of the transportation sector, recognizing that such electrification is required for achievement of the state's 2030 and 2050 reduction targets (see California Public Utilities Code, Section 740.12).

EO B-48-18. EO B-48-18 (2018) launched an 8-year initiative to accelerate the sale of EVs through a mix of rebate programs and infrastructure improvements. The order also set a new EV target of 5 million EVs in California by 2030. EO B-48-18 included funding for multiple state agencies, including the CEC, to increase EV charging infrastructure and for CARB to provide rebates for the purchase of new EVs and purchase incentives for low-income customers.

Solid Waste

AB 939 and AB 341. In 1989, AB 939, known as the Integrated Waste Management Act (California Public Resources Code, Sections 40000 et seq.), was passed because of the increase in waste stream and the decrease in landfill capacity. The statute established the California Integrated Waste Management Board, which oversees a disposal reporting system. AB 939 mandated a reduction of waste being disposed where jurisdictions were required to meet diversion goals of all solid waste through source reduction, recycling, and composting activities of 25% by 1995 and 50% by the year 2000.

AB 341 (2011) amended the California Integrated Waste Management Act of 1989 to include a provision declaring that it is the policy goal of the state that not less than 75% of solid waste generated be source-reduced, recycled, or composted by the year 2020, and annually thereafter. In addition, AB 341 required the California Department of Resources Recycling and Recovery to develop strategies to achieve the state's policy goal. The California Department of Resources Recycling and Recovery has conducted multiple workshops and published documents that identify priority strategies that it believes would assist the state in reaching the 75% goal by 2020 (CalRecycle 2015).

Other State Actions

SB 97. SB 97 (August 2007) directed the Governor's Office of Planning and Research to develop guidelines under CEQA for the mitigation of GHG emissions. In 2008, the Office of Planning and Research issued a technical advisory as interim guidance regarding the analysis of GHG emissions in CEQA documents. The advisory indicated that the lead agency should identify and estimate a project's GHG emissions, including those associated with vehicular traffic, energy consumption, water usage, and construction activities (OPR 2008). The advisory further recommended that the lead agency determine significance of the impacts and impose all mitigation measures necessary to reduce GHG emissions to a level that is less than significant. The CNRA adopted the CEQA Guidelines amendments in December 2009, which became effective in March 2010.

Under the amended Guidelines, a lead agency has the discretion to determine whether to use a quantitative or qualitative analysis or apply performance standards to determine the significance of GHG emissions resulting from a particular project (14 CCR 15064.4[a]). The Guidelines require a lead agency to consider the extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions (14 CCR 15064.4[b]). The Guidelines also allow a lead agency to consider feasible means of mitigating the significant effects of GHG emissions, including reductions in emissions through the implementation of project features or off-site measures. The adopted amendments do not establish a GHG emission threshold, instead allowing a lead agency to develop, adopt, and apply its own thresholds of significance or those developed by other agencies or experts. The CNRA also acknowledges that a lead agency may consider compliance with regulations or requirements implementing AB 32 in determining the significance of a project's GHG emissions (CNRA 2009a).

With respect to GHG emissions, the CEQA Guidelines state in Section 15064.4(a) that lead agencies should "make a good faith effort, to the extent possible on scientific and factual data, to describe, calculate or estimate" GHG emissions. The CEQA Guidelines note that an agency may identify emissions by either selecting a "model or methodology" to quantify the emissions or by relying on "qualitative analysis or other performance based standards" (14 CCR 15064.4[a]). Section 15064.4(b) states that the lead agency should consider the following when assessing the significance of impacts from GHG emissions on the environment: (1) the extent a 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; and (3) the extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions (14 CCR 15064.4[b]).

EO S-13-08. EO S-13-08 (November 2008) is intended to hasten California's response to the impacts of global climate change, particularly sea level rise. Therefore, the EO directs state agencies to take specified actions to assess and plan for such impacts. The final 2009 California Climate Adaptation Strategy report was issued in December 2009 (CNRA 2009b), and an update, Safeguarding California: Reducing Climate Risk, followed in July 2014 (CNRA 2014). To assess the state's vulnerability, the report summarizes key climate change impacts to the state for the following areas: agriculture, biodiversity and habitat, emergency management, energy, forestry, ocean and coastal ecosystems and resources, public health, transportation, and water. Issuance of the Safeguarding California: Implementation Action Plans followed in March 2016 (CNRA 2016). In January 2018, the CNRA released the Safeguarding California Plan: 2018 Update, which communicates current and needed actions that state government should take to build climate change resiliency (CNRA 2018).

Biological Diversity v. CDFW. In its decision in *Center for Biological Diversity v. CDFW* (Newhall) 62 Cal.4th 204 (2015), the California Supreme Court set forth several options that lead agencies may consider for evaluating the cumulative significance of a proposed project's GHG emissions:

1. A calculation of emissions reductions compared to a business-as-usual scenario based upon the emissions reductions in CARB's Scoping Plan, including examination of the data to determine what level of reduction from business as usual a new land use development at the proposed location must contribute in order to comply with statewide goals.
2. A lead agency might assess consistency with AB 32's goals by looking to compliance with regulatory programs designed to reduce GHG emissions from particular activities.
3. Use of geographically specific GHG emission reduction plans to provide a basis for tiering and streamlining of project-level CEQA analysis.
4. A lead agency may rely on existing numerical thresholds of significance for GHG emissions, though use of such thresholds is not required.

The Newhall decision specifically found that use of a numerical threshold is not required.

Local

San Diego Air Pollution Control District

The San Diego Air Pollution Control District does not have established GHG rules, regulations, or policies.

City of Chula Vista

International Council of Environmental Initiatives Local Governments for Sustainability. In 1992, the City of Chula Vista participated in the Cities for Climate Protection Program, which aimed at developing municipal action plans for the reduction of GHGs. This program was sponsored and developed by the International Council of Environmental Initiatives and the United Nations Environment Program in response to the United Nations Framework Convention on Climate Change. The program was built on the recognition that all local planning and development has direct consequences on energy consumption, and cities exercise key powers over urban infrastructure, including neighborhood design, and over transportation infrastructure, such as roads, streets, pedestrian areas, bicycle lanes, and public transport.

Chula Vista CO_2 Reduction Plan. Each participant in the International Council of Environmental Initiatives program was to create local policy measures to ensure multiple benefits to the participant and, at the same time, identify a carbon reduction goal through the implementation of those measures. The carbon reduction goal was to fit within the realm of international climate treaty reduction goals.

In its CO_2 Reduction Plan, developed in 1996 and officially adopted in 2000, Chula Vista committed to lowering its CO_2 emissions by diversifying its transportation system and using energy more efficiently in all sectors. To focus efforts in this direction, Chula Vista adopted the international CO_2 reduction goal of returning to pre-1990 levels by 2010. In order to achieve this goal, eight actions were identified, which, when fully implemented, were anticipated to save 100,000 tons of CO_2 each year.

As a result of the 2005 GHG Emissions Inventory Report, in May 2007, staff reported to the City Council that Citywide GHG emissions had increased by 35% (mainly due to residential growth) from 1990 to 2005, while emissions on a per capita basis and from municipal operations decreased by 17% and 18%, respectively. The City Council directed staff to convene a Climate Change Working Group to develop recommendations to reduce the community's GHGs in order to meet the City's 2010 GHG emissions reduction targets.

As a result of the 2012 GHG Emissions Inventory Report, staff reported to the City Council that Citywide GHG levels are 1,011,481 MT CO_2e. Compared to 2005, Chula Vista's citywide GHG emissions have increased by 8%. However, 2012 per capita emissions were approximately 5% below 2005 levels and 33% below 1990 levels. Unlike the last two inventories, 2009 and 2010, there was a slight increase in citywide energy consumption over the last couple of years due most likely to local economic recovery. As with past inventories, community transportation activity has continued increasing, with 2012 VMT about 29% higher than in 2005. In order to reach the current community emissions reduction goal of 20% below 1990 emission levels, the City will have to reduce its GHG emissions by more than 359,332 MT CO_2e (35%); however, statewide initiatives are expected to help achieve some of these reductions by 2020.

Climate Change Working Group. The Climate Change Working Group, which is composed of residents, businesses, and community organization representatives, helps the City develop climate-related programs and policies. In 2008, the group reviewed over 90 carbon reduction measures and ultimately chose 7 measures to recommend for adoption to the City Council, which the council subsequently adopted. The measures were designed to reduce or mitigate climate change impacts by reducing GHG emissions within Chula Vista to 20% below 1990 levels, in keeping with its CO_2 Reduction Plan and United Nations Framework Convention on Climate Change goals.

In October 2009, the City Council directed the group to evaluate how the City could adapt to potential climate change impacts. The group met throughout 2011 to develop recommendations based on the City's vulnerabilities and risks to climate change. In May 2011, the group adopted the Climate Adaptation Strategies – Implementation Plans, described below, and in 2014, the group released the 2014 Climate Action Plan Update – Recommendations, described below.

***Chula Vista Climate Adaptation Strategies – Implementation Plans*.** The Climate Adaptation Strategies – Implementation Plans document developed by the Climate Change Working Group includes 11 strategies to facilitate Chula Vista's adaptation to the potential impacts of global climate change related to energy and water supply, public health, wildfires, ecosystem management, coastal infrastructure, and local economy sectors. The strategies include cool paving, shade trees, cool roofs, local water supply and reuse, stormwater pollution prevention and reuse, education and wildfires, extreme heat plans, open space management, wetlands preservation, sea level rise and land development codes, and green economy. For each strategy, the plans outline specific implementation components, critical steps, costs, and timelines. In order to limit the necessary staffing and funding required to implement the strategies, the plans were also designed to build upon existing municipal efforts, rather than create new, standalone policies or programs. Initial implementation of all 11 strategies were phased over a 3-year period after adoption of the plan in 2011.

Chula Vista Climate Protection Measures. On July 10, 2008, the City Council adopted implementation plans for seven climate protection measures to reduce GHG emissions to 20% below 1990 levels by 2012. The implementation plans outline the detailed strategy for initiating, funding, and tracking the following measures:

1. ***Clean Vehicle Replacement Policy for City Fleet:*** When City fleet vehicles are retired, they will be replaced through the purchase or lease of alternative fuel or hybrid substitutes. In addition, the City fleet will begin to pursue installing new fuel tanks to allow heavy-duty vehicles to convert to biodiesel fuel immediately.
2. ***Clean Vehicle Replacement Policy for City-Contracted Fleets:*** As contracts for City-contracted fleet services (such as transit buses, trash haulers, and street sweeper trucks) are renewed, the City will encourage contractors to replace their vehicles with alternative fuel or hybrid substitutes through the contract bid process. In addition, the City will pursue implementing two hydrogen vehicle demonstration projects.
3. ***Business Energy Evaluations:*** Businesses with storefronts or offices need to participate in a no-cost energy assessment of their facilities to help identify opportunities for them to reduce monthly energy costs. The business assessment will be integrated into the existing business licensing process and codified through a new municipal ordinance.
4. ***Green Building Standard:*** The City will implement a Citywide, mandatory green building standard for new residential and non-residential construction projects and major renovations. The standard includes four components: (1) adopting a citywide Green Building Standard; (2) adopting a citywide Enhanced Energy Efficiency Standard; (3)

launching a Green Building Awareness program for builders, permit applicants, and the general public; and (4) developing design guidelines for sustainable development.

5. ***Solar and Energy Efficiency Conversion Program:*** The City will create a community program to provide residents and businesses with a streamlined, cost-effective opportunity to implement energy efficiency improvements and to install solar/renewable energy systems on their properties. The City will develop a funding mechanism to allow program participants to voluntarily choose to place the improvement costs on their property's tax rolls, thereby avoiding large upfront capital costs. In addition, the program will promote vocational training, local manufacturing, and retail sales opportunities for environmental products and services. To help stimulate the private-sector renewable market and lower the cost for installing renewable energy systems on new homes, the City will require all new residential buildings to include pre-wiring and pre-plumbing for solar photovoltaic and solar hot water systems, respectively.
6. ***Smart Growth Around Trolley Stations:*** The City will continue to implement the smart growth design principles, which promote mixed-use and walkable and transit-friendly development, particularly in and around the E, H, and Palomar trolley stations. These principles were emphasized in the revised Chula Vista General Plan and the Urban Core Specific Plan. In particular, the City will initiate site planning, design studies, and specific area plan development to further support smart growth development that complements GHG reductions.
7. ***Turf Lawn Conversion Program:*** The City will create a community program to provide residents and businesses with a streamlined, cost-effective opportunity to replace their turf lawns with water-saving landscaping and irrigation systems. Some municipal turf lawn areas (such as medians, fire stations, and non-recreational park areas) will also be converted to act as public demonstration sites and to reduce monthly water costs. The City will establish the model for water-wise landscaping for new development through an update of the Chula Vista Municipal Landscape Ordinance and Water Conservation Plan guidelines.

Chula Vista Climate Protection Measures – 2013 Progress Report. Since 2000, Chula Vista has been implementing a Climate Action Plan (CAP) (the CO_2 Reduction Plan) to address the threat of climate change to the local community. This original plan has been revised to incorporate new climate mitigation (2008) and adaptation (2011) measures to strengthen the City's climate action efforts and to facilitate the numerous community co-benefits, such as utility savings, better air quality, reduced traffic congestion, local economic development, and improved quality of life. Based on available funding, staff has been implementing the 18 climate-related actions and their 57 associated components. Overall, 70% of the components have been successfully completed and/or are being implemented on an ongoing basis, which represents a 7% increase since the last reporting period. Another 26% are still being actively pursued, while only two components remain on hold (City of Chula Vista 2013).

2014 Climate Action Plan Update – Recommendations by the Climate Change Working Group. The Climate Change Working Group evaluated new opportunities to help reach the Chula Vista Climate Action Plan's GHG gas reduction goal of 30% below 2005 levels. As such, they identified 12 action areas that could generate up to 166,000 MT in reductions by 2020, while improving local air quality, generating utility savings, reducing traffic congestion, and promoting a healthier community (City of Chula Vista 2014).

2017 Climate Action Plan. The latest version of the CAP was adopted on September 26, 2017, by the City Council and provides updated goals, policies, actions, and the latest Citywide inventory and projections. The CAP is not considered a CEQA "qualified" plan under CEQA Guidelines Section 15183.5, as it has not been adopted in a public process following environmental review. The Climate Change Working Group has been evaluating new opportunities to help reach the Chula Vista CAP's GHG gas reduction goals, which are based on the Scoping Plan Update goals of 6 MT CO_2e per person by 2030 and 2 MT CO_2e per person by 2050. As such, they have identified the following 11 action areas that could generate up to 208,220 MT in reductions by 2020, while improving local air quality, generating utility savings, reducing traffic congestion, and promoting a healthier community (City of Chula Vista 2017):

Water Conservation & Reuse – Estimated Annual GHG Reductions = 12,357 MT CO_2e

1. Water Education & Enforcement
    - Expand education and enforcement (through fines) targeting landscape water waste.
2. Water Efficiency Upgrades
    - Update the City's Landscape Water Conservation Ordinance to promote more water-wise landscaping designs.
    - Require water-savings retrofits in existing buildings at a specific point in time (not point of sale).
3. Water Reuse Plan & System Installations
    - Develop a Water Reuse Master Plan to maximize the use of stormwater, recycled water, and on-site water reclamation.
    - Facilitate simple graywater systems for laundry-to-landscape applications
    - Streamline complex graywater systems permit review

Waste Reduction – Estimated Annual GHG Reductions = 38,126 MT CO_2e

4. Zero Waste Plan
   - Develop a Zero Waste Plan to supplement statewide green waste, recycling, and plastic bag ban efforts.

Renewable & Efficient Energy – Estimated Annual GHG Reductions = 70,763 MT CO_2e

5. Energy Education & Enforcement
   - Expand education targeting key community segments (i.e., do-it-yourself and Millennials) and facilitating energy performance disclosure (i.e., Green Leases & Home Energy Ratings).
   - Leverage the building inspection process to distribute energy-related information and to deter unpermitted, low performing energy improvements.
6. Clean Energy Sources
   - Incorporate solar photovoltaic into all new residential and commercial buildings (on a project level basis).
   - Provide more grid-delivered clean energy (up to 100%) through Community Choice Aggregation or other mechanism.
7. Energy Efficiency Upgrades
   - Expand the City's "cool roof" standards to include re-roofs and western areas.
   - Facilitate more energy upgrades in the community through tax breaks, rebates, and more local energy efficiency programming.
   - Require energy-savings retrofits in existing buildings at a specific point in time (not at point of sale).
8. Robust Urban Forests
   - Plant more shade trees to save energy, address heat island issues, and improve air quality.

Smart Growth & Transportation – Estimated Annual GHG Reductions = 86,974 MT CO_2e

9. Complete Streets & Neighborhoods
   - Incorporate "Complete Streets" principles into the Bicycle and Pedestrian Master Plans and Capital Improvement Program.
   - Encourage higher density and mixed-use development in Smart Growth areas, especially around trolley stations and other transit nodes.
10. Transportation Demand Management
    - Utilize bike facilities, transit access/passes and other Transportation Demand Management and congestion management offerings.
    - Expand bike-sharing, car-sharing and other "last mile" transportation options.
11. Alternative Fuel Vehicle Readiness
    - Support the installation of more local alternative fueling stations and designate preferred parking for alternative fuel vehicles.
    - Designate preferred parking for alternative fuel vehicles.
    - Design all new residential and commercial buildings to be "Electric Vehicle Ready."

Chula Vista Green Building Standards. Consistent with Measure 4 of the Chula Vista Climate Protection Measures, the City Council adopted the Green Building Standards Ordinance (Ordinance No. 3140) on October 6, 2009, which became effective November 5, 2009. The Green Building Standards ordinance includes standards for energy efficiency, pollutant controls, interior moisture control, improved indoor air quality and exhaust, indoor water conservation, stormwater management, and construction waste reduction and recycling.

Building permit applications are required to indicate on project construction plans and specifications the Green Building Standards measures that comply with the ordinance. Prior to final building approval or issuance of a certificate of occupancy, the Building Official reviews the information submitted by the applicant and determines whether the applicant has constructed the project in accordance with the permitted plans and documents, and whether the plans are in compliance with the Green Building Standards. In 2013, Chula Vista adopted CALGreen for residential and non-residential development effective January 1, 2014.

Chapter 15.12, Green Building Standards. Title 24, Part 11, was adopted as the Green Building Code of the City of Chula Vista for enhancing the design and construction of buildings, building additions, and alterations through the use of building concepts having a reduced negative impact or positive environmental impact and encouraging sustainable construction practices, excepting such portions as are hereinafter deleted, modified, or amended.

Chula Vista Increased Energy Efficiency Standards. On January 26, 2010, the City Council adopted the Increased Energy Efficiency Standards Ordinance (Ordinance No. 3149). This ordinance became effective February 26, 2010, as Section 15.26 of the Municipal Code. Permit applications are required to comply with these energy efficiency standards.

Chula Vista Municipal Code Section 15.26.030 requires permit applications to comply with increased energy efficiency standards that achieve 15% to 20% greater efficiency than the requirements of the Title 24 2008 standards, depending on climate zone. The City falls within two climate zones, Zone 7 and Zone 10. The project site is within Zone 7. For Zone 7, the code requires the following:

- All new low-rise residential building or additions, remodels or alterations to existing low-rise residential buildings where the additions, remodels or alterations are greater than 1,000 square feet of conditional floor area, shall use at least 15% less energy than the 2008 Title 24 Building Energy Efficiency Standards allow; and
- All new non-residential, high-rise residential or hotel/motel buildings, or additions, remodels or alterations to existing non-residential, high-rise residential or hotel/motel buildings where the additions, remodels or alterations are greater than 10,000 square feet of conditioned floor area, shall use at least 15% less energy than the 2008 Title 24 Building Energy Efficiency Standards.
- No city building permit shall be issued unless the permit application demonstrates to the Building Official compliance with the requirements of Section 15.26.030. Compliance is to be demonstrated based on a performance approach, using a CEC-approved energy compliance software program, as specified in the Title 24 2008 Building Energy Efficiency Standards.

In 2013, Chula Vista adopted the Energy Code for Residential and Non-Residential development, effective July 1, 2014. Energy efficiency measures adopted by the Chula Vista Municipal Code are as follows:

- **Section 15.26.010 - California Energy Code**. The California Energy Code is adopted as the energy code of the City for the purpose of regulating building design and construction standards to increase efficiency in the use of energy for new residential and nonresidential buildings.
- **Section 15.26.020 – Outdoor Lighting Zones**. The City has adopted an outdoor lighting zones map amending state default lighting zones as applied to certain areas of the City. The location of outdoor lighting zones in the City are per the adopted Outdoor Lighting

Zones Map, dated September 2, 2005, and kept on file with the City Planning and Building Department.

***City of Chula Vista Mandatory Construction and Demolition Debris Recycling Ordinance*.** Section 8.25.095 of the Chula Vista Municipal Code requires that 90% of inert materials and a minimum of 50% of all other materials be recycled and/or reused from certain covered projects. Covered projects include the following:

- Any project requiring a permit for demolition or construction, which has a project valuation of $20,000 or more.
- Housing subdivision construction or demolition and/or any sequenced development will be considered a project in its entirety and not a series of individual projects.
- Tenant improvements greater than 1,000 square feet but less than 10,000 square feet and individual single-family home construction, remodel, addition or renovation, shall submit a Waste Management Report only (no deposit required).
- All City projects.

Covered projects must submit a waste management plan to the Chula Vista Public Works Department, Environmental Services Division, which must be reviewed and approved prior to the issuance of a demolition or building permit. The waste management plan will indicate how the applicant will recycle and/or reuse 90% of inert materials and at least 50% of the remaining construction and demolition debris generated from the project.

***City of Chula Vista Clean Transportation Energy Roadmap (2012)*.** The Clean Transportation Energy Roadmap can serve as a resource for the City as it continues to promote clean transportation measures, both in its municipal operations and in the community. The Roadmap identifies petroleum reduction measures and tools specific to the City that generally result in cost savings and benefits to the environment, including the following:

- An assessment of alternative fuel vehicles and fuel availability for the City's vehicle fleet.
- Commuter programs, including vanpools, carpools, and teleworking that the City could promote to its employees.
- Online tools to establish a baseline of petroleum consumed and GHGs emitted from employee commutes, as well as annual tracking tools.
- Smart growth and active transportation policies that enhance local walking and biking options.
- Outreach materials on Clean Transportation programs that can be shared with local residents, schools, and businesses.

The Roadmap also recognizes the significant steps that the City has taken already. Since 2000, Chula Vista has been implementing a CAP (CO_2 Reduction Plan) that includes measures to reduce energy and fuel use at municipal facilities and throughout the community.

City of Chula Vista General Plan Environmental Element

The City of Chula Vista General Plan (City of Chula Vista 2005) includes various policies related to reducing GHG emissions (both directly and indirectly). Applicable policies from the Environmental Element include the following:

Policy E-6.7 Encourage innovative energy conservation practices and air quality improvements in new development and redevelopment projects consistent with the City's Air Quality Improvement Plan Guidelines or its equivalent, pursuant to the City's Growth Management Program.

Policy E-7.1 Promote development of regulations and building design standards that maximize energy efficiency through appropriate site and building design and through the use of energy-efficient materials, equipment, and appliances.

Policy E-8.1 Promote efforts to reduce waste, minimize the need for additional landfills, and provide economically and environmentally sound resource recovery, management, and disposal facilities.

4.4.3 Thresholds of Significance

Based on the significance criteria established by Appendix G of the 2019 California Environmental Quality Act Guidelines (14 CCR 15000 et seq.) and the City of Chula Vista, a significant impact related to GHGs would generally occur as a result of project implementation if the project would:

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

Accordingly, the CEQA Guidelines do not prescribe specific methodologies for performing an assessment, establish specific thresholds of significance, or mandate specific mitigation measures. Rather, the CEQA Guidelines emphasize the lead agency's discretion to determine the appropriate methodologies and thresholds of significance that are consistent with the manner in which other impact areas are handled in CEQA (CNRA 2009a).

Screening thresholds have been published by the California Air Pollution Control Officers Association for determining the need for additional analysis and mitigation for GHG related impacts under CEQA. The annual 900 MT CO_2e screening level referenced in the California Air Pollution Control Officers Association white paper is an acceptable conservative criterion that can be used to determine if GHG emissions for a given project would require further analysis or mitigation in order to reduce its climate change impact (CAPCOA 2008). Therefore, this analysis uses the 900 MT CO_2e threshold in order to assess the significance of the project's GHG emissions.

Approach and Methodology

Construction Emissions

CalEEMod Version 2016.3.2 (CAPCOA 2017) was used to estimate potential proposed project-generated GHG emissions during construction. Construction of the proposed project would result in GHG emissions primarily associated with use of off-road construction equipment, on-road hauling and vendor (material delivery) trucks, and worker vehicles. All details for construction criteria air pollutants discussed in Section 4.2.3, Approach and Methodology (Construction), are also applicable for the estimation of construction-related GHG emissions. As such, see Section 4.2.3 for a discussion of construction emissions calculation methodology and assumptions used in the GHG emissions analysis.

Operation

As discussed in Section 4.2, Air Quality, following construction, athletic and special events that currently occur off-campus would begin occurring on- campus. Changes in event location are summarized in Chapter 3, Project Description. In addition, the project would result in general maintenance activities that currently occur on campus, such as landscaping, general repairs, natural turf field maintenance, and trash removal, maintenance also would include replacement of light fixtures and artificial turf. Because the project would relocate events on campus, net mobile source emissions are not anticipated to increase as a result of the transfer of events from the Southwestern College campus stadium.

4.4.4 Impacts Analysis

Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Construction of the project would result in GHG emissions, which are primarily associated with use of off-road construction equipment, on-road hauling and vendor (material delivery) trucks, and worker vehicles. GHG emissions associated with temporary construction activity were quantified using CalEEMod. A detailed depiction of the construction schedule—including information regarding phasing, equipment utilized during each phase, haul trucks, vendor trucks, and worker vehicles—is included in Section 4.2, Air Quality, of this Environmental Impact Report.

Table 4.4-4 shows the estimated annual GHG construction emissions associated with the project and the amortized construction emissions over a 30-year project life.

Table 4.4-4
Estimated Annual Construction GHG Emissions

Year	CO_2	CH_4	N_2O	CO_2e
	Metric Tons			
2021	171.58	0.04	0.00	172.62
			30-Year Amortized Emissions	**5.75**

Notes: CO_2 = carbon dioxide; CH_4 = methane; N_2O = nitrous oxide; CO_2e = carbon dioxide equivalent.
See Appendix A for complete results.

As shown in Table 4.4-4, construction of the project in 2021 is estimated to result in GHG emissions of approximately 173 MT CO_2e. Project construction emissions amortized over 30 years would be approximately 6 MT CO_2e. As previously discussed, following construction, athletic and special events that currently occur off-campus would begin occurring on campus. The project would result in general maintenance activities that currently occur on campus such as landscaping, general repairs, natural turf field maintenance, and trash removal. Maintenance also would include replacement of light fixtures and artificial turf. Because the project would relocate events on campus, net mobile source emissions are not anticipated to increase as a result of the transfer of events from the Southwestern College campus stadium. Therefore, estimated average annual construction emissions would not exceed the California Air Pollution Control Officers Association's 900 MT CO_2e screening threshold. As such, impacts would be less than significant.

Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

In 2014, a Climate Change Working Group led by City staff and comprised of residents, businesses, and community organization representatives reconvened to update measures within the previously adopted GHG reduction plans. In 2017, the City developed a CAP to reduce the City's GHG emissions and the impacts of climate change. However, the City's CAP is not considered a qualified GHG reduction plan in accordance with CEQA Guidelines Section 15183.5, as it has not been adopted in a public process following environmental review. Therefore, this consistency analysis is included for informational purposes only and will not be used to determine significance.

The CAP identifies 11 action areas, which will help the City reduce GHG emissions by approximately 208,220 MT CO_2e or 0.7 MT per capita. When combined with reductions from state and federal regulations, an additional reduction of approximately 194,950 MT CO_2e or 0.4 MT of per capita reductions is anticipated. The 11 action areas encompass the following: water conservation and reuse, waste reduction, renewable and efficient energy, smart growth, and transportation. Most of the GHG reduction measures outlined within the CAP are not explicitly intended for projects to determine consistency. These measures would serve to help the City develop and implement policies in order to make progress towards meeting the state's 2050 GHG reduction goal. The project would meet applicable Title 24 and CALGreen standards to reduce energy demand and increase energy efficiency. Therefore, the project would provide opportunities for improved energy efficiency that would support state and local plans.

The Scoping Plan, approved by CARB on December 12, 2008, provides a framework for actions to reduce California's GHG emissions and requires CARB and other state agencies to adopt regulations and other initiatives to reduce GHGs. As such, the Scoping Plan is not directly applicable to specific projects. Relatedly, in the Final Statement of Reasons for the Amendments to the CEQA Guidelines, the CNRA observed that "the [Scoping Plan] may not be appropriate for use in determining the significance of individual projects because it is conceptual at this stage and relies on the future development of regulations to implement the strategies identified in the Scoping Plan" (CNRA 2009a). Under the Scoping Plan, however, there are several state regulatory measures aimed at the identification and reduction of GHG emissions. CARB and other state agencies have adopted many of the measures identified in the Scoping Plan. Most of these measures focus on area source emissions (e.g., energy usage, high-GWP GHGs in consumer products) and changes to the vehicle fleet (i.e., hybrid, electric, and more fuel-efficient vehicles) and associated fuels (e.g., LCFS), among others. While state regulatory measures would ultimately reduce GHG emissions associated with the project through their effect on these sources, no statewide plan, policy, or regulation would be specifically applicable to reductions in GHG emissions from the project. To the extent that these regulations are applicable to the project, the project would comply with all regulations adopted in furtherance of the Scoping Plan to the extent required by law.

Regarding consistency with SB 32 (goal of reducing GHG emissions to 40% below 1990 levels by 2030) and EO S-3-05 (goal of reducing GHG emissions to 80% below 1990 levels by 2050), there are no established protocols or thresholds of significance for that future-year analysis. However, CARB has expressed optimism regarding the 2030 and 2050 goals. It states in the First Update that "California is on track to meet the near-term 2020 GHG emissions limit and is well positioned to maintain and continue reductions beyond 2020 as required by AB 32" (CARB 2014b). Regarding the 2050 target for reducing GHG emissions to 80% below 1990 levels, the First Update states the following (CARB 2014b):

> "This level of reduction is achievable in California. In fact, if California realizes the expected benefits of existing policy goals (such as 12,000 megawatts of renewable distributed generation by 2020, net zero energy homes after 2020, existing building retrofits under AB 758, and others) it could reduce emissions by 2030 to levels squarely in line with those needed in the developed world and to stay on track to

> reduce emissions to 80% below 1990 levels by 2050. Additional measures, including locally driven measures and those necessary to meet federal air quality standards in 2032, could lead to even greater emission reductions."

In other words, CARB believes that the state is on a trajectory to meet the 2030 and 2050 GHG reduction targets set forth in AB 32, SB 32, and EO S-3-05. This is confirmed in the Second Update, which states, "this Plan draws from the experiences in developing and implementing previous plans to present a path to reaching California's 2030 GHG reduction target. The Plan is a package of economically viable and technologically feasible actions to not just keep California on track to achieve its 2030 target, but stay on track for a low- to zero-carbon economy by involving every part of the state" (CARB 2017). The Second Update also states that although "the Scoping Plan charts the path to achieving the 2030 GHG emissions reduction target, we also need momentum to propel us to the 2050 statewide GHG target (80% below 1990 levels). In developing this Scoping Plan, we considered what policies are needed to meet our mid-term and long-term goals" (CARB 2017).

Although project construction may be affected by some of the state level regulations and policies, the project would not conflict with City's CAP and CARB's 2017 Scoping Plan, and would not conflict with the state's trajectory toward meeting future GHG reductions, because GHG emissions from construction and operations would be minimal. Since the specific path to compliance for the state in regards to the long-term goals would likely require development of technology or other changes that are not currently known or available, specific additional mitigation measures for the project would be speculative and cannot be identified at this time. With respect to future GHG targets under SB 32 and EO S-3-05, CARB made clear in its legal interpretation that it has the requisite authority to adopt whatever regulations are necessary, beyond the AB 32 horizon year of 2020, to meet SB 32's 40% reduction target by 2030 and EO S-3-05's 80% reduction target by 2050; this legal interpretation by an expert agency provides evidence that future regulations would be adopted to continue the state on its trajectory toward meeting these future GHG targets.

Based on the preceding considerations, the project would not conflict with an applicable plan, policy, or regulation adopted to reduce the emissions of GHGs, and no mitigation is required. This impact would be less than significant.

4.4.5 Mitigation Measures

All impacts would be less than significant and no mitigation measures are proposed or required.

4.4.6 Level of Significance After Mitigation

All impacts would be less than significant and no mitigation measures are proposed or required.

4.4.7 References

14 CCR 15000–15387 and Appendices A–L. Guidelines for Implementation of the California Environmental Quality Act, as amended.

14 CCR 15064.4. Determining the Significance of Impacts from Greenhouse Gas Emissions. https://govt.westlaw.com/calregs/Document/I710A58805F7511DFBF66AC2936A1B85A?viewType=FullText&originationContext=documenttoc&transitionType=CategoryPageItem&contextData=(sc.Default).

75 FR 25324–25728. Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards; Final Rule. https://www.gpo.gov/fdsys/pkg/FR-2010-05-07/html/2010-8159.htm.

76 FR 57106–57513. Automobile and Truck Fuel Economy (CAFE) and Greenhouse Gas Standards. https://fas.org/sgp/crs/misc/R42721.pdf.

77 FR 62624–63200. 2017 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emissions and Corporate Average Fuel Economy Standards; Final Rule. https://www.gpo.gov/fdsys/pkg/FR-2012-10-15/pdf/2012-21972.pdf.

CalRecycle (California Department of Resources, Recycling, and Recovery). 2015. *AB 341 Report to the Legislature*. August 2015.

CAPCOA (California Air Pollution Control Officers Association). 2008. *CEQA and Climate Change Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act.* http://www.capcoa.org/wp-content/uploads/2012/03/CAPCOA-White-Paper.pdf.

CAPCOA. 2017. *California Emissions Estimator Model (CalEEMod) User's Guide Version 2016.3.2*. Prepared by Trinity Consultants and the California Air Districts. Accessed October 2017. http://www.aqmd.gov/docs/default-source/caleemod/upgrades/2016.3/01_user-39-s-guide2016-3-1.pdf?sfvrsn=2.

CARB (California Air Resources Board). 2008. *Climate Change Scoping Plan: A Framework for Change.* December 2008. Accessed December 9, 2009. http://www.arb.ca.gov/cc/scopingplan/document/scopingplandocument.htm.

CARB. 2011. *Final Supplement to the AB 32 Scoping Plan Functional Equivalent Document*. August 19, 2011. https://www.arb.ca.gov/cc/scopingplan/document/final_supplement_to_sp_fed.pdf.

CARB. 2014. *First Update to the Climate Change Scoping Plan Building on the Framework Pursuant to AB 32 – The California Global Warming Solutions Act of 2006*. May 2014. Accessed October 2017. http://www.arb.ca.gov/cc/scopingplan/2013_update/first_update_climate_change_scoping_plan.pdf.

CARB. 2016. "Glossary of Air Pollution Terms." Accessed June 2016. http://www.arb.ca.gov/html/gloss.htm.

CARB. 2017. The 2017 Climate Change Scoping Plan Update. January 20. Accessed January 2017. https://www.arb.ca.gov/cc/scopingplan/2030sp_pp_final.pdf.

CARB. 2019. "California Greenhouse Gas Emission Inventory—2019 Edition." August 12, 2019. Accessed August 2019. http://www.arb.ca.gov/cc/inventory/data/data.htm.

CAT (California Climate Action Team). 2006. *Climate Action Team Report to the Governor Schwarzenegger and the Legislature*. Sacramento, California. March 2006. Accessed August 2016. http://www.climatechange.ca.gov/climate_action_team/reports/2006report/2006-04-03_FINAL_CAT_REPORT.PDF.

CAT. 2010. *Climate Action Team Biennial Report*. Sacramento, California. April 2010. Accessed August 2016. http://www.energy.ca.gov/2010publications/CAT-1000-2010-004/CAT-1000-2010-004.PDF.

CCCC (California Climate Change Center). 2006. *Our Changing Climate: Assessing the Risks to California*. CEC-500-2006-077. July 2006. Accessed August 2016. http://www.energy.ca.gov/2006publications/CEC-500-2006-077/CEC-500-2006-077.PDF.

CCCC. 2012. *Our Changing Climate 2012: Vulnerability & Adaptation to the Increasing Risks from Climate Change in California*. July 2012. Accessed August 2016. http://www.energy.ca.gov/2012publications/CEC-500-2012-007/CEC-500-2012-007.pdf.

CEC (California Energy Commission). 2018. "2019 Building Energy Efficiency Standards Frequently Asked Questions." http://www.energy.ca.gov/title24/2019standards/documents/2018_Title_24_2019_Building_Standards_FAQ.pdf.

City of Chula Vista. 2005. City of Chula Vista General Plan. Amended March 2015. Accessed October 2017. http://www.chulavistaca.gov/departments/development-services/planning/general-plan.

City of Chula Vista. 2013. City of Chula Climate Action Plan Implementation Progress Report. Accessed October 2017. http://www.chulavistaca.gov/home/showdocument?id=5441.

City of Chula Vista. 2014. Climate Change Working Group 2014 Climate Action Plan Update - Recommendations. Accessed October 2017. http://www.chulavistaca.gov/departments/clean/conservation/climate-action-plan.

City of Chula Vista. 2016. GHG Emissions Community and Municipal Inventory Reports. Accessed July 2020. https://www.chulavistaca.gov/departments/clean/conservation/climate-action-plan.

City of Chula Vista. 2017. *Climate Action Plan*. Accessed October 2017. http://www.chulavistaca.gov/home/showdocument?id=15586.

CNRA (California Natural Resources Agency). 2009a. *Final Statement of Reasons for Regulatory Action: Amendments to the State CEQA Guidelines Addressing Analysis and Mitigation of Greenhouse Gas Emissions Pursuant to SB 97*. December 2009.

CNRA. 2009b. *2009 California Climate Adaptation Strategy: A Report to the Governor of the State of California in Response to Executive Order S-13-2008.* Accessed August 2016. http://resources.ca.gov/docs/climate/Statewide_Adaptation_Strategy.pdf.

CNRA. 2014. Safeguarding California: Reducing Climate Risk. An update to the 2009 California Climate Adaptation Strategy. Accessed October 2017. http://resources.ca.gov/docs/climate/Final_Safeguarding_CA_Plan_July_31_2014.pdf.

CRNA. 2016. Safeguarding California: Implementing Action Plans. March 2016. Accessed October 2017. http://resources.ca.gov/docs/climate/safeguarding/Safeguarding%20California-Implementation%20Action%20Plans.pdf.

CNRA. 2017. Draft Report Safeguarding California Plan: 2017 Update, California's Climate Adaptation Strategy. May 2017. Accessed October 2017. http://resources.ca.gov/wp-content/uploads/2017/05/DRAFT-Safeguarding-California-Plan-2017-Update.pdf.

CNRA. 2018. Safeguarding California Plan: 2018 Update, California's Climate Adaptation Strategy. January 2018. http://resources.ca.gov/docs/climate/safeguarding/update2018/safeguarding-california-plan-2018-update.pdf.

CPUC (California Public Utilities Commission). 2015. Renewables Portfolio Standard (RPS) Program. Accessed October 2016. https://www.cpuc.ca.gov/rps

EPA (U.S. Environmental Protection Agency). 2007. The Energy Independence and Security Act of 2007. December 19. Accessed October 2017. https://www.gpo.gov/fdsys/pkg/BILLS-110hr6enr/pdf/BILLS-110hr6enr.pdf.

EPA. 2016. "Glossary of Climate Change Terms." August 9, 2016. Accessed August 2016. https://www3.epa.gov/climatechange/glossary.html.

EPA. 2017. "Climate Change." Last updated January 19, 2017. Accessed January 2017. https://www.epa.gov/climatechange.

EPA. 2020. *Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990–2018*. EPA 430-R-20-002. April 31, 2020. Accessed April 29, 2020. .

EPA and NHTSA (Department of Transportation's National Highway Traffic Safety Administration). 2016. "Regulations and Standards: Heavy-Duty. EPA and DOT Finalize Greenhouse Gas and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles." Last updated November 4, 2016. https://www3.epa.gov/otaq/climate/regs-heavy-duty.htm.

EPA and NHTSA. 2018. *The Safer Affordable Fuel-Efficient 'SAFE' Vehicles Rule for Model Years 2021-2026 Passenger Vehicles and Light Trucks*. Proposed Rule August 2018. Accessed May 2019. https://www.govinfo.gov/content/pkg/FR-2018-08-24/pdf/2018-16820.pdf.

EPIC (Energy Policy Initiatives Center). 2013. San Diego County Updated Greenhouse Gas Inventory – An Analysis of Regional Emissions and Strategies to Achieve AB 32 Targets Revised and Updated to 2010. University of San Diego. March 2013.

IPCC (Intergovernmental Panel on Climate Change). 1995. *IPCC Second Assessment Synthesis of Scientific-Technical Information Relevant to Interpreting Article 2 of the U.N. Framework Convention on Climate Change*.

IPCC. 2007. *IPCC Fourth Assessment Synthesis of Scientific-Technical Information Relevant to Interpreting Article 2 of the U.N. Framework Convention on Climate Change*.

IPCC. 2013. *Climate Change 2013: The Physical Science Basis*. *Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change.* Accessed October 2017. http://www.ipcc.ch/report/ar5/wg1.

IPCC. 2014. *Climate Change 2014 Synthesis Report: A Report of the Intergovernmental Panel on Climate Change.* Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. Accessed August 2016. http://www.ipcc.ch/report/ar5/syr/.

OPR (Governor's Office of Planning and Research). 2008. *CEQA and Climate Change: Addressing Climate Change through California Environmental Quality Act (CEQA) Review.*

SANDAG (San Diego Association of Governments). 2011. *2050 Regional Transportation Plan/Sustainable Communities Strategy*. October 2011.

SANDAG. 2015. *San Diego Forward: The Regional Plan*. October 2015. Accessed April 2017. http://www.sdforward.com/pdfs/RP_final/The%20Plan%20-%20combined.pdf.

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4.5 NOISE

This section describes the existing noise setting of the project site, identifies associated regulatory requirements, evaluates potential impacts, and identifies mitigation measures related to implementation of the proposed Bonita Vista High School (BVHS) Track and Field Project (project). ~~The information contained in this section was prepared using the Environmental Noise Assessment prepared for the proposed project (Appendix B to this environmental impact report (EIR)).~~For the relevant modeling data, refer to the following appendices:

- **Appendix B:** Construction Noise Modeling Worksheets, prepared by Dudek, dated August 2020
- **Appendix C:** Operations Noise Modeling Worksheets, prepared by Dudek, dated August 2020
- **Appendix D:** Outdoor Event Noise Emission Prediction Model Refinements and Parameter Assumptions, prepared by Dudek, dated January 2021
- **Appendix E:** Noise Analysis of Alternatives for Bonita Vista High School Field: Band Noise and Lowering Field Elevation Impacts, prepared by Dudek, dated June 2017

4.5.1 Existing Conditions

Sound, Noise ~~Definitions~~, and ~~Criteria~~Acoustics

Sound ~~is~~can be described as the mechanical energy of a vibrating object transmitted by pressure waves ~~in a compressible~~through a liquid or gaseous medium (e.g., air) to a hearing organ, such as ~~air~~a human ear. Noise is defined as ~~sound that is~~ loud, ~~unpleasant,~~ unexpected, or ~~undesired. The~~ annoying sound. In the science of acoustics, the fundamental model consists of a sound (or noise) source, a receptor, and the propagation path between the two. The loudness of the noise source and obstructions or atmospheric factors affecting the propagation path to the receptor determine the sound level and characteristics of the noise perceived by the receptor. The field of acoustics deals primarily with the propagation and control of sound.

Frequency

Continuous sound can be described by frequency (pitch) and amplitude (loudness). A low-frequency sound is perceived as low in pitch. Frequency is expressed in terms of cycles per second, or Hertz (Hz) (e.g., a frequency of 250 cycles per second is referred to as 250 Hz). High frequencies are sometimes more conveniently expressed in kilohertz, or thousands of Hertz. The audible frequency range for humans is generally between 20 Hz and 20,000 Hz.

Sound Pressure Levels and Decibels

The amplitude of pressure ~~level has become the most common descriptor~~ waves generated by a sound source determines the loudness of that source. Sound pressure amplitude is measured in micro-Pascals (mPa). One mPa is approximately one hundred billionth (0.00000000001) of normal atmospheric pressure. Sound pressure amplitudes for different kinds of noise environments can range from less than 100 to 100,000,000 mPa. Because of this huge range of values, sound is rarely expressed in terms of mPa. Instead, a logarithmic scale is used to describe sound pressure level (SPL) in terms of decibels (dB). The threshold of hearing for young people is about 0 dB, which corresponds to 20 mPa.

Sound Power Levels

Expressed in dB, sound power level (L_W) is equal to 10 times the logarithm (to the base 10) of the ratio of the measured sound power to a reference power level, which is 10^{-12} watts. Using a lighting analogy, the L_W of a sound source is akin to the wattage of a light bulb, which is independent of distance from the bulb. SPL for the same sound source, on the other hand, will vary with distance and other environmental conditions.

Addition of Decibels

Because decibels are logarithmic units, SPL cannot be added or subtracted through ordinary arithmetic. Under the decibel scale, a doubling of sound energy corresponds to a 3 dB increase. In other words, when two identical sources are each producing sound of the same loudness, the resulting sound level at a receptor equidistant to each sound source would be 3 dB higher than one source under the same conditions. For example, if one automobile produces an SPL of 70 dB when it passes an observer, two cars passing simultaneously would not produce 140 dB—rather, they would combine to produce 73 dB. Under the decibel scale, three sources of equal loudness together produce a sound level 5 dB louder than one source.

A-Weighted Decibels

The decibel scale alone does not adequately characterize ~~the loudness of an ambient sound level. The unit of measurement of sound pressure is a decibel (dB).~~ how humans perceive noise. The dominant frequencies of a sound have a substantial effect on the human response to that sound. Although the intensity (energy per unit area) of the sound is a purely physical quantity, the loudness or human response is determined by the characteristics of the human ear.

Human hearing is limited in the range of audible frequencies as well as in the way it perceives sound in that range. In general, people are most sensitive to the frequency range of 1,000–8,000 Hz, and perceive sounds within that range better than sounds of the same amplitude in higher or lower frequencies. To approximate this frequency-dependent response of the human ear, sound levels of individual frequency bands are weighted (depending on the human sensitivity to those frequencies) in a standardized manner known as “A-weighting.” Correspondingly, an A-weighted decibel sound level (expressed in units of dBA) can be calculated from an un-weighted SPL based on application of these discrete decibel adjustments.

The A-weighting network approximates the frequency response of the average young ear when listening to most ordinary sounds. When people make judgments of the relative loudness or annoyance of a sound, their judgments correlate well with the A-scale sound levels of those sounds. Other weighting networks have been devised to address high noise levels or other special problems (e.g., B-, C-, D-, and G-scales), but these scales are rarely used in conjunction with highway traffic noise. Noise levels for traffic noise reports are typically reported in terms of A-weighted decibels.

Akin to a thermometer, Table 4.5-1 arranges typical outdoor and indoor noise sources against a common decreasing linear scale of A-weighted sound levels to show which ones are comparable in SPL magnitude.

Table 4.5-1
Typical A-Weighted Noise Levels

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	— 110 —	Rock band
Jet fly-over at 1000 feet	— 105 —	
	— 100 —	
Gas lawn mower at 3 feet	— 95 —	
	— 90 —	
Truck at 50 feet, traveling 50 miles per hour (mph)	— 85 —	Food blender at 3 feet
	— 80 —	Garbage disposal at 3 feet
Noisy urban area, daytime	— 75 —	
Gas lawn mower, 100 feet	— 70 —	Vacuum cleaner at 10 feet
Commercial area	— 65 —	Normal speech at 3 feet
Heavy traffic at 300 feet	— 60 —	
	— 55 —	Large business office
Quiet urban daytime	— 50 —	Dishwasher next room
	— 45 —	
Quiet urban nighttime	— 40 —	Theater, large conference room (background)
Quiet suburban nighttime	— 35 —	
	— 30 —	Library
Quiet rural nighttime	— 25 —	Bedroom at night, concert hall (background)
	— 20 —	
	— 15 —	Broadcast/recording studio
	— 10 —	
	— 5 —	
Lowest threshold of human hearing	— 0 —	Lowest threshold of human hearing

Source: Caltrans 2013a.
Note: dBA = A-weighted decibel.

Human Response to Changes in Noise Levels

As discussed above, doubling sound energy results in a 3 dB increase in sound. However, given a sound level change measured with precise instrumentation, the subjective human perception of a doubling of loudness will usually be different than what is measured.

Under controlled conditions in an ~~acoustics~~acoustical laboratory, the trained, healthy human ear is able to discern 1 dB changes in sound levels ~~of 1 dB~~, when exposed to steady, single-frequency (“pure-tone”) signals in the mid-frequency ~~range. Outside such controlled conditions, the trained ear can detect~~ (1,000 Hz–8,000 Hz) range (Caltrans 2013a). In typical noisy environments, changes in noise of 1 to 2 dB ~~in normal environmental noise. It is~~ are generally not perceptible. However, it is widely accepted that ~~the average healthy ear, however, can barely perceive noise~~ people are able to begin to detect sound level ~~changes~~increases of 3 dB~~. A change of~~ in typical noisy environments. Further, a 5 dB increase is ~~readily perceptible~~generally perceived as a distinctly noticeable increase, and a ~~change of~~ 10 dB increase is generally perceived ~~as twice or half~~ as ~~loud. A~~a doubling of ~~sound energy results in a 3 dB increase in sound, which means that~~loudness. Therefore, a doubling of sound energy (e.g., doubling the volume of traffic on a ~~road)~~highway) that would result in a ~~barely perceptible change~~3 dB increase in sound ~~level.~~would generally be perceived as barely detectable.

~~Because the human ear is not equally sensitive to all sound frequencies within the entire spectrum, noise levels at maximum human sensitivity are factored more heavily into sound descriptions in a process called “A-weighting,” the measurement of which is expressed as dBA. Hourly average noise levels are usually expressed as dBA L~~~~$_{eq}$~~~~, or the equivalent noise level over that period of time. Therefore, all sound levels discussed in this section are A-weighted. Because community receptors are more sensitive to noise intrusion during the evening and at night, state law requires that an artificial A-weighted decibel increment be added to quiet-time noise levels in a 24-hour noise descriptor called the community noise equivalent level (CNEL).~~

Noise Descriptors

Noise in our daily environment fluctuates over time at varying rates. Various noise descriptors have been developed to describe time-varying noise levels. The following are the noise descriptors are utilized in this analysis.

- **Equivalent Sound Level (L_{eq}):** L_{eq} represents an energy average of the sound level occurring over a specified period. The 1-hour A-weighted equivalent sound level (L_{eq}[h]) is the energy average of A-weighted sound levels occurring during a 1-hour period, and is the basis for noise abatement criteria used by the California Department of Transportation (Caltrans) and the Federal Highway Administration. Note that L_{eq} is not an arithmetic average of varying dB levels over a period of time; it accounts for greater sound energy represented by higher decibel contributions.

- **Percentile-Exceeded Sound Level (L_{xx}):** L_{xx} represents the statistical sound level exceeded for a specified cumulative percentage of a specified period (e.g., L_{10} is the sound level exceeded 10% of the time, and L_{90} is the sound level exceeded 90% of the time).
- **Maximum Sound Level (L_{max}):** L_{max} is the highest instantaneous sound level measured during a specified period.
- **Day-Night Level (L_{dn}):** L_{dn} is the energy average of A-weighted sound levels occurring over a 24-hour period, with a 10 dB penalty applied to A-weighted sound levels occurring during nighttime hours between 10:00 p.m. and 7:00 a.m.
- **Community Noise Equivalent Level (CNEL):** Similar to L_{dn}, CNEL is the energy average of the A-weighted sound levels occurring over a 24-hour period, with a 10 dB penalty applied to A-weighted sound levels occurring during the nighttime hours between 10:00 p.m. and 7:00 a.m., and a 5 dB penalty applied to the A-weighted sound levels occurring during evening hours between 7:00 p.m. and 10:00 p.m.

Sound Propagation

When sound propagates over a distance, it changes in level and frequency content. The manner in which noise reduces with distance depends on the following factors:

- **Geometric Spreading** – Sound from a localized source (i.e., an ideal point source) propagates uniformly outward in a spherical pattern (or hemispherical when near a surface). The sound level attenuates (or decreases) at a rate of 6 dB for each doubling of distance from a point source. Roadways consist of several localized noise sources on a defined path, and hence can be treated as a line source, which approximates the effect of several point sources. Noise from a line source propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of 3 dB for each doubling of distance from a line source.
- **Ground Absorption** – The propagation path of noise from a sound emission source to a receptor is usually horizontal and proximate to the ground. Under these conditions, noise attenuation from ground absorption and reflective-wave canceling can add to the attenuation associated with geometric spreading. For acoustically "hard" paths over which sound may traverse (i.e., sites with a reflective surface between the source and the receptor, such as a parking lot or body of water), no excess ground attenuation is assumed. For acoustically absorptive or "soft" sites (i.e., those sites with an absorptive ground surface between the source and the receptor, such as fresh-fallen snow, soft dirt, or dense vegetative ground cover), an additional ground-attenuation value of 1.5 dB per doubling of distance is normally assumed.

When added to cylindrical spreading for line source sound propagation, the excess ground attenuation results in an overall drop-off rate of 4.5 dB per doubling of distance.

- **Atmospheric Absorption** – In addition to aforementioned geometric spreading, the fluid medium (i.e., the air) through which sound travels yields frequency-dependent attenuation that increases in magnitude with increasing frequency. The effect is influenced by temperature and relative humidity and typically negligible over short source-to-receptor distances (e.g., less than 500 feet); however, it helps explain why lower-frequency sound such as a thunderclap appears to travel over great distances. More low-frequency sound remains to be heard and detected at a receptor after higher-frequency sound has greatly diminished due to travel through the absorptive air medium.
- **Meteorological Effects** – Receptors located downwind from a source can be exposed to increased noise levels relative to calm conditions, whereas locations upwind can have lowered noise levels. SPLs can also be increased at large distances (e.g., more than 500 feet) due to atmospheric temperature inversion (i.e., increasing temperature with elevation). Other factors such as air temperature, humidity, and turbulence can also have significant effects when distances between a source and receptor are large.
- **Shielding by Natural or Human-Made Features** – A large object or barrier in the direct path between a noise source and a receptor can substantially attenuate noise levels at the receptor. The amount of attenuation provided by shielding depends on the size of the object and the frequency content of the noise source. Sound characterized by lower frequency (i.e., larger wavelength) tends to diffract more easily over or around a barrier, while higher frequency sound (shorter wavelength) tends to be blocked or reflected away by the barrier facing it encounters. Natural terrain features (e.g., hills and ridgelines) and human-made features (e.g., buildings and walls) can substantially reduce noise levels. Walls are often constructed between a source and a receptor specifically to reduce noise. A barrier that breaks the line of sight between a source and a receptor will typically result in at least 5 dBA of noise reduction. Taller barriers provide increased noise reduction. While a line of trees may visually occlude the direct line between a source and a receptor, its actual noise-reducing effect is usually negligible because it does not create an acoustically solid barrier. Deep expanses of dense wooded areas, on the other hand, can offer noise reduction under the right conditions.

Vibration Characteristics

Vibration is oscillatory movement of mass (typically a solid) over time. It is described in terms of frequency and amplitude and, unlike sound, can be expressed as displacement, velocity, or acceleration. For environmental studies, vibration is often studied as a velocity that, akin to the discussion of SPLs, can also be expressed in dB as a way to cast a large range of quantities into a more convenient scale. Vibration impacts to buildings are generally discussed in terms of inches per second (ips) peak particle velocity (PPV), which will be used herein to discuss vibration levels for ease of reading and comparison with relevant standards. Vibration can also be annoying and thereby impact occupants of structures, and vibration of sufficient amplitude can disrupt sensitive equipment and processes (Caltrans 2013b), such as those involving the use of electron microscopes and lithography equipment.

Common sources of vibration within communities include construction activities and railroads. Groundborne vibration generated by construction projects is usually highest during pile driving, rock blasting, soil compacting, jack hammering, and demolition-related activities where sudden releases of subterranean energy or powerful impacts of tools on hard materials occur. Depending on their distances to a sensitive receptor, operation of large bulldozers, graders, loaded dump trucks, or other heavy construction equipment and vehicles on a construction site also have the potential to cause high vibration amplitudes. The maximum vibration level standard used by Caltrans for the prevention of structural damage to typical residential buildings is 0.3 ips PPV (Caltrans 2013b). For human annoyance, Caltrans guidance indicates that a more stringent threshold of 0.2 ips PPV due to continuous vibration (e.g., nearby roadway traffic) would be "annoying." Vibration velocity limits for transient or single events tend to be less stringent than those for continuous or steady-state vibration sources.

Sensitive Receptors

Noise- and vibration-sensitive land uses are typically considered locations where people reside or where the presence of unwanted sound could adversely affect the use of the land. Residences, schools, and hospitals are usual examples, with others depending on what the local jurisdiction may have defined or established. Sensitive receptors near the project area include single-family homes east of the project site. These existing sensitive receptors represent the nearest land uses with the potential to be impacted by construction and operation of the project. Additional sensitive receptors are located farther from the project site in the surrounding community, such as single-family residences north of the project site over 500 feet from the proposed field upgrades; due to this increased distance, these receptors would be less impacted by noise and vibration levels than those just east of the project site.

Existing Noise Measurements

Due to the COVID-19 response, which has likely depressed volumes of roadway traffic and reduced the intensity and duration of commercial activities, the outdoor ambient sound environment was not re-measured in the field around the project site. Lower than normal levels of traffic on the existing nearby network of roadways would consequently reduce its acoustical contribution to the ambient sound environment. Shorter operation periods and/or reduced performance of stationary noise-producing equipment, such as heating, ventilation, and air conditioning systems providing interior comfort or ventilation for buildings that are essentially closed or contain fewer occupants, would also cause a reduced acoustical contribution to the outdoor ambient sound level.

Since the previous outdoor ambient sound levels were measured in the project vicinity during an August 2016 field survey, Southwestern College (to the southwest of Bonita Vista High School) has constructed its new wellness and aquatic center and is undergoing construction of the new performing arts and cultural center complex and parking structure. Although these represent new developments in the vicinity of the project and are major parts of Southwestern College's Whole Site Modernization Project, the noise study prepared for the Whole Site Modernization Project Draft Mitigated Negative Declaration indicates that it "will add less than a 2% increase to the existing roadway volumes and no impacts are anticipated" (SWC 2015). This modest 2% increase also means that the change to existing roadway traffic noise, based on established acoustic principles, would be less than 0.1 dB. Further, the same noise study predicted heating, ventilation, and air conditioning and pool activity noise levels associated with the wellness and aquatic center would be less than 45 dBA L_{eq} and therefore would not be substantial contributors to the outdoor ambient sound environment when compared to dominant traffic-attributed noise.

For these reasons and for purposes of this noise impact assessment, the outdoor ambient noise level data collected in 2016 would still be considered valid and used to represent normal conditions of the existing noise environment (i.e., prior to and after COVID-19 occurrence). Further, these existing outdoor ambient sound levels are for reference only and have no effect on the modeled scenarios and results in Section 4.5.4, Impacts Analysis.

Ambient noise in the project area is primarily generated by traffic along East H Street and Otay Lakes Road.

~~Noise measurements were made using a Rion NL-52 integrating sound-level meter. The sound-level meter meets the current ANSI standard for a Type 1 sound-level meter.~~

Short-term noise measurements were conducted at four on-site and nearby locations (see Figure 4.5-1, Existing Noise Measurement Locations) between approximately 10:50 a.m. and 12:30 p.m. on August 17, 2016. ~~Connor Burke of~~ The Dudek field investigator conducted the measurements~~.~~ ~~The meter~~ with a portable Rion brand NL-52 model integrating sound level meter. The sound level meter meets the current American National Standards Institute standard for a Type 1 sound level meter. The sound level meter was placed on a tripod at approximately 5 feet above the ground for all measurements. Table 4.5-~~1~~2 shows the results of these measurements.

Table 4.5-~~1~~2
Measured Outdoor Ambient Noise Levels

Site	Noise Sources	Measurement Time Period	Sound Level (dBA L_{eq})
ST1	Traffic, birds, distance conversation, kids playing, leaves	10:55 a.m.–11:05 a.m.	49
ST2	Traffic, distant conversation	11:14 a.m.–11:29 a.m.	70
ST3	Students, distant traffic	11:48 a.m.–12:03 p.m.	53
ST4	Traffic, distant industrial, leaves	12:16 p.m.–12:31 p.m.	69

Note: dBA = A-weighted sound level; L_{eq} = equivalent continuous sound level (time-averaged sound level).

4.5.2 Relevant Plans, Policies, and Ordinances

Federal

Occupational Safety and Health Administration

With regard to noise exposure and workers, the federal Occupational Safety and Health Administration (OSHA) establishes regulations to safeguard the hearing of workers exposed to occupational noise (29 CFR 1910.95). OSHA specifies that sustained noise that is louder than 85 dBA (8-hour time-weighted average) can be a threat to workers' hearing, and, if worker exposure exceeds this amount, the employer must develop and implement a monitoring program (29 CFR 1910.95[~~(~~d]~~)~~[~~(~~1]~~)~~).

Federal Aviation Administration Standards

Enforced by the Federal Aviation Administration (FAA), Title 14 of the Code of Federal Regulations, Part 150, prescribes the procedures, standards, and methodology governing the development, submission, and review of airport noise exposure maps and airport noise compatibility programs, including the process for evaluating and approving or disapproving those programs. Title 14 also identifies those land uses that are normally compatible with various levels of exposure to noise by individuals. The FAA has determined that interior sound levels up to 45 dBA ~~day/night equivalent sound level (~~L_{dn}~~)~~ (or CNEL) are acceptable within residential buildings. The FAA also considers residential land uses to be compatible with exterior noise levels at or less than 65 dBA L_{dn} (or CNEL).

Federal Highway Administration Standards

Title 23 of the Code of Federal Regulations, Part 772, sets procedures for the abatement of highway traffic noise and construction noise. Title 23 is implemented by the Federal Highway Administration. The purpose of this regulation is to provide procedures for noise studies and noise abatement measures to help protect the public health and welfare, to supply noise abatement criteria, and to establish requirements for information to be given to local officials for use in the planning and design of highways.

All highway projects that are developed in conformance with this regulation are considered in conformance with the Federal Highway Administration's noise standards. Title 23 establishes 67 dBA as the worst-case hourly average noise level standard for impacts of federal highway projects to land uses including residences, recreational uses, hotels, hospitals, and libraries.

Federal Transit Administration ~~Standards~~ and Federal Railroad Administration Standards

~~Although~~ In its Transit Noise and Vibration Impact Assessment guidance manual, the Federal Transit Administration (FTA) ~~standards are intended for federally funded mass transit projects, the impact assessment procedures and criteria included~~recommends a daytime construction noise level threshold of 80 dBA L_{eq} over an 8-hour period (FTA 2018) when detailed construction noise assessments are performed to evaluate potential impacts to community residences surrounding a project. Although this FTA guidance is not a regulation, it can serve as a quantified standard in the ~~FTA Transit Noise and Vibration Impact Assessment Manual (May 2006) are routinely used for projects proposed by~~ absence of such noise limits at the state and local ~~jurisdictions.~~jurisdictional levels. The FTA and Federal Railroad Administration~~ (FRA)~~ have published guidelines for assessing the impacts of groundborne vibration associated with rail projects, which have been applied by other jurisdictions to other types of projects. The FTA measure of the threshold of architectural damage for conventional sensitive structures from groundborne vibration is 0.2 ~~inches per second peak particle velocity (PPV)~~ips PPV (FTA ~~2006~~2018).

State

California Noise Control Act of 1973

Pursuant to Sections 46000 through 46080 of the California Health and Safety Code, known as the California Noise Control Act of 1973, the State Legislature finds and declares that excessive noise is a serious hazard to the public health and welfare and that exposure to certain levels of noise can result in physiological, psychological, and economic damage. It also finds that there is a continuous and increasing bombardment of noise in urban, suburban, and rural areas. As also declared in the California Noise Control Act, the state has a responsibility to protect the health and welfare of its citizens by the control, prevention, and abatement of noise. It is the policy of the state to provide an environment for all Californians that is free from noise that jeopardizes their health or welfare.

As with federal standards, state regulations (8 CCR 5095) address worker exposure noise levels. These regulations limit worker exposure to noise levels of 85 dBA or lower over an 8-hour period. The state has not established noise levels for non-work-related environments.

California Noise Insulation Standards

Title 24 of the California Code of Regulations establishes an interior noise standard of 45 dBA for multi-family residential structures. The California Department of Health Services has developed guidelines for outdoor community noise acceptability for use by local agencies (OPR 2003). Selected relevant levels are as follows:

- Below 60 dBA CNEL: normally acceptable for low-density residential use
- 50 to 70 dBA CNEL: conditionally acceptable for low-density residential use
- Below 65 dBA CNEL: normally acceptable for high-density residential use
- 60 to 70 dBA CNEL: conditionally acceptable for high-density residential, transient lodging, churches, and educational and medical facilities

Local

BVHS is in the City of Chula Vista (City). The City has established noise criteria in its General Plan Noise Element and Municipal Code.

City of Chula Vista General Plan

The City's General Plan Final EIR establishes noise criteria for various land uses (City of Chula Vista 2005). The maximum allowable exterior noise level at outdoor usable areas for new residential development is an annual CNEL of 65 dBA. The City's exterior land use noise compatibility guidelines for various land uses are depicted in Table 4.5-~~2~~3. For residential development, the City typically applies the noise criteria at the backyards of single-family homes and at private patios, exterior balconies, and exterior common-use areas of multi-family developments (City of Chula Vista 2005).

Table 4.5-~~2~~3
City of Chula Vista Exterior Land Use/Noise Compatibility Guidelines

Land Use	Annual CNEL (dBA)					
	50	55	60	65	70	75
Residential						
Schools, libraries, daycare facilities, convalescent homes, outdoor use areas, and other similar uses considered noise sensitive						
Neighborhood parks, playgrounds						
Community parks, athletic fields						
Offices and professional						
Places of worship (excluding outdoor use areas)						
Golf courses						

Table 4.5-~~2~~3
City of Chula Vista Exterior Land Use/Noise Compatibility Guidelines

Land Use	Annual CNEL (dBA)					
	50	55	60	65	70	75
Retail and wholesale commercial, restaurants, movie theaters						
Industrial, manufacturing						

Source: City of Chula Vista 2005.
Notes: CNEL = community noise equivalent level; dBA = A-weighted decibels.
Shaded cells indicate these CNEL values are considered compatible with the indicated land use.

City of Chula Vista Municipal Code

The City's noise regulations (Municipal Code Section 19.68) restrict land use-related noise-generating activities and operations to help avoid noise nuisances in the community. Section 19.68.030 establishes the maximum allowable exterior noise limits based on the classification of the receiving land use. These standards typically apply to stationary sources, such as noise from mechanical equipment or event noise, as opposed to traffic noise. For instance, a school, commercial enterprise, or industrial operation must not generate noise that exceeds a certain specified noise level at any property boundary where an adjacent residential use exists. As a noise-receiving land use, single-family residential property maximum exterior noise exposure must not exceed 45 dBA (1-hour L_{eq}) from 10:00 p.m. to 7:00 a.m., and 55 dBA (1-hour L_{eq}) from 7:00 a.m. to 10:00 p.m. For multi-family residential, the exposure limits are 50 dBA (10:00 p.m.–7:00 a.m.) and 60 dBA (7:00 -a.m.–10:00 p.m.). For commercial, the exposure limits are 60 dBA (10:00 p.m.–7:00 -a.m.) and 65 dBA (7:00 -a.m.–10:00 -p.m.), and for light industry the exposure limits are 70 dBA (10:00 -p.m.–7:00 -a.m.) and 70 dBA (7:00 -a.m.–10:00 -p.m.) (City of Chula Vista 2016a). Table 4.5-~~3~~4 summarizes these maximum noise levels.

Table 4.5-~~3~~4
City Municipal Code Sound Level Limits

Receiving Land Use	Maximum Exterior Noise (dBA $L_{eq(1hr)}$)	Time Range
Single-family residential	45	10:00 -p.m.–7:00 -a.m.
	55	7:00 a.m.–10:00 p.m.
Multi-family residential	50	10:00 p.m.–7:00 a.m.~~10 p.m.–7 a.m.~~
	60	7:00 a.m.–10:00 p.m.~~7 a.m.–10 p.m.~~
Commercial	60	10:00 p.m.–7:00 a.m.~~10 p.m.–7 a.m.~~
	65	7:00 a.m.–10:00 p.m.~~7 a.m.–10 p.m.~~
Light industry	70	10:00 p.m.–7:00 a.m.~~10 p.m.–7 a.m.~~
	70	7:00 a.m.–10:00 p.m.~~7 a.m.–10 p.m.~~

Source: City of Chula Vista 2016a.

Title 17 of the Chula Vista Municipal Code (Environmental Quality), Chapter 24, addresses managing noisy and disorderly conduct. Section 17.24.040.C.8 addresses restrictions against generation of construction noise in overnight periods. The use of any tools, power machinery, or equipment, or the conduct of construction and building work in residential zones that causes noise that disturbs the peace, comfort, and quiet enjoyment of any person residing or working in the vicinity, is prohibited between 10:00 p.m. and 7:00 a.m. Monday–Friday, and between 10:00 p.m. and 8:00 a.m. Saturday and Sunday, except when the work is necessary for emergency repairs required for the health and safety of any member of the community (City of Chula Vista 2016b).

The Chula Vista Municipal Code, Chapter 19.68, offers the following exemptions (City of Chula Vista 2016a):

A. Warning Devices. Warning devices necessary for the protection of public safety, as, for example, police, fire and ambulance sirens, and train horns, are exempted from the provisions of this title.

B. Outdoor Activities. The provisions of this title shall not apply to occasional outdoor gatherings, public dances, shows, and sporting and entertainment events (excluding regularly scheduled school athletic events); provided, the events are conducted pursuant to a permit or license issued by the city relative to the staging of the events. The permit authority, as set forth in Chapter 19.58 CVMC [Chula Vista Municipal Code], may, aside from this chapter, regulate and control noise caused by such outdoor activity.

C. Exemptions from Exterior Noise Standards. The provisions of CVMC 19.68.030 shall not apply to activities covered by the following sections:

   1. Street sales – prohibited unless exception is granted per CVMC 19.68.070;
   2. Construction/demolition;
   3. Stationary nonemergency signaling devices;
   4. Emergency signaling devices;
   5. Motor vehicles operating on public rights-of-way;
   6. Wherein noise limit exceptions or excesses are specifically provided for in the issuance of any temporary use permit pursuant to Chapters 19.54 and 19.58 CVMC or in city council approval of any parades, civic functions or gatherings, such specifics shall prevail.

4.5.3 Thresholds of Significance

Based on the significance criteria established by Appendix G of the 2019 California Environmental Quality Act Guidelines (14 CCR 15000 et seq.) and the City of Chula Vista, a significant impact related to noise would generally occur as a result of project implementation if the project would result in:

1. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standard of other agencies.
2. Generation of excessive groundborne vibration or groundborne noise levels.
3. ~~6~~3. For a project located within the vicinity of a private airport of 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 of people residing or working in the project area to excessive noise levels.

In light of these above significance criteria, this analysis uses the following standards to evaluate potential noise and vibration impacts.

- Construction noise – The City regulates construction noise by restricting the allowable hours of construction. Section 9.40.110 of the CVMC exempts construction noise from the stationary noise standards, provided that construction occurs between 7:00 a.m. and 10:00 p.m., Monday through Friday, and 8:00 a.m. to 10:00 p.m., Saturday and Sunday. Through adherence to the limitation of allowable construction times provided in the CVMC, the construction-related noise levels would not exceed any standards. However, the proximity of existing residential receptors to the east of the project site suggests that source-to-receiver distances could be as short as 30 feet. Additionally, most construction equipment and vehicles on a project site do not operate continuously. Therefore, consistent with the FTA guidance mentioned in Section 4.5.2, this analysis will use 80 dBA L_{eq} over an 8-hour period as the construction noise impact criterion for 7:00 a.m. to 10:00 p.m., Monday through Friday, and 8:00 a.m. to 10:00 p.m., Saturday and Sunday.
- Off-site project-attributed stationary noise – For the purposes of this analysis, a noise impact would be considered significant if noise from typical operation of field activities and the public address (PA) system of the proposed project exceeded 55 dBA hourly L_{eq} at the property line from 7:00 a.m. to 9:59 p.m., and 45 dBA hourly L_{eq} from 10:00 p.m. to 6:59 a.m.
- Construction vibration – Guidance from Caltrans indicates that a vibration velocity level of 0.2 ips PPV received at a structure would be considered annoying by occupants within (Caltrans 2013b). As for the receiving structure itself, Caltrans guidance recommends that a vibration level of 0.3 ips PPV would represent the threshold for building damage risk.

4.5.4 Impacts Analysis

Would the project result in the generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Short-Term Construction ~~Impacts~~

Construction ~~is anticipated to last for approximately 8 months~~ noise and ~~would result in~~ vibration are temporary ~~increases in~~phenomena. Construction noise and vibration levels ~~in the project area on an intermittent basis. Noise levels would fluctuate~~vary from hour to hour and day to day, depending on the ~~construction phase,~~ equipment ~~type and duration of~~ in use, ~~and~~ the operations performed, and the distance between the ~~noise~~ source and receptor. ~~Construction equipment anticipated for the proposed project includes only standard equipment that would be employed for any routine construction project of this scale.~~

~~The City's Municipal Code prohibits generation of construction noise in overnight periods from 10 p.m. to 7 a.m. Monday through Friday, and from 10 p.m. to 8 a.m. on Saturday and Sunday. During daytime hours, the Municipal Code offers an exemption from exterior noise standards for construction and demolition.~~

~~The FTA has compiled data regarding the noise-generating characteristics of specific types of construction equipment. The typical~~Equipment that would be in use during construction would include, in part, graders, backhoes, concrete saws, excavators, cranes, man-lifts, cement mixers, pavers, rollers, welders, and air compressors. The typical maximum noise levels for various pieces of construction equipment at a distance of 50 feet are presented in Table 4.5~~-4. Equipment~~5. Usually, construction equipment operates in alternating cycles of full power and low power, ~~thus~~ producing average noise levels over time that are lower than the listed maximum noise level. The average sound level of construction activity also depends on the amount of time that the equipment operates and the intensity of ~~the~~ construction activities during that ~~period.~~time.

Table 4.5-~~4~~5
Typical Construction Equipment Maximum Noise ~~Emissions~~ Levels

Equipment Type	Typical ~~Sound Level (~~Equipment (L_{max}, dBA~~)~~ at 50 Feet ~~from Source~~)
Air compressor	~~81~~78
Backhoe	~~80~~78
~~Compactor~~	~~82~~
~~Concrete mixer~~	~~85~~
Concrete pump truck	~~82~~81
~~Concrete vibrator~~	~~76~~

Table 4.5-4~~5~~
Typical Construction Equipment Maximum Noise ~~Emissions~~ Levels

Equipment Type	Typical ~~Sound Level~~ (Equipment (L_{max}, dBA) at 50 Feet ~~from Source~~)
~~Crane, derrick~~	~~88~~
~~Crane, mobile~~	~~83~~
~~Dozer~~	~~85~~
~~Generator~~	~~81~~
Grader	85
~~Impact wrench~~Crane	~~85~~81
~~Jackhammer~~Roller	~~88~~80
Manlift	75
Generator	72
~~Loader~~Dozer	85
Paver	~~89~~77
~~Pneumatic tool~~	~~85~~
~~Pump~~	~~76~~
~~Roller~~	~~74~~
Concrete s~~S~~aw	~~76~~90
~~Truck~~Welder	~~88~~74

Source: ~~FTA~~FHWA 2006.

~~Construction activities associated with the project are expected to involve excavating, grading, trenching for utilities, and stands/building construction. Further, construction activities would take place approximately 100 feet from the nearest school building, and as near as 10 to 15 feet from the closest existing residences. When excavation, grading, and construction of the visitor bleachers is occurring adjacent to the single-family residential homes to the west of the site, activities would likely be within 50 feet of the residential properties. Therefore, construction equipment noise levels would be approximately the same as those listed in Table 4.5-4. These levels have the potential to exceed the maximum exterior noise levels established by the City's Municipal Code. Construction and demolition are listed as exempt activities from the noise limits when work hours do not occur between 10 p.m. and 7 a.m. Monday through Friday, or between 10 p.m. and 8 a.m. on Saturday and Sunday. However, noise and vibration levels due to construction activities in the area of the visitor stands adjacent to residential areas west of the project site are expected to be substantial in comparison to the existing ambient noise levels. Noise levels from the nearest campus facility are also expected to be substantial. Consequently, given the magnitude of the temporary increase in noise and vibration levels from project construction, this would be considered a potentially significant short-term impact, absent mitigation. However, due to the Municipal Code daytime noise exemption specifically addressing construction and demolition activities, and with implementation of Mitigation Measure (**MM) NOI-1** through **MM-NOI-12**, construction impacts would be less than significant with mitigation incorporated.~~

Note: L_{max} = maximum sound level; dBA = A-weighted decibels.

Aggregate noise emission from proposed project construction activities, broken down by sequential phase, was predicted at two distances to the nearest existing noise-sensitive receptor: (1) from the nearest position of the construction site boundary and (2) from the geographic center of the construction site, which serves as the time-averaged location or geographic acoustical centroid of active construction equipment for the phase under study. The intent of the former distance is to help evaluate anticipated construction noise from a limited quantity of equipment or vehicle activity expected to be at the boundary for some period of time, which would be most appropriate for phases such as site preparation, grading, and paving. The latter distance is used in a manner similar to the general assessment technique as described in the FTA guidance for construction noise assessment, when the location of individual equipment for a given construction phase is uncertain over some extent of (or the entirety of) the construction site area. Because of this uncertainty, all the equipment for a construction phase is assumed to operate—on average—from the acoustical centroid.

Table 4.5-6 summarizes these two distances to the apparent closest noise-sensitive receptor for each of the five sequential construction phases. At the site boundary, this analysis assumes that up to only one piece of equipment of each listed type per phase will be involved in the construction activity for a limited portion of the 8-hour period. In other words, at such proximity, the operating equipment cannot “stack” or crowd the vicinity and still operate. For the acoustical centroid case, which intends to be a geographic average position for all equipment during the indicated phase, this analysis assumes that the equipment may be operating up to all 8 hours per day.

Table 4.5-6
Distances between Construction and the Nearest Noise-Sensitive Receptors

Construction Phase (and Equipment Types Involved)	Distance from Nearest Noise-Sensitive Receptor to Construction Site Boundary (Feet)	Distance from Nearest Noise-Sensitive Receptor to Acoustical Centroid of Site (Feet)
Demolition (Concrete Saw, Excavator, Dozer)	40	175
Site Preparation (Dozer, Backhoe)	30	145
Grading (-Excavator, Grader, Dozer, Backhoe)	30	145
Construction of Concessions and Restrooms (Man-Lift, Generator, Backhoe, Welder)	145	225
Replacement of Track 1 (Man-Lift, Generator, Backhoe, Welder)	65	180
Replacement of Turf Fields (Man-Lift, Generator, Backhoe, Welder)	55	200
Replacement of Track 2 (Man-Lift, Generator, Backhoe, Welder)	65	180
Installation of Bleachers/Lighting/Other (Crane, Man-Lift, Generator, Backhoe, Welder)	35	132
Paving 1 (Roller, Backhoe, Paver, Dump Truck)	50	170
Paving 2 (Roller, Backhoe, Paver, Dump Truck)	50	170

A Microsoft Excel–based noise prediction model emulating and using reference data from the Federal Highway Administration Roadway Construction Noise Model (FHWA 2008) was used to estimate construction noise levels at the nearest occupied noise-sensitive land use. (Although the Roadway Construction Noise Model was funded and promulgated by the Federal Highway Administration, it is often used for non-roadway projects, because the same types of construction equipment used for roadway projects are often used for other types of construction.) Input variables for the predictive modeling consist of the equipment type and number of each (e.g., two graders, a loader, a tractor), the duty cycle for each piece of equipment (e.g., percentage of time within a specific time period, such as an hour, when the equipment is expected to operate at full power or capacity and thus make noise at a level comparable to what is presented in Table 4.5-5), and the distance from the noise-sensitive receiver. The predictive model also considers how many hours that equipment may be on site and operating (or idling) within an established work shift. Conservatively, no topographical or structural shielding was assumed in the modeling. The Roadway Construction Noise Model has default duty-cycle values for the various pieces of equipment, which were derived from an extensive study of typical construction activity patterns. Those default duty-cycle values were used for this noise analysis, which is detailed in Appendix B, Construction Noise Modeling Input and Output, and produce the predicted results displayed in Table 4.5-7.

Table 4.5-7
Predicted Construction Noise Levels per Activity Phase

Construction Phase (and Equipment Types Involved)	8-Hour L_{eq} at Nearest Noise-Sensitive Receptor to Construction Site Boundary (dBA)	8-Hour L_{eq} at Nearest Noise-Sensitive Receptor to Acoustical Centroid of Site (dBA)
Demolition (Concrete Saw, Excavator, Dozer)	79.2	75.9
Site Preparation (Dozer, Backhoe)	79.7	75.4
Grading (Excavator, Grader, Dozer, Backhoe)	79.6	75.7
Construction of Concessions and Restrooms (Man-Lift, Generator, Backhoe, Welder)	67.5	67.4
Replacement of Track 1 (Man-Lift, Generator, Backhoe, Welder)	74.5	69.3
Replacement of Turf Fields (Man-Lift, Generator, Backhoe, Welder)	75.9	68.4
Replacement of Track 2 (Man-Lift, Generator, Backhoe, Welder)	74.5	69.3
Installation of Bleachers/Lighting/Other (Crane, Man-Lift, Generator, Backhoe, Welder)	79.4	72.7
Paving 1 (Roller, Backhoe, Paver, Dump Truck)	78.9	71.2
Paving 2 (Roller, Backhoe, Paver, Dump Truck)	78.9	71.2

Note: L_{eq} = equivalent noise level; dBA = A-weighted decibels.

As presented in Table 4.5-7, the estimated construction noise levels are predicted to be less than 80 dBA L_{eq} over an 8-hour period (what the FTA recommends as a daytime threshold for construction noise exposure over an 8-hour period at a residential receptor) at the nearest existing residences (as close as 30 feet away) when site preparation activities take place near the eastern project boundaries. These estimated noise levels at a source-to-receiver distance of 30 feet would only occur when pieces of heavy equipment would each operate for a cumulative period from 1 to 3 hours a day. For example, a grader might make multiple passes on site that are 30 feet from a receiver, but for the rest of the day, the grader is sufficiently farther away, performing work at a more distant location, or simply not operating. Under these conditions, predicted operation of construction equipment and processes do not exceed noise levels of 80 dBA L_{eq}.

However, due to the proximity of construction activities to some off-site receptors (as close as 30 feet away) and the duration sensitivity of predicted compliance with the FTA guidance-based 8-hour construction noise level threshold, there is potential that elevated construction noise levels may cause an annoyance to nearby sensitive receivers to the east. Therefore, **Mitigation Measure (MM) NOI-1,** which contains equipment hour-per-day duration restrictions with and without installation of temporary noise barriers, shall be implemented. Proper application of temporary noise barriers or comparable sound abatement due to implementation of **MM-NOI-1** has the ability to reduce noise levels by up to 10 dB.

Although nearby off-site residences would be exposed to elevated construction noise levels, the increased noise levels would typically be relatively short term. It is anticipated that construction activities associated with the proposed project would take place from 7:00 a.m. to 10:00 p.m., Monday through Friday, and 8:00 a.m. to 10:00 p.m., Saturday and Sunday.

In summary, typical construction noise during allowable daytime hours would not exceed the FTA guidance-based standard. Nonetheless, there is potential for noise to exceed the 80 dBA L_{eq} 8-hour FTA threshold at the nearest residential receiver on occasion. Thus, temporary construction-related noise impacts would be considered potentially significant unless mitigated. With implementation of **MM-NOI-1**, impacts would be reduced to less than significant with mitigation.

Operational Impacts

Roadway Traffic Noise

Once the project is operational, exterior noise levels from proximate roadway traffic are expected to be unchanged~~ due to the project. However, noise levels from events (specifically football games)~~. The project is not creating substantial new traffic volumes that ~~could occur once the proposed project is complete may be at least 60 dBA, which~~ would ~~exceed the maximum exterior~~ additively contribute to the nearby roadway network, as described in Section 4.6.4, Transportation.

Therefore, the project would produce a less than significant traffic noise impact, and no traffic noise ~~levels established by the City's Municipal Code~~mitigation is required.

~~In addition to the~~ Operational Noise During On-Site Events

Event Descriptions

The proposed ~~public address (~~PA~~)~~ ~~sound~~ system ~~noise during sporting events, crowd noise may be an issue for the residences adjacent to the project site. During the~~ would consist of the equivalent of up to three 3,000-watt speakers that would be installed across three locations: the press box and each of two lighting poles on the home side of the athletic field. The press box would be approximately ~~five~~20 feet off the ground and located centrally along the top level of the home-side bleachers.

Clem Manzano, a supervisor at Sweetwater Union High School District, stated that the proposed wattage and sound quality of the speaker system "is necessary for lockdown and other emergencies" (Manzano, pers. comm. 2016). Manzano indicated that the PA system may be used for physical education classes during the day and would also broadcast daily announcements, such as the Pledge of Allegiance, and bells to indicate class time (Manzano, pers. comm. 2016).

The speakers on the press box and lighting poles are expected to provide audible coverage for the home spectator side of the field and the visitor spectator stands on the other side of the field. Consequently, appropriately audible sound levels in the vicinity of the visitor stands due to PA system function would also likely be audible in the exterior residential areas that are adjacent to the project site.

During football games ~~per season~~, the stadium would experience the highest attendance numbers. ~~New stadium bleachers would have capacity for 3,000 people (home and visitor bleachers combined). The highest attendance at events is expected during football games.~~ The maximum number of people expected for any event is approximately ~~3,200~~2,000 people, which would include standing room areas. The athletic field is also expected to be used for marching band field-show practices during the week, which would typically last from 6:00 p.m. to 9:00 p.m. For these practices, the stadium PA ~~sound~~ system would be used for instruction ~~(Llamas, pers. 2017)~~, as an electronic metronome, and for amplified music~~.~~ (Llamas, pers. comm. 2017). In addition to evening practices, marching band practices are held during school off-session days, including on Saturdays (Manzano, pers. comm. 2016). It is also possible that portions of marching band practices will be held on the proposed practice field east of the existing parking lot.

~~As stated in Appendix B to this EIR, a~~ Prediction Methodology

Prediction of operational noise from football games, PA system usage, and marching band practice attributed to the proposed project involved creation of an outdoor sound propagation model using the CadnaA software program. CadnaA (Computer Aided Noise Abatement) is a commercially available computer program for the prediction, display, and assessment ~~for~~ of environmental noise levels at user-defined positions or across geographic areas.

This noise assessment presumes that PA speaker sound would be generated from the top of the proposed press box, two proposed lighting poles on the home side of the athletic field, and from four locations on the proposed new concession area on the south end of the field. Hence, estimated sound levels from PA speakers were entered into the CadnaA computer model space as point-type sources of sound emission having heights consistent with elevations provided in the site plans and related information received as of November 2020. This noise assessment also presumes that the marching band noise levels recorded by Dudek in 2017 are an accurate representation of typical marching band activity for both practices and performances in the proposed project area. Appendix E to this EIR contains noise analysis of a ~~similar high~~previous marching band practice, from which (and for these modeling purposes) a total sound power for the practicing band was derived.

The relevant outdoor noise propagation algorithms in CadnaA follow those described in the International Organization of Standardization Standard 9613-2, Attenuation of Sound During Propagation Outdoors, Part 2: General Method of Calculation (ISO 1996). In addition to the above-mentioned sound source inputs and building-block structures that define the three-dimensional sound propagation model space, the following assumptions and parameters are included in this CadnaA-supported stationary noise source assessment:

- Ground effect acoustical absorption coefficient equal to 1.0, which on the zero-to-one scale of acoustical reflection and absorption (i.e., 0 = reflective, 1 = absorptive) intends to represent what will largely be a grassy field on the project site
- Reflection order of 0, which allows for no reflection of sound paths on encountered structural surfaces, as the project area contains mostly open space
- Off-site residential structures and the commercial buildings have not been rendered in the model
- Calm meteorological conditions (i.e., no wind) with 68°F and 70% relative humidity

Studied Scenarios

CadnaA modeling was used to predictively evaluate the sound propagation of the following eight different operational scenarios associated with the project:

- High school football game
    - home and visitor bleachers (occupied by spectators at intended seating capacities) exhibiting a total L_W of 101 dBA and 97 dBA hourly L_{eq}, respectively
    - three PA system speakers (one on each lighting mast and one atop the press box at the home bleachers) each operating with an L_W of 103 dBA hourly L_{eq}

- four speakers (two intercoms and two PA speakers) on the concessions structure operating at 94 dBA hourly L_w each
- no active marching band
- two studied sound propagation cases:
  - with proposed sound-reducing barriers (solid barriers behind [or as part of] the visitor bleachers, as depicted in Appendix C)
  - without proposed sound-reducing visitor bleacher barrier

- Marching band halftime performance
  - home and visitor bleachers (occupied by spectators at intended seating capacities) exhibiting a total L_w of 95 dBA and 91 dBA hourly L_{eq}, respectively
  - three PA system speakers (one on each lighting mast and one atop the press box at the home bleachers) each operating with an L_w of 101 dBA hourly L_{eq}
  - four speakers (two intercoms and two PA speakers) on the concessions structure operating at 92 dBA hourly L_w each
  - the marching band performing live instrumental music with an aggregate L_w of 106 dBA hourly L_{eq}
  - two studied sound propagation cases:
    - with proposed sound-reducing barriers (solid barriers behind [or as part of] the visitor bleachers, as depicted in Appendix C)
    - without proposed sound-reducing visitor bleacher barrier
- Marching band practice on the main field
  - home and visitor bleachers empty
  - only the PA system speaker above the press box operative and demonstrating an L_w of up to 102 dBA hourly L_{eq}
  - the marching band performing live instrumental music with an aggregate L_w of 106 dBA hourly L_{eq}
  - two studied sound propagation cases:
    - with proposed sound-reducing barriers (solid barriers behind [or as part of] the visitor bleachers, as depicted in Appendix C)
    - without proposed sound-reducing visitor bleacher barrier
- Partial marching band practice on the proposed practice area

- home and visitor bleachers empty
- PA systems inoperative
- a portion of the marching band performing live instrumental music with an aggregate L_w of 101 dBA hourly L_{eq}
- two studied sound propagation cases:
  - with proposed sound-reducing barriers (solid barriers behind [or as part of] the visitor bleachers, as depicted in Appendix C)
  - without proposed sound-reducing visitor bleacher barrier

The crowd noise levels from the home and visitor bleachers described in the above scenario list are based on the assumption that at any given time within an hour, there will be~~—~~on average ~~sound pressure levels ranged from 57 to 65 dBA at the measurement~~ a number of spectators talking. Please refer to Appendix D for details on such model parameters and assumptions.

For an hour of time during a football game that includes the halftime show, this analysis logarithmically sums the football game scenario prediction model results for 45 minutes with prediction results representing the remaining 15 minutes during which the band would be playing on the field. The marching band halftime performance scenario represents the time when the full band is in the center of the main field performing a song and it also conservatively represents occasional live performance from the band when it is on the home side of the athletic field.

In the football game scenarios, during regular play or during an hour in which the halftime show occurs, the predictive modeling assumes that the following examples of other likely sound sources are either included in the seating area crowd noise contributions or are part of the cumulative marching band performance: short-duration cheers from home and visitor cheer squads, on-field team play calls, and other momentary impulse-type sounds associated with normal game play.

Predicted Results

Table 4.5-8 compares the predicted aggregate proposed project operation noise emission levels from crowd noise, PA system usage, and marching band noise with and without the proposed sound barriers at the eight modeled receptor locations~~, and these measurements were corrected for ambient sound levels. This study also noted that the highest sound levels were produced by players during pre-game warm-ups and cheers from spectators during games. No significant topography or barriers are mentioned in the study, and no significant topography or barriers occur between the BVHS track and field area and residential land uses to the east. Based on the measurements recorded in the study and a~~ appearing in Appendix C.

Table 4.5-8
Predicted Project Operations Noise at Nearest Off-Site Sensitive Receptors

Modeled Receptor (and floor)	Predicted Operational Noise L_{eq} (dBA) for Indicated Event Scenario~~*~~[1]							
	Football Game		*Halftime (Band Performance)*[2]		*Main Field Band Practice*		*Practice Field Band Practice*	
	with barrier[3]	*without barrier*[4]	*with barrier*[3]	*without barrier*[4]	*with barrier*[3]	*without barrier*[4]	*with barrier*[3]	*without barrier*[4]
M1 (1st)	49	49	49	50	48	48	35	35
M4 (2nd)	54	55	54	55	54	54	40	40
M5 (2nd)	55	**56**	55	**56**	55	55	41	41
M2 (1st)	53	55	53	55	55	55	41	41
M3 (1st)	51	51	51	51	49	49	44	44
P2 (1st)	50	50	50	50	47	47	49	49
P1 (1st)	48	48	48	48	45	45	53	53
P0 (2nd)	49	49	48	48	46	46	55	55

Notes: L_{eq} = equivalent continuous sound level (time-averaged sound level); dBA = A-weighted sound level.
Bold numbers indicate where noise levels would exceed the maximum exterior noise level standard established by the CVMC without mitigation.

1 hourly noise levels
2 assumes 45 minutes of football game scenario conditions and 15 minutes of halftime show conditions in the same assessed hour
3 “with barrier” refers to installation of sound-occluding wall/treatment behind or as part of the visitor bleachers structure to reduce noise emission to nearest neighboring residential receptors.
4 “without barrier” refers to lack of ~~topography~~intentional sound-occluding project features, apart from on-site terrain or ~~other~~project structures as designed.

Without the sound barrier behind the visitor bleachers seating~~s adjacent to~~, the bold ~~project site,~~ noise levels (i.e., those predicted to be 56 dBA) ~~from sports events (specifically football games) occurring once the proposed project is complete may be at least 60 dBA. This noise level~~shown in Table 4.5-8 for the Football Game and Halftime scenarios at receptor position M5 (second floor) would exceed the maximum exterior noise level standard of 55 dBA hourly L_{eq} ~~s~~ established by the CVMC and as such, noise generated by project ~~operations~~ events would be a potentially significant long-term impact. ~~Although the Sweetwater Union High School District (District) would incorporate~~ However, implementation of **MM-NOI-~~13~~2** through **MM-NOI-~~17~~7** by Sweetwater Union High School District, which would require installation of a recommended sound barrier and reduce noise impacts associated with PA sound system operations ~~to~~, would be expected to reduce project-attributed operation noise to levels compliant with the City’s 55 dBA hourly L_{eq} threshold.

With proposed sound barriers properly designed and implemented on site and given that sound levels from studied sources do not exceed presented hourly values, impacts from operational noise at events would be less than significant ~~levels, impacts from crowd noise at events could be significant and unavoidable even with implementation of these~~with mitigation~~ measures~~.

~~A noise analysis for relocation of BVHS band practices from the current practice area (i.e., the on-campus parking lot, which is located north of East H Street) to the new athletic field was prepared~~

~~and is included as Appendix C to this EIR (Noise Analysis of Bonita Vista High School Band Practice Relocation and Lowered Field Elevation Design). The noise analysis included sound-level field measurements at the residential property line located east of the BVHS football field of the partial marching band practicing in the parking lot. Because not the entire band was in attendance during the field measurements, Dudek used field measurements to calculate sound levels at nearby residential property lines for full marching band practices in the East H Street parking lot. The existing full marching band practice noise levels (1 min L_{eq}) were calculated to be 65 dBA at the closest adjacent residential property line. Existing noise levels generated by full marching band practices in the East H Street parking lot exceed the maximum exterior noise levels established by the City's Municipal Code (55 dBA from 7 a.m. to 10 p.m.).~~

~~With implementation of the proposed project, band practices would be relocated to the new athletic field/football field. The centerline of the new field would be approximately 200 feet from the residential property lines to the east and an elevation gain of approximately 20 feet occurs near the residential property line (i.e., residences to the east are located at an elevation greater than that of the athletic field surface). A new open-backed bleacher system would be installed on the home and visitor sides of the field; however, the proposed visitor-side bleachers would not be tall enough to block the line of sight from the centerline of the football field to the residential property lines. If the bleachers blocked the line of sight, they could create a barrier effect capable of lowering band sound levels at residences. Because the bleachers would provide no noise attenuation, the expected 1 min L_{eq} from a full marching band practice on the new athletic field at residential property lines to the east would be 73 dBA. This noise level would exceed the maximum exterior noise levels established by the City's Municipal Code (55 dBA from 7 a.m. to 10 p.m.) and as such, noise generated by relocated band practices on the new athletic field would be a potentially significant long-term impact. Although the District would incorporate **MM-NOI-18**, preventing relocation of band practices to the new athletic field, sound levels from band practices at the on-campus parking lot along East H Street would exceed the maximum exterior noise levels established by the City's Municipal Code. Impacts would be significant and unavoidable even with mitigation measures employed.~~

Would the project result in the generation of excessive groundborne vibration or groundborne noise levels?

Conventional Construction ~~Impacts~~Activity Vibration

~~The heavier pieces of construction equipment that would be used on site could include bulldozers, compactors, graders, loaded trucks, water trucks, and pavers. Pile-driving, hydromilling (slurry wall), and caisson drilling are not expected to be necessary for construction of the project. Table 4.5-5 includes equipment that might be used for this project, and the PPV vibration data for this equipment.~~

~~**Table 4.5-5**~~
~~**Vibration Source Levels for Construction Equipment**~~

~~**Equipment**~~	~~**Vibration Levels at 25 Feet**~~	
	~~*PPV (inches per second)*~~	~~*Approximate L_v*~~
~~Large bulldozer~~	~~0.089~~	~~87~~
~~Loaded truck~~	~~0.076~~	~~86~~
~~Jackhammer~~	~~0.035~~	~~79~~
~~Small bulldozer~~	~~0.003~~	~~58~~

~~**Source:** FTA 2006.~~

~~**Notes:** PPV = peak particle velocity; L_v = root mean square velocity in velocity decibels of 1 micro-inch per second.~~

~~The closest existing residences would be approximately 25 feet from the construction area. Based on published vibration data, the anticipated construction equipment could generate peak particle velocities of approximately 0.09 inches per second or less at a distance of 25 feet (FTA 2006). Information from the California Department of Transportation (Caltrans) indicates that continuous vibrations with a PPV of approximately 0.1 inches per second begin to annoy people (Caltrans 2002). At 25 feet away, and with the anticipated construction equipment, the PPV would be less than 0.1 inches per second at the adjacent existing residences.~~

~~If large bulldozers would be used immediately adjacent to the property line of residential land uses located to the east of the project site, there is a potential for vibration levels to exceed the 0.1 inch per second threshold. Therefore, construction activities would result in potentially significant short-term vibration impacts. However, with implementation of **MM-NOI-1** through **MM-NOI-12**, groundborne construction impacts would be reduced to less than significant.~~

~~**Operational Impacts**~~

~~The project site is an existing athletic field, and would remain an athletic field with implementation of the proposed improvements. Once the project is operational, there are no components of the project that would result in excessive groundborne vibration or groundborne noise levels. Therefore, operational impacts would be less than significant.~~

Construction activities may expose persons to excessive groundborne vibration or groundborne noise, causing a potentially significant impact. Caltrans has collected groundborne vibration information related to construction activities (Caltrans 2013b). Information from Caltrans indicates that continuous vibrations with a peak particle velocity of approximately 0.2 ips is considered annoying. For context, heavier pieces of construction equipment, such as a bulldozer that may be expected on the project site, have peak particle velocities of approximately 0.089 ips or less at a reference distance of 25 feet (FTA 2018).

Groundborne vibration attenuates rapidly, even over short distances. The attenuation of groundborne vibration as it propagates from source to receptor through intervening soils and rock strata can be estimated with expressions found in FTA and Caltrans guidance. For example, for a bulldozer operating on site and as close as the western project boundary (i.e., 30 feet from the nearest receiving sensitive land use) the estimated vibration velocity level would be 0.07 ips per the equation as follows (FTA 2018):

$$PPV_{rcvr} = PPV_{ref} * (25/D)^{1.5} = 0.07 = 0.089 * (25/30)^{1.5}$$

where PPV_{rcvr} is the predicted vibration velocity at the receiver position, PPV_{ref} is the reference value at 25 feet from the vibration source (the bulldozer), and D is the actual horizontal distance to the receiver. Therefore, at this predicted PPV, the impact of vibration-induced annoyance to occupants of nearby existing homes would be less than significant.

Construction vibration, at sufficiently high levels, can also present a building damage risk. However, the predicted 0.07 ips PPV at the nearest residential receiver 30 feet away from on-site operation of the bulldozer during grading would not surpass the guidance limit range of 0.2 ips PPV (for plaster-walled residential buildings) to 0.5 ips PPV (for gypsum-walled residential buildings) to prevent damage to residential structures from "intermittent construction or maintenance activities" (Caltrans 2013b). Because the predicted vibration level at 30 feet is less than both the annoyance and building damage risk thresholds, vibration from project conventional construction activities is considered less than significant.

Once operational, the proposed project would not be expected to feature major on-site producers of groundborne vibration. On this basis, potential vibration impacts due to proposed project operation would be less than significant.

For a project within the vicinity of a private airport of 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?

The closest airport to the project site is the Brown Field Municipal Airport, approximately 5.1 miles to the south of BVHS. Additionally, according to the Brown Field Municipal Airport Land Use Compatibility Plan (San Diego County Regional Airport Authority 2010), the proposed project site is not within the Brown Field Municipal Airport Influence Area. Therefore, the proposed project site is not located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport. The proposed project would not expose people residing or working in the project area to excessive noise levels from an airport, and impacts would be less than significant.

~~As discussed previously, the closest airport to the project site is the Brown Field Municipal Airport, which is approximately 5.1 miles to the south. BVHS is located in a developed, nearly built out~~

~~area of Chula Vista and there are no private airstrips within the vicinity of the project site. As such, no impacts would occur.~~

4.5.5 Mitigation Measures

~~Implementation of **MM-NOI-1** through **MM-NOI-12**~~The following mitigation measure would ~~address noise and vibration impacts associated with proposed project~~ apply during construction activities.

~~**MM-NOI-1:** Construction equipment shall be properly outfitted and maintained with feasible noise-reduction devices to minimize construction-generated noise.~~

~~**MM-NOI-2:** Stationary noise sources such as generators or pumps shall be located not less than 100 feet away from noise-sensitive land uses, as feasible.~~

~~**MM-NOI-3:** Laydown and vehicle staging areas shall be located not less than 100 feet away from noise-sensitive land uses, as feasible.~~

~~**MM-NOI-4:** Loud demolition or site preparation activity (e.g., jackhammering, concrete sawing, asphalt removal, and large-scale grading operations) within 100 feet of a residential or academic building shall be conducted to commence not earlier than 7:30 a.m. (Monday through Friday) or 8 a.m. (Saturday and Sunday) nor continue past 7 p.m.~~

MM-NOI-1 Prior to construction, the applicant shall implement the following construction noise management plan (CNMP) that establishes construction activity restrictions in order to reliably achieve compliance with the Federal Transit Administration 8-hour 80 A-weighted decibels equivalent continuous sound level standard at the project property lines adjoining existing occupied properties to the west that are as close as 30 feet to the anticipated project construction activities. Components of the CNMP include the following:

a. ~~Implementation~~Potentially affected property owners shall be notified prior to construction activity within 100 feet of ~~**MM-NOI-13** through **MM-NOI-17** would address operational~~their property boundaries.

b. The project applicant or its construction contractor shall make available a telephone hotline so that concerned neighbors in the community may call to report noise ~~associated~~complaints. The CNMP shall include a process to investigate these complaints and, if determined to be valid, detail efforts to provide a timely resolution and response to the complainant, with ~~programmed events, including crowd noise and noise generated~~a copy of resolution provided to the City of Chula Vista planning department.

c. Duration and distances of mobile and stationary operating equipment involved in project construction shall comply with the following limitations by ~~the proposed PA~~indicated phase:

i. Demolition – Concrete Saw, Excavator, Dozer:
- within 30 feet – not permitted
- 30 to 50 feet – no more than 2 hours per 8-hour period
- 50 to 75 feet – no more than 5 hours per 8-hour period
- 75 to 90 feet – no more than- 7 hours per 8-hour period
- beyond 90 feet – no restriction

ii. Site Preparation – Excavator:
- within 15 feet – not permitted
- 15 to 30 feet – no more than 2 hour per 8-hour period
- 30 to 50 feet – no more than 6 hours per 8-hour period
- beyond 50 feet – no restriction

iii. Grading– Excavator, Grader, Dozer, Backhoe:
- within 30 feet – not permitted
- 30 to 60 feet – no more than 1 hour per 8-hour period
- 60 to 90 feet – no more than 4 hours per 8-hour period
- beyond 90 feet – no restriction

iv. Construction of Concessions & Restrooms – Man-Lift, Generator, Backhoe, Welder:
- within 10 feet – not permitted
- 10 to 30 feet – no more than 6 hour per 8-hour period
- 30 to 40 feet – no more than 8 hours per 8-hour period
- beyond 40 feet – no restriction

v. Replacement of Track 1 – Man-Lift, Generator, Backhoe, Welder:
- within 10 feet – not permitted
- 10 to 30 feet – no more than 6 hour per 8-hour period
- 30 to 40 feet – no more than 8 hours per 8-hour period
- beyond 40 feet – no restriction

vi. Replacement of Turf Fields – Manlift, Generator, Backhoe, Welder:
- within 10 feet – not permitted
- 10 to 30 feet – no more than 6 hour per 8-hour period

- 30 to 40 feet – no more than 8 hours per 8-hour period
- beyond 40 feet – no restriction

vii. Replacement of Track 2 – Man-Lift, Generator, Backhoe, Welder:

- within 10 feet – not permitted
- 10 to 30 feet – no more than 6 hour per 8-hour period
- 30 to 40 feet – no more than 8 hours per 8-hour period
- beyond 40 feet – no restriction

viii. Installation of Bleachers/Lighting/Other – Crane, Manlift, Generator, Backhoe, Welder:

- within 10 feet – not permitted
- 10 to 30 feet – no more than 4 hour per 8-hour period
- 30 to 40 feet – no more than 7 hours per 8-hour period
- beyond 40 feet – no restriction

ix. Paving 1 – Concrete Mixer Truck, Roller, Paver:

- within 15 feet – not permitted
- 15 to 30 feet – no more than 3 hour per 8-hour period
- 30 to 40 feet – no more than 7 hours per 8-hour period
- beyond 40 feet – no restriction

x. Paving 2 – Concrete Mixer Truck, Roller, Paver:

- within 15 feet – not permitted
- 15 to 30 feet – no more than 3 hour per 8-hour period
- 30 to 40 feet – no more than 7 hours per 8-hour period
- beyond 40 feet – no restriction

The following mitigation measures would apply during post-construction operation of the project.

MM-NOI-2: The installation of a permanent sound ~~system~~barrier (to mitigate noise emission from school-hosted events to the neighboring residential community to the east) shall be as depicted or acoustically equivalent to those shown in Appendices C and D. It is intended to be a 4-foot-tall barrier behind the visitor bleachers top-most seating bench (or mounted on the top of the retaining wall behind the visitor bleachers, subject to final project design considerations). The sound reducing barrier should feature the following characteristics:

- ~~**MM-NOI-13:** The~~ Constructed of solid (but possibly flexible, such as a mass-loaded vinyl fencing upgrade) materials, either single-wall or comprising multiple layers, with effective minimum sound transmission class of 20

- Minimized cracks and air gaps, by way of overlap or edge contact, where barriers comprise adjacent vertical panels or comparable separate elements

Sweetwater Union High School District or its contractor shall retain the services of a qualified acoustical consultant to review the final design and intended placement of barriers prior to construction.

MM-NOI-3: Placement of public address (PA) speakers ~~within the spectator stands for the home and visitor seating shall be optimized to achieve the lowest possible sound~~ shall be as depicted/defined or acoustically equivalent to those in Appendices C and D, with sound emission levels per each of the three single speakers (or combinations of multiple units or arrays) electronically controlled to limit sound power to the lower of the following levels~~ and provide~~ :

- sound power values presented herein for the studied scenarios
- at a minimum level to provide adequate signal-to-noise ratio that enables intelligible announcements during each hosted sporting event~~.~~

Sweetwater Union High School District or its contractor shall retain the services of a qualified acoustical consultant and/or audio engineering professional to review the final design and performance specification of the PA system speakers and controllers, and verify that amplified speech and public safety announcements should be at levels considered intelligible to visiting spectators and compliant with the sound power limits described herein.

MM-NOI-~~14~~4: The public address system for the athletic fields/stadium shall not be operated later than 10:00 p.m.

MM-NOI-~~15~~5: Activities and other events involving substantial numbers of spectators hosted at the athletic fields/stadium shall conclude no later than 10:00 p.m. (when the allowable noise level drops by ~~ten (~~10~~)~~ A-weighted decibels equivalent continuous sound level per hour ~~(dBA $L_{eq\ hour}$))~~).

MM-NOI-~~16~~6: Air horns, sirens, loud whistles, and other devices for noise making shall be prohibited from use at the athletic fields/stadium.

MM-NOI-~~17:~~ 7: Prior to the commencement of each new semester, Sweetwater Union High School ~~the~~ District shall publish the schedule for events to be hosted at the athletic fields/stadium, providing notification to the adjacent neighbors regarding the availability of the schedule. The schedule may be published on the school website.

~~Implementation of **MM-NOI-18** would address operational noise associated with band practices on the new athletic field:~~

~~**MM-NOI-18:** Band practices shall not be permitted on the new athletic field. Band practices shall continue to be held on the South Parking Lot of the Bonita Vista High School campus.~~

4.5.6 Level of Significance After Mitigation

With implementation of **MM-NOI-1**, ~~through **MM-NOI-12**,~~ proposed project construction ~~activities~~ impacts concerning the ~~exposure of persons to or~~ generation of noise levels in excess of standards would be reduced to a less than significant level. ~~Even with~~With implementation of **MM-NOI-~~13~~2** through **MM-NOI-~~18~~7**, operational noise impacts relating to the ~~exposure of people to or~~ generation of noise levels in excess of standards during programmed events~~, including crowd noise~~ and ~~noise generated by the proposed PA sound system and during relocated~~marching band practices on the main athletic field would ~~remain~~be reduced to a less than significant ~~and unmitigable.~~ level**.**

~~With implementation of **MM-NOI-1** through **MM-NOI-12**, groundborne construction impacts would be reduced to less than significant levels. Once operational, there are no components of the project that would result in excessive groundborne vibration or groundborne noise levels. Therefore, operational impacts would be less than significant.~~

~~All noise impacts from construction would be temporary and would cease with completion of the project. Therefore, the proposed project would not result in a substantial permanent increase in ambient noise levels and no impact would occur. Because the proposed project would not result in a substantial permanent increase in ambient noise levels in the project vicinity, and would implement **MM-NOI-13** through **MM-NOI-18** to reduce impacts associated with noise from stadium events and band practices, impacts concerning a substantial permanent increase in ambient noise levels would be less than significant.~~

~~With implementation of **MM-NOI-1** through **MM-NOI-12**, construction impacts associated with a substantial temporary or periodic increase in ambient noise levels would be reduced to less than significant levels. Implementation of **MM-NOI-13** through **MM-NOI-18** would reduce temporary or periodic increases in ambient noise levels associated with the PA sound system and band practices to a less than significant level. However, even with implementation of these mitigation measures, event crowd noise would create a substantial temporary or periodic increase in ambient noise levels and would remain a significant and unavoidable noise impact.~~

The proposed project would not expose people residing or working in the project area to excessive noise levels from an airport, and impacts would be less than significant. Lastly, BVHS is located in a developed, nearly built out area of Chula Vista and there are no private airstrips within the vicinity of the project site. As such, no impacts related to private airstrips and the exposure of people to excessive noise levels would occur.

4.5.7 References

14 CCR 15000–15387 and Appendices A–L. Guidelines for Implementation of the California Environmental Quality Act, as amended.

Caltrans (California Department of Transportation). ~~2002. Transportation Related Earthborne Vibrations. January 23, 2002~~2013a. *Technical Noise Supplement to the Traffic Noise Analysis Protocol*. September 2013.

Caltrans. 2013b. *Transportation and Construction Vibration Guidance Manual*. Division of Environmental Analysis, Environmental Engineering, Hazardous Waste, Air, Noise, Paleontology Office. Sacramento, California. September 2013.

City of Chula Vista. 2005. *Chula Vista Vision 2020, General Plan Update, Final Environmental Impact Report*. December 2005. http://www.chulavistaca.gov/home/showdocument?id=11971.

City of Chula Vista. 2016a. Chula Vista Municipal Code, Chapter 19.68, Performance Standards and Noise Control. As amended through September 20, 2016. Accessed November 2016. http://www.codepublishing.com/CA/ChulaVista/html/ChulaVista19/ChulaVista1968.html.

City of Chula Vista. 2016b. Chula Vista Municipal Code, Chapter 17.24, Noisy and Disorderly Conduct. As amended through September 20, 2016. Accessed November 2016.

~~Southwestern College (SWC). 2015. *Southwestern College Whole Site Modernization Project Draft Mitigated Negative Declaration – Appendix F (Noise Study)*. Ldn Consulting, Inc. https://www.swccd.edu/_resources/vision/documents/20504.pdf~~

FHWA (Federal Highway Administration). 2006. Roadway Construction Noise Model User's Guide. FHWA-HEP-05-054. January 2006.

FHWA. 2008. Roadway Construction Noise Model (RCNM), Software Version 1.1. U.S. Department of Transportation, Research and Innovative Technology Administration, John A. Volpe National Transportation Systems Center, Environmental Measurement and Modeling Division. Washington, D.C. December 8, 2008.

FTA (Federal Transit Administration). ~~2006~~2018. *Transit Noise and Vibration Impact Assessment*. ~~FTA-VA-90-1003-06~~FTA Report No. 0123. Washington, DC: U.S. Department of Transportation, Federal Transit Administration~~, Office of Planning and Environment~~. ~~May 2006~~September. https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf~~https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/FTA_Noise_and_Vibration_Manual.pdf.~~

Hayne, M. J., et al. 2006. "Prediction of Crowd Noise." Proceedings of ACOUSTICS 2006. 20-22 November, Christchurch, NZ. https://www.acoustics.asn.au/conference_proceedings/AASNZ2006/papers/p46.pdf.

ISO (International Organization of Standardization). 1996. Acoustics – Attenuation of Sound During Propagation Outdoors -- Part 2: General Method of Calculation. 9613-2. December. https://www.iso.org/standard/20649.html

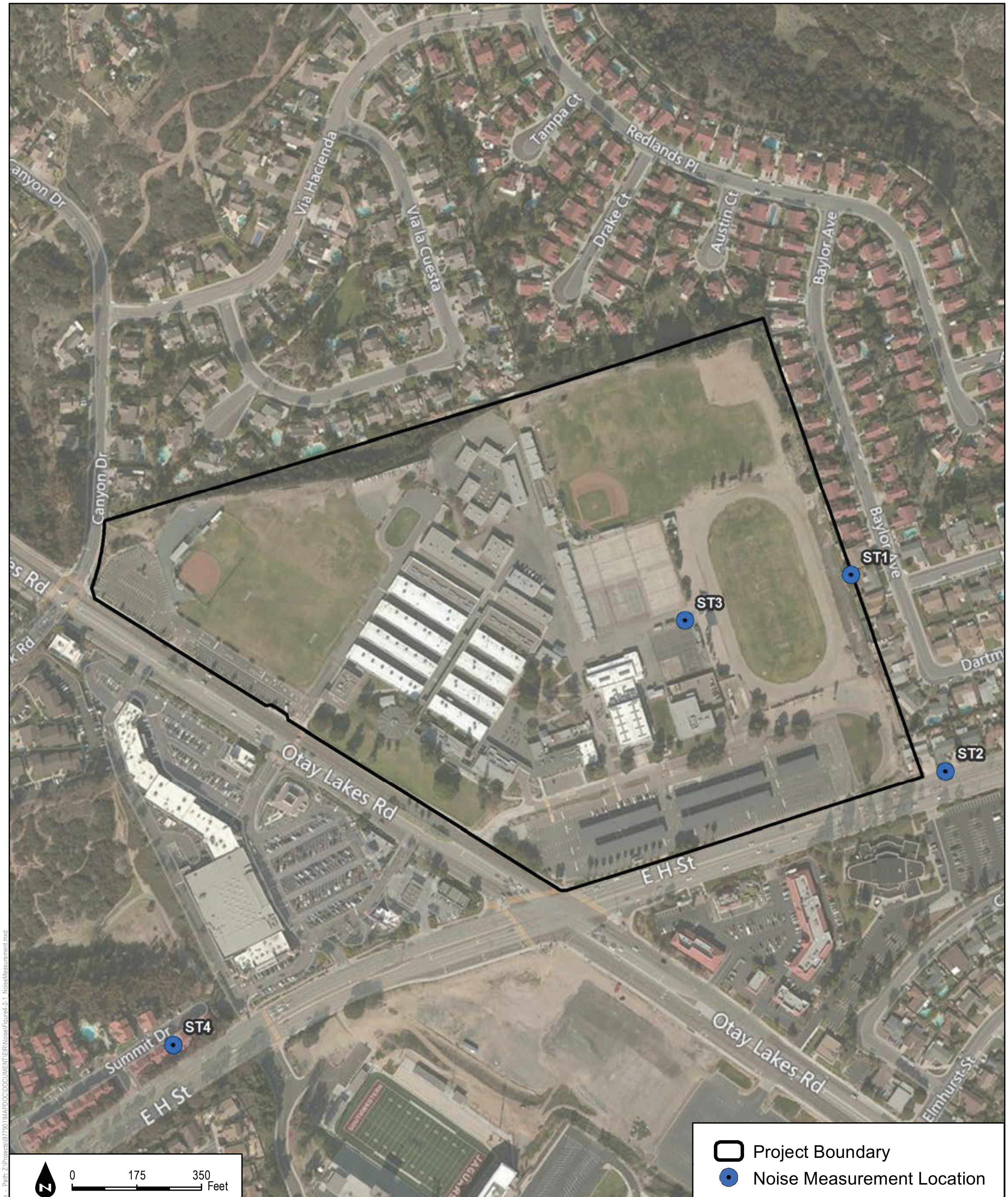
Llamas, J. 2017. "BVH-Draft EIR." Email between R. Pietila-Wiggs (Assistant Principal, Bonita Vista High School) and J. Llamas (Band Director, Bonita Vista High School). January 20, 2017.

Manzano, C. 2016. "RE: BVH Art. Track and Field – PA System Conference Call." Email from C. Manzano (Sweetwater Union High School District Electronic Shop Supervisor) ~~and~~ to J. Saunders, C. Fernandes, and C. Barnobi (Dudek). ~~on~~ September ~~29 and~~ 30, 2016.

OPR (Governor's Office of Planning and Research). 2003. *General Plan Guidelines*. Sacramento, California: Governor's Office of Planning and Research. October 2003. https://www.opr.ca.gov/docs/General_Plan_Guidelines_2003.pdf.

San Diego County Regional Airport Authority. 2010. *Brown Field Municipal Airport Land Use Compatibility Plan*. Adopted January 25, 2010 and amended December 20, 2010.

SWC (Southwestern College). 2015. *Southwestern College Whole Site Modernization Project Draft Mitigated Negative Declaration – Appendix F (Noise Study)*. Prepared by Ldn Consulting Inc. https://www.swccd.edu/_resources/vision/documents/20504.pdf.



DUDEK

SOURCE: Bing Maps (Accessed 2016)

FIGURE 4.5-1

Existing Noise Measurement Locations

Bonita Vista High School Track and Field Project

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4.6~~3~~ TRANSPORTATION ~~AND TRAFFIC~~

This section describes the existing traffic/circulation setting of the project site, identifies associated regulatory requirements, and evaluates potential impacts related to implementation of the proposed Bonita Vista High School (BVHS) Track and Field Project (project).

The analysis uses vehicle miles traveled (VMT), which is a measure that accounts for the number of vehicle trips generated and the length or distance of those trips. The Governor's Office of Planning and Research (OPR) has approved the addition of new Section 15064.3, Determining the Significance of Transportation Impacts, to the California Environmental Quality Act (CEQA) Guidelines, compliance with which was required beginning July 1, 2020. The updated CEQA Guidelines state that "generally, vehicle miles traveled (VMT) is the most appropriate measure of transportation impacts" and define VMT as "the amount and distance of automobile travel attributable to a project." Here, "automobile" refers to on-road passenger vehicles, specifically cars and light trucks. OPR clarified in its Technical Advisory on Evaluating Transportation Impacts in CEQA (Technical Advisory) that heavy-duty-truck VMT is not required to be included in the estimation of a project's VMT. Other relevant considerations may include the effects of the project on transit and non-motorized traveled.

In addition to OPR's Technical Advisory (OPR 2018), for the San Diego region, the Guidelines for Transportation Impact Studies in the San Diego Region (ITE 2019) and the City of Chula Vista's Draft Transportation Study Guidelines (City of Chula Vista 2020) also provide guidance for estimating VMT for transportation analysis CEQA requirements.

~~LOS Definition~~

~~Level of service (LOS) is a measure of actual traffic conditions and the perception of such conditions by motorists. It is used to describe the average daily number of vehicles on a street relative to the street's vehicular capacity and the resulting effect on traffic. There are six defined levels of service, A through F, which describe conditions ranging from "ideal" to "worst," as defined in Table 4.36-11, Level of Service Descriptions.~~

~~Table 4.63-1~~
~~Level of Service Definitions~~

~~Level of Service (LOS)~~	~~Characteristics~~
~~A~~	~~Primarily free-flow operation. Vehicles are completely unimpeded in their ability to maneuver within the traffic stream. Controlled delay at the boundary intersections is minimal. The travel speed exceeds 85% of the base free-flow speed.~~
~~B~~	~~Reasonably unimpeded operation. The ability to maneuver within the traffic stream is only slightly restricted and control delay at the boundary intersections is not significant. The travel speed is between 67% and 85% of the base free-flow speed.~~

~~Table 4.63-1~~

~~Level of Service Definitions~~

~~C~~	~~Stable operation. The ability to maneuver and change lanes at mid-segment locations may be more restricted than at LOS B. Longer queues at the boundary intersections may contribute to lower travel speeds. The travel speed is between 50% and 67% of the base free-flow speed.~~
~~D~~	~~Less stable condition in which small increases in flow may cause substantial increases in delay and decreases in travel speed. This operation may be due to adverse signal progression, high volume, or inappropriate signal timing at the boundary intersections. The travel speed is between 40% and 50% of the base free-flow speed.~~
~~E~~	~~Unstable operation and significant delay. Such operations may be due to some combination of adverse signal progression, high volume, and inappropriate signal timing at the boundary intersections. The travel speed is between 30% and 40% of the base free-flow speed.~~
~~F~~	~~Flow at extremely low speed. Congestion is likely occurring at the boundary intersections, as indicated by high delay and extensive queuing. The travel speed is 30% or less of the base free-flow speed. Also, LOS F is assigned to the subject direction of travel if the through movement at one or more boundary intersections has a volume-to-capacity ratio greater than 1.0.~~

~~**Source:** City of Chula Vista 2005~~

~~To determine the LOS for a designated point along a street or at an intersection on a daily basis, the average daily traffic volume is compared to the street's intended capacity. This type of LOS analysis is a general indicator of roadway segment performance, and does not take into account intersection operations during peak commuting hours. Table 4.63-2 shows the acceptable LOS and volume for the type of street classification, as designated in the City of Chula Vista General Plan.~~

~~Table 4.63-22~~

~~Street Segment Performance Standards and Volumes~~

~~Street Classification~~	~~Acceptable LOS~~	~~Acceptable Volume~~
~~Expressway~~	~~C~~	~~70,000~~
~~Prime Arterial~~	~~C~~	~~50,000~~
~~Major Street (six lanes)~~	~~C~~	~~40,000~~
~~Major Street (four lanes)~~	~~C~~	~~30,000~~
~~Class I Collector~~	~~C~~	~~22,000~~
~~Town Center Arterial~~	~~D~~	~~43,200~~
~~Gateway Street~~	~~D~~	~~61,200 (six lanes)~~
		~~43,200 (four lanes)~~
~~Urban Arterial~~	~~D~~	~~37,800~~
~~Commercial Boulevard~~	~~D~~	~~33,750~~
~~Downtown Promenade~~	~~C~~	~~14,400~~

~~**Source:** City of Chula Vista 2005~~

~~A roadway's capacity is primarily a function of the number of lanes provided to carry traffic volumes, and whether or not the roadway is divided with a median or center turn lane. Typically, the more lanes provided, the more capacity the roadway has to accommodate traffic demand.~~

~~The proposed project would entail implementation of track and field improvements at BVHS that would facilitate relocation of athletic events to BVHS that are currently held at nearby Southwestern College (DeVore Stadium is located approximately 1,500 feet southwest of the BVHS football field). In addition, miscellaneous evening events may be held on the BVHS campus throughout the year that would use the field lighting system. Therefore, because the proposed project represents a relocation of existing uses and events and does not represent the introduction of a new use to the area, a traffic impact analysis was not prepared. Given the proximity of DeVore Stadium/Southwestern College to BVHS, implementation of the proposed project and holding athletic events and practices and miscellaneous evening events on the BVHS campus is not anticipated to substantially affect LOS at project area intersections or increase volumes on local area streets. Therefore, the shift in local traffic patterns anticipated to occur as a result of implementation of the proposed project is analyzed qualitatively in the context of California Environmental Quality Act (CEQA) Appendix G significance thresholds.~~

4.6~~3~~.1 Existing Conditions

Existing Roadway Circulation System

East H Street

East H Street is a six-lane roadway with a raised median, Class 2 bike lanes (i.e., dedicated, striped bike lanes within the vehicular right-of-way), and a 45-mile-per-hour (mph) posted speed limit west of Otay Lakes Road (the speed limit increases to 50 mph west of Buena Vista Way). East of Otay Lakes Road, East H Street is a four-lane roadway with a raised median, Class 2 bike lanes, and a 35 mph posted speed limit. Per the City of Chula Vista's (City) Circulation Plan (City of Chula Vista 2005), East H Street is classified as a six-lane prime arterial west of Otay Lakes Road, and a four-lane major street east of Otay Lakes Road. Southeast of BVHS, street parking is permitted on H Street.~~According to the City's General Plan Land Use and Transportation Element, six-lane prime arterials are designed to carry high volumes of traffic, and serve to distribute traffic to and from the freeway system (City of Chula Vista 2005). Four-lane major streets are designed to carry high volumes of traffic and distribute traffic to and from the freeway system and arterials. Major streets are designed to distribute more localized trips (compared to regional trips).~~

~~According to the Traffic Impact Study prepared by KOA Corporation for the Southwestern Community College Wellness Center Project (KOA Corporation 2015), East H Street (west of Paseo Ranchero) is operating at LOS C conditions. From east of Paseo Ranchero to Auburn Avenue, East H Street is operating at LOS B conditions (KOA Corporation 2015).~~

Otay Lakes Road

The north/south segment of Otay Lakes Road/La Media Road runs adjacent to the BVHS campus and, generally, from Bonita Road south to Santa Luna Street. Within the project area, this facility is a six-lane roadway with a raised median, Class 2 bike lanes, and a 40 mph posted speed limit. Per the City's Circulation Plan, Otay Lakes Road/La Media Road is classified as a four-lane major street from Bonita Road south to East H Street, and a six-lane prime arterial south of East H Street (City of Chula Vista 2005).

~~From Canyon Drive (adjacent to the northwestern boundary of the BVHS campus) to Telegraph Canyon Road, Otay Lakes Road/La Media Road is operating at LOS A conditions (KOA Corporation 2015).~~

Existing Transit

The project site and immediate vicinity is currently served by four Metropolitan Transit System (MTS) routes (San Diego MTS 2016), described below.

Route 705 runs between the E Street Transit Center and Southwestern College via E Street, Bonita Road, and Otay Lakes Road. Route 705 currently provides services during weekdays and Saturdays, but not on Sundays. The closest bus stop to BVHS is located approximately 275 feet north of the East H Street/Otay Lakes Road intersection at the BVHS campus driveway. During weekdays, the last westbound bus operating in the project area leaves Southwestern College on a heading toward the E Street Transit Center at 6:18 p.m. The last eastbound bus operating in the project area arrives at Southwestern College at 6:45 p.m.

Route 707 runs between Southwestern College and the Otay Ranch Town Center via East H Street, Proctor Valley Road, and Eastlake Parkway. Route 707 currently provides service~~s~~ during weekdays (Monday–Friday) only. The closest bus stop to BVHS on this route is located along East H Street, both in the eastbound and westbound directions near the East H Street/Auburn Avenue intersection and the East H Street/BVHS parking lot intersection, respectively. The last southbound bus operating in the project area leaves Southwestern College on a heading toward the Otay Ranch Town Center (via East H Street) at 5:17 p.m. Northbound buses arrive at Southwestern College (passing BVHS) at 6:11 p.m. and 7:26 p.m.

Route 709 runs between the H Street Transit Center and Southwestern College via East H Street and Otay Lakes Road. Route 709 currently provides services during weekdays and Saturdays, but not on Sundays. The closest bus stop to BVHS is located along East H Street, both in the eastbound and westbound directions near the East H Street/Buena Vista Way intersection and the East H Street/Otay Lakes Road intersection, respectively. During weekdays, evening service in the project area is relatively consistent, with westbound buses arriving and departing Southwestern College every half-hour between approximately 6:15 p.m. and 9:15 p.m.; the last westbound bus leaves

Southwestern College at 10:14 p.m. The last eastbound bus departs Southwestern College at 10:45 p.m. and provides service between the college and Olympic Parkway and Eastlake Parkway.

Route 712 runs between the Palomar Street Trolley Station and Southwestern College via Palomar Street. Route 712 provides service during weekdays and ~~on the~~ weekends. The closest bus stop is located at Southwestern College near parking lot O (i.e., on-campus parking lot located adjacent to Otay Lakes Road near main eastern campus driveway). Eastbound buses arrive at Southwestern College every half-hour between 5 p.m. and 9 p.m., and westbound buses depart the college every half-hour between 5 p.m. and 8 p.m. The last westbound bus departs Southwestern College at 8:16 p.m.

Due to restrictions because of COVID-19, the frequency of transit services has been reduced, and the above-mentioned routes are operating at a modified schedule as of this writing.

Existing Pedestrian and Bicycle Access

Existing pedestrian access in the project area is provided via sidewalks along Otay Lakes Road and East H Street. The sidewalks are continuous and provide access to all campus entrances. Crosswalks are provided at the Otay Lakes Road and East H Street intersection, and along Otay Lakes Road at the primary entrance to the Ralph’s shopping center and at Ridgeback Road. Along East H Street, crosswalks are provided at Auburn Avenue.

The City of Chula Vista Bikeway Master Plan (City of Chula Vista 2011) identifies existing facilities throughout the City. Based on review of the Bikeways Master Plan map and aerial photography, the following Class 2 Bicycle Facilities (i.e., dedicated, striped bike lanes within the vehicular right-of-way) are located in the project area:

- East H Street from approximately State Route 125 west to Interstate 805
- La Media Road/Otay Lakes Road from approximately Santa Luna Street north to Bonita Road

Existing Parking

The BVHS campus currently has approximately 560 parking spaces in two on-campus parking lots. In addition to parking lots, approximately 95 supplemental parking spaces are located in the interior of the BVHS campus behind gates. Several of these spaces are designated for staff use and may not be available to the public during on-campus sporting and miscellaneous events. As previously stated, street parking is permitted on East H Street southeast of the BVHS campus. Between BVHS and Auburn Avenue~~,~~ there is available street parking space for approximately 50 vehicles. Parking at the commercial shopping center located west of BVHS and Otay Lakes Road is reserved for customers, and use of Southwestern College parking lots is subject to permits.

4.6~~3~~.2 Relevant Plans, Policies, and Ordinances

Federal

There are no federal regulations for traffic and circulation that would be applicable to the proposed project or the project area.

State

California Department of Transportation ~~Standards~~

The California Department of Transportation (Caltrans) is responsible for planning, designing, building, operating, and maintaining California's state road system. Caltrans sets standards, policies, and strategic plans that aim to provide the safest transportation system in the nation for users and workers, maximize transportation system performance and accessibility, efficiently deliver quality transportation projects and services, preserve and enhance California's resources and assets, and promote quality service. Caltrans has the discretionary authority to issue special permits for the use of state highways for other than normal transportation purposes. Caltrans also reviews all requests from utility companies, developers, volunteers, nonprofit organizations, and others desiring to conduct various activities within state highway rights-of-way. The Caltrans Highway Design Manual (Caltrans 2009) establishes uniform policies and procedures to carry out highway design functions.

Senate Bill 743

On September 27, 2013, Governor Brown signed Senate Bill (SB) 743, which became effective on January 1, 2014. The purpose of SB 743 is to streamline the review under CEQA for several categories of development projects, including the development of infill projects in transit--priority areas and to balance the needs of congestion management with statewide goals related to infill development, promotion of public health through active transportation, and reduction of greenhouse gas emissions. SB 743 adds Chapter 2.7: Modernization of Transportation Analysis for Transit Oriented Infill Projects to the CEQA Statute (Public Resources Code Section 21099). Section 21099(d)(1) provides that aesthetic and parking impacts of a residential, mixed-use residential, or employment center project on an infill site within a transit-priority area are not considered significant impacts on the environment. In addition, SB 743 mandated that alternative metrics for determining impacts relative to transportation be developed to replace the use of level of service (LOS) in CEQA documents.

In the past, environmental review of transportation impacts focused on the delay that vehicles experience at intersections and on roadway segments, which is often measured using LOS. Mitigation for impacts on vehicular delay often involves increasing capacity, such as widening a roadway or the size of an intersection, which in turn encourages more vehicular travel and greater pollutant emissions. Additionally, improvements to increase vehicular capacity can often discourage alternative forms of transportation, such as biking and walking. SB 743 directed the OPR to develop alternative metrics for analyzing transportation impacts in CEQA documents. The alternative had to promote the state's goals of reducing greenhouse gas emissions and traffic-related air pollution; promote the development of multimodal transportation system; and provide clean, efficient access to destinations. Under SB 743, the focus of transportation analysis shifted from vehicle delay to VMT within transit-priority areas (i.e., areas well--served by transit).

Pursuant to SB 743, OPR released the draft revised CEQA Guidelines in November 2017, recommending the use of VMT for analyzing transportation impacts. Additionally, OPR released its Updates to Technical Advisory on Evaluating Transportation Impacts in CEQA to provide guidance on VMT analysis. In this Technical Advisory, OPR provides its recommendations to assist lead agencies in screening out projects from VMT analysis and selecting a significance threshold that may be appropriate for particular jurisdictions. Although OPR's Technical Advisory is not binding on public agencies, CEQA allows lead agencies to "consider thresholds of significance ... recommended by other public agencies, provided the decision to adopt those thresholds is supported by substantial evidence" (CEQA Guidelines Section 15064.7[c]).

In December 2018, the CEQA Guidelines were updated to add new Section 15064.3, Determining the Significance of Transportation Impacts, that describes specific considerations for evaluating a project's transportation impacts using the VMT methodology. This new methodology was required to be used for projects beginning on July 1, 2020.

CEQA Guidelines Section 15064.3(b) is divided into four subdivisions, as follows:

(1) Land Use Projects. Vehicle miles traveled exceeding an applicable threshold of significance may indicate a significant impact. Generally, projects within one-half mile of either an existing major transit stop or a stop along an existing high quality transit corridor should be presumed to cause a less than significant transportation impact. Projects that decrease vehicle miles traveled in the project area compared to existing conditions should be presumed to have a less than significant transportation impact.

(2) Transportation Projects. Transportation projects that reduce, or have no impact on, vehicle miles traveled should be presumed to cause a less than significant transportation impact. For roadway capacity projects, agencies have discretion to determine the appropriate measure of transportation impact consistent with CEQA and other applicable requirements. To the extent that such impacts have already been adequately addressed at a programmatic level, such as in a regional transportation plan EIR, a lead agency may tier from that analysis as provided in Section 15152.

(3) Qualitative Analysis. If existing models or methods are not available to estimate the vehicle miles traveled for the particular project being considered, a lead agency may analyze the project's vehicle miles traveled qualitatively. Such a qualitative analysis would evaluate factors such as the availability of transit, proximity to other destinations, etc. For many projects, a qualitative analysis of construction traffic may be appropriate.

(4) Methodology. A lead agency has discretion to choose the most appropriate methodology to evaluate a project's vehicle miles traveled, including whether to express the change in absolute terms, per capita, per household or in any other measure. A lead agency may use models to estimate a project's vehicle miles traveled and may revise those estimates to reflect professional judgment based on substantial evidence. Any assumptions used to estimate vehicle miles traveled and any revisions to model outputs should be documented and explained in the environmental document prepared for the project.

Since the project would be categorized as a land use development, the CEQA Guidelines Section 15064.3(b)(1) applies to the proposed project.

Local

~~*SANDAG Congestion Management Program*~~

~~The San Diego Association of Governments (SANDAG) Congestion Management Program (CMP) was first adopted on November 22, 1991, and was intended to assist in monitoring regional transportation system performance. SANDAG is required by state law to prepare and regularly update a CMP for the region to, in addition to monitoring the performance of the transportation system, develop programs to address near-term and long-term congestion and better integrate transportation and land use planning. Neither East H Street or Otay Lakes Road near the BVHS campus is included in the CMP roadway system (SANDAG 2008).~~

City of Chula Vista General Plan

The City of Chula Vista General Plan Land Use and Transportation Element contains objectives and policies that support transit, encourage alternative transportation measures and the development of transit-friendly roads, support parking management policies, and ensure pedestrian-oriented environments. The Land Use and Transportation Element promotes the use of non-polluting and renewable alternatives for mobility through a system of bicycle and pedestrian paths and trails. One of the overall goals of the Land Use and Transportation Element is development of "a sustainable circulation/mobility system that provides transportation choices and is well-integrated with the City's land uses" (City of Chula Vista 2005).

City of Chula Vista Municipal Code

The City's Municipal Code Section 19.62.050, Number of Spaces Required for Designated Uses, establishes parking standards for uses in the City. Per Section 19.62.050(28) of the Municipal Code, the parking standard for high school development is 1 space for every 4 students. For sports arenas, auditoriums, theatres, assembly halls, and meeting rooms, the parking requirement is 1 space for every 3.5 seats of maximum capacity (Section 19.62.050[30]).

4.6~~3~~.3 Thresholds of Significance

The significance criteria used to evaluate the project's impacts to traffic and circulation are based on Appendix G of the 2019 CEQA Guidelines (14 CCR 15000 et seq.). According to Appendix G of the CEQA Guidelines, a significant impact related to traffic and circulation would occur as a result of project implementation if the project would:

a) Conflict with a~~n~~ ~~applicable~~ program plan, ordinance or policy addressing the circulation system, including transit, roadways, bicycles and pedestrian facilities~~establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit~~.

b) Conflict with or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)~~an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways~~.

~~Result in a change to air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks.~~

c) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersection) or incompatible use (e.g., farm equipment).

d) Result in inadequate emergency access.

~~Conflicts with adopted policies, plans or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.~~

4.6~~3~~.4 Impacts Analysis

Would the project conflict with an applicable program plan, ordinance or policy addressing the circulation system, including transit, roadways, bicycles and pedestrian facilities~~establishing~~

~~measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit~~?

Currently, evening football games, practices, and other sporting events are held at Southwestern College, which is across the street from the proposed project (across the intersection of Otay Lakes Road and East H Street). East H Street and Otay Lakes Road provide access to the BVHS campus and to Southwestern College. Future traffic due to the project is not expected to dramatically increase from current conditions, since anticipated events to be relocated to the BVHS athletic fields are currently held at Southwestern College. Miscellaneous evening events may also be held on campus throughout the year. Users and spectators would continue to travel on Otay Lakes Road and East H Street to access BVHS. ~~As discussed in Section 4.63.1.1, these roadways were operating at acceptable LOS conditions in 2015, and as~~ As detailed in Appendix F~~D~~ of this EIR, the proposed increase of the BVHS bleacher system's capacity from 760 to ~~3,000~~2,000 is estimated to generate approximately ~~600~~ 400 vehicle trips on football game nights, generally outside of the PM peak hour (i.e., between 3:00 p.m. and 6:30 p.m.). A similar number of trips is assumed to be generated by current BVHS football games held at Southwestern College. Although the end point of travel would be modified, BVHS is located within 1,000 feet of DeVore Stadium, and the proposed project would not substantially alter existing traffic patterns. Further, the use of athletic fields would be used for school band practices, other sports events, and miscellaneous uses consistent with school or local community events. In addition, enrollment at BVHS is not expected to change as a result of the proposed project. ~~Therefore, local area traffic is not expected to substantially change, and existing intersection operations (as measured by LOS) and roadway segment volumes would generally be maintained.~~ Therefore, the proposed project would not conflict with an applicable plan, ordinance, or policy ~~establishing measures of effectiveness for the performance of~~addressing the circulation system, and impacts would be less than significant.

Parking

Although adequate parking supply is no longer considered in the CEQA Appendix G Guidelines, parking supply is described herein for informational purposes due to the nature of the proposed project. The existing permanent bleachers installed at the BVHS football field have capacity for approximately 760 persons, and home football games are currently held off campus at Southwestern College. As proposed, the existing bleachers would be removed and new permanent bleachers with capacity for approximately ~~3,000~~2,000 people (home and visitor bleachers combined) would be installed. BVHS football games and other sporting events would be held on campus once the proposed project is constructed. Miscellaneous evening events at the field may also be held on campus throughout the year.

BVHS has an existing enrollment of approximately 2,500 students, and per the City's Municipal Code parking standards (Section 19.62.050), approximately 625 parking spaces are required on campus. Through the provision of 560 parking spaces in two on-campus parking lots and approximately 95 supplemental on-campus parking spaces, BVHS has adequate parking supply per City standards. As proposed, the capacity of BVHS athletic field bleachers would be increased over existing capacity (i.e., 760) to accommodate up to ~~3,000~~2,000 spectators. Because the project proposes the construction and operation of an on-campus football stadium, the parking requirement for the proposed project was calculated using the City's sole parking requirement for a sports facility (i.e., a sports arena). Per the City's parking requirement for a sports arena (Section 19.62.050[30]) (i.e., 1 space for every 3.5 seats of maximum capacity), the number of parking spaces required for a ~~3,000~~2,000-seat capacity stadium is ~~857~~ 571 spaces. Therefore, using the City's parking requirement for a sports arena, existing parking supply on the BVHS campus (560 spaces), on-campus supplemental parking (95 spaces), and on-street parking along East H Street (approximately 50 spaces) would ~~not~~be adequate to accommodate the calculated parking demand (~~857~~ 571 spaces) during future football games held on the BVHS campus.

Although existing parking supply on the BVHS campus and along East H Street would be ~~below~~ adequate per the City's parking standard for a sports arena use, a number of homes within the BVHS attendance boundary are located within walking distance of BVHS, and transit is available in the project area. In addition, turf areas on the BVHS campus could be used for temporary parking, and Southwestern College contains a number of parking lots within walking distance of the BVHS campus. As discussed in Section 4.6~~3~~.1.1, ~~above,~~ four bus routes operate in the project area that include stops at and near the BVHS campus. Of the four bus routes, two routes (Route 709 and 712) operate and provide service after 8 p.m., and the last Route 709 bus departs Southwestern College (and the project area) at 10:14 p.m. on weekdays. Therefore, on football game nights, spectators residing in areas served by Route 709 could elect to use public transit to attend football games. Also, on game days anticipated to draw large crowds or near-capacity crowds, the Sweetwater Union High School District could elect to use the softball field and nearby turf areas, and the baseball field turf area for temporary parking. Lastly, parking lots in the northern and northeastern corner of the Southwestern College campus could be used on football game nights, and spectators parking on the college campus could walk to BVHS to attend games. Because BVHS currently plays home football games at Southwestern College and spectators use~~s~~ parking lots near the stadium on game nights, if required, a similar agreement for use of Southwestern College parking lots could ensure that adequate parking supply per the City Municipal Code for sports arenas would be available to spectators on football game nights.

Transit, Bicycle, and Pedestrian Facilities

~~The project would not conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities.~~ Construction activities on the BVHS campus and the temporary use of local area roads by construction vehicles are not anticipated to result in the temporary closure of existing bus stops or existing bus service routes along East H Street or Otay Lakes Road. MTS Routes 705, 707, 709, and 712 operate along Otay Lakes Road and East H Street near BVHS, and changes to service as a result of project construction activities are not anticipated. However, due to restrictions because of COVID-19, the frequency of transit services has been reduced, and, as of this writing, the above-mentioned routes are operating on a modified schedule.

~~Further, t~~The temporary closure of bike lanes on East H Street and Otay Lakes Road during construction is not anticipated because ~~(~~construction activities would occur on the BVHS campus~~)~~. ~~Lastly, c~~Construction activities are not anticipated to require the temporary closure of sidewalk facilities on East H Street or Otay Lakes Road. Improvements to public sidewalk facilities on East H Street and Otay Lakes Road are not proposed as part of the BVHS track and field project, and activities at the track and field area would not require sidewalk facilities on campus-adjacent sidewalks to be closed. Therefore, construction and operation of the proposed project would not conflict with ~~adopted policies, plans, or program~~ plans, ordinances, or policies~~s~~ regarding public transit, bicycle, or pedestrian facilities, and no impact would occur.

Would the project conflict with or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)~~an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways~~?

CEQA Guidelines Section 15064.3(b) focuses on VMT, adopted pursuant to SB 743, for determining the significance of transportation impacts. As discussed in Section 4.6.2, Relevant Plans, Policies, and Ordinances, pursuant to SB 743, the focus of transportation analysis is now VMT. The related updates to the CEQA Guidelines required under SB 743 were approved on December 28, 2018. As stated in CEQA Guidelines Section 15064.3(c), the provisions of Section 15064.3 shall apply statewide on July 1, 2020.

The City of Chula Vista includes “Public High School” under the category of “Local Serving Public Facilities and Community-Purpose Facilities” for the screening criteria and thresholds for the transportation VMT CEQA analysis. These facilities serve the community and either produce very low VMT or divert existing trips from established local facilities. A replacement/remodel of an existing local-serving public facility with no net increase in VMT would not require a VMT analysis for CEQA.

Currently, evening football games, practices, and other sporting events are held at Southwestern College, which is across the street from the project site (across the intersection of Otay Lakes Road and East H Street). With these events occurring on the BVHS campus instead at the college, the existing trips would be redistributed, and no new trips would be created. Since the college and BVHS school are located close to each other, the change in trip lengths of these redistributed trips would change nominally. The athletic field also has the potential to be used for band practices and miscellaneous evening and daytime events throughout the year, including community uses. However, those events would also be local serving and would not generate significant VMT. Thus, there would be no net increase in VMT, and the impact due to inconsistency with CEQA Guidelines Section 15064.3(b) would be less than significant.

~~All construction would take place on the BVHS campus, and traffic in the project area would not be substantially altered by the proposed project. BVHS nighttime events are currently held at Southwestern College, across the street from the project site. East H Street and Otay Lakes Road provide access to the BVHS campus and to Southwestern College. The shift in venue (i.e., from Southwestern College to BVHS) associated with anticipated events is not expected to substantially change the traffic patterns of event spectators. Similar to current conditions, spectators would continue to use East H Street and Otay Lakes Road to attend BVHS athletic events and practices, and miscellaneous evening events that may be held throughout the year. Additionally, the proposed project would not cause the student population at BVHS to increase. As such, traffic is not expected to increase in the area, and the project would not conflict with the SANDAG CMP. Impacts would be less than significant.~~

~~Would the project result in a change to air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?~~

~~The nearest airport to the project site is the Brown Field Municipal Airport, located approximately 5.1 miles south. Due to the distance of the project site from this airport, BVHS is not located within the Airport Influence Area of Brown Field Municipal Airport. Also, due to the nature of the proposed project, track and field improvements at BVHS would not disrupt existing air traffic patterns. At their highest point, stadium light poles would be approximately 90 feet above ground level, which would be less than the 200 feet above ground level threshold that triggers mandatory notification of the Federal Aviation Administration. Therefore, because the project site is not within an Airport Influence Area and does not include project components that would trigger notification of the Federal Aviation Administration as a potential obstruction or hazard to air navigation, no impact would occur.~~

Would the project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersection) or incompatible use (e.g., farm equipment)?

All construction for the proposed project would take place on the BVHS campus, and new driveways or entry points are not currently proposed. Future spectators at BVHS athletic events and practices and miscellaneous evening events that may be held throughout the year would continue to access the track and field area via existing campus driveways off East H Street and Otay Lakes Road. Currently, evening football practices, games, and other sporting events are held at Southwestern College, which is across the street from the proposed project. Future traffic generated from the project is not expected to dramatically increase from current conditions, since the majority of anticipated events to be relocated to the BVHS athletic fields currently occur at Southwestern College. Therefore, local traffic patterns would be relatively unchanged in the area as a result of the proposed project. As such, impacts relating to increased hazards would be less than significant.

Would the project result in inadequate emergency access?

Both East H Street and Otay Lakes Road are designated as City evacuation routes (City of Chula Vista 2005). All construction would take place on the BVHS campus, and access to the construction site for emergency service providers would be provided. Campus driveways and ingress/egress points would not be closed or altered, and as such, existing access to the BVHS campus for emergency service providers would be maintained during construction and operations. Also, emergency vehicles have the right-of-way and, therefore, are able to bypass traffic when driving to their destination when responding to a call for emergency services. Specifically, nonemergency vehicle drivers are required to pull to the right side of the road and stop to allow emergency vehicles to pass. If required, drivers of emergency vehicles are trained to use center turn lanes or to travel in opposing through-lanes to pass through crowded intersections. Therefore, the proposed project would not generate or contribute to traffic that would result in inadequate emergency access, and no impacts concerning inadequate emergency access would occur.

~~***Would the project conflict with adopted policies, plans or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?***~~

4.6~~3~~.5 Mitigation Measures

~~No mitigation is required.~~ Impacts were found to be less than significant or no impact, and n~~N~~o mitigation is required~~.~~. The following Project Design Feature (PDF-PS-1) would aid in implementing traffic management measures for traffic flow and use of the parking lot required during arrival and departure at the athletic events/games that would occur in the evenings.

PDF-PS-1 In coordination with the Chula Vista Police Department, the Sweetwater Union High School District shall prepare an athletic event Security Plan that shall be implemented during nighttime athletic events at the Bonita Vista High School track and field. The Security Plan shall consist of items, including clear procedures, roles, and responsibilities for adult supervisors and staffing for pre-, during, and post-event timelines; procedures for advance ticket sales and on-site ticket sales; a detailed plan for parking procedures, traffic flow, parking lot staffing during entire game, and related issues; advance assessments of physical security needs and strategies; and policies related to admission, limitations of items that can be carried in (e.g., purses, book bags, backpacks), right to search spectators at admission point (e.g., metal detector scans, bag searches), and no passes out and back in once admitted; policies related to spectator conduct; and other security protocols. The Safety Plan shall also address additional staffing and supervisory needs and security protocols to be employed during larger crowd events.

4.6~~3~~.6 Level of Significance After Mitigation

The proposed project does not require any traffic mitigation measures.

4.6~~3~~.7 References

Caltrans (California Department of Transportation). 2009. *Highway Design Manual*. Prepared by the Office of Geometric Design Standards. July 24, 2009.

City of Chula Vista. 2005. *City of Chula Vista General Plan: Land Use and Transportation Element*. http://www.chulavistaca.gov/departments/development-services/planning/general-plan.

City of Chula Vista. 2011. *City of Chula Vista – Bikeway Master Plan Update*. http://www.chulavistaca.gov/home/showdocument?id=1906.

City of Chula Vista. 2020. *City of Chula Vista's Draft Transportation Study Guidelines*. May 2020.

ITE (Institute of Transportation Engineers). 2019. *Draft Guidelines for Transportation Impact Studies in the San Diego Region*. Prepared by the Institute of Transportation Engineers, San Diego Section, Transportation Capacity and Mobility Task Force, SB 743 Subcommittee. May 2019.

KOA Corporation. 2015. *Southwestern Community College Wellness Center Traffic Impact Study*. Appendix G of the Southwestern College Whole Site Modernization Project Draft Mitigated Negative Declaration. April 29, 2015.

OPR (California Governor's Office of Planning and Research). Technical Advisory on Evaluating Transportation Impacts in CEQA. December 2018.

San Diego MTS (Metropolitan Transit System). 2016. Schedules and Real Time by Bus Route, Trolley Line, Stop Number or Location. Accessed December 7, 2016. https://www.sdmts.com/schedules-real-time.

~~SANDAG (San Diego Association of Governments). 2008. *Final 2008 Congestion Management Program Update*. November 2008.~~

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4.7 TRIBAL CULTURAL RESOURCES

This section examines the potential for the proposed Bonita Vista High School Track and Field Project (project) to have an adverse effect on tribal cultural resources. This assessment is based on Native American outreach. The results of the analysis are presented below, with confidential records and maps on file at Sweetwater Union High School District (District) and deposited with the South Coastal Information Center (SCIC).

Following the issuance of Draft Environmental Impact Report for the proposed project, the District received comment letters from the Native American Heritage Commission (NAHC) regarding cultural and tribal cultural resources, including outreach efforts under Assembly Bill (AB) 52. Comments included a recommendation of consultation with all applicable California Native American tribes. The analysis presented in this section addresses these topics.

4.7.1 Existing Conditions

4.7.1.1 Environmental Setting

The project is located on the existing Bonita Vista High School campus in eastern Chula Vista, at the northeast corner of the intersection of East H Street and Otay Lakes Road. The project site is previously developed. The project is located at the existing athletic field portion of the school campus that includes a track, grass infield, and spectator stands. Construction of the athletic field included excavation of native sediments from this area to create a level surface for the field. The project site is surrounded by residential development to the north and east, commercial/retail shopping to the south and west, and Southwestern College to the southwest.

A records search was conducted by Dudek staff using in-house data from the SCIC at San Diego State University. Dudek performed the in-house records search of SCIC records in June 2020 for the project site and a 1-mile radius around the project site. The records search involved a review of previously recorded cultural resources, previous cultural resources investigations, historic addresses, and a historic maps database. within a 1-mile radius of the project site, 42 previous reports have been conducted. None of the 42 studies addresses the project site, although four directly abut the project site. The records searches indicate that 18 cultural resources were previously recorded within the records search area; all 18 are outside the project site. The 18 resources include 10 lithic scatters, 7 prehistoric isolates, and 1 site record that is not available in SCIC records and is therefore of an unknown type. One additional site is mapped in the SCIC data within the records search area, but it was mis-mapped and in not actually located in this area. These records did not identify the presence of tribal cultural resources.

4.7.1.2 Methodology

The presence and significance of existing tribal cultural resources associated with the project were determined using the methodologies outlined below. These methods included a records search, correspondence with the NAHC, and tribal outreach conducted by the District.

Archaeological site record and archival research was conducted by Dudek using SCIC data for the project site and immediate vicinity. The site record and archival research consisted of reviews of archaeological site records and previous cultural studies. Various maps, including project maps and U.S. Geological Survey quadrangle maps, were reviewed to identify tribal cultural resources that had been previously recorded in the vicinity of the project.

On June 25, 2020, the NAHC was contacted and a search of its Sacred Lands File was requested for (i) data relating to the proposed project and (ii) a list of persons and tribes that may have a significant cultural or religious connection to resources at the project site. While no tribes have previously requested to be included on a list for government-to-government consultation under AB 52, tribal outreach was initiated in December 2020 and is ongoing. All NAHC correspondence and tribal outreach documents are on file with the District.

4.7.1.3 Records Search Results

According to the records on file at the SCIC, there have been 42 cultural resource studies conducted within a 1-mile radius of the project site. None of the studies directly addressed the project site, although four included land directly adjacent to the project site. A total of 18 cultural resources have been documented within 1-mile of the project site, none of which are located in the project site. These previously recorded resources include 10 lithic scatters and 7 prehistoric isolates. The other site record is missing, so the site type cannot be identified. One additional site is mapped in the records search area but is mis-mapped and is actually located in another part of San Diego County. Most of the resources have been destroyed by construction of the surrounding housing developments. None of these resources have been identified as tribal cultural resources.

4.7.1.4 Outreach Results

The NAHC responded on July 3, 2020, stating that no resources are listed in the Sacred Lands File in this area. The NAHC also provided contact information for Native American tribes and individuals that may have additional information. On December 21, 2020, letters were sent to each of the contacts listed by the NAHC requesting any information or concerns they may have related to the project. To date, only one response has been received. The San Pasqual Indian Reservation (San Pasqual) stated that the project is within their Traditional Use Area, but deferred comments to the Sycuan Band of Diegueno Mission Indians. San Pasqual also stated that if Sycuan does not respond, they would like to participate and offered to provide a San Pasqual monitor. This information was provided to the District for their consultation obligations. No Native American tribes or individuals have officially requested to be included in government-to-government consultation with the District under AB 52; therefore, the District has not engaged in any formal AB 52 consultation.

4.7.2 Relevant Plans, Policies, and Ordinances

Federal

There are no federal laws related to tribal cultural resources relevant to the proposed project.

State

Assembly Bill 52

AB 52, in effect as of July 1, 2015, introduces the tribal cultural resource as a class of cultural resources and additional considerations relating to Native American consultation into the California Environmental Quality Act (CEQA). As a general concept, a tribal cultural resource is similar to the federally defined Traditional Cultural Property; however, it incorporates consideration of local and state significance and required mitigation under CEQA. A tribal cultural resource may be considered significant if included in a local or state register of historical resources; determined by the lead agency to be significant pursuant to criteria set forth in California Public Resources Code (PRC), Section 5024.1; is a geographically defined cultural landscape that meets one or more of these criteria; or is a historical resource described in PRC Section 21084.1, a unique archaeological resource described in PRC Section 21083.2, or a non-unique archaeological resource if it conforms with the above criteria.

California AB 52 establishes a consultation process between California Native American tribes and lead agencies to address tribal concerns regarding project impacts to tribal cultural resources and mitigation for such impacts. No Native American tribe has formally requested to be consulted under the AB 52 for projects where the District is the lead agency.

Native American Historic Resource Protection Act

State law addresses the disposition of Native American burials in archaeological sites and protects such remains from disturbance, vandalism, or inadvertent destruction; establishes procedures to be implemented if Native American skeletal remains are discovered during construction of a project; and establishes the NAHC to resolve disputes regarding the disposition of such remains. In addition, the Native American Historic Resource Protection Act (PRC Section 5097 et seq.) makes it a misdemeanor punishable by up to 1 year in jail to deface or destroy a Native American historic or cultural site that is listed or may be eligible for listing in the California Register of Historical Resources.

California Native American Graves Protection and Repatriation Act

The California Native American Graves Protection and Repatriation Act (25 USC 32), enacted in 2001, requires all state agencies and museums that receive state funding and that have possession or control over collections of human remains or cultural items, as defined, to complete an inventory and summary of these remains and items on or before January 1, 2003, with certain exceptions. This act also provides a process for the identification and repatriation of these items to the appropriate tribes.

California Health and Safety Code Section 7050.5

California law protects Native American burials, skeletal remains, and associated grave goods, regardless of their antiquity, and provides for the sensitive treatment and disposition of those remains. California Health and Safety Code Section 7050.5 requires that if human remains are discovered in any place other than a dedicated cemetery, no further disturbance or excavation of the site or nearby area reasonably suspected to contain human remains can occur until the County Coroner has examined the remains (Section 7050.5b). If the coroner determines or has reason to believe that the remains are those of a Native American, the coroner must contact the NAHC within 24 hours (Section 7050.5c). The NAHC will notify the most likely descendant and, with the permission of the landowner, the most likely descendant may inspect the site of discovery. Within 48 hours of being granted access to the site, the most likely descendant may recommend means of treating or disposing of, with appropriate dignity, the human remains and items associated with Native Americans.

4.7.3 Thresholds of Significance

The significance criteria used to evaluate the project impacts to tribal cultural resources are based on CEQA Guidelines Appendix G. According to Appendix G, a significant impact related to tribal cultural resources would occur if the project would:

1. 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:
    a. 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).
    b. 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.

4.7.4 Impacts Analysis

No known cultural resources are identified within the project that would be impacted by the project. No information has been provided indicating that tribal cultural resources are present within the project. Further, the project site is already heavily disturbed from past grading and improvement activities associated with the construction and prior renovations to Bonita Vista High School.

To date, tribal cultural resources have not been identified at the project site, and no government-to-government consultation under AB 52 has been requested by Native American tribes with the District. Therefore, there would be no impact to known tribal cultural resources. Project plans call for relatively minor cuts during grading in areas previously disturbed for the construction of Bonita Vista High School; therefore, the project would have minimal if any potential for grading impacts in native, undisturbed soils which could contain unknown tribal cultural resources. Therefore, if grading, trenching and/or other ground-disturbing activity were to occur within native, undisturbed soils, impacts to tribal cultural resources would be potentially significant. With implementation of **MM-TCR-1**, impacts would be reduced to less than significant with mitigation.

4.7.5 Mitigation Measures

MM-TCR-1 A Native American monitor shall be present for project-related ground disturbing activities that occur within undisturbed native sediments. The monitor shall have the authority to redirect or stop work in the event of the discovery of a tribal cultural resource. If a tribal cultural resource is discovered, construction activities shall be stopped within 50 feet of the discovery until Sweetwater Union High School District can determine treatment measures, in consultation with consulting tribe(s).

4.7.6 Level of Significance After Mitigation

Based on the analysis above, project impacts to tribal cultural resources would be less than significant with mitigation. Although no known tribal cultural resources are present, it is possible for the project to impact unknown tribal cultural resources if undisturbed soils are impacted by the project. Impacts to tribal cultural resources that destroy, alter, or otherwise cause a substantial adverse change would be a significant impact. Native American monitoring during ground-disturbing activities in native, undisturbed soils would allow for the identification, treatment, and potential preservation of tribal cultural resources if present. Potentially significant impacts to unknown tribal cultural resources would be reduced to less than significant with the implementation of monitoring (**MM-TCR-1**).

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CHAPTER 5
EFFECTS NOT FOUND TO BE SIGNIFICANT

Section 15128 of the California Environmental Quality Act (CEQA) Guidelines requires that an environmental impact report (EIR) briefly describe why various environmental effects were determined not to be significant and therefore were not discussed in detail in the EIR. The proposed Bonita Vista High School (BVHS) Track and Field Project (project) and project site were analyzed to determine impacts to air quality, agriculture and forestry resources, biological resources, cultural resources, geology and soils, hazards and hazardous materials, land use, mineral resources, recreation, population and housing, public services, and utilities and service systems. The proposed project and project site were analyzed according to the significance criteria outlined in Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.).

The environmental issues outlined in the following sections are not considered significant, and the reasons for the conclusion of non-significance are discussed below.

5.1 AGRICULTURE AND FORESTRY RESOURCES

The proposed project site is located in a developed, urban environment in the City of Chula Vista. The project would not convert designated farmland to non-agriculture use; conflict with existing zoning for agricultural use or a Williamson Act contract; or conflict with existing zoning for, or cause rezoning of, forest land (DOC 2014) (City of Chula Vista 2005). In addition, the proposed project would not result in the loss of forest land (or conversion of forest land to non-forest use) or involve other changes that could result in conversion of farmland to non-agricultural use or conversion of forest land to non-forest use (City of Chula Vista 2005). Therefore, no significant impacts to agriculture or forestry resources would occur.

The 2019 CEQA Guidelines update did not change with respect to agriculture and forestry resources; therefore, no further analysis is required.

~~5.2 AIR QUALITY AND GREENHOUSE GAS EMISSIONS~~

~~The BVHS campus and surrounding City of Chula Vista (City) are located in the San Diego Air Basin. The San Diego Air Pollution Control District (SDAPCD) is the local agency that is responsible for achieving and maintaining the California Ambient Air Quality Standards and the federal air quality standards established by the Clean Air Act, the National Ambient Air Quality Standards (NAAQS). The SPAPCD was also responsible for preparing the San Diego portion of the State Implementation Plan, which presents the air basin's strategies for achieving the NAAQS. Further, the Regional Air Quality Strategy (RAQS) was prepared by the SDAPCD and sets forth the steps necessary to accomplish attainment of state and federal ambient air quality standards.~~

~~The basis for the RAQS is the distribution of population in the region as projected by the San Diego Association of Governments, and growth forecasting is partially based on the land uses~~

~~established by the City of Chula Vista General Plan. As further demonstrated in Section 5.8, Land Use, below, the BVHS campus is designated for Public & Quasi-Public use on the City's General Plan Land Use Diagram (City of Chula Vista 2005), and proposed improvements to the track and field area would not conflict with the intended uses of the designation, which includes schools. Since the proposed project would not conflict with the General Plan or with the approved RAQS, the proposed project would not conflict with or obstruct implementation of the RAQS, which is the applicable air quality plan for the project area.~~

~~Given the relatively small scale of the proposed project and the developed nature of the site, daily emissions of criteria pollutants during construction are not anticipated to exceed maximum construction emissions thresholds. For the same reason, construction-related greenhouse gas (GHG) emissions (primarily associated with off-road construction equipment, on-road hauling and vendor (material delivery) trucks, and worker vehicles) are not anticipated to be substantial. Further, construction phases would include mobilization; demolition; rough grading; trenching and installation of utilities and drainage; construction of the point-of-entry plaza; and installation of the turf, track, bleachers, and public address (PA) and lighting systems. In addition, construction activities would occur over an approximate 8-month timeframe and may require the use of backhoes, loaders, cranes, forklifts, dozers, graders, excavators, compactors, and trucks. Standard construction measures (i.e., PDF-AQ-1; see Chapter 3, Project Description) would be implemented to reduce vehicle idling and the generation of dust from stockpiled soils and graded areas.~~

~~During operations, athletic field improvements, athletic events and practices, and other events that may use the field throughout the year at BVHS would not generate substantial emissions of criteria pollutants or GHGs. Operation of the project would result in GHG emissions from vehicular traffic, area sources (landscape maintenance), electrical generation, water supply and wastewater treatment, and solid waste. Nighttime use of stadium lights and an extended programming schedule for the athletic field is not anticipated to result in a substantial increase in GHG emissions over existing conditions.~~

~~For the same reasons discussed above, construction and operation of the proposed project is not anticipated to result in a cumulatively considerable net increase of any criteria for which the proposed region is in nonattainment (i.e., ozone, PM_{10}, and $PM_{2.5}$). Air quality and GHG emissions impacts would be less than significant. Due to the shifting nature of construction activities, fugitive dust would be generated in a given location for a relatively short period of time. Sensitive receptors (students at BVHS) would be located near construction sites, but, given the scale of the project and the anticipated duration of proposed construction activities, the proposed project is not anticipated to expose sensitive receptors to substantial pollutant concentrations or create objectionable odors affecting a substantial number of people. Impacts would be less than significant.~~

5.2~~3~~ BIOLOGICAL RESOURCES

The proposed project site is currently developed as BVHS athletic facilities, and is located in an urbanized area of the City. As such, the proposed project site does not contain any species identified as a candidate, sensitive, or special status in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service. The proposed project site does not contain any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service. Additionally, there are no wetlands located on the proposed project site or within the project area.

Due to the project site being urbanized and developed, the proposed project would not 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 wildlife nursery sites. The BVHS campus is located in an urban area and is developed. As such, the campus is identified as a "Developed Area" in the Chula Vista Multiple Species Conservation Program (MSCP) Subarea Plan (City of Chula Vista 2003). Since the BVHS campus is not located in the City's Subarea Plan preserve (i.e., conserved areas managed to ensure the long-term conservation of Covered Species), implementation of proposed improvements at BVHS would not conflict with the City's MSCP Subarea Plan. As such, impacts related to biological resources would be less than significant.

Revisions to the 2019 CEQA Guidelines for biological resources were related to wetlands, which are not present on the project site; therefore, no further analysis is required.

5.3~~4~~ CULTURAL RESOURCES

The project site is developed as BVHS athletic facilities and is located in an urban area of the City. In addition to the BVHS campus, the immediate area has been previously disturbed and is developed with roadway infrastructure, commercial uses, residential neighborhoods, and educational uses (i.e., Southwestern College). A search of the Sacred Lands Files by the Native American Heritage Commission determined that there were no known resources within the project site boundaries and a 1-mile radius. Therefore, due to the negative search results of the Sacred Lands Files by the Native American Heritage Commission and the previous disturbance of the site associated with development of campus athletic facilities, the proposed project would result in less-than-significant impacts to cultural resources, including historical resources, paleontological resources, and human remains.

Revisions to the 2019 CEQA Guidelines for cultural resources related to paleontological resources, which are not present on the project site; therefore, no further analysis is required.

5.~~4~~5 GEOLOGY AND SOILS

The project site and the City's General Plan area are located within seismically active Southern California. No known Alquist–Priolo Earthquake Fault Zones or active faults traverse the City, but traces of the potentially active La Nacion Fault Zone cross the central portion of the City in a north/south direction, generally east of Interstate 805 and west of State Route 125. According to the City's General Plan, the nearest active fault, the Rose Canyon Fault, is located approximately 14 miles northwest of the City (City of Chula Vista 2005). Ground surface rupture is not considered likely to occur in the City's General Plan area due to the absence of known active faults, but the project site is located in seismically active Southern California. As such, development of the project may expose future visitors at the project site to seismic ground shaking. However, design and construction of the project are required to comply with the most current codes regulating seismic risk, including the California Building Code, and are subject to review of the Division of the State Architect. Adherence to current codes and approval of the Division of the State Architect would ensure that seismic risk has been considered and addressed in the design and construction of the project.

Per General Plan Figure 9-7, Geologic Hazards Map, BVHS is not located in an area mapped by the City as a landslide or liquefaction hazard area (City of Chula Vista 2005). Construction activities and soil disturbance at the project site may expose the area to soil erosion, but construction best management practices (BMPs) and a Storm Water Pollution Prevention Plan would be implemented by the contractor in accordance with the State of California Construction General Permit. Further, since the Sweetwater Union High School District (District) would be required to prepare and submit a grading plan to the City for approval, the project would be subject to Chapter 14.20, Storm Water and Discharge Control, of the City's Municipal Code. Therefore, impacts to geology and soils would be less than significant.

Revisions to the 2019 CEQA Guidelines for geology and soils related to paleontological resources, which were previously analyzed under the cultural resources section (see Section 5.3) and which are not present on the project site; therefore, no further analysis is required.

5.~~5~~6 HAZARDS AND HAZARDOUS MATERIALS

The project site is developed with athletic facilities and is within an existing high school campus in an urbanized area of the City. Proposed athletic field improvements would not include uses of facilities that would require a substantial increase in the routine use or disposal of small amounts of hazardous materials associated with typical construction activities, school cleaning, and maintenance. For example, during construction, oils, fuels, and lubricants would be used in construction vehicles and equipment. During operations, the use of landscaping and household chemicals currently occurs on site and is anticipated as part of maintenance of new landscape and building areas at the point-of-entry plaza. As under existing conditions, the District would be required to transport, use, store, and dispose of hazardous materials in compliance with applicable federal, state, and local regulations regulating hazardous materials. Contamination of soils underlying construction areas is not anticipated based on past use of the site as BVHS athletic facilities and a lack of listed hazardous materials sites on the BVHS campus (see below for additional information regarding listed sites). Therefore, through compliance with applicable handling, transport, and disposal of hazardous materials requirements of applicable regulatory agencies, the proposed project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. Impacts would be less than significant.

Following implementation of proposed track and field improvements, BVHS would continue to conduct a display of fireworks during the annual homecoming football game and would continue to apply for and obtain a permit from the City of Chula Vista Fire Department to do so. For the display, the District would contract with a licensed operator, and the display of fireworks at BVHS would be subject to permit approval of the City. Further, the District has committed to notifying area residents before the annual homecoming fireworks display so that they may plan their evenings accordingly.

~~Publically~~Publicly accessible databases of hazardous materials sites were accessed and reviewed to identify the presence of hazardous materials at the site and in the surrounding area. The Department of Toxic Substances Control (DTSC) EnviroStor database and the State Water Resources Control Board's GeoTracker database were reviewed. A permitted underground storage tank is mapped as beneath the BVHS gym building on the GeoTracker database (SWRCB 2016a). However, given that the underground storage tank is associated with the Bonita Point Unocal gas station and that the facility is located across Otay Lakes Road from BVHS at 1495 H Street, this appears to be a mapping error. The Unocal gas station was also identified as a leaking underground storage tank cleanup site for gasoline on the GeoTracker database, but according to the State Water Resources Control Board, cleanup was completed as of October 2010 (SWRCB 2016b). The next closest listed site is located west of BVHS in the Bonita Point Plaza. Arya Cleaners (750 Otay Lakes Road) is listed as a cleanup program site for dry cleaning solvents, but as of October 2014, cleanup of the site had been completed (SWRCB 2016c). One listed site (Otay Ranch Village Five School) was identified within 5,000 feet of BVHS to the southeast; it was listed in the EnviroStor database as a DTSC site cleanup program for lead (DTSC 2016a, 2016b). Based on the result of the Phase I Environmental Site Assessment conducted for the site in 2000, DTSC made a no action determination, which means that the cleanup process is complete and no significant health or environmental risks are present (DTSC 2016a, 2016b). Because hazardous materials sites do not occur on the BVHS campus, listed sites in the surrounding area have been cleaned up pursuant to DTSC standards, and cases are no longer active, potential hazards associated with reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment are not anticipated, and impacts would be less than significant.

Construction activities would occur on the existing campus of BVHS, but because no listed hazardous materials sites were identified as occurring on the BVHS campus in the DTSC EnviroStor and State Water Resources Control Board GeoTracker databases, the potential for the proposed project to emit hazardous emissions within 0.25 mile of an existing or proposed school is anticipated to be low. Therefore, impacts would be less than significant.

As stated in Section 4.6~~3~~, Transportation~~ and Traffic~~, of this EIR, the nearest airport to the project site (Brown Field Municipal Airport) is located approximately 5.1 miles to the south. Due to the distance of the project site from this airport, BVHS is not located within the Airport Influence Area of Brown Field Municipal Airport. John Nichol's Field Airport, the nearest private use airport, is located approximately 6.2 miles southeast of BVHS and at the east extent of the Lower Otay Reservoir. Due to the distance between BVHS and the nearest public and private use airports, and because of the scale of proposed components, the proposed project would not result in an air navigation safety hazard for people residing or working in the project area. Impacts would be less than significant.

The proposed project would not impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan. During construction, the project site would not be used for athletic or other BVHS-related events, and construction activities would not alter emergency access or restrict access of emergency vehicles to BVHS. Access to BVHS for emergency vehicles would continue to be provided along East H Street and Otay Lakes Road. After construction of the project, emergency access to the site would remain similar to existing conditions. Therefore, implementation of the proposed project would not impair or physically interfere with an emergency response plan or emergency evacuation plan, and impacts would be less than significant.

There are no wildlands within or adjacent to the BVHS campus. The project site is located on an existing high school campus in an urbanized area. Therefore, the proposed project would not expose people or structures to a significant risk of loss, injury, or death due to wildland fires. Impacts would be less than significant.

Revisions to the 2019 CEQA Guidelines for hazards and hazardous materials related to private airstrips and wildland fires. The project site is not within the vicinity of a private airfield. Regarding wildland fires, such impacts were previously analyzed herein (see above) and additional analysis has been included in Section 5.13, Wildfire. As described above and in Section 5.13, such impacts would be less than significant, and no further analysis is required.

5.6~~7~~ HYDROLOGY AND WATER QUALITY

Propose athletic field improvements at BVHS would maintain the existing use of the project site, but would increase the imperviousness of the site by redeveloping the southern, undeveloped end of the athletic field as a hardscape point-of-entry plaza and by redeveloping dirt home and visitor field sides with new bleacher systems supported by concrete foundations. Due to the anticipated increase in impervious surfaces, the amount of runoff from the site would increase. Further, due current landscaped areas within the project boundary, sediment, nutrients, and oxygen-demanding substances are assumed to potentially be generated at BVHS due to the presence of existing landscaping and associated maintenance activities on campus. However, the proposed project would not degrade the existing water quality, nor violate water quality standards or waste discharge requirements. Pursuant to City of Chula Vista Municipal Code Section 14.20.100(B), the discharge of pollutants to the stormwater conveyance system must not result in or contribute to a violation of the Regional Municipal Separate Stormwater System (MS4) Permit (Order No. R9-2013-0001, as amended by Order Nos. R9-2015-001 and R9-2015-0100). Further, any person engaged in activities that may result in pollutants entering the stormwater conveyance system are required to undertake all measures to reduce the risk of illicit discharges, including implementation of BMPs during construction and operations. Source and treatment control BMPs would be designed and implemented in accordance with the City's BMP Design Manual and would be subject to review by the City during grading and storm drain plan review. In addition, the District's contractor would prepare and implement a Storm Water Pollution Prevention Plan, which would describe the BMPs meeting the Best Available Technology Economically Achievable and Best Conventional Pollutant Control Technology standards of the statewide Construction General Permit, and would identify BMPs (e.g., erosion controls, sediment controls, tracking controls, non-stormwater management, materials and waste management, and good housekeeping practices) to be maintained for the duration of construction. For these reasons, the project would not violate any water quality standards or waste discharge requirements, or otherwise substantially degrade water quality. Impacts to water quality would be less than significant.

Groundwater is not anticipated to be encountered on site during grading, trenching, or other construction activities, and there is no proposal to use groundwater for the project. Project construction would increase the imperviousness of the site through installation of hardscape and concrete foundations along the southern, western, and eastern ends of the athletic fields area; however, increased imperviousness would not be so substantial that local groundwater recharge would be substantially altered. Therefore, the project would not deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level. Impacts would be less than significant.

Although the proposed project would increase the imperviousness of the site through the introduction of new hardscape areas, existing drainage patterns would not be substantially affected, and runoff water would not exceed the capacity of existing or planned stormwater systems. Drainage facilities would be constructed and installed concurrent with athletic field improvements and would ensure appropriate drainage of the track, turf, and point-of-entry plaza areas. In addition, drainage facilities would accommodate runoff associated with the proposed project. Further, the proposed project would implement and maintain source and treatment control BMPs, and would not provide substantial additional sources of polluted runoff to the stormwater conveyance system. Impacts would be less than significant.

The proposed project would not include housing and would not place structures within a 100-year flood hazard area. In addition, proposed improvements would not expose people or structures to a significant risk of loss, injury, or death involving flooding as result of the failure or a levee or dam. Pursuant to Figure 9-8, Flood and Dam Inundation Hazards Map, of the Chula Vista General Plan, the project site is not located in a flood hazard area or a dam inundation area (City of Chula Vista 2005). The project site is located more than 8 miles from the Pacific Ocean and is situated approximately 475 feet higher in elevation than the coastal area. Therefore, the project would not expose people or structures to a significant risk of loss, injury, or death involving inundation by seiche, tsunami, or mudflow. Impacts would be less than significant.

Revisions to the 2019 CEQA Guidelines for hydrology and water quality were made related to surface and ground water quality, groundwater management, impervious surfaces, surface runoff, flood flows, hazard zones, and conflict with a water quality control plan. The project is not likely to encounter groundwater. BMPs would be implemented to mitigate the increase in impervious surfaces due to the project. The project would not provide substantial additional sources of polluted runoff. The project is not located within a flood hazard zone, a tsunami zone, or a seiche zone. As described above, such impacts would be less than significant, and no further analysis is required.

5.7~~8~~ LAND USE

The proposed project would entail improvements to an existing athletic facility and would not include the introduction of a new use that could physically divide an established community. Additionally, the BVHS campus is designated for Public & Quasi-Public use in the City's General Plan Land Use Diagram, and proposed improvements to the track and field area would not conflict with the intended uses of the designation, which includes schools (City of Chula Vista 2005). Further, proposed improvements would not represent a substantial land use change that would be inconsistent with the underlying Public/Quasi-Public land use designation applied to BVHS, and continued use of the site as a public high school is permitted in the underlying R-1 zone applied by the City (see Municipal Code Section 19.24.040 (E)). The proposed BVHS track and field improvements would not conflict with the City's Smart Growth Principles as laid out in the General Plan, and would comply with the objectives and policies applicable to development within the City's East Planning Area. Although installation of project components would result in impacts that would be experienced by adjacent residents to the east of BVHS, impacts associated with lighting generated by new stadium lighting and noise associated with the proposed PA system and anticipated crowds at on-campus athletic events would be experienced on a short-term basis. Please refer to Sections 4.1, Aesthetics, and 4.5~~2~~, Noise, of this EIR for additional detail about these impacts.

The City of Chula Vista is one of several jurisdictions that participates in the MSCP, and it has developed a Subarea Plan. The City's MSCP Subarea Plan provides a blueprint for conservation of Covered Species and their associated habitats, and forms the basis for federal and state incidental "take" permits for 86 plant and animal species within the City. As the BVHS campus is located in an urban area and is developed, the campus is identified as a "Developed Area" in the Chula Vista MSCP Subarea Plan (City of Chula Vista 2003). As such, the BVHS campus is not located in the City's Subarea Plan Preserve (i.e., conserved areas managed to ensure the long-term conservation of Covered Species). Therefore, implementation of proposed improvements at BVHS would not conflict with the City's MSCP Subarea Plan. Therefore, impacts related to land use would be less than significant.

Revisions to the 2019 CEQA Guidelines for land use and planning related to conflicts with land use plans and policies. As described above, such impacts would be less than significant, and no further analysis is required.

5.8~~9~~ MINERAL RESOURCES

The proposed project site is not designated as a "Regionally Significant" Mineral Resource Zone 2 (MRZ-2) Aggregate Resource Area on the City's General Plan MRZ-2 Area Map (City of Chula Vista 2005). Additionally, since the BVHS campus is developed, is located in an urban environment, and is not identified as occurring on a MRZ-2 area, it is not considered a locally important mineral resource recovery site. Given these factors, implementation of proposed improvements at the BVHS track and field area would not result in the loss of availability of a known mineral resource that would be of value, nor would it result in the loss of a locally important mineral resource recovery site as delineated on a local general plan, specific plan, or other land use plan. Therefore, impacts to mineral resources would be less than significant.

The 2019 CEQA Guidelines update did not change with respect to mineral resources; therefore, no further analysis is required.

5.9~~10~~ POPULATION AND HOUSING

The project would not directly or indirectly induce substantial population growth in the area, as no homes are proposed. The project would not induce substantial growth in the area, since many of the surrounding properties are already developed or planned to be developed under the City's General Plan (City of Chula Vista 2005). Also, no change to the underlying zoning or associated density of the affected parcels would occur. In addition, since the proposed project site currently contains no housing, construction of the proposed project would not displace existing housing or displace people. Therefore, impacts to population and housing would be less than significant.

Revisions to the 2019 CEQA Guidelines for population and housing related to unplanned growth. The proposed project would result in improvements to the track and field area, but would not expand capacity of BVHS thereby resulting in the potential for new, unplanned growth; therefore, no further analysis is required.

5.10~~11~~ PUBLIC SERVICES

Implementation of the proposed project would not add any residential units or contribute to a population increase. The project site is designated for Public & Quasi-Public use according to the City's General Plan Land Use Diagram (City of Chula Vista 2005), and all construction would occur on the BVHS campus within the developed footprint of the existing track and field area. Therefore, impacts to public services would be less than significant.

The 2019 CEQA Guidelines update did not change with respect to public services; therefore, no further analysis is required.

5.~~11~~10.1 Fire Protection

The BVHS track and field is and would continue to be served by the City of Chula Vista Fire Department Station #4, which is located approximately 1 mile away at 850 Paseo Ranchero. Implementation of proposed improvements would not introduce new people or housing to the project area. All new structures proposed in the point-of-entry plaza area would be required to comply with applicable building and fire safety codes, including availability of water for fire suppression and fire safety regulations. Attendance is anticipated to increase at on-campus events and, in particular, at Friday night football games (installation of new stadium bleachers for approximately 3,000 spectators is proposed), but implementation of the proposed project would not require construction of new or physically altered fire protection facilities. Water infrastructure would be installed to new structures, including the concessions/restroom building, and access for fire protection services to the track and field area would continue to be available for the City Fire Department. Therefore, impacts related to fire protection would be less than significant.

The 2019 CEQA Guidelines update did not change with respect to public services, specifically regarding fire protection; therefore, no further analysis is required.

5.~~11~~10.2 Police Protection

Implementation of proposed improvements to the BVHS track and field would not require new and/or physically altered police protection facilities. As under existing conditions, at least two Chula Vista Police Department officers, School Resource Officers, and 10 BVHS staff members, including the assistant principal and principal, are present during football games and patrol the stadium, parking lots, and surrounding areas. Further, the District may hire a security firm to assist with security during large events, and would develop a Security Plan for events held at the site that would be implemented prior to, during, and following on-campus events. The Security Plan would be coordinated with the Chula Vista Police Department. Therefore, impacts related to police protection would be less than significant.

The 2019 CEQA Guidelines update did not change with respect to public services, specifically regarding police protection; therefore, no further analysis is required.

5.~~11~~10.3 Schools, Parks, and Libraries

Implementation of the proposed project would not include any housing, nor would it introduce people to the project area. As such, no new additional schools or expansion of existing schools would be needed to serve the project area. Further, use of parks and libraries within the City would not increase due to the project, and new park and libraries facilities (or the expansion of existing facilities) would not be required. Therefore, impacts related to schools, parks, and libraries would be less than significant.

The 2019 CEQA Guidelines update did not change with respect to public services, specifically regarding school, parks, and libraries; therefore, no further analysis required.

5.~~12~~11 RECREATION

The proposed project would not include a housing component or other action that would result in increased population to the BVHS area and related increased use of local parks and recreation facilities. The project would entail implementation of improvements to the existing BVHS track and field area, including installation of stadium lighting that would facilitate nighttime usage of the facility; however, the project is not anticipated to result in increased student enrollment. Proposed improvements would occur within the developed footprint of the already existing BVHS track and field area. Therefore, impacts to recreational resources would be less than significant.

The 2019 CEQA Guidelines update did not change with respect to recreation; therefore, no further analysis is required.

5.~~13~~12 UTILITIES AND SERVICE SYSTEMS

5.~~13~~12.1 Wastewater Infrastructure

The proposed project would not include any housing, nor would it introduce new people to the project area. Additionally, the proposed project site has been previously developed, and the project would consist of improvements to the BVHS track and field area. A new concessions/restroom building has been proposed, and existing sewer infrastructure would be extended to the site and would connect the facility to the City's sewer system. Given the nature of the project and because peak use of the restroom facility would occur only over a matter of hours on Friday nights during the fall football season, wastewater generated by the project would not exceed wastewater treatment requirements of the San Diego Regional Water Quality Control Board, nor would it necessitate the construction of new wastewater facilities. Although extension of new service lines from the City's existing sewer infrastructure to the proposed restroom/concessions building would be necessary to establish connectivity, the City's existing sewer infrastructure, including treatment facilities, is anticipated to be adequate to accommodate new wastewater flows. As such, impacts related to wastewater would be less than significant.

Revisions to the 2019 CEQA Guidelines for utilities and service systems were made related to wastewater infrastructure and whether the project would warrant relocation or expanded wastewater facilities. As described above, wastewater generated by the project would not exceed treatment requirements and would not necessitate the construction of new wastewater facilities; therefore, such impacts would be less than significant, and no further analysis is required.

5.~~13~~12.2 Stormwater Infrastructure

A drainage and utility plan was developed for the proposed improvements and was approved by the Division of the State Architect in 2014. Prior to the installation of the synthetic track and grass system surfaces, drainage and utility lines would be installed to ensure drainage of the track and field area. Further, drainage and utility lines would be extended from nearby existing stormwater infrastructure to the point-of-entry plaza area to provide service to new structures and hardscape areas. Although proposed improvements, including installation of new structures and hardscape in the point-of-entry plaza area, would result in an increase in impervious area on site, a substantial increase in the volume of stormwater generated by the site and conveyed to the City's stormwater drainage system is not anticipated. The BVHS campus is designated for Public/Quasi-Public use by the City's General Plan, and proposed improvements would be consistent with the intentions of the underlying land use designation. Since the project would not entail an increase in density on site or redevelopment of the site with a use that would be inconsistent with the underlying Public/Quasi-Public land use designation, the City's existing drainage system and facilities is anticipated to be adequate to accommodate the increased stormwater flows generated by the proposed BVHS track and field improvements. The proposed project would not require or result in the construction of new stormwater drainage facilities, nor would it necessitate the expansion of existing facilities. As such, impacts related to stormwater would be less than significant.

Revisions to the 2019 CEQA Guidelines for utilities and service systems were made related to stormwater infrastructure and whether the project would warrant relocation or expanded stormwater facilities. As described above, stormwater generated by the project would not necessitate the construction of new stormwater facilities; therefore, such impacts would be less than significant, and no further analysis is required.

5.~~13~~12.3 Water Infrastructure

As with sewer infrastructure, existing City water infrastructure would be extended to point-of-entry plaza structures to provide water service. Service in the project area is provided by the Otay Water District. Otay Water District's 2015 Urban Water Management Plan Update provides a summary of existing and future water supplies and outlines a plan for conveyance, storage, and treatment of existing and future supplies to accommodate the existing and future needs of Otay Water District's water service area (OWD 2016). Projected future water use methodology considered new development demands that are, in part, based on buildout of the General Plan, and the proposed improvements would be consistent with the underlying General Plan land use designation associated with the BVHS campus. Further, sufficient water supplies are available to serve the project from existing entitlements and resources, and no new or expanded entitlements are anticipated to be needed. Therefore, impacts to water treatment and conveyance facilities would be less than significant

Revisions to the 2019 CEQA Guidelines for utilities and service systems were made related to water infrastructure and whether the project would warrant relocation or expanded water facilities. As described above, water needs generated by the project would not necessitate the construction of new water facilities; therefore, such impacts would be less than significant, and no further analysis is required.

5.~~13~~12.4 Solid Waste

During construction, site demolition would generate solid waste that would be disposed of at a regional landfill with remaining capacity. Once operational and similar to existing conditions, solid waste would be generated on site during events, and would be regularly collected and disposed of by BVHS's waste collection service provider. Waste collection services in the City are provided by Republic Services, and it is anticipated that waste collected at BVHS is and would be disposed of at an active regional solid waste landfill with remaining capacity, such as the Otay Landfill (CalRecyle 2012). Further, as the project would be consistent with the underlying land use designation per the General Plan, the amount of solid waste generated and disposed of in nearby landfills would not constitute an unplanned increase in waste not envisioned by the regional waste planning process. In addition, because BVHS events are currently held at Southwestern College and these events generate solid waste that is then disposed of at an area landfill, implementation of the proposed improvements would not generate a substantial increase in waste when compared to existing conditions. Under the proposed project, waste that is currently generated and collected at Southwestern College after BVHS athletic events would now be generated and collected at BVHS. Therefore, impacts associated with solid waste would be less than significant.

Revisions to the 2019 CEQA Guidelines for utilities and service systems were made related to solid waste infrastructure and whether the project would warrant relocation or expanded solid waste facilities. As described above, solid waste generated by the project would not necessitate the construction of new solid waste facilities; therefore, such impacts would be less than significant, and no further analysis is required.

~~5.13 TRIBAL CULTURAL RESOURCES~~

~~Under AB52, tribes who are interested in government to government consultation with Lead Agencies request to be consulted and thereafter are notified of projects within that Lead Agency. No Tribe has contacted the District and requested consultation under AB52, therefore, no government to government consultation is required for the proposed project. In addition, the project site is developed as the existing Bonita Vista High School track and field, and is located in an urban area of the City of Chula Vista. No native, undisturbed soil or open space exists within the project area. In addition to the Bonita Vista High School campus, the immediate surrounding area has been previously disturbed and is developed with roadway infrastructure, commercial uses, residential neighborhoods, and educational uses (i.e., Southwestern College). Therefore, because the Tribes have not requested to participate in government to government consultation under AB52, and due to previous disturbance of the project site associated with development of Bonita Vista High School campus athletic facilities, the proposed project would result in less-than-significant impacts to tribal cultural resources.~~

5.134 WILDFIRE

Revisions to the 2019 CEQA Guidelines incorporated guidelines related to wildfire. The project site is developed as BVHS athletic facilities and is located in an urban area of the City. There are no wildlands within or adjacent to the project site; however, there is open space adjacent to the northwest corner of BVHS, approximately 1,500 feet from the project site. The proposed project would not impair an adopted emergency response plan or emergency evacuation plan because it would not change the existing land use of the project site. The project would not exacerbate wildfire risks because the site is a previously developed urban area and not adjacent to wildlands. The proposed project does not include, nor would it require, the installation or maintenance of roads, fuel breaks, emergency water sources, power lines, or other utilities that may exacerbate fire risk. Lastly, the proposed project would not 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 because the project site is not surround by wildland area. Therefore, the proposed project would result in less than significant impacts to wildfire.

5.14 REFERENCES

CalRecycle. 2012. Solid Waste Facility Permit: Otay Landfill. August. http://www.calrecycle.ca.gov/SWFacilities/Directory/37-AA-0010/Detail/.

Chula Vista, California, Municipal Code Section 19.24.040 (E).

City of Chula Vista. 2003. City of Chula Vista MSCP Subarea Plan. http://www.chulavistaca.gov/home/showdocument?id=7106.

City of Chula Vista. 2005. Chula Vista Vision 2020 General Plan. Adopted December 13, 2005; Amended October 2015. http://www.chulavistaca.gov/home/showdocument?id=14428.

DTSC (Department of Toxic Substances Control). 2016a. EnvioStor database result for 751 Otay Lakes Road and Surrounding Area.

DTSC. 2016b. EnviroStor Report Profile for Otay Ranch Village Five School (Lot 7/CFD No. 11/Lomas Verdes, Chula Vista, CA).

OWD (Otay Water District). 2016. 2015 Urban Water Management Plan Update. June 2016. http://otaywater.gov/wp-content/uploads/files/Publications/OWD%202015%20UWMP%20FINAL%20w-appendices.pdf.

SWRCB (State Water Resources Control Board). 2016a. GeoTracker Database results for 751 Otak Lakes Road, Chula Vista 91913.

SWRCB. 2016b. GeoTracker Report for Bonita Point Unocal (1495 East H Street, Chula Vista, California).

SWRCB. 2016c. GeoTracker Report for Bonita Point Plaza (Arya Cleaners; 750 Otay Lakes Road, Chula Vista, California).

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CHAPTER 6
CUMULATIVE EFFECTS

6.1 OVERVIEW OF CEQA REQUIREMENTS FOR CUMULATIVE IMPACTS

CEQA requires that an environmental impact report (EIR) examine the cumulative impacts associated with a project, in addition to project-specific impacts. The discussion of cumulative impacts must reflect the severity of the impacts and the likelihood of their occurrence; however, the discussion need not be as detailed as the discussion of environmental impacts attributable to the project alone (State CEQA Guidelines Section 15130(b)).

As stated in the State CEQA Guidelines, an EIR "shall discuss cumulative impacts of a project when the project's incremental effect is cumulatively considerable" (Section 15130(a)). "Cumulatively considerable" means that "the incremental effects of an individual 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 as defined in Section 15130" (Section 15065(c)). Section 15355 of the CEQA Guidelines states that "cumulative impacts" occur from "the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time."

A cumulative impact is not considered significant if the impact can be mitigated to below the level of significance through mitigation, including providing improvements and/or contributing funds through fee-payment programs. The EIR must examine "reasonable options for mitigating or avoiding any significant cumulative effects of a proposed project" (CEQA Guidelines Sections 15130(a)(3) and 15130(b)(5)).

6.1.1 Approach to Identifying Cumulative Projects

The CEQA Guidelines provide two potential methodologies for analyzing cumulative impacts: "(A) a list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the agency, or (B) a summary of projections contained in an adopted local, regional, or statewide plan, or related planning document, that describes or evaluates conditions contributing to the cumulative effect" (Section 15130(b)). The cumulative impacts analysis completed for the proposed Bonita Vista High School (BVHS) Track and Field Project (project) is based primarily on the list approach.

6.1.2 Cumulative Analysis Setting

The cumulative impact analysis for the proposed project is based on a list of reasonably foreseeable projects that are located within a 2-mile radius of the BVHS campus. Projects located greater than 2 miles from the BVHS campus are unlikely to generate operational noise or evening event lighting capable of affecting sensitive residential receptors located adjacent to the BVHS campus.

6.1.2.1 List of Related Projects

This section of the analysis provides a list of past, present, and reasonably foreseeable future projects that the Sweetwater Union High School District (District) has reviewed and determined were most relative to the proposed project. As described previously, the project area encompasses a developed urban setting that includes residential, commercial, recreational, and institutional/educational land uses. Several development proposals on the campus of Southwestern College have been submitted for consideration, have been recently approved, or are under construction in proximity to the proposed project that, together with the proposed project, could result in an increase in operational noise and/or lighting impacts. In addition to Southwestern College, the City of Chula Vista was contacted to identify projects capable of producing related or cumulative impacts. No major projects within a 2-mile radius of BVHS were identified by the City of Chula Vista (~~Fernandez, pers. comm. 2017~~City of Chula Vista 2020).

Table 6-1, Cumulative Projects, lists the identified development proposals within a 2-mile radius of the project site for projects capable of producing related or cumulative impacts.

Table 6-1
Cumulative Projects

Location/Address	Description	Status
Northeastern-most corner of Southwestern College (on campus)	Wellness and Aquatic Complex: includes a two- to three-story, 75,000-assignable-square-foot (ASF) gymnasium and pool complex that, in addition to a competitive gym, will house fitness labs, cardio-workout rooms, training and testing rooms, offices, locker rooms, and classrooms. The complex will be located adjacent to the campus football stadium. Outdoor lighting for the pool area may be installed. Located approximately 0.2 miles southwestern of the BVHS athletic field.	~~Under Construction~~Completed
Northeastern portion of Southwestern College campus along Otay Lakes Road	Performing Arts and Cultural Complex: Two- to three-story, 41,384-gross-square-foot (GSF) complex that will include a 500-seat theatre auditorium and stage, 170-seat black box theatre, performing arts classroom, and stage craft/prop construction area. Located approximately 0.21 miles southwest of the BVHS athletic field.	~~Proposed/Design Phase~~Under Construction

Table 6-1
Cumulative Projects

Location/Address	Description	Status
Northeastern corner of Southwestern College	Field House and Stadium (i.e., DeVore Stadium): Existing four-level fieldhouse (more than 58,000 square feet) includes four classrooms, 150-seat lecture hall, nine offices, a fitness center, and locker rooms. Renovated stadium features descending concrete bleacher, a synthetic turf surface, and stadium lighting. Located approximately 0.27 miles southwest of the BVHS athletic field.	Existing (opened in August 2014)
Center of Southwestern College	Student Union: New, 85,000-square-foot student union that will replace the existing student union and cafeteria buildings and consolidate the various programs and additional student life spaces that include the Associated Student Organization, Book Store, Cares Hub, Culinary Arts, Learning Communities, Health and Personal Wellness, and Veteran Resource Center.	Design
Southern central portion of Southwestern College	Institutional Technology Building: New single-story construction located where the former 300 Buildings resided. The project is approximately 16,100 square feet and includes~~:~~ offices, classroom, data center, network spaces, AV build up, applications and research, and planning operations with help desk and desktop support. The building includes a data center that will provide both dedicated data storage as well as space for instructional and informational staff.	Design
South-southeastern Center of Southwestern College	Instructional Building 1: The new Instructional Building 1 will provide a general use instructional space that includes lecture classrooms, active classrooms for hands-on learning, and spaces for peer--to--peer collaboration and instructional project work. Class labs that support specific academic programs will be coordinated as Areas of Study in support of the Guided Pathways Initiative. Faculty offices and support space will be included and organized to support these Areas of Study.	Programming
South-southwestern corner of Southwestern College	Southwestern College Landscape and Nursery Technology Department is located in the South Bay Botanic Garden at the Chula Vista Campus. The Garden is an 11,000-square-foot, always evolving classroom and rich resource for teaching and learning about design, construction, maintenance, nursery production, and all kinds of landscape related professions.	Design
South-southwestern corner of Southwestern College	Facilities Operations Planning: The redevelopment of the southeast portion of campus will accommodate the consolidated Facilities Operations, Maintenance, and Grounds complex and centralize campus services in a location that is remote from areas of concentrated student activity, yet conveniently accessed by the new Ring Road. Deliveries and materials handling will be less disruptive to campus activity and can be efficiently staged and organized. Included in this project is the re-alignment of the access road and utilities that service the Child Development Center as well as other facilities located on that portion of the campus.	Design

Sources: Southwestern College 2019 a, 2019b, 2019c, ~~2017a, 2017b, 2017c~~2020a, 2020b, 2020c, 2020d, 2020e.

6.1.3 Cumulative Impact Analysis

6.1.3.1 Aesthetics/Lighting

As stated in Section 4.1, Aesthetics, of this EIR, operation of the proposed new stadium lighting system associated with the project would generate significant light trespass that would adversely affect nighttime views in the area. The new lighting system would generate light trespass calculated to be approximately 0.~~05~~ 02 (or less) foot-candles measured at the ~~adjacent~~ nearest residential property lines to the east and north of the project site ~~to the east of the athletic field~~ and 0.00 foot-candles measured at the residential property line to the north of the ~~athletic field~~football and baseball fields. Both the horizontal foot-candle measurements associated with residential properties to the north and east of the BVHS athletic field were shown to be less than the 0.2 foot-candle threshold identified by the County of San Diego, which was used as a threshold of significance for lighting in this EIR.

Due to distance from the cumulative projects and the BVHS athletic field, and the orientation of stadium lighting at the Southwestern College football field, the proposed project in conjunction with cumulative projects would not result in a cumulative significant lighting impact. The stadium light system at BVHS is located approximately 0.2 miles or greater from cumulative projects on the Southwestern College campus considered in this analysis. New lighting to be installed on the campus is assumed to implement similar measures as non-stadium lighting at BVHS (e.g., shielding, directing fixtures downward) to minimize opportunity for skyglow and light trespass. These projects are also located in an urban setting where other lighting sources (e.g., traffic signals, street lights, parking lot lighting, advertisement lighting) operate and contribute to the nighttime environment. In addition, lighting levels typically experience a diminishing effect with distance, and, as such, the intensity of off-site lighting sources up to 0.2 miles away from the BVHS athletic field that happen to trespass off the Southwestern College campus would weaken and would not be anticipated to noticeably add to the lighting levels calculated at the eastern and northern property lines adjacent to BVHS. Lastly, the stadium lighting system at Southwestern College operates during evening hours and is designed to illuminate the playing field surface and minimize light trespass. For these reasons, the proposed project, in conjunction with cumulative projects, would not result in a cumulative significant lighting impact.

6.1.3.2 Air Quality

As discussed in Section 4.2, Air Quality, cumulative operational emissions in relation to consistency with local air quality plans, the State Implementation Plan (SIP) and Regional Air Quality Strategy (RAQS) serve as the primary air quality planning documents for the state and San Diego Air Basin (SDAB), respectively. The SIP and RAQS rely on San Diego Association of Governments growth projections based on population, vehicle trends, and land use plans developed by the cities and the County of San Diego as part of the development of their general plans. Therefore, projects that propose development that is consistent with the growth anticipated by local plans would be consistent with the SIP and RAQS and would not be considered to result in cumulatively considerable impacts from operational emissions. The project would allow existing BVHS team sports activities and special events that currently occur off- site to occur on the BVHS campus. Therefore, the project would not exceed the growth assumptions contained in the SIP and RAQS and impacts would be considered less than cumulatively considerable.

The project would not include any stationary sources of air emissions. Vehicle trips associated with operation and maintenance of the athletic fields would continue to occur as they do under existing conditions as events would move from Southwestern College to BVHS; however, the same number of vehicular trips are expected. The only change to vehicle trips would be a re-distribution of trips that would occur with relocation of athletic and special events to the BVHS campus as described in Section 4.6, Transportation. While a small change, either increase or decrease, could occur in vehicle emissions from the redistribution of trips within the transportation network, the project would not result in a cumulatively considerable contribution to regional ozone concentrations or other criteria pollutant emissions. Therefore, cumulative impacts associated with project-generated operational criteria air pollutant emissions would be less than cumulatively considerable.

6.1.3.3 Energy

Cumulative projects that could exacerbate the project's impacts include any projects that could result in wasteful, inefficient, or unnecessary use of energy. However, the project would not result in wasteful, inefficient, or unnecessary use of energy, in large part due to the short-term and temporary nature of the construction period. In addition, energy requirements from project operations would not represent new energy demands because the project would redistribute the existing energy demand that currently occurs at Southwestern College to the BVHS Campus. The project and all other projects in the City would comply with applicable regulatory requirements of Title 24 of the California Code of Regulations for energy efficiency standards for residential and nonresidential buildings. Therefore, the long-term energy consumption of those projects would also be reduced. Further, the project and cumulative projects would receive electricity from San Diego Gas and Electric (SDG&E), which the state mandates to comply with Senate Bill 100. Senate Bill 100 requires (1) 100% of the retail sales of electricity in California come from eligible renewable energy resources and zero-carbon resources supply, (2) that the zero-carbon electricity resources do not increase the carbon emissions elsewhere in the western grid, and (3) that the achievement not be accomplished through resource shuffling. Thus, the project and cumulative projects would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. Given these considerations, the consumption of energy resources (including electricity, natural gas, and petroleum) during the project construction and operation would not be inefficient or wasteful and would not contribute to a cumulatively considerable energy impact.

6.1.3.4 Greenhouse Gas Emissions

Greenhouse gas (GHG) emissions are inherently a cumulative impact due to the cumulative nature of GHG emissions. As analyzed in Section 4.4, Greenhouse Gas Emissions, project construction emissions amortized over 30 years would be approximately 6 metric tons (MT) carbon dioxide (CO_2e). The project would result in general maintenance activities that currently occur on campus, such as landscaping, general repairs, natural turf field maintenance, and trash removal; maintenance also would include replacement of light fixtures and artificial turf. Following construction, athletic and special events that currently occur off campus would begin occurring on campus and would be required to comply with all applicable plans, policies, and regulations related to the reduction of GHG emissions. Therefore, the project would only serve to relocate events on campus, and net mobile source emissions are not anticipated to increase as a result of the transfer of events from the Southwestern College campus stadium as discussed in Section 4.6. Because amortized emissions are only 6 MT CO_2e, and because other cumulative projects would be required to comply with applicable plans, policies, and regulations related to reducing GHG emissions, impacts would be less than cumulatively considerable.

6.1.3.5 Noise

As stated in Section ~~4.2~~4.5, Noise, of this EIR, construction of the proposed project may result in temporary but potentially significant impacts at the nearest off-site noise-sensitive receptors. Implementation of Mitigation Measure (MM) NOI-1 would reduce construction noise impacts to less than significant. Construction activities from the project and other projects in the vicinity could have the potential to create a cumulative noise impact, but that would be dependent on distance to the sensitive receptor. In this case, construction activities on the northern portion of the Southwestern College campus along Otay Lakes Road are at least 900 feet to the nearest existing noise-sensitive residences to the project. At this distance, and due to naturally occurring sound attenuation, on-campus construction project noise would not make a substantial cumulative acoustical contribution and therefore not generate a cumulative construction noise impact.

As discussed in Section 4.5, increases in local roadway traffic due to completed nearby Southwestern College campus development would represent less than a 2% upward adjustment from existing volumes and thereby equate to less than a tenth of a decibel increase in roadway traffic noise. This predicted traffic noise change due to on-campus development, combined with the project not creating substantial new traffic volumes (i.e., resulting in imperceptible changes to exterior traffic noise that are much less than 3 dBA), means there would be no cumulatively considerable traffic noise impact attributed to the project.

~~would result in significant and immitigable noise impacts for operation of the facility during an event that would use the public address (PA) system and have crowd cheering, such as during~~

~~Friday night football games. Significant traffic noise impacts or construction noise impacts would not occur with implementation of mitigation measures MM-NOI-1 through MM-NOI-1~~0~~2~~.

Although anticipated hosted events (i.e., high school football games) at the BVHS stadium and marching band usage of the practice field as proposed by the project would ~~the proposed project would~~ result in ~~a~~ significant ~~and unavoidable~~ operational noise impacts, MM-NOI-2 through MM-NOI-7, would reduce impacts to less than significant. Depending on their respective schedules, BVHS football games and other events hosted at the BVHS stadium may be concurrent with ~~due to the~~ Southwestern College football games and other on-campus events. However, due to the 1,700-foot distance between the Southwestern College (DeVore) stadium and the nearest existing noise-sensitive residence to the project, crowd noise from such attended on-campus athletic program events would be substantially attenuated. Furthermore, the physical presence of the newly erected Wellness and Aquatic Center on the Southwestern College campus helps interfere with direct noise transmission between an attended DeVore Stadium event and the noise-sensitive receivers east of the project. For these reasons, even when BVHS and Southwestern College events overlap in schedule, the acoustical contributions from the latter are not expected to be ~~program schedule and the distance from the cumulative projects and the BVHS athletic field, the proposed project in conjunction with~~ cumulatively considerable and cumulative noise impacts would be less than significant ~~projects would not result in a cumulatively significant noise impact. Significant and unavoidable noise impacts associated with crowd noise during Friday night football games (and similar events) on the BVHS campus would not typically combine with crowd noise from Southwestern College football games. With the exception of one to two on-campus scrimmages during evening hours in August (or potentially September), Southwestern College's football program typically schedules its six home games on Saturdays. As it is assumed that most of the larger events on the BVHS campus (i.e., football games and practices) would occur during the week, sports schedules would not typically overlap~~.

~~Further, because sound levels attenuate (or diminish) at a rate of approximately 6 A-weighted decibels (dBA) per doubling of distance from an outdoor point source, and projects on Southwestern College are located 0.2 miles or greater from the BVHS athletic field, noise generated during operation of Southwestern College projects would substantially diminish (by at least 30 dBA) by the time it was received at the BVHS athletic fields. Southwestern College is also proposing the installation of street trees on East H Street and Otay Lakes Road along the frontage of the Wellness and Aquatic Complex and the Performing Arts and Cultural Complex that may further reduce college-generated noise received at BVHS.~~

~~For these reasons, the Bonita Vista High School Track and Field Project, in conjunction with cumulative projects, would not result in a cumulative significant noise impact.~~

6.1.3.6 Transportation

As stated in Section 4.6, under existing conditions, evening football games, practices, and other sporting events are held at Southwestern College, which is across the street from the proposed project (across the intersection of Otay Lakes Road and East H Street). With these events occurring on the BVHS campus instead of at the college, the existing trips would be redistributed~~,~~ and no new trips would be created. Since the college and BVHS are located very close to each other, the change in trip lengths of these redistributed trips would change nominally; therefore, there would be no net increase in vehicle miles traveled (VMT) due to the proposed project, and it would not contribute to a cumulatively considerable impact to VMT. None of the projects listed in Table 6-1 would result in reduced emergency access because none of these projects, including the proposed project, would obstruct or impair an emergency access route. Construction and operation of the proposed project and cumulative projects~~,~~ would not conflict with programs, plans, ordinances, or policies related to public transit, bicycle, or pedestrian facilities, and no impact would occur. Finally, neither the proposed project nor the cumulative projects would substantially increase hazards due to a design feature (because none of the cumulative projects would cause major construction activities to local roadways) or incompatible uses (because all projects are consistent with the existing and planned underlying land uses). Therefore, the project would not contribute to a cumulative considerable impact to transportation.

6.1.3.7 Tribal Cultural Resources

The project and cumulative projects are all within areas of previous disturbance and would occur on sites already developed with existing uses. A records search by the NAHC of the Sacred Lands Files determined there were not significant resources within a 1-mile search radius of the project site, which includes the cumulative projects from Southwestern College. This finding is consistent with the determination in the Final Mitigated Negative Declaration for the Southwestern College Whole Site Modernization Project that there were no historic or prehistoric resources within the footprint of the Master Plan Update–, which includes the projects identified in Table 6-1 (Southwestern College 2016). Further, no Native American tribe has contacted the Sweetwater Union High School District to request consultation under Assembly Bill 52. Therefore, it is not anticipated that the proposed project would contribute to a cumulatively considerable impact to tribal cultural resources.

6.2 REFERENCES

City of Chula Vista. 2020. *Annual Residential Growth Forecast – 2021 through 2025.* October 2020.

Fernandez, C. 2017. "Bonita High School." Personal communication (email) from Carlos Fernandez (City of Chula Vista) to Spencer Hardy (Dudek). January 19, 2017.

Southwestern College. 2016. *Final Mitigated Negative Declaration for the Southwestern College Whole Site Modernization Project*. February 2016. Prepared by BRG Consulting Inc.

Southwestern College. 2019a. “Instructional Building No. 1.” Printed December 3, 2019. Accessed December 4, 2020. https://www.swccd.edu/swc-community/propositions-r-and-z/_files/project-profile_ib1.pdf.

Southwestern College. 2019b. “Landscape Nursery Technology.” Printed December 3, 2019. Accessed December 4, 2020. https://www.swccd.edu/swc-community/propositions-r-and-z/_files/project-profile_lnt.pdf.

Southwestern College. 2019c. “Operations & Warehouse Complex.” Printed December 3, 2019. Accessed December 4, 2020. https://www.swccd.edu/swc-community/propositions-r-and-z/_files/project-profile_fop.pdf.

Southwestern College. ~~2017a~~2020a. “Wellness & Aquatics Complex: Proposition R Project Profile.” Accessed ~~July~~ December ~~12~~4, ~~2017~~2020. https://www.swccd.edu/swc-community/propositions-r-and-z/_files/project_profile-wellness-and-aquatics.pdf~~http://www.swccd.edu/index.aspx?page=3268~~.

Southwestern College. ~~2017b~~2020b. “Performing Arts ~~and Cultural Complex~~Center: Proposition ~~R~~ Z Project Profile.” Accessed December 4, 2020~~July 12, 2017~~. https://www.swccd.edu/swc-community/propositions-r-and-z/_files/project_profile-wellness-and-aquatics.pdf~~http://www.swccd.edu/index.aspx?page=3268~~.

~~Southwestern College. 2017c. “Fieldhouse and Stadium Improvements: Proposition R Project Profile.” Accessed July 12, 2017. https://www.swccd.edu/swc-community/propositions-r-and-z/index.aspxhttp://www.swccd.edu/index.aspx?page=3268.~~

Southwestern College. 2020c. “Fieldhouse.” Accessed December 4, 2020. https://www.swccd.edu/swc-community/propositions-r-and-z/_files/fieldhouse.pdf.

Southwestern College. 2020d. “Student Union.” Accessed December 4, 2020. https://www.swccd.edu/swc-community/propositions-r-and-z/_files/project-profile_su.pdf.

Southwestern College. 2020e. “IT Data Center.” Printed July 13, 2020. Accessed December 4, 2020. https://www.swccd.edu/swc-community/propositions-r-and-z/_files/project-profile-it-data-center.pdf.

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CHAPTER 7
OTHER CEQA CONSIDERATIONS

7.1 OVERVIEW

This chapter presents discussions of the significant and unavoidable impacts, irreversible changes, and growth-inducing impacts should the proposed Bonita Vista High School (BVHS) Track and Field Project (project) be implemented.

7.2 SIGNIFICANT AND UNAVOIDABLE IMPACTS

Section 15126.2(b) of the State CEQA Guidelines requires an environmental impact report (EIR) to describe any significant impacts that cannot be mitigated to ~~a~~ less ~~-~~than ~~-~~significant~~ level~~. All of the impacts associated with the proposed project would be reduced to ~~a~~ less than significant through implementation of identified mitigation measures and best management practices~~, with the exception of the impacts discussed below. The following impacts have been identified as significant and unavoidable:~~

~~**Impact NOI-1:** During operations, noise levels from sports events (specifically football games) and band practices may be at least 60 dBA, which would exceed the maximum exterior noise levels established by the City of Chula Vista's Municipal Code. As such, noise generated by project operations would result in exposure of persons to or generation of noise levels in excess of local standards, and would be considered a potentially significant long-term impact.~~

~~**Impact NOI-2:** During operations, noise levels during sports events (specifically the approximately five home football games per season) would be substantially greater than existing ambient noise levels in the project vicinity without the project. This impact would result from the noise generated by spectators and the public address system during sports events. Due to the potential temporary or periodic increases in ambient noise levels during sports events, impacts would be potentially significant.~~

~~All other significant impacts of the proposed project would be reduced to less than significant with the implementation of the project-specific mitigation measures~~ identified in Chapter 4, Environmental Analysis.

7.3 SIGNIFICANT AND IRREVERSIBLE ENVIRONMENTAL EFFECTS

CEQA Guidelines mandate that an EIR address any significant irreversible environmental changes that would be involved in the proposed action should it be implemented (14 CCR 15126[~~(~~c]~~)~~). An impact falls into this category if:

- The project would involve a large commitment of nonrenewable resources.

- The primary and secondary impacts of the project would generally commit future generations of people to similar uses.
- The project involves uses in which irreversible damage could result from any potential environmental incidents associated with the project.
- The proposed consumption of resources is not justified (e.g., the project results in wasteful use of energy).

Determining whether a~~the~~ project may result in significant irreversible impacts requires a determination of whether key resources would be degraded or destroyed in such a way that there would be little possibility of restoring them. Construction of each of the project components would result in the use of nonrenewable resources and energy sources, including fossil fuels, natural gas, and electricity. Fossil fuels would be used to power construction equipment, delivery trucks, and construction employee vehicles. Construction equipment would also use electricity and natural gas. Use of these energy sources would be considered a permanent commitment of resources. In addition, a variety of resource materials would be used during the construction process, including steel, wood, concrete, and fabricated materials. Once these materials and fuels are used for construction, the commitment of such materials and fuels would be irreversible.

Once operational, the project would consume more energy on a daily basis than is currently consumed on site. A portion of the energy used would be provided by nonrenewable sources. Once constructed, it is reasonable to assume that the facility would use nonrenewable energy resources, which would be an irreversible commitment of such resources. The loss of such resources would not be highly accelerated ~~when~~ compared to existing conditions. Additionally, the project would be a relatively minor energy consumer compared to other local and regional uses. Therefore, this would not be ~~considered~~ a significant irreversible environmental effect.

7.4 GROWTH INDUCEMENT

The proposed improvements to the BVHS athletic field would not introduce new housing into the City of Chula Vista or the San Diego region, and it would not result in an inducement of growth. The project would not require the construction of new infrastructure, such as roadways or utilities, nor would it involve any changes to existing land use or zoning designations. The project's purpose supports the existing school and community population. BVHS nighttime games and events are currently held nearby at Southwestern College. The proposed athletic field improvements would result in students and fans traveling to BVHS instead of Southwestern College. Furthermore, the project site is located in a developed urban area. Consequently, the proposed project would not induce ~~additional~~ growth.

CHAPTER 8
ALTERNATIVES

8.1 OVERVIEW

CEQA requires the consideration of alternative projects and an impact analyses associated with each of the identified alternatives. Through a comparison of alternatives to the proposed Bonita Vista High School (BVHS) Track and Field Project (project or proposed project), the benefits of each can be weighed and analyzed. Section 15126.6(a) of the CEQA Guidelines requires that an EIR, "describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project, but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives." Additionally, Section 15126.6(e)(f) of the CEQA Guidelines requires that a "no project" alternative also be evaluated. Further, if the environmentally superior alternative is the "no project" alternative, the EIR must also identify an environmentally superior alternative among the other alternatives.

The range of alternatives required in an EIR is governed by a "rule of reason" that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice. The alternatives are limited to those that would avoid or substantially lessen any of the significant impacts of the project. Of those alternatives, the EIR need examine in detail only those that the lead agency determines could feasibly attain most of the basic objectives of the project. The range of feasible alternatives must be selected and discussed in a manner to foster meaningful public participation and informed decision-making.

Pursuant to the CEQA Guidelines stated above, a range of alternatives to the proposed project is considered and evaluated in this EIR. The discussion in this chapter provides the following:

- A description of the alternatives considered.
- An analysis of whether the alternatives would meet most of the project objectives.
- A comparative analysis between the alternatives and the proposed project. The focus of this analysis is to determine if any alternatives are capable of eliminating or reducing the significant environmental effects of the proposed project to a less-than-significant level. Table 8-1, below, provides a summary of this analysis.

Factors that may be taken into account when addressing the feasibility of alternatives include site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries, and whether access to an alternative site (if an off-site alternative is evaluated) can be reasonably acquired or controlled (CEQA Guidelines Section 15126.6(f)(1)).

The alternatives analyzed in this chapter are as follows:

- No Project – No Build Alternative
- No Project – No Lighting/Amplification Alternative
- Relocation Alternative
- Lowered Field Elevation Alternative

The impacts of these alternatives are compared to the impacts of the proposed project. In addition, the alternatives are assessed relative to their ability to meet the basic purpose and objectives of the proposed project as described in Chapter 3, Project Description, of this EIR.

8.2 ANALYSIS OF ALTERNATIVES CONSIDERED

Alternatives considered are the No Project – No Build Alternative that is mandated by CEQA, the No Project – No Lighting/Amplification Alternative, the Relocation Alternative, and the Lowered Field Elevation Alternative.

8.2.1 No Project – No Build Alternative

Under the No Project – No Build Alternative, neither the proposed BVHS track and field improvements (i.e., installation of a new stadium lighting system and new public address (PA) and speaker system) nor the artificial turf/track project would occur. Existing conditions at the site would be retained, and no improvements would be implemented. Further, select nighttime BVHS athletic events would continue to be held at nearby Southwestern College. Because no improvements, construction, or nighttime athletic events would occur, all of the ~~significant~~ operational noise impacts associated with the proposed project would be avoided. Therefore, the No Project – No Build Alternative would be considered the environmentally superior alternative. However, the No Project – No Build Alternative would not meet the majority of project objectives identified in Section 3.3 of this EIR, including new facility construction, providing for evening on-campus athletic events, and increased student pride and school spirit. Therefore, the No Project Alternative is not recommended for selection and implementation.

State CEQA Guidelines Section 15126.6(e)(2) requires a lead agency to identify an "environmentally superior alternative" from among the other alternatives examined if the No Project Alternative is determined to be environmentally superior to the alternatives. Therefore, a discussion of other alternatives considered is presented below to identify the environmentally superior alternative.

8.2.2 No Project – No Lighting/Amplification Alternative

Under the No Project – No Lighting/Amplification Alternative, a new stadium lighting system and a new PA and speaker system would not be installed at the BVHS athletic fields. As such, on-campus nighttime athletic events and other miscellaneous events throughout the year could not be held at BVHS and would continue to be held at Southwestern College. Although the new lighting and PA and sound system would not be implemented, this alternative would still allow for implementation of components of the proposed project, including installation of a synthetic all-weather track and synthetic grass system, new stadium bleachers, and construction of a new point-of-entry plaza.

As discussed in Section ~~4.2~~4.5, Noise, of this Draft EIR, during the approximately five home football games per season, the stadium would experience the highest attendance numbers (i.e., up to ~~3,200~~2,000 persons, including spectators in standing-room-only areas). However, under this alternative, nighttime athletic and other events throughout the year would not be held at BVHS. Similar to existing conditions, nighttime athletic and other events, including Friday night football games, would be held at Southwestern College. On-campus athletic events, including field hockey and soccer games and practices, are not anticipated to attract the same volume of spectators as football games, and, therefore, crowd noise at these and other non-football events in later afternoon/early evening hours is not anticipated to be significant. Further, because a new PA and speaker system would not be installed under this alternative, ~~significant~~ impacts associated with operation of the PA system would not occur. As such, any potential impacts associated with operational noise would be avoided under this alternative.

Although this alternative would avoid significant ~~and unavoidable~~ impacts associated with operational noise that would otherwise potentially occur with the proposed project, this alternative would not meet the objectives of provision of facilities for nighttime athletic events and increased student pride and school spirit identified in Chapter 3 of this EIR. These objectives were developed, in part, from the goals identified by the Sweetwater Union High School District (District) in its Long-Range Facilities Master Plan, which is the master plan for District facilities, and inventories facility conditions and assesses needs for District schools (District 2004). As such, this alternative would undermine the overarching goals of the District to provide consistent athletic facilities in District schools and to limit academic disturbances for students through the provisions of facilities for evening practices and events. Funding for stadium lighting and the proposed project is provided through Proposition O. Therefore, although No Project – No Lighting/Amplification Alternative would avoid the significant ~~and unavoidable~~ noise impacts of the proposed project, it would not meet the objectives of providing facilities for nighttime athletic events or increasing student pride and school spirit. Therefore, this alternative is not recommended for selection and implementation.

8.2.3 Relocation Alternative

In accordance with CEQA Guidelines Section 15126.6(f)(2), an alternative project site location should be considered if development of another site is feasible and if development of another site would avoid or substantially lessen significant impacts of the proposed project. When considering an alternative site location, the project objectives may be used to determine the necessary size of the site, its location, and availability of infrastructure. In accordance with CEQA Guidelines Section 15126.6(f)(2)(A), a key question in looking at a project site alternative is "whether any of the significant effects of the project would be avoided or substantially lessened by putting the project in another location."

Due to the built-out nature of the western portion of the BVHS campus, the eastern portion of the campus was reviewed to identify feasible locations that could accommodate the track and field improvements (i.e., installation of a new stadium lighting system and new PA and speaker system) and the artificial turf/track project. One alternative site, the site of the current BVHS softball/baseball field, was identified. Due to grade separation between the BVHS softball/baseball field and residences to the north, it was thought that operational noise impacts associated with crowd noise may be reduced when compared to the proposed project. However, despite the grade separation, operational noise is measured at the occupied property line, not the actual residence, and because residential property lines along the campus's northern boundary would be situated a similar distance from the PA and speaker system as residential property lines along the campus's eastern boundary, this alternative would not substantially lessen the operational noise from crowd events anticipated under the proposed project. This alternative would meet all project objectives, but due to the cost to relocate the entire existing stadium and because it would not avoid or substantially lessen significant ~~and unavoidable~~ operational noise impacts, this alternative is not recommended for selection and implementation.

8.2.4 Lowered Field Elevation Alternative

Under the Lowered Field Elevation Alternative, the elevation of the proposed athletic field would be lowered by approximately 20 feet below existing ground surface to potentially reduce operational sound levels received at adjacent residential properties during on-campus sporting events and band practices. All aspects and components of the proposed project (i.e., synthetic turf field, all-weather track, PA sound system, field lighting system, point-of-entry plaza, and ~~3,000~~ 2,000-person capacity bleacher system) would be installed, and band practices, nighttime BVHS athletic events and practices, and miscellaneous evening events as needed by BVHS would be held at BVHS under the Lowered Field Elevation Alternative.

Lowering the elevation of the new athletic field is unlikely to result in reduced nighttime lighting impacts. Although the playing surface of the athletic field would be lowered, poles associated with the field lighting system would likely be installed at existing ground level adjacent to field excavation (similar to the design of nearby Southwestern College). Therefore, the lowered field alternative would not achieve reduced light trespass or lighting levels at adjacent residential properties to the east of the new athletic field. Similar to the proposed project, nighttime lighting impacts under this alternative would be less than significant.

As discussed in Section ~~4.2~~4.5, Noise, of this Draft EIR, ~~even~~ with implementation of mitigation measures, operational noise impacts concerning the exposure of persons to or generation of noise levels in excess of standards during programmed events, including crowd noise and noise generated by the proposed PA system and during band practices, would be reduced to less than significant ~~and unmitigable~~. Event crowd noise would also create a substantial temporary or periodic increase in ambient noise levels; however, ~~and even~~ with implementation of mitigation measures, impacts would ~~remain~~ be reduced to a less than significant ~~and unavoidable noise impact~~level.

Noise calculations were performed to determine if the line-of-sight between the centerline of the football field and the residential property line to the east would be blocked if the field elevation of the proposed athletic field were to be lowered by 20 feet (see Appendices B and C to this EIR). Even at this lower elevation, the line-of-sight between the centerline of the football field and the residential property line to the east would remain unobstructed by the proposed bleacher system. Thus, no noise reductions at the residential property lines would occur based on lowering the elevation of the field by 20 feet. To block the line-of-site, the field elevation would need to be lowered more than 26 feet from the existing elevation. If the field were lowered to just over 26 feet below existing ground surface, and a solid backing were added to the bleacher system, approximately 2 dBA of noise reduction would be achieved for the marching band noise. Other football game noise sources (i.e., PA noise and event crowd noise) would not be significantly reduced.

Lowering the elevation of the new athletic field would not avoid or substantially reduce the noise impacts associated with operation of the proposed project. PA system, ~~and~~ event noise, and noise generated during band practices~~,~~ would not result in the exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance. ~~In addition,~~ PA system, ~~and~~ event noise, and noise generated during band practices would result in a ~~substantial~~ temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project. Similar to the proposed project, operational noise impacts would be ~~significant and unavoidable~~ less than significant with implementation of recommended mitigation measures.

Because only minor reductions in operational noise at adjacent residential properties would be achieved, the Lowered Field Elevation Alternative would create negligible benefits compared to the proposed project. This alternative would meet all project objectives, but due to the costs associated with lowering the field elevation and because it would not avoid or substantially lessen significant and unavoidable operational noise impacts, this alternative is considered to be infeasible and is not recommended for selection and implementation.

8.3 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

Although the No Project Alternative would result in reduced environmental impacts compared to the proposed project, Section 15126.6(e)(2) of the CEQA Guidelines requires identification of an alternative other than the No Project Alternative as the environmentally superior alternative. As such, the No Project – No Lighting/Amplification Alternative would be the environmentally superior alternative due to its avoidance of noise impacts, and the general ability of this alternative to meet all project objectives, with the exception of objectives associated with the provision of facilities for nighttime athletic events and increased student pride and school spirit. However, as stated above in Section 8.2.2, the No Project – No Lighting/Amplification Alternative would undermine the overarching goal of the District to provide consistent athletic facilities in District schools and limit academic disturbances for students through the provision of facilities for evening practices and events.

Table 8-1
Comparison of Project Alternatives

Impact Category	Proposed Project	No Project – No Build Alternative	No Project – No Lighting/Amplification Alternative	Relocation Alternative	Lowered Field Elevation Alternative
Aesthetics/Lighting	Less than Significant	Avoid	Avoid	Similar	Similar
Air Quality	Less than Significant with Mitigation	Avoid	Similar	Similar	Similar
Energy	Less than Significant	Avoid	Similar	Similar	Similar
Greenhouse Gas Emissions	Less than Significant	Avoid	Similar	Similar	Similar
Noise	Less than Significant ~~and Unavoidable~~ with Mitigation	Avoid	Avoid	Similar	Similar
Transportation/Traffic	Less than Significant	Avoid	Similar	Similar	Similar
Tribal Cultural Resources	Less than Significant with Mitigation	Avoid	Similar	Similar	Greater
Environmentally Superior Alternative?	No	No	Yes	No	No
Meets Project Objectives?	Yes	No	No	Yes	Yes

Notes: Avoid = Impacts under this alternative avoided compared to impacts for the proposed project.
Similar = Impacts under this alternative are similar to impacts for the proposed project.

8.4 REFERENCES

District (Sweetwater Union High School District). 2004. Long-Range Facilities Master Plan. Adopted July 20, 2004. Updated January 23, 2006. http://planningandconstruction.sweetwaterschools.org/tag/lrfmp/.

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CHAPTER 9
MITIGATON MONITORING AND REPORTING

A Mitigation Monitoring and Reporting Program (MMRP) was prepared in accordance with Section 21081.6 of ~~CEQA~~the California Environmental Quality Act. The MMRP will be adopted by the Sweetwater Union High School District (District) if the proposed Bonita Vista High School ~~(BVHS)~~ Track and Field Project (project) is approved. The MMRP will ensure compliance with the mitigation measures adopted by the District.

Table 9-1
Summary of Significant Impacts and Mitigation Measures

Impact	Recommended Mitigation Measure	Timeframe of Mitigation	Monitoring Reporting Agency
4.~~2~~5 Noise: Construction			
Due to the proximity of construction activities to some off-site receptors (as close as 30 feet away) and the duration sensitivity of predicted compliance with the FTA guidance-based 8-hour construction noise level threshold, there is potential that elevated construction noise levels may cause an annoyance to nearby sensitive receivers to the east.~~Construction activities would take place approximately 100 feet from the nearest school building, and as near as 10 to 15 feet from the closest existing residences. When excavation, grading, and construction of the visitor bleachers are occurring adjacent to the single-family residential homes to the west of the site, activities would likely~~	**MM-NOI-1:** Prior to construction, the applicant shall implement the following construction noise management plan (CNMP) that establishes construction activity restrictions in order to reliably achieve compliance with the Federal Transit Administration (FTA) 8-hour 80 dBA L_{eq} standard at the project property lines adjoining existing occupied properties to the west that are as close as 30 feet to the anticipated project construction activities. Components of the CNMP include the following: a. Potentially affected property owners shall be notified prior to construction activity within 100 feet of their property boundaries. b. The project applicant or its construction contractor shall make available a telephone hotline so that concerned neighbors in the community may call to report noise complaints. The CNMP shall include a process to investigate these complaints and, if determined to be valid, detail efforts to provide a timely resolution and response to the complainant, with a copy of resolution provided to the City of Chula Vista planning department. c. Duration and distances of mobile and stationary operating equipment involved in project construction shall comply with the following limitations by indicated phase: i. Demolition – Concrete Saw, Excavator, Dozer: • within 30 feet – not permitted • 30 to 50 feet – no more than 2 hours per 8-hour period	Pre- and during construction	District to verify measures are implemented by contractor during construction and/or that specifications are included on construction plans.

Table 9-1
Summary of Significant Impacts and Mitigation Measures

Impact	Recommended Mitigation Measure	Timeframe of Mitigation	Monitoring Reporting Agency
~~be within 50 feet of the residential properties. Given the magnitude of the temporary increase in noise and vibration levels from project construction, this would be considered a potentially significant short-term impact absent mitigation.~~	• 50 to 75 feet – no more than 5 hours per 8-hour period • 75 to 90 feet – no more than 7 hours per 8-hour period • beyond 90 feet – no restriction ii. Site Preparation– excavator: • within 15 feet – not permitted • 15 to 30 feet – no more than 2 hour per 8-hour period • 30 to 50 feet – no more than 6 hours per 8-hour period • beyond 50 feet – no restriction iii. Grading– Excavator, Grader, Dozer, Backhoe: • within 30 feet – not permitted • 30 to 60 feet – no more than 1 hour per 8-hour period • 60 to 90 feet – no more than 4 hours per 8-hour period • beyond 90 feet – no restriction iv. Construction of Concessions & Restrooms– Manlift, Generator, Backhoe, Welder: • within 10 feet – not permitted • 10 to 30 feet – no more than 6 hour per 8-hour period • 30 to 40 feet – no more than 8 hours per 8-hour period • beyond 40 feet – no restriction v. Replacement of Track 1– Manlift, Generator, Backhoe, Welder: • within 10 feet – not permitted • 10 to 30 feet – no more than 6 hour per 8-hour period • 30 to 40 feet – no more than 8 hours per 8-hour period • beyond 40 feet – no restriction vi. Replacement of Turf Fields– Manlift, Generator, Backhoe, Welder: • within 10 feet – not permitted • 10 to 30 feet – no more than 6 hour per 8-hour period • 30 to 40 feet – no more than 8		

Table 9-1
Summary of Significant Impacts and Mitigation Measures

Impact	Recommended Mitigation Measure	Timeframe of Mitigation	Monitoring Reporting Agency
	hours per 8-hour period • beyond 40 feet – no restriction vii. Replacement of Track 2– Manlift, Generator, Backhoe, Welder: • within 10 feet – not permitted • 10 to 30 feet – no more than 6 hour per 8-hour period • 30 to 40 feet – no more than 8 hours per 8-hour period • beyond 40 feet – no restriction viii. Installation of Bleachers/Lighting/Other– Crane, Manlift, Generator, Backhoe, Welder: • within 10 feet – not permitted • 10 to 30 feet – no more than 4 hour per 8-hour period • 30 to 40 feet – no more than 7 hours per 8-hour period • beyond 40 feet – no restriction ix. Paving 1– Concrete Mixer Truck, Roller, Paver: • within 15 feet – not permitted • 15 to 30 feet – no more than 3 hour per 8-hour period • 30 to 40 feet – no more than 7 hours per 8-hour period • beyond 40 feet – no restriction x. Paving 2– Concrete Mixer Truck, Roller, Paver: • within 15 feet – not permitted • 15 to 30 feet – no more than 3 hour per 8-hour period • 30 to 40 feet – no more than 7 hours per 8-hour period • beyond 40 feet – no restriction ~~**MM-NOI-1:** Construction equipment shall be properly outfitted and maintained with feasible noise-reduction devices to minimize construction-generated noise.~~ ~~**MM-NOI-2:** Stationary noise sources such as generators or pumps shall be located not less than 100 feet away from noise-sensitive land uses, as feasible.~~		

Table 9-1
Summary of Significant Impacts and Mitigation Measures

Impact	Recommended Mitigation Measure	Timeframe of Mitigation	Monitoring Reporting Agency
	~~**MM-NOI-3:** Laydown and construction vehicle staging areas shall be located not less than 100 feet away from noise-sensitive land uses, as feasible.~~ ~~**MM-NOI-4:** Loud demolition or site preparation activity (e.g., jackhammering, concrete sawing, asphalt removal, and large-scale grading operations) within 100 feet of a residential or academic building shall be conducted to commence not earlier than 7:30 a.m. (Monday through Friday) or 8 a.m. (Saturday and Sunday) nor continue past 7 p.m.~~ ~~**MM-NOI-5:** Loud construction activity within 100 feet of a residential or academic building shall be restricted to occur between7:30 a.m. and 7 p.m., Monday through Friday, and 8 a.m. and 7 p.m., Saturday and Sunday.~~ ~~**MM-NOI-6:** Electrically powered equipment shall be used instead of pneumatic or internal combustion powered equipment, where feasible.~~ ~~**MM-NOI-7:** Construction site and access road speed limits shall be established and enforced during the construction period.~~ ~~**MM-NOI-8:** The use of noise-producing signals, including horns, whistles, alarms, and bells, shall be for safety warning purposes only.~~ ~~**MM-NOI-9:** Construction hours, allowable workdays, and the phone number of the job superintendent shall be clearly posted at all construction entrances to allow surrounding property owners to contact the job superintendent. The on-site construction supervisor shall have the responsibility and authority to receive and resolve noise complaints. A clear appeal process to the school district shall be established prior to construction commencement that would allow for resolution of noise problems that cannot be immediately solved by the site supervisor.~~ ~~**MM-NOI-10:** Equipment shall not be left idling unless necessary.~~ ~~**MM-NOI-11:** Avoid the operation of heavy bull dozers and compactors within 25 feet of the residential/ school property line along the east side of the project site in order to avoid off-site~~		

Table 9-1
Summary of Significant Impacts and Mitigation Measures

Impact	Recommended Mitigation Measure	Timeframe of Mitigation	Monitoring Reporting Agency
	~~vibration impacts.~~ **MM-NOI-12:** ~~The project contractor shall, to the extent feasible, schedule construction activities to minimize the simultaneous operation of construction equipment so as to reduce noise levels resulting from operating several pieces of high-noise-level equipment at the same time.~~		
	4.5,~~2:~~ Noise: Operations		
Without sound barriers, noise levels would generally exceed the maximum exterior noise levels established by the City's Municipal Code and as such, noise generated by project operations would be a potentially significant long-term impact.~~Based on the measurements recorded in the noise study and a lack of topography or other barriers adjacent to the project site, noise levels from sports events (specifically football games) and band practices once the proposed project is complete may be at least 60 dBA. This noise level would exceed the maximum exterior noise levels established by the City of Chula Vista's Municipal Code, and as such, noise generated by project operations would be considered a potentially significant long-term impact.~~	**MM-NOI-2:** The installation of a permanent sound barrier (to mitigate noise emission from school-hosted events to the neighboring residential community to the east) shall be as depicted or acoustically equivalent to those shown in Appendices C and D. It is intended to be a 4-foot-tall barrier behind the visitor bleachers top-most seating bench (or mounted on the top of the retaining wall behind the visitor bleachers, subject to final project design considerations). The sound reducing barrier should feature the following characteristics: • Constructed of solid (but possibly flexible, such as a mass-loaded vinyl fencing upgrade) materials, either single-wall or comprising multiple layers, with effective minimum sound transmission class (STC) of 20; and, • Minimized cracks and air gaps, by way of overlap or edge contact, where barriers comprise adjacent vertical panels or comparable separate elements. Sweetwater Union High School District or its contractor shall retain the services of a qualified acoustical consultant to review the final design and intended placement of barriers prior to construction. **MM-NOI-3:** Placement of public address (PA) speakers shall be as depicted/defined or acoustically equivalent to those in Appendices C and D, with sound emission levels per each of the three single speakers (or combinations of multiple units or arrays) electronically controlled to limit sound power to the lower of the following levels: • sound power values presented herein for the studied scenarios; or, • at a minimum level to provide adequate signal-to-noise ratio that enables intelligible announcements during each hosted sporting event.	Post-construction	District

Table 9-1
Summary of Significant Impacts and Mitigation Measures

Impact	Recommended Mitigation Measure	Timeframe of Mitigation	Monitoring Reporting Agency
	Sweetwater Union High School District or its contractor shall retain the services of a qualified acoustical consultant and/or audio engineering professional to review the final design and performance specification of the PA system speakers and controllers, and verify that amplified speech and public safety announcements should be at levels considered intelligible to visiting spectators and compliant with the sound power limits described herein. ~~**MM-NOI-13:** Optimize the placement of speakers within the spectator stands for the home and visitor seating to achieve the lowest possible sound levels to achieve intelligible announcements during each sporting event.~~ **MM-NOI-~~1~~4:** The public address system for the athletic fields/stadium shall not be operated later than 10:00 p.m. ~~PM.~~ **MM-NOI-~~1~~5:** Activities and other events involving substantial numbers of spectators hosted at the athletic fields / stadium shall conclude no later than 10:00 p.m. (when the allowable noise level drops by 10 A-weighted decibels equivalent continuous sound level per hour. ~~10 dBA LEQ HOUR).~~ **MM-NOI-~~1~~6:** Air horns, sirens, loud whistles, and other devices for noise making shall be prohibited from use at the athletic fields~~-~~/-stadium. **MM-NOI-~~1~~7:** Prior to the commencement of each new semester, Sweetwater Union High School ~~the~~ District shall publish the schedule for events to be hosted at the athletic fields / stadium, providing notification to the adjacent neighbors regarding the availability of the schedule. The schedule may be published on the school web-site. ~~**MM-NOI-18:** Band practices shall not be permitted on the new athletic field. Band practices shall continue to be held on the southern parking lot of the BVHS campus.~~		
~~*4.52, Noise: Construction Groundborne Vibration*~~			
~~The closest existing residences would be approximately 25 feet from the construction area. If large bulldozers would be used immediately adjacent to the~~	~~**MM-NOI-1** through~~ ~~**MM-NOI-12**~~	~~Pre- and during construction~~	~~District to verify measures are implemented by the contractor during construction and/or that specifications are~~

Table 9-1
Summary of Significant Impacts and Mitigation Measures

Impact	Recommended Mitigation Measure	Timeframe of Mitigation	Monitoring Reporting Agency
~~property line of residential land uses located to the east of the project site, there is potential for vibration levels to exceed the 0.1 inches per second threshold. Therefore, construction activities could result in potentially significant short-term vibration impacts.~~			~~included on construction plans.~~
~~4.25, Noise: Substantial Temporary Increase In Ambient Noise Levels (Construction)~~			
~~Noise levels would fluctuate depending on the construction phase, equipment type and duration of use, and distance between the noise source and receptor. Construction equipment anticipated for project development would consist of standard equipment that is typically employed for routine construction projects of this scale. Calculated noise and vibration levels generated from construction activities in the area of the visitor stands adjacent to residential areas west of the project site are expected to be substantial in comparison to existing ambient noise levels.~~	~~**MM-NOI-1** through **MM-NOI-12**~~	~~Pre- and during construction~~	~~District to verify measures are implemented by the contractor during construction and/or that specifications are included on construction plans.~~
~~4.25, Noise: Substantial Temporary Increase In Ambient Noise Levels (Operations)~~			
~~As discussed above,~~	~~**MM-NOI-13** through~~	~~Post-construction~~	~~District~~

Table 9-1
Summary of Significant Impacts and Mitigation Measures

Impact	Recommended Mitigation Measure	Timeframe of Mitigation	Monitoring Reporting Agency
~~noise levels from sports events (specifically the approximately five home football games per season) and band practices that may occur once the proposed project is complete may exceed 60 dBA. These impacts would result from the noise coming from members of the crowd, noise generated by the public address (PA) system, and noise generated by the school band during practices. Due to the potential temporary or periodic increases in ambient noise levels during these events, impacts would be considered potentially significant.~~	~~**MM-NOI-18**~~		
4.7, Tribal Cultural Resources: Construction			
If grading, trenching and/or other ground-disturbing activity were to occur within native, undisturbed soils, impacts to tribal cultural resources would be potentially significant.	**MM-TCR-1:** A Native American monitor shall be present for project-related ground disturbing activities that occur within undisturbed native sediments. The monitor shall have the authority to redirect or stop work in the event of the discovery of a tribal cultural resource. If a tribal cultural resource is discovered, construction activities shall be stopped within 50 feet of the discovery until Sweetwater Union High School District can determine treatment measures, in consultation with consulting tribe(s).	During construction	District

CHAPTER 10
LIST OF PREPARERS

10.1 ~~LEAD AGENCY –~~ SWEETWATER UNION HIGH SCHOOL DISTRICT

Larry Moen, PPM	Project Manager, Planning & Construction Department
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Armando Murillo	Project Manager, Planning & Construction Department
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Dr. Moisés Aguirre	Assistant Superintendent of Facilities and Operations
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Allie Serrano	Planning Specialist, Planning & Construction Department
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Bettina Batista	Principal, Bonita Vista High School
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~~Mike Green~~	~~Acoustician, INCE, Bd. Cert.~~
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Daniel Kil	Publications Production Coordinator
~~Taylor Eaton~~	~~Publications Specialist~~

10.3 SUBCONSULTANTS

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Daniel Lohman	Lighting Engineer
Rena Shepherd	Lighting Engineer

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Kitchell

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~~10.4 TECHNICAL REPORT PREPARATION~~

~~Lighting Study, Dudek~~

~~Josh Saunders~~	~~Assistant CEQA Project Manager and Environmental Specialist (Aesthetics), AICP~~

~~Noise Technical Report and Analysis of Band Practice Relocation and Lowered Field Elevation Design, Dudek~~

~~Christopher Barnobi~~	~~Acoustician, INCE, Bd. Cert.~~
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~~Trip Generation and Parking Requirements Memorandum, Dudek~~

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