February 2025 | Initial Study/Mitigated Negative Declaration

CALISTOGA JUNIOR AND SENIOR HIGH SCHOOL FIELD AND LIGHTING IMPROVEMENTS PROJECT

Calistoga Joint Unified School District

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PLACEWORKS

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Abbreviations and Acronyms

AAQS	ambient air quality standards
AB	Assembly Bill
ABAG	Association of Bay Area Governments
ADT	average daily traffic
afy	acre-feet per year
BAAQMD	Bay Area Air Quality Management District
BMP	best management practices
CAFE	corporate average fuel economy
CalEPA	California Environmental Protection Agency
CAL FIRE	California Department of Forestry and Fire Protection
CALGreen	California Green Building Standards Code
Cal/OSHA	California Occupational Safety and Health Administration
CARB	California Air Resources Board
CBC	California Building Code
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CGP	Construction General Permit
CH_4	methane
CJUSD	Calistoga Joint Unified School District
CNEL	community noise equivalent level
CO	carbon monoxide
CO_2e	carbon dioxide equivalent
dB	decibel
dBA	A-weighted decibel
DSA	Division of the State Architect
EIR	environmental impact report
EOP	emergency operations plan
EPA	United States Environmental Protection Agency
FEMA	Federal Emergency Management Agency
GHG	greenhouse gases
HCP/NCCP	habitat conservation plan/national community conservation plan area
HRA	health risk assessment
IPCC	Intergovernmental Panel on Climate Change

Abbreviations and Acronyms

IS	initial study
L_{dn}	day-night noise level
L_{eq}	equivalent continuous noise level
LCFS	low-carbon fuel standard
LOS	level of service
LUST	leaking underground storage tank
MEIR	maximum exposed individual resident
MEIW	maximum exposed individual worker
mgd	million gallons per day
MND	mitigated negative declaration
MT	metric ton
MTC	Metropolitan Transportation Commission
N_2O	nitrogen dioxide
NIMS	National Incident Management System
NO_X	nitrogen oxides
NPDES	National Pollution Discharge Elimination System
O_3	ozone
OEHHA	Office of Environmental Health Hazard Assessment
PA	public address (system)
PG&E	Pacific Gas and Electric
PM	particulate matter
PPV	peak particle velocity
PRC	Public Resources Code
PRD	permit registration documents
ROG	reactive organic gases
RPS	renewable portfolio standard
SB	Senate Bill
SEMS	standardized emergency management system
SFBAAB	San Francisco Bay Area Air Basin
SO_2	sulfur dioxide
SO_X	sulfur oxides
SWP	State Water Project
SWPPP	Storm Water Pollution Prevention Plan

SWRCB	State Water Resources Control Board
TAC	toxic air contaminants
TCR	tribal cultural resource
VMT	vehicle miles traveled
WUI	wildland-urban interface
WWTP	wastewater treatment plant

Abbreviations and Acronyms

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1. Introduction

1.1 PROJECT OVERVIEW

The Calistoga Joint Unified School District (CJUSD or District) proposes to improve the existing football field and install new permanent stadium lighting at Calistoga Junior-Senior High School in the City of Calistoga (proposed project). The proposed project would also include the installation of a new all-weather track and field, new permanent bleachers on the north side of the football field, a new public address (PA) system, a new scoreboard, relocation of the hardtop basketball courts, and the construction of a new field house and concession stand. Landscaping, concrete walkways, and fencing would also be installed.

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

1.2 PURPOSE OF CEQA AND THE INITIAL STUDY

The environmental compliance process is governed by the CEQA and the CEQA Guidelines (Public Resources Code [PRC], section 21000 et seq.; California Code of Regulations [CCR], Title 14, sections 15000 et seq.). CEQA was enacted in 1970 by the California Legislature to disclose to decision-makers and the public the significant environmental effects of projects and to identify ways to avoid or reduce the environmental effects through feasible alternatives or mitigation measures. Compliance with CEQA applies to California government agencies at all levels: local, regional, and state agencies, boards, commissions, and special districts (such as school districts and water districts). The District is the lead agency under CEQA and is therefore required to conduct an environmental review to analyze the potential environmental effects associated with the proposed project.

PRC section 21080(a) states that analysis of a project's environmental impact is required for any "discretionary projects proposed to be carried out or approved by public agencies…." In this case, the District has determined that an Initial Study is required to determine whether there is substantial evidence that construction and operation of the proposed project would result in environmental impacts.

A "project" means the whole of an action that has a potential for resulting in either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment, and that is any of the following:

- An activity directly undertaken by any public agency including but not limited to public works construction and related activities clearing or grading of land, improvements to existing public structures, enactment and amendment of zoning ordinances, and the adoption and amendment of local General Plans or elements thereof pursuant to Government Code sections 65100 to 65700.
- An activity undertaken by a person which is supported in whole or in part through public agency contacts, grants, subsidies, loans, or other forms of assistance from one or more public agencies.
- An activity involving the issuance to a person of a lease, permit, license, certificate, or other entitlement for use by one or more public agencies. (14 CCR section 15378[a])

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

1.3 INITIAL STUDY

The purpose of the Initial Study is to 1) provide the lead agency with information to use as the basis for deciding the proper type of CEQA document to prepare; 2) enable the lead agency to modify a project, mitigating adverse impacts before an EIR is prepared, thereby enabling the project to qualify for a negative declaration; 3) assist in the preparation of an EIR, if one is required; 4) facilitate environmental assessment early in the design of a project; 5) provide documentation of the factual basis for the findings in an MND or ND; 6) eliminate unnecessary EIRs; and 7) determine if a project is covered under a previously prepared EIR. When an Initial Study identifies the potential for immitigable significant environmental impacts, the lead agency must prepare an EIR (14 CCR section 15064); however, if all impacts are found to be less than significant or can be mitigated to less than significant, the lead agency can prepare an ND, or MND that incorporates mitigation measures into the project (14 CCR section 15070).

1.4 MITIGATED NEGATIVE DECLARATION

The MND includes information necessary for agencies to meet statutory responsibilities related to the proposed project. State and local agencies will use the MND when considering any permit or other approvals necessary to implement the project. A list of the environmental topics that have been identified for study in the MND is provided in the Initial Study Checklist (Chapter 4).

One of the primary objectives of CEQA is to enhance public participation in the planning process; public involvement is an essential feature of CEQA. Community members are encouraged to participate in the environmental review process, request to be notified, monitor newspapers for formal announcements, and submit substantive comments at every possible opportunity afforded by the District. The environmental review process provides several opportunities for the public to participate through public notice and public review of CEQA documents and at public meetings.

1.5 IMPACT TERMINOLOGY

The following terminology is used to describe the level of significance of impacts.

- A finding of **no impact** is appropriate if the analysis concludes that the project would not affect the particular topic area in any way.
- An impact is considered **less than significant** if the analysis concludes that it would cause no substantial adverse change to the environment and requires no mitigation.
- An impact is considered **less than significant with mitigation incorporated** if the analysis concludes that it would cause no substantial adverse change to the environment with the inclusion of environmental commitments or other enforceable mitigation measures.
- **Mitigation Measures.** If, after incorporation and implementation of federal, state, and local regulations, there are still significant environmental impacts, then feasible and project-specific mitigation measures are required to reduce impacts to less than significant levels. Mitigation measures must further reduce significant environmental impacts above and beyond compliance with federal, state, and local laws and regulations. Mitigation under CEQA Guidelines Section 15370 includes:
    - Avoiding the impact altogether by not taking a certain action or parts of an action.
    - Minimizing impacts by limiting the degree or magnitude of the action and its implementation.
    - Rectifying the impact by repairing, rehabilitating, or restoring the impacted environment.
    - Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
    - Compensating for the impact by replacing or providing substitute resources or environments.

An impact is considered **potentially significant** if the analysis concludes that it could have a substantial adverse effect on the environment. If any impact is identified as potentially significant, an EIR is required.

1.6 ENVIRONMENTAL SETTING

1.6.1 Project Location

Calistoga Junior and Senior High School (Calistoga HS) is at 1608 Lake Street in the City of Calistoga in Napa County, California (Assessor's Parcel Numbers 011-091-001; 011-092-031; 011-092-032) (see Figure 1, *Regional Location*). The Calistoga Junior and Senior High School Field and Lighting Improvements Project (proposed project) would be developed within approximately 4.5 acres of the southwestern portion of the approximately 13-acre campus.

The City of Calistoga is bordered by unincorporated Napa County in all directions. Regional access to the campus is provided by State Route 29 (SR-29), approximately 0.40 miles east of the campus, and SR-128, approximately 0.48 miles west of the campus. The campus is surrounded by Grant Street, residential and hospitality uses to the north; Lake Street, residential and hospitality uses to the west; and residential and hospitality uses to the south and west. Access to the campus is via Lake Street, adjacent to the campus's western boundary (see Figure 2, *Local Vicinity*, and Figure 3, *Aerial Photograph*).

1.6.2 Existing Conditions

Existing Athletic Facilities

The project site consists of an existing track and field. A baseball field and portable classrooms are to the north, and a softball field is to the southeast. The track and field are also bordered by basketball and tennis courts to the north and northeast and classrooms to the northwest. A single residence borders the track and field on the east. South and northwest of the track and field is a chain-link fence with wood slats that separates the adjacent residential uses from the project site. The track consists of dirt, and the field is a grass field with two football goals. The track and field are used for sports events and practices. Portable metal bleachers are temporarily placed around the track and field as seating for spectators of sporting events.

Existing Buildings

The project site does not include any existing buildings. However, temporary construction office portables are on the basketball courts.

Bleachers

The project site does not include any existing permanent bleachers. Bleachers are temporarily placed around the perimeter of the football field for use by spectators. The temporary bleachers have a capacity of approximately 300 spectators.

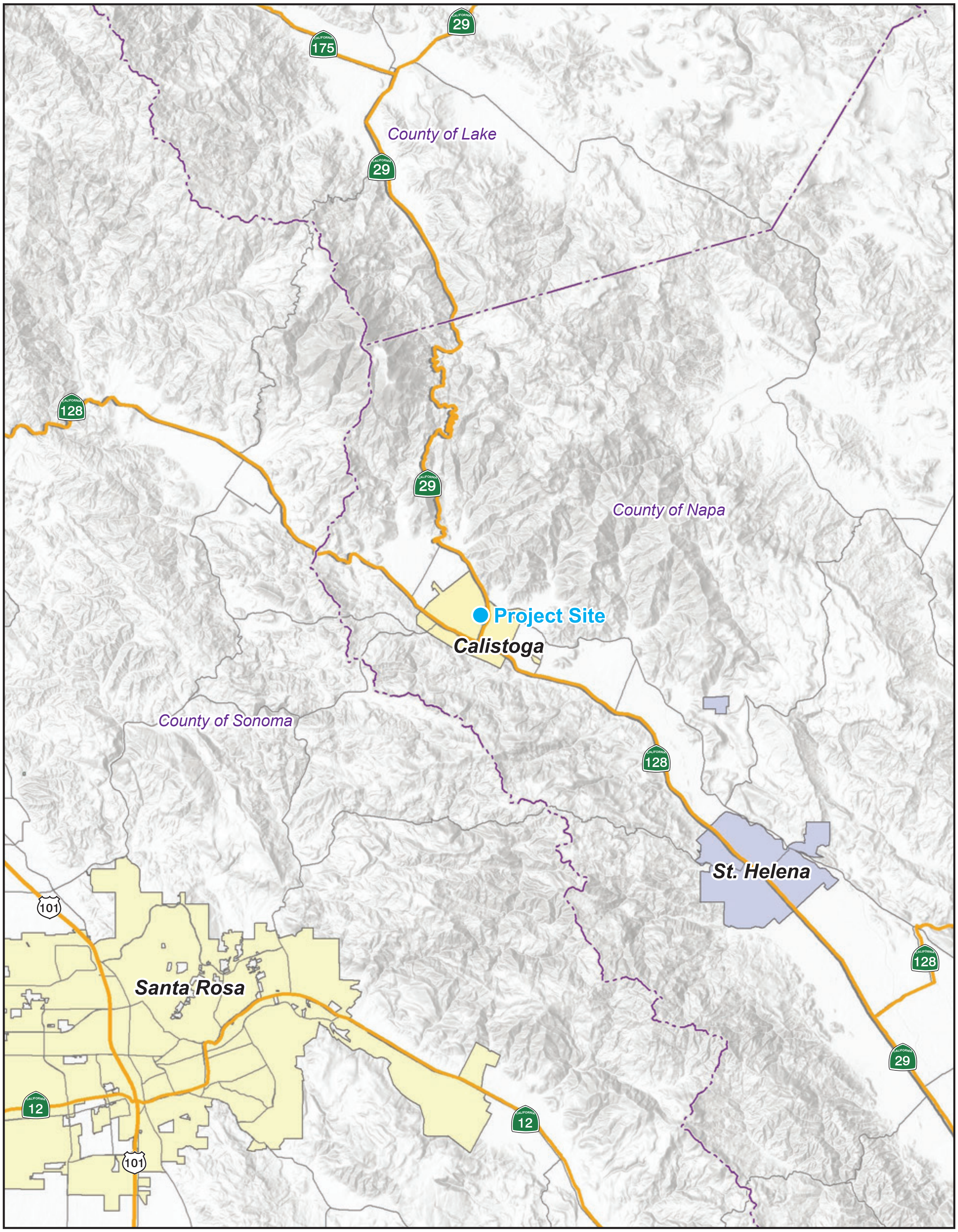
Basketball Courts

The project site has two full-court basketball courts north of the existing track and field. The basketball courts are made of asphalt and are being used for temporary construction parking, a staging area, and temporary construction offices.

Lighting and Public Address System

The project site does not have any permanent lighting or permanent PA system. Field lighting and a PA system are temporarily placed on the project site to be used during sporting events.

Figure 1 - Regional Location



County Boundary

0 3
Scale (Miles)

Note: Unincorporated county areas are shown in white.

Source: Generated using ArcMap 2024.

1. Introduction

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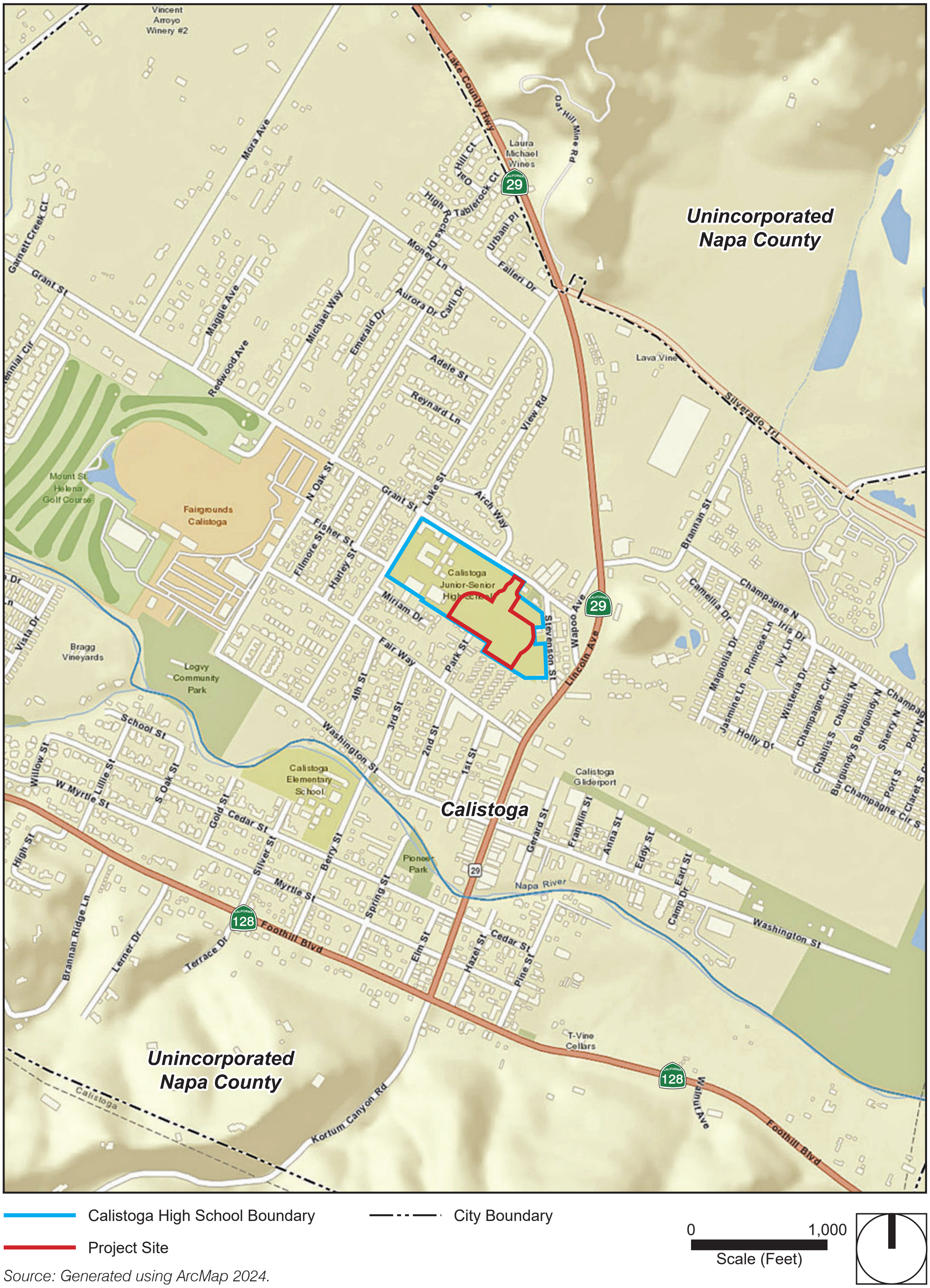
Figure 2 - Local Vicinity



Source: Generated using ArcMap 2024.

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Figure 3 - Aerial Photograph

Source: Nearmap 2024.

1. Introduction

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Parking and Circulation

The project site does not contain any parking spaces, but temporary construction parking exists on the basketball courts. Access to the Calistoga HS campus is provided by two driveways from Lake Street. The southern driveway provides ingress to the campus, and the northern driveway provides egress from the campus. Both driveways also provide access to the campus's biggest parking lot, but neither driveway provides immediate access to the project site. Access to the campus is also provided by four driveways on the south side of Grant Street along the school frontage. The west driveway connects to a fire lane that provides emergency vehicle access to the school. The two middle driveways provide access to the school's athletics facilities. The east driveway provides access to a small parking lot at Palisades High School. The project site has a single driveway off Grant Street, north of the existing basketball courts.

Landscaping, Walkways, and Fencing

The project site does not include any walkways or landscaping. Trees border the project site adjacent to the existing basketball courts and to the southeast and northeast of the existing track and field. Additionally, the project site is bordered by fencing. Fencing and a gate are north of the existing basketball courts bordering Grant Street. Fencing also borders the southern and northwestern sides of the project site between the project site and the bordering residential uses.

1.6.3 Surrounding Land Use

The Calistoga HS campus is mostly surrounded by medium- and high-density residential uses to the west, south, and north. Additionally, downtown- and community-commercial land uses are to the east and southeast of the campus.

1.6.4 General Plan Land Use and Zoning

The Calistoga HS campus has a land use designation of Public/Quasi-Public. According to the Calistoga General Plan Land Use Element, the Public/Quasi-Public designation applies to existing and planned public facilities such as the county fairgrounds; parks; city hall; the community center; the police station; the cemetery; schools; and the wastewater treatment plant, spray fields, and holding ponds (Calistoga 2015). Additionally, the project site is zoned Public (P). The P zoning allows for uses beneficial to the general public, including schools (Calistoga 2024a).

1.7 PROJECT DESCRIPTION

1.7.1 Proposed Project

The District proposes to install new permanent stadium lights around the existing football field, permanent bleachers along the northern boundary of the field, a new field house, and a new concession stand. The proposed project would also include the replacement of the existing track with an all-weather track; replacement of the existing grass turf with synthetic grass; installation of a new permanent PA system and a new scoreboard; and relocation of the existing hardtop basketball courts.

Landscaping, including bioretention areas, and concrete walkways would be installed, and new chain-link fencing with gates would be installed around the perimeter of the track and field. An asphalt driveway would be constructed northeast of the track and field to provide access to the campus from Grant Street. Asphalt would also be installed northeast and south of the track and field to accommodate the bleachers, concession stand, field house, basketball courts, and tree wells (see Figure 4, *Conceptual Site Plan*). The proposed project would not impact student or staff capacity at Calistoga HS.

1.7.1.1 TRACK AND FIELD RENOVATIONS

The current track and field consists of a dirt track with a grass field that serves as the football and soccer field. Under the proposed project, the dirt track would be replaced with all-weather track surfacing, and a portion of the track surface would be all-weather track surfacing combined with vehicular asphalt. Most of the grass field would be replaced with synthetic turf. The northern portion of the grass field would be replaced with all-weather track surfacing, and the southeastern portion of the grass field would be replaced with pedestrian concrete paving. When construction is complete, the track and field would accommodate sports activities such as football, soccer, and other track and field events and practices. Also installed would be sports goal posts, field striping, a long-/triple-jump sand pit and runway, a shot put circle and striping, a pole vault, and a discus cage and circle.

1.7.1.2 FIELD HOUSE AND CONCESSION STAND

The proposed project would construct a 1,440-square-foot field house that would include restrooms, a concession stand, a janitor closet, and unfinished space that would be used for storage. The field house would be south of the track and field and adjacent to the proposed basketball courts. The basketball courts would be relocated to south of the track and field and would consist of one full basketball court and one half-court. The 960-square-foot concession stand building would be northwest of the track and field. The concession stand building would consist of restrooms and a concession stand that would contain all-electric appliances. No natural gas use would be required for the proposed project.

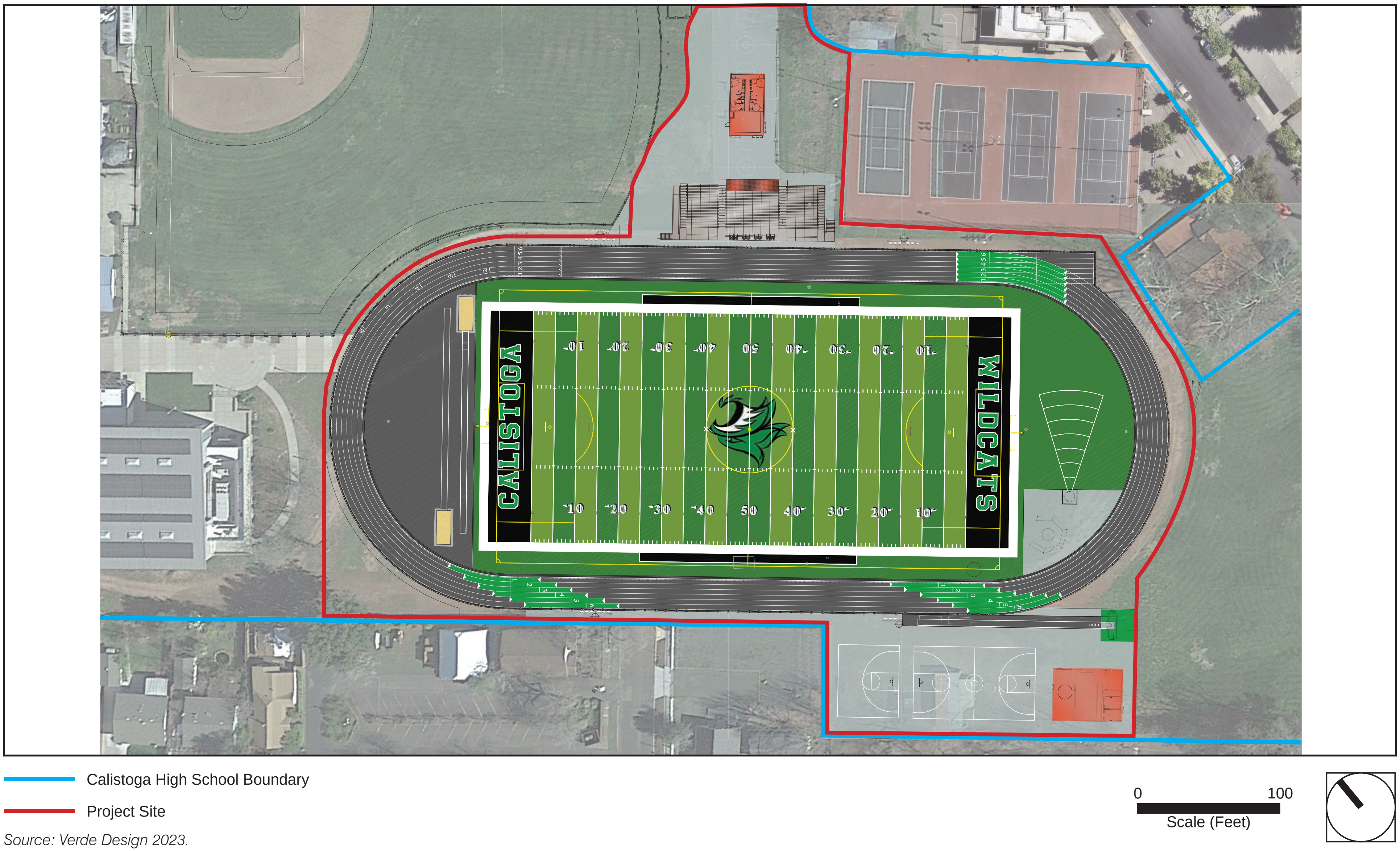
1.7.1.3 LIGHTING AND PUBLIC ADRESS SYSTEM

The proposed project would include permanent new stadium lighting, bleachers, a scoreboard, and a new PA system. Four new stadium lights would light the field for nighttime events and would be located adjacent to the track and field.

The bleachers would be north of the football field, between the track and the concession stand building. The bleachers would have a maximum capacity of 800 people. The scoreboard would be east of the track and field.

The PA system's speakers would be placed on the proposed light poles next to the bleachers for school announcements and emergency alerts and would be used during the school day. The track and field PA system speakers would be on the scoreboard and light poles. The PA system controls would be inside the press box at the top of the bleachers.

Figure 4 - Conceptual Site Plan



Source: Verde Design 2023.

1. Introduction

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1.7.1.4 DRIVEWAY AND PEDESTRIAN ACCESS

Driveway access to the project site would continue via the driveway off of Grant Street that is north of the existing basketball courts. The driveway would be used for emergency access and district vehicles. Sidewalks exist around the northern, northwestern, and eastern perimeter of the campus. From the parking lots on Lake Street and Grant Street, pedestrian access to the project site is provided via existing walkways on campus (see Figure 3). The proposed project would construct pedestrian access to the project site via the emergency fire access road off Grant Street. Additionally, pedestrian walkways would also be constructed around the northern, western, and southern sides of the track and field. Chain-link fencing would be installed around the entire perimeter of the track and field to limit pedestrian access to the track and field.

1.7.1.5 EMERGENCY ACCESS

The proposed project would improve the existing fire access road to the project site, i.e., the driveway off of Grant Street. The proposed fire access road would provide direct access to the track and field.

1.7.1.6 HARDSCAPING

Hardscaping on the project site would consist of asphalt, concrete, and synthetic turf. The proposed driveway off of Grant Street would be paved with vehicular asphalt. Hardscaping surrounding the field house and concession stand building, the basketball courts, and underneath the bleachers would be pedestrian asphalt. Pedestrian concrete paving would be along the northern, western, and southern borders of the track and field to accommodate foot traffic around the track and field. Pedestrian concrete paving would also be located in the southeastern portion of the track and field to accommodate the discus cage and circle and the shot-put circle.

1.7.1.7 LANDSCAPING

Landscaping on the project site would consist of trees, planting/bioretention areas, and irrigation. Twenty-two trees would be planted on the project site. Eight trees would be planted in tree wells adjacent to the concession stand building. The remaining trees would be planted along the edge of the proposed driveway, bioretention areas, and north of the track and field.

The project would also consist of four planting/bioretention areas. One would be located along the proposed driveway, one adjacent to the concession stand building, one adjacent to the field house, and one north of the track and field. The planting/bioretention areas would consist of a mix of shrubs, grass, and flowers and would manage and treat any runoff from the project site. Additionally, irrigation would be installed throughout the project site.

1.7.1.8 STORMWATER INFRASTRUCTURE

The proposed project would consist of storm drains and planting/bioretention areas to capture stormwater from the project site. The proposed storm drains would be installed throughout the project site to accommodate the flow of stormwater on-site.

1.7.2 Event Scheduling

The proposed improvements at the Calistoga HS would be used for sporting events and practices and other school events and activities. Sporting events and practices would consist of high school football, boys and girls soccer, sideline cheer, and track and field events. Additionally, junior high school students would also utilize the new track and field for co-ed soccer and track and field. The football field would also be used for school events such as graduation ceremonies.

The proposed schedule for sports events utilizing the track and field would be similar to the current sports schedule. For football games and sideline cheer, home games would be played on Friday evenings and would start between 6:00 pm and 7:00 pm. The season would consist of five homes games, with the season starting in late August and concluding in early November. Similarly, the high school boys and girls soccer seasons would start around mid-August and conclude in early November. Home games are played throughout the week, typically Tuesday through Fridays, with few games on Saturdays. Most weekday games start as early as 3:30 pm but some start as late as 5:15 pm. Typically, the boys have 12 home soccer games and the girls also have 12 home games. Currently, high school track and field events are not held on the Calistoga HS campus. However, events are typically held on Wednesday, Fridays, and Saturdays and typically start at 3:30 pm, with some tournament events starting as early as 9:00 am. There are typically six track and field events in a season, with the season starting in mid-March and concluding in early May.

Junior high school co-ed soccer home games are held Tuesdays and Thursdays and start at 3:30 pm. The soccer team typically plays seven games in a season, with the season beginning in early September and ending in mid-October. Additionally, junior high school students participate in track and field events. Track and field events are typically held on Tuesdays and Thursdays starting at 3:30 pm. There are typically seven track and field events in a season, with the season starting in late March and ending in early May.

Graduation would only occur once a year toward the end of the school year. Utilization of the new track and field for other non-sporting events may occur throughout the year. Table 1, *Calistoga Junior and Senior High School Sports Field Proposed Event Schedule*, shows the proposed sports activities, days, and times.

Table 1 Calistoga Junior and Senior High School Sports Field Proposed Event Schedule

Activity/Use	Anticipated Number of Home Events per Year	Days of Week	Time		Outdoor Lighting?
			Start	End	
Football (Fall: August to October)					
Football	5	Friday	6:00 pm	9:00 pm	Yes[1]
High School Soccer (Fall: August to November)					
Boys Soccer	12	Tuesday/Saturday	3:30 / 5:15 pm	6:00 pm/8:45 pm	Yes
Girls Soccer	12	Wednesday/Friday	3:30 / 4:00 pm	6:00 pm/7:30 pm	Yes
Junior High School Soccer (Fall: September to October)					
Co-ed Soccer	7	Tuesday/Thursday	3:30 pm	6:00 pm	Yes
High School Track & Field (Spring: March to May)					
High School Track & Field	2	Monday/Saturday[2]	3:30 pm/9:00 am	6:00 pm / 11:30 am	Yes
Junior High School Track & Field (Spring: March to May)					
Junior High School Track & Field	2	Tuesday/Thursday	3:30 pm/4:30 pm	6:00 pm/7:00 pm	Yes

1 Lights would be shut off at 10:30 pm after football games.
2 Saturday games are tournament games and may be held during the day.

1.7.3 Project Construction

Construction of the proposed project would occur in a single phase, starting in May 2025 and ending in August 2025.

1.8 DISCRETIONARY APPROVALS

Lead Agency

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

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

1. Introduction

Lead Agency	Action
Calistoga Joint Unified School District	• Approve the proposed project • Adopt the Initial Study/Mitigated Negative Declaration • Adopt the Mitigation Monitoring and Reporting Program
Responsible Agencies	**Action**
Department of General Services, Division of State Architect (DSA)	• Approval of construction drawings
City of Calistoga Fire Department	• Approval of plans for emergency access and emergency evacuation.

2. Environmental Checklist

2.1 PROJECT INFORMATION

1. **Project Title:** Calistoga Junior and Senior High School Field and Lighting Improvements Project

2. **Lead Agency Name and Address:**
   Calistoga Joint Unified School District
   1520 Lake Street
   Calistoga, California 94515

3. **Contact Person and Phone Number:**
   Chris Ochs, Director of Facilities, Maintenance, Operations, and Transportation
   (707) 942-4703

4. **Project Location:** Calistoga Junior and Senior High School is located at 1608 Lake Street in the City of Calistoga in Napa County, California (Assessor's Parcel Numbers 011-091-001; 011-092-031; 011-092-032).

5. **Project Sponsor's Name and Address:**
   Calistoga Joint Unified School District
   1520 Lake Street
   Calistoga, California 94515

6. **General Plan Designation:** Public/Quasi-Public.

7. **Zoning:** Public (P).

8. **Description of Project:** The Calistoga Joint Unified School District is proposing to install new permanent stadium lights around the existing football field, permanent bleachers along the northern boundary of the field, a new field house, and a new concession stand. The proposed project would also include the replacement of the existing track with an all-weather track, replacement of the existing grass turf with synthetic grass, and installation of a new permanent public address (PA) system and a new scoreboard. The existing basketball courts would also be relocated. Landscaping, bioretention areas, and concrete walkways would be installed, and new chain-link fencing with gates would be installed around the perimeter of the track and field. An asphalt driveway would be constructed northeast of the track and field to provide access to the campus via Grant Street. Asphalt would also be installed northeast and south of the track and field to accommodate the bleachers, concession stand, field house, basketball courts, and tree wells.

9. Surrounding Land Uses and Setting:

The Calistoga HS campus is predominantly surrounded by medium- and high density residential uses to the west, south, and north. Additionally, downtown- and community commercial land uses are located to the east and southeast of the campus.

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

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

The District invited California Native American tribes that are traditionally and culturally affiliated with the project area to consult on the proposed project via email. Three tribes were contacted, consistent with Assembly Bill 52—the Guidiville Rancheria of California, Mishewal-Wappo Tribe of Alexander Valley, and Pinoleville Pomo Nation. The letters were sent on December 12, 2024. However, no tribes requested to consult during the 30-day AB 52 consultation request window, and the District did not receive any responses from the tribes.

2.2 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

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

☐ Aesthetics	☐ Agriculture / Forestry Resources	☐ Air Quality
☐ Biological Resources	☐ Cultural Resources	☐ Energy
☐ Geology/Soils	☐ Greenhouse Gas Emissions	☐ Hazards and Hazardous Materials
☐ Hydrology/Water Quality	☐ Land Use / Planning	☐ Mineral Resources
☐ Noise	☐ Population / Housing	☐ Public Services
☐ Recreation	☐ Transportation	☐ Tribal Cultural Resources
☐ Utilities / Service Systems	☐ Wildfire	☐ Mandatory Findings of Significance

2.3 DETERMINATION (TO BE COMPLETED BY THE LEAD AGENCY)

On the basis of this initial evaluation:

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

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

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

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

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

Chris Ochs 1/31/2025

Signature *Date*

2.4 EVALUATION OF ENVIRONMENTAL IMPACTS

1. A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors, as well as general standards (e.g., the project would not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

2. All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

3. Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

4. "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures and briefly explain how they reduce the effect to a less than significant level.

5. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:

   a) **Earlier Analyses Used.** Identify and state where they are available for review.

   b) I**mpacts Adequately Addressed.** Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.

   c) **Mitigation Measures.** For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

6. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

7. Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.

8. This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.

9. The explanation of each issue should identify:

   a) the significance criteria or threshold, if any, used to evaluate each question; and
   b) the mitigation measure identified, if any, to reduce the impact to less than significance.

2. Environmental Checklist

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3. Environmental Analysis

This section provides checklists for environmental impacts, an evaluation of the impact questions in the checklists, and mitigation measures to reduce impacts if necessary.

3.1 AESTHETICS

Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
I. AESTHETICS. Except as provided in Public Resources Code Section 21099, would the project:				
a) Have a substantial adverse effect on a scenic vista?				X
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?				X
c) In nonurbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?			X	
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?			X	

Would the project:

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

No Impact. A scenic vista is a viewpoint that provides expansive views of a highly valued landscape for the benefit of the public. The project site is located on the Calistoga HS campus. The surrounding area is developed with residential, commercial, and hospitality uses.

According to the City's General Plan Open Space and Conservation Element, the City contains scenic resources and scenic corridors. Scenic resources are defined as scenic views located outside of the City limits but still within viewing distance. The City encourages the development of a more visually harmonious cityscape through, for example, regulation of rooflines and roofing materials and building clustering to protect the scenic views. The scenic views described in the Open Space and Conservation Element are a mix of natural scenic resources and agricultural scenic resources. The nearest scenic resource to the project site is the open space associated with the Gliderport, which is approximately 0.25 mile southeast of Calistoga HS (Calistoga 2003). The proposed project would consist of four new stadium lights that would not block views of the Gliderport because of their relatively small circumference and distance from any scenic resources. Therefore, the proposed project would not result in impacts to scenic views.

The Open Space and Conservation Element describes scenic corridors as being valuable scenic resources. These scenic corridors are defined as paths of transition between more rural surrounds and the urban area of the city itself and gateways or "entry corridors" to Calistoga. The nearest scenic corridor is Highway 128/29 up- and down-valley of Lincoln Avenue (Calistoga 2003). Highway 29/Lincoln Avenue is approximately 415 feet southeast of the project site. However, given the relatively small circumference of the stadium lights and the intervening development on Highway 29/Lincoln Avenue, no impacts to scenic corridors would occur. As such, the proposed project would not have a substantial adverse effect on a scenic vista. Therefore, no impacts would occur.

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

No Impact. The project site is in an urbanized area of the city and is not located on an eligible or officially designated state scenic highway as designated on the California Scenic Highway Mapping System of the California Department of Transportation (Caltrans). The nearest eligible state scenic highway is SR-29 between Trancas Street and Upper Lake Street, which is approximately 417 feet southeast of the project site. The nearest officially designated state scenic highway is SR-12 between Danielli Avenue and London Way, which is approximately 10 miles south of the project site.

Due to the distance, topography, and intervening development, the proposed project would not impact scenic resources within a state scenic highway. Therefore, no impact to scenic resources within a state scenic highway would occur due to implementation of the proposed project.

c) In nonurbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

Less Than Significant Impact. The project site is in an urbanized area. According to the US Census Bureau, the city has a population of approximately 5,058 (USCB 2023), which is not enough to meet the definition of an urbanized area as defined in the PRC section 21071, Urbanized Area.

The project site is on the existing Calistoga HS campus. The project site is zoned Public/Quasi-Public and designated for educational uses. The proposed project would be consistent with existing uses and development on the Calistoga HS campus. Therefore, implementation of the proposed project would not conflict with applicable zoning or other regulations governing scenic quality, and impacts would be less than significant.

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

Less Than Significant Impact. The two major causes of light pollution on the campus are spill light and glare from existing sources of light. Spill light is caused by misdirected light that illuminates areas outside the area intended to be lit. Glare occurs when a bright object is against (or reflects off) a dark background or shiny surface. Existing sources of light on the campus include light emanating from building interiors, building and security lights, parking lot lights, and temporary lights that are currently used during home football games.

Implementation of the proposed project would result in the implementation of new permanent lighting along the perimeter of the football field that would be used for sports practices and games, as described in Section 1.7.2.

On Friday, October 10, 2024, between 4:30 and 9:30 pm, existing light measurements were obtained during the homecoming football game using a light meter to take horizontal and vertical light measurements at 26 locations along the school's property line, adjacent to the project site. Horizontal[1] and vertical[2] light levels are shown in foot-candles (fc), which is a unit based on English measurements. Although foot-candles are considered obsolete in some scientific circles, they are nevertheless used because many existing light meters are calibrated in foot-candles. Moonlight produces approximately 0.01 fc, and sunlight can produce up to 10,000 fc. The general benchmarks for light levels are shown in Table 2, *General Light Levels Benchmark*.

Table 2 General Light Levels Benchmark

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

Table 3, *Calistoga High School Field and Lighting Improvements Light Measurements*, shows a comparison between the existing horizontal and vertical light measurements that were taken during the homecoming football game on October 10, 2024, and the proposed light measurements identified in the latest Musco lighting plans (see Figure 5a, *Existing Lighting* and Figure 5b, *Proposed Lighting*).

As shown in Table 3, the highest existing conditions light spill onto adjacent properties is currently 3.8 fc. Additionally, the highest proposed lighting measurement would be approximately 4.4 fc, which would result in a maximum increase of 0.6. Thus, the anticipated increase in light spill onto adjacent properties would be below the 0.8 fc threshold utilized for lighting analysis. Therefore, impacts would be less than significant.

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

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

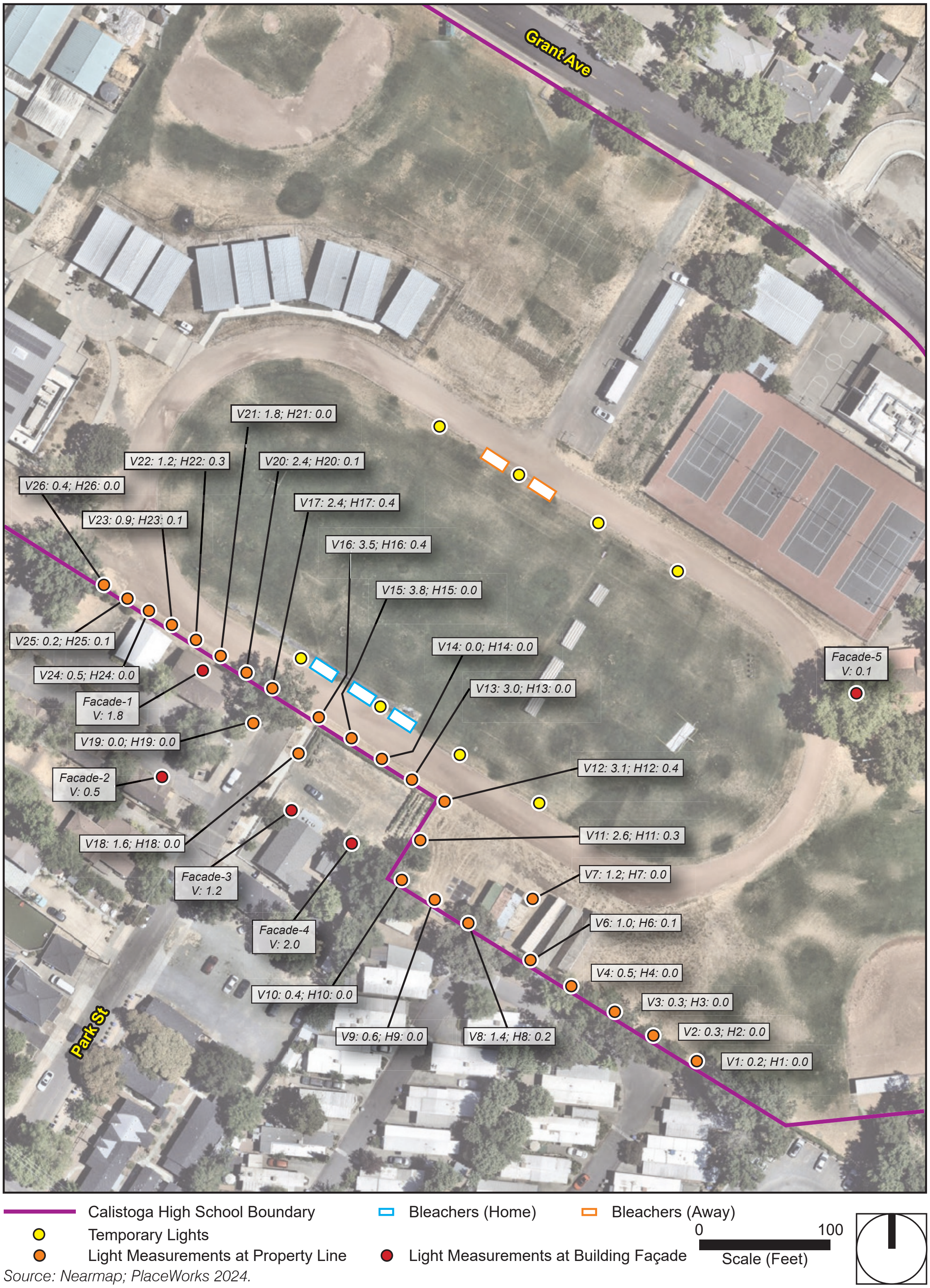
3. Environmental Analysis

Table 3 Calistoga High School Field and Lighting Improvements Light Measurements

Location #	Existing Light Measurement (foot-candles)*		Proposed Light Measurement (foot-candles)**	
	Vertical spill light	Horizontal spill light	Vertical spill light	Horizontal spill light
1	0.2	0.0	0.0	0.0
2	0.3	0.0	0.0	0.0
3	0.3	0.0	0.0	0.0
4	0.5	0.0	0.0	0.0
5	0.6	0.0	0.0	0.0
6	1.0	0.1	0.0	0.0
7	1.2	0.0	0.0	N/A
8	1.4	0.2	0.0	0.0
9	0.6	0.0	0.0	0.0
10	0.4	0.0	0.0	0.0
11	2.6	0.3	0.1	0.1
12	3.1	0.4	1.6	1.2
13	3.0	0.0	0.9	0.6
14	0.0	0.0[1]	0.5	0.5
15	3.8	0.0	2.2	1.8
16	3.5	0.4	2.1	1.9
17	2.4	0.4[1]	4.4	4.2
18	1.6	0.0[1]	0.4	0.3
19	0.0	0.0[2]	0.4	0.3
20	2.4	0.1	2.8	2.2
21	1.8	0.0	2.0	1.5
22	1.2	0.3	1.1	0.7
23	0.9	0.1	0.4	0.2
24	0.5	0.0	0.3	0.3
25	0.2	0.1	0.2	0.4
26	0.4	0.0	0.1	0.2
Façade-1	1.8	N/A		
Façade-2	0.5	N/A		
Façade-3	1.2	N/A		
Façade-4	2.0	N/A		
Façade-5	0.1/--	0.2/0.1		

Notes: First measurement time: 19:55, Half-moon visible, Clear sky conditions
Last measurement time: 20:20, Half-moon visible, Clear sky conditions

Figure 5a - Existing Lighting



Source: Nearmap; PlaceWorks 2024.

3. Environmental Analysis

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Figure 5b - Proposed Lighting

Grid Summary

Name	**South Spill**
Size	Irregular
Spacing	30.0'
Height	3.0' above grade

Illumination Summary

	MAINTAINED MAX VERTICAL FOOTCANDLES
	Entire Grid
Scan Average	**0.68**
Maximum	4
Minimum	0
Avg/Min	-
Max/Min	**-**
UG (adjacent pts)	0.00
CU	0.00
No. of Points	25
LUMINAIRE INFORMATION	
Applied Circuits	A
No. of Luminaires	**36**
Total Load	30.40 kW

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

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

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

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

Equipment List For Areas Shown

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	ABOVE GRADE LEVEL	LUMINAIRE TYPE	QTY/POLE	THIS GRID	OTHER GRIDS
1	F1	70'	-	70'	TLC-LED-1200	1	1	0
				70'	TLC-LED-900	6	6	0
				60'	TLC-LED-550	1	0	1
				60'	TLC-RGBW	2	0	2
				15.5'	TLC-BT-575	2	2	0
1	F2	70'	-	70'	TLC-LED-1200	1	1	0
				70'	TLC-LED-900	6	6	0
				60'	TLC-RGBW	2	0	2
				15.5'	TLC-BT-575	2	2	0
2	F3-F4	70'	-	70'	TLC-LED-1200	1	1	0
				70'	TLC-LED-900	6	6	0
				15.5'	TLC-BT-575	2	2	0
4	Totals					41	36	5

*Above Grade level relative to the field

Calistoga High School Boundary

0 60
Scale (Feet)

Source: MUSCO 2024.

3. Environmental Analysis

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3.2 AGRICULTURE AND FORESTRY RESOURCES

Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
II. AGRICULTURE AND FORESTRY RESOURCES. In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?				X
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?				X
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?				X
d) Result in the loss of forest land or conversion of forest land to non-forest use?				X
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?				X

Would the project:

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

No Impact. The Farmland Mapping and Monitoring Program produces maps and statistical data for analyzing impacts on California's agricultural resources. Agricultural land is rated according to soil quality and irrigation status and is divided into five categories: Prime Farmland, Farmland of Statewide Importance, Farmland of Local Importance, Unique Farmland, and Grazing Land. According to the Farmland Mapping and Monitoring Program, the project site is mapped as 'Urban and Built-up Land' (DOC 2020). The proposed project would be developed on the southwest portion of the existing Calistoga HS campus. The project site is surrounded by residential, commercial, and hospitality uses. The closest farmland is "Prime Farmland" 0.45 miles northeast of the project site. However, the project site does not contain any farmland and would not disturb any type of farmland. Therefore, the proposed project would not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to a nonagricultural use, and no impact would occur.

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

No Impact. Williamson Act contracts restrict the use of privately owned land to agriculture and compatible open-space uses under contract with local governments; in exchange, the land is taxed based on actual use rather than potential market value. According to the California Williamson Act Enrollment Finder there is no Williamson Act contract in effect on the project site; the closest Williamson Act contract is approximately one mile southeast of campus (DOC 2024b). Therefore, the project would not conflict with an existing Williamson Act contract, and no impact would occur.

c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?

No Impact. The City of Calistoga Zoning Map designates the campus as Public/Quali-Public (P) (Calistoga 2015). The proposed project would not change the zoning designation of the existing campus and would not impact any lands zoned for forestland and timberland uses. The project site is developed within the Calistoga HS campus, and no forested land or timberland exists on-site. Therefore, development of the proposed project would not conflict with existing zoning for forest land, timberland, or land zoned timberland production, and no impact would occur.

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

No Impact. The project site would be developed on the southwestern portion of the existing Calistoga HS campus. No forest land uses are present onsite nor in the immediate vicinity. Development of the proposed project would not require any changes to the existing environment that could result in the conversion of forest land into nonforest use. Therefore, no impact would occur.

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

No Impact. The project site would be developed on the southwestern portion of the existing Calistoga HS campus. No significant forest land uses are present onsite nor in the immediate vicinity. The closest classified farmland is 0.45 mile northeast of the project site and is classified as "Prime Farmland." Construction of the proposed project would occur within the boundaries of the Calistoga HS campus and would not disturb any type of farmland. Vehicles associated with the proposed project would travel on existing public rights-of-way and would not affect the operation of this farmland. Construction and operation of the proposed project would not result in any changes to the existing environment that could result in the conversion of farmland into nonagricultural uses or forest land to nonforest use. Therefore, no impact would occur.

3.3 AIR QUALITY

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

The Air Quality section of this Initial Study addresses the impacts of the proposed project on ambient air quality and the exposure of people, especially sensitive individuals, to unhealthful pollutant concentrations. A background discussion on the air quality regulatory setting, meteorological conditions, existing ambient air quality in the vicinity of the project site, and air quality modeling can be found in Appendix A, *Air Quality and Greenhouse Gas Emissions Data*. The construction health risk assessment (HRA) is included in Appendix B, *Health Risk Assessment*, of this Initial Study.

Criteria Air Pollutants

Pollutants emitted into the ambient air by stationary and mobile sources are regulated by federal and State law under the National and California Clean Air Act, respectively. Air pollutants are categorized as primary and/or secondary pollutants. Primary air pollutants are those that are emitted directly from sources. Carbon monoxide (CO), reactive organic gases (ROG), nitrogen oxides (NO_x), sulfur dioxide (SO_2), coarse inhalable particulate matter (PM_{10}), fine inhalable particulate matter ($PM_{2.5}$), and lead (Pb) are primary air pollutants. Of these, all of them except for ROGs are "criteria air pollutants," which means that ambient air quality standards (AAQS) have been established for them. The National and California AAQS are the levels of air quality considered to provide a margin of safety in the protection of the public health and welfare. They are designed to protect those "sensitive receptors" most susceptible to further respiratory distress, such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and persons engaged in strenuous work or exercise. Healthy adults can tolerate occasional exposure to air pollutant concentrations considerably above these minimum standards before adverse effects are observed.

Areas are classified under the federal and California Clean Air Act as either in attainment or nonattainment for each criteria pollutant based on whether the AAQS have been achieved. The San Francisco Bay Area Air Basin (SFBAAB), which is managed by the Bay Area Air Quality Management District (BAAQMD or Air District),

3. Environmental Analysis

is nonattainment area for California and National O_3, California and National $PM_{2.5}$,[3] and California PM_{10} AAQS (CARB 2024a). BAAQMD has identified thresholds of significance for criteria pollutant emissions and criteria air pollutant precursors, including ROG, NO_x, PM_{10}, and $PM_{2.5}$. Development projects below the regional significance thresholds are not expected to generate sufficient criteria pollutant emissions to violate any air quality standard, contribute substantially to an existing or projected air quality violation, or substantially contribute to health impacts.

Toxic Air Contaminants

In addition to criteria air pollutants, both the State and federal government regulate the release of toxic air contaminants (TAC). The California Health and Safety Code define a TAC as "an air pollutant which may cause or contribute to an increase in mortality or in serious illness, or which may pose a present or potential hazard to human health." A substance that is listed as a hazardous air pollutant pursuant to Section 112(b) of the federal Clean Air Act (42 US Code Section 7412[b]) is a toxic air contaminant. Under State law, the California Environmental Protection Agency, acting through the California Air Resources Board (CARB), is authorized to identify a substance as a TAC if it determines that the substance is an air pollutant that may cause or contribute to an increase in mortality or serious illness, or may pose a present or potential hazard to human health.

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

Would the project:

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

No Impact. BAAQMD's 2017 Clean Air Plan is a regional and multiagency effort to reduce air pollution in the SFBAAB (BAAQMD 2017). A consistency determination with the air quality management plan plays an important role in local agency project review by linking local planning and individual projects to the Clean Air Plan. It fulfills the CEQA goal of informing decision makers of the environmental efforts of the project under consideration early enough to ensure that air quality concerns are fully addressed. It also provides the local agency with ongoing information as to whether they are contributing to the clean air goals in the Clean Air Plan.

The regional emissions inventory for the SFBAAB is compiled by the Air District. Regional population, housing, and employment projections developed by the Association of Bay Area Governments (ABAG) are based, in part, on cities' and counties' general plan land use designations. These projections form the foundation for the emissions inventory of the Clean Air Plan. These demographic trends are incorporated into Plan Bay Area, compiled by ABAG and the Metropolitan Transportation Commission (MTC) to determine priority transportation projects and vehicle miles traveled in the Bay Area. Projects that are consistent with the local general plan are considered consistent with the air quality-related regional plan. Large projects that exceed

[3] The California Air Resources Board (CARB) is considering an amendment to SFBAAB's attainment status for $PM_{2.5}$. This amendment would revise the $PM_{2.5}$ attainment status from non-attainment to attainment and shall be considered at a board hearing on January 25, 2025 (CARB 2024b).

regional employment, population, and housing planning projections have the potential to be inconsistent with the regional inventory compiled as part of the Clean Air Plan.

Under CEQA Guidelines Section 15206,[4] the proposed project is not considered a regionally significant project that would affect regional vehicle miles traveled and warrant intergovernmental review by ABAG and MTC. As stated in Section 3.14, *Population and Housing*, of this MND, the proposed project would not increase student capacity or enrollment and would therefore have no impact on population growth. Lastly, the proposed project would not generate operation emissions that would exceed BAAQMD's emissions thresholds (see impact discussion in Section 3.3(b)). These thresholds are established to identify projects that have the potential to generate a substantial amount of criteria air pollutants. Because the proposed project would not exceed these thresholds, the proposed project would not be considered by BAAQMD to be a substantial emitter of criteria air pollutants. Therefore, the proposed project would not conflict with or obstruct implementation of the 2017 Clean Air Plan, and no impacts would occur.

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

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

Regional Short-Term Construction Impacts

Construction activities produce combustion emissions from various sources, such as on-site heavy-duty construction vehicles, vehicles hauling materials to and from the site, and motor vehicles transporting the construction crew. Construction activities produce course fugitive dust (PM_{10}) and fine fugitive dust ($PM_{2.5}$) emissions from demolition and soil-disturbing activities, such as grading and excavation. Air pollutant emissions from construction activities on-site would vary daily as construction activity levels change. Construction activities associated with the proposed project would result in emissions of volatile organic compounds (VOC), nitrogen oxides (NOx), PM_{10}, and $PM_{2.5}$. An estimate of construction emissions associated with the proposed project are shown in Table 4*, Construction-Related Criteria Air Pollutant Emissions Estimate.*

[4] Pursuant to CEQA Guidelines Section 15206(b)(2)(A), a proposed residential development of more than 500 dwelling units would be considered a project of statewide, regional, or areawide significance.

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Table 4 Construction-Related Criteria Air Pollutant Emissions Estimate

Construction Year	Criteria Air Pollutants (tons per year)[1, 2]					
	VOC	NO_X	Exhaust PM_{10}	Fugitive PM_{10}	Exhaust $PM_{2.5}$	Fugitive $PM_{2.5}$
Year 2025 Construction	0.11	0.76	0.03	0.04	0.03	0.01
Total	0.11	0.76	0.03	0.04	0.03	0.01
Construction Year	**Criteria Air Pollutants (average pounds per day)[1, 2]**					
	VOC	NO_X	Exhaust PM_{10}	Fugitive PM_{10}	Exhaust $PM_{2.5}$	Fugitive $PM_{2.5}$
Average Daily Year 2025 Construction	2	10	<1	1	<1	<1
Average Daily Overall Construction[3]	2	10	<1	1	<1	<1
BAAQMD Average Daily Project-Level Threshold	54	54	Implement BMPs	82	Implement BMPs	54
Significant?	No	No	N/A	No	N/A	No

Source: California Emissions Estimator Model (CalEEMod), v. 2022.1.
Notes: Emissions may not total to 100 percent due to rounding. BMP = Best Management Practices; N/A = not applicable
1 Construction phasing and equipment mix are based on the preliminary information provided or verified by the project applicant. Where specific information regarding project-related construction activities was not available, construction assumptions were based on CalEEMod defaults, which are based on construction surveys conducted by South Coast Air Quality Management District of construction equipment and phasing for comparable projects.
2 Includes implementation of BMPs for fugitive dust control required by BAAQMD, including watering disturbed areas a minimum of two times per day and reducing speed limit to 25 miles per hour on unpaved surfaces.
3 Average daily emissions are based on the total construction emissions divided by the total number of active construction days. The total number of construction days is estimated to be about 149 workdays.

Construction Exhaust Emissions

Construction emissions are based on the conservative construction schedule developed for the proposed project. Activities that would take place are demolition, hauling, site preparation, grading, building construction, paving, and architectural coating. To determine potential construction-related air quality impacts, criteria air pollutants generated by project-related construction activities are compared to BAAQMD's significance thresholds. Average daily emissions are based on the total annual construction emissions divided by the total number of active construction days. As shown in Table 4, criteria air pollutant emissions from construction equipment exhaust would not exceed BAAQMD's average daily thresholds. Therefore, construction-related criteria pollutant emissions from exhaust would be less than significant.

Fugitive Dust

Ground-disturbing activities during project construction could generate fugitive dust (PM_{10} and $PM_{2.5}$) that, if left uncontrolled, could expose the areas downwind of the construction site to air pollution from the construction dust. Fugitive PM_{10} is typically the most significant source of air pollution from the dust generated from construction. The amount of fugitive dust generated during construction would be highly variable and is dependent on the amount of material being demolished, the type of material, moisture content, and meteorological conditions. PM_{10} bypasses the body's natural filtration system more easily than larger particles and can lodge deep in the lungs. $PM_{2.5}$ penetrates even more deeply into the lungs, and this is more likely to contribute to health effects at concentrations well below current PM_{10} standards. Health effects include premature death in people with heart or lung disease, nonfatal heart attacks, irregular heartbeat, aggravated asthma, decreased lung function, and increased respiratory symptoms (e.g., irritation of the airways, coughing, or difficulty breathing).

BAAQMD does not provide a quantitative threshold for construction-related fugitive dust emissions, and a project's fugitive dust emissions are considered acceptable with implementation of BAAQMD's best management practices. Thus, there could be a significant impact if the best management practices are not enforced. For this reason, the project's fugitive dust emissions with the incorporation of BAAQMD's best management practices are quantified for reference in Table 4. Mitigation Measure AQ-1 would require the proposed project to comply with BAAQMD's best management practices for reducing construction emissions of uncontrolled fugitive dust. Mitigation Measure AQ-1 would reduce fugitive dust to less than significant levels.

Mitigation Measure

AQ-1 The Calistoga Joint Unified School District (District) shall specify in the construction bid that the project construction contractor shall comply with the following the Bay Area Air Quality Management District's best management practices for reducing construction emissions of uncontrolled fugitive dust (coarse inhalable particulate matter [PM_{10}] and fine inhalable particulate matter [$PM_{2.5}$]):

- Water all exposed surfaces (e.g., parking areas, staging areas, soil piles, grading areas, and unpaved access roads) at least twice daily or as often as needed to control dust emissions.
- All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
- All visible mud or dirt trackout onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day.
- All vehicle speeds on unpaved roads shall be limited to 15 mph.
- All roadways, driveways, sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seedling or soil binders are used.
- All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20 mph.
- All trucks and equipment, including their tires, shall be washed off prior to leaving the site.
- Unpaved roads providing access to sites located 100 feet or further from a paved road shall be treated with a 6- to 12-inch layer of compact layer of wood chips, mulch, or gravel.
- Prior to the commencement of construction activities, individual project proponents shall post a publicly visible sign with the telephone number and person to contact at the City regarding dust complaints. This person shall respond and take corrective action within 48

3. Environmental Analysis

hours. The BAAQMD phone number shall also be visible to ensure compliance with applicable regulations.

These measures shall be noted on grading plans prepared by the District. The construction contractor shall implement these measures during ground disturbing activities. The Calistoga Joint Unified School District shall verify that these measures have been implemented during normal construction site inspections.

Long-Term Operation-Related Impacts

The proposed project would consist of improvements to the school's existing track and field area, including 2,592 square feet of building space and 193,406 total square feet (4.44 acres) of development. The proposed project would therefore be below the BAAQMD operational screening levels of 475,000 square feet and 579,000 square feet for Junior High School and High School land uses, respectively (BAAQMD 2022). Per BAAQMD's CEQA Guidelines, projects that do not exceed the screening levels are considered less than significant.

c) Expose sensitive receptors to substantial pollutant concentrations?

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

Off-Site Construction Health Risk Impacts

The proposed project would elevate concentrations of TACs and construction $PM_{2.5}$ in the vicinity of sensitive land uses (i.e., sensitive receptors for the purposes of air quality analysis) during construction activities. Off-site sensitive receptors proximate to the project site include the surrounding residential homes, workers at the surrounding nonresidential uses (e.g., Monhoff Center operated by the City), students at the Palisades High School Continuation School on the property of Calistoga Junior Senior High School, and on-site Calistoga HS students. Construction activities would occur near these sensitive receptor locations. Consequently, an HRA of TACs and construction $PM_{2.5}$ was prepared for the project and is included in Appendix A, *Air Quality and Greenhouse Gas Modeling*, of this MND. Results of the analysis are shown in Table 5, *Off-Site Construction Health Risk Assessment Results: Unmitigated.*

Table 5 Off-Site Construction Health Risk Assessment Results: Unmitigated

Source	Cancer Risk (per million)	Chronic Hazard Index	Construction $PM_{2.5}$ ($\mu g/m^3$)
Maximum Exposed Individual Resident (MEIR)	5.3	0.02	0.08
Maximum Exposed Individual Worker (MEIW)	0.17	0.02	0.11
Maximum Exposed Individual Student: Palisades High School	1.0	0.02	0.12
BAAQMD Threshold	10	1.0	0.30
Exceeds Threshold?	No	No	No

Source: Appendix B, Construction Health Risk Assessment.
Notes: $\mu g/m^3$ = microgram per cubic meter
Cancer risk calculated using 2015 Office of Environmental Health Hazard Assessment Health Risk Assessment Guidance Manual (OEHHA 2015).

The results of the HRA are based on the maximum exposed receptor concentration over the approximately 0.57-year construction exposure period for off-site receptors, assuming 24-hour outdoor exposure, and averaged over a 70-year lifetime. Risk is based on the updated Office of Environmental Health Hazard Assessment (OEHHA) Guidance as follows:

- **Cancer Risk**
  - **Residents.** Cancer risk for the maximum exposed individual resident (MEIR), which would be the single-family residence on 1518 Grant Street north of the project site, from unmitigated construction activities related to the project were calculated to be 5.3 in a million and would not exceed the 10 in a million significance threshold. In accordance with the latest 2015 OEHHA guidance, the calculated total cancer risk conservatively assumes that the risk for the MEIR consists of a pregnant woman in the third trimester that subsequently gives birth to an infant during the approximately 0.57-year construction period. To account for early life exposure, calculated risk values for were multiplied by a factor of 10 in accordance with OEHHA guidance.
  - **Workers.** Cancer risk for the maximum exposed individual worker (MEIW), which would be the workers at the Monhoff Center adjacent to the existing track and field east of the project site, from unmitigated construction activities related to the project were calculated to 0.17 in a million and would not exceed the 10-in-a-million significance threshold.
  - **Students.** Cancer risk for the students at Palisades High School were calculated to 1.0 in a million and would not exceed the 10 in a million significance threshold.
- **Hazard Index**
  - For non-carcinogenic effects, the hazard index identified for each toxicological endpoint totaled less than 1.0 for all sensitive receptors evaluated from project construction. Therefore, chronic non-carcinogenic hazards do not exceed BAAQMD thresholds.

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- **$PM_{2.5}$ Concentrations**
  - **Residents.** The highest $PM_{2.5}$ annual concentration of 0.08 μg/m³ at the MEIR would not exceed the 0.3 μg/m³ significance threshold.
  - **Workers.** The highest $PM_{2.5}$ annual concentration of 0.11 μg/m³ at the MEIW would not exceed the 0.3 μg/m³ significance threshold.
  - **Students.** The highest $PM_{2.5}$ annual concentrations of 0.12 μg/m³ at Palisades High School would not exceed the 0.3 μg/m³ significance threshold.

Cancer risk, chronic hazards, and construction $PM_{2.5}$ from project construction activities would therefore not exceed the BAAQMD's health risk thresholds, and impacts would be less than significant.

In addition to a project-level HRA, BAAQMD recommends assessing the potential cumulative impacts from sources of TACs within 1,000 feet of a project. For the cumulative analysis provided in Appendix B, BAAQMD provides several health risk screening tools and databases for identifying risks at a particular location. No permitted stationary sources were identified within 1,000 feet of the site. The only existing emission sources within 1,000 feet of the project site are high-volume roadways. Screening level risks were obtained for roadways using BAAQMD CEQA tools at the MEIR location (BAAQMD 2024). Table 6, *Cumulative Community Risk Summary*, summarizes the existing risks at the MEIR with the construction risks from the project and compares the cumulative risks to BAAQMD's cumulative community health risk significance thresholds. As shown in Table 6, the cumulative risks do not exceed BAAQMD's cumulative risk thresholds, and this impact would be less than significant.

Table 6 Cumulative Community Risk Summary

Source	Cancer Risk (per million)	Chronic Hazard Index	Construction $PM_{2.5}$ (μg/m³)
Maximum Exposed Individual Resident (MEIR)	5.3	0.02	0.08
BAAQMD-provided Roadway screening risks (at MEIR)	4.3	0.02	0.17
Cumulative Project Health Risks	9.6	0.04	0.25
BAAQMD Threshold - Cumulative	100	10.0	0.80
Exceeds Threshold?	No	No	No

Source: Appendix B, Construction Health Risk Assessment.
Notes: μg/m³ = microgram per cubic meter
Cancer risk calculated using 2015 Office of Environmental Health Hazard Assessment Health Risk Assessment Guidance Manual (OEHHA 2015).
The cumulative risk analysis provided in Table 6 is for the MEIR due to project level risks being highest at the MEIR location. Since the cumulative risks were determined less than significant for the MEIR, cumulative risks for worker and student receptors would also be less than significant.

Operation

Carbon Monoxide Hotspot

Areas of vehicle congestion have the potential to create pockets of CO called hotspots. These pockets have the potential to exceed the State 1-hour standard of 20 ppm or the 8-hour standard of 9.0 ppm. Because CO is produced in the greatest quantities from vehicle combustion and does not readily disperse into the atmosphere, adherence to AAQS is typically demonstrated through an analysis of localized CO concentrations. Hotspots are typically produced at intersections, where traffic congestion is highest because vehicles queue for periods of time and are subject to reduced speeds.

Congestion management plans must align with *Plan Bay Area 2050*, and an overarching goal of the regional plan is to concentrate development in areas where there are existing services and infrastructure rather than allocate new growth in outlying areas where substantial transportation investments would be necessary to achieve the per capita passenger vehicle miles traveled and associated GHG emissions reductions under Senate Bill 375. The proposed improvements would replace existing facilities at a school site and would be consistent with this overarching goal of the MTC/ABAG's Plan Bay Area.

Furthermore, under existing and future vehicle emission rates, a project would have to increase traffic volumes at a single intersection to more than 44,000 vehicles per hour—or 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited—in order to generate a significant CO impact (BAAQMD 2022). The proposed project would generate up to 10 peak hour trips during the AM peak hour and 13 peak hour trips during the PM peak hour. Existing average daily vehicle trips (ADT) at Lake Street north of Grant Street and at Grant Street between Lake Street and Stevenson Street are 2,090 and 1,310 ADTs, respectively. The proposed project and future traffic levels are expected to increase ADT to 2,240 trips at Lake Street north of Grant Street and at Grant Street and 1,470 trips at Grant Street between Lake Street and Stevenson Street (Garland & Associates 2024). Based on a transportation industry assumption that hourly peak hour trips is 10 percent of average daily counts, the proposed project would not increase peak hour traffic volumes at affected intersections to more than the BAAQMD's screening criteria of 44,000 vehicles per hour, or 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited. Therefore, the project would not have the potential to substantially increase CO hotspots at intersections in the project vicinity. Localized air quality impacts related to mobile-source emissions would therefore be less than significant.

Off-Site Health Risk Impacts

Exposure to elevated concentrations of vehicle-generated $PM_{2.5}$ and TACs at sensitive land uses have been identified by CARB, the California Air Pollution Control Officer's Association, and the BAAQMD as a potential air quality hazard. The proposed stadium improvements project would not create new major sources of TACs, which are more commonly associated with industrial manufacturing or warehousing. Therefore, operation-related health risk impacts associated with the project are considered less than significant.

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

Less Than Significant Impact. The type of facilities that are typically considered to have objectionable odors include wastewater treatments plants, compost facilities, landfills, solid waste transfer stations, fiberglass manufacturing facilities, paint/coating operations (e.g., auto body shops), dairy farms, petroleum refineries, asphalt batch plants, chemical manufacturing, and food manufacturing facilities (BAAQMD 2022). The proposed project consists of stadium improvements, which is not considered a type of land use typically associated in generating objectionable odors that would affect a substantial number of people.

During project-related construction activities on the project site, construction equipment exhaust and application of asphalt and architectural coatings would temporarily generate odors. Any construction-related odor emissions would be temporary and intermittent. Additionally, noxious odors would be confined to the immediate vicinity of the construction equipment. By the time such emissions reach any sensitive receptor sites, they would be diluted to well below any level of air quality concern. Impacts would be less than significant.

3.4 BIOLOGICAL RESOURCES

Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
IV. BIOLOGICAL RESOURCES. Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?				X
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?				X
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?			X	
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?			X	
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?				X
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?			X	

Would the project:

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

No Impact. Special status species include those listed as endangered or threatened under the federal Endangered Species Act or California Endangered Species Act; species otherwise given certain designations by the California Department of Fish and Wildlife; and plant species listed as rare by the California Native Plant Society.

The City of Calistoga Open Space and Conservation Element identifies a variety of biological resources, both animal species and native plants, which include endangered or threatened species, throughout the city. Figure OCS-1, Biological Resources in the Planning Area, of the General Plan indicates that the project site is not in an identified "very significant" or "moderately significant" resource area that includes specials status species habitats (Calistoga 2003).

According to the U.S. Fish and Wildlife Service critical habitat for threatened species and endangered species mapper, the project site and surrounding area are outside of any federally designated critical habitat (USFWS 2024a). Additionally, the city of Calistoga, including the project site, is not within a habitat conservation plan/national community conservation plan area (HCP/NCCP) (CDFW 2024a). The project site has been previously disturbed by the Calistoga HS campus, and is currently developed. Therefore, the proposed project would not impact any candidate, sensitive, or special status species, and no impact would occur.

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

No Impact. Sensitive natural communities are natural communities that are considered rare in the region by regulatory agencies; that are known to provide habitat for sensitive animal or plant species; or are known to be important wildlife corridors. The project site is entirely developed and distributed within a developed area. The project site is not within any HCP/NCCP (CDFE 2024a). Based on Figure OCS-1 of the Calistoga General Plan, the project site is not in an identified "very significant" or "moderately significant" resource area that includes special status species habitats (Calistoga 2003). No federally designated critical habitat exists on site or in the vicinity of the project site (USFWS 2024a). The National Wetlands Mapper maintained by the US Fish and Wildlife service identified a freshwater pond habitat 0.20 miles north of the project site, within a residential community, and a riverine habitat 0.25 miles south in the Napa River that traverses the city (USFWS 2024b). Thus, the project site does not contain any riparian habitat or other sensitive natural community, and the project would not impact the riverine habitat or other sensitive natural community. Therefore, no impacts to riparian habitat or other sensitive natural communities would occur.

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

Less Than Significant Impact. The project site is currently developed with athletic facilities. As discussed in section 3.4(b), the National Wetlands Mapper identified a riverine habitat 0.25 miles south within the Napa River, which traverses the city (USFWS 2024b). No wetlands or riverine habitats exist within the project site. Construction-related activities would occur within the project site. As further discussed in Section 3.10, *Hydrology and Water Quality*, the proposed project would prepare a Storm Water Pollution Prevention Plan that would include best management practices (BMP) to properly manage stormwater during construction of the proposed project. Further, stormwater generated by the proposed project would be routed to existing stormwater infrastructure onsite and the proposed project would expand stormwater infrastructure by constructing new storm drains and planting/bioretention areas to capture stormwater from the project site. During operational phase, the proposed project would adhere to the requirements of the State Water Resources Control Board's Trash Amendments, site design, and source control BMPs, as described in Section 3.10(a).

Therefore, given the distance between the proposed project and the offsite riparian habitat, compliance with regulatory compliance measures, and incorporation of best management practices, the proposed project would not affect the off-site riverine habitat. Thus, the proposed project would not have a substantial adverse effect on protected wetlands, and impacts would be less than significant.

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

Less Than Significant Impact. The project site is in an urbanized area of Calistoga. The project site is fully developed and includes an existing football field. No federally designated critical habitat exists on-site or in the vicinity (USFWS 2024a). The proposed project contains no trees on-site and would not disturb nesting birds that are protected by the Migratory Bird Treaty Act. Furthermore, based on the California Department of Fish Wildlife's BIOS 6 viewer Terrestrial Connectivity layer, the project site has a score of three out of five indicating the project site has a "connection with implementation flexibility" (CDFW 2024b). Areas within "connections with implementation flexibility are areas that have been identified as having connectivity importance, but have not been identified as channelized areas, species corridors, or habitat linkages at this time (CDFW 2024c). However, due to the disturbed and developed nature of the project site and surrounding urban development, the project site would not be an essential wildlife corridor. Additionally, the proposed project would be confined within the boundaries of the previously disturbed Calistoga HS campus and would not result in any new impacts to wildlife corridors or native wildlife nursery sites. Therefore, impacts would be less than significant impact.

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

No Impact. The City of Calistoga General Plan outlines various goals and polices protecting biological resources, including but not limited to policy P1.1-2, which states "impacts to movement corridors that link wildlife habitat areas should be considered when reviewing development proposals" (Calistoga 2003). As discussed in Section 3.4(b), the proposed project is not in an identified "very significant" or "moderately significant" resource area that includes specials status species habitats. As discussed in Section 3.4(d), the project site has a "connection with implementation flexibility," but due to the disturbed nature of the project site, the proposed project would not impact essential wildlife corridors. The proposed project would comply with the goals and policies protecting biological resources outlined within the Calistoga General plan. The proposed project would comply with applicable federal and state regulations protecting biological resources. Additionally, the proposed project would not impact any trees on the project site, as none exist on-site. Therefore, no impact would occur.

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

No Impact. The project site is developed within the existing Calistoga HS campus. The proposed project is not within an identified HCP/NCCP (CDFW 2024a). The proposed project would not impact any HCP/NCCP, or other approved local, regional, or state conservation plan. Therefore, no impact would occur.

3.5 CULTURAL RESOURCES

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

The analysis in this section is based on the following study:

- *Cultural Resources Study for the Calistoga Junior-Senior High School Field Improvements Project, 1608 Lake Street, Calistoga, Napa County, California*, Evans & De Shazo, Inc. (EDS), January 2025.

A complete copy of this report is included as Appendix D to this Initial Study.

Would the project:

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

Less Than Significant Impact. Section 15064.5 defines historic resources as resources listed or determined to be eligible for listing by the State Historical Resources Commission, a local register of historical resources, or the lead agency. Generally a resource is considered "historically significant" if it meets one of the following criteria:

i) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

ii) Is associated with the lives of persons important in our past;

iii) Embodies the distinctive characteristics of a type, period, region or method of construction, or represents the work of an important creative individual, or possesses high artistic values;

iv) Has yielded, or may be likely to yield, information important in prehistory or history.

The proposed project would be implemented within the existing Calistoga HS campus. The campus is not historically significant and does not contain historic structures. Calistoga HS is not listed as a historical resource in the National Register of Historic Places, California Historical Landmarks, or California Register of Historical Resources (NPS 2024a, 2024b; OHP 2024a, 2024b). The project site has a low potential/sensitivity for buried historic period archaeological resources. The nearest historical resource is the Sam Brannan Cottage, which is approximately 275 feet east of the project site. Given the nature of the proposed project, the distance, and intervening development, the proposed project would not impact this historical resource or any others. Therefore, there are no resources on the project site that would be considered "historically significant," and impacts would be less than significant.

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

Less Than Significant Impact With Mitigation Incorporated. The project site is located on a developed portion of the Calistoga HS campus. The proposed project would include excavation and grading, which has the potential to uncover previously unknown archaeological resources. A buried archaeological site sensitivity desktop analysis found that the project site has a low potential/sensitivity for buried historic period archaeological resources and a moderate potential/sensitivity for buried precontact period archaeological resources.

A reconnaissance survey resulted in the identification of one precontact period isolated artifact, consisting of an obsidian flake, located on the surface along the outside edge of the existing track in the northern portion of the project site. Thus, Mitigation Measure CUL-1 would be implemented for the proposed project to address the potential to encounter any additional artifacts or subsurface archaeological resources during project-related ground-disturbing activities.

No additional artifacts or indications of archaeological sites were observed during the reconnaissance survey. Therefore, with the implementation of MM CUL-1, potential impacts to archaeological resources would be reduced to less than significant.

Mitigation Measures

CUL-1 Prior to the commencement of grading activities, the District shall ensure that an archaeologist who meets the Secretary of the Interior's (SOI) standards for professional archaeology has been retained for the proposed project and will be on-call during all grading and other significant ground-disturbing activities that would occur beneath the existing artificial fill. The qualified archaeologist shall ensure that the following measures are followed for the proposed project:

- Prior to any ground disturbance, the Qualified Archaeologist will conduct a preconstruction Cultural Resources Awareness Training (CRAT) to familiarize the members of the construction team overseeing or conducting ground-disturbing activities with the archaeological sensitivity of the project area, the potential to encounter archaeological resources, the types of archaeological material that could be encountered, and procedures to follow if archaeological deposits and/or artifacts are encountered during construction. The SOI-qualified archaeologist shall prepare and distribute a brochure describing the appropriate actions to take if any archaeological resources are encountered.

- Prior to any ground disturbance, the (SOI)-qualified archaeologist shall prepare an Archaeological and Tribal Monitoring Plan that outlines the methods to be undertaken during monitoring and the steps to be taken in the event of an archaeological discovery.
  - In the event that a prehistoric archeological site indicators (such as obsidian and chert flakes and chipped stone tools; grinding and mashing implements [e.g., slabs and hand stones, and mortars and pestles]; bedrock outcrops and boulders with mortar cups; and locally darkened midden soils) or a historic-period archaeological site indicators (such as fragments of glass, ceramic, and metal objects; milled and split lumber; and structure and feature remains such as building foundations and discrete trash deposits [e.g., wells, privy pits, dumps]), is uncovered during grading or other construction activities, all ground-disturbing activity within 50 feet of the discovery shall be halted. The District shall be notified of the potential find and a qualified archeologist shall be retained to investigate its significance (CEQA Guidelines15064.5[f]).
  - If significant Native American cultural resources are discovered for which a treatment plan must be prepared, the District or the archaeologist on-call shall contact the applicable Native American tribal representative(s). If requested by the Native American tribe(s), the District or archaeologist on call shall, in good faith, consult on the discovery and its disposition (e.g., avoidance, preservation, reburial, re-turn of artifacts to tribe).

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

Less Than Significant Impact. There are no cemeteries or known human burials at the project site, which has been developed with an existing track and field. However, the proposed project would include excavating and grading on the project site, which has the potential to uncover previously unknown human remains.

If human remains are encountered during ground-disturbing activities, California Health and Safety Code Section 7050.5 requires that disturbance of the site shall halt and remain halted. The Napa County Coroner shall investigate the circumstances, manner, and cause of any death and recommend the treatment and disposition of the human remains to the person responsible for the excavation or to his or her authorized representative, in the manner provided in Section 5097.98 of the California Public Resources Code. The coroner is required to determine, within two working days of being notified of the discovery of the human remains. If the coroner determines that the remains are not subject to his or her authority or has reason to believe they are Native American, he or she shall contact, by telephone within 24 hours, the Native American Heritage Commission (NAHC), who will contact the "most likely descendant." The most likely descendant shall receive access to the discovery and would provide recommendations or preferences for treatment of the remains within 48 hours of accessing the discovery site. Disposition of human remains and any associated grave goods, if encountered, shall be treated in accordance with procedures and requirements in Sections 5097.94 and 5097.98 of the Public Resources Code, Section 7050.5 of the California Health and Safety Code, and CEQA Guidelines Section 15064.5 (PRC § 5097.9; AB 389, 2023).

Although soil-disturbing activities associated with the proposed project could result in the discovery of human remains, compliance with existing law would ensure that impacts would be less than significant.

3.6 ENERGY

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

Would the project:

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

Less Than Significant Impact. The following discusses the potential energy demands from construction activities associated with the construction and operation of the proposed project.

Short-Term Construction Impacts

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

Electrical Energy

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

Natural Gas Energy

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

Transportation Energy

Transportation energy use during construction of the proposed project would come from delivery vehicles, transport trucks, and construction employee vehicles. In addition, transportation energy demand would come

3. Environmental Analysis

from use of off-road construction equipment. It is anticipated that the majority of off-road construction equipment, such as those used during site preparation and grading, would be gas or diesel powered.

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

Construction trips would also not result in unnecessary use of energy as the project site is served by numerous regional freeway systems (e.g., State Routes 128 and 29) that provide the most direct routes from various areas of the region. Thus, energy use during construction of the project would not be considered inefficient, wasteful, or unnecessary. Impacts would be less than significant.

Long-Term Impacts During Operation

Operation of the proposed project would generate new demand for electricity and transportation energy on the project site. Operational use of energy would include potential heating, cooling, and ventilation of buildings; water heating; operation of electrical systems, use of on-site equipment and appliances; and indoor and stadium lighting.

Non-transportation Electrical Energy

The proposed stadium improvements would consume electricity. The estimated increase in electricity consumption from the proposed project is shown in Table 7, *Operation-Related Energy Consumption*.

Table 7 Operation-Related Energy Consumption

Land Use	Electricity (kWh/year)
High School[1]	11,709
Field Lighting[2]	678
Scoreboard[3]	10,434
Total	22,787

Source: California Emissions Estimator Model (CalEEMod), v. 2022.1.
Note: kWh = kilowatt hour; kBTU = kilo British thermal units
1 Includes the proposed fieldhouse, concessions building, and press box, which are all assumed to consume electricity for purposes of this analysis.
2 Based on Musco lighting plans provided by the District and calculated electricity use from field lighting (see Appendix C).
3 Based on assumption that scoreboard would require maximum of 5 Kw/hr. Electro-Mech Scoreboard Co., 2023.

While the proposed project would result in higher electricity demands than existing conditions on-site, it would be consistent with the requirements of the Building Energy Efficiency Standards and California Green Building Standards Code (CALGreen). In general, new buildings in compliance with these standards would have greater energy efficiency than existing buildings built under previous standards or no standards. Furthermore, the proposed permanent field lighting would replace the portable gas-powered lighting units currently used. The new proposed permanent field lighting would be electric powered instead of gas powered and would use grid electricity provided by Pacific Gas and Electric (PG&E), which is required to comply with the state's renewable portfolios standard (RPS). For 2023, PG&E's electricity base plan consisted of 38.3 percent from renewable sources (CEC 2024). Overall, the RPS mandates utilities to procure a certain proportion of electricity from eligible renewable and carbon-free sources and to increase the proportion through the coming years, with an ultimate procurement requirement of 100 percent by 2045. The RPS requirements would support use of electricity by the proposed project that is generated from renewable or carbon-free sources. Thus, compliance with these codes would decrease overall reliance on fossil fuels and increase reliance on renewable energy sources for electricity generation. Therefore, operation of the proposed new concession/restroom building, field lighting, and scoreboard would not result in wasteful or unnecessary electricity.

Transportation Energy

The proposed stadium improvements would consume transportation energy during operations from the use of motor vehicles associated with students, staff, and visitors to the stadium. As described in Section 1.7.2., *Event Scheduling*, the proposed increase in bleacher capacity is anticipated to generate an increase in spectator attendance and thus increase transportation energy demand compared to existing conditions.

High school stadiums typically do not generate a significant number of vehicle trips during the peak hours of adjacent street traffic, and daily trip generation is highly variable. However, the new stadium lights and other stadium improvements would allow the campus to host new soccer games and track and field events that were not previously hosted at the campus. Additionally, the installation of new bleachers would result in a net increase of 474 spectators for a maximum capacity event, resulting in a slight net increase in vehicle miles traveled (VMT) and transportation-related fuel usage. However, as explained in Section 3.17(b), *Transportation*, the proposed project is a local-serving public facility that is presumed to have a less than significant VMT impact. Thus, it can be expected that implementation of the proposed project would not worsen VMT on a per service population basis compared to the region and would therefore not worsen demand on fuels from an efficiency perspective.

Additionally, fuel efficiency of vehicles with each passing year would on average improve. The improvement in fuel efficiency would be attributable to the statewide fuel reduction strategies and regulatory compliances (e.g., corporate average fuel economy [CAFE] standards), resulting in new cars that are more fuel efficient and the attrition of older, less fuel-efficient vehicles. The CAFE standards are not directly applicable to land use development projects, but to car manufacturers. Thus, the spectators and event attendees do not have direct control in determining the fuel efficiency of vehicles that are manufactured and made available. However, compliance with the CAFE standards by car manufacturers would ensure that vehicles produced in future years have greater fuel efficiency and would generally result in an overall benefit of reducing fuel usage by providing spectators and event attendees more fuel-efficient vehicle options. In addition, as electricity consumed in California is required to meet the increasing renewable energy mix requirements under the State's RPS and accelerated by Senate Bill (SB) 100 and SB 1020, greater and greater proportions of electricity consumed for transportation energy demand envisioned under the proposed project would be sourced from renewable energy sources rather than fossil fuels. Overall, for these reasons, impacts would be less than significant with respect to operation-related fuel usage.

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

No Impact. The state's electricity grid is transitioning to renewable energy under California's Renewable Energy Program. Renewable sources of electricity include wind, small hydropower, solar, geothermal, biomass, and biogas. Electricity production from renewable sources is generally considered carbon neutral. Executive Order S-14-08, signed in November 2008, expanded the state's RPS to 33 percent renewable power by 2020. This standard was adopted by the legislature in 2011 (SB X1-2). Senate Bill 350 (de Leon) was signed into law September 2015 and establishes tiered increases to the RPS—40 percent by 2024, 45 percent by 2027, and 50 percent by 2030. Senate Bill 350 also set a new goal to double the energy-efficiency savings in electricity and natural gas through energy efficiency and conservation measures. On September 10, 2018, Governor Brown signed SB 100, which supersedes the SB 350 requirements. Under SB 100, the RPS for publicly owned facilities and retail sellers consists of 44 percent renewable energy by 2024, 52 percent by 2027, and 60 percent by 2030. Additionally, SB 100 established a new RPS requirement of 50 percent by 2026. The bill also established a state policy that eligible renewable energy resources and zero-carbon resources supply 100 percent of all retail sales of electricity to California end-use customers and 100 percent of electricity procured to serve all state agencies by December 31, 2045. SB 1020 adds interim targets to SB 100 framework to require renewable energy and zero-carbon resources to supply 90 percent of all retail electricity sales by 2035 and 95 percent of all retail electricity sales by 2040. Under SB 100 and SB 1020, the state cannot increase carbon emissions elsewhere in the western grid or allow resource shuffling to achieve the 100 percent carbon-free electricity target.

The statewide RPS goal is not directly applicable to individual development projects, but to utilities and energy providers such as PG&E, which is the utility that would provide all of electricity needs for the proposed project. Compliance of PG&E in meeting the RPS goals would ensure the State can meet its objective in transitioning to renewable energy. The proposed project also would comply with the latest Building Energy Efficiency Standards and CALGreen. Therefore, implementation of the proposed project would not conflict or obstruct plans for renewable energy and energy efficiency and no impact would occur.

3.7 GEOLOGY AND SOILS

Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
VII. GEOLOGY AND SOILS. Would the project:				
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map, issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.				X
ii) Strong seismic ground shaking?			X	
iii) Seismic-related ground failure, including liquefaction?			X	
iv) Landslides?			X	
b) Result in substantial soil erosion or the loss of topsoil?			X	
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?			X	
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?			X	
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?				X
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?		X		

Would the project:

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

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

No Impact. An active fault, for the purposes of the Alquist-Priolo Act, is one that has ruptured in the last 11,000 years (DOC 2024c. Based on the California Department of Conservation fault activity map of California, the proposed project site is not within an Alquist-Priolo Earthquake Fault Zone for fault rupture hazard for fault rapture hazard (DOC 2024d). The closest Alquist-Priolo Earthquake Fault Zone, the

Maacama fault zone, is 7.5 miles northwest. The project site does not lie on or near a fault rupture hazard zone. Therefore, no impact would occur.

ii) Strong seismic ground shaking?

Less Than Significant Impact. The project site is not located within an established Alquist-Priolo Earthquake Fault Zone (DOC 2024d). However, the project site, like most areas in California, is subject to ground movement associated with earthquakes along the active faults. According to the Calistoga General Plan, the city has historically experienced minor effects from major earthquakes (Calistoga 2014). The degree of ground shaking and earthquake-induced damage is dependent on multiple factors, such as distances to causative faults, earthquake magnitudes, and expected ground accelerations. No active faults are within Calistoga, and the closest active fault is 7.5 miles northwest of the project site (DOC 2024d). The proposed project would be required to comply with the seismic design parameters of the California Building Code (CBC), which regulates all building and construction projects and implements a minimum standard for building design and construction that includes specific requirements for seismic safety, evacuation, foundations, retaining walls, and site demolition. Additionally, the Division of State Architects (DSA) would be required to review and approve the project plans which will ensure that the structures are sufficiently designed to withstand ground shaking. Therefore, impacts would be less than significant.

iii) Seismic-related ground failure, including liquefaction?

Less Than Significant Impact. Liquefaction refers to loose, saturated sand, or gravel deposits that lose their load-supporting capability when subjected to intense shaking. Liquefaction potential varies based on five main contributing factors: 1) Groundwater depth; 2) Soil type; 3) Relative density; 4) Initial confining pressure; and 5) Intensity and duration of ground shaking. According to the California Department of Conservation Liquefaction Zones Mapper, the proposed project is not within an identified liquefaction zone nor in the vicinity of such a zone (DOC 2022). Additionally, the proposed project would be designed and constructed to withstand liquefaction potential consistent with CBC and DSA review, which would ensure that impacts related to liquefaction would be reduced to less than significant. Therefore, impacts related to liquefaction would be reduced to less than significant.

iv) Landslides?

Less Than Significant Impact. The project site is flat and developed with an existing football field. According to the US Geological Survey United States Landslide Inventory and Susceptibility map, the project site is not within an identified landslide susceptibility zone (USGS 2024a). Additionally, the Calistoga General Plan states that the project site is in a flat valley that has a negligible landslide risk. Therefore, impacts would be less than significant.

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

Less Than Significant Impact. Erosion is a normal and inevitable geologic process whereby earthen materials are loosened, worn away, decomposed, or dissolved and removed from one place and transported to another. The project site contains flat terrain, which decreases the project's potential to accelerate erosion. The project site is developed with an existing football field. Implementation of the proposed project would require limited earthwork, which includes grading for proper base and slope for the track and field, concessions building, a new field house and bleachers, drill holes for installation of proposed light poles, and utility trenching. Additionally, the proposed project does not contain any subterranean levels and would not require extensive excavation, which could expose more soils to erosion. In addition, because the proposed project encompasses an area of more than one acre, the proposed project would be subject to the National Pollutant Discharge Elimination System (NPDES) permit requirements. These include the preparation of a Storm Water Pollution Prevention Plan (SWPPP), including a BMP program to address construction-related discharges. The SWPPP for the proposed project would describe construction best practices for erosion control at the site. Therefore, the proposed project would not result in substantial soil erosion or loss of topsoil, and impacts would be less than significant.

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

Less Than Significant Impact. As discussed in Sections 3.7(a)(iii) and 3.7(a)(iv), the project site is not in a liquefaction zone or a landslide zone. Lateral spreading is a type of liquefaction-induced ground failure associated with the lateral displacement of surficial blocks of sediment resulting from liquefaction in a subsurface layer. Once liquefaction transforms the subsurface layer into a fluid mass, gravity plus the earthquake inertial forces may cause the mass to move downslope toward a free face (such as a river channel or an embankment). Lateral spreading may cause large horizontal displacements, and such movement typically damages pipelines, utilities, bridges, and structures. Due to the project site not being in an identified liquefaction zone, the potential for lateral spreading is considered low (Caltrans 2020).

According to the United States Geological Survey Areas of Land Subsidence in California, the project site is not within an area subject to subsidence (USGS 2024b). The collapse of soils occurs with (1) an open, partially unstable, partially saturated fabric; (2) sufficient total stress to make the soil structure metastable; (3) the presence of a bonding agent or sufficient soil suction to stabilize the soil in the metastable condition; and (4) the addition of water, which reduces soil suction or softens/destroys the bonding agent, thereby causing shear failures at the inter-aggregate or inter-particle contacts (Caltrans 2024). As discussed above, the proposed project would be designed and constructed to withstand landslide, liquefaction, lateral spreading, subsidence, liquefaction, or collapse potential. With adherence to the CBC and with DSA's review, the proposed project would not result in or contribute to on- or off-site impacts. Therefore, impacts would be less than significant.

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

Less Than Significant Impact. Expansive soils contain certain types of clay minerals that shrink when they dry out and swell when soils become wet, resulting in the potential for cracking building foundations and in some cases, structural distress of the buildings themselves. According to Websoil survey the project site is primarily located within 106-Bale complex, and a small northwestern portion of the project site contains 103 Bale Loam. Both have a similar profile of loam and stratified gravelly sandy loam to loam that does not contain any clays and has a "rare" potential of flooding (USDA 2024). Therefore, impacts would be less than significant.

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

No Impact. The proposed project would not require the installation or use of a septic tank or alternative wastewater disposal system. Therefore, no impacts would result from soil conditions in relation to septic tanks or other on-site water disposal systems.

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

Less Than Significant Impact With Mitigation Incorporated. Paleontological resources or fossils are remains of ancient plants and animals that can provide scientifically significant information about the history of life on earth. This sensitivity is determined by rock type, history of the geologic unit in producing significant fossils, and fossil localities that are recorded from that unit. Based on the University of California Museum of Paleontology Localities, Napa County contains 143 paleontological resources. However, the age of the underlying geologic unit is Pleistocene-Holocene, and paleontological resources of such an age would have low potential to occur in the county. Only one of the 143 known paleontological resources in the county have been in Pleistocene- or Holocene-age geological units (UCMP 2024; DOC 2024e). The project site is developed with an existing football field; however, though paleontological resources are not expected to be discovered during project construction, it is possible that unknown paleontological resources could be discovered during grading activities and utility trenching for a proper base and slope for the proposed project. Implementation of Mitigation Measure GEO-1 would ensure that impacts to unknown paleontological resources are less than significant.

Mitigation Measure

GEO-1 In the event that fossils or fossil locality deposits are discovered during construction, excavations within 50-feet of the fossil locality shall be temporarily halted until removal of the fossil localities. The contractor shall notify a qualified paleontologist to investigate its significance. If the fossil locality is determined to be significant by the qualified paleontologist, the paleontologist shall work with the District to follow accepted professional standards such as further testing for evaluation or data recovery, as necessary. The paleontologist shall notify the appropriate agencies to determine procedures that would be followed before construction is allowed to resume at the location of the find. If the project proponent determines that avoidance is not feasible, the paleontologist shall prepare an excavation plan for mitigating the effect of the project based on the qualities that make the resource important.

3.8 GREENHOUSE GAS EMISSIONS

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

Scientists have concluded that human activities are contributing to global climate change by adding large amounts of heat-trapping gases, known as greenhouse gases (GHGs), into the atmosphere. The primary source of these GHG is fossil fuel use. The Intergovernmental Panel on Climate Change (IPCC) has identified four major GHGs—water vapor, carbon dioxide (CO_2), methane (CH_4), and ozone (O_3)—that are the likely cause of an increase in global average temperatures observed within the 20th and 21st centuries. Other GHG identified by the IPCC that contribute to global warming to a lesser extent include nitrous oxide (N_2O), sulfur hexafluoride (SF_6), hydrofluorocarbons, perfluorocarbons, and chlorofluorocarbons.[5]

Information on manufacture of cement, steel, and other "life cycle" emissions that would occur as a result of the Project are not applicable and are not included in the analysis.[6] Black carbon emissions are not included in the GHG analysis because CARB does not include this short-lived climate pollutant in the state's SB 32/Assembly Bill (AB) 1279 inventory but treats it separately.[7] A background discussion on the GHG regulatory setting and GHG modeling can be found in Appendix A to this Initial Study.

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

[6] Life cycle emissions include indirect emissions associated with materials manufacture. However, these indirect emissions involve numerous parties, each of which is responsible for GHG emissions of their particular activity. The California Resources Agency, in adopting the CEQA Guidelines Amendments on GHG emissions found that lifecycle analyses was not warranted for project-specific CEQA analysis in most situations, for a variety of reasons, including lack of control over some sources, and the possibility of double-counting emissions (CNRA 2018). Because the amount of materials consumed during the operation or construction of the Project is not known, the origin of the raw materials purchased is not known, and manufacturing information for those raw materials are also not known, calculation of life cycle emissions would be speculative. A life-cycle analysis is not warranted (OPR 2008).

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

Would the project:

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

Less Than Significant Impact. A project does not generate enough GHG emissions on its own to influence global climate change; therefore, this analysis measures the proposed mixed-use development's contribution to the cumulative environmental impact associated with GHG emissions. For projects where there is no applicable GHG reduction plan, cumulative GHG emissions impacts are based on the State's GHG reduction goals for development projects identified in BAAQMD's 2022 CEQA Air Quality Guidelines.

BAAQMD's 2022 CEQA Air Quality Guidelines identify projects that implement certain project design features that would contribute their fair share of what will be required to achieve the State's long-term climate goals during project operation rather than relying on bright-line emissions thresholds. As shown in Table 8, *Consistency Analysis with BAAQMD's Project Design Elements*, the proposed project is consistent with BAAQMD's project design elements for energy consumption and meeting the applicable SB 743 VMT reduction target.

Table 8 Consistency Analysis with BAAQMD's Project Design Elements

Sector	Consistency Analysis
Buildings	
a. The project will not include natural gas appliances or natural gas plumbing (in both residential and nonresidential development).	Consistent. The proposed project would not install natural gas infrastructure in the project buildings. The proposed project would be designed all-electric as is therefore consistent with the building electrification project design element.
b. The project will not result in any wasteful, inefficient, or unnecessary electrical usage as determined by the analysis required under CEQA Section 21100(b)(3) and Section 15126.2(b) of the State CEQA Guidelines.	Consistent. The proposed improvements would be built to comply with the most current CALGreen Building Code requirements and building efficiency standards to reduce unnecessary energy consumption, as described in Section 3.6.
Transportation	
a. The project will achieve a reduction in project-generated vehicle miles traveled (VMT) below the regional average consistent with the current version of the California Climate Change Scoping Plan or meet a locally adopted SB 743 VMT target that reflects the recommendations provided in the Governor's Office of Planning and Research's Technical Advisory on Evaluating Transportation Impacts in CEQA.	Consistent: As discussed in Section 3.17, *Transportation*, the proposed project is considered a local-serving public facility per ABAG's SB 743 policy. The proposed project is therefore considered to result in less than significant impacts with respect to VMT.
b. The project will achieve compliance with EV requirements in the most recently adopted version of CALGreen Tier 2.	Not applicable. The proposed project does not propose new parking or changes to the existing lots; therefore, it is not subject to the CALGreen EV requirements.

Source: BAAQMD 2022.

The proposed project would generate 159 metric tons of carbon dioxide-equivalent ($MTCO_2e$) emissions in year 2025. However, BAAQMD has no construction-related emissions threshold for land use developments because construction emissions are one-time emissions and therefore represent a very small portion of a project's lifetime GHG emissions (BAAQMD 2022). As discussed in Table 8, the proposed project would comply with BAAQMD project design elements that that are applicable to the project. Therefore, the proposed project would have less than significant impacts with respect to GHG emissions.

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

Less Than Significant Impact. This impact discussion evaluates the proposed project's consistency with applicable plans adopted for the purpose of reducing GHG emissions, which include CARB's Scoping Plan and MTC/ABAG's *Plan Bay Area 2050*.

CARB's Scoping Plan

CARB's latest Climate Change Scoping Plan (2022) outlines the State's strategies to reduce GHG emissions in accordance with the targets established under AB 32, SB 32, and AB 1279 (CARB 2022). Statewide strategies to reduce GHG emissions in the 2022 Climate Change Scoping Plan include: implementing SB 100, which expands the RPS to 60 percent by 2030; expanding the Low Carbon Fuel Standards (LCFS) to 18 percent by 2030; implementing the Mobile Source Strategy to deploy zero-electric vehicle buses and trucks; implementing the Sustainable Freight Action Plan; implementing the Short-Lived Climate Pollutant Reduction Strategy, which reduces methane and hydrofluorocarbons to 40 percent below 2013 levels by 2030 and black carbon emissions to 50 percent below 2013 levels by 2030; continuing to implement SB 375; creating a post-2020 Cap-and-Trade Program; and developing an Integrated Natural and Working Lands Action Plan to secure California's land base as a net carbon sink. The proposed project would comply with these GHG emissions reduction measures since they are statewide strategies. The proposed project GHG emissions would be further reduced by compliance with statewide measures that have been adopted since AB 32, SB 32, and AB 1279 were adopted.

The Scoping Plan also identifies three priority areas for local implementation: transportation electrification, VMT reduction, and building decarbonization. As described in Section 3.8(a), the proposed project would have less than significant GHG emissions since the concession stand appliances would all-electric design, as evaluated under the BAAQMD GHG significance thresholds. Table 8 evaluates the project's consistency with the BAAQMD's design elements, which address each of the Scoping Plan's three priority areas. BAAQMD's 2022 CEQA Air Quality Guidelines state that new land use development projects must incorporate design elements to achieve the project's fair share of statewide emissions reductions needed to implement the State's goal of carbon neutrality by 2045 (BAAQMD 2022). If a project is designed and built to incorporate the identified design elements, it will contribute its portion of what is necessary to achieve California's long-term climate goals, and an agency reviewing the project under CEQA can conclude that the project will not make a cumulatively considerable contribution to global climate change. Compliance with BAAQMD's project design elements would therefore demonstrate a project's consistency with the 2022 Scoping Plan and its three priority areas for GHG emissions reductions.

The proposed project would be consistent with the 2022 Scoping Plan since it satisfies all applicable BAAQMD project design elements. Therefore, the proposed project would not obstruct implementation of the 2022 Scoping Plan, and impacts would be less than significant.

Plan Bay Area 2050

As part of the implementing framework for *Plan Bay Area 2050*, local governments have identified Priority Development Areas (PDAs) to focus growth. The project is not within a PDA. The project involves the reconstruction of an existing track and field complex and is therefore consistent with the overall goals of *Plan Bay Area 2050* in concentrating new development in locations where there is existing infrastructure. In addition, as described in Section 3.14, *Population and Housing*, of this MND, the proposed project would not induce substantial unplanned population growth. Furthermore, as discussed in Section 3.17(b), *Transportation*, of this MND, due to its nature and size, the proposed project would have a less than significant VMT impact. Therefore, the proposed project would not conflict with the land use concept plan in *Plan Bay Area 2050* and no impact would occur.

3.9 HAZARDS AND HAZARDOUS MATERIALS

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

Would the project:

a) Create a significant hazard to the public or the environment through the routine transport, use or disposal of hazardous materials?

Less Than Significant Impact.

Construction

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

Operation

Operation of the proposed project would transport, use, store, and dispose of small amounts of hazardous materials typical of school facilities such as cleaning and maintenance supplies (e.g., cleaners, gasoline, paint, pesticides). The proposed project would consist of installing a new track and field, stadium lighting, landscaping, and other project components. No manufacturing, industrial, or other uses using large amounts of hazardous materials would occur within the Calistoga HS campus. Compliance with applicable federal and state laws and regulations governing the use, storage, transport, and disposal of hazardous materials would ensure that all potentially hazardous materials are used and handled in an appropriate manner and would minimize the potential for safety impacts to occur. Therefore, the proposed project would not create substantial hazards to the public or the environment. Impacts would be less than significant.

b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Less Than Significant Impact. As discussed in Section 3.9(a), construction activities would require small amounts of hazardous materials, including vehicle fuels, lubricants, grease and transmission fluids as well as paints and coatings. The use, transportation, and disposal of hazardous materials would be in accordance with regulatory standards and manufacturers' specifications. Hazardous materials would be used in small quantities and stored so they do not pose significant safety hazards. Operation of the proposed project would transport, use, store, and dispose of small amounts of hazardous materials typical of school facilities such as cleaning and maintenance supplies (e.g., cleaners, gasoline, paint, pesticides). Operation of the proposed project would use cleaners and other chemicals in relatively small quantities, which is not typically considered hazardous materials that could result in a significant hazard to the public or the environment. Compliance with applicable federal and state laws and regulations governing the use, storage, transport, and disposal of hazardous materials would ensure impacts would be less than significant.

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

Less Than Significant Impact. The project site is located on the Calistoga HS campus. The proposed project would consist of installing a new track and field, stadium lighting, landscaping, and other project components. As stated in Section 3.9(a), construction activities would require small amounts of hazardous materials, including vehicle fuels, lubricants, grease and transmission fluids as well as paints and coatings. Additionally, operation of the proposed project would transport, use, store, and dispose of small amounts of hazardous materials typical of school facilities such as cleaning and maintenance supplies (e.g., cleaners, gasoline, paint, pesticides). Operation of the proposed project would use cleaners and other chemicals in small quantities, which is not typically considered hazardous materials that could result in a significant hazard to the public or the environment. The proposed project would also comply with applicable federal and state laws and regulations governing the use, storage, transport, and disposal of hazardous materials.

Other than Calistoga HS itself, there are no existing or proposed schools within one-quarter mile of the project site. The nearest existing school is Calistoga Elementary School, which is 0.27 miles southwest of the project site. The proposed project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste on the project site and is not located within one-quarter mile of an existing or proposed school campus. Therefore, impacts would be less than significant.

d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

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

Seven environmental lists were searched for hazardous materials on the project site (see Table 9, *Hazardous Waste Sites Within 0.25 Mile*):

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

Table 9 Hazardous Waste Sites Within 0.25 Mile

Site Address	Database	Identifier	Cleanup Status	Proximity to Site
Calistoga High School 1608 Lake Street Calistoga, CA (T0605500026)	GeoTracker	LUST (leaking underground storage tank) Cleanup Site	Completed: Case Closed (November 1997)	On-site
Calistoga Junior Senior High School 1608 Lake Street Calistoga, CA (CAL000366324)	EnviroMapper	Asbestos	Active	On-site
Curtis Edwards Roofing c/o Luke & Wendy Russ 1504 Lake Street Calistoga, CA (CAC002972447)	EnviroMapper	Unknown	Inactive (expired: 10/23/2018)	638 feet west

3. Environmental Analysis

Table 9 Hazardous Waste Sites Within 0.25 Mile

Site Address	Database	Identifier	Cleanup Status	Proximity to Site
The Calistoga Hotel Group LP 1800 Lincoln Avenue Calistoga, CA (T0609500195)	EnviroMapper	LUST Cleanup Site	Inactive (expired: 7/13/2000)	750 feet north
Valley Business Forms Inc 1311 Fair Way Calistoga, CA (110054240656)	EnviroMapper	US EPA Air Emissions Inventory System (EIS)	Active	780 feet southeast
McBride and Shaw Inc DBA Calmart 1491 Lincoln Avenue Calistoga, CA (CAL000379357)	EnviroMapper	Unknown	Active	570 feet south
Boisset Collection 1458 Lincoln Avenue Calistoga, CA (CAC003176107)	EnviroMapper	Asbestos	Inactive (expired: 8/12/2022	819 feet south
Silverado Ace Hardware 1450 Lincoln Avenue Calistoga, CA (CAL000410893)	EnviroMapper	Waste – Flammable Liquids	Active	972 feet south
Silverado Ace Hardware 1450 Lincoln Avenue Calistoga, CA (CAL000457176)	EnviroMapper	Unknown	Inactive (expired: 6/30/2021)	972 feet south
Calistoga High School 1608 Lake Street Calistoga, CA (T0605500026)	CalEPA	LUST Cleanup Site	Completed – Case Closed (November 1997)	On-site
Silverado Terrace 1506 Grant Street Calistoga, CA (893095)	CalEPA	Construction Storm Water	Active	320 feet northeast
Former Birleffi Motor c/o Brun 1856 Lincoln Avenue Calistoga, CA (110038067775)	CalEPA	US EPA Air Emission Inventory System (EIS)	Active	847 feet northeast
Birleffi Motors Inc 1856 Lincoln Avenue Calistoga, CA (T0605500253)	CalEPA	LUST Cleanup Site	Completed – Case Closed (December 2011)	847 feet northeast

Table 9 Hazardous Waste Sites Within 0.25 Mile

Site Address	Database	Identifier	Cleanup Status	Proximity to Site
Calistoga Glideport 1546 Lincoln Avenue Calistoga, CA (T0605500029)	CalEPA	LUST Cleanup Site	Completed – Case Closed (August 2007)	665 feet southeast
Merchant Property 1506 Lincoln Avenue Calistoga, CA (T0605500280)	CalEPA	LUST Cleanup Site	Completed – Case Closed (January 1996)	645 feet south
Vine Trail Saint Helena to Calistoga State Highway 29 Saint Helena, CA (904212)	CalEPA	Construction Storm Water	Active	650 feet south
Calmart 1491 Lincoln Avenue Calistoga, CA (10450417)	CalEPA	Hazardous Waste Generator	Active	554 feet south
Silverado Ace Hardware 1450 Lincoln Avenue Calistoga, CA (10482640)	CalEPA	Hazardous Waste Generator	Active	975 feet south
Calistoga Recycled Water Program 1232 Washington Street Calistoga, CA (212749)	CalEPA	Forestry and Silviculture; Waste Discharge Requirements	Active	1,107 feet south

Source: USEPA 2024b; CalEPA 2024.

The Calistoga HS campus is listed as a Leaking Underground Storage Tank (LUST) Cleanup Site in the GeoTracker and CalEPA lists. The LUST has since been cleaned up and the case was closed in November of 1997. The EnviroMapper and CalEPA lists also identified four sites that were LUST Cleanup Sites. These included the Calistoga Hotel Group LP, Birleffi Motors Inc., Calistoga Glideport, and Merchant Property sites. All sites have been cleaned up and their cases have been closed.

Two sites were identified in the EnviroMapper and CalEPA lists as belonging to the US EPA Emissions Inventory System (EIS). These sites include Valley Business Forms Inc and Former Birleffi Motor c/o Brun. The purpose of the EIS is to maintain an inventory of large stationary sources and voluntary-reported smaller sources of air point pollution emitters; both sites are active. As of 2024, the Former Birleffi Motor c/o Brun is a car sales lot that was an auto repair shop and produced large amounts of emissions. Additionally, the Valley Business Forms Inc site no longer operates as Valley Business Forms Inc. Therefore, these sites are not currently being used according to their former uses and are no longer emitting the same emissions. Therefore, these sites would not present as a potential hazard to the public or the environment.

Two sites were identified in the CalEPA list as belonging to the online database, Storm Water Multiple Application and Report Tracking System (SMARTS) for storm water permits. The two sites include Silverado Terrace and Vine Trail Saint Helena to Calistoga. Reporting permits to the online database would not present as a potential hazard to the public or the environment as storm water permits are required to limit hazardous water runoff on a project site.

Two sites were identified in the CalEPA list as being hazardous waste generators. These two sites are Calmart and Silverado Ace Hardware. The hazardous waste being generated by Calmart includes fluorescent tubes, batteries, ignitables, and toxics. These are common items found in most commercial and residential uses and do not pose as a significant hazardous waste. For the Calmart location, it is unknown what hazardous waste is being produced. Hazardous waste is evaluated by the Napa County Environmental Health Division. According to CalEPA, the Calmart location has had two violations. The contents of one violation are unknown; the second violation included not storing waste properly. Though both sites produce hazardous waste, the location of each of these locations would not pose as a significant potential hazard to the public or the environment because of the small amount of hazardous waste being produced and the continued oversight by the Napa County Environmental Health Division.

One site was identified in the CalEPA list as discharges related to timber harvesting and discharging wastewater and are included under a single permit. The site identified is the Calistoga Recycled Water Program. The applicant for the permit is the Calistoga City Public Works Department and is a permit for off-site activities. There is no timber harvesting or discharging of wastewater at this site. Therefore, this site would not pose a significant hazard to the public or the environment.

One site was identified in the CalEPA list as producing flammable liquid waste. The site identified is the Silverado Ace Hardware site. According to the Uniform Hazardous Waste Manifest, they produced 30 containers (0.108 tons) of flammable liquid waste in 2016 and it was transported and recycled off-site. The Silverado Ace Hardware site is categorized as a permanent waste generator and appears to be up to date in verifying their status as a permanent waste generator. The site will be required to comply with applicable regulations regarding the disposal of hazardous waste. Therefore, this site would not pose a significant hazard to the public or the environment.

The project site and one other site, the Boisset Collection site, were identified in the EnviroMapper list as generators of asbestos. Demolition and disposal of asbestos is highly regulated by the EPA, state agencies, and the local air district. Asbestos removal from the project site would be subject to the regulations listed in Table 10, *List of Asbestos Regulations*. The proposed project would be required to comply with all applicable asbestos removal regulations. This listing is not compiled pursuant to Government Code section 65962.5.

Table 10 List of Asbestos Regulations

Agency	Regulation Title	Regulation Description
EPA	Asbestos National Emissions Standards for Hazardous Air Pollutants (NESHAP) 40 CFR 61 Subpart M	The Asbestos NESHAP protects the public and environment by minimizing the release of asbestos fibers during renovation and demolition activities.
CARB	California Health and Safety Code section 39658(b)(1)	Establishes the Asbestos National Emissions Standards for Hazardous Air Pollutants (NESHAP) as an airborne toxic control measure.
Cal/OSHA	Cal Title 8 Section 1529	This title regulates the working conditions for construction employees demolishing and removing asbestos-containing materials.
Cal/OSHA	California Business and Professions Code Section 7180(b)	This code regulates who can remove asbestos-containing materials that is required to be removed, repaired, or disturbed as part of a construction project.
BAAQMD	Regulation 11, Rule 2 – Asbestos Demolition, Renovation, and Manufacturing	This rule regulates the removal, renovation, and demolition of asbestos-containing materials in the Bay Area Air Quality Management District jurisdiction.

Sources: USEPA 2023; BAAQMD 1998; CARB 2024c; 40 CFR § 61 Subpart M; DIR 2024; Bus. & Prof. Code § 7180(b).

According to the Hazardous Waste Tracking System, the project site generated asbestos waste in 2011, 2019, and 2024. Asbestos waste generated in 2024 consisted of 21.07 tons of waste that was shipped and disposed of off-site. Additionally, the Boisset Collection site produced asbestos waste in 2022 and generated 8.74 tons of waste that was disposed of off-site. The Boisset Collection site is currently an inactive site for asbestos waste generation while the project site remains active. However, as part of the proposed project, no buildings on the project site will be demolished, with no potential for asbestos waste being generated. Therefore, potential hazards related to asbestos would be less than significant.

Three sites were identified in the EnviroMapper list with unknown hazards. These sites include the Curtis Edwards Roofing c/o Luke & Wendy, the McBride and Shaw Inc DBA Calmart, and the Silverado Ace Hardware sites. Only the McBride and Shaw Inc DBA Calmart site remains active; the other two sites are inactive. Any hazardous waste generation and disposal are subject to federal and state regulations. Therefore, impacts related hazardous sites within one-quarter mile of the project site creating a significant hazard to the public or the environment would be less than significant.

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

No Impact. There are no public or private airports within the City of Calistoga. The nearest airport is Angwin-Parrett Field, which is in Angwin, California, approximately 7.8 miles east of the project site. The project site is not located within two miles of a public or private airport. Therefore, no impact would occur.

f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Less Than Significant Impact. The City of Calistoga is within the boundary of the Napa County Emergency Operation Plan (EOP). Napa County's EOP utilizes the National Incident Management System (NIMS). The NIMS is a consistent nationwide template to enable federal, State, local and tribal governments, along with the private sector and nongovernmental organizations, to work together effectively and efficiently to prepare for, prevent, respond to, and recover from domestic incidents, regardless of cause, size, or complexity, including acts of catastrophic terrorism. Additionally, Napa County's EOP is based on the State of California's Standardized Emergency Management System (SEMS). The SEMS provides an organizational framework and guidance for operations at each level of the State's emergency management system (Napa County 2017).

The City's Fire and Police Departments (CFD and CPD) handle smaller incidents that occur on a day-to-day basis. However, for large incidents the City must activate its Emergency Operations Center (EOC) to receive assistance from Napa County and the state, with the primary EOC at the CFD fire station and the alternate at the CPD station. There are three levels of emergencies—minor to moderate (Level I), moderate to severe (Level II), and major/catastrophic disasters (Level III) (Napa County 2017).

The project involves the installation of a new track and field, stadium lighting, landscaping, and other project components and would have no impact on emergency response or evacuation plans. During the construction and operation phases, the project would not interfere with any of the daily operations of the CFD or the CPD or EOC, which supports emergency planning and response efforts in Calistoga. All construction activities would be required to be performed per the City's standards and regulations. The proposed project would be required to provide the necessary on- and off-site access and circulation for emergency vehicles and services during the construction and operation phases.

The proposed project would also be required to go through DSA's development review and permitting process and would be required to incorporate all applicable design and safety standards and regulations in the CBC to ensure that proposed project development does not interfere with the provision of local emergency services (provision of adequate access roads to accommodate emergency response vehicles, adequate numbers/locations of fire hydrants, etc.). The proposed project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. Therefore, impacts would be less than significant.

g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

Less Than Significant Impact. According to the California Department of Forestry and Fire Protection's (CAL FIRE) Fire Hazard Severity Zone Viewer, the project site is not located within a Very High, High, or Moderate Fire Hazard Severity Zone in a State Responsibility Area (CalFire 2024). The nearest Fire Hazard Severity Zone is a Very High Fire Hazard Severity Zone approximately 0.40 miles north of the project site.

The project site is flat and developed in an area of the city that is highly developed with urban uses. The proposed project would be designed in accordance with the California Building Code and California Fire Code.

Project design plans would be reviewed by the DSA. Fire suppression equipment specific to construction would be maintained on-site. Additionally, project construction would comply with applicable existing codes and ordinances related to the maintenance of mechanical equipment, handling and storage of flammable materials, and cleanup of spills of flammable materials. The proposed project would not change the uses or boundaries of the facilities to place buildings and structures, students, or members of the public closer to wildland fires. Therefore, the proposed project would not expose people or structures to a significant risk due to wildfires. Impacts would be less than significant.

3.10 HYDROLOGY AND WATER QUALITY

Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
X. HYDROLOGY AND WATER QUALITY. Would the project:				
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?			X	
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?			X	
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
i) result in a substantial erosion or siltation on- or off-site;			X	
ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;			X	
iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or			X	
iv) impede or redirect flood flows?			X	
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?			X	
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?				X

Would the project:

a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

Less Than Significant Impact. A significant impact would occur if the project discharges water that does not meet the quality standards of agencies that regulate surface water quality and discharges into the stormwater drainage system. During construction, water quality impacts could occur from discharge of soil through erosion, sediments, and other pollutants. The State Water Resources Control Board's (SWRCB) NPDES program regulates industrial pollutant discharges, including construction activities for sites larger than one acre. The project site would include approximately 4.5 acres of ground disturbance.

New construction projects can result in two types of water quality impacts: (1) short-term impacts from discharge of soil through erosion, sediments, and other pollutants during construction and (2) long-term impacts from impervious surfaces (buildings, roads, parking lots, and walkways) that prevent water from being absorbed into the ground, thereby increasing the pollutants in stormwater runoff. Impervious surfaces can increase the concentration of pollutants in stormwater runoff, such as oil, fertilizers, pesticides, trash, soil, and animal waste. Runoff from short-term construction and long-term operation can flow directly into lakes, local streams, channels, and storm drains and eventually be released untreated into the ocean.

Construction Phase

The project would be constructed in the existing stadium area and tennis courts and is surrounded by other various school facilities, urban development, and adjacent paved streets that currently generate nonpoint-source pollutants[8] that are carried by storm and irrigation water into storm drains. Clearing, grading, excavation, and construction activities associated with the proposed project may impact water quality through soil erosion and increasing the amount of silt and debris carried in runoff. Additionally, the use of construction materials such as fuels, solvents, and paints may present a risk to surface water quality. Finally, the refueling and parking of construction vehicles and other equipment on-site during construction may result in oil, grease, or related pollutant leaks and spills that may discharge into the storm drain system.

To minimize these potential impacts, the proposed project would be required to comply with the NPDES Construction General Permit (CGP) as well as prepare a SWPPP that requires the incorporation of BMPs to control sedimentation, erosion, and hazardous materials contamination of runoff during construction. The CGP requires that prior to the start of construction activities, the District must file permit registration documents (PRD) with the SWRCB, which includes a Notice of Intent, risk assessment, site map, annual fee, signed certification statement, SWPPP, and post-construction water balance calculations. The construction contractor is required to maintain a copy of the SWPPP on-site at all times and implement all construction BMPs identified in the SWPPP during construction activities. Prior to the issuance of a grading permit, the District is required to provide proof of filing of the PRDs with the SWRCB, which includes preparation of SWPPP.

The SWPPP must describe construction BMPs that address pollutant source reduction and provide measures/controls to mitigate potential pollutant sources which include, but are not limited to: erosion controls, sediment controls, tracking controls, non-storm water management, materials and waste management, and good housekeeping practices. Construction BMPs examples include soil binders, straw mulch, velocity dissipation devices, slope drains, sediment basin, sediment trap, sandbag barrier, straw bale barrier, storm drain inlet protection, chemical dust suppressants. Submittal of the PRDs and implementation of the SWPPP and its associated BMPs throughout the construction phase would result in a less than significant impact.

Operation Phase

Once the proposed project has been constructed, urban runoff could include a variety of contaminants that are typical of the operation of school athletic facilities. As discussed in Impact 3.9(a), the proposed project

[8] **Point source pollution:** The EPA defines point-source pollution as any single identifiable source of pollution from which pollutants are discharged, such as a pipe, ditch, ship or factory smokestack. Factories and sewage treatment plants are two common types of point sources.
Nonpoint-source pollution is caused by broadly distributed and disconnected sources of pollution, such as rain and snowmelt runoff, spills, leaks, and sediment erosion.

would be required to comply with applicable federal and state laws and regulations governing the use, storage, transport, and disposal of hazardous materials would ensure impacts would be less than significant.

Furthermore, the proposed project would implement operational BMPs to control the amount and quality of the stormwater leaving the project site. Therefore, the proposed project would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality. Therefore, impacts would be less than significant.

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

Less Than Significant Impact. The City of Calistoga supplies water to the city, including the campus. The city's primary sources of water are the Kimball Reservoir and the California State Water Project (Calistoga 2020). The campus does not contain any wells or direct groundwater connections, and the proposed project would not increase student enrollment. The proposed field house and concession stand would result in an increase in water use during events and games. Although water would be consumed in conjunction with landscape and facility maintenance on a regular basis, these volumes would be substantially less than generated during an event.

The proposed project's use of artificial turf would further reduce the volume of water used for maintenance because regular watering of the field would not be required. Since the proposed project would not increase student enrollment, the use of the project site for events and sports would not be a substantial increase in water consumption because these activities currently occur. Therefore, the increases in water consumption from the proposed project would be nominal and would not result in a need to increase pumping of groundwater resources. Based on the City's General Plan Infrastructure Element, the existing water system is generally well designed and operated, and water demands in normal year and below-normal year situations can be met and will effectively be met in the future (Calistoga 2020).

Additionally, the proposed project would include the installation of planting/bioretention areas to capture stormwater from the project site and filter it back into the ground. Therefore, impacts would be less than significant.

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

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

Less Than Significant Impact. Erosion is a normal and inevitable geologic process whereby earthen materials are loosened, worn away, decomposed or dissolved, and moved from one place to another. Precipitation, running water, waves, and wind are all agents of erosion. Ordinarily, erosion proceeds imperceptibly, but when the natural equilibrium of the environment is changed, the rate of erosion can greatly accelerate. This can create aesthetic as well as engineering problems on undeveloped sites. Accelerated erosion in an urban area can cause damage by undermining structures; blocking storm drains;

and depositing silt, sand, or mud on roads and in tunnels. Eroded materials can eventually be deposited in local waters, where the carried silt remains suspended in the water for some time, constituting a pollutant and altering the normal balance of plant and animal life.

There are no streams or rivers on the project site. The proposed project would not involve the alteration of any natural drainage channels or any watercourse. Additionally, the project site is flat and potential for erosion would be less than significant.

The proposed project's earthwork activities may include grading and utilities trenching. If not controlled, the transport of these materials to local waterways would temporarily increase suspended sediment concentrations and release pollutants attached to sediment particles into local waterways. The proposed project would be required to submit PRDs and a SWPPP to the SWRCB for approval prior to the commencement of construction activities. The SWPPP would describe BMPs to reduce erosion and siltation. Therefore, impacts would be less than significant.

ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite?

Less Than Significant Impact. The project site is built out with hardscape, a track and field, and basketball courts. Furthermore, the proposed project would not involve the alteration of any natural drainage or watercourse. The proposed project would result in a minor increase of impervious surfaces on the project site, and the majority of the project site would remain in its current state. Additionally, the proposed project would include the installation of storm drains and planting/bioretention areas to capture stormwater from the project site. Therefore, the amount of stormwater runoff would be similar to existing conditions. The proposed project would not substantially increase the rate or amount of surface runoff in a manner that would cause flooding on- or off-site. Therefore, impacts related to stormwater drainage and flooding would be less than significant.

iii) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

Less Than Significant Impact. The proposed project would not substantially increase the amount of impervious surfaces. The majority of the project site would remain in its current state. Therefore, the proposed project would generate stormwater similar to existing conditions. Stormwater that does not percolate into the ground would be directed to storm drains on campus, storm drains in the public right-of-way on Grant Street and Park Street and into the planting/bioretention areas on the project site. As discussed in Impact 3.10(a), construction and operation of the proposed project would be required to implement BMPs that would control the amount and quality of stormwater exiting the project site. The proposed project would not exceed the capacity of existing stormwater drainage systems and would not create substantial additional sources of polluted runoff. Impacts would be less than significant.

iv) Impede or redirect flood flows?

Less Than Significant Impact. According to the Federal Emergency Management Agency (FEMA) flood zone map, the project site is not within a flood zone and is within a highly developed area of the city (FEMA 2024). Therefore, the project would not result in impeding or redirecting flood flows, and impacts would be less than significant.

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

Less Than Significant Impact. A seiche is a surface wave created when a body of water is shaken, usually by earthquake activity. Seiches are of concern relative to water storage facilities because inundation from a seiche can occur if the wave overflows a containment wall such as the wall of a reservoir, water storage tank, dam, or other artificial body of water. There are no large water tanks in the area, but the Kimball Reservoir is approximately 3.19 miles northwest of the project site (NID 2024). According to the City's General Plan Public Safety Element, the city is within the Kimball Reservoir inundation area. However, dam inundation is only expected to as far south as Tubbs Lane, which is approximately 1.5 miles northeast of the project site (Calistoga 2020).

The project site is not within a flood zone (FEMA 2024). Therefore, flood hazards are low. Additionally, the project site is approximately 30 miles from the Pacific Ocean and is not within a tsunami zone. Impacts would be less than significant since the proposed project site is outside of flood hazard, tsunamis, or seiche zones.

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

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

3.11 LAND USE AND PLANNING

Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
XI. LAND USE AND PLANNING. Would the project:				
a) Physically divide an established community?				X
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?				X

Would the project:

a) Physically divide an established community?

No Impact. The proposed project site and surrounding area are developed with urban land uses such as residential, commercial, and hospitality land uses. The proposed project would occur in the southwestern portion of the existing, developed Calistoga HS campus. The proposed project would include the installation of new stadium lighting, track and field improvements, a concessions stand, a field house, bleachers, and other project components. The proposed project improvements would be limited to the project site. The proposed project would not change any existing driveways leading to the campus. The proposed project would not create any new land use barriers or divide or disrupt the physical arrangement of any surrounding communities. Therefore, no impact would occur.

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

No Impact. The proposed project would include the installation of new stadium lighting, track and field improvements, a concessions stand, a field house, bleachers, and other project components on the developed Calistoga HS campus. The proposed project is consistent with the existing school and athletic uses at the project site. The project site is designated as Public/Quasi-Public, which applies to existing and planned public facilities such as the county fairgrounds; parks; city hall; the community center; the police station; the cemetery; schools; and the wastewater treatment plant, spray fields, and holding ponds (Calistoga 2015). Additionally, the project site is zoned Public (P), which allows for uses beneficial to the general public including schools (Calistoga 2024a). The proposed project would not alter or modify the project site's current land use and zoning designations. Development of the proposed project would not conflict with any applicable land use plans, policies or regulations. Therefore, no impact would occur.

3.12 MINERAL RESOURCES

Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
XII. MINERAL RESOURCES. Would the project:				
a) Result in the loss of availability of a known mineral resource that would be a value to the region and the residents of the state?				X
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?			X	

Would the project:

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

No Impact. In 1975, the State legislature adopted the Surface Mining and Reclamation Act (SMARA). This designated Mineral Resources Zones that were of statewide or regional importance. The classifications used to define MRZs are:

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

According to the California Department of Conservation's (DOC) Mineral Land Classification Map, the project site is within an MRZ-1. As such, there are no indications that the project site contains significant mineral deposits or has a likelihood of containing significant mineral deposits (DOC 2013). Implementation of the proposed project would not result in the loss of availability of a known mineral resource. Therefore, no impact would occur.

b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?

Less Than Significant Impact. The Calistoga General Plan does not identify any mines or quarries located within the City. As such, the proposed project would not impact any mine or quarry operations within the City or result in the loss of availability of a locally important mineral resource. However, the City's General Plan does identify geothermal resources as being an important resource for the city.

The Geothermal Element of the City's General Plan defines geothermal resources as being hot springs, a cold-water aquifer, mineral water, and volcanic ash. The hot springs and volcanic ash are important resources to the city's tourism and hospitality industries. The cold-water aquifer supplies water to properties outside of the city and is not connected to the city's water supply. The cold-water aquifer aids in the creation of mineral water when the cold-water aquifer mixes with the geothermal resources. As a result, the city bottles the mineral water at two bottling plants, which make up a major source of the city's manufacturing industry and provide employment (Calistoga 2002).

The proposed project would consist of excavating the existing grass turf to install the synthetic field and the track and other grading to install landscaping, the light poles, and other project components on the project site surface. The excavating and grading would not include digging deep enough to impact the cold-water aquifer as it would occur on the project site's surface. The amount and specific locations of volcanic ash in the city are unknown and there are no known volcanic ash deposits or hot springs on the project site (Calistoga 2002). Additionally, the project site is developed with an existing track and field and would not develop a site that has not already been developed. Therefore, impacts related to the potential loss of availability of a locally important mineral resource would be less than significant.

3.13 NOISE

Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
XIII. NOISE. Would the project result in:				
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?		X		
b) Generation of excessive groundborne vibration or groundborne noise levels?			X	
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?				X

Noise is defined as unwanted sound and is known to have several adverse effects on people, including hearing loss, speech and sleep interference, physiological responses, and annoyance. Based on these known adverse effects of noise, the federal, state, and city governments have established criteria to protect public health and safety and to prevent the disruption of certain human activities, such as classroom instruction, communication, or sleep. The analysis in this section is based on the noise monitoring and modeling prepared by PlaceWorks in November 2024, which is summarized herein and included as Appendix E.

Environmental Setting

Noise is known to have several adverse effects on people, including hearing loss, speech and sleep interference, physiological responses, and annoyance. Based on these known adverse effects of noise, the federal government, State of California, and City of Calistoga have established criteria to protect public health and safety and to prevent disruption of certain human activities. Additional information on noise and vibration fundamentals and applicable regulations are in Appendix E.

Sensitive Receptors

Certain land uses are particularly sensitive to noise and vibration. These uses include residences, hotels, motels, schools, hospital facilities, houses of worship, and outdoor sports and recreation, neighborhood parks and playground areas where quiet environments are necessary for the enjoyment, public health, and safety of the community. The nearest sensitive receptors to the project site are the single-family residential uses to the south, single-family residential use to the east along Stevenson Street, and single-family residential uses to the north across Grant Street.

Baseline Noise Monitoring

Three short-term (hourly interval) measurements were conducted on the southern and eastern property lines of the project site. All measurements were conducted on Friday, October 11, 2024. The short-term sound level meter used for noise monitoring (Picollo II) satisfies the American National Standards Institute (ANSI) standard for Type II instrumentation. The short-term sound level meters were programed to "slow" response and "A" weighting (dBA). The meter was calibrated prior to and after each monitoring period. All measurements were at least 5 feet above the ground and away from reflective surfaces. Temperatures were moderate, approximately 53 to 62 degrees Fahrenheit, wind speeds of up to 6 miles per hour, and moderate humidity during the noise measurements. Short-term measurements are described below, and Figure 6, *Approximate Noise Monitoring Locations,* shows football game noise sources and noise measurement locations.

- **Short-Term Location 1 (ST-1)** was on the western property line of the existing football field, adjacent to an existing residential use, approximately 165 feet from the center of the football field, 145 feet from the temporary speakers, 85 from the center of the temporary bleachers and taco truck with trailer, 45 feet from the band in the temporary home bleachers, 40 feet from the nearest temporary light station, and approximately 5 feet from the temporary concession/booster stand. Continuous noise measurements of hourly noise levels began at 5:00 pm and stopped at 9:00 pm. The noise environment is characterized by heavy foot traffic and loud talking, generator noise from temporary lights and taco trailer, temporary PA system announcements, spectator crowd and band noise from the home bleachers, and infrequent referee whistle use. Noise levels measured 59.8 dBA L_{eq} before the game started and ranged between 70.2 dBA and 75.5 dBA L_{eq} throughout the game. Results are summarized in Table 11, *ST-1 Hourly Noise Measurement Summary in A-weighted Sound Levels*.

Table 11 ST-1 Hourly Noise Measurement Summary in A-weighted Sound Levels

Time		1-hour Noise Level, dBA						
Start	End	L_{eq}	L_{max}	L_2	L_8	L_{25}	L_{50}	L_{90}
5:00 PM	6:00 PM	59.8	86.3	69.3	63.6	56.8	50.2	38.5
6:00 PM	7:00 PM	70.2	95.3	79.3	75	68.1	62.7	54.1
7:00 PM	8:00 PM	73.8	93.5	81.9	77.9	73.3	70.3	66.1
8:00 PM	9:00 PM	75.5	102.5	82.5	78.5	74.5	71.4	67.2

See Appendix E.

- **Short-Term Location 2 (ST-2))** was on the southwestern property line of the existing football field, adjacent to a mobile home park, approximately 225 feet from the center of the football field, 350 feet from the temporary speakers, 170 feet from the center of the temporary home bleachers and taco truck with trailer, 205 feet from the band in the home bleacher, 240 feet from the temporary concession/booster stand, and approximately 100 feet from the nearest temporary light station. Continuous noise measurements of hourly noise levels began at 5:00 pm and stopped at 9:00 pm. The noise environment is characterized by foot traffic and talking along the track, approximately 90 feet from the meter location; generator noise from temporary lights and taco trailer; mobile home residents spectating and talking; distant temporary PA system announcements; spectator crowd noise; and infrequent referee whistle use. Noise

3. Environmental Analysis

levels measured 49.3 dBA L_{eq} before the game started and ranged between 56.2 dBA and 64.9 dBA L_{eq} throughout the game during the measurement period at ST-2. Results are summarized in Table 12, *ST-2 Hourly Noise Measurement Summary in A-weighted Sound Levels*.

Table 12 ST-2 Hourly Noise Measurement Summary in A-weighted Sound Levels

Time		1-hour Noise Level, dBA						
Start	End	L_{eq}	L_{max}	L_2	L_8	L_{25}	L_{50}	L_{90}
5:00 PM	6:00 PM	49.3	66.9	56.5	53.2	49.9	45.7	42.9
6:00 PM	7:00 PM	56.2	74.9	64.8	60	55.5	51.2	46.6
7:00 PM	8:00 PM	65.5	79.2	72.3	69.9	66.6	62.4	57.7
8:00 PM	9:00 PM	64.9	81.7	72.5	69.5	65.3	61.1	57.5

See Appendix E.

- **Short-Term Location 3 (ST-3)** was on the eastern property line of the existing football field, adjacent to an existing residential use, approximately 290 feet from the center of the football field, 475 feet from the temporary speakers, 310 from the center of the temporary away bleachers, 380 feet from the center of the temporary home bleachers and taco truck with trailer, 425 feet from the band in the temporary home bleachers, 465 feet from the temporary concession/booster stand, and approximately 165 feet from the nearest temporary light station. Continuous noise measurements of hourly noise levels began at 5:00 pm and stopped at 9:00 pm. The noise environment is characterized by foot traffic and talking along the track, approximately 25 feet from the meter location; generator noise from temporary lights; distant temporary PA system announcements; spectator crowd noise; and infrequent referee whistle use. Noise levels measured 50.6 dBA Leq before the game started and ranged between 55.1 dBA and 63.6 dBA Leq throughout the game during the measurement period at ST-3. Results are summarized in Table 13, *ST-3 Hourly Noise Measurement Summary in A-weighted Sound Levels*.

Table 13 ST-3 Hourly Noise Measurement Summary in A-weighted Sound Levels

Time		1-hour Noise Level, dBA						
Start	End	L_{eq}	L_{max}	L_2	L_8	L_{25}	L_{50}	L_{90}
5:00 PM	6:00 PM	50.6	68.7	57	53.3	50.3	48.3	45.6
6:00 PM	7:00 PM	55.1	73.5	63.3	58.3	54	50.6	47.1
7:00 PM	8:00 PM	63.6	79.6	71.3	67.8	64.4	60.1	53.7
8:00 PM	9:00 PM	63.2	78.5	71.8	67.8	63.1	57.6	52.5

See Appendix E

Figure 6 - Approximate Noise Monitoring Locations

Calistoga High School Boundary
Project Site
Bleachers (Home)
Bleachers (Away)
ST-X Short-Term Noise Measurement Locations (3)
Taco Truck with Trailer
Speakers (2)
B Band
Parking Areas
0 200
Scale (Feet)

Source: Nearmap; PlaceWorks 2024.

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Applicable Standards

City of Calistoga

The City of Calistoga's regulations with respect to noise are included in Chapter 8.20, Nuisances, of the City Code. Chapter 8.20.020, General noise regulations, presents the City's noise standards for construction noise.

> Section 8.20.025 Construction activity – Noise – Prohibited hours.
>
> A. It shall be unlawful for professional construction activity to occur on Sunday or between 7:00 p.m. and 7:00 a.m., any time during the week.
>
> B. For the purpose of this chapter "professional construction activity" shall mean construction by any person other than:
>
> 1. An individual homeowner working on that person's primary residence;
> 2. A public utility in response to an emergency situation; or
> 3. City public works crew in response to an emergency situation or scheduled maintenance.

Would the project:

a) Generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Construction Noise

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

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

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

The expected construction equipment mix was estimated and categorized by construction activity using the Federal Highway Administration Roadway Construction Noise Model (RCNM). Assuming the nearest sensitive receptor to the center of construction activities, construction-related noise levels would be up to 76 dBA L_{eq} at the closest receptors (residences to the south). Construction noise levels at receptors further away are estimated to be even less. Results are summarized in Table 14, *Project Related Construction Noise Levels dBA,* at the nearest receptors. Construction noise levels would not exceed the Federal Transit Administration (FTA) threshold of 80 dBA L_{eq} for residential uses and would occur during the exempt daytime hours per Calistoga Municipal Code Section 8.20.025. However, project construction noise would create a substantial increase (between +10 dBA and +15 dBA) in ambient noise levels in the vicinity of the project site at noise sensitive uses when compared to ambient noise levels that range between 49.3 dBA and 59.8 dBA L_{eq}. Therefore, construction noise impacts would be less than significant with mitigation incorporated.

Table 14 Project-Related Construction Noise Levels, dBA

Construction Activity Phase	Noise Levels in dBA L_{eq} RCNM Reference Noise Level	Residential Receptor to North	Residential Receptor to South	Residential Receptor to East	School Campus Receptor to West
Distance in feet	50	195	145	275	435
Demolition	84	72	75	69	65
Site Preparation	82	70	73	67	63
Rough Grading	83	71	74	68	64
Distance in feet	50	165	280	265	425
Building Construction	77	67	62	63	58
Architectural Coating	74	64	59	60	55
Distance in feet	50	125	75	245	400
Paving	80	72	76	66	62
Exceeds FTA's 80 dBA L_{eq} Threshold?		No	No	No	No

Source: FHWA's RCNM software. Distance measurements were taken using Google Earth (2024) from the acoustical center of the project site.
dBA L_{eq} = Energy-Average (L_{eq}) Sound Levels.
See Appendix E.

On Campus Receptors

Less Than Significant Impact. Students would remain on-site during site preparation and building construction. Construction activities could occur within 400 feet of existing classroom buildings. As shown in Table 14, construction noise levels would range between 55 and 65 dBA L_{eq} at the nearest classrooms per the RCNM noise model. Typical exterior-to-interior noise attenuation with windows and doors closed is 25 dBA. This would result in interior noise levels of approximately 30 to 40 dBA L_{eq}. Speech interference is considered intolerable when background noise levels exceed 60 dBA. Therefore, average construction noise levels are not expected to exceed 60 dBA L_{eq} within adjacent classrooms based on typical exterior-to-interior noise attenuation. Construction would occur throughout the project site and thereby would be further than 400 feet at times, which would reduce interior noise levels. In addition, to avoid classroom disruption, some work would be done during instructional breaks when students are off campus. Therefore, on-campus construction noise impacts would be less than significant. Additionally, construction of the proposed project would occur during the exempt hours per Calistoga Municipal Code Section 8.20.025.

Operational Noise

Less Than Significant Impact.

Operational Off-Site Traffic Noise

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

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

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

With implementation of the proposed project, event traffic during campus stadium events would increase. Traffic volume data for the new trips associated with the project are provided by Garland Associates (2024). The proposed project is expected to have a net increase of 142 peak hour event trips and a total of an additional 285 daily trips from the existing. The data provided by the traffic engineer presents the street and locations with scenarios for existing, and existing with project conditions. Table 15, *Project-Related Increases in Traffic Noise, dBA CNEL at 50 Feet,* shows that with the addition of project trips due to the school expansion would result in a 2 dBA increase over existing conditions. Since the project would not result in a 3 dBA increase, impacts would be less than significant.

3. Environmental Analysis

Table 15 Project-Related Increases in Traffic Noise, dBA CNEL at 50 Feet

Roadway	Segment		Traffic Noise Increase					
	From	To	Existing No Project	Existing with Proposed Project	Existing Increase	Future No Project	Future With Project	Future Increase
Lake Street	the North	Grant Street	57	57	<1	57	57	<1
	Grant Street	Fair Way	56	56	<1	56	56	<1
	Fair Way	the South	56	56	<1	56	56	<1
Grant Street	the West	Lake Street	56	56	<1	56	56	<1
	Lake Street	Steveson Street	55	55	<1	55	55	<1
Fair Way	the West	Lake Street	53	53	<1	53	53	<1
	Lake Street	the East	53	54	1	53	54	1
Stevenson Street	Grant Street	the South	52	53	1	53	53	<1

Source: Traffic data provided by Garland Associates 2024. See Appendix E.

Football Field Renovation

The proposed project's primary onsite operational noise sources would include permanent PA system, crowd noise associated with permanent bleachers, and band noise that would be relocated to the central portion of the sports field area of the school campus. As discussed above, a change of 5 dBA is readily discernible in an exterior environment, and a change in 10 dBA is perceived as a doubling in sound level. Based on this, and noting that games would result in periodic (not daily) increases in ambient noise levels from the proposed stadium events, a threshold of 10 dBA above the ambient is used. A noise increase above 10 dBA for periodic events (such as stadium events) would be considered significant.

The proposed project would relocate bleacher seating north of the football field that would accommodate home and away spectators, press box, PA system, and band. The temporary home and away bleachers currently hold up to 450 spectators combined, with the majority of spectators on the home sideline, south of the football field, adjacent to residential uses. The proposed project would increase capacity to accommodate 744 spectators on the home side bleachers; no bleachers are proposed on the visitor side adjacent to residential uses.

The proposed increase of up to 744 spectators was modeled using SoundPLAN computer software. SoundPLAN uses industry-accepted propagation algorithms based on International Organization for Standardization (ISO) and ÖAL-28 standards for outdoor sound propagation. See Appendix E for modeling results. The modeling calculations account for classical sound wave divergence (spherical spreading loss with adjustments for source directivity from point sources) plus attenuation factors due to air absorption and ground effects. Additionally, SoundPLAN provides for other correction factors, including level increases due to reflections, source directivity, and source tonality. SoundPLAN noise modeling estimated noise levels at the short-term noise measurement locations, representing the nearest residential receptors to the project site. The model also incorporated other stadium noise assumptions associated with football games. Based on other typical football game observations, the following additional modeling inputs were assumed to be reasonable.

- Rowdy crowd cheering (both home and visitors) was assumed for a cumulative 10 minutes per hour, with each cheer interval approximately 10 seconds long.

- Each band (both home and visitor) was assumed to play a cumulative 10 minutes per hour.
- Approximately 36 individual speaker announcements (from the press box) were assumed per hour, with individual announcement durations of 20 seconds, for a cumulative of 12 minutes per hour.

Table 16, *SoundPLAN Modeled Noise Levels, dBA L_{eq}*, shows predicted operational noise levels associated with the proposed project at noise measurement locations ST-1 through ST-3. Grant Street receptors, located to the north of the project site, are represented and labeled ST-4 and ST-5 in the model. Measured baseline football game noise levels at the short-term measurement site ST-1, representing residential receptors to the west, ranged from 70 dBA to 76 dBA L_{eq}; site ST-2 representing residential receptors to the southwest ranged from 56 dBA to 66 dBA L_{eq}; and site ST-3, representing residential receptors to the east, ranged from 55 dBA to 64 dBA L_{eq}. Existing and modeled noise contours of predicted event noise levels associated with the proposed project are shown on Figure 7, *SoundPLAN Noise Contours Existing Football Game*. Figure 7 shows existing operational noise contours associated with a football game of 300 spectators (200 spectators on the home side and 100 spectators on the away side) on the project site and surrounding community. Figure 8, *SoundPLAN Noise Contours: Project Football Game*, shows existing operational noise contours associated with a football game of 744 spectators (all spectators centrally located on what would become the home side) on the project site and surrounding community. Operational noise contours associated with the proposed project stadium noise on the project site and in the greater community for all modeled scenarios are shown in Appendix E.

Table 16 SoundPLAN Modeled Noise Levels, dBA L_{eq}

Location	Event Noise Level, dBA L_{eq}			
	Existing Football Game 300 Spectators[1]	Project Game 300 Spectators	Project Game 744 Spectators	Graduation 800 Spectators
ST-1	75	66	66	70
ST-2	66	65	65	68
ST-3	64	66	67	72
ST-4	60	62	62	68
ST-5	55	56	56	64

[1] Assumes 200 home side spectators and 100 visitor side spectators.
See Appendix E for modeling inputs and results.

Sound levels at the sensitive receptors are modeled to range from 56 dBA to 67 dBA L_{eq} during football games and between 64 dBA to 72 dBA L_{eq} dBA during a graduation event as a result of centrally locating event noise sources and the additional crowd noise due to proposed bleacher expansion. Table 17, *Comparison of Event Noise Level, dBA L_{eq}*, shows the difference between existing and project-generated noise levels at existing noise-sensitive uses adjacent to and near the project site.

3. Environmental Analysis

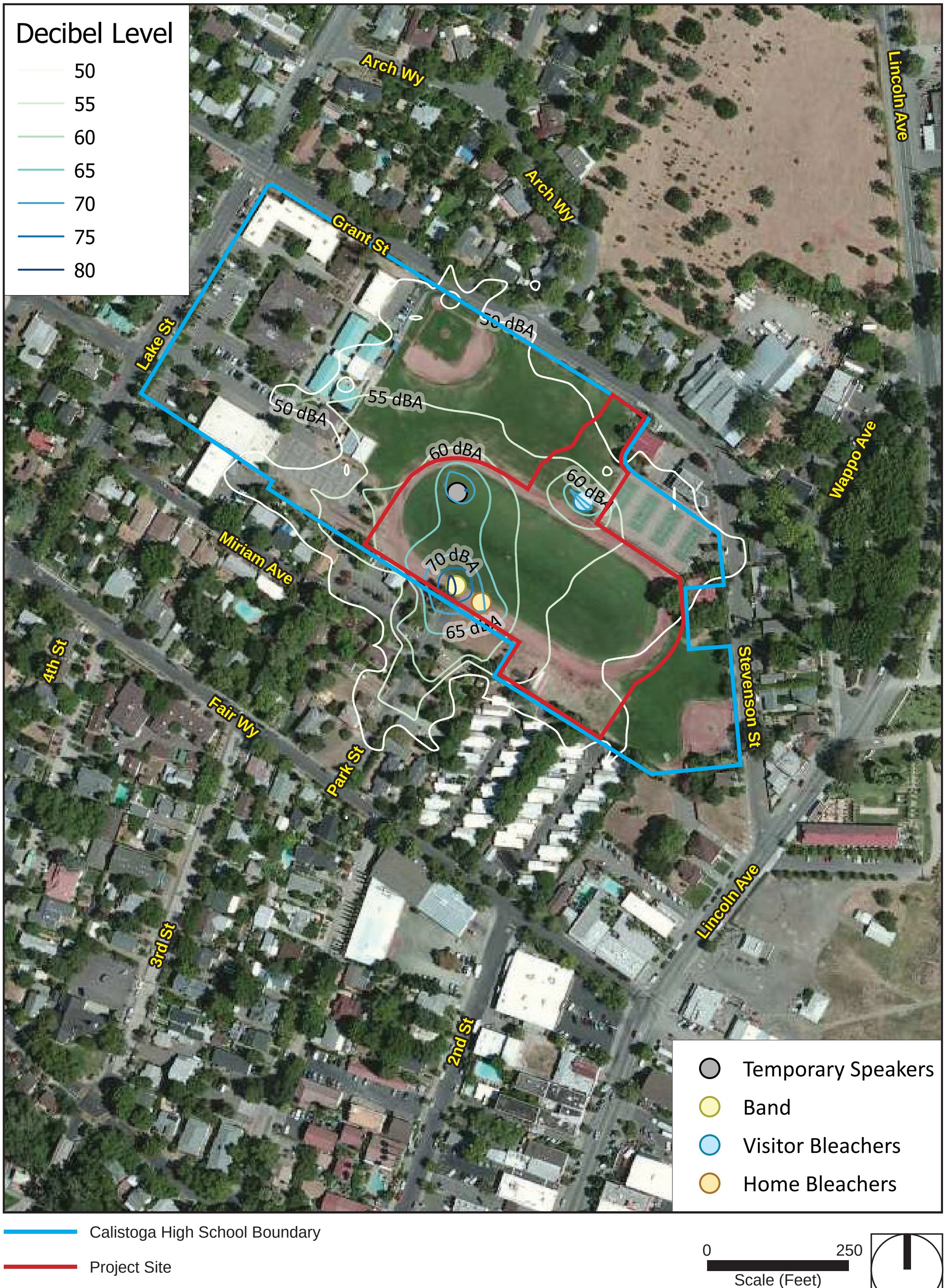
Table 17 Comparison of Event Noise Level, dBA L_{eq}

Location	Event Noise Level, dBA L_{eq}		
	Project Game: 300 Spectators	Project Game: 744 Spectators	Graduation: 800 Spectators
ST-1	-9	-9	-5
ST-2	-1	-1	2
ST-3	2	3	8
ST-4	2	2	8
ST-5	1	1	9

As shown in Table 17, the project is modeled to decrease and increase existing stadium baseline noise levels at the adjacent sensitive receptors on a periodic basis between -9 dBA to +2 dBA L_{eq} for football games with 300 spectators and range between -9 dBA to +3 dBA L_{eq} for football games with 744 spectators. The decreases in project noise levels at adjacent receptors are due to noise sources at an event in a centralized location on campus, away from residential uses to the west and southwest, eliminating individual temporary light station generators along each sideline, and concentrating foot traffic and event-supporting services to a centralized location on the campus. The increases in project noise levels at adjacent receptors are due to existing noise sources being relocated closer to those receptors and the increase in crowd noise associated with the increase in bleacher capacity. The modeled graduation event noise levels showed the largest increase compared to existing noise levels at sensitive receptors, ranging from 2 dBA to 9 dBA L_{eq}. Graduation events currently occur once a year during daytime hours, and modeled noise levels are a conservative prediction based on a maximum of 800 people attending a graduation ceremony.

Operational noise associated with the football field renovation would not exceed the threshold of 10 dBA. Therefore, an increase in periodic crowd noise during football games due to relocated and expanded bleacher capacity and new permanent PA system noise at the nearest receptors would be a less-than-significant impact.

Figure 7 - SoundPLAN Noise Contours Existing Football Game



Source: Nearmap; PlaceWorks 2024.

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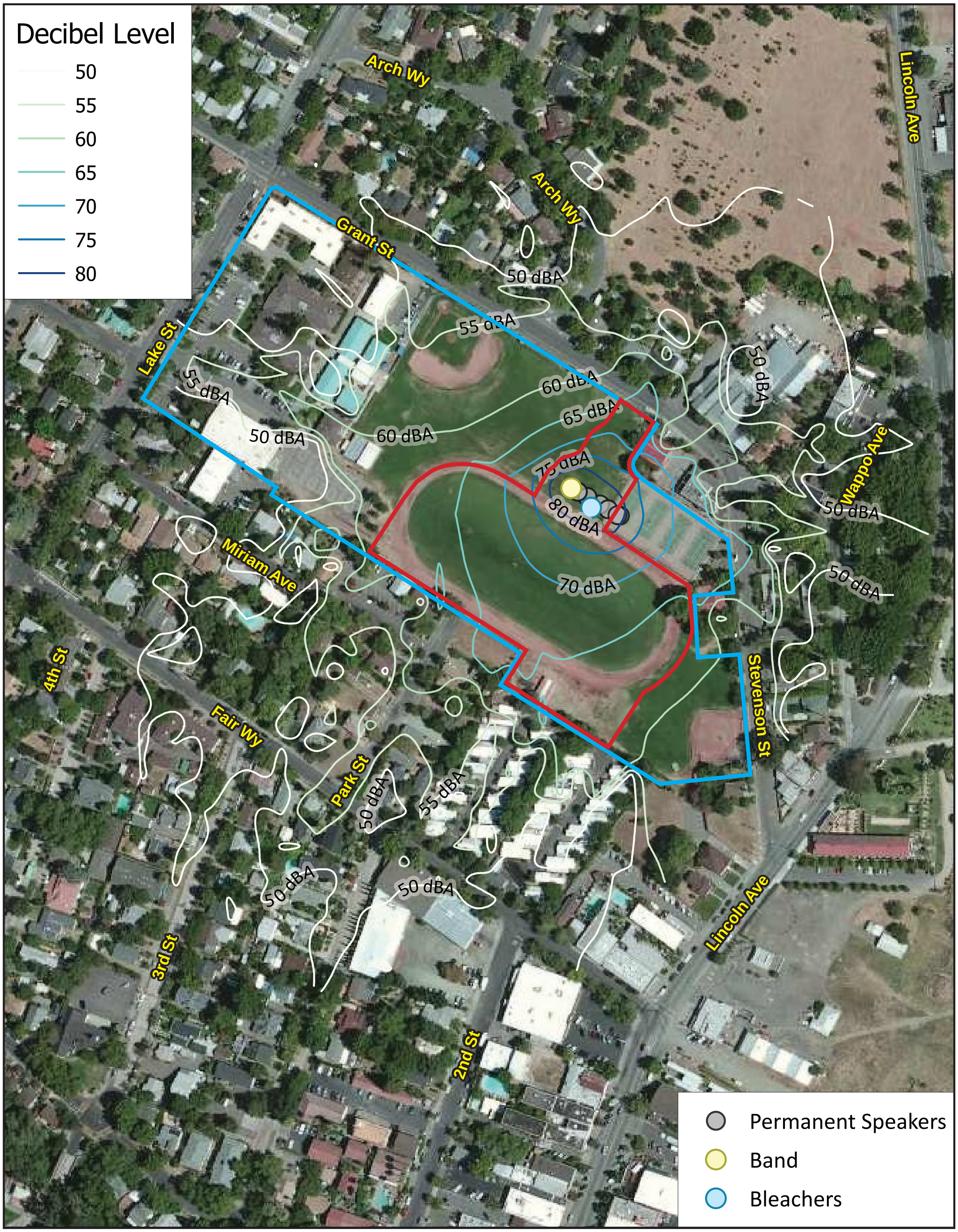
Figure 8 - SoundPLAN Noise Contours Project Football Game



Calistoga High School Boundary

Project Site

0 250
Scale (Feet)

Source: Nearmap; PlaceWorks 2024.

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Mitigation Measures

NOI-1

- Limit construction activities to the City's allowable hours of 7:00 a.m. to 7:00 p.m. on weekdays and prohibit construction on Sundays and holidays, where possible.
- Require that construction vehicles and equipment (fixed or mobile) be equipped with properly operating and maintained mufflers.
- The construction contractor shall not allow any construction equipment, trucks, or vehicles to idle.
- Locate stationary noise-generating equipment, such as air compressors or portable power generators, as far as possible from sensitive receptors as feasible.
- Place stock piling and/or vehicle-staging areas as far as practical from residential uses.
- Construction staging areas shall be established at locations that will create the greatest distance between the construction-related noise sources and noise-sensitive receptors nearest to the project site during all project construction.
- Consider the installation of temporary sound barriers for construction activities that are adjacent to occupied noise-sensitive structures, depending on length of construction, type of equipment used, and proximity to noise-sensitive uses.
- Designate a "disturbance coordinator" who would be responsible for responding to any complaints about construction noise. The disturbance coordinator will determine the cause of the noise complaint (e.g., bad muffler, etc.) and will require that reasonable measures be implemented to correct the problem. Conspicuously post a telephone number for the disturbance coordinator at the construction site and include in it the notice sent to neighbors regarding the construction schedule.

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

Less Than Significant Impact.

Construction

Construction can generate varying degrees of ground vibration, depending on the construction procedures and equipment. The use of construction equipment generates vibrations that spread through the ground and diminish with distance from the source. The effect on buildings in the vicinity of the construction site varies depending on soil type, ground strata, and receptor-building construction. The effects from vibration can range from no perceptible effects at the lowest vibration levels, to low rumbling sounds and perceptible vibrations at moderate levels, to slight structural damage at the highest levels. Vibration from construction activities rarely reaches levels that can damage structures.

Table 18, *Proposed Project's Vibration Levels (in/sec PPV)*, summarizes vibration levels for typical construction equipment at a reference distance of 25 feet. Typical construction equipment can generate vibration levels ranging up to 0.21 inches per second (in/sec) PPV at 25 feet. Vibration levels at a distance greater than 75 feet would attenuate to 0.04 in/sec PPV or less.

Table 18 Proposed Project's Vibration Levels (in/sec PPV)

Equipment	FTA Reference PPV (in/sec)	Residential Receptor to North	Residential Receptor to South	Residential Receptor to East	School Campus Receptor to West
Distance in feet	25	125	75	245	400
Vibratory Roller	0.21	0.019	0.040	0.007	0.003
Hoe Ram	0.089	0.008	0.017	0.003	0.001
Large Bulldozer	0.089	0.008	0.017	0.003	0.001
Loaded Trucks	0.076	0.007	0.015	0.002	0.001
Jackhammer	0.035	0.003	0.007	0.001	0.001
Small Bulldozer	0.003	0.000	0.001	0.000	0.000

Source: FTA 2018; see Appendix E.

The City of Calistoga does not have an established threshold for assessing construction vibration impacts. The FTA maximum acceptable vibration standard of 0.2 in/sec PPV for nonengineered timber and masonry buildings is applied for assessing vibration impacts from project construction-related activities. The nearest structure to the site's construction activities, the residential use to the south, is approximately 75 feet away from the proposed construction area boundary. At this distance, construction vibration from a vibratory roller would attenuate to 0.04 in/sec PPV or less. Proposed construction activities would not exceed the FTA vibration standard of 0.2 in/sec PPV for nonengineered timber and masonry buildings. Therefore, impacts from construction vibration would be less than significant.

On-Campus Receptors

Students would remain on-site during site preparation and building construction. Construction activities would occur within 400 feet of existing classroom buildings. Construction vibration levels would range between 0.001 in/sec PPV and 0.003 in/sec PPV at 400 feet, accounting for attenuation based on the FTA reference vibration levels shown in Table 18. At this distance, construction vibration from a vibratory roller would attenuate to 0.003 in/sec PPV or less and would not exceed the FTA vibration standard of 0.2 in/sec PPV for nonengineered timber and masonry buildings. Therefore, on-campus classroom construction vibration impacts would be less than significant.

Historical Structures

The nearest historical structure, the Sam Brannan Cottage,[9] is at 109 Wappo Avenue, approximately 250 feet from the nearest project site boundary. At this distance project construction vibration would range between 0.001 in/sec PPV and 0.003 in/sec PPV at 225 feet; it would be below the FTA vibration standard of 0.08 in/sec PPV for historical buildings. Therefore, project construction vibration impacts on historical buildings would be less than significant.

Operation

The proposed project would not include the use of any large-scale stationary equipment that would result in excessive vibration levels. Therefore, the project would not result groundborne vibration impacts during operations.

c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

No Impact. The project site is located approximately 7.8 miles west of the Angwin-Parrett Field and approximately 13.35 miles east of the Sonoma County Airport. The project site is located outside of 60 dBA CNEL noise contour for both airports. Therefore, implementation of the proposed project would not result in increased exposure of people working at or visiting the project site to aircraft noise.

[9] See National Register of Historic Places GIS map, https://www.nps.gov/maps/full.html?mapId=7ad17cc9-b808-4ff8-a2f9-a99909164466.

3.14 POPULATION AND HOUSING

Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
XIV. POPULATION AND HOUSING. Would the project:				
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?				X
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?				X

Would the project:

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

No Impact. The proposed project would be constructed within the existing Calistoga HS campus. The proposed project would serve the existing needs of the campus's students and staff and would not increase student enrollment or student capacity. The proposed project would not create a significant number of new employment opportunities that could result in a greater demand for local housing, since the proposed events onsite already occur on campus. Additionally, the proposed project would continue to utilize the existing roads and infrastructure; with no new roads, expanded utility lines, or housing are proposed. Thus, project development would not induce substantial population growth in the area, either directly or indirectly. Therefore, no impact would occur.

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

No Impact. The proposed project would be constructed within the existing Calistoga HS campus. No housing exists on the Calistoga HS campus. Since project development would occur on the school campus, there would be no relocation or construction of replacement housing. Therefore, no impact would occur.

3.15 PUBLIC SERVICES

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

Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

a) Fire protection?

Less Than Significant Impact. Fire protection and emergency medical services in the City of Calistoga are provided by the Calistoga Fire Department. Services include responding to fires, public safety and medical emergencies, and natural disasters. The CFD protects the citizens in the city, but also automatically responds to emergencies in Napa and Sonoma Counties. The CFD has only one fire station at 1113 Washington Street in Calistoga (Calistoga 2024b). The CFD fire station is approximately 0.26 miles south of the project site. Demand for fire protection services is generally tied to population growth. The proposed project would consist of installing a new track and field, stadium lighting, landscaping, and other project components and would not increase the population of the project area. Therefore, the project would not substantially increase the need for fire protection services, and impacts would be less than significant.

b) Police protection?

Less Than Significant Impact. The Calistoga Police Department provides law enforcement protection to Calistoga. The CPD's crime prevention program targets four areas of special concern to the community: burglaries, identity theft, domestic violence, and vehicle theft (Calistoga 2024b). Additionally, CPD is responsible for campus safety and creating safe school passages for students, staff, and the school community.

The CPD operates out of a single police station at 1235 Washington Street in Calistoga (Calistoga 2024c). The single CPD station is approximately 0.30 miles southeast of the project site.

The project may cause a very slight increase in demands for law enforcement services during construction from possible trespass, theft, and/or vandalism. The perimeter of the Calistoga HS campus is fenced, and access to the campus is limited to the school's hours of operation and during sports events and special events. Any increase in law enforcement demands would be temporary and would not require construction of new or expanded law enforcement facilities. The demand for law enforcement protection services generally corresponds to population. Since the project would not increase the area population, project implementation would not increase the demand for law enforcement services or generate a need for additional law enforcement facilities. The project would not increase the area population or demand and would not result in new adverse impacts on existing law enforcement services. Therefore, impacts would be less than significant.

c) Schools?

Less Than Significant Impact. The proposed project would consist of installing a new track and field, stadium lighting, landscaping, and other project components. The proposed project would serve the existing students and staff and would not include an increase in the student population. Typically, the demand for schools is created by new housing development or activities that generate additional population. The proposed project would not involve the construction of any dwelling units or an increase in population that would require the construction of new school facilities. Development of the project would not result in the need for construction associated with an expansion of existing or development of new schools such that environmental impacts would result. Therefore, project-related impacts to school facilities would be less than significant.

d) Parks?

Less Than Significant Impact. Increases in demands for park facilities generally result from population increases, which in turn generally result from residential development and development of new job-generating land uses. The proposed project would consist of installing a new track and field, stadium lighting, landscaping, and other project components. The proposed track and field would be available for use by the students and staff on campus and would be available for public use under the Civic Center Act. Therefore, the proposed project would not increase the use of existing parks or recreational facilities or create the need for new parks or recreational facilities in the city. Impacts would be less than significant.

e) Other public facilities?

No Impact. Physical impacts to public services are usually associated with population in-migration and growth, which increase the demand for public services and facilities. The proposed project does not include any residential or commercial development and would not contribute to population growth. As such, the project would not result in impacts associated with the provision of other new or physically altered public facilities (e.g., libraries, hospitals, childcare, teen, senior centers). The project would not induce population growth. No impacts to other public facilities would occur.

3.16 RECREATION

Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
XVI. RECREATION.				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?			X	
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?			X	

Would the project:

a) Increase the use of existing neighborhood and regional parks or other recreational facilities, such that substantial physical deterioration of the facility would occur or be accelerated?

Less Than Significant Impact. City of Calistoga Parks and Recreation Department is responsible for recreational operations, programs and services within the city (Calistoga 2024d). The City operates and maintains local trails, and a total of 14.9 acres of City-owned recreational facilities such as Fireman's Park, Heather Oak Park, Little League Field, Logvy Community Park, Monhoff Center, Myrtle Street pocket park, and Pioneer Park (Calistoga 2003). Additional recreational facilities in the city are located at the Napa County Fairgrounds, Calistoga Elementary School, and Calistoga HS.

The proposed project would develop track and field improvements on an existing school campus, and it would not induce population growth nor increase student enrollment or capacity on campus. Additionally, the proposed project includes enhanced sports facilities, which would be available to authorized community groups during weekends and outside school hours, subject to District facility use policies and the Civic Center Act. Therefore, the proposed project would not generate an increased demand for existing neighborhood, regional facilities or other recreational facilities and would not result in substantial physical deterioration of such facilities nor cause deterioration to accelerate. Therefore, impacts would be less than significant.

b) Does the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?

Less Than Significant Impact. The proposed project would include the installation of new stadium lighting, a new track and field, a concessions stand, a field house, bleachers, and other project components. The proposed project would continue to serve the operations and uses at the Calistoga HS campus. The proposed project would serve the Calistoga HS's existing student population and would not change the school's enrollment. Thus, the proposed project would not include the expansion of existing recreational facilities and would not increase student enrollment or local population. Impacts would be less than significant.

3.17 TRANSPORTATION

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

This section is based in part on the Traffic Impact Analysis for the Proposed Calistoga Junior-Senior High School Field and Lighting Improvements Project (Appendix F) and addresses any potential direct and indirect environmental impacts associated with traffic and transportation as a result of the proposed project.

Would the project:

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

Less Than Significant Impact.

Traffic Impact Analysis

The proposed project would include the installation of new stadium lighting, track and field improvements, a concessions stand, a field house, bleachers, and other project components. The proposed project would improve the existing athletic facilities for use for sporting and school events.

The Traffic Impact Analysis for the Proposed Calistoga Junior-Senior High School Field and Lighting Improvements Project analyzed the projected traffic that would be generated by the proposed project. The volumes of traffic that would be generated by the stadium for a capacity-level event (774 spectators) were determined in order to estimate the impacts of the proposed project on the study area streets. This would be an increase from the existing capacity spectator attendance of 300 spectators. The trip generation rates shown in Table 19, *Project-Generated Traffic*, reflect the assumption that the track and field would generate a demand of one vehicle for every four seats (for vehicles that remain parked at the site) and that an additional 10 percent of the vehicles arriving at the track and field would drop passengers off then leave. The rate of one vehicle for every four seats is based on the parking requirements for track and fields of one space per four seats in the City of Calistoga Municipal Code, Section 17.36.140, "Off-street Parking – Commercial and Industrial Uses" (see Appendix F).

Table 19 Project-Generated Traffic

Facility	Evening Hour – Pre-event			Daily Traffic
	Inbound	**Outbound**	**Total**	
Trip Generation Rates				
Stadium/Track and Field (vehicle trips per spectator)	0.275	0.025	0.30	0.60
Generated Traffic Volumes				
Existing Bleachers (300 spectators)	83	7	90	180
Proposed Track and Field (774 spectators)	213	19	232	465
Net Increase (474 spectators)	130	12	142	285

Source: Appendix F.

Table 19 indicates that a capacity-level event with 774 spectators would generate a net increase of 142 vehicle trips during the peak hour (130 inbound and 12 outbound) and 285 daily trips. A capacity-level event would occur only a few times each year for football games and special events, such as a homecoming football game, a graduation ceremony, and a band/color guard major competition. The stadium would generate fewer vehicle trips for noncapacity football games, track and field events, soccer matches, etc. Additionally, the football and soccer seasons are during the fall (mid-August to early November). There would be five home games during the football season and, at most, nine boys and girls home soccer games. Soccer games would take place throughout the week, but football games would only be on Friday nights. The track and field season is only in the spring, during the months of March through May. The track and field events are assumed to include less spectators than the football games. Other school events, such as graduation, would be held occasionally throughout the school year. The traffic impact analysis is based on a capacity-level event to represent the worst-case scenario, and traffic generated by the proposed project would be minimal.

Calistoga General Plan Circulation Element

The Circulation Element of the City of Calistoga General Plan includes various goals, objectives, policies, and actions that outline the overall purpose of regulating and developing Calistoga's transportation systems. The Circulation Element balances the need to provide efficient ways to get from one place to another with the overall vision of Calistoga as a walkable small town, made up of a vibrant main street set within pedestrian-oriented neighborhoods.

The City is committed to the "complete streets" goal of creating and maintaining a comprehensive and integrated transportation network that provides safe, comfortable and convenient travel, serving all types of users, including pedestrians, bicyclists, persons with disabilities, seniors, children, users and operators of public transportation, motorists, and movers of commercial goods.

The Calistoga General Plan Circulation Element contains three goals.

- **Goal CIR-1:** maintain and enhance Calistoga's street network to serve existing and planned land uses while also maintaining the community's small-town character.
- **Goal CIR-2:** provide sufficient parking in the downtown.
- **Goal CIR-3:** enhance transportation modes that minimize pollution and congestion.

Goal CIR-1 is to maintain and enhance Calistoga's street network to serve existing and planned land uses while also maintaining the community's small-town character. The proposed project would not conflict with this goal because it would serve the existing Calistoga HS and improve the existing athletic facilities for sporting and school events. Goal CIR-2, to provide sufficient parking in the downtown area, is not applicable to the proposed project because it is not in downtown Calistoga. Goal CIR-3 is to enhance transportation modes that minimize pollution and congestion. The proposed project would not conflict with this goal because it would not include any off-site improvements that would interfere with enhancement of any planned or existing transportation modes. Additionally, the enhancement of transportation modes is the responsibility of the City, and the District would not be subject to enhancing any planned or existing transportation modes. Therefore, impacts would be less than significant.

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

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

The Association of Bay Area Governments, of which the City of Calistoga is a member, adopted a document titled "SB 743 Policy Adoption Technical Assistance Program," which includes screening criteria that can be used to identify when a proposed land use development project is anticipated to result in a less than significant VMT impact. The document states that a project is presumed to have a less than significant impact on VMT if the project is a local-serving public facility, which includes schools. The document indicates that land uses in the local-serving category can be screened from requiring a detailed VMT analysis. Based on these guidelines, this stadium project would not conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b), and would have a less than significant VMT impact.

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

Less Than Significant Impact. The proposed project would not add or alter any on- or off-site access or circulation features that would create or increase any design hazards or incompatible uses. Access to the school site would continue to be provided by the existing driveways on the east side of Lake Street and on the south side of Grant Street. There would be no roadway improvements in the public right-of-way and all improvements within the school site would be consistent with the criteria of the California Division of the State Architect.

The increased levels of traffic, the increased number of pedestrians, and the increased number of vehicular turning movements that would occur at the driveways and at the nearby intersections would result in an increased number of traffic conflicts and a corresponding increase in the probability of an accident occurring. These impacts would not be significant, however, because the streets, intersections, and driveways are designed to accommodate the anticipated levels of vehicular and pedestrian activity. These streets and intersections have historically been accommodating school-related traffic on a daily basis for the existing school and athletics field. The proposed project would include the installation of walkways around the track and field and project site. Additionally, the proposed project's new track and field and lighting would be compatible with the design and operation of a junior high school and high school, and the proposed project would not result in any major modifications to the existing access or circulation features at the school.

As the existing street network could readily accommodate the anticipated increase in vehicular, pedestrian, and bicycle activity, the proposed project would not substantially increase hazards due to a geometric design feature or incompatible uses. Therefore, impacts would be less than significant.

d) Result in inadequate emergency access?

No Impact. Emergency access to the school site is provided by two driveways on Lake Street and two driveways on Grant Street as well as a maintenance/emergency access driveway on Grant Street that leads to a fire lane. The existing access and circulation features at the school, including the driveways, parking lots, on-site roadways, and fire lanes, would continue to accommodate emergency ingress and egress by fire trucks, police units, and ambulance/paramedic vehicles. The proposed project would be designed to continue to accommodate emergency access to the new track and field. Any modifications to the access/circulation features at the school are subject to and must satisfy the District's design requirements and would be subject to approval by the Calistoga Fire Department and the California Division of the State Architect. Emergency vehicles could easily access the stadium and all other areas of the school via on-site travel corridors. Therefore, the proposed project would not result in inadequate emergency access.

3.18 TRIBAL CULTURAL RESOURCES

Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
XVIII. TRIBAL CULTURAL RESOURCES.				
a) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code § 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or		X		
ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code § 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code § 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.		X		

Would the project:

a) Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or

Less Than Significant Impact With Mitigation Incorporated. As discussed under Threshold 3.5(a), the project site at Calistoga HS is not listed or eligible for listing in the California Register of Historical Resources, National Register of Historic Places, California State Historical Landmarks, or Points of Historical Interest or in a local register of historical resources (NPS 2024a, 2024b; OHP 2024a, 2024b). The project site does not meet any of the historic resource criteria and does not meet the definition of a historic resource pursuant to CEQA. The project would not impact tribal cultural resources (TCR) listed on any of the registers of historic resources, and the nearest historical resource is the Sam Brannan Cottage approximately 275 feet east of the project site. Due to the developed nature of the project site and surrounding area, the proposed project would not impact a resource listed on the California Register of

Historical Resources, National Register of Historic Places, California State Historical Landmarks, or Points of Historical Interest or in a local register of historical resources.

However, development of the proposed project could encounter previously unknown tribal cultural resources and human remains. Although no known tribal cultural resources have been identified on the project site, the proposed project has the potential to disturb subsurface deposits possessing traditional or cultural significance to Native American or other descendant communities. With the implementation of mitigation measure TCR-1 in Section 3.18(a)(ii) below, and adherence with Section 5097.98 of the California Public Resources Code, as outlined in Section 3.5(c), impacts to tribal cultural resources would be less than significant.

ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

Less Than Significant Impact With Mitigation Incorporated.

In accordance with PRC Section 21080.1(d), a lead agency is required to provide formal notification of intended development projects to Native American tribes that have requested to be on the lead agency's list for receiving such notification. The formal notification is required to include a brief description of the proposed project and its location, lead agency contact information, and a notification that the California Native American tribe has 30 days to request consultation. Pursuant to AB 52, the District mailed and emailed tribal consultation letters on December 12, 2024, inviting three tribes on their AB 52 list to consult on the project—the Guidiville Rancheria of California, Mishewal-Wappo Tribe of Alexander Valley, and Pinoleville Pomo Nation. However, no tribes requested to consult during the 30-day AB 52 consultation request window and the District did not receive any responses from the tribes. Further, a Sacred Lands File request was submitted to the NAHC and received a negative result; there are no known sacred sites or tribal cultural resources within or in the vicinity of the project site.

Although unlikely, the potential exists to unearth tribal cultural resources during ground-disturbing activities. In the event tribal cultural resources are discovered, Mitigation Measures TCR-1 and CUL-1 provide guidelines for how to protect tribal cultural resources. Therefore, implementation of Mitigation Measures CUL-1 and TCR-1 would reduce impacts to less than significant.

Mitigation Measure

TCR-1 If tribal cultural resources are inadvertently discovered during ground disturbing activities for this project. The following procedures will be carried out for treatment and disposition of the discoveries:

- Upon discovery of any tribal cultural resources, construction activities shall cease in the immediate vicinity of the find (not less than the surrounding 100 feet) until the find can be assessed.
- All tribal cultural resources unearthed by project activities shall be evaluated by the qualified archaeologist and/or applicable tribal monitor. If the resources are Native American in origin, the applicable tribe will retain the resource in the form and/or manner the tribe deems appropriate, for educational, cultural and/or historic purposes.
- Work may continue on other parts of the project site while evaluation and, if necessary, mitigation takes place (CEQA Guidelines Section 15064.5[f]). If a non-Native American resource is determined by the qualified archaeologist to constitute a "historical resource" or "unique archaeological resource," time allotment and funding sufficient to allow for implementation of avoidance measures or appropriate mitigation must be available. The treatment plan established for the resources shall be in accordance with CEQA Guidelines Section 15064.5(f) for historical resources and PRC Sections 21083.2(b) for unique archaeological resources.
- Preservation in place (i.e., avoidance) is the preferred manner of treatment. If preservation in place is not feasible, treatment may include implementation of archaeological data recovery excavations to remove the resource along with subsequent laboratory processing and analysis. Any historic archaeological material that is not Native American in origin shall be curated at a public, non-profit institution with a research interest in the materials, if such an institution agrees to accept the material. If no institution accepts the archaeological material, it shall be offered to a local school or historical society in the area for educational purposes.

3.19 UTILITIES AND SERVICE SYSTEMS

Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
XIX. UTILITIES AND SERVICE SYSTEMS. Would the project:				
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?			X	
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?			X	
c) Result in a determination by the waste water treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?			X	
d) Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?			X	
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?			X	

Would the project:

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

Less Than Significant Impact.

Water

The proposed project includes construction of a new field house and a new concession stand and the installation of new landscaping. The new buildings and landscaping which require the installation of a water line connection. Water is currently provided to the campus and project site by the City's Municipal Water District. Potable water would be provided to the new buildings through connections to the existing water mains. The proposed water system improvements would be designed and constructed in accordance with the California Building Code and CALGreen requirements, such as CALGreen Division 5.3, Water Efficiency and Conservation, including Sections 5.303, Indoor Water Use, and 5.304, Outdoor Water Use. As further discussed under Section 3.19(b), the Calistoga Municipal Water District provides water to the campus from two major sources—the California State Water Project (SWP) and Kimball Reservoir. Therefore, the City has sufficient water capacity to serve the proposed project (Calistoga 2020). The proposed project would not require the construction of new or expanded water facilities that could cause significant impacts. Impacts would be less than significant.

Wastewater

The proposed project includes construction of a new field house and a new concession stand that would include restroom facilities, which would require the installation of a wastewater connection to serve the new buildings. The City's Municipal Wastewater District provides wastewater collection, treatment, disposal, and maintenance for the Calistoga HS campus. The city's wastewater is conveyed for treatment to the City's wastewater treatment plant (WWTP) on Dunaweal Lane. According to the City of Calistoga's General Plan Infrastructure Element, the WWTP is an activated sludge tertiary treatment plant with a capacity of approximately 48 million gallons (Calistoga 2020). The City has 187.7 acre-feet per year (afy) of available treatment capacity. As further discussed in Section 3.19(c), the proposed project would not substantially increase wastewater. Wastewater generated at the new buildings will be conveyed to the existing sewer lines on campus. Therefore, the proposed project would not require the construction of new or expanded wastewater facilities that could cause significant environmental effects. Impacts would be less than significant.

Stormwater Drainage

The proposed project would result in a slight increase in impervious surfaces compared to existing conditions with the installation of new track and field, permanent bleachers, new field house, and a new concession stand. The increase in impervious surfaces due to the proposed project would be minor, and the majority of the project site would remain in its current state. The new field, like most turf fields, is permeable and would not result in an increase in impervious surfaces. The stormwater from the proposed project would be conveyed to existing stormwater drains on campus or to the neighboring storm drain system along roadways. Additionally, the proposed project would construct four planting/bioretention areas that would manage and treat any runoff from the project site. The proposed project would not significantly increase or change the stormwater volume, rate, or pattern beyond connecting to the existing stormwater system. Therefore, impacts would be less than significant.

Electric Power

Electricity is provided by PG&E. The proposed project would connect to existing electric power infrastructure for operation. Although the proposed project would result in a higher electricity demand than existing conditions, the increase would be negligible compared to PG&E's capacity. The proposed project would use LED luminaires that are energy efficient and last longer than metal halide or high-pressure sodium lights. Furthermore, development of the new concessions buildings and other structures would be required to comply with California Building Energy Efficiency Standards (24 CCR Part 6). Implementation of the proposed project would not result in major construction related to electrical power facilities that could cause significant environmental impacts. Therefore, impacts would be less than significant.

Natural Gas

Natural gas service is provided by PG&E. The proposed new concession stand would be all-electric and would not use natural gas for food preparation. Thus, the proposed project would not require the construction of new or expanded natural gas facilities. A less than significant impact would occur.

Telecommunications

There are existing telecommunications facilities and services in the immediate area for the proposed project to connect to, if necessary. The proposed project would not require additional telecommunications facilities demand. The proposed project would not require off-site construction or relocation of utilities, and therefore impacts would be less than significant.

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

Less Than Significant Impact. As discussed in the City of Calistoga's General Plan Infrastructure Element, the City is not required to have an urban water management plan, which is a plan discussing water resources in detail; however, the City participates in the Bay Area Integrated Regional Water Management Plan (Calistoga 2020). The Water Supply and Service section of the Infrastructure Element outlines why the City's Municipal Water District has sufficient water supply to accommodate current and potential demand through 2035. The City's Municipal Water District water supply has two major sources: the California SWP and Kimball Reservoir. During normal and below-normal year situations, current sources are sufficient to serve future demands; however, during extreme dry years the SWP, water resources, and water conservation measures would fulfil the necessary water supplies during normal, dry and multiple dry years through 2035.

A new field house and new concession stand would be constructed within the existing boundaries of the Calistoga HS, which would require water use and installation of a water line connection to serve the new buildings. The proposed project would also install landscaping, which would require water. The proposed project's increased water demand would be low compared to existing because the proposed project would not increase the campus's enrollment capacity; the events at the project site are existing events that already occur on campus; and the increased water demand would only occur during events/games, which are intermittent. The proposed project's water demand would be captured by the projected demand outlined in the Infrastructure Element. Furthermore, development of the proposed project would be required to comply with the provisions of CALGreen Division 5.3, Water Efficiency and Conservation, including Sections 5.303, Indoor Water Use, and 5.304, Outdoor Water Use. Based on the Infrastructure Element, the City's Municipal Water District would have adequate water supplies to meet the water demands of the proposed project and the City during normal, dry, and multiple dry years. Therefore, impacts would be less than significant.

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

Less Than Significant Impact. Wastewater generated at the campus is conveyed to the City's WWTP, which has capacity for approximately 48 million gallons (Calistoga 2020). Additionally, the City has 187.7 afy of available treatment capacity. The WWTP has a permitted dry-weather capacity of 0.84 million gallons per day (mgd) or 2.58 afy, and the average dry-weather sewage flow is 0.44 mgd (1.35 afy), which leaves 0.40 mgd or 1.23 afy of available capacity per day as of 2019.

A new field house and a new concession stand would be constructed within the existing boundaries of the Calistoga HS that would generate wastewater and entail installation of a wastewater line connection to serve the new buildings. The proposed project's increase in wastewater generation would be low compared to existing conditions for three reasons: first, the proposed project would not increase the campus's enrollment capacity; second, the events at the project site are existing events that already take place on campus; and third, the increased wastewater generation would only occur during events/games, which are intermittent. The proposed project's wastewater generation would be within the City's WWTP remaining capacity. The proposed project would not require construction of new or expanded wastewater treatment facilities. Impacts would be less than significant.

d) Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

Less Than Significant Impact. During construction, the proposed project would generate some demolition debris from clearance and waste debris from the existing track and field, and paved walkway. Construction solid waste generation would be minimal because construction of the proposed project would not require the demolition of buildings. CALGreen Section 5.408, Construction Waste Reduction, Disposal, and Recycling, requires that at least 65 percent of the nonhazardous construction and demolition waste from nonresidential construction operations be recycled and/or salvaged for reuse. The proposed project would not increase student enrollment; however, the proposed project would increase the overall number of spectators on-site because it would increase seating capacity and allow additional events such as track and field events. The solid waste generated by the proposed project's operational activities would increase the amount of solid waste generated by the Calistoga HS campus. However, solid waste generation would remain minimal because sporting and other events would occur infrequently and seasonally within the school year. Solid waste from all District schools is transported by the Upper Valley Disposal and Recycling Services to regional landfills (Calistoga 2024e). Solid waste generated in Calistoga is disposed of at the Clover Flat Resource Recovery Park (CalRecycle 2024b). The landfill has a remaining capacity of 2.24 million cubic yards. The increase in waste generation would be within the remaining capacity of area landfills, and the proposed project would continue to be serviced by the Upper Valley Disposal and Recycling Services and regional landfills. The proposed project would comply with the required regulation pertaining to construction and demolition waste and would not adversely impact landfill capacity or impair attainment of solid waste reduction goals. Therefore, impacts would be less than significant.

e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

Less Than Significant Impact. The proposed project is required to comply with federal, state, and local statutes and regulations related to solid waste and would continue this practice. CALGreen Section 5.408.1.1 requires that at least 65 percent of the nonhazardous construction and demolition waste from nonresidential construction operation be recycled and/or salvaged for reuse. Project development would not conflict with laws governing solid waste disposal, and impacts would be less than significant.

3.20 WILDFIRE

Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
XX. WILDFIRE. If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?			X	
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?			X	
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?			X	
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?			X	

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:

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

Less Than Significant Impact. The project site is in a local responsibility area and in a developed area (CalFire 2024a). The project site is not in a state responsibility area. Based on Figure SAF-6 of the General Plan, the campus, like most of Calistoga, is not identified in a very high fire hazard severity zone (Calistoga 2014). ZoneHaven, a local wildfire mapping tool, identifies that the project site is not in an identified wildland risk area (Calistoga 2024c). The closest identified wildland risk area is 0.10 miles north of the project site and is considered to have a low wildland risk. Based on the U.S. Forest Service Wildland Urban Interface (WUI), the project site is within the WUI (USFS 2020). Additionally, the City of Calistoga ZoneHaven identifies most of the project site in a WUI of moderate risk; however, the southern corner of the project site, which includes a portion of the proposed track and field, basketball courts, and field house, is in a WUI of high risk. The proposed project would not intensify fire hazard because it would develop that portion of campus with pervious surfaces, removing any low-lying brush and grassland in the project area. Landscaping would be maintained by the District.

The City of Calistoga utilizes the Napa County Emergency Operation Plan, a document that outlines the response, management, and recovery of real or potential emergencies and disasters (Napa County 2017). The City of Calistoga EOP Annex is included in the Napa County EOP and outlines government roles and responsibilities. For example, the Calistoga Police Department is the agency primarily responsible for overall evacuation. As discussed in the Calistoga General Plan Public Safety Element, Foothill Boulevard/Highway 128 and Lincoln/Highway 29 are designated emergency evacuation routes. In the event of a natural disaster the police department would coordinate the routes for movement of motorists toward designated/safest evacuation routes; control and monitor primary routes and area access; support mass transit pick-up and those needing assistance; define traffic control areas; and close roads that will not be used as the primary egress or ingress routes to the evacuated area.

The proposed project would not physically impede the circulation network and roadways surrounding the campus. The proposed project would be designed in accordance with the California Building Code and California Fire Code and reviewed by the DSA. Fire suppression equipment specific to construction would be maintained on-site. Additionally, project construction would comply with applicable existing codes and ordinances related to the maintenance of mechanical equipment, handling and storage of flammable materials, and cleanup of spills of flammable materials. Therefore, the proposed project would not substantially impair an adopted emergency response plan or emergency evacuation plan. Impacts would be less than significant.

b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

Less Than Significant Impact. The project site and surrounding area are nearly flat, with a slight downward slope from north to south. The general climate of Napa County is Mediterranean, with cool, wet winters and warm, dry summers; although winds from the Bay come across southern Napa County as far as Yountville, they do not come to areas further north, such as Calistoga (Napa County 2020). The proposed project includes buildings that are of similar height to existing surrounding development. Therefore, the proposed project would not affect slope or prevailing winds that could exacerbate wildfire risk.

The proposed project would be designed in accordance with the California Building Code and California Fire Code. Project design and site plans would be reviewed and approved by the DSA. Further, the City of Calistoga Fire Department would review site plans to confirm fire personnel accessibility, fire hydrant locations and distribution, water supply requirements for fire flow, and automatic fire sprinklers. During construction, construction personnel would handle, store, and operate construction and mechanical equipment and potentially flammable materials in accordance with manufacturers' specifications and standard safety practices. Fire suppression equipment during construction would be maintained on-site. Therefore, the construction and operation of the proposed project would not expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of wildfire due to slope, prevailing winds, and other factors. Impacts would be less than significant.

c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

Less Than Significant Impact. The project site is in an urban area and is served by existing utility infrastructure, including water, wastewater, and power. Development of the proposed project would require new utility hook-ups to the existing utilities that serve the project site for the field house, concession building, stadium lights, and scoreboard. All utilities lines on campus would be underground. The proposed project would be designed and constructed in accordance with the California Building Code and the California Fire Code. These project features would not exacerbate fire risk. Development of the proposed project would not require the installation of roads and fuel breaks. Therefore, the proposed project does not include the installation or maintenance of infrastructure that could exacerbate fire risk or result in temporary or ongoing impacts to the environment. Impacts would be less than significant.

d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

Less Than Significant Impact. The project site is in a local responsibility area and is in a developed area (Cal Fire 2024). The project site is not in a state responsibility area. Based on Figure SAF-6, the campus, like most of Calistoga, is not identified in a very high fire hazard severity zone (Calistoga 2014). ZoneHaven, a local wildfire mapping tool, identifies that the project site is not in an identified wildland risk area (Calistoga 2024c). The closest identified wildland risk area is 0.10 miles north of the project site and is considered to have a low wildland risk. Based on the U.S. Forest Service WUI, the project site is within the WUI (USFS 2020). Additionally, the City of Calistoga ZoneHaven identifies most of the project site in a WUI of moderate risk; however, the southern corner of the project site—which includes a portion of the proposed track and field, basketball courts, and field house—are within a WUI of high risk. The proposed project would not intensify fire hazard because the proposed project would develop that portion of campus with pervious surfaces, removing any low-lying brush and grassland in the project areas. Landscaping would be maintained by the District.

According to the FEMA flood zone map, the project site is not in a flood zone and is in a highly developed area of the city (FEMA 2024). As discussed in Section 3.10(d), the proposed project site is not in the Kimball Reservoir's inundation area or in a tsunami zone. According to section 3.7(a)(iv), the proposed project is relatively flat and is not within an identified landslide susceptibility zone (USGS 2024). Additionally, the project site and surrounding area are generally flat and would have low potential of post-fire slope instability. The proposed project would be designed and constructed in compliance with the California Building Code and the California Fire Code, and plans would be reviewed and approved by DSA. Compliance with applicable building and fire codes and DSA review would ensure that the proposed project would not expose people or structures to flooding, landslides, slope instability, or drainage changes. As discussed in Section 3.7, *Geology and Soils*, and Section 3.10, *Hydrology and Water Quality,* the proposed project would result in a less than significant impact or no impact related to flooding, landslides, stormwater/drainage, and slope instability. Therefore, 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. A less than significant impact would occur.

3.21 MANDATORY FINDINGS OF SIGNIFICANCE

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

a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

Less Than Significant Impact With Mitigation Incorporated. As discussed in this initial study, the proposed project would not degrade the quality of the environment with implementation of identified standard permit conditions and mitigation measures. As discussed in Section 3.5, *Cultural Resources*, with implementation of Mitigation Measure CUL-1, the proposed project would result in a less-than-significant impact on archaeological and historic resources.

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

Less Than Significant Impact With Mitigation Incorporated. As discussed previously in this Initial Study, the proposed project would have no impact or a less-than-significant impact to aesthetics, agriculture and forestry resources, biological resources, energy, GHG emissions, hazards and hazardous materials, hydrology and water quality, land use and planning, mineral resources, noise, population and housing, public services, recreation, transportation, utilities and service systems, and wildfire. As discussed in Sections 3.3, *Air Quality*;

3.5, *Cultural Resources*; 3.7, *Geology and Soils*; 3.13, *Noise*; and 3.18, *Tribal Cultural Resources*, the project would not result in significant impacts to those resources with the implementation of identified and mitigation measures. For this reason, the project would not result in significant cumulative impacts to those resources. Therefore, all impacts are individually limited and would not result in any cumulatively significant impact.

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

Less Than Significant Impact With Mitigation Incorporated. As discussed in the previous analyses, the proposed project would not result in significant direct or indirect adverse impacts or result in substantial adverse effects on human beings. Impacts would be less than significant with the implementation of the proposed mitigation measures.

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Appendix A Air Quality and Greenhouse Gas Emissions Data

Appendix

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Air Quality and Greenhouse Gas Appendix

Air Quality and Greenhouse Gas Background and Modeling Data

AIR QUALITY

Air Quality Regulatory Setting

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

AMBIENT AIR QUALITY STANDARDS

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

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

Both California and the federal government have established health-based AAQS for seven air pollutants. As shown in Table 1, *Ambient Air Quality Standards for Criteria Pollutants*, these pollutants include ozone (O_3), nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), coarse inhalable particulate matter (PM_{10}), fine inhalable particulate matter ($PM_{2.5}$), and lead (Pb). In addition, the state has set standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. These standards are designed to protect the health and welfare of the populace with a reasonable margin of safety.

Table 1 Ambient Air Quality Standards for Criteria Air Pollutants

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

Table 1 Ambient Air Quality Standards for Criteria Air Pollutants

Pollutant	Averaging Time	California Standard[1]	Federal Primary Standard[2]	Major Pollutant Sources
Lead (Pb)	30-Day Average	1.5 µg/m^3	*	Present source: lead smelters, battery manufacturing & recycling facilities. Past source: combustion of leaded gasoline.
	Calendar Quarter	*	1.5 µg/m^3	
	Rolling 3-Month Average	*	0.15 µg/m^3	
Sulfates (SO_4)[5]	24 hours	25 µg/m^3	*	Industrial processes.
Visibility-Reducing Particles	8 hours	ExCo =0.23/km visibility of 10≥ miles	No Federal Standard	Visibility-reducing particles consist of suspended particulate matter, which is a complex mixture of tiny particles that consists of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. These particles vary greatly in shape, size and chemical composition, and can be made up of many different materials such as metals, soot, soil, dust, and salt.
Hydrogen Sulfide	1 hour	0.03 ppm	No Federal Standard	Hydrogen sulfide (H_2S) is a colorless gas with the odor of rotten eggs. It is formed during bacterial decomposition of sulfur-containing organic substances. Also, it can be present in sewer gas and some natural gas, and can be emitted as the result of geothermal energy exploitation.
Vinyl Chloride	24 hours	0.01 ppm	No Federal Standard	Vinyl chloride (chloroethene), a chlorinated hydrocarbon, is a colorless gas with a mild, sweet odor. Most vinyl chloride is used to make polyvinyl chloride (PVC) plastic and vinyl products. Vinyl chloride has been detected near landfills, sewage plants, and hazardous waste sites, due to microbial breakdown of chlorinated solvents.

Source: CARB 2016.

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

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

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

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

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

4 On February 7, 2024, the national annual $PM_{2.5}$ primary standard was lowered from 12.0 µg/m^3 to 9.0 µg/m^3. The existing national 24-hour $PM_{2.5}$ standards (primary and secondary) were retained at 35 µg/m^3, as was the annual secondary standard of 15 µg/m^3. The existing 24-hour PM_{10} standards (primary and secondary) of 150 µg/m^3 also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.

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

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

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

AIR POLLUTANTS OF CONCERN

Criteria Air Pollutants

The air pollutants emitted into the ambient air by stationary and mobile sources are regulated by federal and state law. Air pollutants are categorized as primary or secondary pollutants. Primary air pollutants are those that are emitted directly from sources and include CO, VOC, NO_2, SO_X, PM_{10}, $PM_{2.5}$, and Pb. Of these, CO, SO_2, NO_2, PM_{10}, and $PM_{2.5}$ are "criteria air pollutants," which means that ambient air quality standards (AAQS) have been established for them. VOC and oxides of nitrogen (NO_X) are air pollutant precursors that form secondary criteria pollutants through chemical and photochemical reactions in the atmosphere. Ozone (O_3) and NO_2 are the principal secondary pollutants. A description of each of the primary and secondary criteria air pollutants and their known health effects is presented below (BAAQMD 2024a; 2023):

Carbon Monoxide (CO) is an odorless, invisible, flammable gas produced from incomplete combustion of fuels (e.g., burned in cars, engines, stoves, fireplaces, and furnaces) that can be dangerous to human health in high concentrations, especially indoors with little ventilation. CO also indirectly contributes to the buildup of GHGs by reacting with and using up hydroxyl (OH) radicals that would otherwise destroy tropospheric CH_4 and ozone, thus increasing their concentrations in the lower atmosphere. Nearly 70 percent of the Bay Area's carbon monoxide comes from motor vehicles and a substantial amount also comes from burning wood in fireplaces and woodstoves. State and federal controls on new cars and seasonal wood burning have been established to prevent CO from reaching harmful levels. The Bay Area has not exceeded the national or state standard for CO in several years and is formally recognized as a CO attainment area.

Reactive Organic Gases (ROGs)/Volatile Organic Compounds (VOCs) are compounds that are considered a concern as both indoor and outdoor air pollutants. Indoors, ROG can pose a potential health risk to occupants due to their toxicity. Outdoors, the primary concern of ROG is their contribution to the formation of photochemical smog and secondary PM. Most ROG are photochemically reactive and can interact with NO_X, thereby playing a critical role in determining the rate of ozone production (smog). There are no AAQS established for ROGs. However, because they contribute to the formation of O_3, BAAQMD has established a significance threshold for this pollutant.

Nitrogen Oxides (NO_X) is a group of highly reactive gases that form when nitrogen reacts with oxygen during combustion, especially at high temperatures. These compounds (including NO and NO_2), can contribute significantly to air pollution, especially in cities and areas with high motor vehicle traffic. In the Bay Area, NO2 appears as a brown haze. At higher concentrations, NO_2 can damage sensitive crops, such as beans and tomatoes, and aggravate respiratory problems. The United States Environmental Protection Agency (USEPA), CARB, and BAAQMD have all adopted measures to reduce emissions of NOX. The BAAQMD places restrictions on pollutant sources, such as power plants, boilers, stationary turbines, and stationary engines, and addresses motor vehicle sources by working to change people's driving habits.

Sulfur Dioxide (SO_2) are compounds that consist of sulfur and oxygen molecules with sulfur dioxide (SO_2) being the predominant form found in the lower atmosphere. SO_2 is a gas that reacts with other compounds to form sulfuric acid (H_2SO_4), sulfurous acid (H_2SO_3), and sulfate (SO_4) particles harmful to humans. These contaminants can damage vegetation and negatively impact the health of both humans and animals. In the past, SO_X were a problem in the Bay Area, especially near the large oil refineries and chemical plants in Napa County. However, BAAQMD has been controlling emissions from these sources since 1961, and no state or federal excesses of sulfur compound emissions have been recorded since 1976.

Particulate Matter (PM) can be directly emitted from sources or formed secondarily when gaseous emissions react in the atmosphere. PM is composed of a mixture of small airborne particles suspended in liquid droplets (aerosols) floating in the air. These particles originate from a variety of man-made and natural sources, including fossil fuel combustion, refining crude oil, residential wood burning and cooking, wildfires, volcanoes, sea salt, and dust. Because they are so small, these particles can bypass the body's natural defenses and penetrate deep into the lungs, bloodstream, brain and other vital organs, and individual cells. Health studies have shown that exposure to PM can have a wide range of negative health effects, including asthma, chronic bronchitis, impaired lung development in children, heart attack, stroke, and premature death.

Residential wood burning is the largest source of PM in the Bay Area during the winter. While BAAQMD has made significant progress reducing overall PM levels through its Wood Burning Rule and other measures, it is still the most hazardous air pollutant in the Bay Area in terms of health impacts.

- **Suspended Particulate Matter (PM_{10})** includes PM with an aerodynamic diameter of 10 micrometers or less and is small enough to penetrate deep in the lungs. Approximately 55 percent of SFBAAB's total PM_{10} emissions are attributable to subsectors of road dust and construction activities.

- **Suspended Particulate Matter ($PM_{2.5}$)** includes PM with an aerodynamic diameter of 2.5 micrometers or less and thus comprises a portion of PM_{10}. $PM_{2.5}$ is typically characterized as more potent because they are more likely to travel into the deeper parts of the lung, or even the bloodstream. PM deposited on the lung surface can induce tissue damage, lung inflammation, and other respiratory ailments. $PM_{2.5}$ exposure remains the leading public health risk and contributor to premature death from air pollution in the Bay Area.

Local jurisdictions have the option of developing community risk reduction plans to cumulatively reduce community wide $PM_{2.5}$ concentrations by following a comprehensive plan. Stationary source screening maps contain all the facilities in the Bay Area where a permit has been issued and that emit one or more toxic air contaminants (TACs). These stationary source screening maps can be used as a basis for community baseline conditions and to evaluate screening-level health risk impacts using the cavity effects equation. An alternative screening methodology is to use CARB's gas station screening tool to estimate cancer risk and chronic/acute hazards from gas station emissions.

Ground-Level Ozone (O_3), also known as smog, is created by chemical reactions between ozone precursors oxides of nitrogen and volatile organic compounds in the presence of sunlight. Emissions from industrial facilities and electric utilities, motor vehicle exhaust, gasoline vapors, and chemical solvents are some of the major sources of these ozone precursors. Ozone is most likely to form in the summer and early fall on warm, windless, sunny days. Breathing ozone can aggravate asthma and other respiratory diseases, irritate the eyes, reduce visibility, and damage vegetation.

Motor vehicles are the greatest contributor to ozone in the Bay Area, accounting for more than 50 percent of ozone precursors in the region. California's motor vehicle emissions control program, along with the BAAQMD's regulatory controls, has significantly reduced Bay Area ozone concentrations in the last few decades.

Lead (Pb) was historically and primarily exhausted from motor vehicles using leaded gasoline and found in commercial and residential paints before it was substantially controlled through regulations. Since its removal from gasoline, lead is now primarily produced from industrial processes (e.g., metal processing) and off-road sources (e.g., small aircraft). Monitoring data in the SFBAAB indicates that the level of lead is generally below state and federal-mandated health standards. Because emissions of lead are found only in projects that are permitted by BAAQMD, lead is not an air quality of concern for the proposed project.

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

Table 2 Criteria Air Pollutant Health Effects Summary

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

Source: CARB 2024a.

Toxic Air Contaminants

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

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

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

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

Diesel Particulate Matter

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

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

- 13 CCR Chapter 10, Section 2485, Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling

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

Community Risk

In addition, to reduce exposure to TACs, CARB developed and approved the *Air Quality and Land Use Handbook: A Community Health Perspective* (2005) to provide guidance regarding the siting of sensitive land uses in the vicinity of freeways, distribution centers, rail yards, ports, refineries, chrome-plating facilities, dry cleaners, and gasoline-dispensing facilities. This guidance document was developed to assess compatibility and associated health risks when placing sensitive receptors near existing pollution sources. CARB's recommendations on the siting of new sensitive land uses were based on a compilation of recent studies that evaluated data on the adverse health effects from proximity to air pollution sources. The key observation in these studies is that proximity to air pollution sources substantially increases exposure and the potential for adverse health effects. There are three carcinogenic toxic air contaminants that constitute the majority of the known health risks from motor vehicle traffic, DPM from trucks, and benzene and 1,3-butadiene from passenger vehicles. CARB recommendations are based on data that show that localized air pollution exposures can be reduced by as much as 80 percent by following CARB minimum distance separations.

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

BAAQMD is the agency responsible for ensuring that the National and California AAQS are attained and maintained in the SFBAAB. Air quality conditions in the SFBAAB have improved significantly since BAAQMD was created in 1955. BAAQMD prepares air quality management plans (AQMP) to attain ambient air quality standards in the SFBAAB. BAAQMD prepares ozone attainment plans for the National O_3 standard and clean air plans for the California O_3 standard BAAQMD prepares these air quality management plans in coordination with Association of Bay Area Governments (ABAG) and the Metropolitan Transportation Commission (MTC) to ensure consistent assumptions about regional growth.

2017 Clean Air Plan

BAAQMD adopted the 2017 Clean Air Plan, Spare the Air, Cool the Climate (2017 Clean Air Plan) on April 19, 2017, making it the most recently adopted comprehensive plan. The 2017 Clean Air Plan incorporates significant new scientific data, primarily in the form of updated emissions inventories, ambient measurements, new meteorological episodes, and new air quality modeling tools. The 2017 Clean Air Plan serves as an update to the adopted Bay Area 2010 Clean Air Plan and continues to provide the framework for SFBAAB to achieve attainment of the California and National AAQS. The 2017 Clean Air Plan updates the Bay Area's ozone plan, which is based on the "all feasible measures" approach to meet the requirements of the California Clean Air Act. Additionally, it sets a goal of reducing health risk impacts to local communities by 20 percent between 2015 and 2020. Furthermore the 2017 Clean Air Plan also lays the groundwork for reducing GHG emissions in the Bay Area to meet the State's 2030 GHG reduction target and 2050 GHG reduction goal. It also includes a vision for the Bay Area in a post-carbon year 2050 that encompasses the following (BAAQMD 2023a):

- Construct buildings that are energy efficient and powered by renewable energy.
- Walk, bicycle, and use public transit for the majority of trips and use electric-powered autonomous public transit fleets.
- Incubate and produce clean energy technologies.
- Live a low-carbon lifestyle by purchasing low-carbon foods and goods in addition to recycling and putting organic waste to productive use.

A multipollutant control strategy was developed to be implemented in the next three to five years to address public health and climate change and to set a pathway to achieve the 2050 vision. The control strategy includes 85 control measures to reduce emissions of ozone, particulate matter, TACs, and GHG from a full range of emission sources. These control measures cover the following sectors: 1) stationary (industrial) sources; 2) transportation; 3) energy; 4) agriculture; 5) natural and working lands; 6) waste management; 7) water; and 8) super-GHG pollutants.

The control strategy includes these key priorities:

- Reduce emissions of criteria air pollutants and toxic air contaminants from all key sources.
- Reduce emissions of "super-GHGs" such as methane, black carbon, and fluorinated gases.
- Decrease demand for fossil fuels (gasoline, diesel, and natural gas).
- Increase efficiency of the energy and transportation systems.
- Reduce demand for vehicle travel and high-carbon goods and services.
- Decarbonize the energy system.
- Make the electricity supply carbon-free.
- Electrify the transportation and building sectors.

Community Air Risk Evaluation (CARE) Program

The BAAQMD's Community Air Risk Evaluation (CARE) program was initiated in 2004 to evaluate and reduce health risks associated with exposure to outdoor TACs in the Bay Area, primarily DPM. The last update to this program was conducted in 2014. Based on findings of the 2014 report, DPM was found to account for approximately 85 percent of the cancer risk from airborne toxics. Carcinogenic compounds from gasoline-powered cars and light duty trucks were also identified as significant cancer risks: 1,3-butadiene contributed 4 percent of the cancer risk-weighted emissions and benzene contributed 3 percent. Collectively, five compounds—DPM, 1,3-butadiene, benzene, formaldehyde, and acetaldehyde—were found to be responsible for more than 90 percent of the cancer risk attributed to emissions. All of these compounds are associated with emissions from internal combustion engines. The most important sources of cancer risk–weighted emissions were combustion-related sources of DPM, including on-road mobile sources (31 percent), construction equipment (29 percent), and ships and harbor craft (13 percent). Overall, cancer risk from TACs dropped by more than 50 percent between 2005 and 2015, when emissions inputs accounted for State diesel regulations and other reductions (BAAQMD 2014).

The major contributor to acute and chronic noncancer health effects in the SFBAAB is acrolein (C_3H_4O). Major sources of acrolein are on-road mobile sources and aircraft near freeways and commercial and military airports

(BAAQMD 2006). Currently CARB does not have certified emission factors or an acrolein analytical test method for stationary sources. Since the appropriate tools needed to implement and enforce acrolein emission limits are not available, BAAQMD does not conduct health risk screening analysis for acrolein emissions (BAAQMD 2021).

Assembly Bill 617 Community Action Plans

AB 617 (C. Garcia, Chapter 136, Statues of 2017) was signed into law in July 2017 to develop a new community-focused program to more effectively reduce exposure to air pollution and preserve public health in environmental justice communities. AB 617 directs CARB and all local air districts to take measures to protect communities disproportionally impacted by air pollution by monitoring emissions and implementing air pollution control strategies.

On September 27, 2018, CARB approved BAAQMD's recommended communities for monitoring and emission-reduction planning. The State approved communities for year 1 of the program as well as communities that would move forward over the next five years. Bay Area recommendations included all the Community Air Risk Evaluation areas as well as areas with large sources of air pollution (refineries, seaports, airports, etc.), areas identified via statewide screening tools as having pollution and/or health burden vulnerability, and areas with low life expectancy (BAAQMD 2019a).

Year 1 Communities:

- West Oakland. The West Oakland community was selected for BAAQMD's first Community Action Plan. In 2017, cancer risk from sources in West Oakland (local sources) was 204 in a million. The primary sources of air pollution in West Oakland include heavy trucks and cars, port and rail sources, large industries, and, to a lesser extent, other sources such as residential sources (i.e., wood burning). The majority (over 90 percent) of cancer risk is from $DPM_{2.5}$ (BAAQMD 2019b).

- Richmond. Richmond was selected for a community monitoring plan in year 1 of the AB 617 program. The Richmond area is in western Contra Costa County and includes most of the City of Richmond and portions of El Cerrito. It also includes the following unincorporated areas in Contra Costa County: Bay View, East Richmond Heights, Rollingwood, Tara Hills, Montalvin Manor, North Richmond, and El Sobrante. The Path to Clean Air Plan (PTCA Plan) was adopted in April 2024 and includes strategies to reduce harmful air pollution emissions and exposure to PTCA communities. The Plan lays out a series of measures to be implemented over the next ten years by State, regional, and local agencies to reduce pollution in the community (BAAQMD 2024b).

- Year 2 to 5 Communities: East Oakland/San Leandro, Eastern San Francisco, the Pittsburg-Bay Point area, San Jose, Tri-Valley, and Vallejo are slated for action in years 2 to 5 of the AB 617 program (BAAQMD 2019a).

As identified above, AB 617 is not directly applicable to proposed project since BAAQMD has not currently designated the City of Calistoga as disproportionally impacted by air pollution in either the Year 1 or Year 2-to-5 communities.

Air District Rules and Regulations

Regulation 7, Odorous Substances

BAAQMD's Regulation 7, Odorous Substances, places general limitations on odorous substances and specific emission limitations on certain odorous compounds. Odors are also regulated under BAAQMD Regulation 1, Rule 1-301, *Public Nuisance*, which states that "no person shall discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance or annoyance to any considerable number of persons or the public; or which endangers the comfort, repose, health or safety of any such persons or the public, or which causes, or has a natural tendency to cause, injury or damage to business or property." Under BAAQMD 's Rule 1-301, a facility that receives three or more violation notices within a 30-day period can be declared a public nuisance.

Naturally Occurring Asbestos Program

To reduce public exposure to naturally occurring asbestos, BAAQMD places Airborne Toxic Control Measures to regulate all construction, maintenance, grading, and mining activities that could potentially produce dust containing naturally occurring asbestos (BAAQMD 2018) The Naturally Occurring Asbestos Program also requires the best available dust mitigation measures to be followed to reduce exposure to airborne asbestos (BAAQMD 2024c).

Other BAAQMD Regulations

In addition to the plans and programs described above, BAAQMD administers several specific regulations on various sources of pollutant emissions that would apply to future development constructed, including:

- Regulation 2, Rule 2, Permits, New Source Review
- Regulation 2, Rule 5, New Source Review of Toxic Air Contaminants
- Regulation 6, Rule 1, General Requirements
- Regulation 6, Rule 2, Commercial Cooking Equipment
- Regulation 8, Rule 3, Architectural Coatings
- Regulation 8, Rule 4, General Solvent and Surface Coatings Operations
- Regulation 11, Rule 2, Asbestos, Demolition, Renovation and Manufacturing

Plan Bay Area 2050

MTC and ABAG adopted Plan Bay Area 2050 on October 21, 2021 (ABAG & MTC 2021). Plan Bay Area provides transportation and environmental strategies to continue to meet the regional transportation-related GHG reduction goals of SB 375. Strategies to reduce GHG emissions include focusing housing and commercial construction in walkable, transit-accessible places; investing in transit and active transportation; and shifting the location of jobs to encourage shorter commutes. As part of the implementing framework for Plan Bay Area, local governments have identified Priority Development Areas (PDAs) and Transit Priority Areas (TPAs) to focus growth. PDAs are transit-oriented, infill development opportunity areas within existing communities. TPAs are half-mile buffers surrounding major transit stops or terminals. The project site is not located within a TPA or PDA.

Nitrogen Oxides from Natural Gas-Fired Furnaces, Boilers, and Water Heaters

BAAQMD adopted amendments to Regulation 9, Inorganic Gaseous Pollutants, Rule 4, Nitrogen Oxides from Natural Gas-Fired Furnaces (Rule 9-4) and Rule 6, Nitrogen Oxides Emissions from Natural Gas-Fired Boilers and Water Heaters (Rule 9-6). Space- and water-heating appliances generate a large portion of nitrogen oxide (NO_X) emissions from sources in the Bay Area. NO_X is a key criteria pollutant as a precursor to ozone and secondary particulate matter (PM) formation. The amendments would require more stringent NO_X emission standards for space- and water-heating appliances within BAAQMD's jurisdiction starting in year 2023 and would substantially reduce NO_X emissions from these appliances commonly found in single-family homes and commercial applications.

The amendments to Rules 9-4 and 9-6 include the following elements:

- Sales and installation of smaller water heaters and boilers (below 75,000 BTU/hour) must be zero emission, starting in 2027.
- Sales and installation of furnaces (heat input rate less than 175,000 BTU/hour) must be zero emission starting in 2029.
- Sales of larger water heaters and boilers (between 75,000 and 2 million BTU/hour) must be zero emission starting in 2031.
- Existing appliances can remain in operation, but the rule would apply once they need replacement.

Existing Conditions

SAN FRANCISCO BAY AREA BASIN CONDITIONS

The SFBAAB comprises all of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, and Santa Clara counties; the southern portion of Sonoma County; and the southwestern portion of Solano County. Air quality in the SFBAAB is determined by such natural factors as topography, meteorology, and climate in addition to the presence of existing air pollution sources and ambient conditions, as described below:[1]

Meteorology: The SFBAAB is characterized by complex terrain, consisting of coastal mountain ranges, inland valleys, and bays, that distorts normal wind flow patterns. The Coast Range2 splits in the Bay Area, creating a western coast gap, the Golden Gate, and an eastern coast gap, the Carquinez Strait, which allows air to flow in and out of the Bay Area and the Central Valley. The climate is dominated by the strength and location of a semipermanent, subtropical high-pressure cell. During the summer, the Pacific high-pressure cell is centered over the northeastern Pacific Ocean, resulting in stable meteorological conditions and a steady northwesterly wind flow. Upwelling of cold ocean water from below the surface because of the northwesterly flow produces a band of cold water off the California coast. The cool and moisture-laden air approaching the coast from the Pacific Ocean is further cooled by the presence of the cold-water band, resulting in condensation and the

[1] Bay Area Air Quality Management District, May 2017, *California Environmental Quality Act: Air Quality Guidelines*, https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en, accessed September 11, 2024.
[2] The Coast Ranges traverses California's west coast from Humboldt County to Santa Barbara County.

presence of fog and stratus clouds along the Northern California coast. In the winter, the Pacific high-pressure cell weakens and shifts southward, resulting in wind flow offshore, the absence of upwelling, and the occurrence of storms. Weak inversions coupled with moderate winds result in a low air pollution potential.

Predominant Wind Patterns: During the summer, winds flowing from the northwest are drawn inland through the Golden Gate and over the lower portions of the San Francisco Peninsula. Immediately south of Mount Tamalpais in Marin County, the northwesterly winds accelerate considerably and come more directly from the west as they stream through the Golden Gate. This channeling of wind through the Golden Gate produces a jet that sweeps eastward and splits off to the northwest toward Richmond and to the southwest toward San José when it meets the East Bay hills. Wind speeds may be strong locally in areas where air is channeled through a narrow opening such as the Carquinez Strait, the Golden Gate, or the San Bruno gap. The air flowing in from the coast to the Central Valley, called the sea breeze, begins developing at or near ground level along the coast in late morning or early afternoon, and the sea breeze deepens and increases in velocity while spreading inland. Under normal atmospheric conditions, the air in the lower atmosphere is warmer than the air above it. In the winter, stormy conditions with moderate to strong winds are frequent, as are periods of stagnation with very light winds. Winter stagnation episodes (i.e., conditions where there is little mixing because of little or no wind) are characterized by nighttime drainage flows in coastal valleys. Drainage is a reversal of the usual daytime air-flow patterns; air moves from the Central Valley toward the coast and back down toward the Bay from the smaller valleys within the SFBAAB.

Wind Circulation: Low wind speed contributes to the buildup of air pollution because it allows more pollutants to be emitted into the air mass per unit of time. Light winds occur most frequently during periods of low sun (fall and winter, and early morning) and at night. These are also periods when air pollutant emissions from some sources are at their peak—namely, commuter traffic (early morning) and wood-burning appliances (nighttime). The problem can be compounded in valleys, when weak flows carry the pollutants up-valley during the day, and cold air drainage flows move the air mass down-valley at night. Such restricted movement of trapped air provides little opportunity for ventilation and leads to buildup of pollutants to potentially unhealthful levels.

Inversions: An inversion is a layer of warmer air over a layer of cooler air. Inversions affect air quality conditions significantly because they influence the mixing depth (i.e., the vertical depth in the atmosphere available for diluting air contaminants near the ground). There are two types of inversions that occur regularly. Elevation inversions3 are more common in the summer and fall, and radiation inversions4 are more common during the winter. The highest air pollutant concentrations generally occur during inversions.

Temperature: Summer temperatures are determined in large part by the effect of differential heating between land and water surfaces. On summer afternoons, the temperatures at the coast can be 35 degrees Fahrenheit cooler than temperatures 15 to 20 miles inland; at night, this contrast usually decreases to less than 10 degrees

[3] When the air blows over elevated areas, it is heated as it is compressed into the side of the hill/mountain. When that warm air comes over the top, it is warmer than the cooler air of the valley.

[4] During the night, the ground cools off, radiating the heat to the sky.

Fahrenheit. In the winter, the relationship of minimum and maximum temperatures is reversed. During the day the temperature contrast between the coast and inland areas is small, and at night it is large.

Precipitation: The SFBAAB is characterized by moderately wet winters and dry summers. Winter rains (November through March) account for about 75 percent of the average annual rainfall. The amount of annual precipitation can vary greatly from one part of the SFBAAB to another, even within short distances. In general, total annual rainfall can reach 40 inches in the mountains, but it is often less than 16 inches in sheltered valleys. During rainy periods, ventilation (rapid horizontal movement of air and injection of cleaner air) and vertical mixing (an upward and downward movement of air) are usually high, and thus pollution levels tend to be low (i.e., air pollutants disperse more readily into the atmosphere rather than accumulate under stagnant conditions). However, during the winter, frequent dry periods do occur, where mixing and ventilation are low and pollutant levels build up.

ATTAINMENT STATUS OF THE SFBAAB

The AQMP provides the framework for air quality basins to achieve attainment of the State and federal AAQS through the State Implementation Plan. Areas that meet AAQS are classified as attainment areas, and areas that do not meet these standards are classified as nonattainment areas. Severity classifications for O3 range from marginal, moderate, and serious to severe and extreme.

- **Unclassified.** A pollutant is designated unclassified if the data are incomplete and do not support a designation of attainment or nonattainment.

- **Attainment.** A pollutant is in attainment if the AAQS for that pollutant was not violated at any site in the area during a three-year period.

- Nonattainment. A pollutant is in nonattainment if there was at least one violation of an AAQS for that pollutant in the area.

- **Nonattainment/Transitional.** A subcategory of the nonattainment designation. An area is designated nonattainment/transitional to signify that the area is close to attaining the AAQS for that pollutant.

The attainment status for the SFBAAB is shown in Table 4.2-3, *Attainment Status of Criteria Pollutants in the San* Francisco *Bay Area Air Basin.* The SFBAAB is currently designated a nonattainment area for California and National O_3, California and National $PM_{2.5}$, and California PM_{10} AAQS.

Table 3 Attainment Status of Criteria Pollutants in the San Francisco Bay Area Air Basin

Pollutant	State	Federal
Ozone – 1-hour	Nonattainment	Classification revoked (2005)
Ozone – 8-hour	Nonattainment (serious)	Nonattainment (marginal)[1]
PM_{10}	Nonattainment	Unclassified/ Attainment[2]
$PM_{2.5}$	Nonattainment	Unclassified/ Attainment
CO	Attainment	Attainment
NO_2	Attainment	Unclassified

Table 3 Attainment Status of Criteria Pollutants in the San Francisco Bay Area Air Basin

Pollutant	State	Federal
SO_2	Attainment	Attainment
Lead	Attainment	Attainment
Sulfates	Attainment	Unclassified/Attainment
All others	Unclassified/Attainment	Unclassified/Attainment

Sources: CARB 2020
1 Severity classification current as of February 13, 2017.
2 In December 2014, USEPA issued final area designations for the 2012 primary annual PM2.5 National AAQS. Areas designated "unclassifiable/attainment" must continue to take steps to prevent their air quality from deteriorating to unhealthy levels. The effective date of this standard is April 15, 2015.

EXISTING AMBIENT AIR QUALITY

Existing levels of ambient air quality and historical trends and projections in the vicinity of the city have been documented and measured by BAAQMD. BAAQMD has 30 operational monitoring stations around the Bay Area (BAAQMD 2024d) The nearest station to the project site is the Napa-Valley College Monitoring Station, which monitors O_3, NO_2, PM_{10}, and $PM_{2.5}$. Data from these monitoring stations are summarized in Table 4, *Ambient Air Quality Monitoring Summary*, and shows occasional violations of the federal $PM_{2.5}$ standard. Based on BAAQMD's Impacted Communities Map, the City of Calistoga is not within a 24-hour $PM_{2.5}$ or 8-hour Ozone exceedance area (BAAQMD 2024e).

Table 4 Ambient Air Quality Monitoring Summary

Pollutant/Standard	Number of Days Threshold Were Exceeded and Maximum Levels during Such Violations[1]		
	2019	2020	2021
Ozone (O_3)			
State 1-Hour ≥ 0.09 ppm (days exceed threshold)	1	0	0
State & Federal 8-hour ≥ 0.070 ppm (days exceed threshold)	2	1	0
Max. 1-Hour Conc. (ppm)	0.095	0.091	0.070
Max. 8-Hour Conc. (ppm)	0.077	0.077	0.064
Fine Particulates ($PM_{2.5}$)			
Federal 24-Hour > 35 µg/m^3 (days exceed threshold)	0	14	*
Max. 24-Hour Conc. (µg/m^3)	21.5	148.5	17.6
Coarse Particulates (PM_{10})			
State 24-Hour > 50 µg/m^3 (days exceed threshold)	0	2	0
Federal 24-Hour > 150 µg/m^3 (days exceed threshold)	0	0	0
Max. 24-Hour Conc. (µg/m^3)	37.5	122.9	22.9
Nitrogen Dioxide (NO_2)			
State 1-Hour >0.18 ppm (days exceed threshold)	0	0	0
Federal 1-Hour > 0.100 ppm (days exceed threshold)	0	0	0
Max. 1-Hour Conc. (ppm)	0.0366	0.0299	0.029

Source: CARB 2024h.
Notes: ppm = parts per million; ppb = parts per billion; µg/m^3 = micrograms per cubic meter; * = Data not available
1 Most recent data available as of November 2024.
* Insufficient data available

SENSITIVE RECEPTORS

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

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

Thresholds of Significance

BAY AREA AIR QUALITY MANAGEMENT DISTRICT THRESHOLDS

BAAQMD's 2022 CEQA Air Quality Guidelines were prepared to assist in the evaluation of air quality impacts of projects and plans proposed within the Bay Area. The guidelines provide recommended procedures for evaluating potential air impacts during the environmental review process, consistent with CEQA requirements, and include recommended thresholds of significance, mitigation measures, and background air quality information. They also include recommended assessment methodologies for air toxics, odors, GHG emissions, and environmental justice.

In June 2010, BAAQMD's Board of Directors adopted CEQA thresholds of significance and an update of the CEQA Guidelines. These thresholds are designed to establish the level at which BAAQMD believed air pollution emissions would cause significant environmental impacts under CEQA. BAAQMD published a new version of the Guidelines dated April 2023. This latest version of BAAQMD CEQA Guidelines was used to prepare the analysis in this IS/MND.

Clean Air Plan Consistency

Under its project-level review criteria, BAAQMD recommends a consistency evaluation of the project with its current AQP control measures. BAAQMD considers a project to be consistent with the applicable AQP, which is currently the 2017 Clean Air Plan, if it is consistent with these considerations:

- Does the project support the primary goals of the AQP?
- Does the project include applicable control measures from the AQP?

- Does the project disrupt or hinder implementation of any AQP control measure?

Criteria Air Pollutant Emissions and Precursors

Regional Significance Criteria

BAAQMD's regional significance criteria for projects that exceed the screening thresholds are shown in Table 5, BAAQMD Regional (Mass Emissions) Criteria Air Pollutant Significance Thresholds. Criteria for both the construction and operational phases of the project are shown.

Table 5 BAAQMD Regional (Mass Emissions) Criteria Air Pollutant Significance Thresholds

	Construction Phase	Operational Phase	
Air Pollutant	Average Daily Emissions (lbs/day)	Average Daily Emissions (lbs/day)	Maximum Annual Emissions (tons/year)
ROG	54	54	10
NO_X	54	54	10
PM_{10}	82 (Exhaust)	82	15
$PM_{2.5}$	54 (Exhaust)	54	10
PM_{10} and $PM_{2.5}$ Fugitive Dust	Best Management Practices	None	None

Source: BAAQMD 2023b

If projects exceed the emissions in Table 4.1-5, that project would cumulatively contribute to the nonattainment status and would contribute to elevating health effects associated with these criteria air pollutants. Known health effects related to ozone include worsening of bronchitis, asthma, and emphysema, and a decrease in lung function. Health effects associated with particulate matter include premature death of people with heart or lung disease, nonfatal heart attacks, irregular heartbeat, decreased lung function, and increased respiratory symptoms. Reducing emissions would further contribute to reducing possible health effects related to criteria air pollutants.

However, for projects that exceed the emissions in Table 4.1-5, it is speculative to determine how exceeding the regional thresholds would affect the number of days the region is in nonattainment since mass emissions are not correlated with concentrations of emissions or how many additional individuals in the SFBAAB would be affected by the health effects cited previously. BAAQMD is the primary agency responsible for ensuring the health and welfare of sensitive individuals to elevated concentrations of air quality in the SFBAAB and at the present time, it has not provided methodology to assess the specific correlation between mass emissions generated and the effect on health in order to address the issue raised in *Sierra Club v. County of Fresno (Friant Ranch, L.P.) (2018) 6 Cal.5th 502, Case No. S21978* (Friant Ranch).

Ozone concentrations depend on a variety of complex factors, including the presence of sunlight and precursor pollutants, natural topography, nearby structures that cause building downwash, atmospheric stability, and wind patterns. Because of the complexities of predicting ground-level ozone concentrations in relation to the national AAQS and California AAQS, it is not possible to link health risks to the magnitude of emissions exceeding the significance thresholds. To achieve the health-based standards established by the EPA, the air districts prepare air quality management plans that detail regional programs to attain the AAQS. However, if the proposed project exceeds the regional significance thresholds, it could contribute to an increase in health effects in the basin until such time the attainment standards are met in the SFBAAB.

CO Hotspots

Congested intersections have the potential to create elevated concentrations of CO, referred to as CO hotspots. The significance criteria for CO hotspots are based on the California AAQS for CO, which are 9.0 ppm (8-hour average) and 20.0 ppm (1-hour average). With the turnover of older vehicles, introduction of cleaner fuels, and implementation of control technology, the SFBAAB is in attainment of the California and national AAQS, and CO concentrations in the SFBAAB have steadily declined. Because CO concentrations have improved, BAAQMD does not require a CO hotspot analysis if the following criteria are met:

The project is consistent with an applicable congestion management program established by the County Congestion Management Agency for designated roads or highways, the regional transportation plan, and local congestion management agency plans.

The project would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour.

The project traffic would not increase traffic volumes at affected intersection to more than 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (e.g., tunnel, parking garage, bridge underpass, natural or urban street canyon, below-grade roadway).

Community Risk and Hazards

BAAQMD's significance thresholds for local community risk and hazard impacts apply to both the siting of a new source and to the siting of a new sensitive receptor. Local community risk and hazard impacts are associated with TACs and $PM_{2.5}$ because emissions of these pollutants can have significant health impacts at the local level. The proposed mixed-use development would generate TACs and $PM_{2.5}$ during construction activities that could elevate concentrations of air pollutants at the nearby sensitive receptors. The thresholds for construction-related local community risk and hazard impacts are the same as for project operations. BAAQMD has adopted screening tables for air toxics evaluation during construction. Construction-related TAC and $PM_{2.5}$ impacts should be addressed on a case-by-case basis, taking into consideration the specific construction-related characteristics of each project and proximity to off-site and on-site receptors, as applicable (BAAQMD 2023b).

Community Risk and Hazards: Project

Project-level emissions of TACs or $PM_{2.5}$ from individual sources that exceed any of the thresholds listed below are considered a potentially significant community health risk:

- An excess (i.e., increased) cancer risk level of more than 6 in one million
- Noncancer (i.e., chronic or acute) hazard index greater than 1.0
- An incremental increase of greater than 0.3 micrograms per cubic meter ($\mu g/m^3$) annual average $PM_{2.5}$ (BAAQMD 2023b).

Community Risk and Hazards: Cumulative

Cumulative sources represent the combined total risk values of each of the individual sources within the 1,000-foot evaluation zone. A project would have a cumulatively considerable impact if the total of all past, present, and foreseeable future sources within a 1,000-foot radius from the fence line of a source or location of a receptor, plus the contribution from the project, exceeds any of the following in the absence of a qualified community risk reduction plan:

- An excess cancer risk level of more than 100 in one million (from all sources)
- Chronic noncancer hazard index (from all local sources) greater than 10.0
- 0.8 $\mu g/m^3$ annual average $PM_{2.5}$ (from all local sources) (BAAQMD 2023b).

In February 2015, the Office of Environmental Health Hazard Assessment (OEHHA) adopted new health risk assessment guidance that includes several efforts to be more protective of children's health. These updated procedures include the use of age sensitivity factors to account for the higher sensitivity of infants and young children to cancer-causing chemicals, and age-specific breathing rate (OEHHA 2015).

GREENHOUSE GAS EMISSIONS

Scientists have concluded that human activities are contributing to global climate change by adding large amounts of heat-trapping gases, known as GHG, to the atmosphere. Climate change is the variation of Earth's climate over time, whether due to natural variability or as a result of human activities. The primary source of these GHG is fossil fuel use. The Intergovernmental Panel on Climate Change (IPCC) has identified four major GHG—water vapor,[5] carbon (CO_2), methane (CH_4), and ozone (O_3)—that are the likely cause of an increase in global average temperatures observed within the 20th and 21st centuries. Other GHG identified by the IPCC that contribute to global warming to a lesser extent include nitrous oxide (N_2O), sulfur hexafluoride (SF_6), hydrofluorocarbons, perfluorocarbons, and chlorofluorocarbons (IPCC 2001).[6] The major GHG are briefly described below.

- **Carbon dioxide (CO_2)** enters the atmosphere through the burning of fossil fuels (oil, natural gas, and coal), solid waste, trees and wood products, and respiration, and also as a result of other chemical reactions (e.g. manufacture of cement). Carbon dioxide is removed from the atmosphere (sequestered) when it is absorbed by plants as part of the biological carbon cycle.

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

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

- **Methane (CH_4)** is emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from livestock and other agricultural practices and from the decay of organic waste in municipal landfills and water treatment facilities.

- **Nitrous oxide (N_2O)** is emitted during agricultural and industrial activities as well as during combustion of fossil fuels and solid waste.

- **Fluorinated gases** are synthetic, strong GHGs that are emitted from a variety of industrial processes. Fluorinated gases are sometimes used as substitutes for ozone-depleting substances. These gases are typically emitted in smaller quantities, but because they are potent GHGs, they are sometimes referred to as high global-warming-potential (GWP) gases.

  - ***Chlorofluorocarbons (CFCs***) are GHGs covered under the 1987 Montreal Protocol and used for refrigeration, air conditioning, packaging, insulation, solvents, or aerosol propellants. Since they are not destroyed in the lower atmosphere (troposphere, stratosphere), CFCs drift into the upper atmosphere where, given suitable conditions, they break down ozone. These gases are also ozone-depleting gases and are therefore being replaced by other compounds that are GHGs covered under the Kyoto Protocol.

  - ***Perfluorocarbons (PFCs)*** are a group of human-made chemicals composed of carbon and fluorine only. These chemicals (predominantly perfluoromethane [CF_4] and perfluoroethane [C_2F_6]) were introduced as alternatives, along with HFCs, to the ozone-depleting substances. In addition, PFCs are emitted as by-products of industrial processes and are used in manufacturing. PFCs do not harm the stratospheric ozone layer, but they have a high global warming potential.

  - ***Sulfur Hexafluoride (SF_6)*** is a colorless gas soluble in alcohol and ether, slightly soluble in water. SF_6 is a strong GHG used primarily in electrical transmission and distribution systems as an insulator.

  - ***Hydrochlorofluorocarbons (HCFCs)*** contain hydrogen, fluorine, chlorine, and carbon atoms. Although ozone-depleting substances, they are less potent at destroying stratospheric ozone than CFCs. They have been introduced as temporary replacements for CFCs and are also GHGs.

  - ***Hydrofluorocarbons (HFCs)*** contain only hydrogen, fluorine, and carbon atoms. They were introduced as alternatives to ozone-depleting substances to serve many industrial, commercial, and personal needs. HFCs are emitted as by-products of industrial processes and are also used in manufacturing. They do not significantly deplete the stratospheric ozone layer, but they are strong GHGs (IPCC 2001).

GHGs are dependent on the lifetime or persistence of the gas molecule in the atmosphere. Some GHGs have stronger greenhouse effects than others. These are referred to as high GWP gases. The GWP of GHG emissions are shown in Table 6, *GHG Emissions and Their Relative Global Warming Potential Compared to CO_2*. The GWP is used to convert GHGs to CO_2-equivalence (CO_2e) to show the relative potential that different GHGs have to retain infrared radiation in the atmosphere and contribute to the greenhouse effect. For example, under

IPCC's Fifth Assessment Report (AR5) GWP values for CH_4, a project that generates 10 MT of CH_4 would be equivalent to 280 MT of CO_2.[7]

Table 6 GHG Emissions and Their Relative Global Warming Potential Compared to CO_2

GHGs	Fourth Assessment Report (AR4) Global Warming Potential Relative to CO_2[1]	Fifth Assessment Report (AR5) Global Warming Potential Relative to CO_2[1]	Sixth Assessment Report (AR6) Global Warming Potential Relative to CO_2[1]
Carbon Dioxide (CO_2)	1	1	1
Methane[2] (CH_4)	25	28	30
Nitrous Oxide (N_2O)	298	265	273

Source: IPCC 2007, 2013, and 2023.
Notes: The IPCC published updated GWP values in its Sixth Assessment Report (AR6) that reflect latest information on atmospheric lifetimes of GHGs and an improved calculation of the radiative forcing of CO_2. However, GWP values identified in AR5 are used by the 2022 Scoping Plan for long-term emissions forecasting.
1 Based on 100-year time horizon of the GWP of the air pollutant compared to CO_2.
2 The methane GWP includes direct effects and indirect effects due to the production of tropospheric ozone and stratospheric water vapor. The indirect effect due to the production of CO_2 is not included.

GHG Regulatory Setting

REGULATION OF GHG EMISSIONS ON A NATIONAL LEVEL

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

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

US Mandatory Report Rule for GHGs (2009)

In response to the endangerment finding, the EPA issued the Mandatory Reporting of GHG Rule that requires substantial emitters of GHG emissions (large stationary sources, etc.) to report GHG emissions data. Facilities that emit 25,000 MT or more of CO_2 per year are required to submit an annual report.

7 The global warming potential of a GHG is dependent on the lifetime, or persistence, of the gas molecule in the atmosphere.

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

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

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

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

Pursuant to its authority under the Clean Air Act, the EPA has developed regulations for new, large, stationary sources of emissions, such as power plants and refineries. Under former President Obama's 2013 Climate Action Plan, the EPA was directed to develop regulations for existing stationary sources as well. On June 19, 2019, the EPA issued the final Affordable Clean Energy (ACE) rule, which became effective on August 19, 2019. The ACE rule was crafted under the direction of President Trump's Energy Independence EO. It officially rescinded the Clean Power Plan rule issued during the Obama Administration and set emissions guidelines for states in developing plans to limit CO_2 emissions from coal-fired power plants. The Affordable Clean Energy rule was vacated by the United States Court of Appeals for the District of Columbia Circuit on January 19, 2021. The Biden Administration is assessing options on potential future regulations.

REGULATION OF GHG EMISSIONS ON A STATE LEVEL

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

Executive Order S-3-05

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

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

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

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

Executive Order B-30-15

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

Senate Bill 32 and Assembly Bill 197

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

Executive Order B-55-18

Executive Order B-55-18, signed September 10, 2018, set a goal "to achieve carbon neutrality as soon as possible, and no later than 2045, and achieve and maintain net negative emissions thereafter." Executive Order B-55-18 directs CARB to work with relevant state agencies to ensure that future Scoping Plans identify and recommend measures to achieve the carbon neutrality goal. The goal of carbon neutrality by 2045 is in addition to other statewide goals, meaning that not only should emissions be reduced to 80 percent below 1990 levels by 2050, but that, by no later than 2045, the remaining emissions should be offset by equivalent net removals of CO_2e from the atmosphere, including through sequestration in forests, soils, and other natural landscapes.

Assembly Bill 1279

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

2022 Climate Change Scoping Plan

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

The path forward was informed by the recent Sixth Assessment Report (AR6) of the IPCC and the measures would achieve 85 percent below 1990 levels by 2045 in accordance AB 1279. CARB's 2022 Scoping Plan identifies strategies as shown in Table 7, *Priority Strategies for Local Government Climate Action Plans*, that would be most impactful at the local level for ensuring substantial process towards the State's carbon neutrality goals.

Table 7 Priority Strategies for Local Government Climate Action Plans

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

Source: CARB 2022a.

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

- Transportation Electrification
  - Provide EV charging infrastructure that, at a minimum, meets the most ambitious voluntary standards in the California Green Building Standards Code at the time of project approval.
- VMT Reduction
  - Is located on infill sites that are surrounded by existing urban uses and reuses or redevelops previously undeveloped or underutilized land that is presently served by existing utilities and essential public services (e.g., transit, streets, water, sewer).
  - Does not result in the loss or conversion of the State's natural and working lands;
  - Consists of transit-supportive densities (minimum of 20 residential dwelling units/acre), or is in proximity to existing transit stops (within a half mile), or satisfies more detailed and stringent criteria specified in the region's Sustainable Communities Strategy (SCS);
  - Reduces parking requirements by:
    - Eliminating parking requirements or including maximum allowable parking ratios (i.e., the ratio of parking spaces to residential units or square feet); or
    - Providing residential parking supply at a ratio of <1 parking space per dwelling unit; or
    - For multifamily residential development, requiring parking costs to be unbundled from costs to rent or own a residential unit.
  - At least 20 percent of the units are affordable to lower-income residents;
  - Result in no net loss of existing affordable units.
- Building Decarbonization
  - Use all electric appliances without any natural gas connections and does not use propane or other fossil fuels for space heating, water heating, or indoor cooking (CARB 2022a).

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

Senate Bill 375

In 2008, SB 375, the Sustainable Communities and Climate Protection Act, was adopted to connect the GHG emissions reductions targets established in the 2008 Scoping Plan for the transportation sector to local land use decisions that affect travel behavior. Its intent is to reduce GHG emissions from light-duty trucks and automobiles (excludes emissions associated with goods movement) by aligning regional long-range transportation plans, investments, and housing allocations to local land use planning to reduce VMT and vehicle trips. Specifically, SB 375 required CARB to establish GHG emissions reduction targets for each of the 18 metropolitan planning organizations (MPO). The Tulare County Association of Governments (TCAG) is the MPO that serves Tulare County; it shares its borders with the County.

Pursuant to the recommendations of the Regional Transportation Advisory Committee, CARB adopted per capita reduction targets for each of the MPOs rather than a total magnitude reduction target. SCAG's targets are an 8 percent per capita reduction from 2005 GHG emission levels by 2020 and a 13 percent per capita reduction from 2005 GHG emission levels by 2035 (CARB 2010). The 2020 targets are smaller than the 2035 targets because a significant portion of the built environment in 2020 is defined by decisions that have already been made. In general, the 2020 scenarios reflect that more time is needed for large land use and transportation infrastructure changes. Most of the reductions in the interim are anticipated to come from improving the efficiency of the region's transportation network. The targets would result in 3 $MMTCO_2e$ of reductions by 2020 and 15 $MMTCO_2e$ of reductions by 2035. Based on these reductions, the passenger vehicle target in CARB's Scoping Plan (for AB 32) would be met (CARB 2010).

2017 Update to the SB 375 Targets

CARB is required to update the targets for the MPOs every eight years. CARB adopted revised SB 375 targets for the MPOs in March 2018. The updated targets became effective in October2018. All SCSs adopted after October 1, 2018, are subject to these new targets. CARB's updated SB 375 targets for the SCAG region were an 8 percent per capita GHG reduction in 2020 from 2005 levels (unchanged from the 2010 target) and a 19 percent per capita GHG reduction in 2035 from 2005 levels (compared to the 2010 target of 13 percent) (CARB 2018).

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

Transportation Sector Specific Regulations

Assembly Bill 1493

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

Executive Order S-01-07

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

Executive Order B-16-2012

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

Executive Order N-79-20

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

Renewables Portfolio: Carbon Neutrality Regulations

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

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

Senate Bill 350

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

Senate Bill 100

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

Energy Efficiency Regulations

California Building Code: Building Energy Efficiency Standards

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

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

California Building Code: CALGreen

On July 17, 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (24 CCR, Part 11, known as "CALGreen") was adopted as part of the California Building Standards Code. CALGreen established planning and design standards for sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and internal air contaminants.[8] The mandatory provisions of CALGreen became effective January 1, 2011. In 2021, the CEC approved the 2022 CALGreen, which went into effect on January 1, 2023, replacing the existing 2019 standards.

2006 Appliance Efficiency Regulations

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

Solid Waste Diversion Regulations

AB 939: Integrated Waste Management Act of 1989

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

AB 341

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

AB 1327

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

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

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

AB 1826

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

Water Efficiency Regulations

SBX7-7

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

AB 1881: Water Conservation in Landscaping Act

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

Short-Lived Climate Pollutant Reduction Strategy

Senate Bill 1383

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

CALIFORNIA'S GREENHOUSE GAS SOURCES AND RELATIVE CONTRIBUTION

In 2022, the statewide GHG emissions inventory was updated for 2000 to 2020 emissions using the GWPs in IPCC's AR4, and reported that California produced 369.2 $MMTCO_2e$ GHG emissions in 2020 (CARB 2022b), which was 35.3 $MMTCO_2e$ lower than 2019 levels and 61.8 $MMTCO_2e$ below the 2020 GHG Limit of 431 $MMTCO_2e$. The 2019 to 2020 decrease in emissions is likely due in large part to the impacts of the COVID-19 pandemic. However, since the peak level in 2004, California's GHG emissions have generally followed a decreasing trend. In 2014, statewide GHG emissions dropped below the 2020 GHG Limit and have remained below the Limit since that time. Per capita GHG emissions in California have dropped from a 2001 peak of 13.8 metric tons per person to 9.3 metric tons per person in 2020, a 33-percent decrease (CARB 2022b).

California's transportation sector remains the largest generator of GHG emissions, producing 37 percent of the state's total emissions in 2020. Industrial sector emissions made up 20 percent and electric power generation made up 16 percent of the state's emissions inventory. Other major sectors of GHG emissions include commercial and residential (4 percent), agriculture and forestry (8.6 percent), high-GWP gases (5.8 percent), and recycling and waste (2 percent) (CARB 2022b).

Transportation emissions continued to decline for the past three consecutive years with the rise of fuel efficiency for the passenger vehicle fleet and an increase in battery electric vehicles. The deployment of renewable and less carbon-intensive resources and higher energy efficiency standards have facilitated the continuing decline in fossil fuel electricity generation. The industrial sector trend has been relatively flat in recent years but saw a decrease of 7.1 $MMTCO_2e$ in 2020. Commercial and residential emissions saw a decrease of 1.7 $MMTCO_2e$. Emissions from high-GWP gases have continued to increase as they replace ozone depleting substance (ODS) that are being phased out under the 1987 Montreal Protocol. Emissions from other sectors have remained relatively constant in recent years. Overall trends in the inventory also continue to demonstrate that the carbon intensity of California's economy (i.e., the amount of carbon pollution per million dollars of gross domestic product [GDP]) is declining. From 2000 to 2020, the carbon intensity of California's economy decreased by 49 percent while the GDP increased by 56 percent (CARB 2022b).

Thresholds of Significance

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

1. The extent to which the project may increase (or reduce) GHG emissions as compared to the existing environmental setting;
2. Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project;

3. The extent to which the project complies with regulations or requirements adopted to implement an adopted statewide, regional, or local plan for the reduction or mitigation of GHG emissions.[9]

BAAQMD 2022 CEQA AIR QUALITY GUIDELINES

BAAQMD's CEQA Thresholds for Evaluating the Significance of Climate Impacts from Land Use Projects and Plans (2022) contains instructions on how to evaluate, measure, and mitigate GHG impacts generated from land use development projects. For purposes of this analysis, the latest BAAQMD's GHG project-level significance thresholds were used to evaluate the proposed mixed-use development's potential impacts related to GHG emissions.

In April 2023, BAAQMD adopted the 2022 CEQA Air Quality Guidelines (Guidelines), which supersedes BAAQMD's previous 2017 CEQA Guidance titled BAAQMD CEQA Air Quality Guidelines. These updated Guidelines contain instructions for how a lead agency can evaluate, measure, and mitigate air quality and climate impacts generated from land use construction and operational activities. As identified in BAAQMD's Guidelines, short-term construction activities are one-time emissions that would not substantially contribute to GHG emissions impacts. For operational phase impacts, BAAQMD identified that projects consistent with a local GHG reduction strategy that meets the criteria under CEQA Guidelines Section 15183.5(b) would contribute their fair share of what will be required to achieve the state's long-term climate goals. If no local GHG reduction strategy is applicable to a proposed project, cumulative GHG emissions impacts are based on incorporation of the following project design elements:

1. Buildings

- The project would not include natural gas appliances or natural gas plumbing (in both residential and nonresidential development).

- The project would not result in any wasteful, inefficient, or unnecessary energy usage as determined by the analysis required under CEQA Section 21100(b)(3) and Section 15126.2(b) of the State CEQA Guidelines.

2. Transportation

- The project will achieve a reduction in project-generated vehicle miles traveled (VMT) below the regional average consistent with the current version of the California Climate Change Scoping Plan or meet a locally adopted SB 743 VMT target that reflects the recommendations provided in the Governor's Office of Planning and Research's Technical Advisory on Evaluating Transportation Impacts in CEQA.

    - Residential projects: 15 percent below the existing VMT per capita

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

- Office projects: 15 percent below the existing VMT per employee
- Retail projects: no net increase in existing VMT

- The project will achieve compliance with off-street EV requirements in the most recently adopted version of CALGreen Tier 2.

If a project includes, at a minimum, these design elements, there would be a less-than-significant climate impact related to GHG emissions, and that project would not be likely to conflict with applicable initiatives to reduce GHG emissions. The rationale, justification, and substantial evidence supporting this conclusion can be found in Appendix B, CEQA Thresholds for Evaluating the Significance of Climate Impacts From Land Use Projects and Plans, of BAAQMD's 2022 CEQA Air Quality Guidelines.

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CalEEMod Inputs- Calistoga High School Junior-Senior High School Project, Construction

Name:	Calistoga High School Junior-Senior High School Projectt, Construction
Project Number:	CALI-02
Project Location:	1608 Lake St, Calistoga, CA 94515
County/Air Basin:	Napa
Climate Zone:	2
Land Use Setting:	Rural
Operational Year:	2025
Utility Company:	Pacific Gas and Electric
Air Basin:	San Francisco Bay Area
Air District:	Bay Area AQMD

Project Site Acreage	13.70	(Entire School Campus)
Disturbed Site Acreage	4.44	

Demolition	*SQFT*	*Amount of Debris*
Asphalt Demolition (Tons)	7,077	598
Project Components	**SQFT**	**Acres**
Buildings	*2,592*	*0.06*
Concessions/Restroom Building	960	0.02
Storage/Restroom Building	1,440	0.03
Press Box	192	0.00
Track and Field	*188,101*	*4.32*
Asphalt Surfaces	71,969	1.65
Hardscape	12,247	0.28
Landscaping	18,133	0.42
Synthetic Turf	85,752	1.97
TOTALS	**190,693**	**4.38**

CalEEMod Land Use Inputs

Land Use Type	Land Use Subtype	Unit Amount	Size Metric	Lot Acreage	Land Use Square Feet	Landscaped Area	Special Landscaped Area
Educational	High School	2.59	1000 sqft	0.48	2,592	18,133	85,752
Parking	Other Non-Asphalt Surfaces	12.25	1000 sqft	0.28	12,247	0	0
Parking	Other Asphalt Surfaces	71.97	1000 sqft	1.65	71,969	0	0

Demolition

Component	Amount to be Demolished (tons)[1]	Haul Truck Capacity	Haul Distance (miles)	Total Trip Ends	Duration (days)	Trip Ends Per Day
Asphalt	598	20	20	60	12	5
Total	598			60		5

Notes:
[1] Derived from Applicant-provided data.

Soil Haul

Construction Activities	Volume (CY)1	Haul Truck Capacity (cy)	Haul Distance (miles)	Total Trip Ends	Duration (days)	Trip Ends per Day
Grading Export	7,862	16	20	983	3	328
Grading Import	43	16	20	5	3	2
					TOTAL	329

Notes:
[1] Derived from Applicant-provided data

Architectural Coating

	Percent Painted
Interior Painted:	100%
Exterior Painted:	100%

Rule 1113

Interior Paint VOC Content:	50	grams per liter
Exterior Paint VOC Content:	50	grams per liter
Parking Paint VOC Content:	100	grams per liter

Structures	Land Use Square Feet	CalEEMod Factor[2]	Total Paintable Surface Area	Paintable Interior Area[1]	Paintable Exterior Area[1]
Non-Residential Structures					
High School	2,592	2.0	5,184	3,888	1,296
			5,184	**3,888**	**1,296**
Parking					
Other Non-Asphalt Surfaces	12,247	6%	735	-	735
Other Asphalt Surfaces	71,969	6%	4,318	-	4,318
			5,053		5,053

Notes

[1] CalEEMod methodology calculates the paintable interior and exterior areas by multiplying the total paintable surface area by 75 and 25 percent, respectively.

[2] The program assumes the total surface for painting equals 2.7 times the floor square footage for residential and 2 times that for nonresidential square footage defined by the user.

[3] Assumes that all parking and non-parking asphalt will be striped. CalEEMod methodology assumes 6% of surface area is striped.

Construction Mitigation

BAAQMD Best Management Practices[1]

Replace Ground Cover	PM_{10}:	5	% Reduction
	$PM_{2.5}$:	5	% Reduction
Water Exposed Area	Frequency:	2	per day
	PM_{10}:	61	% Reduction
	$PM_{2.5}$:	61	% Reduction
Unpaved Roads	Vehicle Speed:	25	mph

[1] *These two measures from BAAQMD's list of Basic BMPs are applied in the unmitigated modeling scenario per recommendations in the BAAQMD's 2022 CEQA Guidelines.*

Pacific Gas and Electric Intensity Factors

Forecasted Year	2025	
CO2:[1,2]	203.98	pounds per megawatt hour
CH4:[3]	0.033	pound per megawatt hour
N2O:[3]	0.004	pound per megawatt hour

[1] Based on CO_2e intensity factor of 203.98 pounds per megawatt hour; PG&E 2024. 2024 Corporate Sustainability Report.
[2] Based on Intergovernmental Panel on Climate Change Fourth Assessment Report global warming potentials for CH4 and N2O; Intergovernmental Panel on Climate Change (IPCC).
[3] CalEEMod default values.

Pavement Volume to Weight Conversion

Component	Total SF of Area[1]	Assumed Thickness (foot)[2]	Debris Volume (cu. ft)	Weight of Crushed Asphalt (lbs/cf)[3]	AC Mass (lbs)	AC Mass (tons)
Asphalt Demolition	7,077	0.333	2,359	89	209,689	104.84
Total	7,077					105

[1] Based on aerial image of existing project site.

[2] Pavements and Surface Materials. Nonpoint Education for Municipal Officials, Technical Paper Number 8. University of Connecticut Cooperative Extension System, 1999.

[3] CalRecycle, 2019. Calculations, Solid Waste Cleanup Program Weights and Volumes for Project Estmates. https://www.delmar.ca.us/DocumentCenter/View/5668/CalRecycle-Conversion-Table

Construction Activities and Schedule Assumptions

* based on schedule provided by District

CalEEMod Default Construction Schedule

Construction Activities	Phase Type	Start Date	End Date	CalEEMod Duration (Workday)
Demolition	Demolition	4/1/2025	4/29/2025	20
Site Preparation	Site Preparation	4/30/2025	5/2/2025	2
Grading	Grading	5/3/2025	5/8/2025	4
Building Construction	Building Construction	5/9/2025	2/13/2026	200
Paving	Paving	2/14/2026	2/28/2026	10
Architectural Coating	Architectural Coating	3/1/2026	3/15/2026	10
			Total Days	**246**

Normalization Calculations *

CalEEMod Defaults Construction Duration	
348	days of construction
0.95	years of construction
11.44	months of construction

Assumed Construction Duration	
4/1/2025	10/31/2025
213	days
7.00	months
Norm Factor: 0.61	

Normalized CalEEMod Construction Schedule

Construction Activities	Phase Type	Start Date	End Date	CalEEMod Duration (Workday)
Demolition	Demolition	4/1/2025	4/16/2025	12
Site Preparation	Site Preparation	4/17/2025	4/17/2025	1
Grading	Grading	4/18/2025	4/21/2025	2
Building Construction	Building Construction	4/22/2025	10/8/2025	122
Paving	Paving	10/9/2025	10/16/2025	6
Architectural Coating	Architectural Coating	10/17/2025	10/24/2025	6

Overlapping Construction Schedule

Construction Activities	Phase Type	Start Date	End Date	CalEEMod Duration (Workday)
Demolition	Demolition	4/1/2025	4/16/2025	12
Site Preparation	Site Preparation	4/17/2025	4/17/2025	1
Grading	Grading	4/18/2025	4/21/2025	2
Building Construction	Building Construction	4/22/2025	10/24/2025	134
Paving	Paving	10/18/2025	10/24/2025	5
Architectural Coating	Architectural Coating	10/18/2025	10/24/2025	5

CalEEMod Construction Off-Road Equipment Inputs

Source: CalEEMod defualts (except where noted).

Construction Equipment Details					
Equipment	**# of Equipment**	**hr/day**	**hp**	**load factor***	**total trips per day**
Demolition					
Concrete/Industrial Saws	1	8	33	0.73	
Rubber Tired Dozers	1	8	367	0.4	
Tractors/Loaders/Backhoes	3	8	84	0.37	
Worker Trips					13
Vendor Trips					2
Total Vendor Trips (Vendor + Water Truck)					12
Hauling Trips					5
Water Trucks		Acres Disturbed:	2.0		10
		Onsite Travel (mi/day)	1.65		
Site Preparation					
Rubber Tired Dozers	1	7	367	0.4	
Graders	1	8	148	0.41	
Tractors/Loaders/Backhoes	1	8	84	0.37	
Worker Trips					8
Vendor Trips					1
Total Vendor Trips (Vendor + Water Truck)					9
Hauling Trips					0
Water Trucks		Acres Disturbed:	1.4375		8
		Onsite Travel (mi/day)	1.19		
Grading					
Graders	1	8	148	0.41	
Rubber Tired Dozers	1	8	367	0.4	
Tractors/Loaders/Backhoes	2	7	84	0.37	
Worker Trips					10
Vendor Trips					3
Total Vendor Trips (Vendor + Water Truck)					13
Hauling Trips					329
Water Trucks		Acres Disturbed:	1.9		10
		Onsite Travel (mi/day)	1.55		

Building Construction					
Cranes	1	6	367	0.29	
Forklifts	1	6	82	0.2	
Generator Sets	1	8	14	0.74	
Tractors/Loaders/Backhoes	1	6	84	0.37	
Welders	3	8	46	0.45	
Worker Trips					1
Vendor Trips					1
Hauling Trips					0
Paving					
Tractors/Loaders/Backhoes	1	8	84	0.37	
Cement and Mortar Mixers	1	6	10	0.56	
Pavers	1	6	81	0.42	
Rollers	1	7	36	0.38	
Paving Equipment	1	8	89	0.36	
Worker Trips					13
Vendor Trips					2
Hauling Trips					0
Architectural Coating					
Air Compressors	1	6	37	0.48	
Worker Trips					1
Vendor Trips					0
Hauling Trips					0

Water Truck Vendor Trip Calculation

Amount of Water (gal/acre/day)[1]	Water Truck Capacity (gallons)[2]
10,000	4,000

Notes:

[1] Based on data provided in Guidance for Application for Dust Control Permit

Maricopa County Air Quality Department. 2005, June. Guidance for Application of Dust Control Permit. https://www.epa.gov/sites/default/files/2019-04/documents/mr_guidanceforapplicationfordustcontrolpermit.pdf)

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

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

CalEEMod Inputs- Calistoga High School Junior-Senior High School Project, Construction

Name:	Calistoga High School Junior-Senior High School Projectt, Construction
Project Number:	CALI-02
Project Location:	1608 Lake St, Calistoga, CA 94515
County/Air Basin:	Napa
Climate Zone:	2
Land Use Setting:	Rural
Operational Year:	2025
Utility Company:	Pacific Gas and Electric
Air Basin:	San Francisco Bay Area
Air District:	Bay Area AQMD

CalEEMod Land Use Inputs

Land Use Type	Land Use Subtype	Unit Amount	Size Metric	Lot Acreage	Land Use Square Feet	Landscaped Area	Special Landscaped Area
Educational	High School	2.59	1000 sqft	0.48	2,592	18,133	85,752
Parking	Other Non-Asphalt Surfaces	12.25	1000 sqft	0.28	12,247	0	0
Parking	Other Asphalt Surfaces	71.97	1000 sqft	1.65	71,969	0	0

Net Annual Trips

Maximum Capacity Seats (Net Increase)	Number of Trips for Max Capacity Event	Rate of Trips per Seat
474	**284**	0.60

Event	Net Increase in Maximum Spectators per Event	Net Increase in Maximum Number of Events/Games On-Site	Trip Rate	Net Increase in Trips/Event	Net Increase in Annual Event Trips
Football Games	474	0	0.6	284	0
Boys Soccer	300	12	0.6	180	2,160
Girls Soccer	300	12	0.6	180	2,160
Co-Ed Soccer (Junior High)	300	7	0.6	180	1,260
Track and Field (High School)	150	2	0.6	90	180
Track and Field (Junior School)	150	2	0.6	90	180
Graduation Ceremony	0	0	0.6	0	0
TOTAL	**1,674**				**5,940**

CalEEMod Average Daily Trip Rate
6.30

Source: Garland and Associates. November 2024. Traffic Impact Analysis for the Proposed Calistoga Junior-Senior High School Field & Lighting Improvements Projec

Architectural Coating*

* See Construction Land Use tab

Electricity (Buildings)

Default CalEEMod Energy Use

Land Use Subtype	Total Annual Electricity Consumption (kWh/year)	Total Annual Natural Gas Consumption (kBTU/year)	Title-24 Electricity Energy Intensity (kWhr/size/year)*	Title-24 Natural Gas Energy Intensity (KBTU/size/year)*	Nontitle-24 Electricity Energy Intensity (kWhr/size/year)	Nontitle-24 Natural Gas Energy Intensity (KBTU/size/year)
High School	11,675.36	113,764.14	**9,340.89**	**112,762.99**	2,334.47	1,001.15

Natural Gas Conversion to Electricity

Land Use Subtype	Title-24 Natural Gas Energy Intensity (KBTU/size/year)*	Title-24 Natural Gas Energy Converted to Electricity (kWh/year)	Nontitle-24 Natural Gas Energy Intensity (KBTU/size/year)	NonTitle-24 Natural Gas Energy Converted to Electricity (kWh/year)
High School	**112,762.99**	**33.05**	1,001.15	**0.29**

Field Lighting (Electricity Use)

Attendance and Events (Existing and Proposed)

Event	Maximum Existing Spectators per Event	Maximum Proposed Spectators per Event	Existing Number of Events/Games On-Site	Maximum Proposed Number of Events/Games On-Site	Net Increase in Number of Events/Games On-Site	Event Hours	Lighting in use (hrs)[1]
Football Games	300	774	10	10	0	6:00-9:00 PM	3
Boys Soccer	0	300	0	12	12	3:30-5:15 PM	2.5
Girls Soccer	0	300	0	12	12	3:30-4:00 PM	2.5
Co-Ed Soccer (Junior High)			0	7	7	3:30-5:15 PM	2.5
Track and Field (High School)	0	150	0	2	2	3:30-6:00 PM	2.5
Track and Field (Junior School)			0	2	2	3:30-6:00 PM	2.5
Graduation Ceremony	800	800	1	1	0	6:00-7:00 PM	1
TOTAL							

Notes:

[1] Assume lighting in use past 4:30pm.

	Total Average kW/Event [1]	Net Increase Events/Year	Hours/Event	Total Light Use per Year	kWh (Annual)
Football Games	33.50	0	3.00	45.00	0
Girls Soccer	33.50	12	2.50	9.00	1,005
Boys Soccer	33.50	12	2.50	0.00	1,005
Co-ed Soccer	33.50	7	2.50	5.25	586
High School Track and Field	33.50	2	2.50	3.00	168
Junior High School Track and Field	33.50	2	2.50	3.00	168
Graduation	33.50	0	1.00	1.00	0
	Total	35		66.25	2,931

Scoreboard (Electricity Use)

	Energy use per scoreboard (kW/hr)[2]	Net Increase Events/Year	Hours	kWh (Annual)
Scoreboard	5	35	66.25	10,434

Calculation of GHGs from Field Lighting & Scoreboard

Source: CalEEMod Defaults

CO_2	CH_4	N_2O	CO_2e	CO_2e
lbs/Mwh	lbs/Mwh	lbs/Mwh	lbs/Mwh	MT/kWh
203.98	0.033	0.004	204.02	0.0001
			CO_2e from Energy (MT/Year)	**1.24**

Notes

[1] Based on Musco Lighting Plans for the proposed field lighting as provided by the District.

[2] content/uploads/manuals/MP-326.pdf.

Water Use (CalEEMod Defaults)

	Indoor (gpd)	Outdoor (gpd)[2]	Total
Proposed Project Water Use (gpy)[1]	86,066.43	1,342,797.33	1,428,863.76

Notes

[1] Assumes 100% aerobic treatment.

[2] CalEEMod Default Outdoor Water

Solid Waste (CalEEMod Defaults)

Land Use	Total Solid Waste (tons/acre/yr)[3]	Total Solid Waste (tons/yr)
Solid Waste	1.30	3.37

CALI-02 Custom Report

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	CALI-02
Construction Start Date	4/1/2025
Operational Year	2025
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.20
Precipitation (days)	43.0
Location	1608 Lake St, Calistoga, CA 94515, USA
County	Napa
City	Calistoga
Air District	Bay Area AQMD
Air Basin	San Francisco Bay Area
TAZ	802
EDFZ	2
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.29

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
High School	2.59	1000sqft	0.06	2,592	18,133	85,752	—	—

Other Non-Asphalt Surfaces	12.3	1000sqft	0.28	0.00	0.00	—	—	—
Other Asphalt Surfaces	72.0	1000sqft	1.65	0.00	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

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

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.43	2.06	46.0	25.5	0.18	1.08	24.3	25.4	0.89	6.84	7.73	—	26,717	26,717	1.16	3.94	52.8	27,972
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	11.2	10.9	14.6	18.3	0.03	0.56	0.53	1.09	0.51	0.13	0.65	—	3,104	3,104	0.12	0.04	0.02	3,118
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.72	0.62	4.17	4.53	0.01	0.15	0.24	0.39	0.14	0.06	0.20	—	951	951	0.04	0.03	0.17	962
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.13	0.11	0.76	0.83	< 0.005	0.03	0.04	0.07	0.03	0.01	0.04	—	157	157	0.01	0.01	0.03	159

2.2. Construction Emissions by Year, Unmitigated

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

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

Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	3.43	2.06	46.0	25.5	0.18	1.08	24.3	25.4	0.89	6.84	7.73	—	26,717	26,717	1.16	3.94	52.8	27,972
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	11.2	10.9	14.6	18.3	0.03	0.56	0.53	1.09	0.51	0.13	0.65	—	3,104	3,104	0.12	0.04	0.02	3,118
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.72	0.62	4.17	4.53	0.01	0.15	0.24	0.39	0.14	0.06	0.20	—	951	951	0.04	0.03	0.17	962
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.13	0.11	0.76	0.83	< 0.005	0.03	0.04	0.07	0.03	0.01	0.04	—	157	157	0.01	0.01	0.03	159

2.4. Operations Emissions Compared Against Thresholds

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

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.18	0.17	0.11	0.75	< 0.005	< 0.005	0.12	0.12	< 0.005	0.03	0.03	2.00	192	194	0.19	0.01	0.60	202
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.16	0.15	0.12	0.62	< 0.005	< 0.005	0.12	0.12	< 0.005	0.03	0.03	2.00	185	187	0.19	0.01	0.03	194
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.14	0.14	0.09	0.49	< 0.005	< 0.005	0.08	0.09	< 0.005	0.02	0.02	2.00	146	148	0.19	0.01	0.19	155
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.03	0.03	0.02	0.09	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	0.33	24.2	24.6	0.03	< 0.005	0.03	25.7

2.5. Operations Emissions by Sector, Unmitigated

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

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.08	0.07	0.08	0.61	< 0.005	< 0.005	0.12	0.12	< 0.005	0.03	0.03	—	145	145	0.01	0.01	0.59	148
Area	0.10	0.09	< 0.005	0.11	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.46	0.46	< 0.005	< 0.005	—	0.47
Energy	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	43.0	43.0	< 0.005	< 0.005	—	43.2
Water	—	—	—	—	—	—	—	—	—	—	—	0.18	4.01	4.20	< 0.005	< 0.005	—	4.37
Waste	—	—	—	—	—	—	—	—	—	—	—	1.82	0.00	1.82	0.18	0.00	—	6.35
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01
Total	0.18	0.17	0.11	0.75	< 0.005	< 0.005	0.12	0.12	< 0.005	0.03	0.03	2.00	192	194	0.19	0.01	0.60	202
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.08	0.07	0.09	0.59	< 0.005	< 0.005	0.12	0.12	< 0.005	0.03	0.03	—	138	138	0.01	0.01	0.02	140
Area	0.08	0.08	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	43.0	43.0	< 0.005	< 0.005	—	43.2
Water	—	—	—	—	—	—	—	—	—	—	—	0.18	4.01	4.20	< 0.005	< 0.005	—	4.37
Waste	—	—	—	—	—	—	—	—	—	—	—	1.82	0.00	1.82	0.18	0.00	—	6.35
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01
Total	0.16	0.15	0.12	0.62	< 0.005	< 0.005	0.12	0.12	< 0.005	0.03	0.03	2.00	185	187	0.19	0.01	0.03	194
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.06	0.05	0.06	0.40	< 0.005	< 0.005	0.08	0.08	< 0.005	0.02	0.02	—	99.1	99.1	< 0.005	0.01	0.18	101
Area	0.09	0.09	< 0.005	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.23	0.23	< 0.005	< 0.005	—	0.23
Energy	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	43.0	43.0	< 0.005	< 0.005	—	43.2
Water	—	—	—	—	—	—	—	—	—	—	—	0.18	4.01	4.20	< 0.005	< 0.005	—	4.37
Waste	—	—	—	—	—	—	—	—	—	—	—	1.82	0.00	1.82	0.18	0.00	—	6.35

Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01
Total	0.14	0.14	0.09	0.49	< 0.005	< 0.005	0.08	0.09	< 0.005	0.02	0.02	2.00	146	148	0.19	0.01	0.19	155
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.01	0.01	0.01	0.07	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	—	16.4	16.4	< 0.005	< 0.005	0.03	16.7
Area	0.02	0.02	< 0.005	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.04	0.04	< 0.005	< 0.005	—	0.04
Energy	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	7.12	7.12	< 0.005	< 0.005	—	7.14
Water	—	—	—	—	—	—	—	—	—	—	—	0.03	0.66	0.70	< 0.005	< 0.005	—	0.72
Waste	—	—	—	—	—	—	—	—	—	—	—	0.30	0.00	0.30	0.03	0.00	—	1.05
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	< 0.005	< 0.005
Total	0.03	0.03	0.02	0.09	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	0.33	24.2	24.6	0.03	< 0.005	0.03	25.7

3. Construction Emissions Details

3.1. Demolition (2025) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.75	1.47	13.9	15.1	0.02	0.57	—	0.57	0.52	—	0.52	—	2,494	2,494	0.10	0.02	—	2,502
Demolition	—	—	—	—	—	—	1.07	1.07	—	0.16	0.16	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.38	0.38	< 0.005	0.04	0.04	—	7.42	7.42	< 0.005	< 0.005	0.01	7.81
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.05	0.46	0.50	< 0.005	0.02	—	0.02	0.02	—	0.02	—	82.0	82.0	< 0.005	< 0.005	—	82.3
Demolition	—	—	—	—	—	—	0.04	0.04	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.24	0.24	< 0.005	< 0.005	< 0.005	0.26
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.08	0.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	13.6	13.6	< 0.005	< 0.005	—	13.6
Demolition	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.04	0.04	< 0.005	< 0.005	< 0.005	0.04
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.03	0.58	0.00	0.00	0.43	0.43	0.00	0.10	0.10	—	108	108	< 0.005	< 0.005	0.46	110
Vendor	0.02	0.01	0.45	0.18	< 0.005	< 0.005	0.31	0.31	< 0.005	0.08	0.08	—	324	324	0.01	0.05	0.86	339
Hauling	0.02	0.01	0.48	0.16	< 0.005	0.01	0.31	0.32	< 0.005	0.08	0.08	—	362	362	0.02	0.06	0.78	381
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	3.35	3.35	< 0.005	< 0.005	0.01	3.40
Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	10.6	10.6	< 0.005	< 0.005	0.01	11.1
Hauling	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	11.9	11.9	< 0.005	< 0.005	0.01	12.5

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.56	0.56	< 0.005	< 0.005	< 0.005	0.56
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.76	1.76	< 0.005	< 0.005	< 0.005	1.85
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.97	1.97	< 0.005	< 0.005	< 0.005	2.07

3.3. Site Preparation (2025) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.56	1.31	12.1	12.1	0.02	0.56	—	0.56	0.52	—	0.52	—	2,065	2,065	0.08	0.02	—	2,072
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.27	0.27	< 0.005	0.03	0.03	—	5.79	5.79	< 0.005	< 0.005	0.01	6.10
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	5.66	5.66	< 0.005	< 0.005	—	5.68
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.02	0.02	< 0.005	< 0.005	< 0.005	0.02
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.94	0.94	< 0.005	< 0.005	—	0.94

Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.35	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	65.1	65.1	< 0.005	< 0.005	0.28	66.1
Vendor	0.02	0.01	0.34	0.13	< 0.005	< 0.005	0.23	0.23	< 0.005	0.06	0.06	—	243	243	0.01	0.04	0.65	255
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.17	0.17	< 0.005	< 0.005	< 0.005	0.17
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.67	0.67	< 0.005	< 0.005	< 0.005	0.70
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.03	0.03	< 0.005	< 0.005	< 0.005	0.03
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.11	0.11	< 0.005	< 0.005	< 0.005	0.12
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.5. Grading (2025) - Unmitigated

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

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

Off-Road Equipment	1.80	1.51	14.1	14.5	0.02	0.64	—	0.64	0.59	—	0.59	—	2,455	2,455	0.10	0.02	—	2,463
Dust From Material Movement	—	—	—	—	—	—	2.83	2.83	—	1.35	1.35	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.35	0.35	< 0.005	0.04	0.04	—	7.06	7.06	< 0.005	< 0.005	0.01	7.44
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.08	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	13.5	13.5	< 0.005	< 0.005	—	13.5
Dust From Material Movement	—	—	—	—	—	—	0.02	0.02	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.04	0.04	< 0.005	< 0.005	< 0.005	0.04
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.23	2.23	< 0.005	< 0.005	—	2.23
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.01	0.01	< 0.005	< 0.005	< 0.005	0.01
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.46	0.00	0.00	0.34	0.34	0.00	0.08	0.08	—	86.7	86.7	< 0.005	< 0.005	0.37	88.2
Vendor	0.03	0.01	0.49	0.19	< 0.005	< 0.005	0.33	0.34	< 0.005	0.09	0.09	—	351	351	0.01	0.05	0.93	368
Hauling	1.56	0.49	31.4	10.3	0.15	0.44	20.5	20.9	0.29	5.29	5.58	—	23,818	23,818	1.04	3.86	51.4	25,045
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.45	0.45	< 0.005	< 0.005	< 0.005	0.45
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.92	1.92	< 0.005	< 0.005	< 0.005	2.01
Hauling	0.01	< 0.005	0.18	0.06	< 0.005	< 0.005	0.11	0.11	< 0.005	0.03	0.03	—	131	131	0.01	0.02	0.12	137
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.07	0.07	< 0.005	< 0.005	< 0.005	0.08
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.32	0.32	< 0.005	< 0.005	< 0.005	0.33
Hauling	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	21.6	21.6	< 0.005	< 0.005	0.02	22.7

3.7. Building Construction (2025) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.28	1.07	8.95	10.0	0.02	0.33	—	0.33	0.30	—	0.30	—	1,801	1,801	0.07	0.01	—	1,807
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.28	1.07	8.95	10.0	0.02	0.33	—	0.33	0.30	—	0.30	—	1,801	1,801	0.07	0.01	—	1,807
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.47	0.39	3.28	3.68	0.01	0.12	—	0.12	0.11	—	0.11	—	661	661	0.03	0.01	—	664
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.07	0.60	0.67	< 0.005	0.02	—	0.02	0.02	—	0.02	—	109	109	< 0.005	< 0.005	—	110
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.05	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	9.44	9.44	< 0.005	< 0.005	0.04	9.60
Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	11.5	11.5	< 0.005	< 0.005	0.03	12.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.05	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	8.80	8.80	< 0.005	< 0.005	< 0.005	8.92

Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	11.5	11.5	< 0.005	< 0.005	< 0.005	12.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	3.26	3.26	< 0.005	< 0.005	0.01	3.31
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.21	4.21	< 0.005	< 0.005	< 0.005	4.41
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.54	0.54	< 0.005	< 0.005	< 0.005	0.55
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.70	0.70	< 0.005	< 0.005	< 0.005	0.73
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.9. Paving (2025) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.59	0.49	4.63	6.50	0.01	0.20	—	0.20	0.19	—	0.19	—	992	992	0.04	0.01	—	995
Paving	0.72	0.72	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	0.01	0.01	0.08	0.11	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	16.3	16.3	< 0.005	< 0.005	—	16.4
Paving	0.01	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.70	2.70	< 0.005	< 0.005	—	2.71
Paving	< 0.005	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.05	0.52	0.00	0.00	0.43	0.43	0.00	0.10	0.10	—	101	101	< 0.005	< 0.005	0.01	102
Vendor	< 0.005	< 0.005	0.08	0.03	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	54.0	54.0	< 0.005	0.01	< 0.005	56.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	1.68	1.68	< 0.005	< 0.005	< 0.005	1.70
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.89	0.89	< 0.005	< 0.005	< 0.005	0.93
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.28	0.28	< 0.005	< 0.005	< 0.005	0.28
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.15	0.15	< 0.005	< 0.005	< 0.005	0.15
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.11. Architectural Coating (2025) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.13	0.88	1.14	< 0.005	0.03	—	0.03	0.03	—	0.03	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	8.41	8.41	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.19	2.19	< 0.005	< 0.005	—	2.20
Architectural Coatings	0.14	0.14	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.36	0.36	< 0.005	< 0.005	—	0.36
Architectural Coatings	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	1.76	1.76	< 0.005	< 0.005	< 0.005	1.78
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.03	0.03	< 0.005	< 0.005	< 0.005	0.03
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	0.08	0.07	0.08	0.61	< 0.005	< 0.005	0.12	0.12	< 0.005	0.03	0.03	—	145	145	0.01	0.01	0.59	148
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.08	0.07	0.08	0.61	< 0.005	< 0.005	0.12	0.12	< 0.005	0.03	0.03	—	145	145	0.01	0.01	0.59	148
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	0.08	0.07	0.09	0.59	< 0.005	< 0.005	0.12	0.12	< 0.005	0.03	0.03	—	138	138	0.01	0.01	0.02	140
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.08	0.07	0.09	0.59	< 0.005	< 0.005	0.12	0.12	< 0.005	0.03	0.03	—	138	138	0.01	0.01	0.02	140
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	0.01	0.01	0.01	0.07	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	—	16.4	16.4	< 0.005	< 0.005	0.03	16.7

Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.01	0.01	0.01	0.07	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	—	16.4	16.4	< 0.005	< 0.005	0.03	16.7

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	—	6.52	6.52	< 0.005	< 0.005	—	6.59
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	6.52	6.52	< 0.005	< 0.005	—	6.59
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	—	6.52	6.52	< 0.005	< 0.005	—	6.59
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00

Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	6.52	6.52	< 0.005	< 0.005	—	6.59
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	—	1.08	1.08	< 0.005	< 0.005	—	1.09
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	1.08	1.08	< 0.005	< 0.005	—	1.09

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	36.5	36.5	< 0.005	< 0.005	—	36.6
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	36.5	36.5	< 0.005	< 0.005	—	36.6
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

High School	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	36.5	36.5	< 0.005	< 0.005	—	36.6
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	36.5	36.5	< 0.005	< 0.005	—	36.6
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.04	6.04	< 0.005	< 0.005	—	6.05
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.04	6.04	< 0.005	< 0.005	—	6.05

4.3. Area Emissions by Source

4.3.1. Unmitigated

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

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.06	0.06	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Architectural Coatings	0.01	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.02	0.02	< 0.005	0.11	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.46	0.46	< 0.005	< 0.005	—	0.47
Total	0.10	0.09	< 0.005	0.11	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.46	0.46	< 0.005	< 0.005	—	0.47
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.06	0.06	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.01	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.08	0.08	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.01	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	< 0.005	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.04	0.04	< 0.005	< 0.005	—	0.04
Total	0.02	0.02	< 0.005	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.04	0.04	< 0.005	< 0.005	—	0.04

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	0.18	4.01	4.20	< 0.005	< 0.005	—	4.37
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.18	4.01	4.20	< 0.005	< 0.005	—	4.37
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	0.18	4.01	4.20	< 0.005	< 0.005	—	4.37
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.18	4.01	4.20	< 0.005	< 0.005	—	4.37
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	0.03	0.66	0.70	< 0.005	< 0.005	—	0.72

Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.03	0.66	0.70	< 0.005	< 0.005	—	0.72

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	1.82	0.00	1.82	0.18	0.00	—	6.35
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	1.82	0.00	1.82	0.18	0.00	—	6.35
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	1.82	0.00	1.82	0.18	0.00	—	6.35
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00

Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	1.82	0.00	1.82	0.18	0.00	—	6.35
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	0.30	0.00	0.30	0.03	0.00	—	1.05
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.30	0.00	0.30	0.03	0.00	—	1.05

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

High School	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	< 0.005	< 0.005
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	< 0.005	< 0.005

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

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

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

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

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

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

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

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

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

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Demolition	Demolition	4/1/2025	4/16/2025	5.00	12.0	—
Site Preparation	Site Preparation	4/17/2025	4/17/2025	5.00	1.00	—

Grading	Grading	4/18/2025	4/21/2025	5.00	2.00	—
Building Construction	Building Construction	4/22/2025	10/24/2025	5.00	134	—
Paving	Paving	10/17/2025	10/24/2025	5.00	6.00	—
Architectural Coating	Architectural Coating	10/17/2025	10/24/2025	5.00	6.00	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Tractors/Loaders/Backhoes	Diesel	Average	3.00	8.00	84.0	0.37
Demolition	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Demolition	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Site Preparation	Graders	Diesel	Average	1.00	8.00	148	0.41
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Site Preparation	Rubber Tired Dozers	Diesel	Average	1.00	7.00	367	0.40
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00	7.00	84.0	0.37
Building Construction	Cranes	Diesel	Average	1.00	6.00	367	0.29
Building Construction	Forklifts	Diesel	Average	1.00	6.00	82.0	0.20
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	1.00	6.00	84.0	0.37
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Welders	Diesel	Average	3.00	8.00	46.0	0.45
Paving	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37

Paving	Cement and Mortar Mixers	Diesel	Average	1.00	6.00	10.0	0.56
Paving	Pavers	Diesel	Average	1.00	6.00	81.0	0.42
Paving	Rollers	Diesel	Average	1.00	7.00	36.0	0.38
Paving	Paving Equipment	Diesel	Average	1.00	8.00	89.0	0.36
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	12.5	11.7	LDA,LDT1,LDT2
Demolition	Vendor	12.0	8.40	HHDT,MHDT
Demolition	Hauling	5.00	20.0	HHDT
Demolition	Onsite truck	1.00	1.65	HHDT
Site Preparation	—	—	—	—
Site Preparation	Worker	7.50	11.7	LDA,LDT1,LDT2
Site Preparation	Vendor	9.00	8.40	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	1.00	1.19	HHDT
Grading	—	—	—	—
Grading	Worker	10.0	11.7	LDA,LDT1,LDT2
Grading	Vendor	13.0	8.40	HHDT,MHDT
Grading	Hauling	329	20.0	HHDT
Grading	Onsite truck	1.00	1.55	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	1.09	11.7	LDA,LDT1,LDT2
Building Construction	Vendor	0.42	8.40	HHDT,MHDT

Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	12.5	11.7	LDA,LDT1,LDT2
Paving	Vendor	2.00	8.40	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	0.22	11.7	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	8.40	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Control Strategies Applied	PM10 Reduction	PM2.5 Reduction
Water unpaved roads twice daily	55%	55%
Limit vehicle speeds on unpaved roads to 25 mph	44%	44%

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	0.00	0.00	3,888	1,296	5,053

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (Ton of Debris)	Acres Paved (acres)
Demolition	0.00	0.00	0.00	598	—
Grading	43.0	7,862	2.00	0.00	—
Paving	0.00	0.00	0.00	0.00	1.93

5.6.2. Construction Earthmoving Control Strategies

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

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
High School	0.00	0%
Other Non-Asphalt Surfaces	0.28	0%
Other Asphalt Surfaces	1.65	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2025	0.00	204	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
High School	16.3	0.00	0.00	4,257	168	0.00	0.00	43,870
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	3,888	1,296	5,053

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
High School	11,675	204	0.0330	0.0040	113,764
Other Non-Asphalt Surfaces	0.00	204	0.0330	0.0040	0.00
Other Asphalt Surfaces	0.00	204	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
High School	86,066	1,342,797
Other Non-Asphalt Surfaces	0.00	0.00
Other Asphalt Surfaces	0.00	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
High School	3.37	—
Other Non-Asphalt Surfaces	0.00	—
Other Asphalt Surfaces	0.00	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
High School	Household refrigerators and/or freezers	R-134a	1,430	0.02	0.60	0.00	1.00
High School	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
High School	Stand-alone retail refrigerators and freezers	R-134a	1,430	< 0.005	1.00	0.00	1.00
High School	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type

8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	Adjusted to account for additional activities
Construction: Off-Road Equipment	Added equipment for non-default activities
Construction: Dust From Material Movement	All soil hauling occurring in grading phase
Construction: Trips and VMT	Incorporated water trucks
Construction: On-Road Fugitive Dust	Revised silt loading factor and vehicle speed consistent with BAAQMD guidelines
Operations: Vehicle Data	average annual trip rate based on Garland TIA trip rate
Land Use	Updated to match applicant-provided data
Operations: Water and Waste Water	Assumption of 100 percent aerobic treatment

Regional Construction Emissions

Annual Average Emissions with Best Control Measures for Fugitive Dust

No. of Construction Days:

Year	Start	End	Workdays
2025	4/1/2025	10/24/2025	149
Entire	4/1/2025	10/24/2025	149

Emissions by Year (tons/year)

	ROG	NOx	CO	SO2	Exhaust PM10	Fugitive PM10	PM10 Total	Exhaust PM2.5	Fugitive PM2.5	PM2.5 Total
2025	0.113	0.761	0.828	0.002	0.028	0.043	0.071	0.025	0.011	0.036
Total	**0.1130**	**0.7610**	**0.8280**	**0.0020**	**0.0280**	**0.0430**	**0.0710**	**0.0250**	**0.0110**	**0.0360**

Average Daily Emissions (lbs/day)

Annual emissions divided by total construction duration to obtain average daily emissions. Average construction emissions accounts for the duration of each construction phase and the time each piece of construction equipment is onsite.

	ROG	NOx	CO	SO2	Exhaust PM10	Fugitive PM10	PM10 Total	Exhaust PM2.5	Fugitive PM2.5	PM2.5 Total
2025	1.5168	10.2148	11.1141	0.0268	0.3758	0.5772	0.9530	0.3356	0.1477	0.4832
Overall	**1.5168**	**10.2148**	**11.1141**	**0.0268**	**0.3758**	**0.5772**	**0.9530**	**0.3356**	**0.1477**	**0.4832**
BAAQMD Average Daily Threshold	54	54	NA	NA	82	BMPs	NA	54	BMPs	NA
Exceed Average Daily Thresholds?	No	No	NA	NA	No	NA	NA	No	NA	NA

Appendix B Health Risk Assessment

Appendix

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1. Health Risk Assessment

1.1 CONSTRUCTION HEALTH RISK ASSESSMENT

The Calistoga Joint Unified School District (CJUSD or District) proposes to improve the existing football field and install new permanent stadium lighting at Calistoga Junior-Senior High School in the City of Calistoga (Calistoga HS or proposed project). The proposed project would also include the installation of a new all-weather track and field, new permanent bleachers on the north side of the football field, a new public address (PA) system, a new scoreboard, relocation of the hardtop basketball courts, and the construction of a new field house and concession stand. Landscaping, concrete walkways, and fencing would also be installed.

Construction of the proposed project would occur in a single phase, starting in May 2025 and ending in October 2025. Construction activities would include demolition, site preparation and rough grading, field construction, paving, and architectural coating.

The latest version of the Bay Area Air Quality Management District (BAAQMD) CEQA Air Quality Guidelines recommends projects to evaluate the impacts of construction activities on nearby receptors (BAAQMD 2022). Project construction is anticipated to take place starting at the beginning of May 2025 and be completed in October 2025 (approximately 149 workdays). The nearest air quality sensitive receptors to the project site include the surrounding residential homes, workers at the surrounding non-residential uses (e.g., Monhoff Center operated by the City), and students at the Palisades High School Continuation School located on the property of Calistoga Junior Senior High School, as well as on-site students of Calistoga HS.

Because receptors, including sensitive receptors such as residents, are present in land uses near the project site, a site-specific construction health risk assessment (HRA) has been prepared for the proposed project. This HRA considers the health impact to nearby receptors (e.g., residents, workers, students) from construction emissions at the project site, including diesel equipment exhaust (diesel particulate matter or DPM) and particulate matter less than 2.5 microns ($PM_{2.5}$).

It should be noted that these health impacts are based on conservative (i.e., health protective) assumptions. The United States Environmental Protection Agency (USEPA 2005) and the Office of Environmental Health Hazard Assessment (OEHHA 2015) note that conservative assumptions used in a risk assessment are intended to ensure that the estimated risks do not underestimate the actual risks. Therefore, the estimated risks may not necessarily represent actual risks experienced by populations at or near a site. The use of conservative assumptions tends to produce upper-bound estimates of exposure and thus risk.

For residential receptors, the following conservative assumptions were used:

- It was assumed that maximum-exposed off-site residential receptors stood outdoors and are subject to DPM at their residence for 8 hours per day, and approximately 260 construction days per year. In reality, California residents typically will spend on average 2 hours per day outdoors at their residences (USEPA 2011). This would result in lower exposures to construction related DPM emissions and lower estimated risk values.

- The calculated risk for infants from third trimester to age 2 is multiplied by a factor of 10 to account for early life exposure and uncertainty in child versus adult exposure impacts (OEHHA 2015).

For K-12 students, the following conservative assumptions were used:

- It was assumed that maximum exposed receptors stood outside and are subject to DPM for 8 hours per weekday and approximately 180 construction days per year.

For workers, the following conservative assumptions were used:

- It was assumed that maximum exposed receptors stood outside and are subject to DPM for 8 hours per weekday and approximately 250 construction days per year.

1.2 METHODOLOGY AND SIGNIFICANCE THRESHOLDS

For this HRA, the BAAQMD significance thresholds were deemed to be appropriate and the thresholds that were used for this project are shown below:

- Excess cancer risk of more than 10 in a million
- Non-cancer hazard index (chronic or acute) greater than 1.0
- Incremental increase in average annual $PM_{2.5}$ concentration of greater than 0.3 µg/m^3

The methodology used in this HRA is consistent with the following BAAQMD and the OEHHA guidance documents:

- BAAQMD. 2022. *California Environmental Quality Act (CEQA) Air Quality Guidelines*. April 2023.
- BAAQMD. 2016. *Planning Healthy Places*. May 2016.
- OEHHA. 2015. *Air Toxics Hot Spots Program Guidance Manual for the Preparation of Health Risk Assessments*. February 2015.

Potential exposures to DPM and $PM_{2.5}$ from proposed project construction were evaluated for nearby receptors to the site. Pollutant concentrations were estimated using an air dispersion model, and excess lifetime cancer risks and chronic non-cancer hazard indexes were calculated. These risks were then compared to the significance thresholds used for this HRA.

1.3 CONSTRUCTION EMISSIONS

Construction emissions were calculated as average daily emissions in pounds per day, using the proposed construction schedule and the latest version of California Emissions Estimation Model, known as CalEEMod Version 2022.1. DPM emissions were based on the CalEEMod construction results, using maximum daily exhaust PM_{10} emissions. The $PM_{2.5}$ emissions were taken from the CalEEMod output for maximum daily $PM_{2.5}$ exhaust and fugitive dust.

Construction of the proposed project was assumed to take place over approximately 7 months (149 workdays) from April 2025 to October 2025. The average daily emission rates from construction equipment used during the proposed project were determined by multiplying the maximum daily emissions for each construction activity by the duration of that activity, summing the total emissions from all construction activities, and dividing the summed total by the total construction workdays (149 days). The CalEEMod construction emissions output and emission rate calculations are provided in Attachment A.

1.4 DISPERSION MODELING

Air quality modeling was performed using the AERMOD atmospheric dispersion model to assess the impact of emitted compounds on sensitive receptors near the project. The model is a steady state Gaussian plume model and is an approved model by BAAQMD for estimating ground level impacts from point and fugitive sources in simple and complex terrain. The on-site construction emissions for the project were modeled as area sources. The off-site mobile sources were modeled as line sources. The model requires additional input parameters, including chemical emission data and local meteorology. Inputs for the construction emission rates are those described in Section 1.3. Meteorological data obtained from the BAAQMD for the nearest representative meteorological station (Napa College) with the five latest available years (2013 to 2017) of record were used to represent local weather conditions and prevailing winds.

The modeling analysis also considered the spatial distribution and elevation of each emitting source in relation to the sensitive receptors. To accommodate the model's Cartesian grid format, direction-dependent calculations were obtained by identifying the Universal Transverse Mercator (UTM) coordinates for each source location. In addition, digital elevation model (DEM) data for the area were obtained and included in the model runs to account for complex terrain. An emission release height of 3.4 m was used as representative of the stack exhaust height for off-road construction equipment and diesel truck traffic (BAAQMD 2022). For fugitive dust sources, an emission release height of 0 m was used to represent dust generated by ground disturbing activities and roadway dust re-entrainment.

To determine contaminant impacts during construction hours, the model's By-Hour-Day (HROFDY) scalar option was invoked to predict flagpole-level concentrations (1.5 m) for construction emissions generated between the hours of 7:00 AM and 4:00 PM with a 1-hour lunch break.

A unit emission rate of 1 gram per second was used for all modeling runs. The unit emission rates were proportioned over the poly-area sources for on-site construction emissions and divided between the line volume sources for off-site hauling emissions. The maximum modeled concentrations from the output files were then multiplied by the emission rates calculated in Attachment A to obtain the maximum flagpole-level concentrations at the maximum exposed receptor for each receptor type. The air dispersion modeling predicted the maximum exposed individual resident (MEIR) as a residence directly across Grant Street to the north, and the maximum exposed individual worker (MEIW) and the maximum exposed student receptor adjacent to the northeastern boundary of the project, which include the Monhoff Center and Palisades High

School Continuation School, respectively. The locations of the maximum exposed receptor locations are depicted in Figure 1.[1]

The air dispersion model output for the emission sources is presented in Attachment B. The model output DPM and $PM_{2.5}$ concentrations from the construction emission sources are provided in Attachment C.

1.5 RISK CHARACTERIZATION

1.5.1 Carcinogenic Chemical Risk

A threshold of ten in one million ($10x10^{-6}$) has been established by OEHHA and recommended by BAAQMD and other air districts as a level posing no significant risk for exposures to carcinogens. Health risks associated with exposure to carcinogenic compounds can be defined in terms of the probability of developing cancer as a result of exposure to a chemical at a given concentration. The cancer risk probability is determined by multiplying the chemical's annual concentration by its cancer potency factor (CPF), a measure of the carcinogenic potential of a chemical when a dose is received through the inhalation pathway. It is an upper-limit estimate of the probability of contracting cancer as a result of continuous exposure to an ambient concentration of one microgram per cubic meter ($\mu g/m^3$) over a lifetime of 70 years.

Guidance from OEHHA recommends a refinement to the standard point estimate approach with the use of age-specific breathing rates and age sensitivity factors (ASFs) to assess risk for susceptible subpopulations such as children. For the inhalation pathway, the procedure requires the incorporation of several discrete variates to effectively quantify dose for each age group. Once determined, contaminant dose is multiplied by the cancer potency factor in units of inverse dose expressed in milligrams per kilogram per day $(mg/kg/day)^{-1}$ to derive the cancer risk estimate. Therefore, to accommodate the unique exposures associated with the sensitive receptors, the following dose algorithm was used.

$$\mathrm{Dose}_{\mathrm{AIR,per\ age\ group}} = (\mathrm{C}_{\mathrm{air}} \times \mathrm{EF} \times [\frac{\mathrm{BR}}{\mathrm{BW}}] \times \mathrm{A} \times \mathrm{CF})$$

Where:

$\mathrm{Dose}_{\mathrm{AIR}}$	=	dose by inhalation (mg/kg-day), per age group
C_{air}	=	concentration of contaminant in air ($\mu g/m^3$)
EF	=	exposure frequency (number of days/365 days)
BR/BW	=	daily breathing rate normalized to body weight (L/kg-day)
A	=	inhalation absorption factor (default = 1)
CF	=	conversion factor ($1x10^{-6}$, µg to mg, L to m^3)

[1] The maximum exposed receptor locations are the receptor locations associated with the maximum predicted AERMOD concentrations resulting from the on-site construction emissions. The calculated on-site emission rates are approximately 3 to 4 orders of magnitude higher than the calculated off-site emission rates (see Attachment A). Therefore, the maximum concentrations associated with the on-site emission sources produce the highest overall concentrations at the receptor locations and, consequently, highest calculated health risks.

The inhalation absorption factor (A) is a unitless factor that is only used if the cancer potency factor included a correction for absorption across the lung. The default value of 1 was used for this assessment. An exposure frequency (EF) of 0.96 is used for residential receptors to represent 350 days per year to allow for a two-week period away from home each year, an EF of 0.49 was used for K-12 student receptors to represent 180 school days a year where students would be at their respective campus, and an EF of 0.68 was used for worker receptors to represent 250 workdays per year (OEHHA 2015). A fraction of time at home (FAH) factor applied to residential receptors.

The 95th percentile daily breathing rates (BR/BW), exposure duration (ED), age sensitivity factors (ASFs), and FAH for the various age groups are provided herein:

Age Groups	BR/BW (L/kg-day)	ED	ASF	FAH
Third trimester	361	0.25	10	0.85
0-2 age group	1,090	0.32	10	0.85
Student				
2-16 age group	640 (L/kg-8hr)	0.57	3	n/a
Worker				
16-30 age group	240 (L/kg-8hr)	0.57	1	n/a

To represent the unique characteristics of children and senior residents, the assessment employed the USEPA's guidance to develop viable dose estimates based on reasonable maximum exposure, defined as the "highest exposure that is reasonably expected to occur" for a given receptor population. To calculate the overall cancer risk, the risk for each appropriate age group is calculated per the following equation:

$$\text{Cancer Risk}_{\text{AIR}} = \text{Dose}_{\text{AIR}} \times \text{CPF} \times \text{ASF} \times \text{FAH} \times \frac{\text{ED}}{AT}$$

Where:

Dose_{AIR}	=	dose by inhalation (mg/kg-day), per age group
CPF	=	cancer potency factor, chemical-specific $(\text{mg/kg-day})^{-1}$
ASF	=	age sensitivity factor, per age group
FAH	=	fraction of time at home, per age group (for residential receptors only)
ED	=	exposure duration (years)
AT	=	averaging time period over which exposure duration is averaged (30 years)

The CPFs used in the assessment were obtained from OEHHA guidance. The excess lifetime cancer risks during the construction period to the maximally exposed resident were calculated based on the factors provided above. The cancer risks for each age group are summed to estimate the total cancer risk for each toxic chemical species. The final step converts the cancer risk in scientific notation to a whole number that expresses the cancer risk in "chances per million" by multiplying the cancer risk by a factor of 1×10^6 (i.e., 1 million). The calculated results are provided in Attachment C.

1.5.2 Non-Carcinogenic Hazards

An evaluation was also conducted of the potential non-cancer effects of chronic chemical exposures. Adverse health effects are evaluated by comparing the annual receptor level (flagpole) concentration of each chemical compound with the appropriate reference exposure limit (REL). Available RELs promulgated by OEHHA were considered in the assessment.

The hazard index approach was used to quantify non-carcinogenic impacts. The hazard index assumes that chronic sub-threshold exposures adversely affect a specific organ or organ system (toxicological endpoint). Target organs presented in regulatory guidance were used for each discrete chemical exposure. To calculate the hazard index, each chemical concentration or dose is divided by the appropriate toxicity value. This ratio is summed for compounds affecting the same toxicological endpoint. A health hazard is presumed to exist where the total equals or exceeds one.

The chronic hazard analysis for DPM is provided in Attachment C. The calculations contain the relevant exposure concentrations and corresponding reference dose values used in the evaluation of non-carcinogenic exposures.

1.5.3 Criteria Pollutants

The BAAQMD incorporated $PM_{2.5}$ into the District's CEQA significance thresholds due to recent studies that show adverse health impacts from exposure to this pollutant. An incremental increase of greater than 0.3 $\mu g/m^3$ for the annual average $PM_{2.5}$ concentration is considered to be a significant project-level impact.

1.6 CONSTRUCTION HRA RESULTS

The calculated results are provided in Attachment C, and the results are summarized in Table 1.

TABLE 1. CONSTRUCTION RISK SUMMARY

Receptor	Cancer Risk (per million)	Chronic Hazards	$PM_{2.5}$ ($\mu g/m^3$)
Maximum Exposed Individual Resident (MEIR)	5.3	0.02	0.08
Maximum Exposed Individual Worker (MEIW)	0.17	0.02	0.11
Maximum Exposed Student – Palisades High School	1.0	0.02	0.12
BAAQMD Threshold	*10*	*1.0*	*0.30*
Exceeds Threshold?	No	No	No

Notes: Cancer risk calculated using 2015 OEHHA HRA Guidance Manual.
$\mu g/m^3$ = microgram per cubic meter

Cancer risk for the MEIR from project-related construction emissions was calculated to be approximately 5.3 in one million, which would not exceed the 10 in one million significance threshold. Cancer risk for the worker and K-12 student receptors were calculated to be approximately 0.17 in a million and 1.0 in a million, respectively, which also would not exceed the 10 in one million significance threshold. In accordance with the latest 2015 OEHHA guidance, the calculated total cancer risk conservatively assumes that the MEIR consists of a pregnant woman in the third trimester that subsequently gives birth to an infant during the duration of construction; therefore, all calculated residential risk values were multiplied by a factor of 10. In addition, it was conservatively assumed that the residents were outdoors 8 hours a day, 149 construction days per year and exposed to all of the daily construction emissions.

For non-carcinogenic effects, the chronic hazard index identified for each toxicological endpoint equaled less than one for each identified receptor. Therefore, chronic non-carcinogenic hazards are within acceptable limits. For all receptors, the maximum annual $PM_{2.5}$ concentrations would also not exceed the BAAQMD significance threshold of 0.3 $\mu g/m^3$.

Cancer risk, chronic hazards, and construction $PM_{2.5}$ from project construction activities would, therefore, not exceed the BAAQMD's project-level health risk thresholds and impacts would be less than significant.

1.7 CUMULATIVE COMMUNITY HEALTH RISK

In addition to a project-level HRA, BAAQMD recommends assessing the potential cumulative impacts from sources of TACs within 1,000 feet of a project. For the cumulative analysis provided in Attachment C, BAAQMD provides several health risk screening tools and databases for identifying risks at a particular location. No permitted stationary sources were identified within 1,000 feet of the site. The only existing emission source within 1,000 feet of the project site are high-volume roadways. Screening level risks were obtained for roadways using BAAQMD CEQA tools at the MEIR location (BAAQMD 2024).

For this HRA, the BAAQMD cumulative risk significance thresholds were deemed to be appropriate and the thresholds that were used for this project are shown below:

- Excess cancer risk of more than 100 in a million
- Non-cancer hazard index (chronic or acute) greater than 10.0
- Incremental increase in average annual $PM_{2.5}$ concentration of greater than 0.8 μg/m^3

Table 2 summarizes the existing risks at the MEIR with the construction risks from the project and compares the cumulative risks to BAAQMDs cumulative community health risk significance thresholds. As shown in Table 2, the cumulative risks do not exceed BAAQMD's cumulative risk thresholds and this impact would be less than significant.

TABLE 2. CUMULATIVE COMMUNITY RISK SUMMARY

Source	Source Type	Cancer Risk (per million)	Chronic Hazards	$PM_{2.5}$ (μg/m^3)
Project Impacts				
Project Construction (MEIR)	Diesel Construction Equipment	5.3	0.02	0.08
Roadway Impacts				
BAAQMD-provided Roadway values (MEIR)	Vehicles	4.3	0.02	0.17
Cumulative Health Impacts				
Cumulative Project Health Impacts		9.6	0.04	0.25
BAAQMD Cumulative Threshold		100	10.0	0.80
Exceeds Threshold?		No	No	No

Notes: μg/m3 = microgram per cubic meter

Cancer risk calculated using 2015 Office of Environmental Health Hazard Assessment Health Risk Assessment Guidance Manual (OEHHA 2015).

The cumulative risk analysis provided in Table 2 is for the MEIR due to project level risks being highest at the MEIR location. Since the cumulative risks were determined less than significant for the MEIR, cumulative risks for worker and student receptors would also be less than significant.

2. References

Bay Area Air Quality Management District. 2016. *Planning Healthy Places.* Dated May 2016.

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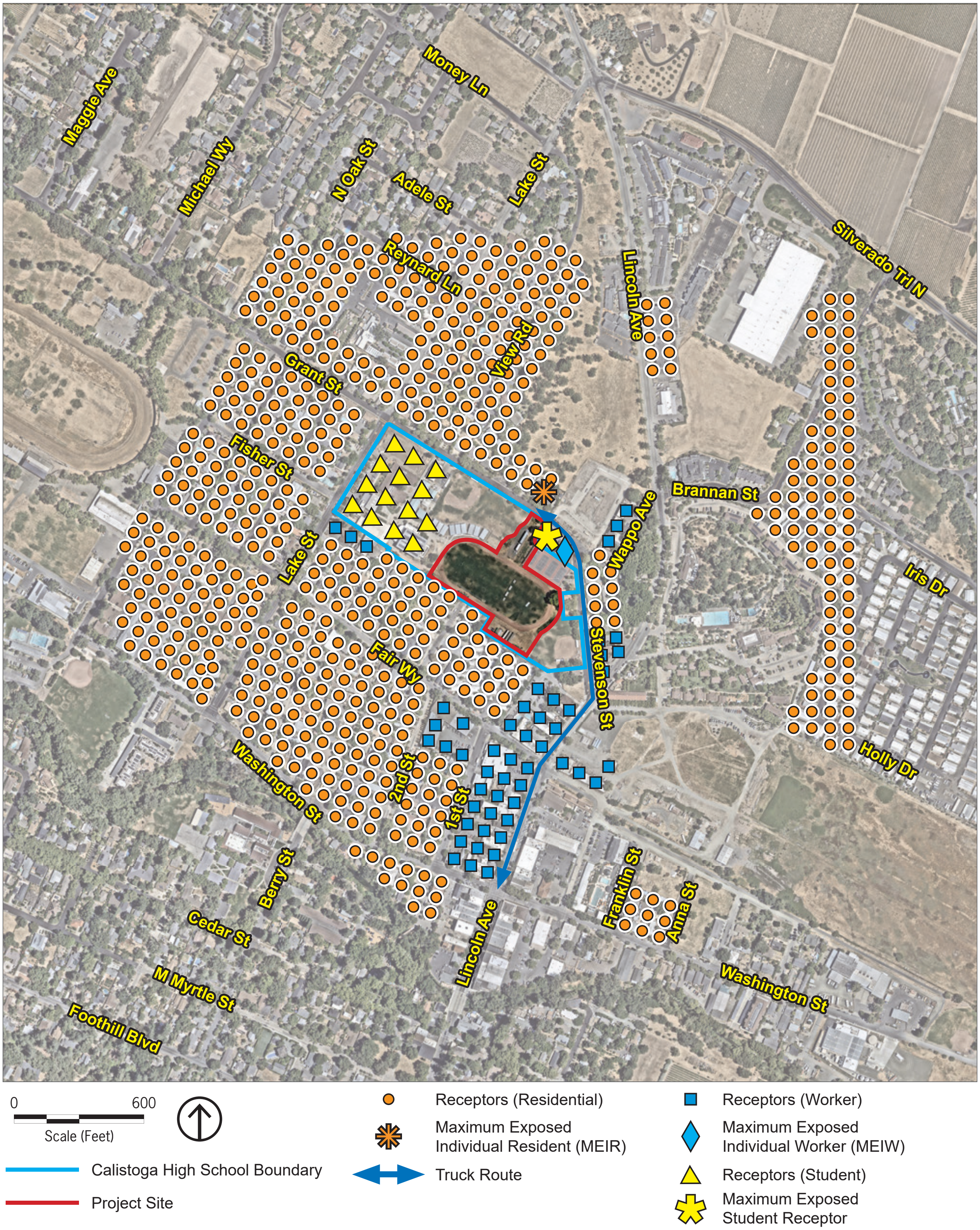


Source: Nearmap 2024; PlaceWorks 2024.

Figure 1

Project Site and Off-site Receptor Locations

Appendix A. Emission Rate Calculations

UNMITIGATED Regional Construction Emissions Worksheet:

Unmitigated Construction Summary

Construction Activity	Total Workdays	Activity Name	Activity Type	Start Date	End Date	Workdays per Week	Total Workdays
Demolition	*12*	Asphalt and Building Demolition	Demolition	4/1/2025	4/16/2025	5	12
Site Preparation	*1*	Site Preparation	Site Preparation	4/17/2025	4/17/2025	5	1
Grading	*2*	Grading	Grading	4/18/2025	4/21/2025	5	2
Building Construction	*134*	Building Construction	Building Construction	4/22/2025	10/24/2025	5	134
Paving	*6*	Paving	Paving	10/17/2025	10/24/2025	5	6
Architectural Coating	*6*	Architectural Coating	Architectural Coating	10/17/2025	10/24/2025	5	6
TOTAL CONSECUTIVE WORKDAYS	149						

Unmitigated PM10 Exhaust Emissions (Tons)[1]	Total Onsite PM10 Exhaust	Total Offsite PM10 Exhaust	(Adjusted) Total Offsite PM10 Exhaust[2]	Total Workdays[3]	Total Onsite PM10 Exhaust lbs	Total Offsite PM10 Exhaust lbs
Demolition	*3.412E-03*	*6.640E-05*	*1.328E-06*	*12*	*6.82E+00*	*2.66E-03*
Site Preparation	*2.810E-04*	*1.670E-06*	*3.340E-08*	*1*	*5.62E-01*	*6.68E-05*
Grading	*6.430E-04*	*4.398E-04*	*8.796E-06*	*2*	*1.29E+00*	*1.76E-02*
Building Construction	*2.199E-02*	*1.050E-05*	*2.100E-07*	*134*	*4.40E+01*	*4.20E-04*
Paving	*6.090E-04*	*2.220E-06*	*4.440E-08*	*6*	*1.22E+00*	*8.88E-05*
Architectural Coating	*8.230E-05*	*0.000E+00*	*0.000E+00*	*6*	*1.65E-01*	*0.00E+00*
				2025 AVERAGE DAILY LBS	*3.63E-01*	*1.40E-04*

2025 Workdays
149

Notes:

1. The annual average emission rates were used to determine average daily emissions.

2. Off-site Emissions shown herein account for a reduction in emissions to capture the emissions generated within 1,000 feet of the project site along identified hauling roadways (0.365 miles / 20 miles default hauling distance = 0.02 Adjustment Factor). The estimates provided in this table are used solely for the construction HRA.

3. Total emissions are divided by total workdays. Workdays total may not add up due to the omission of days which overlap.

Unmitigated PM2.5 Exhaust Emissions (Tons)[1]	Daily Onsite PM2.5 Exhaust	Daily Offsite PM2.5 Exhaust	(Adjusted) Daily Offsite PM2.5 Exhaust[2]	Total Workdays[3]	Total Onsite PM10 Exhaust lbs	Total Offsite PM10 Exhaust lbs
Demolition	*3.140E-03*	*5.320E-05*	*1.064E-06*	*12*	*6.280E+00*	*2.128E-03*
Site Preparation	*2.580E-04*	*1.670E-06*	*3.340E-08*	*1*	*5.160E-01*	*6.680E-05*
Grading	*5.917E-04*	*2.948E-04*	*5.896E-06*	*2*	*1.183E+00*	*1.179E-02*
Building Construction	*2.023E-02*	*1.050E-05*	*2.100E-07*	*134*	*4.046E+01*	*4.200E-04*
Paving	*5.600E-04*	*2.220E-06*	*4.440E-08*	*6*	*1.120E+00*	*8.880E-05*
Architectural Coating	*7.570E-05*	*0.000E+00*	*0.000E+00*	*6*	*1.514E-01*	*0.000E+00*
				2025 AVERAGE DAILY LBS	*3.34E-01*	*9.73E-05*

Unmitigated PM2.5 Dust Emissions (Tons)[1]	Daily Onsite PM2.5 Dust	Daily Offsite PM2.5 Dust	(Adjusted) Daily Offsite PM2.5 Dust[2]	Total Workdays[3]	Total Onsite PM10 Exhaust lbs	Total Offsite PM10 Exhaust lbs
Demolition	*1.168E-03*	*1.540E-03*	*3.080E-05*	*12*	*2.336*	*0.062*
Site Preparation	*1.190E-05*	*5.930E-05*	*1.186E-06*	*1*	*0.024*	*0.002*
Grading	*1.381E-03*	*5.319E-03*	*1.064E-04*	*2*	*2.762*	*0.213*
Building Construction	*0.000E+00*	*7.753E-04*	*1.551E-05*	*134*	*0.000*	*0.031*
Paving	*0.000E+00*	*3.433E-04*	*6.866E-06*	*6*	*0.000*	*0.014*
Architectural Coating	*0.000E+00*	*5.310E-06*	*1.062E-07*	*6*	*0.000*	*0.000*
				2025 AVERAGE DAILY LBS	*3.44E-02*	*2.16E-03*

Notes:

1. The annual average emission rates were used to determine average daily emissions.

2. Off-site Emissions shown herein account for a reduction in emissions to capture the emissions generated within 1,000 feet of the project site along identified hauling roadways (0.365 miles / 20 miles default hauling distance = 0.02 Adjustment Factor). The estimates provided in this table are used solely for the construction HRA.

4. Total emissions are divided by total workdays. Workdays total may not add up due to the omission of days which overlap.

3. Construction Emissions Details

3.1 Demolition (2025) - Unmitigated

Location	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T
Onsite								
Daily, Summer (Max)								
Off-Road E	1.7521408	1.4691613	13.927171	15.086772	0.0239214	0.5686177		0.5686177
Demolitior							1.0662901	1.0662901
Onsite truc	0.0015035	0.0006900	0.0210232	0.0111443	0.0000584	0.0001091	0.3750738	0.3751829
Daily, Winter (Max)								
Average Daily								
Off-Road E	0.0576046	0.0483011	0.4578796	0.4960034	0.0007864	0.0186942		0.0186942
Demolitior							0.0350561	0.0350561
Onsite truc	0.0000479	0.0000219	0.0007094	0.0003707	0.0000019	0.0000035	0.0108800	0.0108836
Annual								
Off-Road E	0.0105128	0.0088149	0.0835630	0.0905206	0.0001435	0.0034117		0.0034117
Demolitior							0.0063977	0.0063977
Onsite truc	0.0000087	0.0000040	0.0001294	0.0000676	3.5053499	6.5477291	0.0019856	0.0019862
Offsite								
Daily, Summer (Max)								
Worker	0.0556942	0.0513677	0.0348881	0.5776662	0	0	0.4255394	0.4255394
Vendor	0.0248152	0.0122224	0.4541346	0.1775162	0.0022222	0.0044445	0.3066284	0.3110729
Hauling	0.0236996	0.0074957	0.4773007	0.1568588	0.0023148	0.0066138	0.3108087	0.3174226
Daily, Winter (Max)								
Average Daily								
Worker	0.0017495	0.0015982	0.0014043	0.0165536	0	0	0.0135845	0.0135845
Vendor	0.0008158	0.0003931	0.0155027	0.0059318	0.0000730	0.0001461	0.0098012	0.0099473
Hauling	0.0007719	0.0002428	0.0163154	0.0051787	0.0000761	0.0002174	0.0099409	0.0101583
Annual								
Worker	0.0003192	0.0002916	0.0002562	0.0030210	0	0	0.0024791	0.0024791
Vendor	0.0001488	0.0000717	0.0028292	0.0010825	0.0000133	0.0000266	0.0017887	0.0018153
Hauling	0.0001408	0.0000443	0.0029775	0.0009451	0.0000138	0.0000396	0.0018142	0.0018538

PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R
0.5231283		0.5231283		2493.5037	2493.5037	0.1011474	0.0202294	
	0.1614668	0.1614668						
0.0000727	0.0374827	0.0375554		7.4169312	7.4169312	0.0007473	0.0012103	0.0129004
0.0171987		0.0171987		81.978204	81.978204	0.0033253	0.0006650	
	0.0053084	0.0053084						
0.0000023	0.0010876	0.0010900		0.2441451	0.2441451	0.0000245	0.0000397	0.0001829
0.0031387		0.0031387		13.572427	13.572427	0.0005505	0.0001101	
	0.0009688	0.0009688						
4.3651527	0.0001985	0.0001989		0.0404210	0.0404210	0.0000040	0.0000065	0.0000302
0	0.1047727	0.1047727		108.42596	108.42596	0.0024802	0.0043265	0.4601471
0.0044445	0.0788793	0.0833238		323.68984	323.68984	0.0123282	0.0487838	0.8611922
0.0044092	0.0804579	0.0848672		361.97532	361.97532	0.0158732	0.0586429	0.7818473
0	0.0033431	0.0033431		3.3537040	3.3537040	0.0000906	0.0001422	0.0065332
0.0001461	0.0025233	0.0026694		10.643819	10.643819	0.0004053	0.0016038	0.0122237
0.0001449	0.0025758	0.0027207		11.902062	11.902062	0.0005218	0.0019279	0.0110902
0	0.0006101	0.0006101		0.5552439	0.5552439	0.0000150	0.0000235	0.0010816
0.0000266	0.0004605	0.0004871		1.7622058	1.7622058	0.0000671	0.0002655	0.0020237
0.0000264	0.0004700	0.0004965		1.9705222	1.9705222	0.0000864	0.0003192	0.0018361

3. Construction Emissions Details

3.3 Site Preparation (2025) - Unmitigated

Location	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T
Onsite								
Daily, Summer (Max)								
Off-Road E	1.5601511	1.3109603	12.104249	12.142101	0.0190553	0.5614877		0.5614877
Onsite truc	0.0014224	0.0006697	0.0191572	0.0106373	0.0000482	0.0000787	0.2705077	0.2705865
Daily, Winter (Max)								
Average Daily								
Off-Road E	0.0042743	0.0035916	0.0331623	0.0332660	0.0000522	0.0015383		0.0015383
Onsite truc	0.0000037	0.0000017	0.0000537	0.0000295	1.3227735	2.1563021	0.0006539	0.0006541
Annual								
Off-Road E	0.0007800	0.0006554	0.0060521	0.0060710	0.0000095	0.0002807		0.0002807
Onsite truc	6.8916503	3.2385906	0.0000098	0.0000053	2.4140617	3.9352513	0.0001193	0.0001193
Offsite								
Daily, Summer (Max)								
Worker	0.0334165	0.0308206	0.0209328	0.3465997	0	0	0.2553236	0.2553236
Vendor	0.0186114	0.0091668	0.3406009	0.1331371	0.0016666	0.0033333	0.2299713	0.2333047
Hauling	0	0	0	0	0	0	0	0
Daily, Winter (Max)								
Average Daily								
Worker	0.0000874	0.0000799	0.0000702	0.0008276	0	0	0.0006792	0.0006792
Vendor	0.0000509	0.0000245	0.0009689	0.0003707	0.0000045	0.0000091	0.0006125	0.0006217
Hauling	0	0	0	0	0	0	0	0
Annual								
Worker	0.0000159	0.0000145	0.0000128	0.0001510	0	0	0.0001239	0.0001239
Vendor	0.0000093	0.0000044	0.0001768	0.0000676	8.3334735	0.0000016	0.0001117	0.0001134
Hauling	0	0	0	0	0	0	0	0

PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R
0.5165687		0.5165687		2064.5577	2064.5577	0.0837474	0.0167494	
0.0000524	0.0270329	0.0270854		5.7880515	5.7880515	0.0006865	0.0009466	0.0093039
0.0014152		0.0014152		5.6563227	5.6563227	0.0002294	0.0000458	
1.4375347	0.0000653	0.0000655		0.0158827	0.0158827	0.0000018	0.0000025	0.0000109
0.0002582		0.0002582		0.9364687	0.9364687	0.0000379	0.0000075	
2.6235009	0.0000119	0.0000119		0.0026295	0.0026295	3.1140037	4.2940051	0.0000018
0	0.0628636	0.0628636		65.055576	65.055576	0.0014881	0.0025959	0.2760882
0.0033333	0.0591595	0.0624929		242.76738	242.76738	0.0092461	0.0365879	0.6458941
0	0	0		0	0	0	0	0
0	0.0001671	0.0001671		0.1676852	0.1676852	0.0000045	0.0000071	0.0003266
0.0000091	0.0001577	0.0001668		0.6652387	0.6652387	0.0000253	0.0001002	0.0007639
0	0	0		0	0	0	0	0
0	0.0000305	0.0000305		0.0277621	0.0277621	7.5000089	0.0000011	0.0000540
0.0000016	0.0000287	0.0000304		0.1101378	0.1101378	0.0000041	0.0000165	0.0001264
0	0	0		0	0	0	0	0

3. Construction Emissions Details

3.5 Grading (2025) - Unmitigated

Location	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T
Onsite								
Daily, Summer (Max)								
Off-Road E	1.7988864	1.5115643	14.065201	14.512707	0.0226567	0.6431278		0.6431278
Dust From							2.8310346	2.8310346
Onsite truc	0.0014859	0.0006856	0.0206176	0.0110341	0.0000562	0.0001025	0.3523420	0.3524446
Daily, Winter (Max)								
Average Daily								
Off-Road E	0.0098569	0.0082825	0.0770695	0.0795216	0.0001241	0.0035239		0.0035239
Dust From							0.0155125	0.0155125
Onsite truc	0.0000079	0.0000036	0.0001159	0.0000611	3.0804316	5.6172576	0.0017034	0.0017040
Annual								
Off-Road E	0.0017988	0.0015115	0.0140652	0.0145127	0.0000226	0.0006431		0.0006431
Dust From							0.0028310	0.0028310
Onsite truc	0.0000014	6.6359140	0.0000211	0.0000111	5.6217876	1.0251495	0.0003108	0.0003109
Offsite								
Daily, Summer (Max)								
Worker	0.0445554	0.0410941	0.0279105	0.4621329	0	0	0.3404315	0.3404315
Vendor	0.0268831	0.0132409	0.4919791	0.1923092	0.0024074	0.0048148	0.3321808	0.3369957
Hauling	1.5594398	0.4932181	31.406392	10.321315	0.1523173	0.4351925	20.451217	20.886410
Daily, Winter (Max)								
Average Daily								
Worker	0.0002332	0.0002130	0.0001872	0.0022071	0	0	0.0018112	0.0018112
Vendor	0.0001473	0.0000709	0.0027991	0.0010710	0.0000131	0.0000263	0.0017696	0.0017960
Hauling	0.0084653	0.0026628	0.1789257	0.0567936	0.0008346	0.0023846	0.1090185	0.1114031
Annual								
Worker	0.0000425	0.0000388	0.0000341	0.0004028	0	0	0.0003305	0.0003305
Vendor	0.0000268	0.0000129	0.0005108	0.0001954	0.0000024	0.0000048	0.0003229	0.0003277
Hauling	0.0015449	0.0004859	0.0326539	0.0103648	0.0001523	0.0004351	0.0198958	0.0203310

PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R
0.5916776		0.5916776		2454.6252	2454.6252	0.0995703	0.0199140	
	1.3460694	1.3460694						
0.0000683	0.0352110	0.0352793		7.0628269	7.0628269	0.0007341	0.0011530	0.0121186
0.0032420		0.0032420		13.450001	13.450001	0.0005455	0.0001091	
	0.0073757	0.0073757						
3.7448384	0.0001702	0.0001706		0.0387505	0.0387505	0.0000040	0.0000063	0.0000286
0.0005916		0.0005916		2.2268011	2.2268011	0.0000903	0.0000180	
	0.0013460	0.0013460						
6.8343301	0.0000310	0.0000311		0.0064155	0.0064155	6.6600079	0.0000010	0.0000047
0	0.0838181	0.0838181		86.740768	86.740768	0.0019841	0.0034612	0.3681176
0.0048148	0.0854526	0.0902675		350.66399	350.66399	0.0133556	0.0528492	0.9329582
0.2901283	5.2941346	5.5842629		23817.976	23817.976	1.0444620	3.8587068	51.445556
0	0.0004457	0.0004457		0.4471605	0.4471605	0.0000120	0.0000189	0.0008711
0.0000263	0.0004556	0.0004819		1.9218008	1.9218008	0.0000731	0.0002895	0.0022070
0.0015897	0.0282482	0.0298379		130.52595	130.52595	0.0057230	0.0211435	0.1216233
0	0.0000813	0.0000813		0.0740325	0.0740325	0.0000020	0.0000031	0.0001442
0.0000048	0.0000831	0.0000879		0.3181760	0.3181760	0.0000121	0.0000479	0.0003654
0.0002901	0.0051553	0.0054454		21.610060	21.610060	0.0009475	0.0035005	0.0201361

3. Construction Emissions Details

3.7 Building Construction (2025) - Unmitigated

Location	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T
Onsite								
Daily, Summer (Max)								
Off-Road E	1.2817156	1.0662184	8.9450560	10.033191	0.0194237	0.3282345		0.3282345
Onsite truc	0	0	0	0	0	0	0	0
Daily, Winter (Max)								
Off-Road E	1.2817156	1.0662184	8.9450560	10.033191	0.0194237	0.3282345		0.3282345
Onsite truc	0	0	0	0	0	0	0	0
Average Daily								
Off-Road E	0.4705476	0.3914336	3.2839383	3.6834181	0.0071309	0.1205025		0.1205025
Onsite truc	0	0	0	0	0	0	0	0
Annual								
Off-Road E	0.0858749	0.0714366	0.5993187	0.6722238	0.0013013	0.0219917		0.0219917
Onsite truc	0	0	0	0	0	0	0	0
Offsite								
Daily, Summer (Max)								
Worker	0.0048504	0.0044736	0.0030384	0.0503096	0	0	0.0370607	0.0370607
Vendor	0.0008785	0.0004327	0.0160774	0.0062844	0.0000786	0.0001573	0.0108553	0.0110127
Hauling	0	0	0	0	0	0	0	0
Daily, Winter (Max)								
Worker	0.0047064	0.0043056	0.0040968	0.0456487	0	0	0.0370607	0.0370607
Vendor	0.0008597	0.0004139	0.0170234	0.0065092	0.0000786	0.0001573	0.0108553	0.0110127
Hauling	0	0	0	0	0	0	0	0
Average Daily								
Worker	0.0017014	0.0015542	0.0013657	0.0160987	0	0	0.0132112	0.0132112
Vendor	0.0003225	0.0001554	0.0061286	0.0023450	0.0000288	0.0000577	0.0038746	0.0039324
Hauling	0	0	0	0	0	0	0	0
Annual								
Worker	0.0003105	0.0002836	0.0002492	0.0029380	0	0	0.0024110	0.0024110
Vendor	0.0000588	0.0000283	0.0011184	0.0004279	0.0000052	0.0000105	0.0007071	0.0007176
Hauling	0	0	0	0	0	0	0	0

PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R
0.3019758		0.3019758		1801.2109	1801.2109	0.0730649	0.0146129	
0	0	0		0	0	0	0	0
0.3019758		0.3019758		1801.2109	1801.2109	0.0730649	0.0146129	
0	0	0		0	0	0	0	0
0.1108623		0.1108623		661.26647	661.26647	0.0268238	0.0053647	
0	0	0		0	0	0	0	0
0.0202323		0.0202323		109.48021	109.48021	0.0044409	0.0008881	
0	0	0		0	0	0	0	0
0	0.0091247	0.0091247		9.4429469	9.4429469	0.0002160	0.0003768	0.0400747
0.0001573	0.0027925	0.0029498		11.459397	11.459397	0.0004364	0.0017270	0.0304882
0	0	0		0	0	0	0	0
0	0.0091247	0.0091247		8.8016318	8.8016318	0.0002880	0.0003768	0.0010400
0.0001573	0.0027925	0.0029498		11.464544	11.464544	0.0004364	0.0017270	0.0007897
0	0	0		0	0	0	0	0
0	0.0032512	0.0032512		3.2615388	3.2615388	0.0000881	0.0001383	0.0063537
0.0000577	0.0009975	0.0010553		4.2077872	4.2077872	0.0001602	0.0006340	0.0048323
0	0	0		0	0	0	0	0
0	0.0005933	0.0005933		0.5399849	0.5399849	0.0000145	0.0000229	0.0010519
0.0000105	0.0001820	0.0001925		0.6966472	0.6966472	0.0000265	0.0001049	0.0008000
0	0	0		0	0	0	0	0

3. Construction Emissions Details

3.9 Paving (2025) - Unmitigated

Location	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T
Onsite								
Daily, Summer (Max)								
Daily, Winter (Max)								
Off-Road E	0.5886936	0.4939804	4.6319143	6.4996580	0.0094002	0.2029143		0.2029143
Paving	0.7214623	0.7214623						
Onsite truc	0	0	0	0	0	0	0	0
Average Daily								
Off-Road E	0.0096771	0.0081202	0.0761410	0.1068436	0.0001545	0.0033355		0.0033355
Paving	0.0118596	0.0118596						
Onsite truc	0	0	0	0	0	0	0	0
Annual								
Off-Road E	0.0017660	0.0014819	0.0138957	0.0194989	0.0000282	0.0006087		0.0006087
Paving	0.0021643	0.0021643						
Onsite truc	0	0	0	0	0	0	0	0
Offsite								
Daily, Summer (Max)								
Daily, Winter (Max)								
Worker	0.0540408	0.0494386	0.0470411	0.5241490	0	0	0.4255394	0.4255394
Vendor	0.0040476	0.0019488	0.0801424	0.0306442	0.0003703	0.0007407	0.0511047	0.0518454
Hauling	0	0	0	0	0	0	0	0
Average Daily								
Worker	0.0008747	0.0007991	0.0007021	0.0082768	0	0	0.0067922	0.0067922
Vendor	0.0000679	0.0000327	0.0012918	0.0004943	0.0000060	0.0000121	0.0008167	0.0008289
Hauling	0	0	0	0	0	0	0	0
Annual								
Worker	0.0001596	0.0001458	0.0001281	0.0015105	0	0	0.0012395	0.0012395
Vendor	0.0000124	0.0000059	0.0002357	0.0000902	0.0000011	0.0000022	0.0001490	0.0001512
Hauling	0	0	0	0	0	0	0	0

PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R
0.1866812		0.1866812		991.72324	991.72324	0.0402286	0.0080457	
0	0	0		0	0	0	0	0
0.0030687		0.0030687		16.302299	16.302299	0.0006612	0.0001322	
0	0	0		0	0	0	0	0
0.0005600		0.0005600		2.6990317	2.6990317	0.0001094	0.0000218	
0	0	0		0	0	0	0	0
0	0.1047727	0.1047727		101.06224	101.06224	0.0033069	0.0043265	0.0119416
0.0007407	0.0131465	0.0138873		53.972539	53.972539	0.0020547	0.0081306	0.0037180
0	0	0		0	0	0	0	0
0	0.0016715	0.0016715		1.6768520	1.6768520	0.0000453	0.0000711	0.0032666
0.0000121	0.0002102	0.0002224		0.8869849	0.8869849	0.0000337	0.0001336	0.0010186
0	0	0		0	0	0	0	0
0	0.0003050	0.0003050		0.2776219	0.2776219	0.0000075	0.0000117	0.0005408
0.0000022	0.0000383	0.0000405		0.1468504	0.1468504	0.0000055	0.0000221	0.0001686
0	0	0		0	0	0	0	0

3. Construction Emissions Details

3.11 Architectural Coating (2025) - Unmitigated

Location	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T
Onsite								
Daily, Summer (Max)								
Daily, Winter (Max)								
Off-Road E	0.1548316	0.1279600	0.8822796	1.1398431	0.0017261	0.0274265		0.0274265
Architectu	8.4112363	8.4112363						
Onsite truc	0	0	0	0	0	0	0	0
Average Daily								
Off-Road E	0.0025451	0.0021034	0.0145032	0.0187371	0.0000283	0.0004508		0.0004508
Architectu	0.1382668	0.1382668						
Onsite truc	0	0	0	0	0	0	0	0
Annual								
Off-Road E	0.0004644	0.0003838	0.0026468	0.0034195	0.0000051	0.0000822		0.0000822
Architectu	0.0252337	0.0252337						
Onsite truc	0	0	0	0	0	0	0	0
Offsite								
Daily, Summer (Max)								
Daily, Winter (Max)								
Worker	0.0009412	0.0008611	0.0008193	0.0091297	0	0	0.0074121	0.0074121
Vendor	0	0	0	0	0	0	0	0
Hauling	0	0	0	0	0	0	0	0
Average Daily								
Worker	0.0000152	0.0000139	0.0000122	0.0001441	0	0	0.0001183	0.0001183
Vendor	0	0	0	0	0	0	0	0
Hauling	0	0	0	0	0	0	0	0
Annual								
Worker	0.0000027	0.0000025	0.0000022	0.0000263	0	0	0.0000215	0.0000215
Vendor	0	0	0	0	0	0	0	0
Hauling	0	0	0	0	0	0	0	0

PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R
0.0252324		0.0252324		133.52241	133.52241	0.0054162	0.0010832	
0	0	0		0	0	0	0	0
0.0004147		0.0004147		2.1948889	2.1948889	0.0000890	0.0000178	
0	0	0		0	0	0	0	0
0.0000756		0.0000756		0.3633889	0.3633889	0.0000147	0.0000029	
0	0	0		0	0	0	0	0
0	0.0018249	0.0018249		1.7603263	1.7603263	0.0000576	0.0000753	0.0002080
0	0	0		0	0	0	0	0
0	0	0		0	0	0	0	0
0	0.0000291	0.0000291		0.0292078	0.0292078	7.8905436	0.0000012	0.0000568
0	0	0		0	0	0	0	0
0	0	0		0	0	0	0	0
0	0.0000053	0.0000053		0.0048356	0.0048356	1.3063695	2.0510001	0.0000094
0	0	0		0	0	0	0	0
0	0	0		0	0	0	0	0

Appendix B. Air Dispersion Model Output

Control Pathway

AERMOD

Dispersion Options

Titles

Calistoga Junior Senior HS Field Project
Construction HRA - Residential Receptors

Dispersion Options

- [x] Regulatory Default
- [ ] Non-Default Options

Dispersion Coefficient

Urban
Population:
Name (Optional):
Roughness Length:

Output Type

- [x] Concentration
- [ ] Total Deposition (Dry & Wet)
- [ ] Dry Deposition
- [ ] Wet Deposition

Plume Depletion

- [ ] Dry Removal
- [ ] Wet Removal

Output Warnings

- [ ] No Output Warnings
- [ ] Non-fatal Warnings for Non-sequential Met Data

Pollutant / Averaging Time / Terrain Options

Pollutant Type

Averaging Time Options

Hours

1	2	3	4	6	8	12	24
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

- [ ] Month
- [x] Period
- [ ] Annual

Exponential Decay

Option not available
Half Life of 4 hrs will be used

Terrain Height Options

- [ ] Flat
- [x] Elevated

SO: Meters
RE: Meters
TG: Meters

Flagpole Receptors

- [x] Yes
- [ ] No

Default Height = 1.50 m

Control Pathway

Optional Files

☐ Re-Start File ☐ Init File ☐ Multi-Year Analyses ☐ Event Input File ☒ Error Listing File

Detailed Error Listing File

Filename: CALI02_Res.err

Source Pathway - Source Inputs

Source Pathway - Source Inputs

AERMOD

Polygon Area Sources

Source Type: AREA POLY

Source: ON_DPM (onsite DPM)

Base Elevation (Optional)	Release Height [m]	Emission Rate [g/ (s-m^2)]	Initial Vertical Dim. [m]	Number of Vertices (or sides)	X Coordinate for Vertices [m]	Y Coordinate for Vertices [m]
110.31	3.40	0.00006	3.16	22	536709.27	4270635.35
		0.00006			536732.08	4270621.35
		0.00006			536718.60	4270600.61
		0.00006			536721.71	4270592.32
		0.00006			536699.94	4270562.24
		0.00006			536748.67	4270531.66
		0.00006			536747.64	4270500.03
		0.00006			536742.45	4270486.55
		0.00006			536722.75	4270472.03
		0.00006			536703.05	4270438.85
		0.00006			536647.05	4270475.14
		0.00006			536657.42	4270493.81
		0.00006			536570.84	4270547.73
		0.00006			536582.76	4270567.95
		0.00006			536588.98	4270601.65
		0.00006			536599.87	4270594.91
		0.00006			536619.06	4270602.17
		0.00006			536629.94	4270601.65
		0.00006			536642.39	4270596.98
		0.00006			536663.13	4270584.02
		0.00006			536677.12	4270605.80
		0.00006			536704.60	4270627.05

Source Pathway - Source Inputs

AERMOD

Source Type: AREA POLY

Source: ON_PM (onsite PM2.5)

Base Elevation (Optional)	Release Height [m]	Emission Rate [g/ (s-m^2)]	Initial Vertical Dim. [m]	Number of Vertices (or sides)	X Coordinate for Vertices [m]	Y Coordinate for Vertices [m]
110.31	0.00	0.00006		22	536709.27	4270635.35
		0.00006			536732.08	4270621.35
		0.00006			536718.60	4270600.61
		0.00006			536721.71	4270592.32
		0.00006			536699.94	4270562.24
		0.00006			536748.67	4270531.66
		0.00006			536747.64	4270500.03
		0.00006			536742.45	4270486.55
		0.00006			536722.75	4270472.03
		0.00006			536703.05	4270438.85
		0.00006			536647.05	4270475.14
		0.00006			536657.42	4270493.81
		0.00006			536570.84	4270547.73
		0.00006			536582.76	4270567.95
		0.00006			536588.98	4270601.65
		0.00006			536599.87	4270594.91
		0.00006			536619.06	4270602.17
		0.00006			536629.94	4270601.65
		0.00006			536642.39	4270596.98
		0.00006			536663.13	4270584.02
		0.00006			536677.12	4270605.80
		0.00006			536704.60	4270627.05

Source Pathway - Source Inputs

AERMOD

Line Volume Sources

Source Type: LINE VOLUME

Source: HAULDPM (haul route DPM)

Length of Side [m]	Emission Rate [g/ s]	Building Height [m]	X Coordinate for Points [m]	Y Coordinate for points [m]	Base Elevation [m]	Release Height [m]
8.00	1.00000		536715.20	4270642.61	110.36	3.40
			536737.37	4270629.51	110.38	3.40
			536762.56	4270608.34	110.30	3.40
			536776.67	4270598.27	110.21	3.40
			536801.86	4270372.54	108.74	3.40
			536764.58	4270319.13	108.58	3.40
			536734.35	4270279.83	108.51	3.40
			536678.92	4270118.59	107.75	3.40

Source Type: LINE VOLUME

Source: HAULPM (haul route PM2.5)

Length of Side [m]	Emission Rate [g/ s]	Building Height [m]	X Coordinate for Points [m]	Y Coordinate for points [m]	Base Elevation [m]	Release Height [m]
8.00	1.00000	Surface-Based	536715.20	4270642.61	110.36	0.00
			536737.37	4270629.51	110.38	0.00
			536762.56	4270608.34	110.30	0.00
			536776.67	4270598.27	110.21	0.00
			536801.86	4270372.54	108.74	0.00
			536764.58	4270319.13	108.58	0.00
			536734.35	4270279.83	108.51	0.00
			536678.92	4270118.59	107.75	0.00

Source Pathway - Source Inputs

AERMOD

Volume Sources Generated from Line Sources

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
HAULDPM	L0000001	536718.64	4270640.57	110.39	3.40	0.01351	8.00		3.72	3.16
	L0000002	536725.53	4270636.50	110.39	3.40	0.01351	8.00		3.72	3.16
	L0000003	536732.42	4270632.43	110.37	3.40	0.01351	8.00		3.72	3.16
	L0000004	536739.09	4270628.06	110.35	3.40	0.01351	8.00		3.72	3.16
	L0000005	536745.22	4270622.92	110.33	3.40	0.01351	8.00		3.72	3.16
	L0000006	536751.34	4270617.77	110.31	3.40	0.01351	8.00		3.72	3.16
	L0000007	536757.47	4270612.62	110.30	3.40	0.01351	8.00		3.72	3.16
	L0000008	536763.66	4270607.56	110.29	3.40	0.01351	8.00		3.72	3.16
	L0000009	536770.17	4270602.91	110.26	3.40	0.01351	8.00		3.72	3.16
	L0000010	536776.67	4270598.26	110.24	3.40	0.01351	8.00		3.72	3.16
	L0000011	536777.56	4270590.31	110.17	3.40	0.01351	8.00		3.72	3.16
	L0000012	536778.45	4270582.36	110.10	3.40	0.01351	8.00		3.72	3.16
	L0000013	536779.33	4270574.41	110.03	3.40	0.01351	8.00		3.72	3.16
	L0000014	536780.22	4270566.46	109.97	3.40	0.01351	8.00		3.72	3.16
	L0000015	536781.11	4270558.51	109.91	3.40	0.01351	8.00		3.72	3.16
	L0000016	536782.00	4270550.55	109.84	3.40	0.01351	8.00		3.72	3.16
	L0000017	536782.88	4270542.60	109.77	3.40	0.01351	8.00		3.72	3.16
	L0000018	536783.77	4270534.65	109.71	3.40	0.01351	8.00		3.72	3.16
	L0000019	536784.66	4270526.70	109.64	3.40	0.01351	8.00		3.72	3.16
	L0000020	536785.54	4270518.75	109.57	3.40	0.01351	8.00		3.72	3.16
	L0000021	536786.43	4270510.80	109.50	3.40	0.01351	8.00		3.72	3.16
	L0000022	536787.32	4270502.85	109.43	3.40	0.01351	8.00		3.72	3.16
	L0000023	536788.21	4270494.90	109.37	3.40	0.01351	8.00		3.72	3.16
	L0000024	536789.09	4270486.95	109.30	3.40	0.01351	8.00		3.72	3.16

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
HAULDPM	L0000025	536789.98	4270479.00	109.24	3.40	0.01351	8.00		3.72	3.16
	L0000026	536790.87	4270471.05	109.19	3.40	0.01351	8.00		3.72	3.16
	L0000027	536791.76	4270463.10	109.13	3.40	0.01351	8.00		3.72	3.16
	L0000028	536792.64	4270455.15	109.07	3.40	0.01351	8.00		3.72	3.16
	L0000029	536793.53	4270447.20	109.03	3.40	0.01351	8.00		3.72	3.16
	L0000030	536794.42	4270439.25	108.99	3.40	0.01351	8.00		3.72	3.16
	L0000031	536795.31	4270431.30	108.95	3.40	0.01351	8.00		3.72	3.16
	L0000032	536796.19	4270423.34	108.90	3.40	0.01351	8.00		3.72	3.16
	L0000033	536797.08	4270415.39	108.87	3.40	0.01351	8.00		3.72	3.16
	L0000034	536797.97	4270407.44	108.84	3.40	0.01351	8.00		3.72	3.16
	L0000035	536798.86	4270399.49	108.81	3.40	0.01351	8.00		3.72	3.16
	L0000036	536799.74	4270391.54	108.77	3.40	0.01351	8.00		3.72	3.16
	L0000037	536800.63	4270383.59	108.73	3.40	0.01351	8.00		3.72	3.16
	L0000038	536801.52	4270375.64	108.69	3.40	0.01351	8.00		3.72	3.16
	L0000039	536799.07	4270368.54	108.67	3.40	0.01351	8.00		3.72	3.16
	L0000040	536794.49	4270361.98	108.67	3.40	0.01351	8.00		3.72	3.16
	L0000041	536789.91	4270355.42	108.66	3.40	0.01351	8.00		3.72	3.16
	L0000042	536785.33	4270348.86	108.64	3.40	0.01351	8.00		3.72	3.16
	L0000043	536780.76	4270342.30	108.62	3.40	0.01351	8.00		3.72	3.16
	L0000044	536776.18	4270335.74	108.61	3.40	0.01351	8.00		3.72	3.16
	L0000045	536771.60	4270329.18	108.61	3.40	0.01351	8.00		3.72	3.16
	L0000046	536767.02	4270322.62	108.59	3.40	0.01351	8.00		3.72	3.16
	L0000047	536762.30	4270316.16	108.58	3.40	0.01351	8.00		3.72	3.16
	L0000048	536757.42	4270309.82	108.56	3.40	0.01351	8.00		3.72	3.16
	L0000049	536752.54	4270303.48	108.54	3.40	0.01351	8.00		3.72	3.16

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
HAULDPM	L0000050	536747.67	4270297.14	108.53	3.40	0.01351	8.00		3.72	3.16
	L0000051	536742.79	4270290.80	108.51	3.40	0.01351	8.00		3.72	3.16
	L0000052	536737.91	4270284.46	108.48	3.40	0.01351	8.00		3.72	3.16
	L0000053	536733.65	4270277.79	108.45	3.40	0.01351	8.00		3.72	3.16
	L0000054	536731.04	4270270.22	108.41	3.40	0.01351	8.00		3.72	3.16
	L0000055	536728.44	4270262.66	108.41	3.40	0.01351	8.00		3.72	3.16
	L0000056	536725.84	4270255.09	108.40	3.40	0.01351	8.00		3.72	3.16
	L0000057	536723.24	4270247.53	108.39	3.40	0.01351	8.00		3.72	3.16
	L0000058	536720.64	4270239.96	108.38	3.40	0.01351	8.00		3.72	3.16
	L0000059	536718.04	4270232.39	108.35	3.40	0.01351	8.00		3.72	3.16
	L0000060	536715.44	4270224.83	108.30	3.40	0.01351	8.00		3.72	3.16
	L0000061	536712.84	4270217.26	108.27	3.40	0.01351	8.00		3.72	3.16
	L0000062	536710.24	4270209.70	108.23	3.40	0.01351	8.00		3.72	3.16
	L0000063	536707.64	4270202.13	108.20	3.40	0.01351	8.00		3.72	3.16
	L0000064	536705.04	4270194.57	108.17	3.40	0.01351	8.00		3.72	3.16
	L0000065	536702.44	4270187.00	108.13	3.40	0.01351	8.00		3.72	3.16
	L0000066	536699.84	4270179.44	108.08	3.40	0.01351	8.00		3.72	3.16
	L0000067	536697.24	4270171.87	108.04	3.40	0.01351	8.00		3.72	3.16
	L0000068	536694.64	4270164.30	108.00	3.40	0.01351	8.00		3.72	3.16
	L0000069	536692.04	4270156.74	107.95	3.40	0.01351	8.00		3.72	3.16
	L0000070	536689.43	4270149.17	107.93	3.40	0.01351	8.00		3.72	3.16
	L0000071	536686.83	4270141.61	107.91	3.40	0.01351	8.00		3.72	3.16
	L0000072	536684.23	4270134.04	107.87	3.40	0.01351	8.00		3.72	3.16
	L0000073	536681.63	4270126.48	107.82	3.40	0.01351	8.00		3.72	3.16
	L0000074	536679.03	4270118.91	107.77	3.40	0.01351	8.00		3.72	3.16

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
HAULPM	L0000075	536718.64	4270640.57	110.39	0.00	0.01351	8.00	Surface-Based	3.72	3.16
	L0000076	536725.53	4270636.50	110.39	0.00	0.01351	8.00	Surface-Based	3.72	3.16
	L0000077	536732.42	4270632.43	110.37	0.00	0.01351	8.00	Surface-Based	3.72	3.16
	L0000078	536739.09	4270628.06	110.35	0.00	0.01351	8.00	Surface-Based	3.72	3.16
	L0000079	536745.22	4270622.92	110.33	0.00	0.01351	8.00	Surface-Based	3.72	3.16
	L0000080	536751.34	4270617.77	110.31	0.00	0.01351	8.00	Surface-Based	3.72	3.16
	L0000081	536757.47	4270612.62	110.30	0.00	0.01351	8.00	Surface-Based	3.72	3.16
	L0000082	536763.66	4270607.56	110.29	0.00	0.01351	8.00	Surface-Based	3.72	3.16
	L0000083	536770.17	4270602.91	110.26	0.00	0.01351	8.00	Surface-Based	3.72	3.16
	L0000084	536776.67	4270598.26	110.24	0.00	0.01351	8.00	Surface-Based	3.72	3.16
	L0000085	536777.56	4270590.31	110.17	0.00	0.01351	8.00	Surface-Based	3.72	3.16
	L0000086	536778.45	4270582.36	110.10	0.00	0.01351	8.00	Surface-Based	3.72	3.16
	L0000087	536779.33	4270574.41	110.03	0.00	0.01351	8.00	Surface-Based	3.72	3.16
	L0000088	536780.22	4270566.46	109.97	0.00	0.01351	8.00	Surface-Based	3.72	3.16
	L0000089	536781.11	4270558.51	109.91	0.00	0.01351	8.00	Surface-Based	3.72	3.16
	L0000090	536782.00	4270550.55	109.84	0.00	0.01351	8.00	Surface-Based	3.72	3.16
	L0000091	536782.88	4270542.60	109.77	0.00	0.01351	8.00	Surface-Based	3.72	3.16
	L0000092	536783.77	4270534.65	109.71	0.00	0.01351	8.00	Surface-Based	3.72	3.16
	L0000093	536784.66	4270526.70	109.64	0.00	0.01351	8.00	Surface-Based	3.72	3.16
	L0000094	536785.54	4270518.75	109.57	0.00	0.01351	8.00	Surface-Based	3.72	3.16
	L0000095	536786.43	4270510.80	109.50	0.00	0.01351	8.00	Surface-Based	3.72	3.16
	L0000096	536787.32	4270502.85	109.43	0.00	0.01351	8.00	Surface-Based	3.72	3.16
	L0000097	536788.21	4270494.90	109.37	0.00	0.01351	8.00	Surface-Based	3.72	3.16
	L0000098	536789.09	4270486.95	109.30	0.00	0.01351	8.00	Surface-Based	3.72	3.16
	L0000099	536789.98	4270479.00	109.24	0.00	0.01351	8.00	Surface-Based	3.72	3.16

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
HAULPM	L0000100	536790.87	4270471.05	109.19	0.00	0.01351	8.00	Surface-Based	3.72	3.16
	L0000101	536791.76	4270463.10	109.13	0.00	0.01351	8.00	Surface-Based	3.72	3.16
	L0000102	536792.64	4270455.15	109.07	0.00	0.01351	8.00	Surface-Based	3.72	3.16
	L0000103	536793.53	4270447.20	109.03	0.00	0.01351	8.00	Surface-Based	3.72	3.16
	L0000104	536794.42	4270439.25	108.99	0.00	0.01351	8.00	Surface-Based	3.72	3.16
	L0000105	536795.31	4270431.30	108.95	0.00	0.01351	8.00	Surface-Based	3.72	3.16
	L0000106	536796.19	4270423.34	108.90	0.00	0.01351	8.00	Surface-Based	3.72	3.16
	L0000107	536797.08	4270415.39	108.87	0.00	0.01351	8.00	Surface-Based	3.72	3.16
	L0000108	536797.97	4270407.44	108.84	0.00	0.01351	8.00	Surface-Based	3.72	3.16
	L0000109	536798.86	4270399.49	108.81	0.00	0.01351	8.00	Surface-Based	3.72	3.16
	L0000110	536799.74	4270391.54	108.77	0.00	0.01351	8.00	Surface-Based	3.72	3.16
	L0000111	536800.63	4270383.59	108.73	0.00	0.01351	8.00	Surface-Based	3.72	3.16
	L0000112	536801.52	4270375.64	108.69	0.00	0.01351	8.00	Surface-Based	3.72	3.16
	L0000113	536799.07	4270368.54	108.67	0.00	0.01351	8.00	Surface-Based	3.72	3.16
	L0000114	536794.49	4270361.98	108.67	0.00	0.01351	8.00	Surface-Based	3.72	3.16
	L0000115	536789.91	4270355.42	108.66	0.00	0.01351	8.00	Surface-Based	3.72	3.16
	L0000116	536785.33	4270348.86	108.64	0.00	0.01351	8.00	Surface-Based	3.72	3.16
	L0000117	536780.76	4270342.30	108.62	0.00	0.01351	8.00	Surface-Based	3.72	3.16
	L0000118	536776.18	4270335.74	108.61	0.00	0.01351	8.00	Surface-Based	3.72	3.16
	L0000119	536771.60	4270329.18	108.61	0.00	0.01351	8.00	Surface-Based	3.72	3.16
	L0000120	536767.02	4270322.62	108.59	0.00	0.01351	8.00	Surface-Based	3.72	3.16
	L0000121	536762.30	4270316.16	108.58	0.00	0.01351	8.00	Surface-Based	3.72	3.16
	L0000122	536757.42	4270309.82	108.56	0.00	0.01351	8.00	Surface-Based	3.72	3.16
	L0000123	536752.54	4270303.48	108.54	0.00	0.01351	8.00	Surface-Based	3.72	3.16
	L0000124	536747.67	4270297.14	108.53	0.00	0.01351	8.00	Surface-Based	3.72	3.16

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
HAULPM	L0000125	536742.79	4270290.80	108.51	0.00	0.01351	8.00	Surface-Based	3.72	3.16
	L0000126	536737.91	4270284.46	108.48	0.00	0.01351	8.00	Surface-Based	3.72	3.16
	L0000127	536733.65	4270277.79	108.45	0.00	0.01351	8.00	Surface-Based	3.72	3.16
	L0000128	536731.04	4270270.22	108.41	0.00	0.01351	8.00	Surface-Based	3.72	3.16
	L0000129	536728.44	4270262.66	108.41	0.00	0.01351	8.00	Surface-Based	3.72	3.16
	L0000130	536725.84	4270255.09	108.40	0.00	0.01351	8.00	Surface-Based	3.72	3.16
	L0000131	536723.24	4270247.53	108.39	0.00	0.01351	8.00	Surface-Based	3.72	3.16
	L0000132	536720.64	4270239.96	108.38	0.00	0.01351	8.00	Surface-Based	3.72	3.16
	L0000133	536718.04	4270232.39	108.35	0.00	0.01351	8.00	Surface-Based	3.72	3.16
	L0000134	536715.44	4270224.83	108.30	0.00	0.01351	8.00	Surface-Based	3.72	3.16
	L0000135	536712.84	4270217.26	108.27	0.00	0.01351	8.00	Surface-Based	3.72	3.16
	L0000136	536710.24	4270209.70	108.23	0.00	0.01351	8.00	Surface-Based	3.72	3.16
	L0000137	536707.64	4270202.13	108.20	0.00	0.01351	8.00	Surface-Based	3.72	3.16
	L0000138	536705.04	4270194.57	108.17	0.00	0.01351	8.00	Surface-Based	3.72	3.16
	L0000139	536702.44	4270187.00	108.13	0.00	0.01351	8.00	Surface-Based	3.72	3.16
	L0000140	536699.84	4270179.44	108.08	0.00	0.01351	8.00	Surface-Based	3.72	3.16
	L0000141	536697.24	4270171.87	108.04	0.00	0.01351	8.00	Surface-Based	3.72	3.16
	L0000142	536694.64	4270164.30	108.00	0.00	0.01351	8.00	Surface-Based	3.72	3.16
	L0000143	536692.04	4270156.74	107.95	0.00	0.01351	8.00	Surface-Based	3.72	3.16
	L0000144	536689.43	4270149.17	107.93	0.00	0.01351	8.00	Surface-Based	3.72	3.16
	L0000145	536686.83	4270141.61	107.91	0.00	0.01351	8.00	Surface-Based	3.72	3.16
	L0000146	536684.23	4270134.04	107.87	0.00	0.01351	8.00	Surface-Based	3.72	3.16
	L0000147	536681.63	4270126.48	107.82	0.00	0.01351	8.00	Surface-Based	3.72	3.16
	L0000148	536679.03	4270118.91	107.77	0.00	0.01351	8.00	Surface-Based	3.72	3.16

Source Pathway

Building Downwash Information

Option not in use

Emission Rate Units for Output

For Concentration

Unit Factor:	1E6
Emission Unit Label:	GRAMS/SEC
Concentration Unit Label:	MICROGRAMS/M**3

Source Groups

Source Group ID	List of Sources in Group (Source Range or Single Sources)
ON_PM	ON_PM
ON_DPM	ON_DPM
HAULPM	HAULPM
HAULDPM	HAULDPM

Variable Emissions

Hour-of-Day / Day-of-Week Emission Rate Variation

Scenario: Construction

Source ID: ON_DPM

Weekdays								
	Hour	1 - 6	0.00	0.00	0.00	0.00	0.00	0.00
	of	7 - 12	0.00	1.00	1.00	1.00	1.00	0.50
	Day	13 - 18	0.50	1.00	1.00	1.00	0.00	0.00
		19 - 24	0.00	0.00	0.00	0.00	0.00	0.00
Saturday								
	Hour	1 - 6	0.00	0.00	0.00	0.00	0.00	0.00
	of	7 - 12	0.00	0.00	0.00	0.00	0.00	0.00
	Day	13 - 18	0.00	0.00	0.00	0.00	0.00	0.00
		19 - 24	0.00	0.00	0.00	0.00	0.00	0.00
Sunday								
	Hour	1 - 6	0.00	0.00	0.00	0.00	0.00	0.00
	of	7 - 12	0.00	0.00	0.00	0.00	0.00	0.00
	Day	13 - 18	0.00	0.00	0.00	0.00	0.00	0.00
		19 - 24	0.00	0.00	0.00	0.00	0.00	0.00

Source ID: HAULDPM

Weekdays								
	Hour	1 - 6	0.00	0.00	0.00	0.00	0.00	0.00
	of	7 - 12	0.00	1.00	1.00	1.00	1.00	0.50
	Day	13 - 18	0.50	1.00	1.00	1.00	0.00	0.00
		19 - 24	0.00	0.00	0.00	0.00	0.00	0.00
Saturday								
	Hour	1 - 6	0.00	0.00	0.00	0.00	0.00	0.00
	of	7 - 12	0.00	0.00	0.00	0.00	0.00	0.00
	Day	13 - 18	0.00	0.00	0.00	0.00	0.00	0.00
		19 - 24	0.00	0.00	0.00	0.00	0.00	0.00
Sunday								
	Hour	1 - 6	0.00	0.00	0.00	0.00	0.00	0.00
	of	7 - 12	0.00	0.00	0.00	0.00	0.00	0.00
	Day	13 - 18	0.00	0.00	0.00	0.00	0.00	0.00
		19 - 24	0.00	0.00	0.00	0.00	0.00	0.00

Source ID: ON_PM

Weekdays								
	Hour	1 - 6	0.00	0.00	0.00	0.00	0.00	0.00
	of	7 - 12	0.00	1.00	1.00	1.00	1.00	0.50
	Day	13 - 18	0.50	1.00	1.00	1.00	0.00	0.00
		19 - 24	0.00	0.00	0.00	0.00	0.00	0.00
Saturday								
	Hour	1 - 6	0.00	0.00	0.00	0.00	0.00	0.00
	of	7 - 12	0.00	0.00	0.00	0.00	0.00	0.00
	Day	13 - 18	0.00	0.00	0.00	0.00	0.00	0.00
		19 - 24	0.00	0.00	0.00	0.00	0.00	0.00
Sunday								
	Hour	1 - 6	0.00	0.00	0.00	0.00	0.00	0.00
	of	7 - 12	0.00	0.00	0.00	0.00	0.00	0.00
	Day	13 - 18	0.00	0.00	0.00	0.00	0.00	0.00
		19 - 24	0.00	0.00	0.00	0.00	0.00	0.00

Source ID: HAULPM

Weekdays								
	Hour	1 - 6	0.00	0.00	0.00	0.00	0.00	0.00
	of	7 - 12	0.00	1.00	1.00	1.00	1.00	0.50
	Day	13 - 18	0.50	1.00	1.00	1.00	0.00	0.00

Scenario: Construction

Source ID: **HAULPM**

		19 - 24	0.00	0.00	0.00	0.00	0.00	0.00
Saturday								
	Hour	1 - 6	0.00	0.00	0.00	0.00	0.00	0.00
	of	7 - 12	0.00	0.00	0.00	0.00	0.00	0.00
	Day	13 - 18	0.00	0.00	0.00	0.00	0.00	0.00
		19 - 24	0.00	0.00	0.00	0.00	0.00	0.00
Sunday								
	Hour	1 - 6	0.00	0.00	0.00	0.00	0.00	0.00
	of	7 - 12	0.00	0.00	0.00	0.00	0.00	0.00
	Day	13 - 18	0.00	0.00	0.00	0.00	0.00	0.00
		19 - 24	0.00	0.00	0.00	0.00	0.00	0.00

Meteorology Pathway

AERMOD

Met Input Data

Surface Met Data

Filename: ..\Met\NAPA_COLLEGE_2013_2017.SFC

Format Type: Default AERMET format

Profile Met Data

Filename: ..\Met\NAPA_COLLEGE_2013_2017.PFL

Format Type: Default AERMET format

Wind Speed

☐ Wind Speeds are Vector Mean (Not Scalar Means)

Wind Direction

Rotation Adjustment [deg]:

Potential Temperature Profile

Base Elevation above MSL (for Primary Met Tower): 1.80 [m]

Meteorological Station Data

Stations	Station No.	Year	X Coordinate [m]	Y Coordinate [m]	Station Name
Surface		2013			
Upper Air		2013			OAKLAND/WSO AP
On-Site		2013			

Data Period

Data Period to Process

Start Date: 1/1/2013 Start Hour: 1 End Date: 1/1/2018 End Hour: 24

Wind Speed Categories

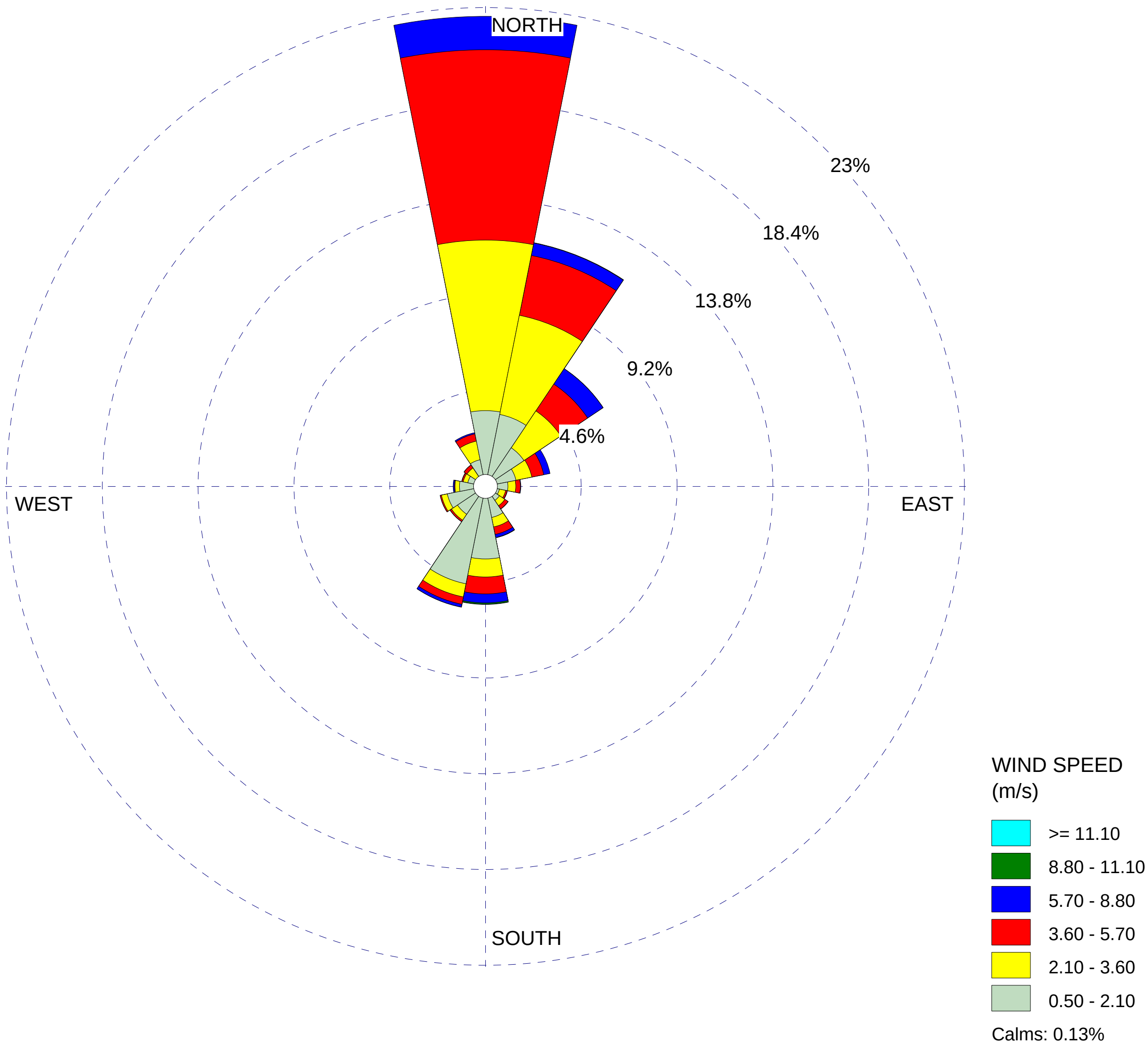
Stability Category	Wind Speed [m/s]	Stability Category	Wind Speed [m/s]
A	1.54	D	8.23
B	3.09	E	10.8
C	5.14	F	No Upper Bound

WIND ROSE PLOT:

Napa College Meteorological Station
2013-2017

DISPLAY:

Wind Speed
Flow Vector (blowing to)



COMMENTS:	DATA PERIOD:	COMPANY NAME:	
Work Hours 7AM-4PM	**Start Date: 1/1/2013 - 07:00** **End Date: 1/1/2018 - 15:00**	**PlaceWorks**	
		MODELER: **SB**	
	CALM WINDS: **0.13%**	TOTAL COUNT: **12093 hrs.**	
	AVG. WIND SPEED: **2.79 m/s**	DATE: **1/3/2025**	PROJECT NO.: **CALI-02**

WRPLOT View - Lakes Environmental Software

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN SigA Data

*** THE PERIOD (43848 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: HAULDPM ***
INCLUDING SOURCE(S): L0000001 , L0000002 , L0000003 , L0000004 , L0000005 ,
L0000006 , L0000007 , L0000008 , L0000009 , L0000010 , L0000011 , L0000012 , L0000013 ,
L0000014 , L0000015 , L0000016 , L0000017 , L0000018 , L0000019 , L0000020 , L0000021 ,
L0000022 , L0000023 , L0000024 , L0000025 , L0000026 , L0000027 , L0000028 , . . . ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
536589.74	4271013.10	0.25672	536609.74	4271013.10	0.28906
536629.74	4271013.10	0.32740	536649.74	4271013.10	0.37153
536669.74	4271013.10	0.42064	536689.74	4271013.10	0.47316
536709.74	4271013.10	0.52656	536729.74	4271013.10	0.57658
536749.74	4271013.10	0.61971	536769.74	4271013.10	0.65249
536369.74	4271033.10	0.10597	536389.74	4271033.10	0.11157
536409.74	4271033.10	0.11795	536429.74	4271033.10	0.12505
536449.74	4271033.10	0.13288	536469.74	4271033.10	0.14206
536489.74	4271033.10	0.15282	536509.74	4271033.10	0.16536
536529.74	4271033.10	0.18042	536549.74	4271033.10	0.19853
536569.74	4271033.10	0.22137	536589.74	4271033.10	0.24725
536609.74	4271033.10	0.27787	536629.74	4271033.10	0.31321
536649.74	4271033.10	0.35335	536669.74	4271033.10	0.39800
536689.74	4271033.10	0.44524	536709.74	4271033.10	0.49305
536729.74	4271033.10	0.53771	536749.74	4271033.10	0.57612
536769.74	4271033.10	0.60552	536713.25	4270690.28	4.20807
536746.19	4270649.24	17.79032	536697.32	4270676.26	3.34953
536714.36	**4270665.54**	**7.51238 MEIR**	536734.36	4270665.54	11.36171
536754.36	4270665.54	10.99987			

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN SigA Data

*** THE PERIOD (43848 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: HAULPM ***
INCLUDING SOURCE(S): L0000075 , L0000076 , L0000077 , L0000078 , L0000079 ,
L0000080 , L0000081 , L0000082 , L0000083 , L0000084 , L0000085 , L0000086 , L0000087 ,
L0000088 , L0000089 , L0000090 , L0000091 , L0000092 , L0000093 , L0000094 , L0000095 ,
L0000096 , L0000097 , L0000098 , L0000099 , L0000100 , L0000101 , L0000102 , . . . ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
536589.74	4271013.10	0.22721	536609.74	4271013.10	0.25650
536629.74	4271013.10	0.29428	536649.74	4271013.10	0.34257
536669.74	4271013.10	0.40243	536689.74	4271013.10	0.47281
536709.74	4271013.10	0.54937	536729.74	4271013.10	0.62444
536749.74	4271013.10	0.68952	536769.74	4271013.10	0.73680
536369.74	4271033.10	0.10683	536389.74	4271033.10	0.11165
536409.74	4271033.10	0.11706	536429.74	4271033.10	0.12284
536449.74	4271033.10	0.12892	536469.74	4271033.10	0.13588
536489.74	4271033.10	0.14390	536509.74	4271033.10	0.15321
536529.74	4271033.10	0.16461	536549.74	4271033.10	0.17877
536569.74	4271033.10	0.19646	536589.74	4271033.10	0.21864
536609.74	4271033.10	0.24688	536629.74	4271033.10	0.28275
536649.74	4271033.10	0.32803	536669.74	4271033.10	0.38350
536689.74	4271033.10	0.44773	536709.74	4271033.10	0.51675
536729.74	4271033.10	0.58387	536749.74	4271033.10	0.64185
536769.74	4271033.10	0.68425	536713.25	4270690.28	4.03539
536746.19	4270649.24	19.31902	536697.32	4270676.26	3.38158
536714.36	**4270665.54**	**7.81087** **MEIR**	536734.36	4270665.54	11.46992
536754.36	4270665.54	10.99681			

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN SigA Data

*** THE PERIOD (43848 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ON_DPM ***
INCLUDING SOURCE(S): ON_DPM ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
536589.74	4271013.10	0.67935	536609.74	4271013.10	0.76389
536629.74	4271013.10	0.84311	536649.74	4271013.10	0.91148
536669.74	4271013.10	0.96389	536689.74	4271013.10	0.99661
536709.74	4271013.10	1.00761	536729.74	4271013.10	0.99629
536749.74	4271013.10	0.96489	536769.74	4271013.10	0.91720
536369.74	4271033.10	0.14394	536389.74	4271033.10	0.15988
536409.74	4271033.10	0.17925	536429.74	4271033.10	0.20292
536449.74	4271033.10	0.23183	536469.74	4271033.10	0.26743
536489.74	4271033.10	0.31071	536509.74	4271033.10	0.36218
536529.74	4271033.10	0.42217	536549.74	4271033.10	0.48983
536569.74	4271033.10	0.55973	536589.74	4271033.10	0.63581
536609.74	4271033.10	0.71124	536629.74	4271033.10	0.78139
536649.74	4271033.10	0.84184	536669.74	4271033.10	0.88850
536689.74	4271033.10	0.91799	536709.74	4271033.10	0.92865
536729.74	4271033.10	0.91989	536749.74	4271033.10	0.89333
536769.74	4271033.10	0.85228	536713.25	4270690.28	9.60816
536746.19	4270649.24	11.42746	536697.32	4270676.26	11.82671
536714.36	**4270665.54**	**14.41066** **MEIR**	536734.36	4270665.54	11.69263
536754.36	4270665.54	8.29443			

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN SigA Data

*** THE PERIOD (43848 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ON_PM ***
INCLUDING SOURCE(S): ON_PM ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
536589.74	4271013.10	0.68392	536609.74	4271013.10	0.80064
536629.74	4271013.10	0.91274	536649.74	4271013.10	1.00985
536669.74	4271013.10	1.08245	536689.74	4271013.10	1.12381
536709.74	4271013.10	1.13071	536729.74	4271013.10	1.10300
536749.74	4271013.10	1.04628	536769.74	4271013.10	0.96946
536369.74	4271033.10	0.13356	536389.74	4271033.10	0.14466
536409.74	4271033.10	0.15742	536429.74	4271033.10	0.17310
536449.74	4271033.10	0.19338	536469.74	4271033.10	0.22068
536489.74	4271033.10	0.25773	536509.74	4271033.10	0.30701
536529.74	4271033.10	0.37069	536549.74	4271033.10	0.44929
536569.74	4271033.10	0.54135	536589.74	4271033.10	0.64300
536609.74	4271033.10	0.74810	536629.74	4271033.10	0.84813
536649.74	4271033.10	0.93439	536669.74	4271033.10	0.99906
536689.74	4271033.10	1.03621	536709.74	4271033.10	1.04320
536729.74	4271033.10	1.01996	536749.74	4271033.10	0.97082
536769.74	4271033.10	0.90353	536713.25	4270690.28	10.37751
536746.19	4270649.24	12.28588	536697.32	4270676.26	12.78752
536714.36	**4270665.54**	**15.76348 MEIR**	536734.36	4270665.54	12.54195
536754.36	4270665.54	8.62770			

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN SigA Data

*** THE SUMMARY OF MAXIMUM PERIOD (43848 HRS) RESULTS ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

GROUP ID		AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG) OF TYPE	NETWORK GRID-ID
HAULDPM	1ST HIGHEST VALUE IS	32.18122 AT (	536796.39, 4270522.46, 109.64, 1319.62, 1.50) DC	
	2ND HIGHEST VALUE IS	29.20102 AT (	536795.06, 4270550.44, 109.85, 1319.62, 1.50) DC	
	3RD HIGHEST VALUE IS	20.67229 AT (	536809.74, 4270493.10, 109.45, 1319.62, 1.50) DC	
	4TH HIGHEST VALUE IS	19.00138 AT (	536809.74, 4270513.10, 109.62, 1319.62, 1.50) DC	
	5TH HIGHEST VALUE IS	17.79032 AT (	536746.19, 4270649.24, 110.56, 1319.62, 1.50) DC	
	6TH HIGHEST VALUE IS	17.49366 AT (	536809.74, 4270533.10, 109.76, 1319.62, 1.50) DC	
	7TH HIGHEST VALUE IS	16.06979 AT (	536809.74, 4270553.10, 109.90, 1319.62, 1.50) DC	
	8TH HIGHEST VALUE IS	11.36171 AT (	536734.36, 4270665.54, 110.65, 1319.62, 1.50) DC	
	9TH HIGHEST VALUE IS	10.99987 AT (	536754.36, 4270665.54, 110.60, 1319.62, 1.50) DC	
	10TH HIGHEST VALUE IS	10.89831 AT (	536829.74, 4270493.10, 109.39, 1319.62, 1.50) DC	
HAULPM	1ST HIGHEST VALUE IS	37.59639 AT (	536796.39, 4270522.46, 109.64, 1319.62, 1.50) DC	
	2ND HIGHEST VALUE IS	33.56334 AT (	536795.06, 4270550.44, 109.85, 1319.62, 1.50) DC	
	3RD HIGHEST VALUE IS	22.57819 AT (	536809.74, 4270493.10, 109.45, 1319.62, 1.50) DC	
	4TH HIGHEST VALUE IS	20.65602 AT (	536809.74, 4270513.10, 109.62, 1319.62, 1.50) DC	
	5TH HIGHEST VALUE IS	19.31902 AT (	536746.19, 4270649.24, 110.56, 1319.62, 1.50) DC	
	6TH HIGHEST VALUE IS	18.94574 AT (	536809.74, 4270533.10, 109.76, 1319.62, 1.50) DC	
	7TH HIGHEST VALUE IS	17.36776 AT (	536809.74, 4270553.10, 109.90, 1319.62, 1.50) DC	
	8TH HIGHEST VALUE IS	11.46992 AT (	536734.36, 4270665.54, 110.65, 1319.62, 1.50) DC	
	9TH HIGHEST VALUE IS	11.35922 AT (	536829.74, 4270493.10, 109.39, 1319.62, 1.50) DC	
	10TH HIGHEST VALUE IS	11.24091 AT (	536819.59, 4270580.88, 110.12, 1319.62, 1.50) DC	
ON_DPM	1ST HIGHEST VALUE IS	14.41066 AT (	536714.36, 4270665.54, 110.69, 1319.62, 1.50) DC	
	2ND HIGHEST VALUE IS	14.27509 AT (	536689.74, 4270433.10, 109.32, 1319.62, 1.50) DC	
	3RD HIGHEST VALUE IS	14.22056 AT (	536649.74, 4270453.10, 109.48, 1319.62, 1.50) DC	
	4TH HIGHEST VALUE IS	13.03229 AT (	536629.74, 4270473.10, 109.54, 1319.62, 1.50) DC	
	5TH HIGHEST VALUE IS	12.71574 AT (	536609.74, 4270493.10, 109.60, 1319.62, 1.50) DC	
	6TH HIGHEST VALUE IS	12.53087 AT (	536589.74, 4270513.10, 109.66, 1319.62, 1.50) DC	
	7TH HIGHEST VALUE IS	12.33756 AT (	536669.74, 4270433.10, 109.40, 1319.62, 1.50) DC	
	8TH HIGHEST VALUE IS	11.82671 AT (	536697.32, 4270676.26, 110.67, 1319.62, 1.50) DC	
	9TH HIGHEST VALUE IS	11.69263 AT (	536734.36, 4270665.54, 110.65, 1319.62, 1.50) DC	
	10TH HIGHEST VALUE IS	11.42746 AT (	536746.19, 4270649.24, 110.56, 1319.62, 1.50) DC	
ON_PM	1ST HIGHEST VALUE IS	17.63703 AT (	536689.74, 4270433.10, 109.32, 1319.62, 1.50) DC	
	2ND HIGHEST VALUE IS	16.47462 AT (	536649.74, 4270453.10, 109.48, 1319.62, 1.50) DC	
	3RD HIGHEST VALUE IS	15.76348 AT (	536714.36, 4270665.54, 110.69, 1319.62, 1.50) DC	
	4TH HIGHEST VALUE IS	14.38160 AT (	536629.74, 4270473.10, 109.54, 1319.62, 1.50) DC	
	5TH HIGHEST VALUE IS	14.31476 AT (	536589.74, 4270513.10, 109.66, 1319.62, 1.50) DC	
	6TH HIGHEST VALUE IS	14.07965 AT (	536669.74, 4270433.10, 109.40, 1319.62, 1.50) DC	
	7TH HIGHEST VALUE IS	14.02323 AT (	536609.74, 4270493.10, 109.60, 1319.62, 1.50) DC	
	8TH HIGHEST VALUE IS	12.78752 AT (	536697.32, 4270676.26, 110.67, 1319.62, 1.50) DC	
	9TH HIGHEST VALUE IS	12.54195 AT (	536734.36, 4270665.54, 110.65, 1319.62, 1.50) DC	
	10TH HIGHEST VALUE IS	12.28588 AT (	536746.19, 4270649.24, 110.56, 1319.62, 1.50) DC	

Control Pathway

AERMOD

Dispersion Options

Titles

Calistoga Junior Senior HS Field Project
Construction HRA - Student Receptors

Dispersion Options

- [x] Regulatory Default
- [ ] Non-Default Options

Dispersion Coefficient

Urban
Population:
Name (Optional):
Roughness Length:

Output Type

- [x] Concentration
- [ ] Total Deposition (Dry & Wet)
- [ ] Dry Deposition
- [ ] Wet Deposition

Plume Depletion

- [ ] Dry Removal
- [ ] Wet Removal

Output Warnings

- [ ] No Output Warnings
- [ ] Non-fatal Warnings for Non-sequential Met Data

Pollutant / Averaging Time / Terrain Options

Pollutant Type

Averaging Time Options

Hours

1	2	3	4	6	8	12	24
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

- [ ] Month
- [x] Period
- [ ] Annual

Exponential Decay

Option not available
Half Life of 4 hrs will be used

Terrain Height Options

- [ ] Flat
- [x] Elevated

SO: Meters
RE: Meters
TG: Meters

Flagpole Receptors

- [x] Yes
- [ ] No

Default Height = 1.50 m

Control Pathway

AERMOD

Optional Files

☐ Re-Start File	☐ Init File	☐ Multi-Year Analyses	☐ Event Input File	☒ Error Listing File

Detailed Error Listing File

Filename: CALI02.err

Results Summary

Calistoga Junior Senior HS Field Project
Construction HRA - Student Receptors

Concentration - Source Group: HAULDPM

Averaging Period	Rank	Peak	Units	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
PERIOD		13.72823	ug/m^3	536732.87	4270605.87	110.11	1.50	1319.62	

Concentration - Source Group: HAULPM

Averaging Period	Rank	Peak	Units	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
PERIOD		15.66914	ug/m^3	536732.87	4270605.87	110.11	1.50	1319.62	

Concentration - Source Group: ON_DPM

Averaging Period	Rank	Peak	Units	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
PERIOD		20.33330	ug/m^3	536732.87	4270605.87	110.11	1.50	1319.62	

Concentration - Source Group: ON_PM

Averaging Period	Rank	Peak	Units	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
PERIOD		24.14718	ug/m^3	536732.87	4270605.87	110.11	1.50	1319.62	

Control Pathway

Dispersion Options

Titles

Calistoga Junior Senior HS Field Project
Construction HRA - Worker Receptors

Dispersion Options

- [x] Regulatory Default
- [ ] Non-Default Options

Dispersion Coefficient

Urban

Population:
Name (Optional):
Roughness Length:

Output Type

- [x] Concentration
- [ ] Total Deposition (Dry & Wet)
- [ ] Dry Deposition
- [ ] Wet Deposition

Plume Depletion

- [ ] Dry Removal
- [ ] Wet Removal

Output Warnings

- [ ] No Output Warnings
- [ ] Non-fatal Warnings for Non-sequential Met Data

Pollutant / Averaging Time / Terrain Options

Pollutant Type

Averaging Time Options

Hours

1	2	3	4	6	8	12	24
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

- [ ] Month
- [x] Period
- [ ] Annual

Exponential Decay

Option not available
Half Life of 4 hrs will be used

Terrain Height Options

- [ ] Flat
- [x] Elevated

SO: Meters
RE: Meters
TG: Meters

Flagpole Receptors

- [x] Yes
- [ ] No

Default Height = 1.50 m

Control Pathway

Optional Files

- [ ] Re-Start File
- [ ] Init File
- [ ] Multi-Year Analyses
- [ ] Event Input File
- [x] Error Listing File

Detailed Error Listing File

Filename: CALI02_Worker.err

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN SigA Data

*** THE PERIOD (43848 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: HAULDPM ***
INCLUDING SOURCE(S): L0000001 , L0000002 , L0000003 , L0000004 , L0000005 ,
L0000006 , L0000007 , L0000008 , L0000009 , L0000010 , L0000011 , L0000012 , L0000013 ,
L0000014 , L0000015 , L0000016 , L0000017 , L0000018 , L0000019 , L0000020 , L0000021 ,
L0000022 , L0000023 , L0000024 , L0000025 , L0000026 , L0000027 , L0000028 , . . . ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
536771.84	4270277.35	11.97200	536791.84	4270277.35	7.60213
536811.84	4270277.35	5.25503	536831.84	4270277.35	3.80886
536851.84	4270277.35	2.85280	536771.84	4270297.35	17.71180
536791.84	4270297.35	10.11463	536811.84	4270297.35	6.57453
536640.43	4270160.08	4.16066	536660.43	4270160.08	8.15534
536588.42	4270368.44	1.21156	536620.43	4270180.08	2.62533
536640.43	4270180.08	4.00753	536660.43	4270180.08	7.31916
536680.43	4270180.08	17.46513	536610.51	4270350.07	1.56475
536620.43	4270200.08	2.56442	536640.43	4270200.08	3.81754
536660.43	4270200.08	6.55079	536680.43	4270200.08	13.68000
536689.03	4270295.26	7.22331	536640.43	4270220.08	3.59967
536660.43	4270220.08	5.85747	536680.43	4270220.08	11.07504
536598.73	4270300.15	1.52565	536640.43	4270240.08	3.37223
536660.43	4270240.08	5.25214	536680.43	4270240.08	9.19289
536700.43	4270240.08	19.33443	536640.43	4270260.08	3.14509
536660.43	4270260.08	4.71036	536680.43	4270260.08	7.77310
536700.43	4270260.08	14.85851	536623.77	4270294.03	2.13690
536660.43	4270280.08	4.22540	536680.43	4270280.08	6.63003
536700.43	4270280.08	11.67715	536720.43	4270280.08	25.84165
536638.11	4270331.47	2.31440	536660.43	4270300.08	3.79428
536571.29	4270313.96	1.12420	536711.42	4270311.74	10.79057
536731.42	4270311.74	19.89817	536691.42	4270331.74	5.55650
536711.42	4270331.74	8.44241	536731.42	4270331.74	13.62640
536751.42	4270331.74	23.87183	536691.42	4270351.74	4.83339
536711.42	4270351.74	6.94778	536731.42	4270351.74	10.31940
536751.42	4270351.74	16.16615	536771.42	4270351.74	29.56073
536711.42	4270371.74	5.97307	536731.42	4270371.74	8.44336
536751.42	4270371.74	12.38358	536771.42	4270371.74	20.05981
536711.42	4270391.74	5.34255	536731.42	4270391.74	7.36157
536751.42	4270391.74	10.54301	536830.56	4270379.50	10.97294
536832.56	4270603.31	7.01398	536479.58	4270590.15	0.43431
536452.76	4270605.89	0.36501	536437.65	4270615.66	0.33283
536809.98	4270433.64	26.73310	536829.98	4270433.64	12.32458
536809.98	4270453.64	24.37419	536829.98	4270453.64	11.88910
536809.98	4270473.64	22.28237	536829.98	4270473.64	11.36298
536839.61	4270621.16	5.58446	536846.97	4270639.74	4.47365
536760.75	**4270580.16**	**19.73096 MEIW**			

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN SigA Data

*** THE PERIOD (43848 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: HAULPM ***
INCLUDING SOURCE(S): L0000075 , L0000076 , L0000077 , L0000078 , L0000079 ,
L0000080 , L0000081 , L0000082 , L0000083 , L0000084 , L0000085 , L0000086 , L0000087 ,
L0000088 , L0000089 , L0000090 , L0000091 , L0000092 , L0000093 , L0000094 , L0000095 ,
L0000096 , L0000097 , L0000098 , L0000099 , L0000100 , L0000101 , L0000102 , . . . ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
536771.84	4270277.35	12.99597	536791.84	4270277.35	8.02940
536811.84	4270277.35	5.46341	536831.84	4270277.35	3.91868
536851.84	4270277.35	2.89707	536771.84	4270297.35	19.94238
536791.84	4270297.35	10.86633	536811.84	4270297.35	6.90841
536640.43	4270160.08	4.48975	536660.43	4270160.08	9.03457
536588.42	4270368.44	1.17685	536620.43	4270180.08	2.73454
536640.43	4270180.08	4.25735	536660.43	4270180.08	7.93714
536680.43	4270180.08	19.44606	536610.51	4270350.07	1.51786
536620.43	4270200.08	2.64991	536640.43	4270200.08	3.98668
536660.43	4270200.08	6.96902	536680.43	4270200.08	14.84469
536689.03	4270295.26	7.63814	536640.43	4270220.08	3.71024
536660.43	4270220.08	6.15103	536680.43	4270220.08	11.88413
536598.73	4270300.15	1.50596	536640.43	4270240.08	3.44197
536660.43	4270240.08	5.46492	536680.43	4270240.08	9.81766
536700.43	4270240.08	21.25779	536640.43	4270260.08	3.17988
536660.43	4270260.08	4.86233	536680.43	4270260.08	8.26664
536700.43	4270260.08	16.10178	536623.77	4270294.03	2.11181
536660.43	4270280.08	4.32083	536680.43	4270280.08	6.99078
536700.43	4270280.08	12.57006	536720.43	4270280.08	29.31905
536638.11	4270331.47	2.26643	536660.43	4270300.08	3.84113
536571.29	4270313.96	1.11158	536711.42	4270311.74	11.48654
536731.42	4270311.74	21.49025	536691.42	4270331.74	5.77494
536711.42	4270331.74	8.93082	536731.42	4270331.74	14.41128
536751.42	4270331.74	26.15112	536691.42	4270351.74	4.97502
536711.42	4270351.74	7.29429	536731.42	4270351.74	10.88752
536751.42	4270351.74	17.02991	536771.42	4270351.74	33.64345
536711.42	4270371.74	6.23446	536731.42	4270371.74	8.89773
536751.42	4270371.74	13.02148	536771.42	4270371.74	21.35441
536711.42	4270391.74	5.55350	536731.42	4270391.74	7.74881
536751.42	4270391.74	11.15720	536830.56	4270379.50	11.88587
536832.56	4270603.31	7.24275	536479.58	4270590.15	0.42596
536452.76	4270605.89	0.35872	536437.65	4270615.66	0.32727
536809.98	4270433.64	29.98358	536829.98	4270433.64	12.88407
536809.98	4270453.64	26.98569	536829.98	4270453.64	12.37947
536809.98	4270473.64	24.45626	536829.98	4270473.64	11.83010
536839.61	4270621.16	5.68438	536846.97	4270639.74	4.50069
536760.75	**4270580.16**	**22.46104 MEIW**			

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN SigA Data

*** THE PERIOD (43848 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ON_DPM ***
INCLUDING SOURCE(S): ON_DPM ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
536771.84	4270277.35	0.95080	536791.84	4270277.35	0.79327
536811.84	4270277.35	0.65745	536831.84	4270277.35	0.54418
536851.84	4270277.35	0.45185	536771.84	4270297.35	1.06243
536791.84	4270297.35	0.87105	536811.84	4270297.35	0.71004
536640.43	4270160.08	0.92022	536660.43	4270160.08	0.87772
536588.42	4270368.44	3.00241	536620.43	4270180.08	1.05236
536640.43	4270180.08	1.02200	536660.43	4270180.08	0.97623
536680.43	4270180.08	0.91887	536610.51	4270350.07	3.02500
536620.43	4270200.08	1.17057	536640.43	4270200.08	1.14171
536660.43	4270200.08	1.09283	536680.43	4270200.08	1.02836
536689.03	4270295.26	1.92581	536640.43	4270220.08	1.28381
536660.43	4270220.08	1.23237	536680.43	4270220.08	1.15975
536598.73	4270300.15	2.05781	536640.43	4270240.08	1.45395
536660.43	4270240.08	1.40112	536680.43	4270240.08	1.31934
536700.43	4270240.08	1.21620	536640.43	4270260.08	1.65953
536660.43	4270260.08	1.60775	536680.43	4270260.08	1.51586
536700.43	4270260.08	1.39343	536623.77	4270294.03	2.09756
536660.43	4270280.08	1.86421	536680.43	4270280.08	1.76179
536700.43	4270280.08	1.61512	536720.43	4270280.08	1.43989
536638.11	4270331.47	2.86513	536660.43	4270300.08	2.18767
536571.29	4270313.96	1.96522	536711.42	4270311.74	1.96615
536731.42	4270311.74	1.69461	536691.42	4270331.74	2.66564
536711.42	4270331.74	2.36539	536731.42	4270331.74	2.00581
536751.42	4270331.74	1.64116	536691.42	4270351.74	3.30974
536711.42	4270351.74	2.91292	536731.42	4270351.74	2.41844
536751.42	4270351.74	1.92350	536771.42	4270351.74	1.49182
536711.42	4270371.74	3.70045	536731.42	4270371.74	2.98359
536751.42	4270371.74	2.28550	536771.42	4270371.74	1.70932
536711.42	4270391.74	4.91090	536731.42	4270391.74	3.78716
536751.42	4270391.74	2.75925	536830.56	4270379.50	0.78265
536832.56	4270603.31	2.60046	536479.58	4270590.15	1.02255
536452.76	4270605.89	0.68336	536437.65	4270615.66	0.55819
536809.98	4270433.64	1.38381	536829.98	4270433.64	1.04215
536809.98	4270453.64	1.59265	536829.98	4270453.64	1.18652
536809.98	4270473.64	1.87025	536829.98	4270473.64	1.36826
536839.61	4270621.16	2.36978	536846.97	4270639.74	2.14853
536760.75	**4270580.16**	**11.17020 MEIW**			

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN SigA Data

*** THE PERIOD (43848 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ON_PM ***
INCLUDING SOURCE(S): ON_PM ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
536771.84	4270277.35	0.88792	536791.84	4270277.35	0.72766
536811.84	4270277.35	0.59362	536831.84	4270277.35	0.48605
536851.84	4270277.35	0.40025	536771.84	4270297.35	0.98794
536791.84	4270297.35	0.79573	536811.84	4270297.35	0.63739
536640.43	4270160.08	0.95915	536660.43	4270160.08	0.88197
536588.42	4270368.44	3.18253	536620.43	4270180.08	1.15066
536640.43	4270180.08	1.07597	536660.43	4270180.08	0.98957
536680.43	4270180.08	0.90282	536610.51	4270350.07	3.34824
536620.43	4270200.08	1.29207	536640.43	4270200.08	1.21487
536660.43	4270200.08	1.11850	536680.43	4270200.08	1.01761
536689.03	4270295.26	1.95713	536640.43	4270220.08	1.38114
536660.43	4270220.08	1.27445	536680.43	4270220.08	1.15656
536598.73	4270300.15	2.32813	536640.43	4270240.08	1.58160
536660.43	4270240.08	1.46514	536680.43	4270240.08	1.32694
536700.43	4270240.08	1.18824	536640.43	4270260.08	1.82497
536660.43	4270260.08	1.70105	536680.43	4270260.08	1.53900
536700.43	4270260.08	1.36944	536623.77	4270294.03	2.37714
536660.43	4270280.08	1.99675	536680.43	4270280.08	1.80754
536700.43	4270280.08	1.59795	536720.43	4270280.08	1.39299
536638.11	4270331.47	3.23480	536660.43	4270300.08	2.37267
536571.29	4270313.96	2.15724	536711.42	4270311.74	1.93412
536731.42	4270311.74	1.62789	536691.42	4270331.74	2.75238
536711.42	4270331.74	2.34223	536731.42	4270331.74	1.92850
536751.42	4270331.74	1.54389	536691.42	4270351.74	3.46687
536711.42	4270351.74	2.90899	536731.42	4270351.74	2.32935
536751.42	4270351.74	1.80502	536771.42	4270351.74	1.36807
536711.42	4270371.74	3.73715	536731.42	4270371.74	2.88157
536751.42	4270371.74	2.13725	536771.42	4270371.74	1.55154
536711.42	4270391.74	5.04039	536731.42	4270391.74	3.67260
536751.42	4270391.74	2.56747	536830.56	4270379.50	0.68987
536832.56	4270603.31	2.52165	536479.58	4270590.15	0.92441
536452.76	4270605.89	0.60052	536437.65	4270615.66	0.48535
536809.98	4270433.64	1.24597	536829.98	4270433.64	0.95035
536809.98	4270453.64	1.45698	536829.98	4270453.64	1.09895
536809.98	4270473.64	1.73426	536829.98	4270473.64	1.27488
536839.61	4270621.16	2.29724	536846.97	4270639.74	2.08921
536760.75	**4270580.16**	**11.49656 MEIW**			

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN SigA Data

*** THE SUMMARY OF MAXIMUM PERIOD (43848 HRS) RESULTS ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

GROUP ID		AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	OF TYPE	NETWORK GRID-ID
HAULDPM	1ST HIGHEST VALUE IS	29.56073 AT	(536771.42, 4270351.74, 108.72, 1319.62, 1.50)	DC	
	2ND HIGHEST VALUE IS	26.73310 AT	(536809.98, 4270433.64, 108.96, 1319.62, 1.50)	DC	
	3RD HIGHEST VALUE IS	25.84165 AT	(536720.43, 4270280.08, 108.48, 1319.62, 1.50)	DC	
	4TH HIGHEST VALUE IS	24.37419 AT	(536809.98, 4270453.64, 109.09, 1319.62, 1.50)	DC	
	5TH HIGHEST VALUE IS	23.87183 AT	(536751.42, 4270331.74, 108.76, 1319.62, 1.50)	DC	
	6TH HIGHEST VALUE IS	22.28237 AT	(536809.98, 4270473.64, 109.27, 1319.62, 1.50)	DC	
	7TH HIGHEST VALUE IS	20.05981 AT	(536771.42, 4270371.74, 108.80, 1319.62, 1.50)	DC	
	8TH HIGHEST VALUE IS	19.89817 AT	(536731.42, 4270311.74, 108.69, 1319.62, 1.50)	DC	
	9TH HIGHEST VALUE IS	19.73096 AT	(536760.75, 4270580.16, 110.00, 1319.62, 1.50)	DC	
	10TH HIGHEST VALUE IS	19.33443 AT	(536700.43, 4270240.08, 108.45, 1319.62, 1.50)	DC	
HAULPM	1ST HIGHEST VALUE IS	33.64345 AT	(536771.42, 4270351.74, 108.72, 1319.62, 1.50)	DC	
	2ND HIGHEST VALUE IS	29.98358 AT	(536809.98, 4270433.64, 108.96, 1319.62, 1.50)	DC	
	3RD HIGHEST VALUE IS	29.31905 AT	(536720.43, 4270280.08, 108.48, 1319.62, 1.50)	DC	
	4TH HIGHEST VALUE IS	26.98569 AT	(536809.98, 4270453.64, 109.09, 1319.62, 1.50)	DC	
	5TH HIGHEST VALUE IS	26.15112 AT	(536751.42, 4270331.74, 108.76, 1319.62, 1.50)	DC	
	6TH HIGHEST VALUE IS	24.45626 AT	(536809.98, 4270473.64, 109.27, 1319.62, 1.50)	DC	
	7TH HIGHEST VALUE IS	22.46104 AT	(536760.75, 4270580.16, 110.00, 1319.62, 1.50)	DC	
	8TH HIGHEST VALUE IS	21.49025 AT	(536731.42, 4270311.74, 108.69, 1319.62, 1.50)	DC	
	9TH HIGHEST VALUE IS	21.35441 AT	(536771.42, 4270371.74, 108.80, 1319.62, 1.50)	DC	
	10TH HIGHEST VALUE IS	21.25779 AT	(536700.43, 4270240.08, 108.45, 1319.62, 1.50)	DC	
ON_DPM	1ST HIGHEST VALUE IS	11.17020 AT	(536760.75, 4270580.16, 110.00, 1319.62, 1.50)	DC	
	2ND HIGHEST VALUE IS	4.91090 AT	(536711.42, 4270391.74, 109.23, 1319.62, 1.50)	DC	
	3RD HIGHEST VALUE IS	3.78716 AT	(536731.42, 4270391.74, 109.09, 1319.62, 1.50)	DC	
	4TH HIGHEST VALUE IS	3.70045 AT	(536711.42, 4270371.74, 109.16, 1319.62, 1.50)	DC	
	5TH HIGHEST VALUE IS	3.30974 AT	(536691.42, 4270351.74, 109.15, 1319.62, 1.50)	DC	
	6TH HIGHEST VALUE IS	3.02500 AT	(536610.51, 4270350.07, 109.11, 1319.62, 1.50)	DC	
	7TH HIGHEST VALUE IS	3.00241 AT	(536588.42, 4270368.44, 109.20, 1319.62, 1.50)	DC	
	8TH HIGHEST VALUE IS	2.98359 AT	(536731.42, 4270371.74, 109.00, 1319.62, 1.50)	DC	
	9TH HIGHEST VALUE IS	2.91292 AT	(536711.42, 4270351.74, 109.06, 1319.62, 1.50)	DC	
	10TH HIGHEST VALUE IS	2.86513 AT	(536638.11, 4270331.47, 108.93, 1319.62, 1.50)	DC	
ON_PM	1ST HIGHEST VALUE IS	11.49656 AT	(536760.75, 4270580.16, 110.00, 1319.62, 1.50)	DC	
	2ND HIGHEST VALUE IS	5.04039 AT	(536711.42, 4270391.74, 109.23, 1319.62, 1.50)	DC	
	3RD HIGHEST VALUE IS	3.73715 AT	(536711.42, 4270371.74, 109.16, 1319.62, 1.50)	DC	
	4TH HIGHEST VALUE IS	3.67260 AT	(536731.42, 4270391.74, 109.09, 1319.62, 1.50)	DC	
	5TH HIGHEST VALUE IS	3.46687 AT	(536691.42, 4270351.74, 109.15, 1319.62, 1.50)	DC	
	6TH HIGHEST VALUE IS	3.34824 AT	(536610.51, 4270350.07, 109.11, 1319.62, 1.50)	DC	
	7TH HIGHEST VALUE IS	3.23480 AT	(536638.11, 4270331.47, 108.93, 1319.62, 1.50)	DC	
	8TH HIGHEST VALUE IS	3.18253 AT	(536588.42, 4270368.44, 109.20, 1319.62, 1.50)	DC	
	9TH HIGHEST VALUE IS	2.90899 AT	(536711.42, 4270351.74, 109.06, 1319.62, 1.50)	DC	
	10TH HIGHEST VALUE IS	2.88157 AT	(536731.42, 4270371.74, 109.00, 1319.62, 1.50)	DC	

Appendix C. Construction Risk Calculations

Receptor Risk: Single Family Residence **Unmitigated Results**

Receptor Information

HRA Receptor		Receptor Risk Information					
Name	Type	Start Age	Daily Breathing Rate	Fraction of Time at Home	Averaging Time	Inhalation Absorption Factor	Pollutant
Single Family Residence	Residential	3rd Trimester	24-Hour	Yes	70 Years	1	Diesel Particulate Matter

DPM Maximum Exposed Receptor (MER) UTM coordinates: 536714.36 E, 4270665.54 N

Schedule and Duration

Activity Schedule Information							
Year	Start Date	End Date	Workday Duration	Seconds/Day	Calendar Days	Workdays	Annual Duration
2025	4/1/2025	10/24/2025	8 Hours/Day	28,800	206	149	0.57
			8 Hours/Day	28,800	0	0	0.00
			8 Hours/Day	28,800			
			8 Hours/Day	28,800			

Assumptions: Exposure Duration (ED) is derived by dividing project workdays by total annual workdays (261), assuming 5 workdays a week.

DPM Emission Rates and Concentrations

Year	Emission Rates		AERMOD Pollutant		Calculated Pollutant Concentration		
	On-site Emission Rate (lbs/day)	Off-site Emission Rate (lbs/day)	On-site Concentration	Off-site Concentration	On-site Concentration	Off-site Concentration	Total Concentration (ug/m3)
2025	3.63E-01	1.40E-04	1.44E+01	7.51E+00	8.24E-02	1.66E-05	8.24E-02
0					0.00E+00	0.00E+00	0.00E+00
	Off-site Haul Distance:	0.356	miles			Maximum Annual Average Concentration:	8.24E-02
	Default Haul Distance:	20	miles			Hazard Index:	**0.02**

Assumptions: DPM Emissions utilize PM10 Exhaust.

Fugitive Dust Emission Rates and Concentrations

Year	PM2.5 Dust		AERMOD Pollutant		Calculated Pollutant Concentration		
	On-site Emission Rate (lbs/day)	Off-site Emission Rate (lbs/day)	On-site Concentration	Off-site Concentration	On-site Concentration	Off-site Concentration	Total Concentration (ug/m3)
2025	3.44E-02	2.16E-03	1.58E+01	7.81E+00	8.54E-03	2.66E-04	8.81E-03
	Off-site Haul Distance:	0.36	miles			Maximum Annual Average Concentration:	0.01
	Default Haul Distance:	20	miles				

Total PM2.5 Concentrations

Year	PM2.5 Exhaust		PM2.5 Dust		Calculated Pollutant Concentration		
	On-site Emission Rate (lbs/day)	Off-site Emission Rate (lbs/day)	On-site Emission Rate (lbs/day)	Off-site Emission Rate (lbs/day)	On-site Concentration	Off-site Concentration	Total Concentration (ug/m3)
2025	3.34E-01	9.73E-05	3.44E-02	2.16E-03	8.43E-02	2.77E-04	8.46E-02
	Off-site Haul Distance:	0.356	miles			Maximum Annual Average Concentration:	0.08
	Default Haul Distance:	20	miles				

Exposure Durations

Year	Age-Dependent Exposure Duration						
	Age Bin: 3rd Trimester>0 Years	Age Bin: 0>2 Years	Age Bin: 2>9 Years	Age Bin: 9>16 Years	Age Bin: 16>30 Years	Age Bin: 30>70+ Years	Total Duration
2025	0.25	0.32	0.00	0.00	0.00	0.00	0.57
0	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00	1.68	-1.68	0.00	0.00	0.00	
	0.00	0.00	0.00	0.00	0.00	0.00	

Daily Breathing Rates

Year	DBR						
	Age Bin: 3rd Trimester>0 Years	Age Bin: 0>2 Years	Age Bin: 2>9 Years	Age Bin: 9>16 Years	Age Bin: 16>30 Years	Age Bin: 30>70+ Years	Total
2025	361	1090					1451
0							
		1090	861				1951

Receptor Risk Results

Year	Risk Per Individual By Age						Calculated Risk
	Age Bin: 3rd Trimester>0 Years	Age Bin: 0>2 Years	Age Bin: 2>9 Years	Age Bin: 9>16 Years	Age Bin: 16>30 Years	Age Bin: 30>70+ Years	Risk/Million
2025	9.53E-07	4.34E-06					5.30
0							0.00
							0.00
							0.00
						TOTAL RISK:	**5.3**

Receptor Risk: Students, Grades 7 - 12 **Unmitigated Results**

Receptor Information

HRA Receptor		Receptor Risk Information					
Name	Type	Start Age	Daily Breathing Rate	Fraction of Time at Home	Averaging Time	Inhalation Absorption Factor	Pollutant
7-12 Grade Students	Middle School	11	8-Hour	No	70 Years	1	Diesel Particulate Matter

Maximum Exposed Receptor (MER) UTM coordinates: 536732.87 E, 4270605.87 N

Schedule and Duration

Activity Schedule Information							
Year	Start Date	End Date	Workday Duration	Seconds/Day	Calendar Days	Workdays	Annual Duration
2025	4/1/2025	10/24/2025	8 Hours/Day	28,800	206	149	0.57
			8 Hours/Day	28,800	0	0	0.00
			8 Hours/Day	28,800			
			8 Hours/Day	28,800			

Assumptions: Exposure Duration (ED) is derived by dividing project workdays by total annual workdays (261), assuming 5 workdays a week.

DPM Emission Rates and Concentrations

Year	Emission Rates		AERMOD Pollutant		Calculated Pollutant Concentration		
	On-site Emission Rate (lbs/day)	Off-site Emission Rate (lbs/day)	On-site Concentration	Off-site Concentration	On-site Concentration	Off-site Concentration	Total Concentration (ug/m3)
2025	3.63E-01	1.40E-04	2.03E+01	1.37E+01	1.16E-01	3.03E-05	1.16E-01
0					0.00E+00	0.00E+00	0.00E+00

Assumptions: DPM Emissions utilize PM10 Exhaust.

Maximum Annual Average Concentration: 1.16E-01

Hazard Index: 0.023

Fugitive Dust Emission Rates and Concentrations

Year	PM2.5 Dust		AERMOD Pollutant		Calculated Pollutant Concentration		
	On-site Emission Rate (lbs/day)	Off-site Emission Rate (lbs/day)	On-site Concentration	Off-site Concentration	On-site Concentration	Off-site Concentration	Total Concentration (ug/m3)
2025	3.44E-02	2.16E-03	2.41E+01	1.57E+01	1.31E-02	5.33E-04	1.36E-02

Maximum Annual Average Concentration: 0.01

Total PM2.5 Concentrations

Year	PM2.5 Exhaust		PM2.5 Dust		Calculated Pollutant Concentration		
	On-site Emission Rate (lbs/day)	Off-site Emission Rate (lbs/day)	On-site Emission Rate (lbs/day)	Off-site Emission Rate (lbs/day)	On-site Concentration	Off-site Concentration	Total Concentration (ug/m3)
2025	3.34E-01	9.73E-05	3.44E-02	2.16E-03	1.20E-01	5.54E-04	1.21E-01
0					0.00E+00	0.00E+00	0.00E+00
					0.00E+00	0.00E+00	

Maximum Annual Average Concentration: 0.12

Exposure Durations

Year	Age-Dependent Exposure Duration						
	Age Bin: 3rd Trimester>0 Years	Age Bin: 0>2 Years	Age Bin: 2>9 Years	Age Bin: 9>16 Years	Age Bin: 16>30 Years	Age Bin: 30>70+ Years	Total Duration
2025	0.00	0.00	0.57	0.00	0.00	0.00	0.57
0	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00	0.00	0.00	0.00	0.00	0.00	

Daily Breathing Rates

Year	DBR						
	Age Bin: 3rd Trimester>0 Years	Age Bin: 0>2 Years	Age Bin: 2>9 Years	Age Bin: 9>16 Years	Age Bin: 16>30 Years	Age Bin: 30>70+ Years	Total
2025			640				640
0							

Receptor Risk Results

Year	Risk Per Individual By Age						Calculated Risk
	Age Bin: 3rd Trimester>0 Years	Age Bin: 0>2 Years	Age Bin: 2>9 Years	Age Bin: 9>16 Years	Age Bin: 16>30 Years	Age Bin: 30>70+ Years	Risk/Million
2025			9.88E-07				0.99
0							0.00
							0.00
							0.00

TOTAL RISK: 1.0

Receptor Risk: Worker **Unmitigated Results**

Receptor Information

HRA Receptor		Receptor Risk Information					
Name	Type	Start Age	Daily Breathing Rate	Fraction of Time at Home	Averaging Time	Inhalation Absorption Factor	Pollutant
Worker	Worker	16+	8-Hour	No	70 Years	1	Diesel Particulate Matter

Maximum Exposed Receptor (MER) UTM coordinates: 536760.75 E, 4270580.16 N

Schedule and Duration

Activity Schedule Information							
Year	Start Date	End Date	Workday Duration	Seconds/Day	Calendar Days	Workdays	Annual Duration
2025	4/1/2025	10/24/2025	8 Hours/Day	28,800	206	149	0.57
			8 Hours/Day	28,800	0	0	0.00
			8 Hours/Day	28,800			
			8 Hours/Day	28,800			

Assumptions: Exposure Duration (ED) is derived by dividing project workdays by total annual workdays (261), assuming 5 workdays a week.

DPM Emission Rates and Concentrations

Year	Emission Rates		AERMOD Pollutant		Calculated Pollutant Concentration		
	On-site Emission Rate (lbs/day)	Off-site Emission Rate (lbs/day)	On-site Concentration	Off-site Concentration	On-site Concentration	Off-site Concentration	Total Concentration (ug/m3)
2025	6.60E-01	7.63E-04	1.12E+01	1.97E+01	1.16E-01	2.37E-04	1.16E-01
					0.00E+00	0.00E+00	0.00E+00
						Maximum Annual Average Concentration:	1.16E-01
						Hazard Index:	**0.023**

Fugitive Dust Emission Rates and Concentrations

Year	PM2.5 Dust		AERMOD Pollutant		Calculated Pollutant Concentration		
	On-site Emission Rate (lbs/day)	Off-site Emission Rate (lbs/day)	On-site Concentration	Off-site Concentration	On-site Concentration	Off-site Concentration	Total Concentration (ug/m3)
2025	3.44E-02	2.16E-03	1.15E+01	2.25E+01	6.23E-03	7.64E-04	6.99E-03
						Maximum Annual Average Concentration:	0.01

PM2.5 Concentrations

Year	PM2.5 Exhaust		PM2.5 Dust		Calculated Pollutant Concentration		
	On-site Emission Rate (lbs/day)	Off-site Emission Rate (lbs/day)	On-site Emission Rate (lbs/day)	Off-site Emission Rate (lbs/day)	On-site Concentration	Off-site Concentration	Total Concentration (ug/m3)
2025	6.07E-01	6.76E-04	4.77E-01	4.63E-02	1.13E-01	9.74E-04	1.14E-01
					0.00E+00	0.00E+00	0.00E+00
					0.00E+00	0.00E+00	
						Maximum Annual Average Concentration:	0.11

Exposure Durations

Year	Age-Dependent Exposure Duration						
	Age Bin: 3rd Trimester>0 Years	Age Bin: 0>2 Years	Age Bin: 2>9 Years	Age Bin: 9>16 Years	Age Bin: 16>30 Years	Age Bin: 30>70+ Years	Total Duration
2025	0.00	0.00	0.00	0.00	0.57	0.00	0.57
0	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00	0.00	0.00	0.00	0.00	0.00	

Daily Breathing Rates

Year	DBR						
	Age Bin: 3rd Trimester>0 Years	Age Bin: 0>2 Years	Age Bin: 2>9 Years	Age Bin: 9>16 Years	Age Bin: 16>30 Years	Age Bin: 30>70+ Years	Total
2025					240		240
0							

Receptor Risk Results

Year	Risk Per Individual By Age						Calculated Risk
	Age Bin: 3rd Trimester>0 Years	Age Bin: 0>2 Years	Age Bin: 2>9 Years	Age Bin: 9>16 Years	Age Bin: 16>30 Years	Age Bin: 30>70+ Years	Risk/Million
2025					1.72E-07		0.17
0							0.00
							0.00
							0.00
						TOTAL RISK:	**0.17**

Permitted Stationary Sources within 1,000 feet of the Project Site

Facility ID	Facility Name	Address	Source Type	Notes	Cancer Risk	Hazard Index	Annual PM2.5 Concentration
	Zero Facilities found w/in 1,000 feet of site (search 12/19/2024)				n/a	n/a	n/a

Mobile Source Screening

Source Type	Screening Tool	Receptor Location	Notes	Cancer Risk	Hazard Index	Annual PM2.5 Concentration
Roadway	BAAQMD Roadway Screening Data Layers (CEQA Risk Tool)	536714.36 E, 4270665.54 N	MEIR	4.3	0.017	0.17
		536760.75 E, 4270580.16 N	MEIW	3.5	0.011	0.11
		536732.87 E, 4270605.87 N	MER Student	3.2	0.010	0.09

Source: https://www.baaqmd.gov/en/plans-and-climate/california-environmental-quality-act-ceqa/ceqa-tools/health-risk-screening-and-modeling


BAAQMD CEQA Risk Screening Tool
Road - Cancer Risk
Zoom to
Risk Value
4.34
Find address or place
Lake St
Grant St
Arch Way
Lincoln Ave
Brannan St
Calistoga Junior-Senior High School
Palisades High (Continuation)
Stevenson St
Wapoo Ave
Miriam Dr
Park St
Fair Way
Marigold Ln
Magnolia Dr
29
200 ft

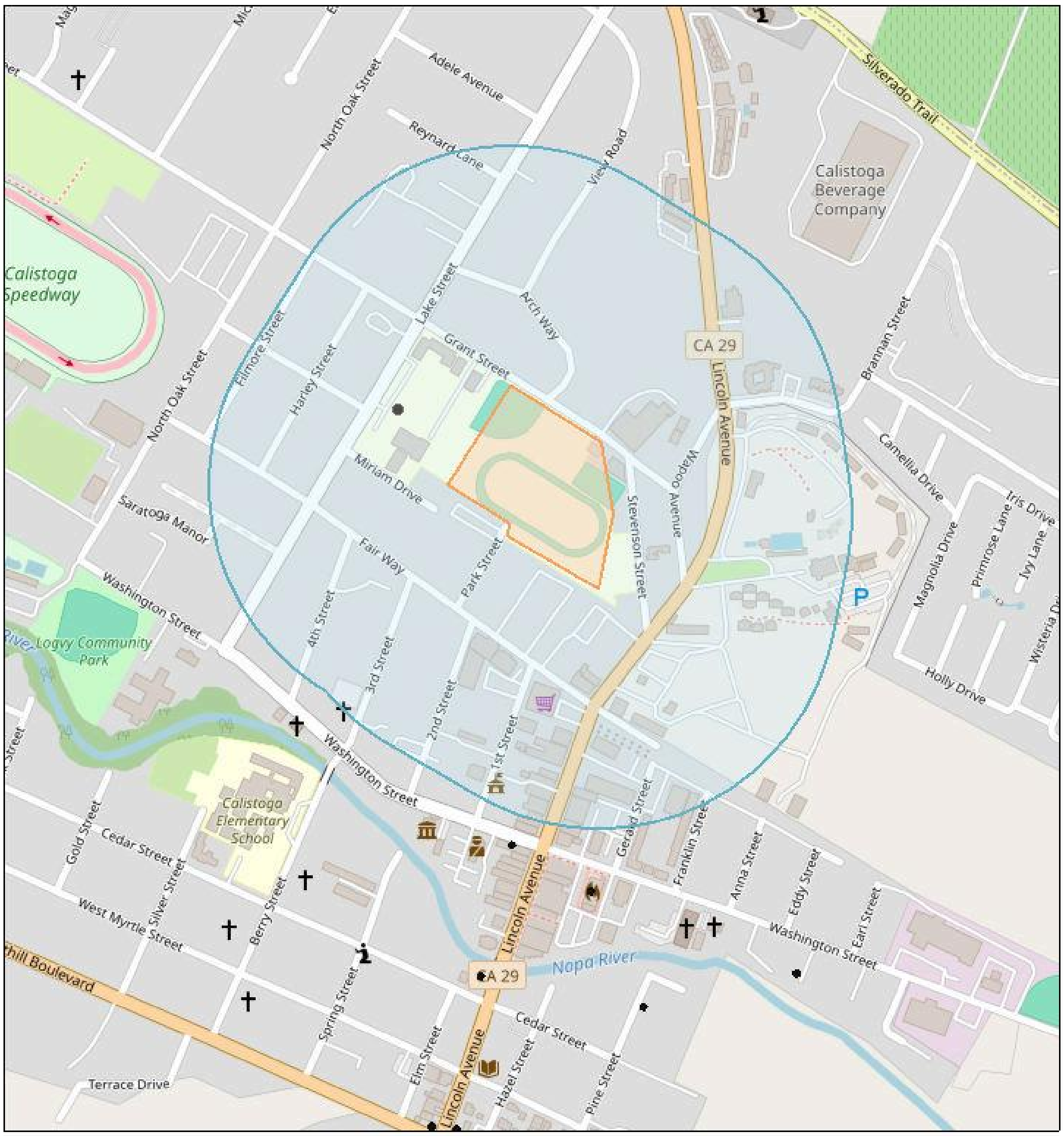

BAAQMD CEQA Risk Screening Tool
Road - PM 2.5
Risk Value
0.17
Find address or place
Grant St
Arch Way
Brannan St
Lincoln Ave
Wapoo Ave
Stevenson St
Park St
Fair Way
Calistoga Junior-Senior High School
Palisades High (Continuation)
200 ft

Screening Report

Area of Interest (AOI) Information

Area : 5,800,051.31 ft²

Dec 19 2024 13:38:13 Pacific Standard Time



Permitted Stationary Sources

1:9,028

0 0.05 0.1 0.2 mi

0 0.07 0.15 0.3 km

Map data © OpenStreetMap contributors, CC-BY-SA

Summary

Name	Count	Area(ft²)	Length(ft)
Permitted Stationary Sources	0	N/A	N/A

NOTE: A larger buffer than 1,000 may be warranted depending on proximity to significant sources.

Appendix C Musco Lighting Plans

Appendix

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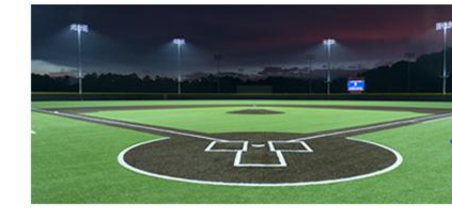
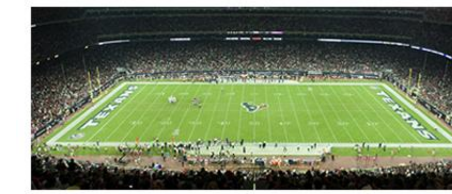
Calistoga High School Athletic Fields
Calistoga, CA

Lighting System

From Hometown to Professional






Pole/Fixture Summary

Pole ID	Pole Height	Mtg Height	Fixture Qty	Luminaire Type	Load	Circuit
F1	70'	70'	1	TLC-LED-1200	1.17 kW	A
		70'	6	TLC-LED-900	5.28 kW	A
		60'	1	TLC-LED-550	0.54 kW	B
		60'	2	TLC-RGBW	1.28 kW	B
		16'	2	TLC-BT-575	1.15 kW	A
F2	70'	70'	1	TLC-LED-1200	1.17 kW	A
		70'	6	TLC-LED-900	5.28 kW	A
		60'	2	TLC-RGBW	1.28 kW	B
		16'	2	TLC-BT-575	1.15 kW	A
F3-F4	70'	70'	1	TLC-LED-1200	1.17 kW	A
		70'	6	TLC-LED-900	5.28 kW	A
		16'	2	TLC-BT-575	1.15 kW	A
4			41		33.50 kW	

Circuit Summary

Circuit	Description	Load	Fixture Qty
A	Football	30.40 kW	36
B	Egress	3.10 kW	5

Fixture Type Summary

Type	Source	Wattage	Lumens	L90	L80	L70	Quantity
TLC-BT-575	LED 5700K - 75 CRI	575W	52,000	>120,000	>120,000	>120,000	8
TLC-LED-1200	LED 5700K - 75 CRI	1170W	150,000	>120,000	>120,000	>120,000	4
TLC-LED-550	LED 5700K - 75 CRI	540W	67,000	>120,000	>120,000	>120,000	1
TLC-LED-900	LED 5700K - 75 CRI	880W	104,000	>120,000	>120,000	>120,000	24
TLC-RGBW	LED 5700K - 75 CRI	640W	28,500	>120,000	>120,000	>120,000	4

Single Luminaire Amperage Draw Chart

Driver Specifications (.90 min power factor)	Line Amperage Per Luminaire (max draw)						
Single Phase Voltage	208 (60)	220 (60)	240 (60)	277 (60)	347 (60)	380 (60)	480 (60)
TLC-BT-575	3.3	3.2	2.9	2.5	2.0	1.8	1.5
TLC-LED-1200	6.9	6.5	6.0	5.2	4.2	3.8	3.0
TLC-LED-550	3.2	3.0	2.8	2.4	1.9	1.8	1.4
TLC-LED-900	5.2	4.9	4.5	3.9	3.1	2.9	2.3
TLC-RGBW	4.5	4.3	3.8	3.3	2.7	1.9	1.9

Light Level Summary

Calculation Grid Summary

Grid Name	Calculation Metric	Illumination Ave					Circuits	Fixture Qty
		Ave	Min	Max	Max/Min	Ave/Min		
Bleacher Egress Perimeter	Horizontal	5.47	3	9	2.94	1.81	B	5
Football	Horizontal Illuminance	34.40	26	40	1.55	1.32	A	36
Home Bleachers	Horizontal Illuminance	4.66	1	11	7.66	3.26	B	5
NE Resident Spill	Horizontal	0.04	0	0	121.29	62.03	A	36
NE Resident Spill	Max Candela (by Fixture)	2325.91	139	4933	35.58	16.78	A	36
NE Resident Spill	Max Vertical Illuminance Metric	0.11	0	0	90.13	44.15	A	36
South Spill	Horizontal	0.57	0	4	-	-	A	36
South Spill	Max Candela (by Fixture)	2850.67	0	10429	-	-	A	36
South Spill	Max Vertical Illuminance Metric	0.68	0	4	-	-	A	36
Track	Horizontal Illuminance	9.09	0	30	132.85	40.78	A	36
West Pathway	Horizontal	4.27	1	8	5.85	3.09	B	5

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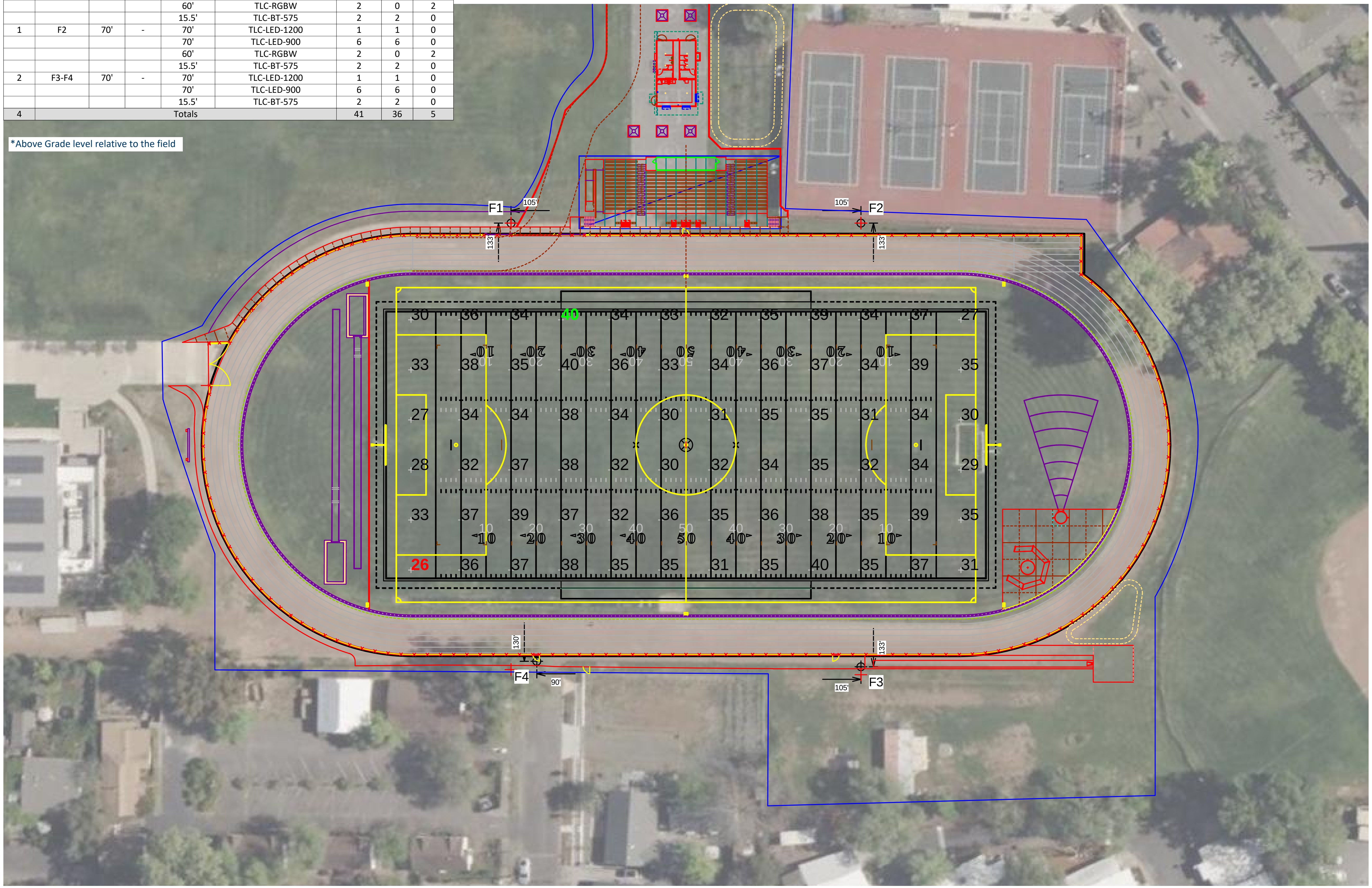
Equipment List For Areas Shown

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	ABOVE GRADE LEVEL	LUMINAIRE TYPE	QTY/POLE	THIS GRID	OTHER GRIDS
1	F1	70'	-	70'	TLC-LED-1200	1	1	0
				70'	TLC-LED-900	6	6	0
				60'	TLC-LED-550	1	0	1
				60'	TLC-RGBW	2	0	2
				15.5'	TLC-BT-575	2	2	0
1	F2	70'	-	70'	TLC-LED-1200	1	1	0
				70'	TLC-LED-900	6	6	0
				70'	TLC-RGBW	2	0	2
				15.5'	TLC-BT-575	2	2	0
2	F3-F4	70'	-	70'	TLC-LED-1200	1	1	0
				70'	TLC-LED-900	6	6	0
				15.5'	TLC-BT-575	2	2	0
4				Totals		41	36	5

*Above Grade level relative to the field



Calistoga High School Athletic Fields

Calistoga, CA

Grid Summary

Name	Football
Size	360' x 160'
Spacing	30.0'
Height	3.0' above grade

Illumination Summary

	MAINTAINED HORIZONTAL FOOTCANDLES
	Entire Grid
Guaranteed Average	**30**
Scan Average	34.40
Maximum	40
Minimum	26
Avg/Min	1.32
Guaranteed Max/Min	**2.5**
Max/Min	1.55
UG (adjacent pts)	1.39
CU	0.64
No. of Points	72
LUMINAIRE INFORMATION	
Applied Circuits	A
No. of Luminaires	**36**
Total Load	30.40 kW

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

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

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

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

SCALE IN FEET 1 : 60

0' 60' 120'

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

We Make It Happen.

ILLUMINATION SUMMARY

Equipment List For Areas Shown								
Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	ABOVE GRADE LEVEL	LUMINAIRE TYPE	QTY/POLE	THIS GRID	OTHER GRIDS
1	F1	70'	-	70'	TLC-LED-1200	1	1	0
				70'	TLC-LED-900	6	6	0
				60'	TLC-LED-550	1	0	1
				60'	TLC-RGBW	2	0	2
				15.5'	TLC-BT-575	2	2	0
1	F2	70'	-	70'	TLC-LED-1200	1	1	0
				70'	TLC-LED-900	6	6	0
				60'	TLC-RGBW	2	0	2
				15.5'	TLC-BT-575	2	2	0
2	F3-F4	70'	-	70'	TLC-LED-1200	1	1	0
				70'	TLC-LED-900	6	6	0
				15.5'	TLC-BT-575	2	2	0
4	Totals					41	36	5

*Above Grade level relative to the field

Calistoga High School Athletic Fields

Calistoga, CA

Grid Summary

Name	Track
Size	Irregular
Spacing	30.0'
Height	3.0' above grade

Illumination Summary

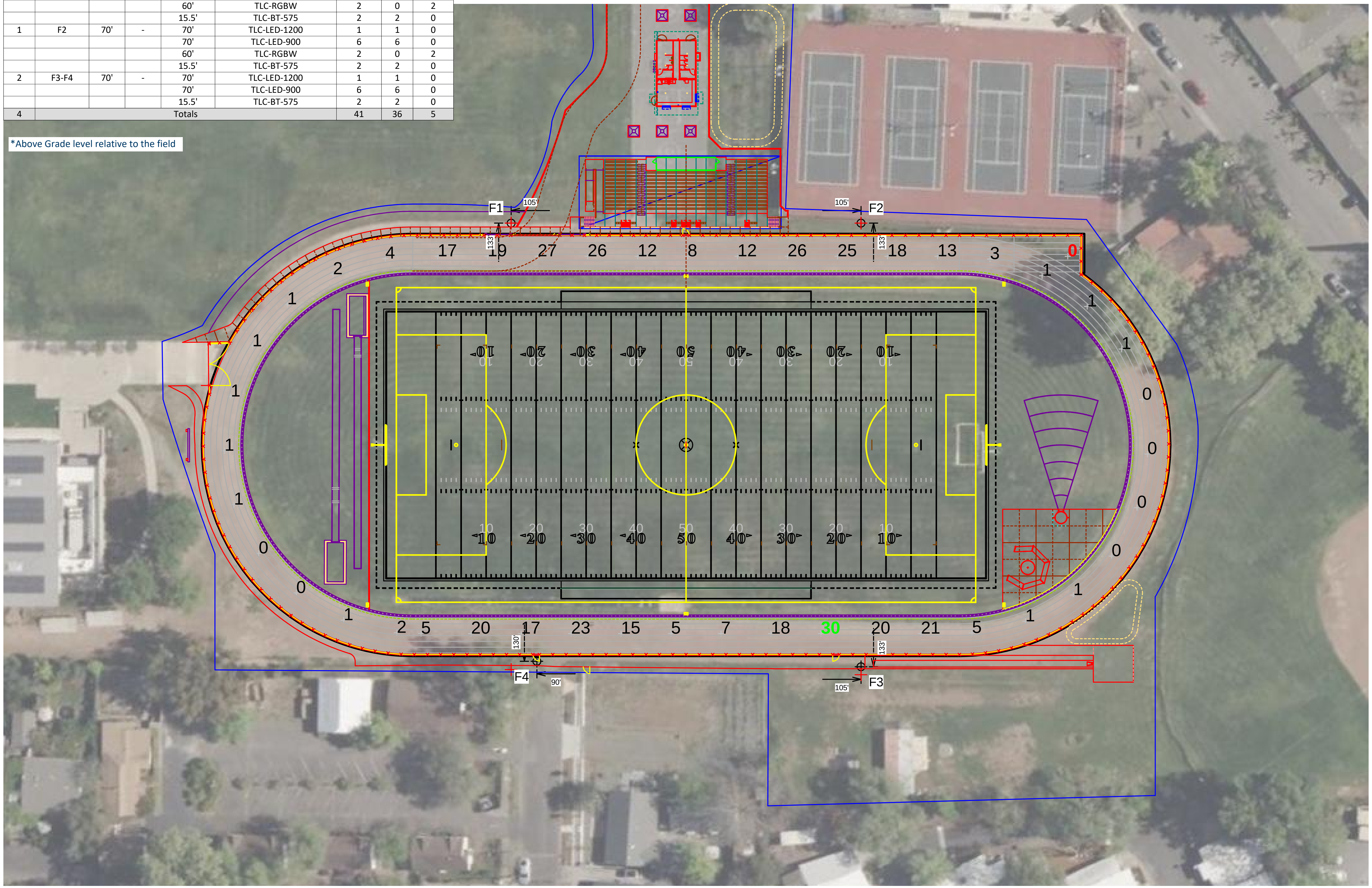
	MAINTAINED HORIZONTAL FOOTCANDLES
	Entire Grid
Scan Average	**9.09**
Maximum	30
Minimum	0
Avg/Min	40.78
Max/Min	**132.85**
UG (adjacent pts)	0.00
CU	0.11
No. of Points	45
LUMINAIRE INFORMATION	
Applied Circuits	A
No. of Luminaires	**36**
Total Load	30.40 kW

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

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

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

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



SCALE IN FEET 1 : 60

0' 60' 120'

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

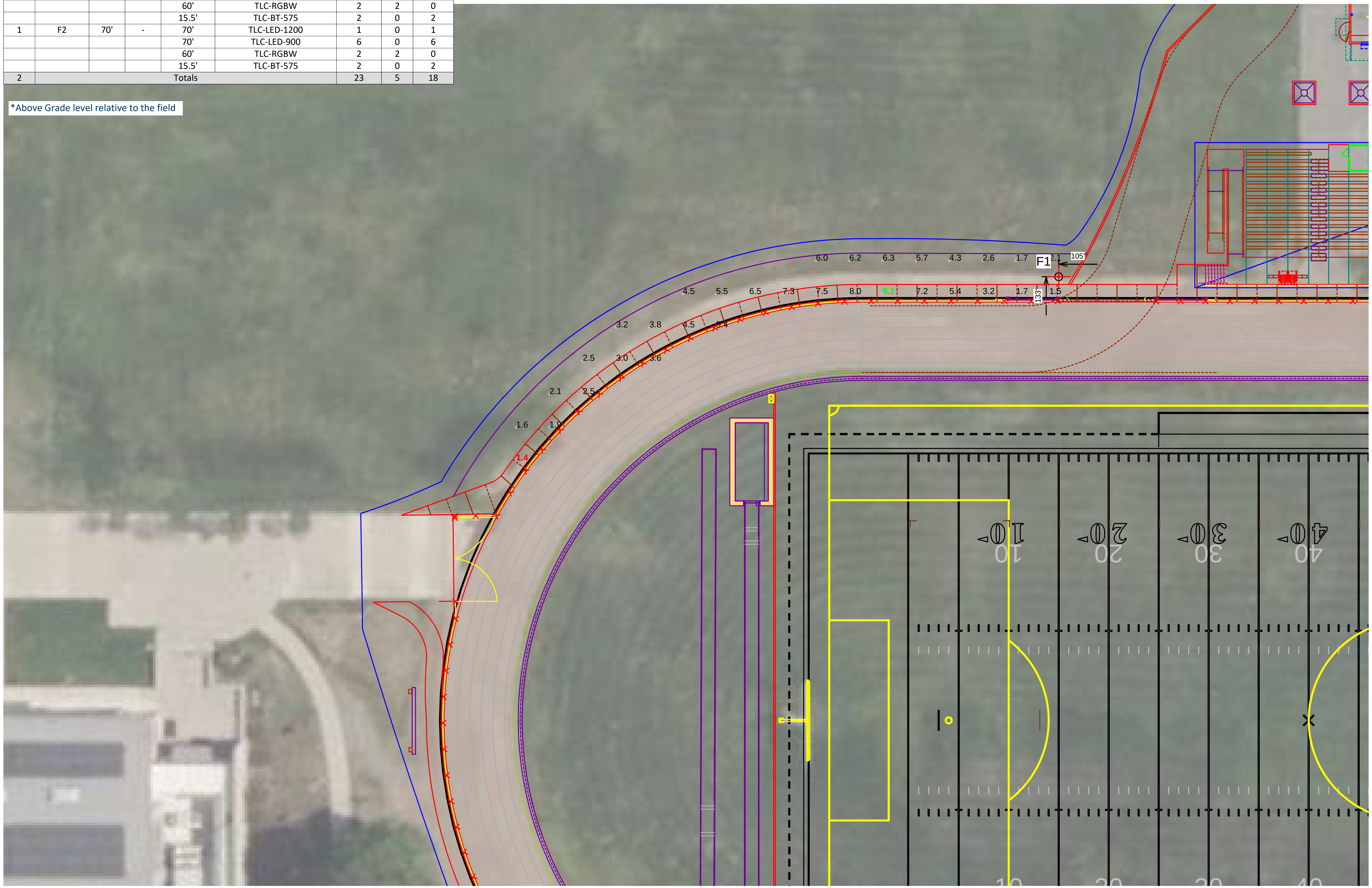
We Make It Happen.

ILLUMINATION SUMMARY

Equipment List For Areas Shown

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	ABOVE GRADE LEVEL	LUMINAIRE TYPE	QTY/POLE	THIS GRID	OTHER GRIDS
1	F1	70'	-	70'	TLC-LED-1200	1	0	1
				70'	TLC-LED-900	6	0	6
				60'	TLC-LED-550	1	1	0
				60'	TLC-RGBW	2	2	0
				15.5'	TLC-BT-575	2	0	2
1	F2	70'	-	70'	TLC-LED-1200	1	0	1
				70'	TLC-LED-900	6	0	6
				60'	TLC-RGBW	2	2	0
				15.5'	TLC-BT-575	2	0	2
2	Totals					23	5	18

*Above Grade level relative to the field



SCALE IN FEET 1 : 30

0' 30' 60'

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

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Calistoga High School Athletic Fields

Calistoga, CA

Grid Summary

Name	West Pathway
Size	360' x 160'
Spacing	10.0'
Height	3.0' above grade

Illumination Summary

MAINTAINED HORIZONTAL FOOTCANDLES	
	Entire Grid
Scan Average	4.27
Maximum	8
Minimum	1
Avg/Min	3.09
Max/Min	5.85
UG (adjacent pts)	1.84
CU	0.08
No. of Points	32
LUMINAIRE INFORMATION	
Applied Circuits	B
No. of Luminaires	5
Total Load	3.10 kW

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

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

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

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

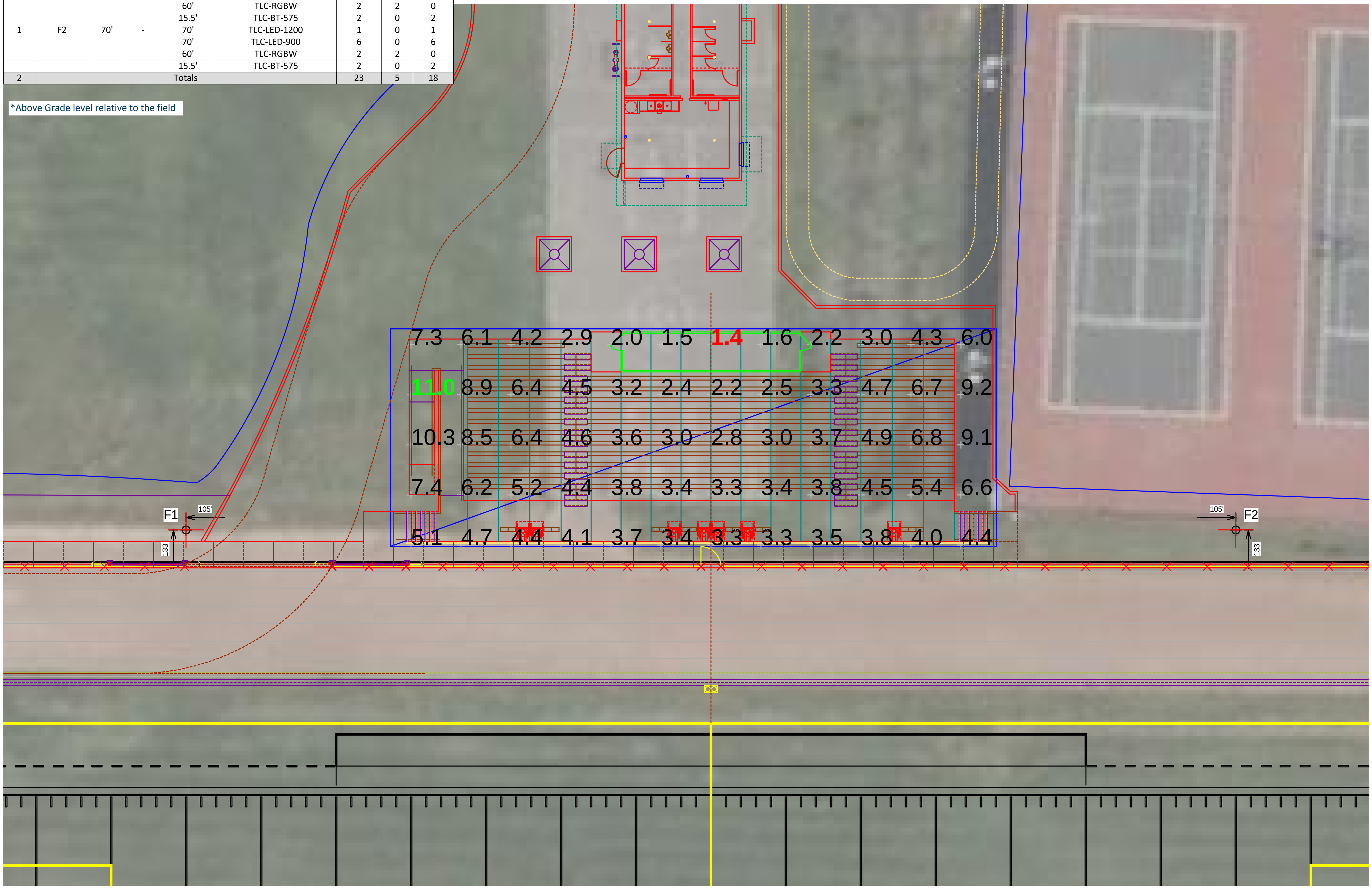
We Make It Happen.

ILLUMINATION SUMMARY

Equipment List For Areas Shown

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	ABOVE GRADE LEVEL	LUMINAIRE TYPE	QTY/POLE	THIS GRID	OTHER GRIDS
1	F1	70'	-	70'	TLC-LED-1200	1	0	1
				70'	TLC-LED-900	6	0	6
				60'	TLC-LED-550	1	1	0
				60'	TLC-RGBW	2	2	0
				15.5'	TLC-BT-575	2	0	2
1	F2	70'	-	70'	TLC-LED-1200	1	0	1
				70'	TLC-LED-900	6	0	6
				60'	TLC-RGBW	2	2	0
				15.5'	TLC-BT-575	2	0	2
2	Totals					23	5	18

*Above Grade level relative to the field



SCALE IN FEET 1 : 20

0' 20' 40'

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

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Calistoga High School Athletic Fields

Calistoga, CA

Grid Summary

Name	Home Bleachers
Size	360' x 160'
Spacing	10.0'
Height	3.1' above grade

Illumination Summary

MAINTAINED HORIZONTAL FOOTCANDLES

	Entire Grid
Scan Average	4.66
Maximum	11
Minimum	1
Avg/Min	3.26
Max/Min	7.66
UG (adjacent pts)	0.00
CU	0.17
No. of Points	60
LUMINAIRE INFORMATION	
Applied Circuits	B
No. of Luminaires	5
Total Load	3.10 kW

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

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

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

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

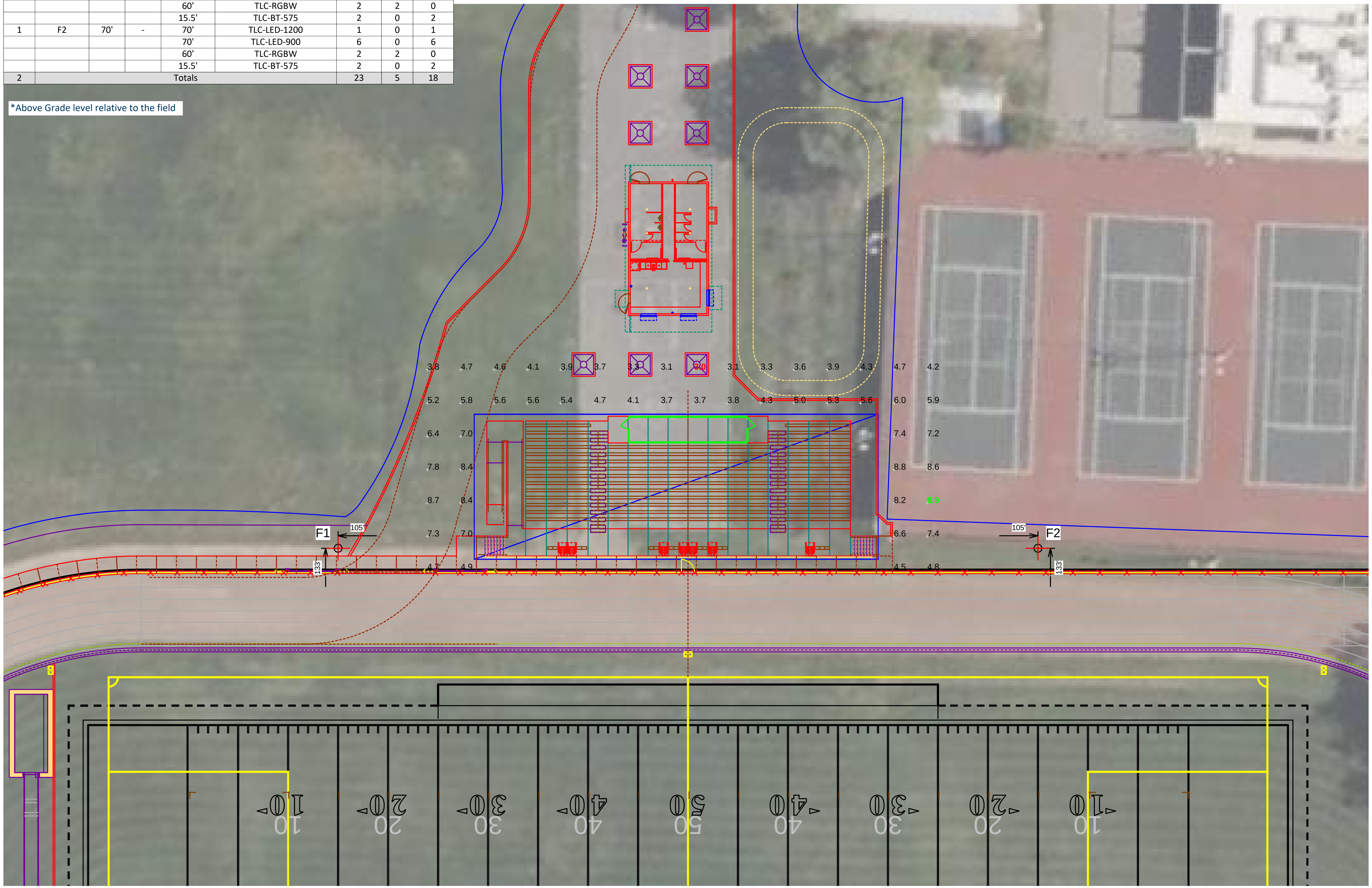
We Make It Happen.

ILLUMINATION SUMMARY

Equipment List For Areas Shown

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	ABOVE GRADE LEVEL	LUMINAIRE TYPE	QTY/POLE	THIS GRID	OTHER GRIDS
1	F1	70'	-	70'	TLC-LED-1200	1	0	1
				70'	TLC-LED-900	6	0	6
				60'	TLC-LED-550	1	1	0
				60'	TLC-RGBW	2	2	0
				15.5'	TLC-BT-575	2	0	2
1	F2	70'	-	70'	TLC-LED-1200	1	0	1
				70'	TLC-LED-900	6	0	6
				60'	TLC-RGBW	2	2	0
				15.5'	TLC-BT-575	2	0	2
2	Totals					23	5	18

*Above Grade level relative to the field



Calistoga High School Athletic Fields

Calistoga, CA

Grid Summary

Name	Bleacher Egress Perimeter
Size	360' x 160'
Spacing	10.0'
Height	3.0' above grade

Illumination Summary

	MAINTAINED HORIZONTAL FOOTCANDLES
	Entire Grid
Scan Average	5.47
Maximum	9
Minimum	3
Avg/Min	1.81
Max/Min	2.94
UG (adjacent pts)	1.55
CU	0.17
No. of Points	52
LUMINAIRE INFORMATION	
Applied Circuits	B
No. of Luminaires	5
Total Load	3.10 kW

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

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

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

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

SCALE IN FEET 1 : 30

0' 30' 60'

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

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ILLUMINATION SUMMARY

Calistoga High School Athletic Fields

Calistoga, CA

Grid Summary

Name	South Spill
Size	Irregular
Spacing	30.0'
Height	3.0' above grade

Illumination Summary

MAINTAINED HORIZONTAL FOOTCANDLES	
	Entire Grid
Scan Average	**0.57**
Maximum	4
Minimum	0
Avg/Min	-
Max/Min	-
UG (adjacent pts)	0.00
CU	0.00
No. of Points	25
LUMINAIRE INFORMATION	
Applied Circuits	A
No. of Luminaires	**36**
Total Load	30.40 kW

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

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

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

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

SCALE IN FEET 1 : 60

0' 60' 120'

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

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MUSCO Lighting

We Make It Happen.

ILLUMINATION SUMMARY

Equipment List For Areas Shown

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	ABOVE GRADE LEVEL	LUMINAIRE TYPE	QTY/POLE	THIS GRID	OTHER GRIDS
1	F1	70'	-	70'	TLC-LED-1200	1	1	0
				70'	TLC-LED-900	6	6	0
				60'	TLC-LED-550	1	0	1
				60'	TLC-RGBW	2	0	2
				15.5'	TLC-BT-575	2	2	0
1	F2	70'	-	70'	TLC-LED-1200	1	1	0
				70'	TLC-LED-900	6	6	0
				60'	TLC-RGBW	2	0	2
				15.5'	TLC-BT-575	2	2	0
2	F3-F4	70'	-	70'	TLC-LED-1200	1	1	0
				70'	TLC-LED-900	6	6	0
				15.5'	TLC-BT-575	2	2	0
4	Totals					41	36	5

*Above Grade level relative to the field

Calistoga High School Athletic Fields

Calistoga, CA

Grid Summary

Name	South Spill
Size	Irregular
Spacing	30.0'
Height	3.0' above grade

Illumination Summary

	MAINTAINED MAX VERTICAL FOOTCANDLES
	Entire Grid
Scan Average	**0.68**
Maximum	4
Minimum	0
Avg/Min	-
Max/Min	-
UG (adjacent pts)	0.00
CU	0.00
No. of Points	25
LUMINAIRE INFORMATION	
Applied Circuits	A
No. of Luminaires	**36**
Total Load	30.40 kW

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

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

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

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

SCALE IN FEET 1 : 60

0' 60' 120'

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

We Make It Happen.

ILLUMINATION SUMMARY

Equipment List For Areas Shown

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	ABOVE GRADE LEVEL	LUMINAIRE TYPE	QTY/POLE	THIS GRID	OTHER GRIDS
1	F1	70'	-	70'	TLC-LED-1200	1	1	0
				70'	TLC-LED-900	6	6	0
				60'	TLC-LED-550	1	0	1
				60'	TLC-RGBW	2	0	2
				15.5'	TLC-BT-575	2	2	0
1	F2	70'	-	70'	TLC-LED-1200	1	1	0
				70'	TLC-LED-900	6	6	0
				60'	TLC-RGBW	2	0	2
				15.5'	TLC-BT-575	2	2	0
2	F3-F4	70'	-	70'	TLC-LED-1200	1	1	0
				70'	TLC-LED-900	6	6	0
				15.5'	TLC-BT-575	2	2	0
4	Totals					41	36	5

*Above Grade level relative to the field

Calistoga High School Athletic Fields

Calistoga, CA

Grid Summary

Name	South Spill
Size	Irregular
Spacing	30.0'
Height	3.0' above grade

Illumination Summary

MAINTAINED MAX CANDELA (PER FIXTURE)

	Entire Grid
Scan Average	2850.67
Maximum	10429
Minimum	0
Avg/Min	-
Max/Min	-
UG (adjacent pts)	0.00
CU	0.00
No. of Points	25
LUMINAIRE INFORMATION	
Applied Circuits	A
No. of Luminaires	36
Total Load	30.40 kW

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

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

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

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

SCALE IN FEET 1 : 60

0' 60' 120'

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

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We Make It Happen.

ILLUMINATION SUMMARY

Calistoga High School Athletic Fields

Calistoga, CA

Grid Summary

Name	NE Resident Spill
Size	Irregular
Spacing	30.0'
Height	3.0' above grade

Illumination Summary

MAINTAINED HORIZONTAL FOOTCANDLES

	Entire Grid
Scan Average	0.04
Maximum	0
Minimum	0
Avg/Min	62.03
Max/Min	121.29
UG (adjacent pts)	0.00
CU	0.00
No. of Points	7
LUMINAIRE INFORMATION	
Applied Circuits	A
No. of Luminaires	36
Total Load	30.40 kW

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

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

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

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

MUSCO Lighting

We Make It Happen.

SCALE IN FEET 1 : 30

0' 30' 60'

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

ENGINEERED DESIGN By: BeThomps • File #191693Br1 • 17-Oct-24

ILLUMINATION SUMMARY

Calistoga High School Athletic Fields

Calistoga, CA

Grid Summary

Name	**NE Resident Spill**
Size	Irregular
Spacing	30.0'
Height	3.0' above grade

Illumination Summary

	MAINTAINED MAX VERTICAL FOOTCANDLES
	Entire Grid
Scan Average	**0.11**
Maximum	0
Minimum	0
Avg/Min	44.15
Max/Min	**90.13**
UG (adjacent pts)	0.00
CU	0.00
No. of Points	7
LUMINAIRE INFORMATION	
Applied Circuits	A
No. of Luminaires	**36**
Total Load	30.40 kW

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

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

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

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

SCALE IN FEET 1 : 30

0' 30' 60'

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

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We Make It Happen.

ILLUMINATION SUMMARY

Calistoga High School Athletic Fields

Calistoga, CA

Grid Summary

Name	**NE Resident Spill**
Size	Irregular
Spacing	30.0'
Height	3.0' above grade

Illumination Summary

MAINTAINED MAX CANDELA (PER FIXTURE)

	Entire Grid
Scan Average	**2325.91**
Maximum	4933
Minimum	139
Avg/Min	16.78
Max/Min	**35.58**
UG (adjacent pts)	0.00
CU	0.00
No. of Points	7
LUMINAIRE INFORMATION	
Applied Circuits	A
No. of Luminaires	**36**
Total Load	30.40 kW

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

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

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

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

SCALE IN FEET 1 : 30

0' 30' 60'

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

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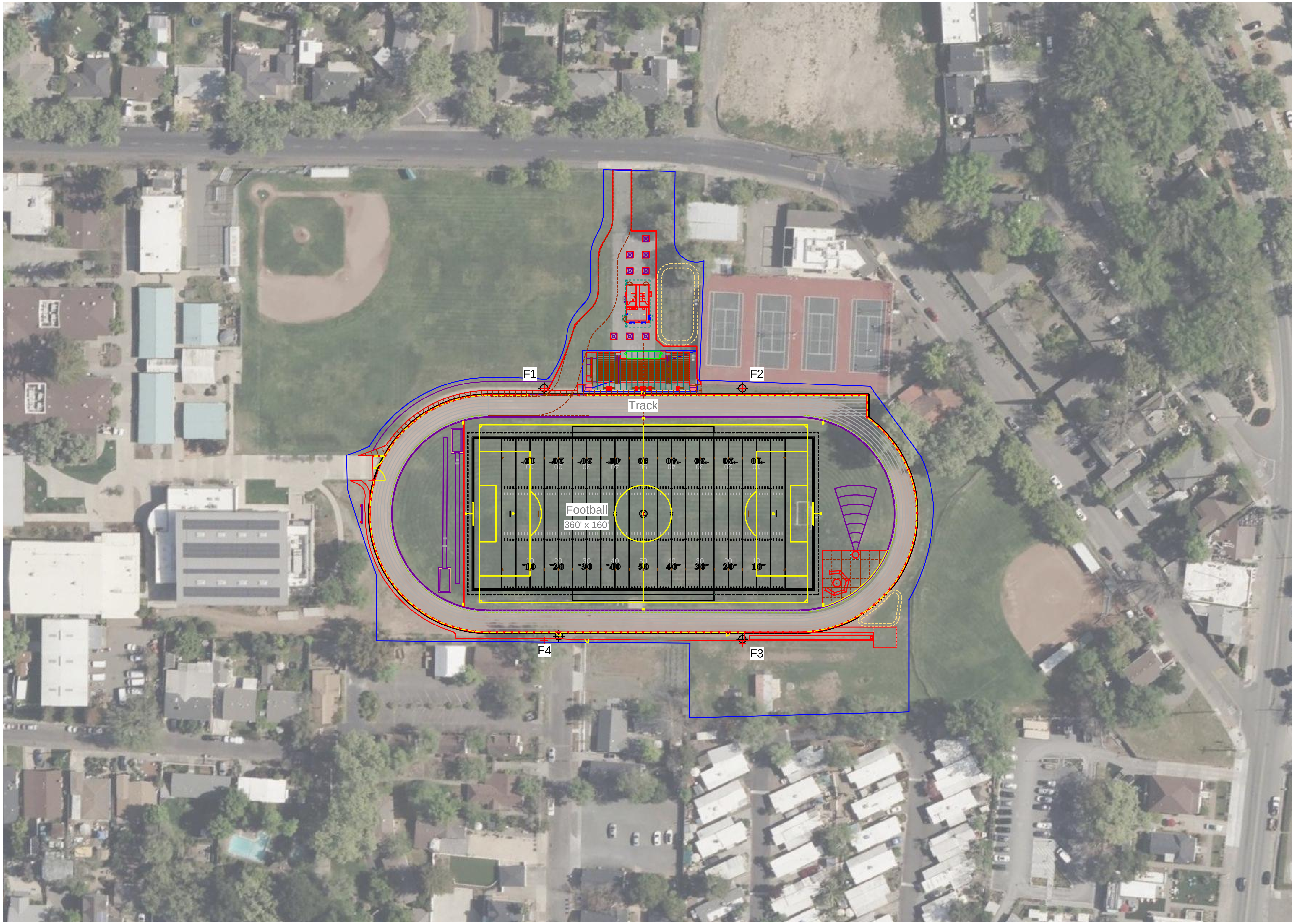
We Make It Happen.

ILLUMINATION SUMMARY



SCALE IN FEET 1 : 100

0' 100' 200'

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

Calistoga High School Athletic Fields

Calistoga, CA

Equipment Layout

INCLUDES:
· Football
· Track

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

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

Equipment List For Areas Shown

Pole				Luminaires		
QTY	LOCATION	SIZE	GRADE ELEVATION	ABOVE GRADE LEVEL	LUMINAIRE TYPE	QTY/POLE
1	F1	70'	-	70'	TLC-LED-1200	1
				70'	TLC-LED-900	6
				60'	TLC-LED-550	1
				60'	TLC-RGBW	2
				15.5'	TLC-BT-575	2
1	F2	70'	-	70'	TLC-LED-1200	1
				70'	TLC-LED-900	6
				60'	TLC-RGBW	2
				15.5'	TLC-BT-575	2
2	F3-F4	70'	-	70'	TLC-LED-1200	1
				70'	TLC-LED-900	6
				15.5'	TLC-BT-575	2
4	Totals					41

Single Luminaire Amperage Draw Chart

Driver Specifications (.90 min power factor)	Line Amperage Per Luminaire (max draw)						
Single Phase Voltage	208 (60)	220 (60)	240 (60)	277 (60)	347 (60)	380 (60)	480 (60)
TLC-BT-575	3.3	3.2	2.9	2.5	2.0	1.8	1.5
TLC-LED-1200	6.9	6.5	6.0	5.2	4.2	3.8	3.0
TLC-LED-550	3.2	3.0	2.8	2.4	1.9	1.8	1.4
TLC-LED-900	5.2	4.9	4.5	3.9	3.1	2.9	2.3
TLC-RGBW	4.5	4.3	3.8	3.3	2.7	1.9	1.9

We Make It Happen.

EQUIPMENT LAYOUT

Appendix D Cultural Resources Report

Appendix

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EVANS & DE SHAZO
ARCHAEOLOGY HISTORIC PRESERVATION

CULTURAL RESOURCES STUDY FOR THE CALISTOGA JUNIOR-SENIOR HIGH SCHOOL FIELD IMPROVEMENTS PROJECT, 1608 LAKE STREET, CALISTOGA, NAPA COUNTY, CALIFORNIA

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January 3, 2025

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STATEMENT OF CONFIDENTIALITY

This report identifies the locations of archaeological resources within Napa County, which is confidential information, as the cultural, scientific, and artistic values associated with these archaeological sites can be damaged or destroyed through uncontrolled public disclosure of information about their locations.

Disclosure of this information to the public may violate federal and state laws. Information regarding the location, character or ownership of a historic resource is exempt from the Freedom of Information Act. Applicable United States (U.S.) laws include, but may not be limited to, Section 304 of the National Historic Preservation Act (16 USC 470w-3) and the Archaeological Resources Protection Act (16 USC 470hh). California state laws that apply include, but may not be limited to, the California Public Records Act, Government Code § 6250 et seq., and the Information Practices Act of 1977, Civil Code § 1798 et seq.

If any information in this document is to be released for public review, all locational information associated with archaeological resources must be redacted before public distribution.

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APPENDIX A: SACRED LANDS INVENTORY REQUEST AND RESULTS, AND TRIBAL CORRESPONDENCE

INTRODUCTION

Evans & De Shazo, Inc. (EDS) was retained by PlaceWorks, Inc. to complete a Cultural Resources Study (CRS) for the Calistoga Junior-Senior High School Field Improvements Project (Project) located within an approximate 4.25-acre portion (Project Area) of the 9.92-acre Calistoga Junior-Senior High School campus (Campus) at 1608 Lake Street, Calistoga, Napa County, California, within Assessor Parcel Numbers (APNs) 011-091-001, 011-092-032, and 011-092-031. The proposed Project is subject to the California Environmental Quality Act (CEQA); therefore, a CRS is needed to identify cultural resources or Tribal Cultural Resources that could be impacted by the Project and to develop mitigation measures if needed to reduce impacts to less than significant.

The CRS was completed by EDS Principal Archaeologist, Sally Evans, M.A., RPA (#29300590), who meets the Secretary of Interior's professional qualification standards in Archaeology (36 CFR Part 61) and has over 24 years of professional experience in archaeology and cultural resource management, with the assistance of EDS Archaeologist Kelsey Wilson, B.A. The methods used to complete the CRS included a record search at the Northwest Information Center (NWIC) of the California Historical Resources Information Systems (CHRIS), a buried archaeological site sensitivity desktop analysis, a Native American Sacred Lands inventory, and a reconnaissance field survey. The results of the CRS are presented herein.

PROJECT DESCRIPTION

The proposed Project consists of installing new permanent stadium lights around the existing football field, installing permanent bleachers along the northern boundary of the field, constructing a new field house and a new concession stand, replacing the existing track with an all-weather track, replacing the existing grass turf with synthetic grass, and installing a new permanent public address (PA) system and scoreboard. The existing basketball courts would also be relocated. Landscaping, including bio-retention areas and concrete walkways would be installed, and new chain link fencing with gates would be installed around the perimeter of the track and field. An asphalt driveway would be constructed northeast of the track and field to provide access to the campus via Grant Street. Asphalt would also be installed northeast and south of the track and field to accommodate the bleachers, concession stand, field house, basketball courts, and tree wells. A current site plan, a preferred concept plan, and a grading plan are provided in Figure 1, Figure 2, and Figure 3.

PROJECT LOCATION

The Project Area is located within the Calistoga Junior-Senior High School campus at 1608 Lake Street, Calistoga, Napa County, California, within APNs 011-091-001, 011-092-032, and 011-092-031 (Figure 4). The Project Area is located in the southeastern portion of the campus, bordered by Grant Street on the north, Stevenson Street on the east, Lake Street on the west, and single-family houses on the south.

On the United States Geographic Survey (USGS) 7.5-minute Calistoga, California quadrangle (1993), the Project Area lies in the unsectioned *Carne Humana* land grant within Township 9 North, Range 7 West, Mount Diablo Meridian (Figure 5). The Universal Transverse Mercator (UTM) grid coordinates at the approximate center of the Project Area are 4270540 meters North and 536675 meters East, Zone 10.

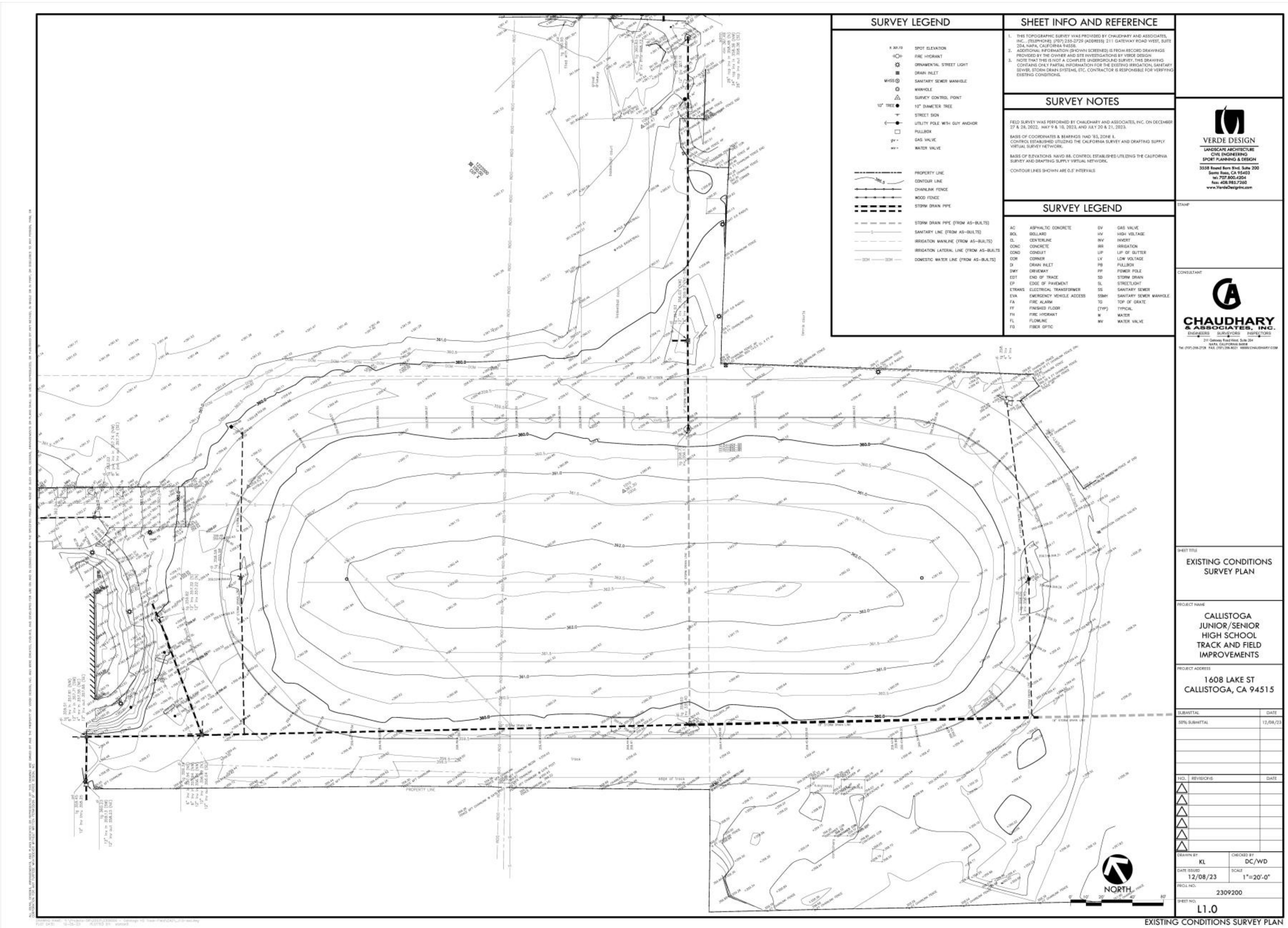

Figure 1: Existing Conditions Survey Plan (Chaudhary & Associates, 12/8/2023).

Figure 2: Preferred concept plan (Verde Design, 10/3/2023).

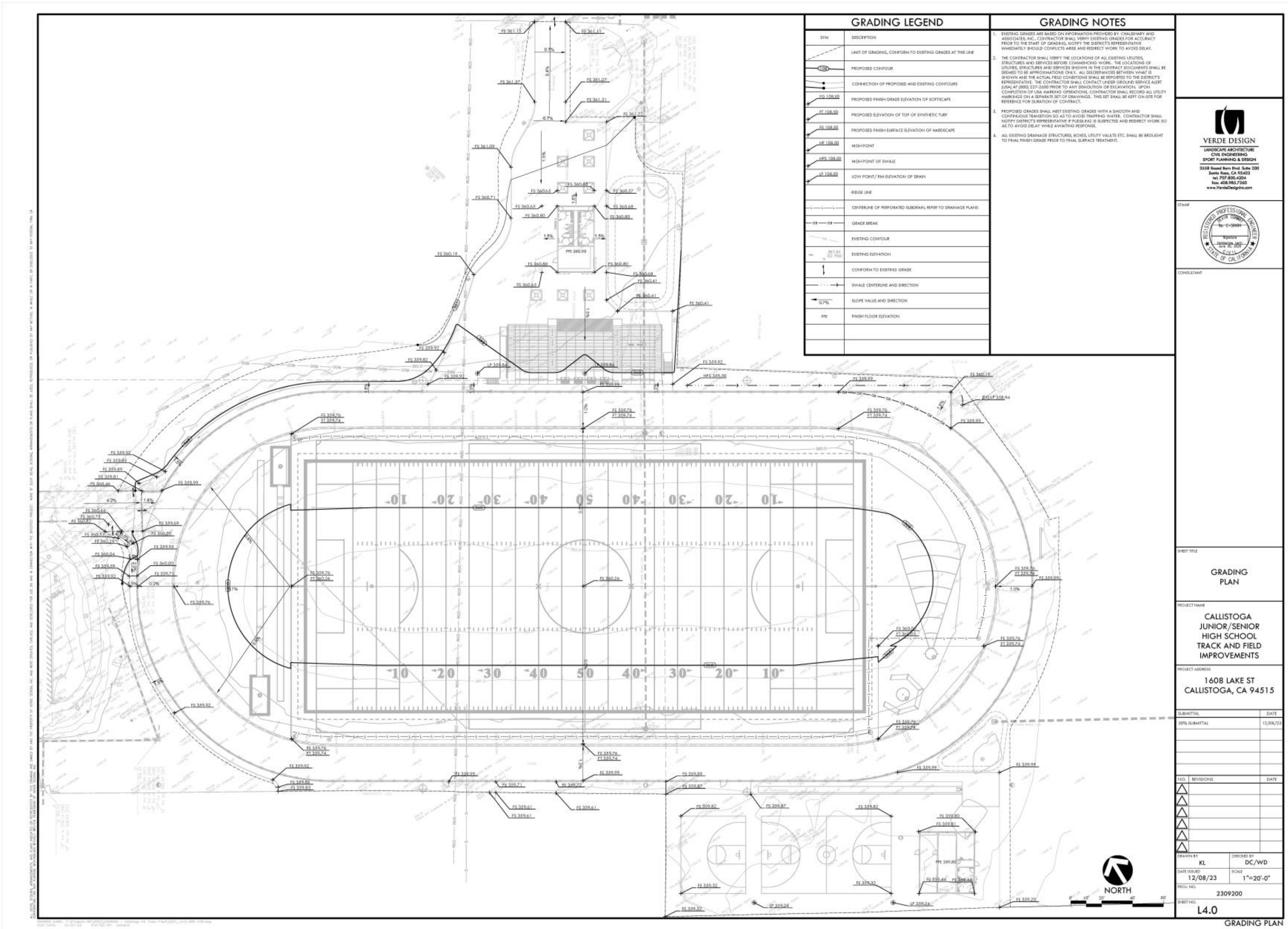

Figure 3: Proposed grading plan, 50% submittal (Verde Design, 12/8/2023).

Figure 4: Aerial view of the Project Area.

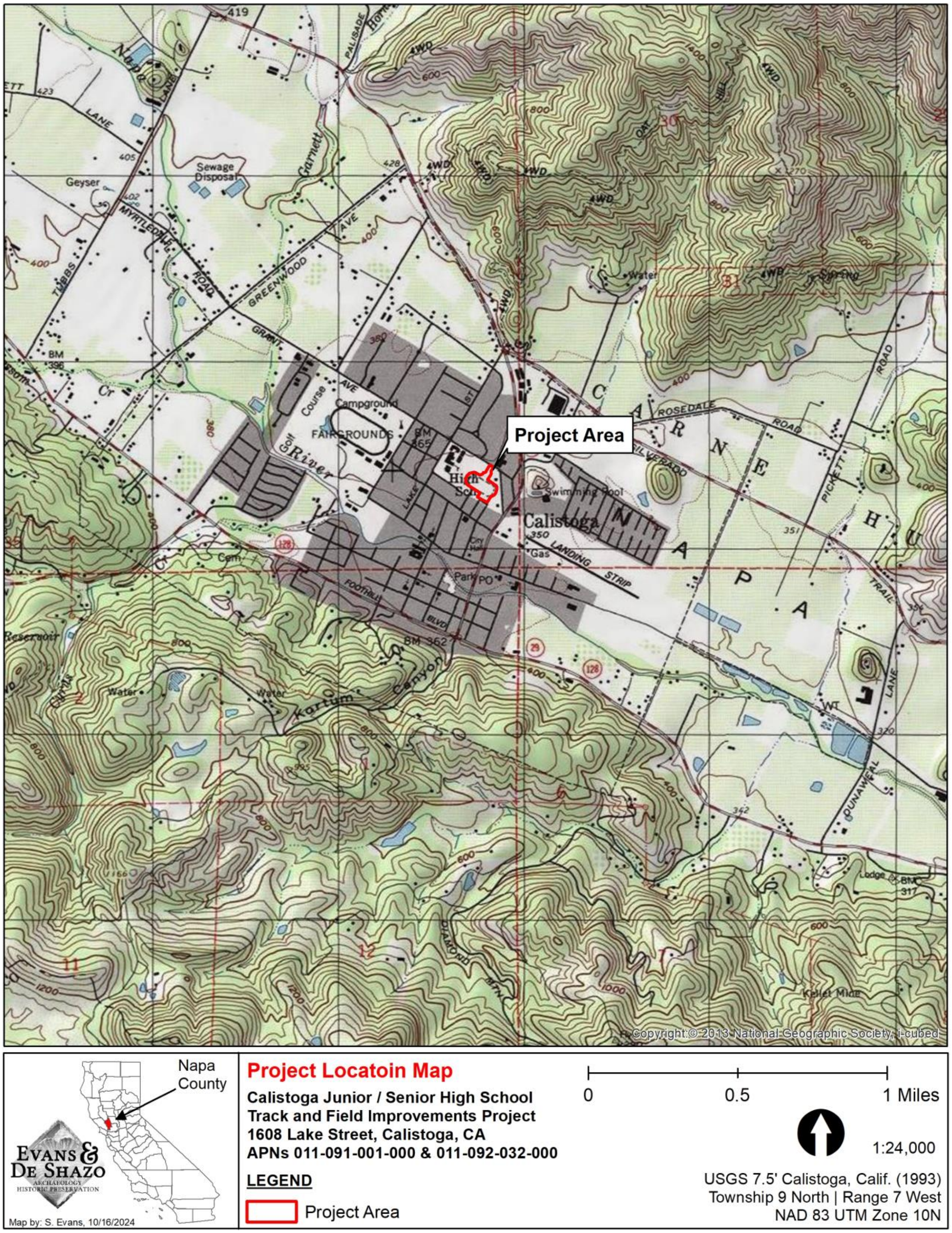

Figure 5: Project Area shown on the USGS 7.5' Calistoga, Calif. (1993) quadrangle.

REGULATORY SETTING

The proposed Project is subject to review under CEQA. Therefore, the CEQA regulations and guidelines (14 CCR Section 15064.5), as they pertain to cultural resources, are outlined below.

THE CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

CEQA regulations are encoded in Sections (§) 21000 et seq. of the Public Resources Code (PRC) with Guidelines for implementation codified in the California Code of Regulations (CCR), Title 14, Chapter 3, § 15000 et seq. CEQA requires state and local public agencies to identify the environmental impacts of proposed discretionary activities or projects, determine if the impacts will be significant, and identify alternatives and mitigation measures that will substantially reduce or eliminate significant impacts to the environment. According to CEQA, historical resources, unique archaeological resources, and tribal cultural resources are aspects of the environment that require identification and consideration regarding potential impacts (14 CCR 15064.5 and PRC 21084.1).

Resource Definitions

There are five classes of cultural resources defined by the State Office of Historic Preservation (OHP) that include:

- **Building**: A structure created principally to shelter or assist in carrying out any form of human activity. A "building" may also be used to refer to a historically and functionally related unit, such as a courthouse and jail or a house and barn.
- **Structure**: A construction made for a functional purpose rather than creating human shelter. Examples include mines, bridges, and tunnels.
- **Object**: Construction primarily artistic in nature or relatively small in scale and simply constructed. It may be movable by nature or design or made for a specific setting or environment. Objects should be in a setting appropriate to their significant historic use or character. Examples include fountains, monuments, maritime resources, sculptures and boundary markers.
- **Site**: The location of a significant event. A prehistoric or historic occupation or activity, or a building or structure, whether standing, ruined, or vanished, where the location itself possesses historic, cultural, or archaeological value regardless of the value of any existing building, structure, or object. A site need not be marked by physical remains if it is the location of a prehistoric or historic event and if no buildings, structures, or objects marked it at that time. Examples include trails, designed landscapes, battlefields, habitation sites, Native American ceremonial areas, petroglyphs, and pictographs.
- **District**: Unified geographic entities which contain a concentration of historic buildings, structures, or sites united historically, culturally, or architecturally.

Historical Resources

According to CCR § 15064.5, historical resources include buildings, structures, objects, sites, or districts that meet one or more of the following criteria:

1. Listed in, or eligible for listing in the California Register of Historic Resources (CRHR) (PRC § 5024.1, Title 14 CCR § 4850 et. seq.).

2. A resource included in a local register of historical resources, as defined in PRC § 5020.1(k) or identified as significant in a historical resource survey meeting the requirements PRC § 5024.1(g), shall be presumed to be historically or culturally significant. Public agencies must treat any such resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant.

3. Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California may be considered to be a historical resource, provided the lead agency's determination is supported by substantial evidence in light of the whole record. Generally, a resource shall be considered by the lead agency to be "historically significant" if the resource meets the criteria for listing on the California Register of Historical Resources (PRC § 5024.1, Title 14 CCR § 4852) including the following:

    a. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

    b. Is associated with the lives of persons important in our past;

    c. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or

    d. Has yielded, or may be likely to yield, information important in prehistory or history.

The fact that a resource is not listed in or determined to be eligible for listing in the CRHR, not included in a local register of historical resources (pursuant to PRC § 5020.1(k)) or identified in an historical resources survey (meeting the criteria in PRC § 5024.1(g)) does not preclude a lead agency from determining that the resource may be an historical resource as defined in PRC § 5020.1(j) or § 5024.1.

Unique Archaeological Resources

CEQA (PRC § 21083.2) distinguishes between two classes of archaeological resources: archaeological sites that meet the definition of an historical resource as described above, and "unique archaeological resources." A unique archaeological resource is defined as an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

1. Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information,
2. Has a special and particular quality such as being the oldest of its type or the best available example of its type, or
3. Is directly associated with a scientifically recognized important prehistoric or historic event or person.

Tribal Cultural Resources

Tribal Cultural Resources is an additional category of resources defined in CEQA (PRC § 21074). Pursuant to revisions to CEQA enacted in 2015, Tribal Cultural Resources are to be identified by Tribes during government-to-government consultation with the lead agency and can remain confidential (PRC § 21080.3.1). According to Public Resource Code (PRC) §21074(a)(1) and (2):

(a) Tribal Cultural Resources are either of the following:

  1) Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following:

    A. Included or determined to be eligible for inclusion in the California Register of Historical Resources (CRHR).

    B. Included in a local register of historical resources as defined in subdivision (k) of §5020.1.

  2) 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 §5024.1. In applying the criteria set forth in subdivision (c) of §5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.

(b) A cultural landscape that meets the criteria of subdivision (a) is a tribal cultural resource to the extent that the landscape is geographically defined in terms of the size and scope of the landscape.

A historical resource described in PRC §21084.1, a unique archaeological resource as defined in subdivision (g) of PRC §21083.2, or a "nonunique archaeological resource" as defined in subdivision (h) of PRC §21083.2 may also be a tribal cultural resource if it conforms with the criteria of subdivision (a) listed above.

CULTURAL SETTING

Historical and archaeological resources are evaluated using a historical context that identifies the significant events, people, or patterns that a resource is associated with, and defines expected property types against which individual resources may be compared and evaluated for historical significance. As such, the following cultural setting provides a precontact, ethnohistoric, and historic period overview of the Project vicinity to understand the types of archaeological resources that could be located within the Project Area and their potential historical significance.

PRECONTACT PERIOD / ARCHAEOLOGICAL OVERVIEW

The City of Calistoga is located within the North Coast Ranges of California, where evidence of Native American settlement spans over 14,000 years. The archaeological evidence of precontact period occupation is organized using a taxonomic system that incorporates a cultural sequence based on Patterns, Phases and Aspects,[1] subsumed under temporally-defined archaeological periods that include the Paleo-Indian Period (pre-10,000 BP[2]), the Lower Archaic Period (10,000 – 7500 BP), Middle Archaic Period (7000 – 3500 BP), Upper Archaic Period (3500 – 1200 BP), and the Emergent Period (3500 BP – contact) (Fredrickson 1973, 1974). The following is a brief description of each of these periods, based on information derived from precontact period archaeological sites located throughout the North Coast Ranges, and specifically in Napa County.

Post Pattern of the Paleo-Indian Period (pre-10,000 BP)

The Post Pattern period is evident throughout the southern Columbia Plateau and the northwestern Great Basin regions of the United States (U.S.) and is associated with the Paleo-Indian Period. The Post Pattern tradition is characterized by a "Millingstone culture" that includes an abundance of milling slabs, handstones, crude cores, core tools, and various types of large, wide-stemmed and leaf-shaped projectile points (Fredrickson 1973; Milliken et al. 2007). These tools infer an economy based on large game hunting with the use of the atlatl and dart technology, supplemented by seed gathering. People appear to have been mobile foragers that utilized the surrounding mountains to procure resources that were available on a seasonal basis. Semi-permanent settlements may have existed at this time within the Napa River valley and where major creeks empty into the Napa River, but permanent and semi-permanent sites dating to this period are rare throughout the North Coast Ranges, and no Post Pattern sites have been identified within the Napa Valley.

Borax Lake Pattern in the Lower Archaic Period (10,000 - 7500 BP)

The early Borax Lake Pattern of the Lower Archaic Period has a distinctive cultural pattern characterized by wide-stemmed and fluted projectile points and metates and manos (i.e., groundstone) that infer an economy based on large game hunting, supplemented by seed gathering. The Borax Lake Pattern is recognized in the Clear Lake Basin by the Borax Lake Aspect, represented by square-stemmed projectile points and milling stones, as well as in two other areas much farther to the north. No Borax Lake Pattern sites have been identified within the Napa Valley.

---

[1] Patterns are units of culture having similar economic and technical manifestations, mortuary patterns, concepts of wealth, and trade practices. Phases are cultural manifestations within a Pattern bounded by time and region. Aspects are cultural units bounded regionally, but not temporally.

[2] Before the Present (BP); present defined as 1950.

Houx Aspect of the Berkeley Pattern in the Middle Archaic Period (7000 - 3500 BP)

The Houx Aspect of the Berkeley Pattern is the earliest cultural pattern that is well-represented in the Napa Valley, including sites located along the Napa River and where major creeks empty into the river. The Houx Aspect is recognized by artifact assemblages that include Excelsior and wide-stemmed projectile points, *Olivella* and *Macoma* shell beads, charmstones, bowl mortars, pestles, serrated flake tools, and a highly developed set of bone tools, including awls, serrated scapula saws, and hairpins (White et al. 2002). Archaeological evidence suggests that Houx populations lived in large, fixed settlements focused on hunting and gathering a large variety of plant and animal resources. This more sedentary way of life seems to have been in response to the adoption of acorns as a primary food source, which is also evidenced by the slow replacement of milling slabs and manos with mortars and pestles. During this time, the population increased, evidenced by the establishment of many new sites, and social organization became more complex, evidenced by an elaboration in mortuary practices, increased ornamental grave offerings, the establishment of trade networks, and possibly the beginning of established territorial boundaries (Milliken et al. 2007:115).

Hultman Aspect of the Mendocino Pattern in the Middle Archaic (7000 – 3500 BP) and Upper Archaic (3500 - 1200 BP) Periods

The Hultman Aspect of the Mendocino Pattern overlapped temporally and spatially with the Houx Aspect of the Berkeley Pattern. The Hultman Aspect is recognized by artifact assemblages made of local material and consisting of basalt core tools and flakes, lanceolate-shaped, side-notched, and concave-base projectile points, milling slabs, and handstones.

The Hultman Aspect is also evident in the Upper Archaic Period with a slight technological shift towards the use of mortars and pestles. Archaeological evidence suggests that Hultman populations were small, mobile groups that hunted and gathered various plants and animals available in upland ecological zones. Depending on the ecological setting, some Hultman populations focused on plant and seed processing, while others focused on hunting large and small game animals. The presence of artifacts made mostly of local materials indicates a localized economy and limited trade.

People associated with the Hultman Aspect of the Mendocino Pattern and the Houx Aspect of the Berkeley Pattern co-existed, but had different adaptive strategies. Berkeley Pattern people are thought to have utilized the valley floor and riverine environs as part of a long-term settlement strategy, whereas Mendocino Pattern people are thought to have used the valley on a short-term, seasonal basis. While they must have interacted to some degree, the two groups seemed to have maintained their autonomy for a time; however, they eventually merged into what is known as the St. Helena Aspect of the Augustine Pattern.

St. Helena Aspect of the Augustine Pattern in the Emergent Period (1200 BP - contact)

The Emergent Period is distinguished by a lower and upper period. The St. Helena Aspect of the Augustine Pattern in the northern Napa Valley is characterized in the Lower Emergent Period by artifact assemblages consisting of steatite ear spools, *Haliotis* (abalone) shell pendants with scored decoration along the edges, thin rectangular *Olivella* shell beads, small serrated projectile points with straight or expanding stems, collard stone pipes and ring beads, and various bone tools (Fredrickson 1974). The small, arrow-sized projectile points would have been attached to a wooden shaft and used with a bow; the bow-and-arrow technology appears to have been introduced around 1,400 B.P. (Justice 2002). The use of smaller, precision flaked tools, such as arrow points, coincides with a decrease in the amount of stone tool manufacturing observed at sites in the Napa Glass Mountain area. This is most likely due to the demand for large un-worked obsidian flakes from Napa sources at distant locations around the San Francisco Bay Area, which were transformed into smaller points, preforms, and simple flake tools by individuals at these locations (Milliken et al. 2007:117).

The North Bay became the "seat of innovation" during the Upper Emergent Period, introducing such items as the toggle harpoon, hopper mortar, simple corner-notched arrow points, clamshell disk beads, and magnesite tubes, which are characteristic of artifact assemblages from sites dating to the latter phase of the St. Helena Aspect, in addition to painted stone tablets and bird-bone ear tubes. The burial practice of cremation was also introduced in the North Bay during this time. The simple corner-notched points replaced the earlier Stockton serrated points in the North Bay and spread as far south as the Central Bay. Clam shell disk bead manufacturing seems to have centered primarily on the Santa Rosa Plain and within Napa Valley. These shifts in technological artifact types and mortuary practices, which, for the most part, spread from north to south, signals what would have been "another upward cycle of regional integration" (Milliken et al. 2007); however, the cycle was stopped short by Spanish colonization and subsequent European and Anglo-American settlement of the region.

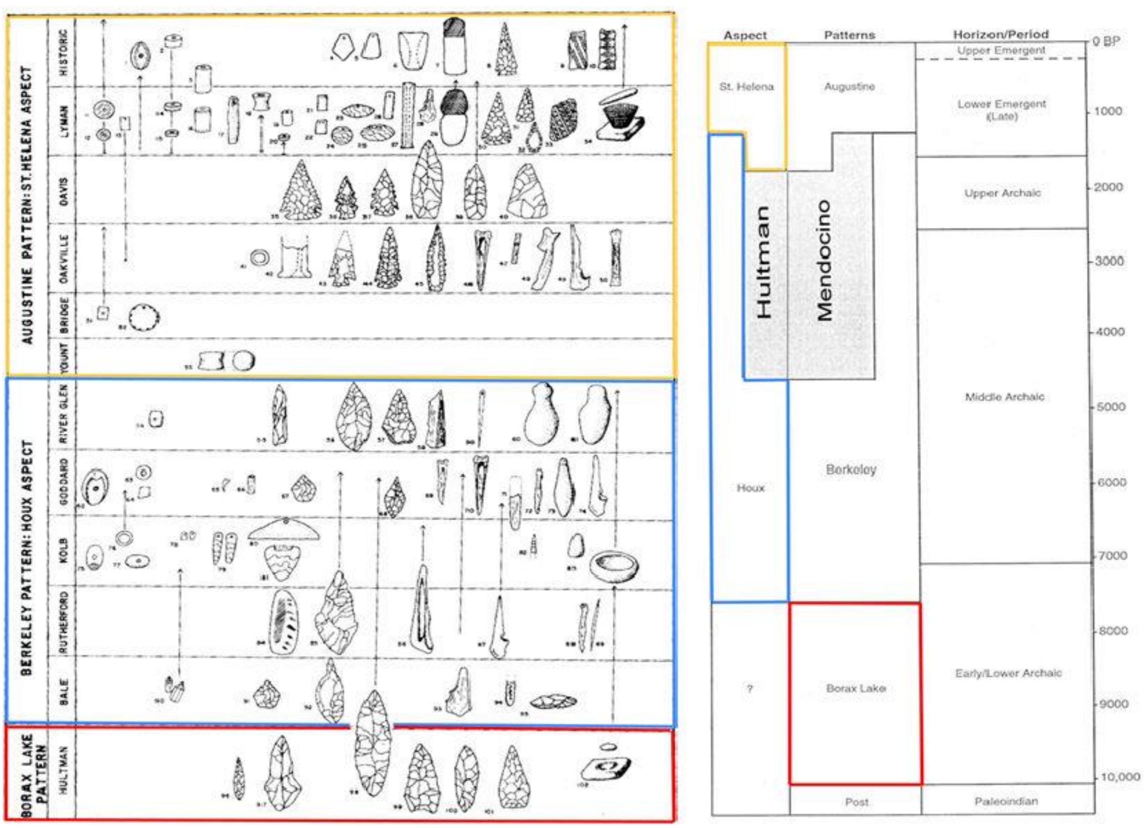

Figure 6: Temporal-Cultural units in the North Coast Ranges and associated artifact types. Adopted from Moratto (1984:515) and Carpenter and Mikkelsen (2005:8).

ETHNOHISTORIC SETTING

The Project Area is located in the ethnohistoric territory of the Wappo (Figure 7). The Wappo language is one of four members of the Yukian language family, a language family found only in California. Wappo linguistic boundaries extend through Napa Valley, reaching as far as Middletown to the northeast, and include portions of eastern Sonoma County, as well as a small area of land south of Clear Lake (Sawyer 1978). The Wappo is one of the oldest tribes in the State of California (Kroeber 1925; Driver 1936; Sawyer 1978; Weber 1998).

The term "Wappo" is an Americanization of the Spanish word *guapo*, meaning "courageous" or "brave," a designation that resulted from their bitter refusal to be dominated by the Spanish (Heizer 1953). The Wappo used the terms "*Sotoyome"* and "*Ashochimi"* to refer to themselves, and these terms were also used by the neighboring Pomo when referring to the Wappo. Individual Wappo communities were also referred to by the location of their primary village sites, such as the *Callajomanes*, whose villages were in the vicinity of St. Helena, the *Mayacamas*, whose villages were in the vicinity of Calistoga, the *Kaimus* (also spelled *Caymus)*, whose villages were in the Yountville area, and the *Huiluc* in the upper valley of Sonoma Creek north of the present-day town of Sonoma (Figure 8).

Figure 7: Map showing the ethnohistoric territory of the Wappo and neighboring tribes.

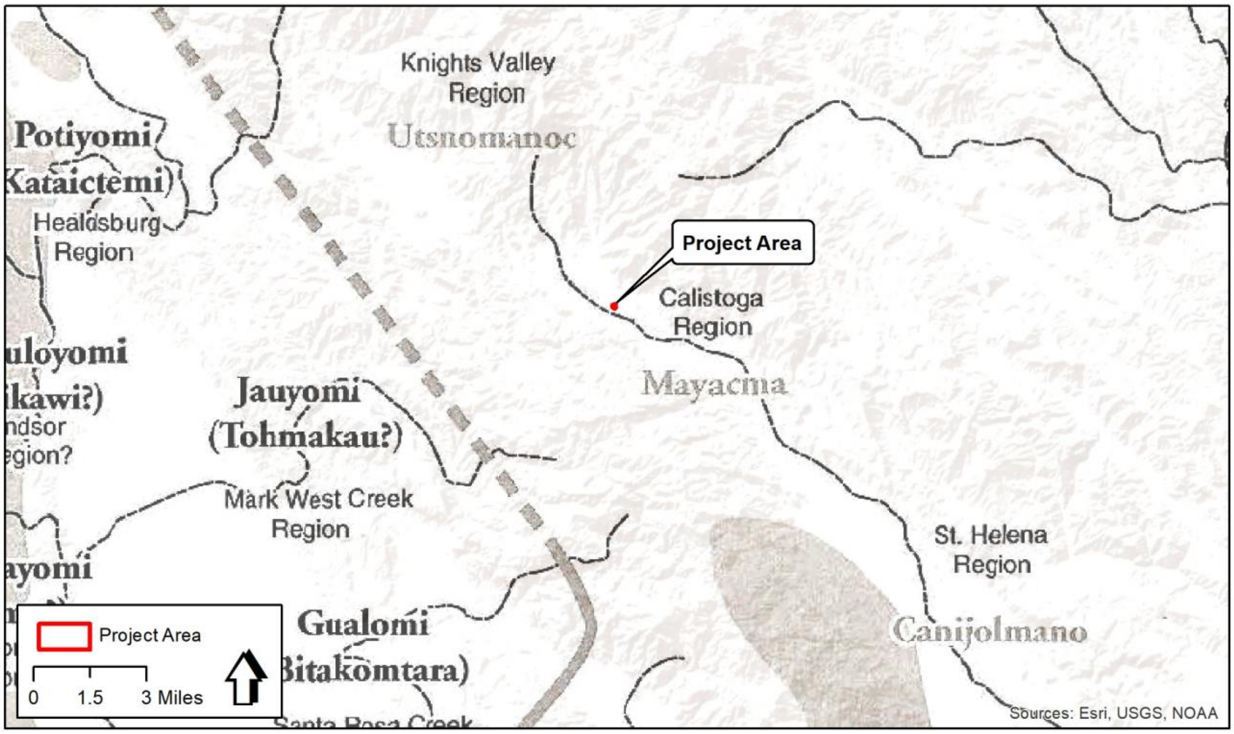

Figure 8: Milliken's (2009:2) map of tribal communities in the vicinity of the Project Area.

The main social unit of the Wappo was the bilateral kin group, and these groups congregated in town or village communities of up to three hundred people. Their main food source was acorn, eaten as a mush, supplemented by various seeds, roots, berries, and nuts. Deer were also an important food source, as well as a variety of small game such as rabbits, squires, rats, gophers, birds, and grasshoppers. Fish were regularly eaten, but constituted a smaller part of the diet. Seafood was also part of the diet, eaten occasionally when trips were made to the coast to collect shellfish such as abalone, mussel, clam, and crab, as well as seaweed. Men were mostly responsible for hunting and fishing, while women often collected vegetable foods (Driver 1936:182, 184).

As described by Sawyer (1978:260), the Wappo were "seasonal and inveterate travelers" who moved frequently to take advantage of a range of subsistence and exchange resources. These travels even included trips as far away as Bodega Bay, through Miwok and Pomo territory, to collect abalone, clamshells, seaweed, and other commodities. Clamshells in particular were a valuable material for manufacturing beads and were also used as money. The Wappo are considered to have been middlemen in the distribution of coastal shells to more inland peoples, and they also controlled access to the obsidian source at Glass Mountain located near St. Helena (Driver 1936; Heizer 1953; Heizer and Treganza 1944). Obsidian was a valuable resource for all prehistoric Californians, who used it to fashion spear points, arrowheads, knives, scrapers, and other cutting implements.

Wappo villages were often located along major water courses, such as the Russian River, near Alexander Valley (Sonoma County), and the Napa River. Their houses were oval and made with a framework of willow poles bent inward and overlain by layers of grass on the exterior. The houses were semi-subterranean, dug about two feet into the ground, which kept the interior of the structure insulated. It was typical for several families to live together in a single house. The Wappo built their winter homes on higher ground away from the river, due to annual flooding; and in the summertime, when flooding was not a threat, they lived in temporary brush-covered structures close to the river (Driver 1936). The Wappo also constructed earth-covered semi-subterranean buildings that were used for sweats and other ceremonial activities.

According to the ethnographer Samuel Barrett (1908) there were three old village sites located in the vicinity of Calistoga (Figure 9). Two were located on the east side of the Napa River just north of present-day Calistoga, including *tse'lmēnan* and *nī'Lektsōnōma*, and one was on the west side of the Napa River about one mile south of Calistoga, called *maiya'kma* (Barrett 1908:270-271). Barrett provides further description of *tse'lmēnan* and *nīLektsōnōma:*

- *tse'lmēnan: "*from tsel, charcoal, me, water, and nan, a well or other deep hole containing water, near the foot-hills at a point about a mile north of the town of Calistoga" (Barrett 1908:270).
- *nīLektsōnōma: "*from nīLek, a species of hawk, tsō, ground, and nō'ma, village, just northeast of the town of Calistoga near the head of Napa valley. One informant says that this is simply another name for the village of maiya'kma" (Barrett 1908:270).

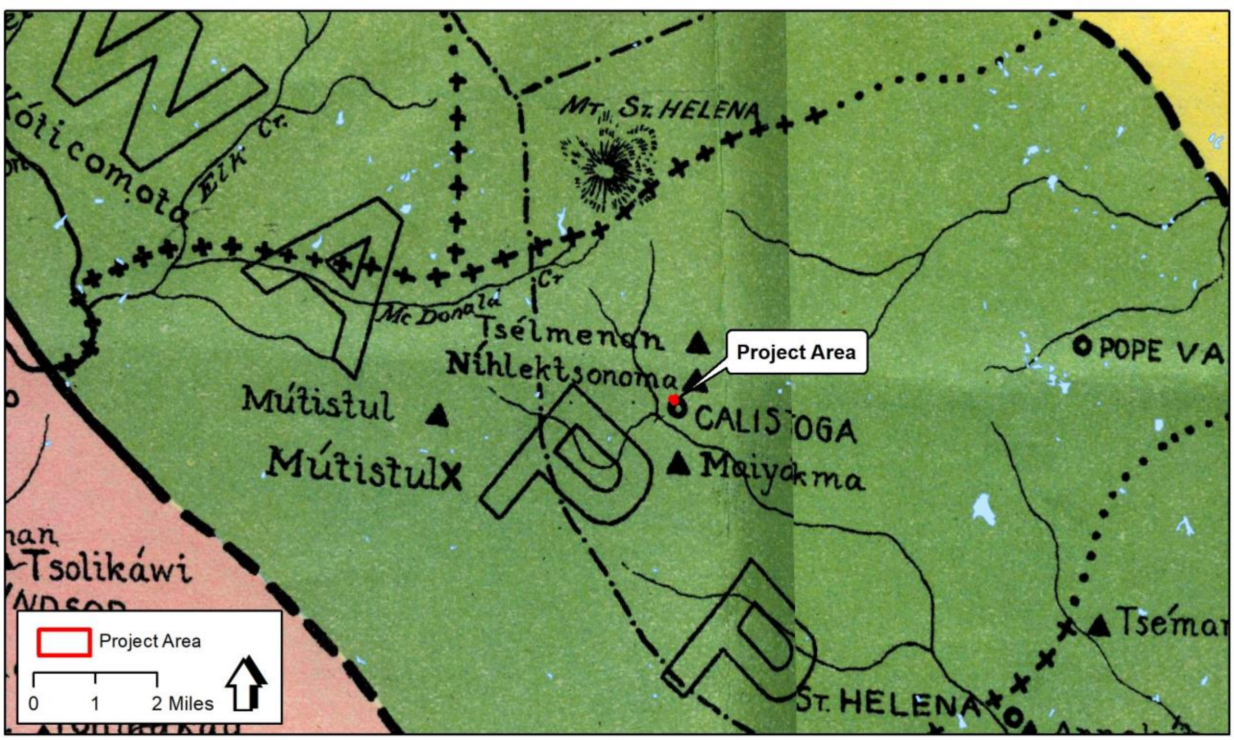

Figure 9: Barrett's (1908) map of ethnohistoric sites near Calistoga and the Project Area.

Unlike tribal groups located further to the south, up until 1810, the Wappo were relatively unaffected by Spanish missionizing efforts that began in 1769. However, the Spanish began to take interest in the North Bay following the appearance of Native Alaskan Sea otter hunters (associated with Russian hunting parties) in the San Francisco Bay and the establishment of the Russian colony Fort Ross along the Sonoma Coast in 1812. In an effort to prevent the Russians from expanding settlement in California, and to address the rampant spread of epidemic disease in mission communities throughout the greater Bay Area, two missions were created in the North Bay, including Mission San Rafael, established in present-day San Rafael in 1817, and Mission Solano, established in present-day Sonoma in 1823 (two years after Mexico declared its independence from Spain). Most of the Wappo-speaking people who went to the missions were either baptized at San Francisco de Asís (Mission Dolores) (before 1823) or at San Francisco Solano (Sonoma Mission; after 1823 to about 1831) (Milliken 1995, 2009). The mission system ended with secularization between 1834 and 1836, and while some tribal members remained in the area around the Sonoma Mission after secularization, others went back to their traditional homelands, which were now occupied by new towns and ranchos.

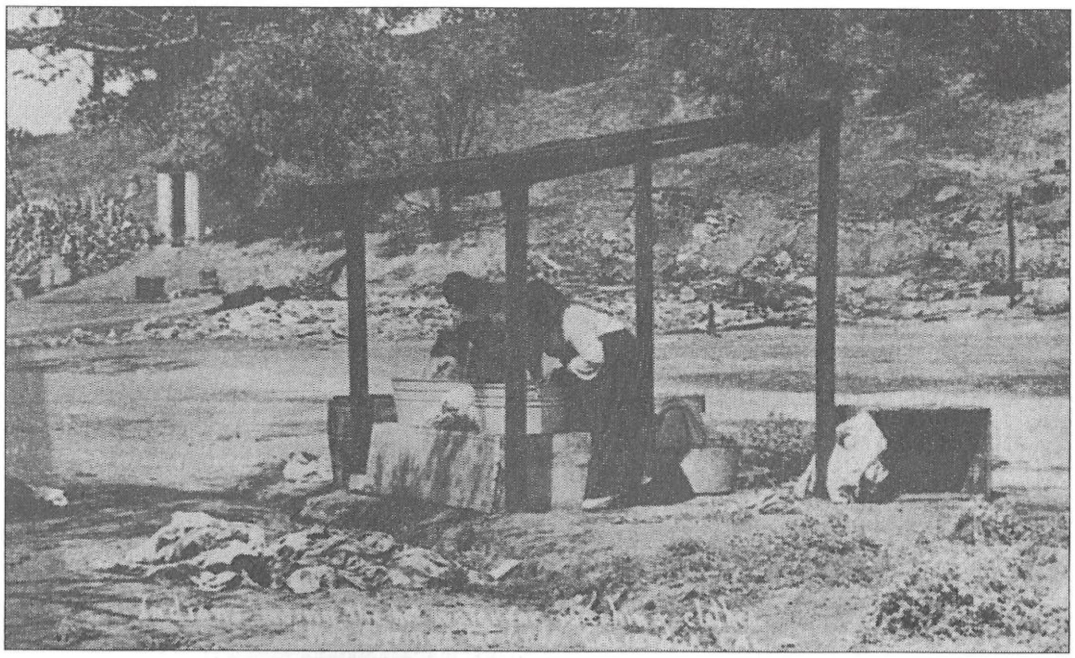

Figure 10: Native Americans washing clothes in a hot spring in Calistoga, date unknown (Adams 1946:67).

HISTORIC PERIOD SETTING

This section outlines the historical chronology of Calistoga and the general vicinity with reference to events and themes related to the history of the area from the Spanish period to the later American period.

Spanish Colonization Period (1776 – 1821)

The Spanish were the first Europeans to colonize California beginning in 1769 when the first mission in Alta (upper) California was established by the Spanish in San Diego. Spanish activity in the San Francisco Bay Area increased greatly after this time, with several Spanish expeditions travelling into the Bay Area between 1769 and 1776 to search for suitable places to establish additional missions. Although none of these early expeditions are reported to have reached present-day Napa County, they resulted in the establishment of several missions throughout the greater Bay Area, including the Presidio of San Francisco and Mission San Francisco de Asís (1776) in present-day San Francisco, Mission Santa Clara de

Asís (1777) in present-day Santa Clara, Mission San Jose de Guadelupe (1797) in present-day Fremont, and Mission San Rafael Arcangel (1817; gained full mission status in 1822) in present-day San Rafael (Kyle et al. 2002).

Mexican Period (1821 - 1846)

When civil war erupted in Spanish-ruled Mexico in 1810, Alta California found itself cut off from Mexico, which was the main source of supplies and the primary market for surplus crops produced in Alta California at the time. As a result, illegal trading began to take place with foreign ships which allowed locals to exchange their surplus agricultural products and hides and tallow for imported products, such as tea, coffee, spices, clothing, leather goods, and other goods. Then in 1821, Mexico won its independence from Spain with the signing of the Treaty of Córdoba and took possession of Alta California, marking the end of the Spanish period and the beginning of the Mexican period. The administrative policies of the new Mexican government resulted in several changes, including the legalizing of trade with foreign ships, which stimulated commerce and resulted in the establishment of new settlements and some of the first American and Anglo-Europeans to the area; the issuance of land grants in an effort to stimulate further colonization; and eventually, secularizations of the missions.

The first recorded expedition by Europeans into present-day Napa County occurred in 1823, just two years after Mexico declared its independence from Spain. The expedition was led by Francisco Castro and accompanied by José Sanchez and Father José Altamira, and their purpose was to scout out a site for a new mission. Later that year, Mission San Francisco Solano (Sonoma Mission) - the last of the 21 missions - was founded by Father José Altimira in present-day Sonoma, and the Napa Valley was considered to be within its jurisdiction (Kyle et al. 2002). The missions were secularized between 1834 and 1836.

During the Mexican Period, the Napa Valley was dominated by the Vallejo family, headed by Mexican General Mariano Guadalupe Vallejo, who was responsible for securing the region for Mexican colonization. As such, many of General Vallejo's loyal soldiers and friends, as well as his family members were rewarded with one or more land grants in Napa Valley. A total of 14 land grants were issued in Napa County during the Mexican Period, which totaled over 200,000 acres. Among the most notable ranchos connected with the history of Napa County include *Caymus, Napa, Entre Napa, Tulucay, Huichica, Locoallomi, Yajome, Carne Humana, La Jota, Las Putas, Mallacomes, Catacula*, and *Chimiles*.

The Project Area is within the *Carne Humana* land grant, an 18,000-acre property granted to a young English surgeon, Dr. Edward Turner Bale, in 1841. Rancho *Carne Humana* extended north from Rancho *Caymus*, owned by George C. Yount, and included present-day Calistoga and St. Helena. It is not known how the rancho got the name "Carne Humana," which is translated as "human flesh," but there is speculation that Bale may have mispronounced the local tribal community name of *Calajomanas* (Kyle et al. 2002).

Dr. Edward Turner Bale arrived in Monterey, California in 1839, and served as Surgeon-in-Chief of the Mexican Army under the command of General Vallejo. Shortly after, he married Maria Ignacia Sobrantes, General Vallejo's niece. In 1843, Bale and his family moved to Rancho *Carne Humana* where they built an adobe home along Bale Creek, located on present-day Whitehall Lane approximately one mile west of State Route (SR) 29 (Kyle et al. 2002). In 1846, Bale had a water-powered gristmill[3] constructed near his home, three miles north of present-day St. Helena, to grind corn and wheat for the settlers throughout the valley; and a sawmill was completed the following year, which was located along the Napa River just north of the present Charles Krug Winery near St. Helena (Bancroft 1886; Kyle et al. 2002; Menefee 1873). The gristmill was the center of activity in Napa Valley at the time, as settlers gathered to have their corn and wheat ground into meal or flour (Page & Turnbull, Inc. 2006).

In 1846, the Mexican-American War began, and by the end of the war in 1848, Mexico had lost nearly half of its territory, including all of Alta California. During this time, Dr. Bale was experiencing financial and personal troubles, and in 1848, he sold his sawmill to James Harbin and traveled north to Sutter's Fort in search for gold (Weber 1998). After Bale died on October 9, 1849, his heirs began to sell off the remaining portions of Rancho *Carne Humana*.

American Period (Post-1848)

In 1845, the U.S. annexed Texas, which was an act not formally recognized by the Mexican government, and by the spring of 1846, Mexico and the U.S. entered an armed conflict known as the Mexican American War (1846 - 1848). The American Period in California is marked by the end of the Mexican American War, when Mexico ceded 55 percent of its territory, including California, to the U.S. with the signing of the Treaty of Guadalupe Hidalgo (1848). However, on January 24, 1848, two weeks before the treaty was signed, James W. Marshall discovered gold along the American River in California, and soon news of the discovery brought thousands of immigrants (known as "49ers") to California from all over the U.S., as well as other countries. The massive influx of new settlers who came to California during the Gold Rush (1848-1955) soon gave rise to land disputes, as settlers began to move into rancho lands that they perceived as unoccupied and available for settlement. To help settle land disputes between the landowners and the newly arriving settlers, the U.S. Congress passed the California Land Act of 1851 that created a three-member Public Land Commission to validate the land titles of Spanish and Mexican land grants in California. Although the Commission eventually confirmed most land grants, the cost of litigation to prove their land titles in court forced most Californios (former Mexican citizens living in California) to lose their land and cattle; and more often than not, their land was lost to newly arriving settlers and the lawyers who were hired to defend land titles (Olmsted 1986).

As required by the California Land Act of 1851, a claim was filed for Rancho *Carne Humana* in 1852, and it was eventually patented to Maria Ygnacia Bale (Edward Turner Bale's wife) and the heirs of Edward Bale in 1879. However, by this time, much of the land comprising Rancho *Carne Humana* had been sold or otherwise "acquired" by new settlers coming into the Napa Valley.

Prior to the American Period, all of the land west of the Sacramento River from the San Francisco Bay north to the Oregon border was known as the "District of Sonoma," and from this district, the County of Napa was officially created on February 8, 1850, as one of 27 counties that made up the new State of

[3] Now part of Bale Grist Mill State Historic Park, California State Historic Landmark #359, located at 3315 St. Helena Highway (SR 29), St. Helena, California.

California when it was admitted into the Union on September 9, 1850 (Carpenter and Cosby 1938). At the time, Napa County also included present-day Lake County. In 1851, the first courthouse was erected in the City of Napa, which was the designated County seat, and ten years later, in 1861, part of Napa County was given up to form Lake County.

History of Calistoga (post-1850)

In 1857, Samuel Brannan, a businessman and journalist, who founded the first newspaper in San Francisco (the California Star) and was California's first millionaire, purchased land at the north end of the Napa Valley, then known as the Hot Springs Township, named for its natural hot springs. Intending to capitalize on the area's natural hot springs and mineral waters, Brannan saw the potential of Calistoga to become a resort destination comparable to or better than the Saratoga resorts of New York. Brannan sold plots of his land to finance the development of a new resort – called Calistoga Hot Springs Resort – at the base of Mt. Lincoln in present-day Calistoga, where there was an abundance of natural hot springs (Figure 11 and Figure 12). By 1860, the resort's first building – a lavish two-story hotel with an adjoining dining hall – had been constructed, and by 1862, when the resort opened, there were more than 25 buildings, including 14 furnished cottages (known as the Brannan Cottages) (Napa County Historical Society [NCHS] 2015). Eventually, the resort featured a general store (extant),[4] an express office, a swimming pool, a goldfish pond, a Druid Temple, elaborately landscaped parks, individual bathing pavilions in the shape of miniature pagodas, a large bathhouse, a skating rink, a dance pavilion, a tent-shaped observatory atop Mt. Lincoln, a large, 90,000-gallon reservoir to hold water for the resort, and a one-mile-long racetrack and stables (Figure 13).

The Hot Springs Resort attracted wealthy guests from San Francisco and other areas throughout California, including prominent citizens, such as Leland Stanford, William Randolph Hearst, Denis Kearney, Mark Hopkins, and James Lick, looking to escape the city fog for the warm and sunny Napa Valley (Archuleta 1977; NCHS 2015; Webber 1998). According to NCHS, "Thousands came each season to Brannan's Calistoga Springs Resort to 'take the waters,'" and visitors were also urged to take what was known as the *grape cure*, a remedy of persistently eating unadulterated grapes from the vine to better clean one's system" (NCHS 2015). To promote his resort, Brannan also laid out commercial and residential lots near the resort, and partially funded the extension of the Napa Valley Railroad to Calistoga, which arrived in the spring of 1867, with a depot constructed the following year, in 1868.[5] The arrival of the railroad in Calistoga catalyzed growth, encouraged further settlement, and provided an incentive for wealthy city dwellers to not only visit, but also to invest in the developing new town.

Shortly after the railroad arrived in Calistoga, Brannan's wife, Ann Eliza, requested a divorce, and by 1870, Brannan was ordered by the courts to pay Ann Eliza half of their community property. Brannan began liquidating his assets, and by 1875, the Sacramento Savings Bank (holder of the mortgage on the resort) ordered Brannan to sell the Hot Springs Resort property in Calistoga. The resort property, except the main resort building, which was retained by Brannan's longtime friend, Leland Stanford, and several

[4] State Historic Landmark #684.

[5] The 1868 Napa Valley Railroad Depot at 1458 Lincoln Avenue is currently listed on the NRHP (NR #177000313) and as California Historical Landmark #687. A roundhouse was also built on the west side of Lincoln Avenue, which is no longer extant.

cottages, which were privately owned, was sold in various-sized parcels. Stanford leased the property to others to manage; and the Hot Springs Resort went through several hands, including Judge Elmer S. Dudley of Falls City, Nebraska, A.C. Tichenor of San Francisco, and eventually to Jacques Pacheteau about 1911, who operated Patcheteau's Original Hot Springs Resort (Archuleta 1977:51).

In addition to the Hot Springs Resort, mining also made a significant impact on Calistoga when in 1860, Cinnabar, also known as mercury ore or quicksilver, was discovered by J. Cyrus and A.J. Bailey in an area east of Calistoga at a place that later became known as the Oat Hill Mine (Archuleta 1977). All of the labor was done by Chinese immigrants from the Canton area of China. The mine proved to be very lucrative, becoming one of the most successful and productive mines in Calistoga, and soon drew many new immigrants to the area, which spurred new development in Calistoga, particularly along Lincoln Avenue.

In 1876, Calistoga was incorporated as a town. According to an 1880 illustration of Calistoga (Figure 14), during this time, Calistoga consisted of a small commercial downtown area with businesses lining a two-block section of Lincoln Avenue and many surrounding small farms and agricultural land. Throughout the late 1880s, development continued along Lincoln Avenue with a mix of businesses to support the booming town, and several houses (Figure 15); and in 1885, Calistoga's first water system was established by the Calistoga Water Works company. In 1901, a fire broke out behind the train depot on the northern end of Lincoln Avenue and much of the commercial downtown and several residences were destroyed. After the town was rebuilt, it was hit by a second fire along Lincoln Avenue in 1907 but was again rebuilt. Following the second fire, the City of Calistoga bought out the Calistoga Water Works company for $40,000 (Archuleta 1977).

Although the Napa Valley Railroad provided passenger service to and from Calistoga starting in 1867, in 1912, the San Francisco, Napa & Calistoga Railway Company (SFN&C) – an electric interurban railroad – extended its line to Calistoga, and for the first time, the residents of Calistoga had fast, reliable, and comfortable transportation from Calistoga through the Napa Valley to Vallejo and points beyond. The coming of the electric railroad helped bolster the local economy and became an important fixture in the commercial and social life of Calistoga's residents, as many relied on its service for employment, recreation, and to travel to and from jobs, appointments and social events (Swett and Aitken 1975).

By the early 1920s, most of the original 12-square block residential section laid out by Brannan had been developed with houses and businesses, and the name of the County Road through Calistoga was changed to Main Street (now known as Foothill Boulevard), and sewer lines began to be installed throughout the city. By 1935, Napa County established the Napa County Fairgrounds in Calistoga. During the 1940s, Calistoga saw changes along Lincoln Avenue, including a Ford car dealership and several gas stations (Figure 16). By the later part of the 1940s and during the early 1950s, Calistoga had become less of a resort town and more of a rural agricultural community supported by prune and walnut orchards, as well as dairy farms. Calistoga remained, for the most part, a sleepy community until two of Napa Valley wines, including Chateau Montelena's 1973 Chardonnay and Stag's Leap Wine Cellars' 1973 Cabernet Sauvignon, prevailed as the top wines in a blinding tasting wine competition against French wines in 1976, known today as the "Judgment of Paris." This brought a renewed interest in Napa Valley wines, and as a result, the wine industry flourished, bringing tourism and economic growth to Calistoga. Today, Calistoga is home to over 5,000 residents and is one of Napa Valley's premier winery and spa tourist destinations.

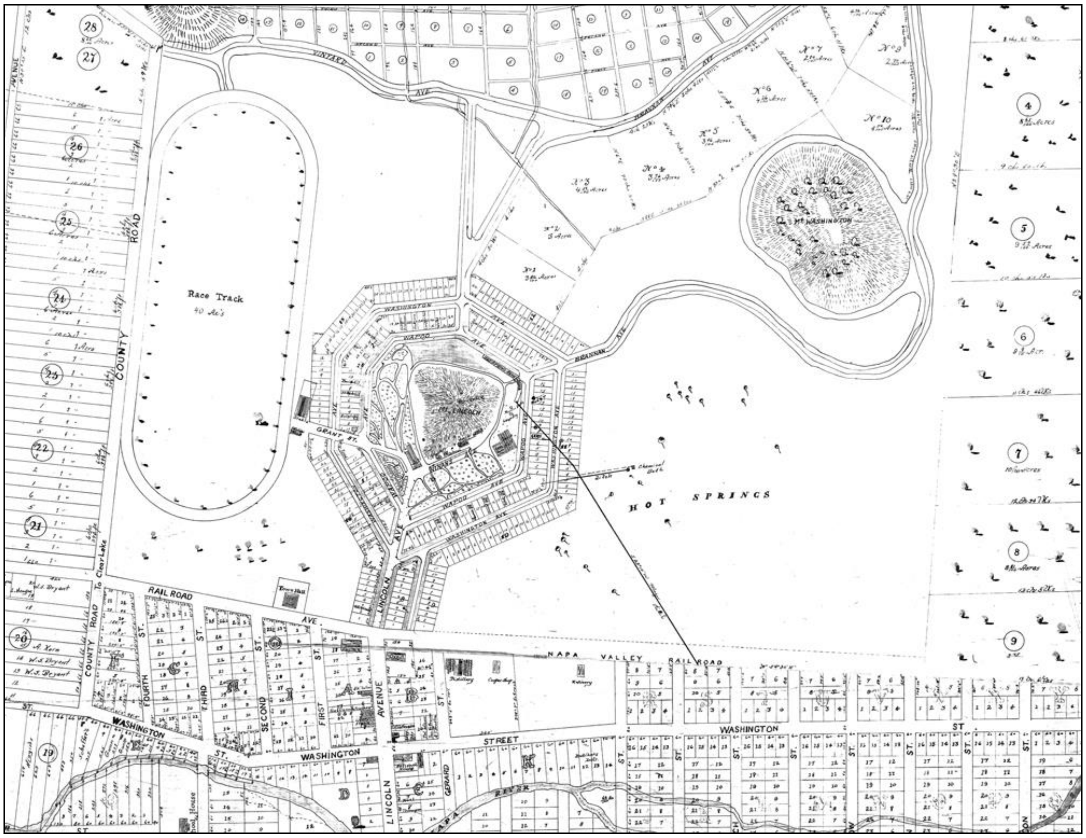

Figure 11: Morgan's Map of Calistoga, 1871 (NCHS 2015).

Figure 12: ca. 1865 photo showing Brannan's Calistoga Hot Springs Resort (courtesy of the NCHS).

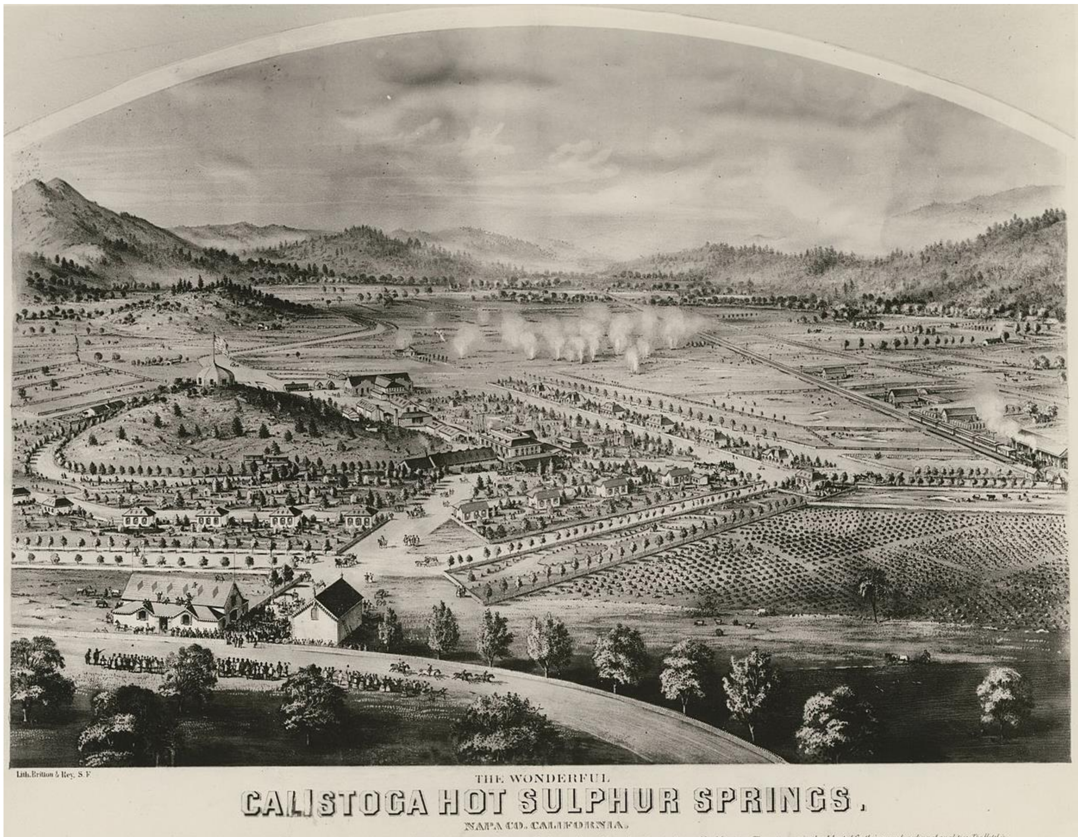

Figure 13: ca. 1890 Britton & Rey lithograph of the Calistoga Hot Springs Resort.

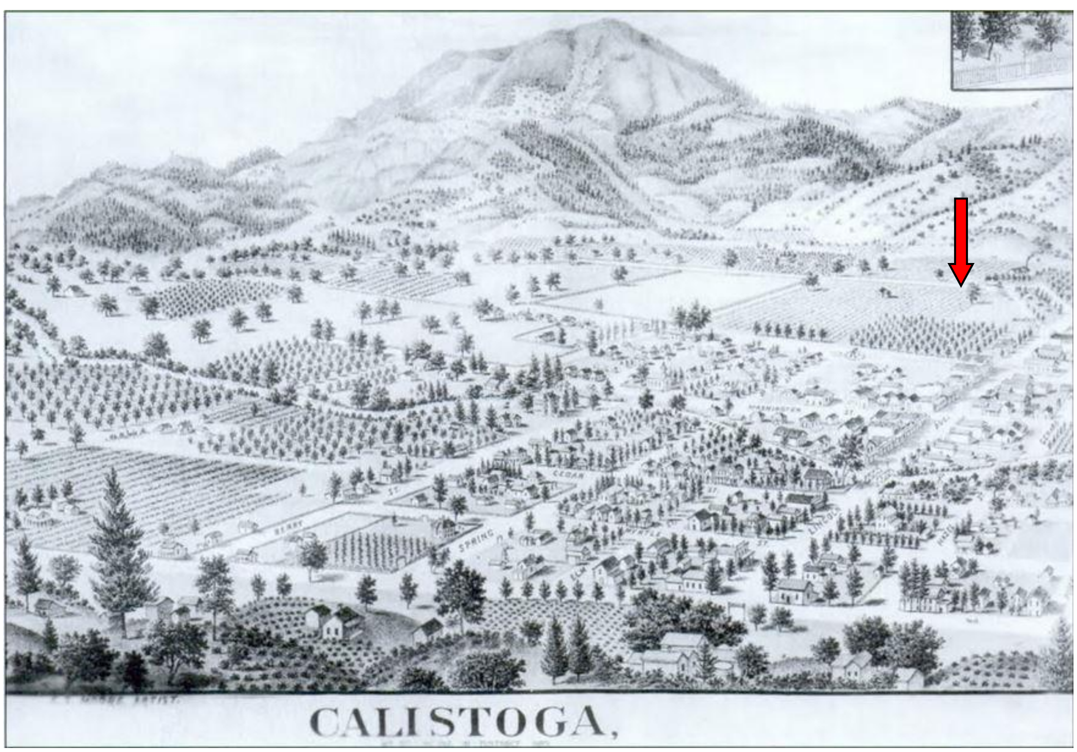

Figure 14: 1880 E.S. Morris drawing of Calistoga. The approximate location of the Project Area is indicated by the red arrow with Mt. St. Helena in the background.

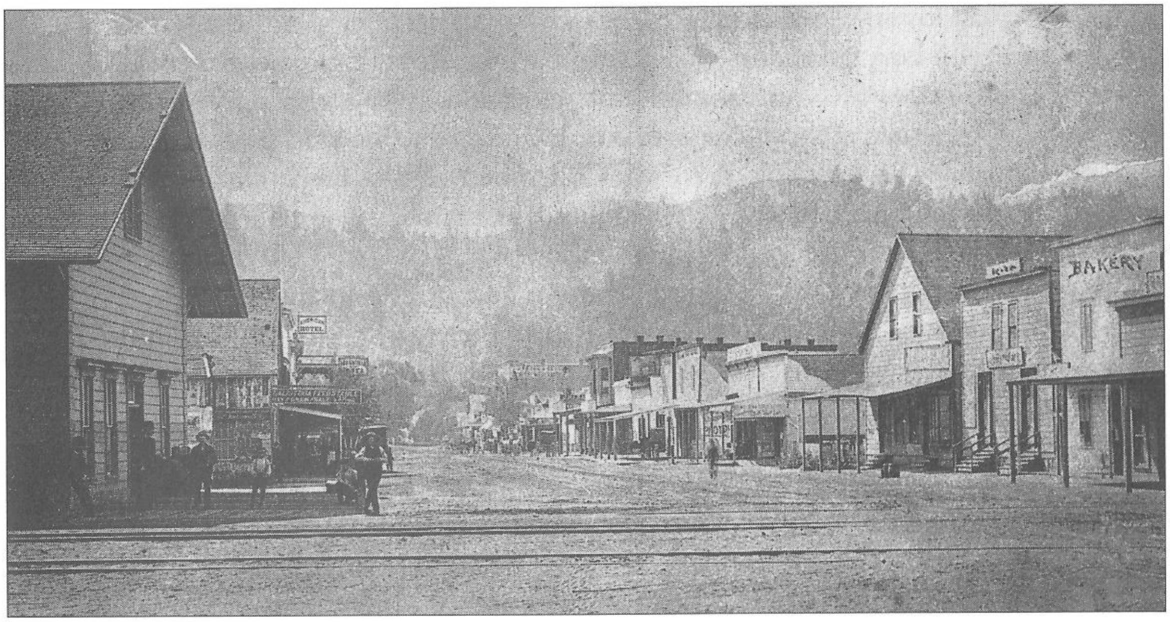

Figure 15: View of Lincoln Avenue in ca. 1880, looking southwest from the railroad depot (shown on the left) (Adams 1946:51).

Figure 16: 1942 photo of Lincoln Avenue from the bridge over the Napa River looking north/northeast (courtesy of the Sharpsteen Museum).

RECORD SEARCH AND REVIEW

EDS completed a record search and literature review of the Project Area that included a review of information obtained at the NWIC/CHRIS; a Native American Sacred Lands inventory; a review of historical maps, aerial photographs, and other information to assess the potential/sensitivity for buried historic period archaeological resources, and to identify any significant persons or events associated with the Project Area; and a review of geoarchaeological reports and geologic and soils data to assess the potential/sensitivity for buried precontact period archaeological resources. The results of the record search and literature review are presented below.

NWIC RECORD SEARCH

Methods

EDS completed a record search at the NWIC/CHRIS on October 17, 2024 (File No. 24-0567). This included a review of previous cultural resource studies and resource records pertaining to the Project Area and properties within 0.5-miles of the Project Area, as well as the following cultural resources inventories:

- Archaeological Resources Directory for Napa County, California (OHP 2012)[6]
- Built Environment Resource Directory (BERD) for Napa Clara, California (OHP 2022)[7]
- National Register of Historic Places (NRHP) (OHP 2022)
- California Register of Historical Resources (CRHR) (OHP 2022)
- California State Historical Landmarks (SHL) (OHP 2024)
- California Points of Historical Interest (CPHI) (OHP 1992, 2022)
- California Inventory of Historic Resources (CIHR) (California Department of Parks and Recreation 1976)
- *Five Views: Ethnic Sites Survey for California* (California Department of Parks and Recreation 1988)
- 1978 Napa County Historic Resource Inventory
- Calistoga General Plan, Community Identity Element Appendix A – Historic Resources (updated 2019)

Results - Previous Cultural Resource Studies

According to information on file at the NWIC/CHRIS and EDS, the Project Area has not been previously surveyed for cultural resources; however, there have been 31 cultural resource studies completed within 0.25 miles of the Project Area, listed below in Table 1.

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[6] Previously known as the Archaeological Determination of Eligibility (ADOE).

[7] The BERD, previously referred to as the Historic Properties Directory (HPD), contains information on built environment cultural resources that are included in the OHP Tracking and Inventory System (OTIS). The resources were submitted to the OHP through one of its programs (Registration, Review and Compliance, Local Government Surveys, Architectural Review, etc.). The BERD also includes built environment historic resources listed on the CRHR and NRHP, as well as California SHLs and CPHI.

Table 1: Previous Cultural Resource Studies within 0.25-mile of the Project Area.

Report #	Year	Report Title	Author(s) / Affiliation	Location Relative to the Project Area
443	1977	Archaeological Reconnaissance: Wastewater Reclamation Pipeline, City of Calistoga.	Archaeological Consulting and Research Services, Inc.	Adjacent
1284	1977	Archaeological Test Excavations at 4-Nap-401 and 4-Nap-424.	Archaeological Consulting and Research Services, Inc.	Outside
1870	1980	Archaeological Reconnaissance of the Proposed Calistoga Falls Development, Calistoga, Napa County, California.	Steven Kuhn / Cultural Resources Facility, Sonoma State University	Outside
2551	1981	Cultural Resource Survey Report of the Calistoga Pipeline Archaeological Reconnaissance, Napa County, California.	Archaeological Consulting and Research Services, Inc.	Outside
2619	1981	Archaeological reconnaissance of Lower Washington Street Public Utilities Project, City of Calistoga.	Katherine Flynn / Archaeological Resource Service	Outside
2983	1982	Archaeological evaluation of Pacheteau Springs (Hot Springs) resort, Calistoga, Napa County.	Katherine Flynn / Archaeological Resource Service	Outside
8040	1986	Results of Monitoring at the Calistoga Village in Archaeological Site, Calistoga, Napa County, California.	David G. Bieling	Outside
10388	1988	Archaeological Survey Report for the Proposed Left-Turn Channelization and Roadway Widening, Napa County, NAP-29, PM 37.5/39.5.	Marcia K. Kelly / Caltrans District 04	Outside
12473	1985	Re: Archaeological Survey of Property Located on North Side of Washington Avenue Between Lake and Oak Streets, Calistoga, a Proposed Senior Citizens' Center (Z85-2).	Katherine Flynn / Archaeological Resource Service	Outside
12475	1989	Re: Archaeological Evaluation of Proposed Improvements to the Golden Haven Spa, 1713 Lake St., Calistoga.	Katherine Flynn / Archaeological Resource Service	Outside
14708	1993	A Cultural Resources Evaluation of the Wapoo Promenade Project, State Highway 29 and Wapoo Avenue, Calistoga.	Katherine S. Flynn / Archaeological Resource Service	Outside
17574	1979	Archaeological Observations City of Calistoga Reclaimed Wastewater Pipeline.	Stephen A. Dietz / Archaeological Consulting and Research Services, Inc.	Adjacent
20319	1997	Subsurface Archaeological Resources Investigation for the Frediani Property, Calistoga Wastewater Treatment Expansion Project, Calistoga, California.	Davis Chavez and Nina Ilic / David Chavez & Associates	Outside
20873	1998	Positive Archaeological Survey Report for the Proposed Realignment and	Katherine M. Dowdall / Caltrans	Outside

Report #	Year	Report Title	Author(s) / Affiliation	Location Relative to the Project Area
		Widening of Portions of Route 29 in Napa County, 04-NAP-29, KP 60.19/63.73 (PM 37.4/39.6).	District 04	
29147	2003	A Cultural Resources Survey for Saratoga Manor Phase II Self-Help Homes Calistoga, Napa County, California.	Vicki R. Beard / Tom Origer & Associates	Outside
30489	2005	Grant Street Reconstruction Project, Calistoga, Napa County.	Vicki Beard / Tom Origer & Associates	Adjacent
33361	2007	A CEQA Review and Evaluation for Historical and Architectural Significance, Grant Avenue Warehouse 1506 Grant Avenue Calistoga, Napa County, CA 94515 Assessor's Parcel Number 11-101-01, 1.5 acres within the former Rancho Carne Humana, Township 9 North, Range 7 West, MDM.	Susan Clark, Holly Hoods, and Eileen Henderson / Calrk Historic Resource Consultants	Outside
33511	2007	Cultural Resources Inventory of Caltrans District 4 Rural Conventional Highways in Alameda, Marin, Napa, San Mateo, Santa Clara, and Sonoma Counties.	Laura Leach-Palm, Patricia Mikkelsen, Jerome King, Paul Brandy, and Lindsay Hartman / Far Western Anthropological Group; and Bryan Larson / JRP Historical Consulting	Outside
38737	2011	A Cultural Resources Evaluation and Historic Structures Evaluation of the Indian Springs Resort, Lincoln Avenue at Brannan Street, Calistoga, Napa County, California.	Cassandra Chattan / Archaeological Resource Service	Outside
45218	2014	Sam Brannan Cottage Preservation Treatment Plan.	Stacey De Shazo / Napa County Landmarks	Outside
45478	2014	A Cultural Resources Survey for the Fair Way Extension Path Project, Calistoga, Napa County, California.	Eileen Barrow / Tom Origer & Associates	Outside
46798	2015	Historic Property Survey Report: Berry Street Bridge Replacement Project Calistoga, Napa County, California BRLO 5061(007).	Katherine Anderson and Heidi Koenig / Environmental Science Associates	Outside
47578	2016	Archaeological Survey Report for the Proposed Calistoga ADA Curb Ramp Replacement and Installation Project, Napa County, California.	Emily Castano / Caltrans District 04	Outside
47578a	2016	Extended Phase I Investigations for Calistoga ADA Curb Ramp Replacement and Installation Project, Calistoga, Napa County, California.	Naomi Scher / Far Western Anthropological Research Group	Outside
47578b	2016	Historic Property Survey Report for the Proposed Calistoga ADA Curb Ramp Replacement and Installation Project, Napa County, California.	Emily Castano and Douglas Bright / Caltrans District 04	Outside

Report #	Year	Report Title	Author(s) / Affiliation	Location Relative to the Project Area
47578c	2016	Finding of No Adverse Effect for the Proposed Calistoga ADA Curb Ramp Replacement and Installation Project, Napa County, California.	Emily Castano / Caltrans District 04	Outside
47578d	2016	Environmentally Sensitive Area, Archaeological Monitoring, and Discovery Plan for the Proposed Calistoga ADA Curb Ramp Replacement and Installation Project, Napa County, California.	Emily Castano / Caltrans District 04	Outside
47895	2015	A Cultural Resources Evaluation for the Pavement Replacement Project on Washington Street, Between Gerard Street and Lincoln Avenue, Calistoga, Napa County, California.	Sally Evans / Evans & De Shazo, LLC	Outside
50475	2016	Archaeological Sensitivity Assessment SF90XC253A/9CAX001846: 1401 N. Oak Street, Calistoga, Napa County, California 94515.	Johni Etheridge and MacKensie Cornelius / EBI Consulting	Outside
50475a	2016	Submission Packet, FCC Form 620, for the proposed New Tower Project | 401 N. Oak Street, Calistoga, Napa County, CA 94515, SF90XC253A/9CAX001846	Holly Crismon / EBI Consulting	Outside
50475b	2017	Letter from SHPO RE: SF90XC253A/9CAX001846, 1401 N Oak Street, Calistoga, Napa County, New Tower.	Julianna Polanco / SHPO	Outside
53704	2019	Calistoga Capri Hotel Project Cultural Resources Assessment Report.	H. Hass and C. Duran / Rincon Consultants, Inc.	Outside
53878	2007	Archaeological Investigation of the Calistoga Village Inn Property at 1880 Lincoln Avenue (A.P.N. 011-050-041), Calistoga, Napa County, California.	Roger H. Werner / ASI Archaeology and Cultural Resource Management	Outside
54083	2020	Results of an Archaeological Study for the Proposed “Veranda at Indian Springs” Project, 1522, 1510, 1506, 1502, and 1504 Lincoln Avenue, Calistoga, Napa County, California.	Sally Evans / Evans & De Shazo, Inc.	Outside
54933	2020	Results of an Archaeological Monitoring Program for the Calistoga Motor Lodge and Spa Paved Pedestrian Path at 1880 Lincoln Avenue, Calistoga, Napa County, California.	Andrew Von Pinnon / Archaeological Resource Service	Outside
57612	2024	Cultural Resources Study of the Property at 33 Brannan Street, Calistoga, Napa County, California.	Eileen Barrow / Tom Origer & Associates	Outside
Not yet assigned	2020	Historic Resource Evaluation for the Veranda at Indian Springs Resort Project, Calistoga, Napa County, California.	Stacey De Shazo / Evans & De Shazo, Inc.	Outside
Not yet assigned	2022	A Historic Resource Evaluation and Secretary of Interior’s Standards Review for the Holy Assumption Monastery Project at 1519-1521, 1909, and 1507 Washington Street, Calistoga, Napa County, California.	Stacey De Shazo and Nicole LaRochelle / Evans & De Shazo, Inc.	Outside

Results – Previously Recorded Cultural Resources

According to information on file at the NWIC, there are no previously recorded cultural resources within the Project Area; however, there are 41 previously recorded cultural resources within 0.25 miles of the Project Area, all of which are listed below in Table 2 and shown on the map in Figure 17.

Table 2: Previously Recorded Cultural Resources within 0.25 miles of the Project Area.

Primary #	Other Designation(s) & Listings	Resource Type	Description
P-28-000927	CA-NAP-401	Precontact period archaeological site	Midden with artifacts
P-28-001011	CA-NAP-943/H	Multi-component archaeological site	Precontact period lithic scatter and historic period refuse deposit
P-28-001427	OTIS ID 403068; Local list (#25)	Historic building	Sam Brannan Stables at 1506 Grant Avenue
P-28-001705	OTIS ID 668247	Historic District	Lincoln Avenue Commercial District
P-28-001710	OTIS ID 403071; Local list (#39)	Historic building	IOOF Oddfellows Hall at 1343 Lincoln Avenue
P-28-001711	-	Historic building	1348 Lincoln Avenue
P-28-001712	OTIS ID 403072; Local list (#40)	Historic building	1350-1354 Lincoln Avenue
P-28-001713	OTIS ID 403073; Local list (#41)	Historic building	1356-1360 Lincoln Avenue
P-28-001714	OTIS ID 403074; Local list (#42)	Historic building	1362-1364 Lincoln Avenue
P-28-001715	-	Historic building	1355-1359 Lincoln Avenue
P-28-001716	OTIS ID 403075; Local list (#43)	Historic building	1363-1371 Lincoln Avenue
P-28-001717	OTIS ID 403076; Local list (#44)	Historic building	1373 Lincoln Avenue
P-28-001718	-	Historic building	1374 Lincoln Avenue
P-28-001719	Local List (Secondary Historic Resource)	Historic building	1400 Lincoln Avenue
P-28-001720	OTIS ID 403077; Local list (#45)	Historic building	1403-1407 Lincoln Avenue
P-28-001721	-	Historic building	1408 Lincoln Avenue
P-28-001722	OTIS ID 403078; Local list (#46)	Historic building	1410 Lincoln Avenue
P-28-001723	Local List (Secondary Historic Resource)	Historic building	1413 Lincoln Avenue
P-28-001724	Local List (Secondary Historic Resource)	Historic building	1414 Lincoln Avenue
P-28-001725	Local list (#47)	Historic building	1417-1419 Lincoln Avenue
P-28-001726	-	Historic building	1420-1430 Lincoln Avenue
P-28-001727	-	Historic building	1429 Lincoln Avenue
P-28-001728	-	Historic building	1437 Lincoln Avenue
P-28-001729	OTIS ID 704267	Historic building	1440 Lincoln Avenue
P-28-001730	-	Historic building	1441 Lincoln Avenue
P-28-001731	-	Historic building	1450 Lincoln Avenue
P-28-001732	OTIS ID 403105; NPS-82002211;	Historic building	1457 Lincoln Avenue

Primary #	Other Designation(s) & Listings	Resource Type	Description
	Local list (#48)		
P-28-001733	OTIS ID 403079; NPS-77000313; SHL #687; CIHR; Local list (#49)	Historic building	Napa Valley Railroad Depot (aka Calistoga Depot), 1458 Lincoln Avenue
P-28-001836	OTIS ID 664827; Local List (Secondary Historic Resource)	Historic building	1328 Berry Street
P-28-001837	OTIS ID 664828	Historic building	1341 Berry Street
P-28-001838	OTIS ID 664830	Historic building	1402 3rd Street
P-28-001839	OTIS ID 664832; Local list (Secondary Historic Resource)	Historic building	1872 Presbyterian Church, 1407 3rd Street
P-28-001853	OTIS ID 403082; SHL #684; CIHR; Local list (#60)	Historic building	Sam Brannan Store, 203 Wappo Street
P-28-001854	OTIS ID 403081; NPS-83001211; SHL #685; CIHR; Local list (#59)	Historic building	Sam Brannan Cottage, 109 Wappo Street
P-28-001858	-	Historic structure	Segment of the San Francisco & Napa Valley Railroad Tracks on Washington Street
P-28-001879	Local list (#65)	Historic building	Sam Brannan Cottage, 1311 Washington Street
P-28-001887	-	Other	Row of elm Trees on Lake Street planted by Sam Brannan in the 1860s.
P-28-002619	-	Historic building	Calistoga Village Inn and Spa, 1880 Lincoln Avenue
P-28-002620	OTIS ID 403090; Local List (#70)	Historic building	Assumption of the Holy Virgin Convent, 1519-1521 Washington Street
P-28-002680	-	Historic building, site	Calistoga Airport
P-28-002854	-	Other	Precontact period isolated artifact (obsidian flake)

None of the archaeological resources listed in Table 2 are currently listed within the Archaeological Resources Directory for Napa County. Furthermore, besides the resources listed in Table 2 with OITS ID numbers, the BERD does not list any additional resources in the immediate vicinity of the Project Area. Three of the resources listed above are also SHLs, including the Napa Valley Railroad Depot (SHL #687), the Sam Brannan Store (SHL #684), and the Sam Brannan Cottage at 109 Wappo Street (SHL #685); three are listed on the NRHP and the CRHR, including the Mount View Hotel at 1457 Lincoln Avenue (NPS-82002211), the Napa Valley Railroad Depot (NPS-77000313), and the Sam Brannan Cottage at 109 Wappo Street (NPS-83001211); three are listed in the CIHR, including the Napa Valley Railroad Depot, the Sam Brannan Store, and the Sam Brannan Cottage at 109 Wappo Street; and 16 are locally-listed. There are no additional SHLs, resources listed on the NRHP, CRHR, or CIHR, or locally-listed resources in the immediate vicinity of the Project Area. Furthermore, there are no resources listed in the *Five Views: Ethnic Sites Survey for California* or CPHI located near the Project Area.

Figure 17: Previously recorded cultural resources within 0.25 miles of the Project Area.

SACRED LANDS INVENTORY

A Sacred Lands File (SLF) inventory request was sent to the Native American Heritage Commission (NAHC) by electronic mail (email) on October 16, 2024, to inquire about listed Sacred Sites located within or near the Project Area. The NAHC works to identify, catalogue, and protect places of special religious or social significance, graves, and cemeteries of Native Americans per the authority given in PRC § 5097.9.

The NAHC provided the results of the SLF inventory on October 17, 2024, as well as a Tribal Contact list (see Appendix A). The Sacred Lands File inventory was negative for Sacred Sites for the Project Area.

On October 17, 2024, EDS forwarded the SLF results and Tribal Contact list to PlaceWorks, Inc., to assist the City of Calistoga with government-to-government consultation required under AB 52.

BURIED PRECONTACT PERIOD ARCHAEOLOGICAL SITE SENSITIVITY

Understanding soil development and the processes responsible for the burial of archaeological sites is essential for the successful discovery of buried sites and evaluating their integrity and significance (Monaghan et al. 2006). The potential for buried archaeological sites is very much dependent on the age of the landform. Basically, landforms that developed before the end of the Pleistocene (i.e., before about 15,000 years ago) were formed prior to the period for which there is scientific consensus relating to the earliest human occupation of North America. As such, these landforms have limited potential to contain buried archaeological resources. Conversely, Pleistocene-to-Holocene transition (around 15,000 to around 12,000 years ago) and Holocene (post 11,700 years ago) age landforms were formed after people began to occupy the region, and so there is a general "geological potential" for these landforms to form over archaeological deposits or contain archaeological resources if the conditions in which they formed are conducive to human occupation (Meyer and Rosenthal 2007). Other environmental factors can also increase or decrease the potential for buried precontact period archaeological resources, including slope, proximity to a water source,[8] and nature of the water source (perennial and/or primary drainage of a watershed versus minor and/or first-order drainages)[9] (Byrd et al. 2012).

Methods

Several documents were reviewed to assess the Project Area's potential/sensitivity for precontact period archaeological resources that could be impacted by future development, including information about the environmental setting, geology, and soils associated with the Project Area, a buried site sensitivity assessment completed as part of the Proposed Calistoga ADA Curb Ramp Replacement and Installation Project utilizing the Caltrans District 4 Cultural Resources Database (CCRD) GIS buried sensitivity model layer (Castano 2016), and one regional geoarchaeological study that focuses on

[8] A water source within a distance of 200 meters (650 feet) increases the potential for buried precontact period archaeological resources to be present (Byrd et al. 2012).

[9] Precontact period occupation sites tend to be on level or nearly level landforms near streams and stream confluences, especially where at least one stream is perennial (Pilgram 1987:44-47); as such, many buried sites are in areas subject to periodic flooding and sediment deposition due to the combination of low-lying topography and active water sources (Byrd et al. 2012).

landform evolution and the potential/sensitivity for encountering archaeological resources using a predictive model that incorporates soil/sediment deposits, geologic and geomorphic formations, and other attributes (i.e., slope, proximity to water, etc.) (Meyer and Rosenthal 2007).

Results

The Project Area is situated in the northern portion of the Napa Valley, on level land, approximately 360 feet above sea level. The nearest waterways include the Napa River, located 0.23 miles to the southwest, and an unnamed tributary of the Napa River, located 0.36 miles to the northeast. According to the regional geologic map (Delattre and Gutierrez 2013), the Project Area is situated on a Holocene-age (<11,700 years) geologic landform consisting of alluvium deposited in fan, terrace, or basin environments (undifferentiated) and made up of poorly to moderately sorted sand, silt, and gravel that form smooth geomorphic surfaces with little to no dissection (geologic unit: Qha). According to the United States Department of Agriculture (USDA) National Resource Conservation Service (NRCS), the soil within the Project Area includes Bale complex, 0 to 2 percent slopes, seeped, which consists of Bale loamy fan soils and Bale loamy bottom soils (Soil Survey Staff 2024). The Bale series consists of very deep, somewhat poorly drained soils that formed in stratified, gravelly, and sandy alluvium from mixed rock sources. On average, this series extends 58 inches below the surface and contains the following horizons: Ap, B21, B22, A11b, A12b, IIC1, and IIIC2. Subordinate horizons include 'p' in the upper A horizon, indicating plowing or other human disturbances, extending to at least 6 inches below the surface, and 'b' in the lower A horizons, indicating the presence of paleosols, or buried former surfaces, at approximately 24 to 33 and 33 to 44 inches below the surface.

The Project Area appears to have an elevated potential/sensitivity for buried precontact period archaeological resources due to the Holocene-age geological landform on which the Project Area is situated, and the potential presence of paleosols (Ab horizons), or buried former surfaces, which are useful stratigraphic markers for locating buried archeological deposits; however, the potential/sensitivity appears to be moderate due to the Project Area's distance from the Napa River. The CCRD GIS buried sensitivity model layer is in agreement, showing a moderate potential for buried precontact period archaeological resources for the Project Area (Castano 2016:37).

HISTORICAL RESEARCH AND HISTORIC PERIOD ARCHAEOLOGICAL SITE SENSITIVITY

EDS reviewed various historical maps and aerial photographs dating from 1866 to 1982 and other information to assess the potential/sensitivity for historic-period cultural resources within the Project Area and to identify any significant persons or events associated with the Project Area. The maps and aerial photographs listed below and shown in Figure 18 through Figure 30 were georeferenced to the Project Area using ArcGIS and may have slight alignment errors. Sanborn Fire Insurance maps for Calistoga do not cover the Project Area.

Resources Consulted

- 1866 Map of Calistoga Hot Springs and Adjoining Lands, Napa County, Cal. (by T. J. DeWoody)
- 1868 Plat of Rancho Carne Humana (northern part) (General Land Office [GLO] 1910)

- 1871 Map of Calistoga or Little Geysers and The Hot Sulphur Springs, Napa County, California (by B.W. Morgan)
- 1876 Official Map of the County of Napa, California (George G. Lyman and S.R. Throckmorton Jr.)
- 1895 Official Map of the County of Napa, California (by O.H. Buckman)
- 1915 Official Map of the County of Napa, California (by O.H. Buckman)
- 1927 USGS 15-minute Calistoga, CA quadrangle
- 1940-1942 Napa Valley Historical Aerial Photomosaic (Burns and San Francisco Estuary Institute 2008)
- 1943 USGS 15-minute Calistoga, CA quadrangle
- 1952 Aerial Photograph: Flight CSH-1953; Frame 1K-170 (U.C. Santa Barbara Library)
- 1957 Aerial Photograph: Flight CAS-1957; Frame Calistoga (U.C. Santa Barbara Library)
- 1958 USGS 7.5-minute Calistoga, CA quadrangle
- 1959 USGS 15-minute Calistoga, CA quadrangle
- 1965 Aerial Photograph: Flight CAS-65-130; Frame 68-62 (U.C. Santa Barbara Library)
- 1980 edition of the 1958 USGS 7.5-minute Calistoga, CA quadrangle

Results

The review of historical documents shows that during the Mexican period (1821-1848), the Project Area was located in the northern part of the former 18,000-acre *Rancho Carne Humana* that was granted to Dr. Edward Turner Bale in 1841 (Figure 18). Bale appears to have owned the portion of the rancho that included the Project Area until he died in 1849, after which time his heirs began selling his land. In 1857, Sam Brannan purchased land in present-day Calistoga to establish a hot springs resort. According to the 1866 and 1871 hot springs report maps, the Project Area was partly located within the southern portion of the 40-acre horse race track (Figure 19 and Figure 20).

In the late 1860s, Sam Brannan's wife, Eliza, requested a divorce, and by 1870, Brannan was ordered by the courts to pay Ann Eliza half of their community property. Brannan began liquidating his assets, and by 1875, the Sacramento Savings Bank (holder of the mortgage on the resort) ordered the sale of the resort property. His property was subsequently sold in various-sized parcels, except several cottages, which were privately owned, and the main resort, which included 105 acres, was retained by Brannan's longtime friend, Leland Stanford. The 1876 map shows the Project Area within Brannan's former 1,171-acre property, now owned by Sacramento Savings Bank (Figure 21), and the 1895 map shows the Project Area as part of three separate parcels; however, it is not clear who owned the properties at the time (Figure 22).

According to the 1915 map (Figure 23), by this time, the western portion of the Project Area was part of a 10-acre property owned by A. V. Boyd, and the eastern portion of the Project Area was part of a separate property (owner unknown). Alexander Von Boyd was born in 1838 in Ohio (Ancestry.com

2006). In 1862, he was recruited to fight in the Civil War (1861-1865), first serving in the 75th Regiment, Indiana Infantry, before being transferred into the 42nd Regiment (Ancestry.com 2015a). In 1867, he married Lydia Ann Bowman, born in Tennessee in 1848 (Ancestry.com 2007, 2009). At the time, the couple lived in Missouri, where they had their first child, Martha Alice, in 1868; and by 1870, the family was living in Arkansas, where they had their second child, Sarah, in 1870 (Ancestry.com 2009, 2019). The 1870 U.S. Federal Census lists Alexander's occupation as farmer, while Lydia "kept house" (Ancestry.com 2009). According to the 1880 U.S. Federal Census, by this time, Alexander, Lydia, and Martha were living in Idaho, and their youngest daughter, Sarah, appears to have died. The census record lists Alexander's occupation as "keeping station" and Lydia's as "housekeeper" (Ancestry.com 2010a). Around 1891, Lydia was confined to the Idaho State Insane Asylum, where she appears to have lived until she died in 1924 (Ancestry.com 2010b, 2012, 2015b). Around 1893, Martha, who was now going by her middle name, Alice, and her three children, Ada, Ida, and Bert, moved to Calistoga (Ancestry.com 2004; *The Weekly Calistogian* 1913); and in 1899, Alexander moved to Calistoga to live with Alice and her three children (Find a Grave 2024). Alexander died in Calistoga in 1913, and since her father did not leave a will and her mother was in an insane asylum, Alice filed a petition with the Superior Court of California to administer her father's estate, which at the time included the 10-acre property in Calistoga, as well as property in Boise, Idaho (Ancestry.com 2015b). The petition was granted in January 1914, and Alice became the owner of the 10-acre property in Calistoga.

In 1922, the Calistoga Joint Union High School building was constructed along the west side of the 10-acre property previously owned by Alexander Boyd (Adams 1946:33). The 1940-42 aerial photograph shows the school building along Lake Street, adjacent to and west of the Project Area (Figure 24). According to the 1940-42 aerial photograph, during this time, the western portion of the Project Area was vacant and the eastern portion was planted in hay or grain. The Project Area also appears vacant on the 1952 aerial photograph; however, the western portion of the Project Area appears to have been part of an oval-shaped track and field associated with the Calistoga Joint Union High School (Figure 26). The oval-shaped track and field is also seen on the 1957 and 1965 aerial photographs (Figure 27 and Figure 29). During this time, the eastern portion of the Project Area appears to have been part of a separate property, likely used for agricultural purposes.

In 1970, two sets of preliminary plans were proposed for the development of a new school athletic field, including a plan that included simple development of the existing "hay field," and a separate, more elaborate plan that included the purchase of additional land and development of a quarter-mile-long track, a regulation football field, a baseball diamond, a swimming pool, and tennis courts (*The Weekly Calistogian* 1970a, 1970b). The latter proposal was selected, and by 1982, construction of the new athletic field was complete.

Based on a review of historical maps and aerial photographs, it appears that the Project Area did not contain any buildings during the historic period; therefore, it appears that the Project Area has a low potential/sensitivity for buried historic period archaeological resources.

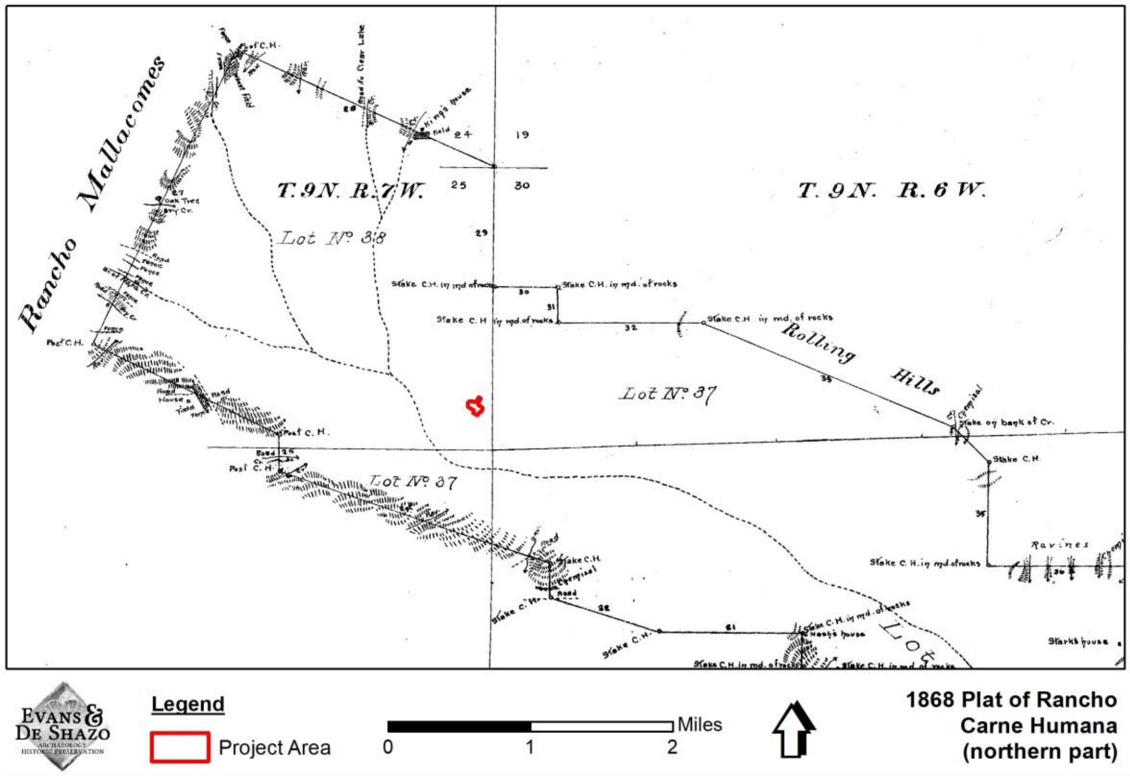

Figure 18: Project Area shown on the 1868 Plat of Rancho Carne Humana (northern portion) (GLO 1910).

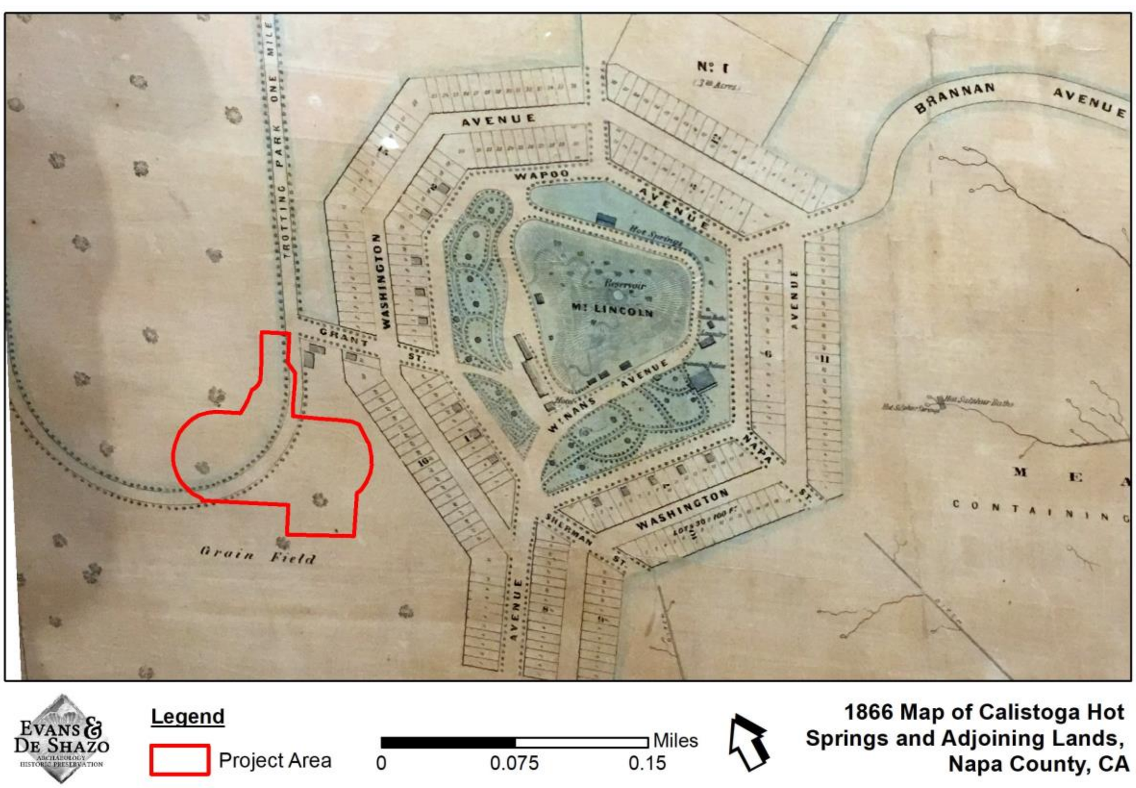

Figure 19: Project Area shown on the 1866 map (T. J. DeWoody).

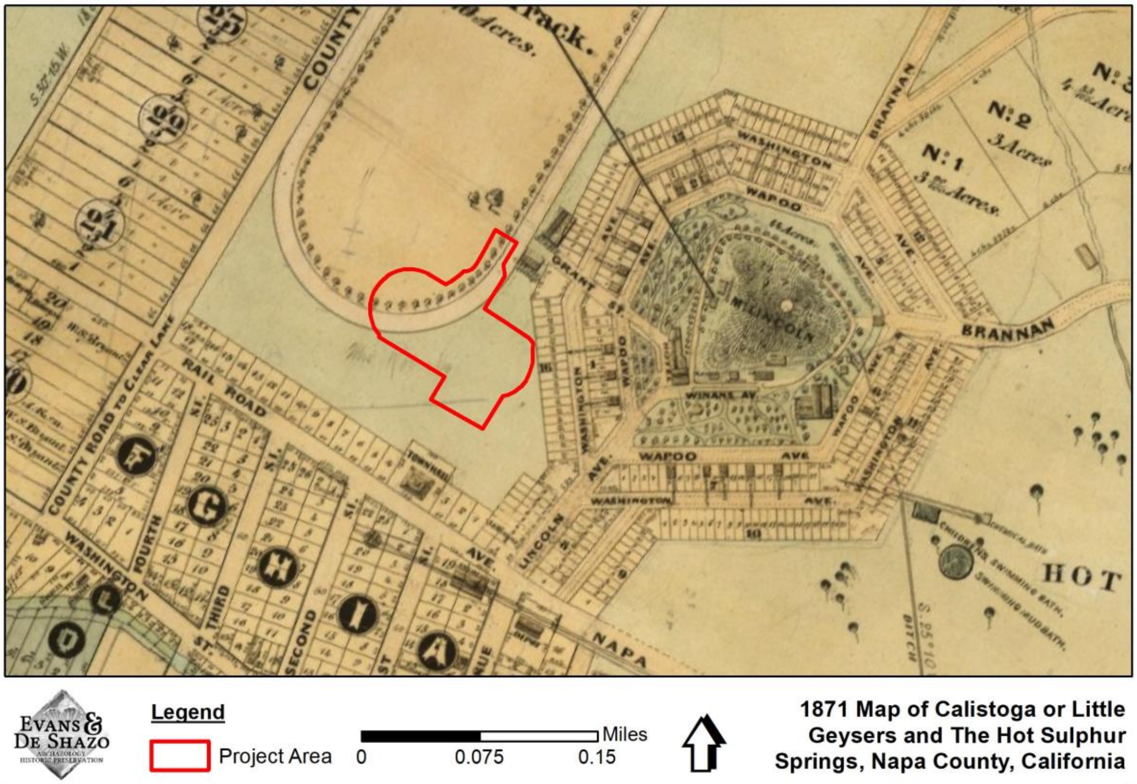

Figure 20: Project Area shown on the 1871 map (B.W. Morgan).

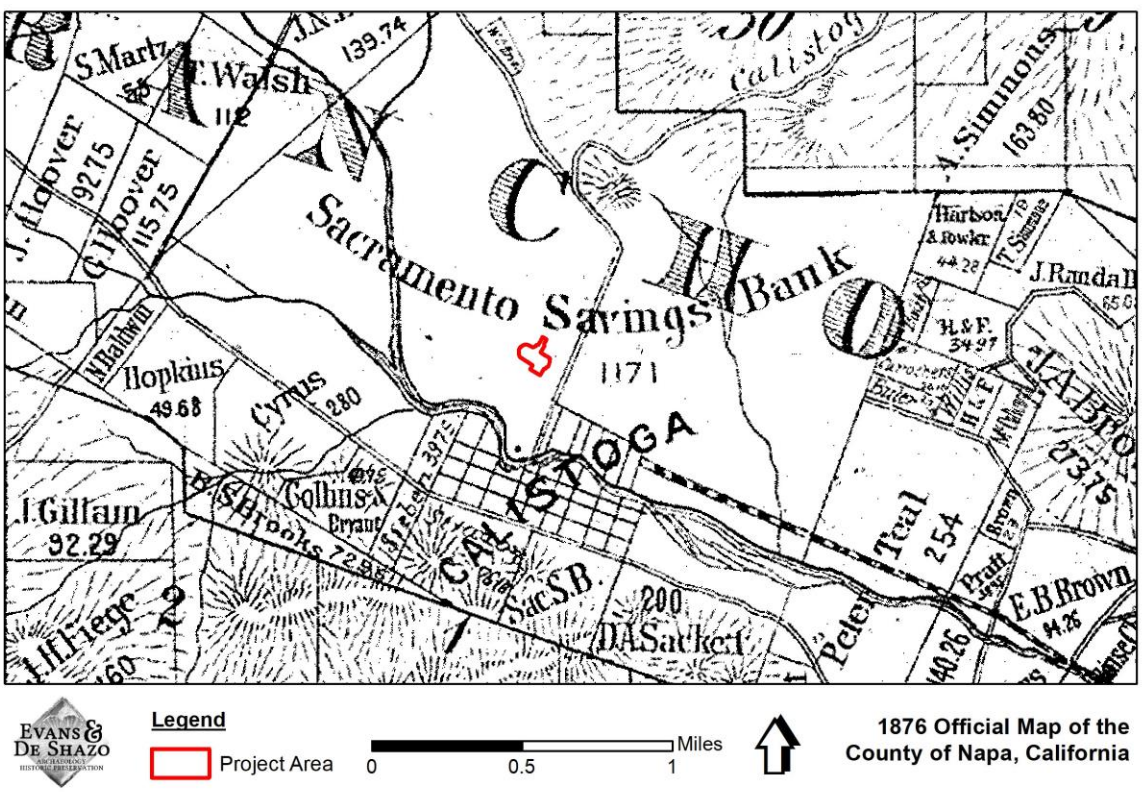

Figure 21: Project Area shown on the 1876 map (George G. Lyman and S.R. Throckmorton Jr.).

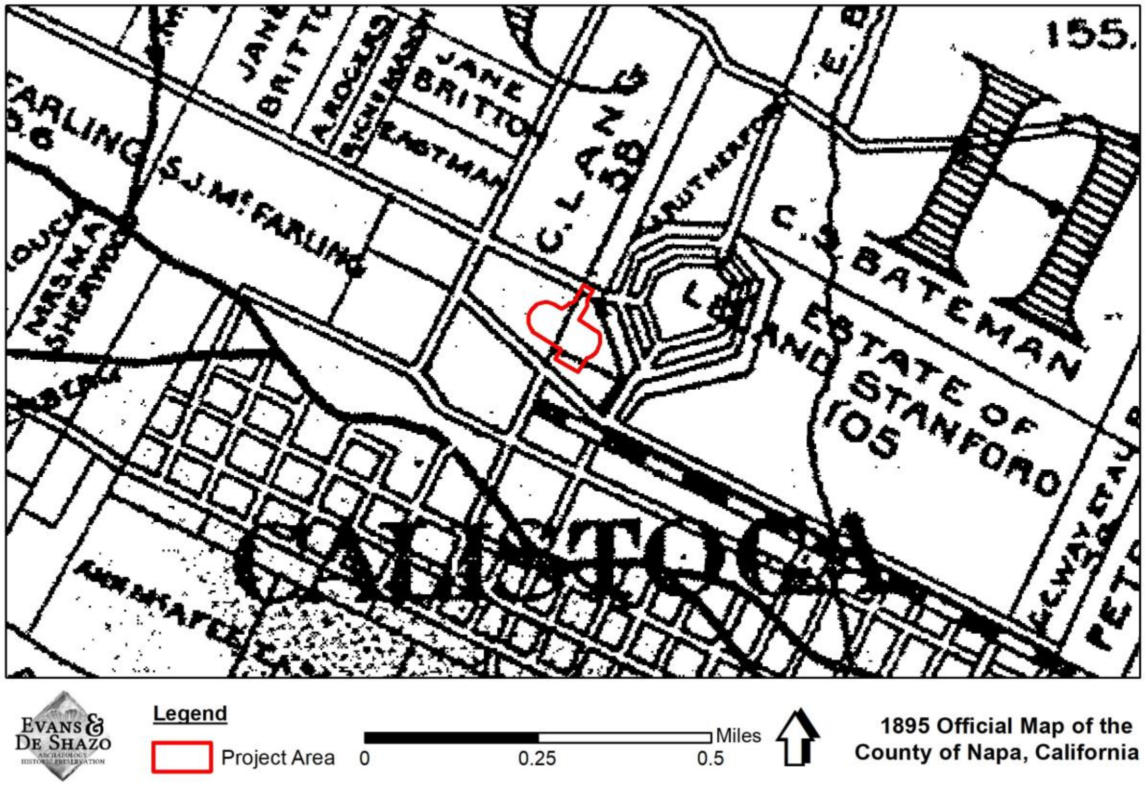

Figure 22: Project Area shown on the 1895 map (O. H. Buckman).

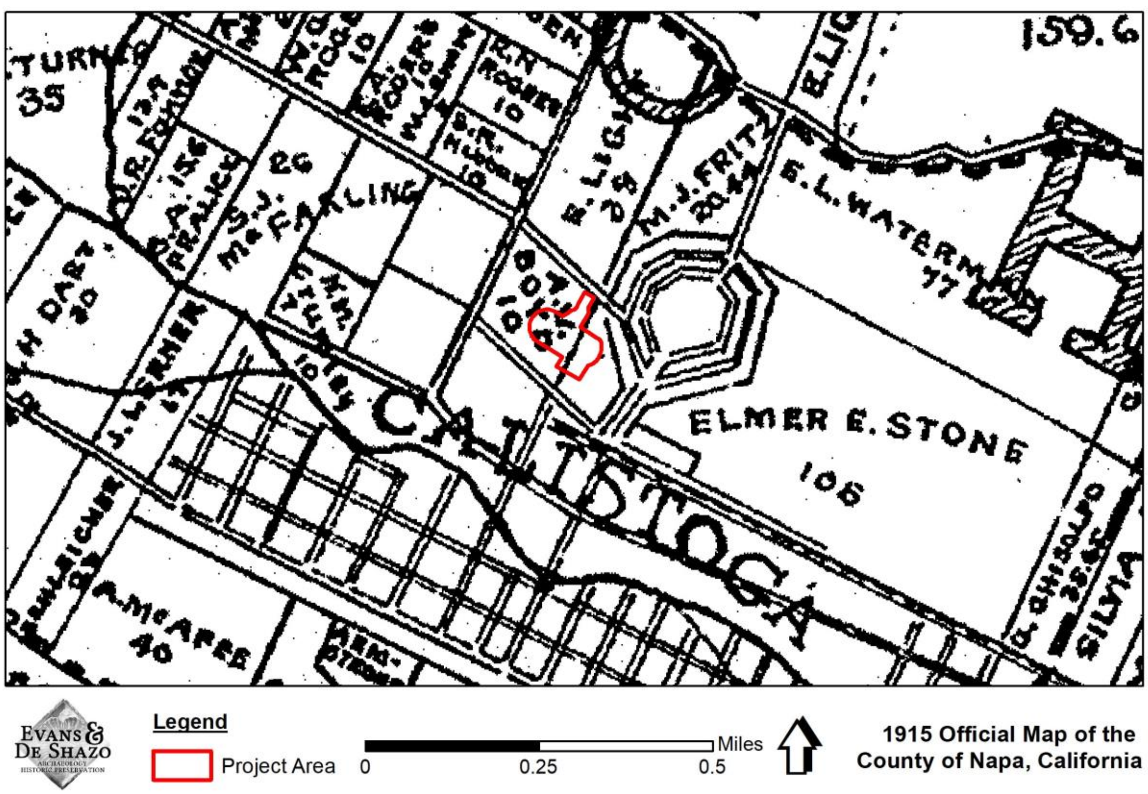

Figure 23: Project Area shown on the 1915 map (O. H. Buckman).

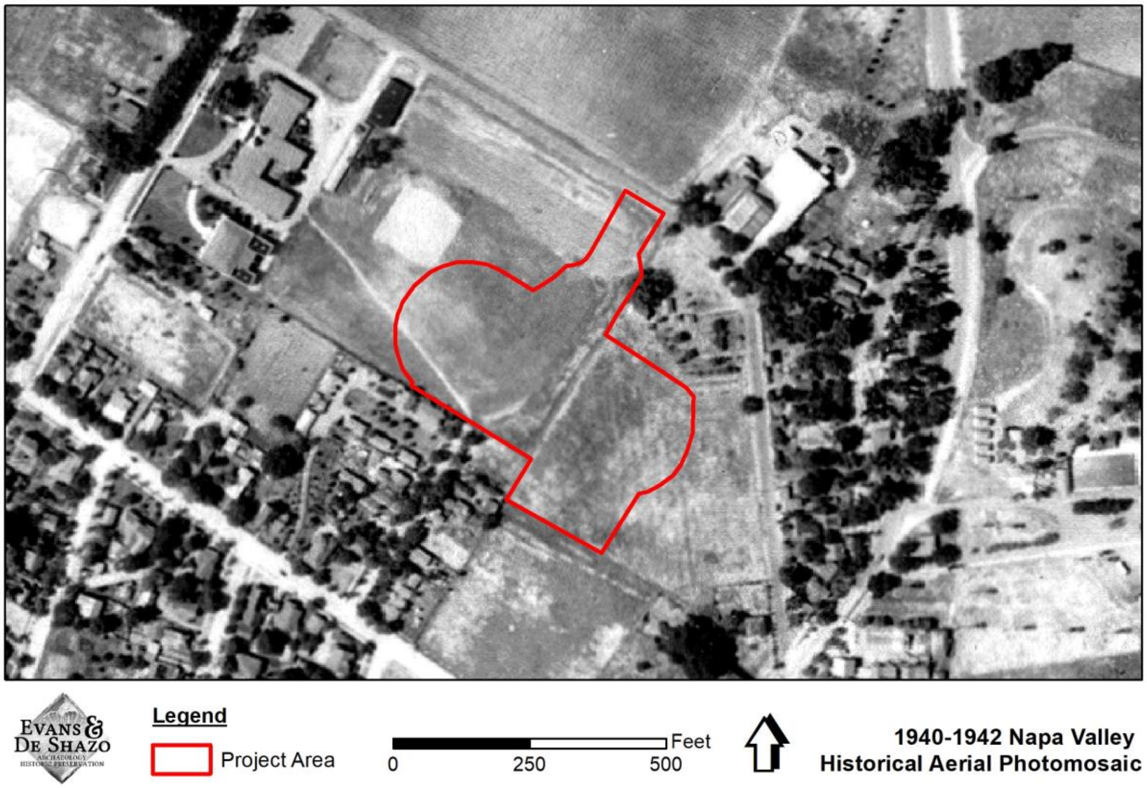

Figure 24: Project Area shown on the 1940-42 aerial photograph.

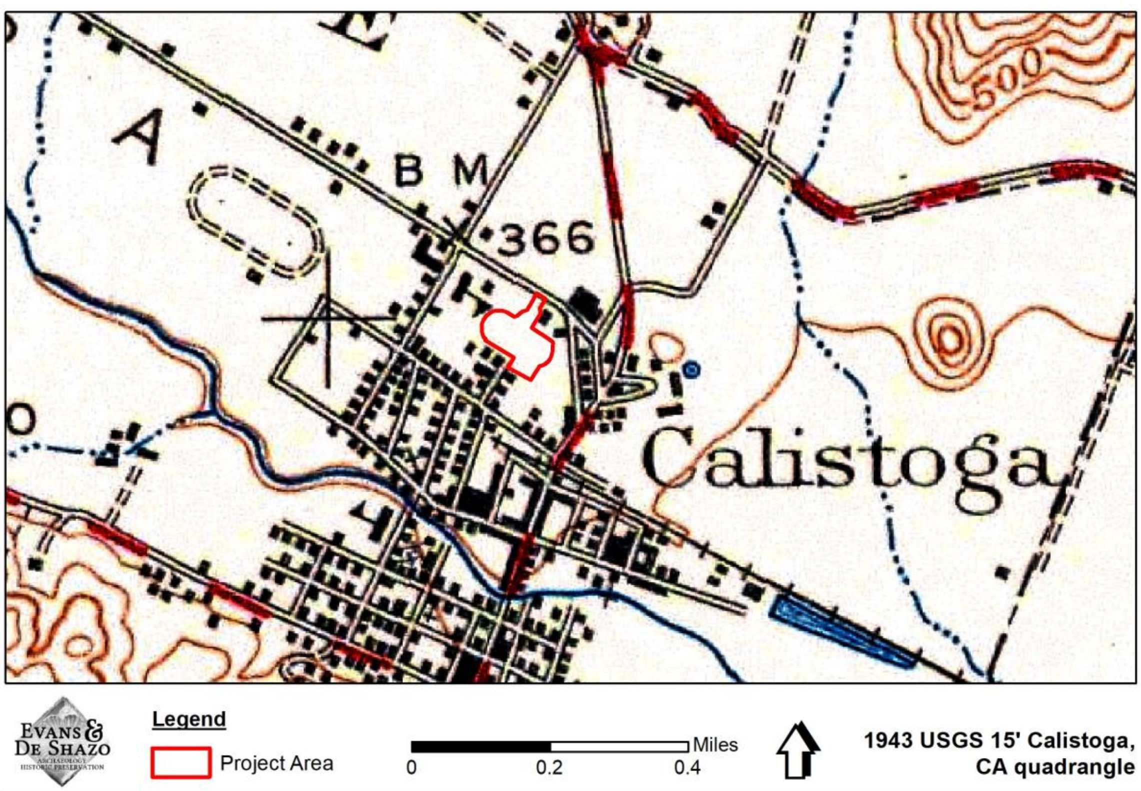

Figure 25: Project Area shown on the 1943 USGS 15' Calistoga quadrangle.

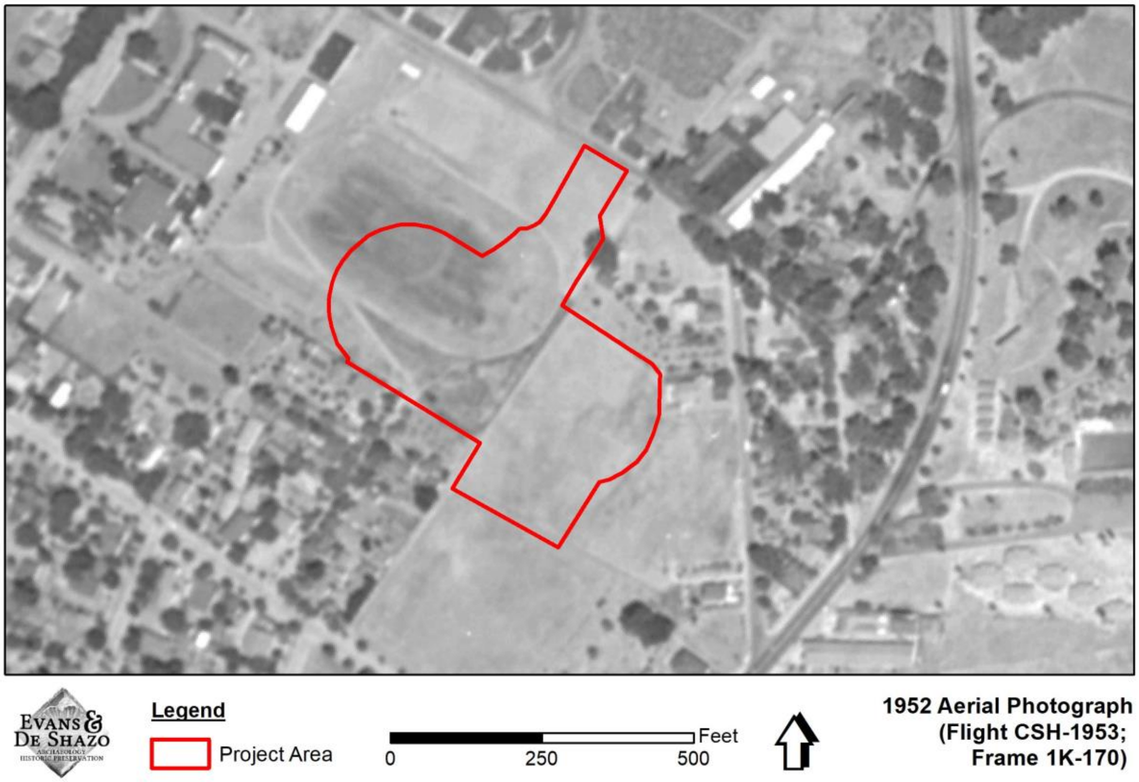

Figure 26: Project Area shown on the 1952 aerial photograph.

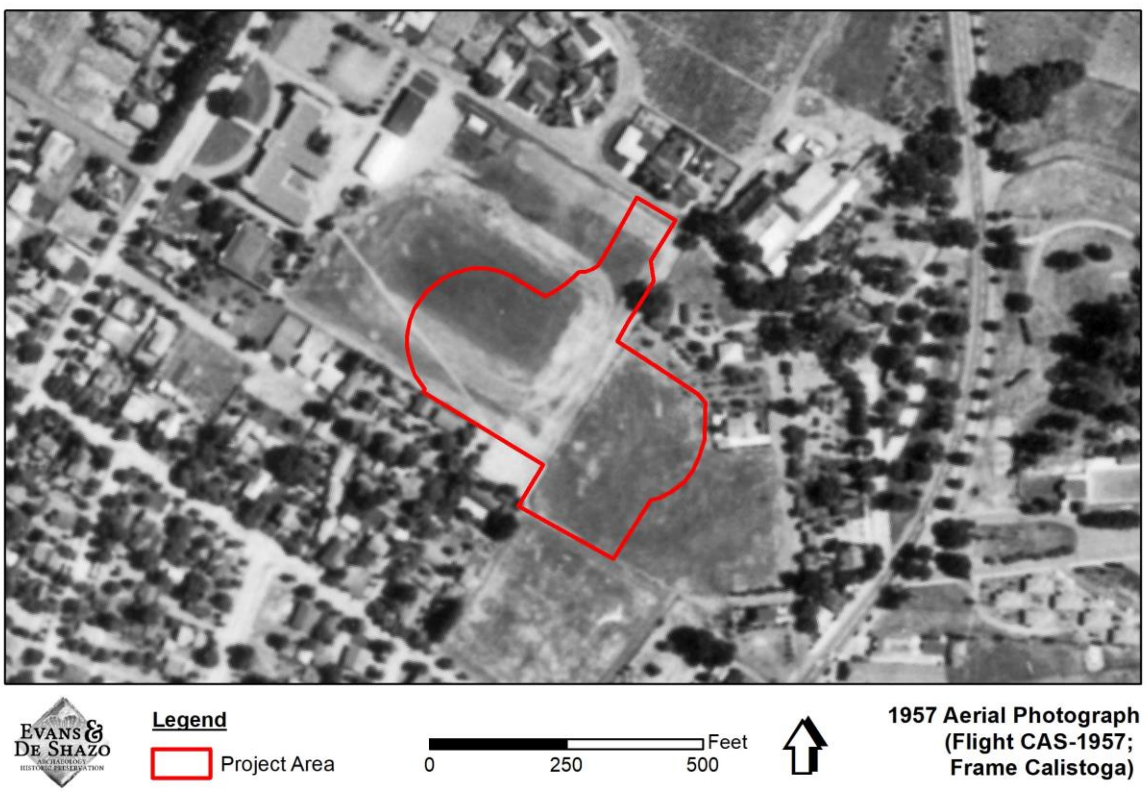

Figure 27: Project Area shown on the 1957 aerial photograph.

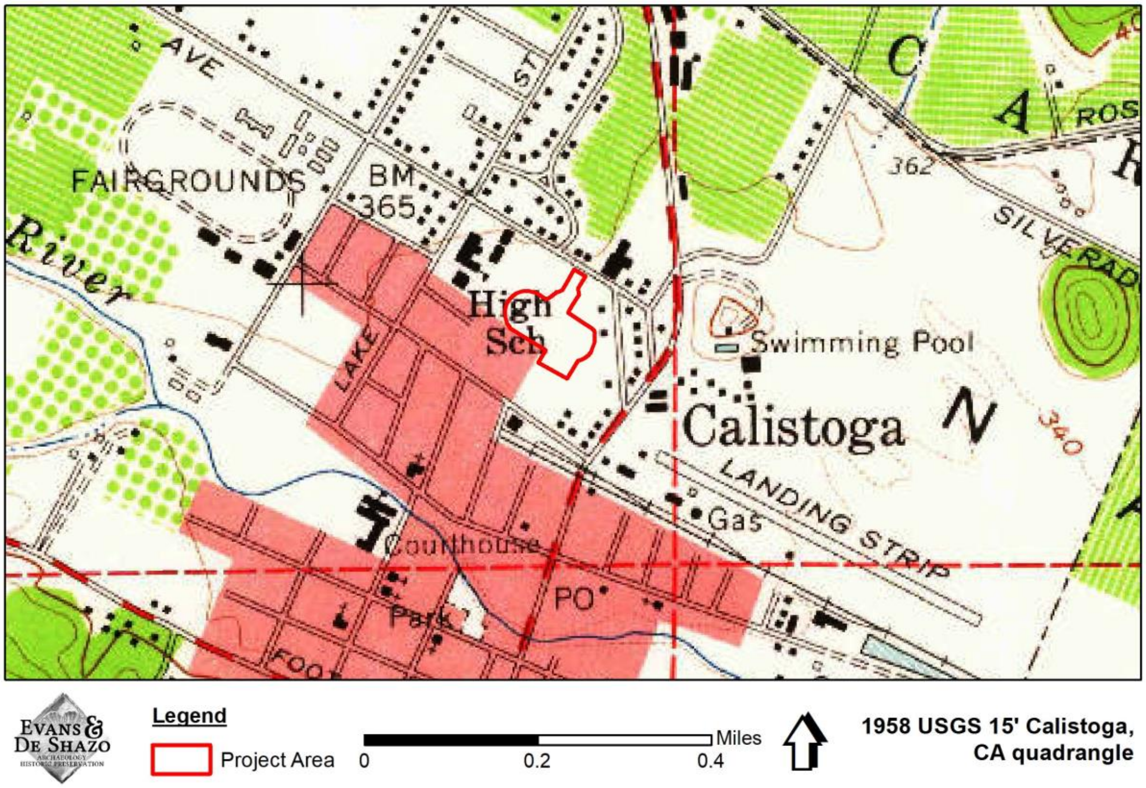

Figure 28: Project Area shown on the 1958 USGS 7.5' Calistoga quadrangle.

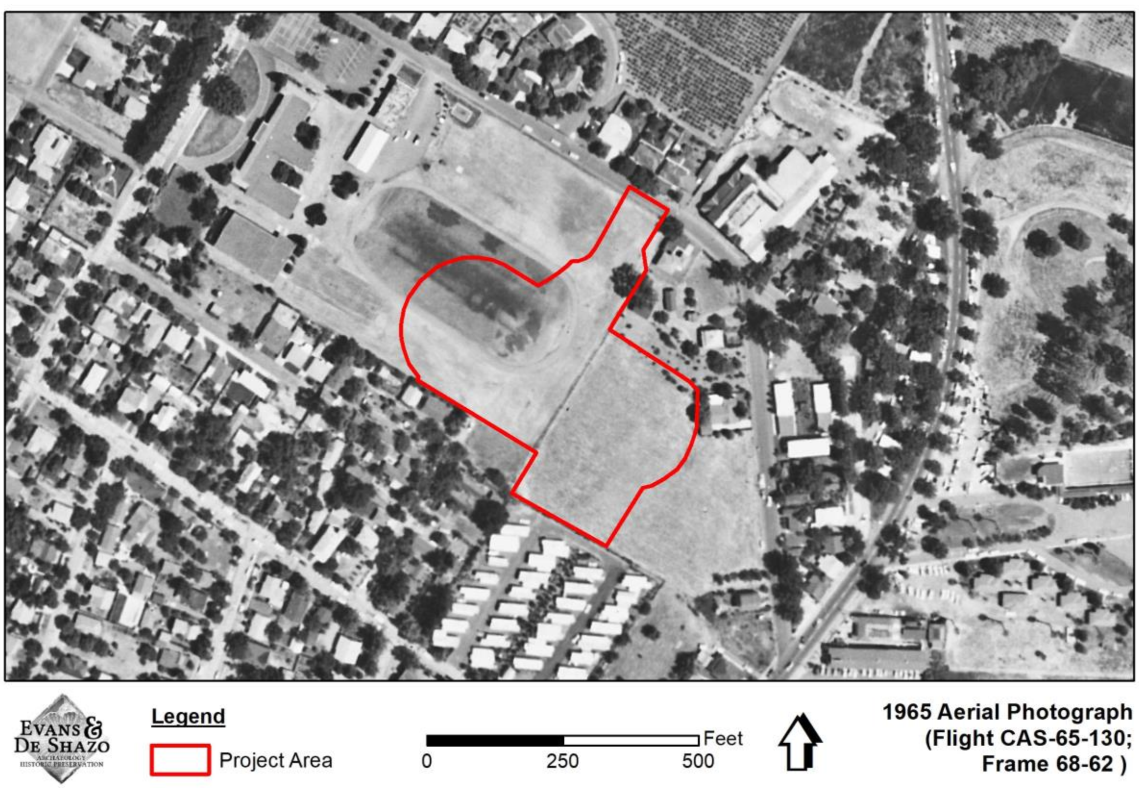

Figure 29: Project Area shown on the 1965 aerial photograph.

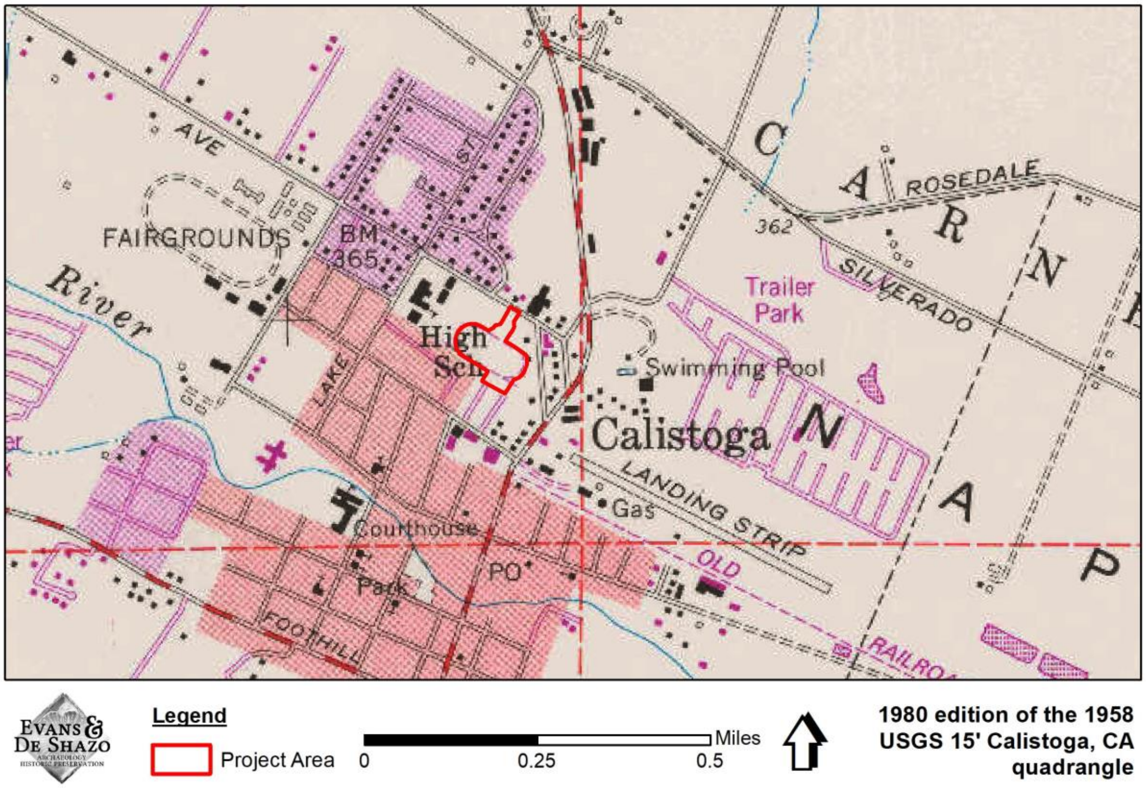

Figure 30: Project Area shown on the 1980 edition of the 1958 USGS 7.5' Calistoga quadrangle.

RECONNAISSANCE SURVEY

DESCRIPTION AND SURVEY METHODS

A reconnaissance survey of the Project Area was completed by EDS Archaeologist, Kelsey Wilson, B.A., on October 23, 2024. The Project Area consists of an oval-shaped track with a grass-covered football/soccer field in the center, a paved basketball court located between the track and Grant Street that currently contains two portable buildings and approximately four metal storage containers, a small garden to the east of the basketball court, and an area southeast of the track field that contains three metal storage containers and a portable restroom. Vegetation within the Project Area includes grass in the football/soccer field and along the west side of the basketball court, and chicory, crabgrass, walnut trees, winter squash, and grape vines in the garden area.

Photographs of the Project Area are provided in Figure 31 through Figure 36.

The methods used to complete the reconnaissance survey of the Project Area include walking a series of meandering transects, oriented northwest/southeast, and spaced approximately 3 meters (10 feet) apart. The soil visibility within the football/soccer field and along the west side of the basketball court was generally poor (<5%) due to the grass cover, but was very good (>75%) along the track and in the southeast portion around the storage containers. To improve soil visibility in low visibility areas, the archaeologist used a shovel to clear small patches of grass, which were then replaced after the soil was inspected. The archaeologist also closely inspected several small piles of soil created by groundburrowing animals that were present throughout the field. The soil observed along the basketball courts and southeast of the track was greyish brown (10YR 5/2) loam that was very dry and loose, with little plasticity, some fine roots, and angular basalt pebbles (potentially fill gravel); and the soil observed within the football/soccer field area was dark brown (10YR 3/3) loam that was moist and soft with some plasticity, fine roots, and angular basalt pebbles.

SURVEY RESULTS

During the survey, one precontact period artifact was identified on the surface along the outside edge of the track in the northern portion of the Project Area (Figure 37 and Figure 38). The artifact is an obsidian biface reduction flake, measuring 1.3 centimeters long, 1.1 centimeters wide, and 0.3 centimeters thick. The artifact was subject to in-field documentation and the location was recorded with a Trimble GNSS receiver with 60 centimeter accuracy. The artifact was not collected. No other artifacts or indications of an archaeological site were observed.

Figure 31: Overview of the Project Area, facing east/southeast.

Figure 32: Overview of the Project Area, facing east.

Figure 33: Overview of the Project Area, facing southwest.

Figure 34: Photograph of the basketball court with portable buildings and storage containers, facing north.

Figure 35: Overview of the southeastern portion of the Project Area, facing southeast.

Figure 36: Overview of the southeastern portion of the Project Area, facing south.

Figure 37: Precontact period artifact (obsidian flake) identified during the survey.

Figure 38: Map showing the location where the isolated obsidian flake was identified.

CONCLUSIONS

EDS completed a CRS for the Calistoga Junior-Senior High School Field Improvements Project located within an approximate 4.25-acre portion of the 9.92-acre Calistoga Junior-Senior High School campus at 1608 Lake Street in Calistoga to identify significant or potentially significant cultural resources that could be impacted by the Project and to provide recommendations as needed in accordance with Section 15064.5 of the CEQA Guidelines.

The methods used to complete the CRS included a record search at the NWIC/CHRIS, a buried archaeological site sensitivity desktop analysis, a Native American Sacred Lands inventory, and a reconnaissance survey of the Project Area. The study was completed by EDS Principal Archaeologist, Sally Evans, M.A., RPA (#29300590), who meets the Secretary of the Interior's professional qualification standards in Archaeology (36 CFR Part 61) and has over 24 years of professional experience in archaeology and cultural resource management, with the assistance of EDS Archaeologist Kelsey Wilson, B.A.

The NWIC/CHRIS record search found that the Project Area had not been previously surveyed prior to this study and does not contain any previously recorded cultural resources. The Native American Sacred Lands inventory was also negative for Sacred Sites for the Project Area. The buried archaeological site sensitivity desktop analysis found that the Project Area has a low potential/sensitivity for buried historic period archaeological resources and a moderate potential/sensitivity for buried precontact period archaeological resources. The reconnaissance survey resulted in the identification of one precontact period isolated artifact, consisting of an obsidian flake, located on the surface along the outside edge of the existing track in the northern portion of the Project Area (see previous Figure 38).

Based on the results of the CRS, it does not appear that any significant or potentially significant cultural resources will be impacted by the Project in accordance with Section 15064.5 of the CEQA Guidelines; however, mitigation measures are provided below to address the potential to encounter additional artifacts or subsurface archaeological resources during Project-related, ground-disturbing activities. Impacts to archaeological resources unearthed during construction, including features such as hearths, storage pits, house floors, or human remains would be potentially significant. As such, with adherence to the recommendations provide below, EDS recommends a finding of *less than significant impact to historical and archaeological resources with mitigation*.

RECOMMENDATIONS/MITIGATION MEASURES

The following recommendations are provided to address the potential to encounter archaeological resources during Project-related, ground-disturbing activities. These recommendations are provided pursuant to CEQA regulations concerning the identification of historical resources and the potential inadvertent discovery of diagnostic artifacts or intact features during project-related, earth-disturbing activities.

Cultural Resources Awareness Training. EDS recommends that a Secretary of Interior (SOI) qualified archaeologist conduct a preconstruction Cultural Resources Awareness Training (CRAT) to familiarize the members of the construction team overseeing or conducting ground-disturbing activities with the archaeological sensitivity of the Project Area, the potential to encounter archaeological resources, the types of archaeological material that could be encountered, and procedures to follow if archaeological deposits and/or artifacts are encountered during construction. The SOI-qualified archaeologist shall prepare and distribute a brochure describing the appropriate actions to take if any archaeological resources are encountered.

Archaeological and Tribal Monitoring. Prior to issuance of a grading permit, a SOI-qualified archaeologist shall prepare an Archaeological and Tribal Monitoring Plan that outlines the methods to be undertaken during monitoring and the steps to be taken in the event of an archaeological discovery. Upon acceptance of the Archaeological and Tribal Monitoring Plan by the City of Calistoga, all initial Project-related ground-disturbing activities shall be monitored by an SOI-qualified archaeologist, or an archaeologist working under the direct supervision of a SOI-qualified archaeologist, and by a local Native American monitor. If intact archaeological features are encountered during ground-disturbing activities, work in the immediate area must stop, and the find shall be treated in accordance with the Archaeological and Tribal Monitoring Plan. The Archaeological and Tribal Monitoring Plan shall also include a provision allowing for a reduced level of monitoring if no archaeological resources are encountered during initial Project-related ground-disturbing activities. If monitoring is reduced to spot-checking, the spot-checking shall occur in areas of new ground-disturbance and/or when ground disturbance extends to depths not previously reached.

Discovery of Human Remains: If human remains are encountered within the Project Area during Project-related ground-disturbing activities, all work must stop and the discovery location and associated spoils shall be secured to prevent further disturbance. The Napa County Coroner must be notified immediately. The coroner will determine if the remains are prehistoric Native American remains or of modern origin and if there are any further investigation by the coroner is warranted. If the remains are suspected to be prehistoric Native American remains, the coroner shall contact the NAHC by telephone within 24-hours. The NAHC will immediately notify the person it believes to be the most likely descendant (MLD) of the remains. The MLD has 48 hours to make recommendations to the landowner for treatment or disposition of the human remains. If the MLD does not make recommendations within 48 hours, the landowner shall reinter the remains in the Project Area, in a location that will be protected from future disturbances. If the landowner does not accept the descendant's recommendations, the owner or the descendant may request mediation by NAHC. According to the California Health and Safety Code, six (6) or more human burials at one (1) location constitute a cemetery (Section 8100), and willful disturbance of human remains is a felony (Section 7052). A SOI-qualified archaeologist shall also evaluate the historical significance of the discovery, the potential for additional remains, and provide further recommendations for treatment of the site in coordination with the MLD.

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APPENDIX A:

SACRED LANDS INVENTORY REQUEST AND RESULTS, AND TRIBAL CONTACT LIST

Gmail **Sally Evans <sally@evans-deshazo.com>**

Sacred Lands Inventory Request_Calistoga Junior/Senior High School Project

2 messages

Sally Evans <sally@evans-deshazo.com> Wed, Oct 16, 2024 at 11:02 AM
To: NAHC NAHC <nahc@nahc.ca.gov>

Dear NAHC,

Please find the attached request for a Sacred Lands Inventory for the proposed Project within the Calistoga Junior Senior High School in Calistoga, Napa County, California. Please let me know if you have any questions.

Kind regards,

Sally Evans

--

Sally Evans, M.A., RPA | *Principal Archaeologist / Cultural Resource Specialist*
Evans & De Shazo, Inc. - Archaeology ▪ Historic Preservation

Main Office: 1141 Gravenstein Hwy S | Sebastopol | CA | 95472 |
Office: 707-823-7400 | Cell: 707-484-9628
Oregon: 2355 State Street, Suite 101, Salem, OR 97301
http://www.evans-deshazo.com/

Evans & De Shazo, Inc
Archaeology Historic Preservation

SLF Request_Calistoga Jr Sr High School Project.pdf
6014K

NAHC@NAHC <NAHC@nahc.ca.gov> Wed, Oct 16, 2024 at 12:18 PM
To: Sally Evans <sally@evans-deshazo.com>
Cc: "Lin, Mathew@NAHC" <Mathew.Lin@nahc.ca.gov>

Hello,

Thank you for your message. We're in receipt of your project. Our turn-around time is approximately 4 weeks, and we don't anticipate responding sooner than that timeframe. Our response will be delivered by email. Please let us know if you have any questions.

Regards,

Native American Heritage Commission
1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691
(T) 916-373-3710

From: Sally Evans <sally@evans-deshazo.com>
Sent: Wednesday, October 16, 2024 11:02 AM
To: NAHC@NAHC <NAHC@nahc.ca.gov>
Subject: Sacred Lands Inventory Request_Calistoga Junior/Senior High School Project

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EVANS ARCHAEOLOGY & DE SHAZO, INC HISTORIC PRESERVATION

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Subject: Sacred Lands Inventory Request_Calistoga Junior/Senior High School Project

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Sacred Lands File & Native American Contacts List Request

Native American Heritage Commission
1550 Harbor Blvd, Suite 100
West Sacramento, CA 95691
916-373-3710
916-373-5471 – Fax
nahc@nahc.ca.gov

Information Below is Required for a Sacred Lands File Search

Project: Calistoga Junior / Senior High School Track and Field Improvements Project

County: Napa County

USGS Quadrangle Name: USGS 7.5' Calistoga, Calif. (1993)

Township: 9 North **Range:** 7 West **Section(s):** Un

Company/Firm/Agency: Evans & De Shazo, Inc.

Street Address: 1141 Gravenstein Highway S

City: Sebastopol, CA **Zip:** 95472

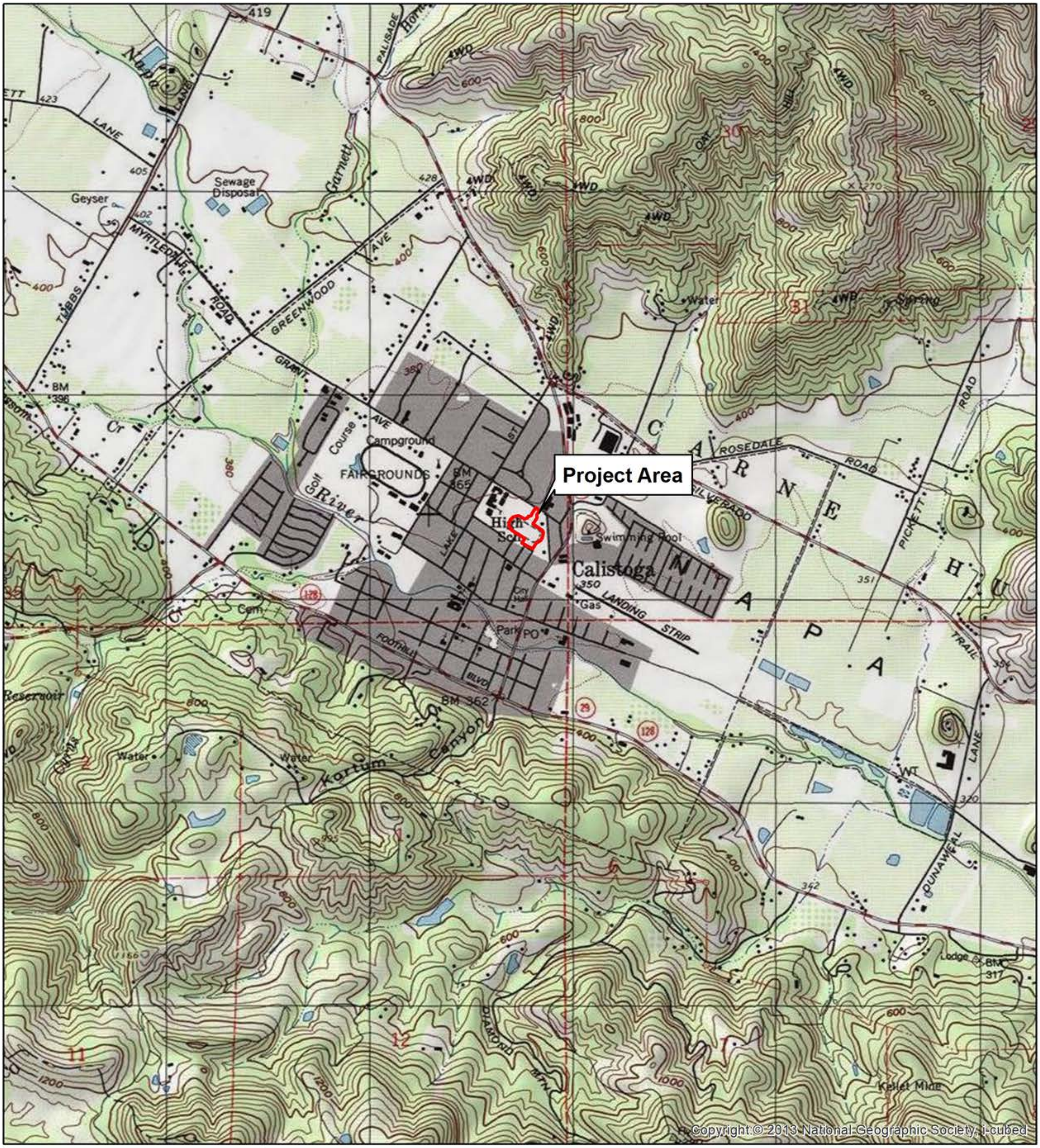
Phone: 707-823-7400

Fax:

Email: sally@evans-deshazo.com

Project Description:

The project includes installation of new permanent stadium lights around the existing football field, bleachers along the northern boundary of the field, a new field house, and a new concession stand, as well as the replacement of the track with an all-weather track, replacement of the grass turf with synthetic grass, and installation of a permanent PA system and scoreboard. Bio retention areas and a concrete walkway and new chain link fencing with gates will be installed around the perimeter of the track and field, and an asphalt driveway will be constructed northeast of the track and field t. Asphalt will also be installed northeast and south of the track and field to accommodate the bleachers, restrooms, concession stand, field house, basketball courts, and tree wells. The project is subject to review under CEQA.



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Map by: S. Evans, 10/16/2024

Project Locatoin Map

Calistoga Junior / Senior High School
Track and Field Improvements Project
1608 Lake Street, Calistoga, CA
APNs 011-091-001-000 & 011-092-032-000

LEGEND

Project Area

0 0.5 1 Miles

1:24,000

USGS 7.5' Calistoga, Calif. (1993)
Township 9 North | Range 7 West
NAD 83 UTM Zone 10N

Gmail

Sally Evans <sally@evans-deshazo.com>

Calistoga Junior / Senior High School Track and Field Improvements Project

1 message

Lin, Mathew@NAHC <Mathew.Lin@nahc.ca.gov> Thu, Oct 17, 2024 at 1:00 PM
To: "sally@evans-deshazo.com" <sally@evans-deshazo.com>

Good Afternoon,

Attached is the response to the project referenced above. If you have any additional questions, please feel free to contact our office email at nahc@nahc.ca.gov.

-Best regards,

Mathew Lin, MPP

Cultural Resources Analyst

Native American Heritage Commission

1550 Harbor Blvd., Suite 100

West Sacramento, CA 95691

Mathew.Lin@nahc.ca.gov

Direct Line: (916) 282-3195

Office: (916) 373-3710

STATE OF CALIFORNIA
NATIVE AMERICAN
HERITAGE COMMISSION

2 attachments

AB52 No Calistoga Junior _ Senior High School Track and Field Improvements Project 10.17.2024.pdf
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Gmail

Sally Evans <sally@evans-deshazo.com>

Calistoga Junior / Senior High School Track and Field Improvements Project

1 message

Lin, Mathew@NAHC <Mathew.Lin@nahc.ca.gov> Thu, Oct 17, 2024 at 1:00 PM
To: "sally@evans-deshazo.com" <sally@evans-deshazo.com>

Good Afternoon,

Attached is the response to the project referenced above. If you have any additional questions, please feel free to contact our office email at nahc@nahc.ca.gov.

-Best regards,

Mathew Lin, MPP

Cultural Resources Analyst

Native American Heritage Commission

1550 Harbor Blvd., Suite 100

West Sacramento, CA 95691

Mathew.Lin@nahc.ca.gov

Direct Line: (916) 282-3195

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Gmail

Sally Evans <sally@evans-deshazo.com>

Calistoga Junior / Senior High School Track and Field Improvements Project

Sally Evans <sally@evans-deshazo.com> Thu, Oct 17, 2024 at 3:39 PM
To: Alen Estrada-Rodas <aestradarodas@placeworks.com>

Hi Alen,

I hope you are having a nice week. I just received the results of the Sacred Lands inventory from the Native American Heritage Commission (NAHC) for the Calistoga Junior Senior High School Track and Field Improvements project. The Sacred Lands inventory is negative. The results letter and Tribal contact list are attached. Please let me know if you have any questions

~Sally

[Quoted text hidden]

--

Sally Evans, M.A., RPA | *Principal Archaeologist / Cultural Resource Specialist*
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NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov

October 17, 2024

Sally Evans
Evans & De Shazo, Inc.

Via Email to: sally@evans-deshazo.com

Re: Native American Tribal Consultation, Pursuant to the Assembly Bill 52 (AB 52), Amendments to the California Environmental Quality Act (CEQA) (Chapter 532, Statutes of 2014), Public Resources Code Sections 5097.94 (m), 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2 and 21084.3, Calistoga Junior / Senior High School Track and Field Improvements Project, Napa County

To Whom it May Concern:

Pursuant to Public Resources Code section 21080.3.1 (c), attached is a consultation list of tribes that are traditionally and culturally affiliated with the geographic area of the above-listed project. Please note that the intent of the AB 52 amendments to CEQA is to avoid and/or mitigate impacts to tribal cultural resources, (Pub. Resources Code §21084.3 (a)) ("Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource.")

Public Resources Code sections 21080.3.1 and 21084.3(c) require CEQA lead agencies to consult with California Native American tribes that have requested notice from such agencies of proposed projects in the geographic area that are traditionally and culturally affiliated with the tribes on projects for which a Notice of Preparation or Notice of Negative Declaration or Mitigated Negative Declaration has been filed on or after July 1, 2015. Specifically, Public Resources Code section 21080.3.1 (d) provides:

Within 14 days of determining that an application for a project is complete or a decision by a public agency to undertake a project, the lead agency shall provide formal notification to the designated contact of, or a tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, which shall be accomplished by means of at least one written notification that includes a brief description of the proposed project and its location, the lead agency contact information, and a notification that the California Native American tribe has 30 days to request consultation pursuant to this section.

The AB 52 amendments to CEQA law does not preclude initiating consultation with the tribes that are culturally and traditionally affiliated within your jurisdiction prior to receiving requests for notification of projects in the tribe's areas of traditional and cultural affiliation. The Native American Heritage Commission (NAHC) recommends, but does not require, early consultation as a best practice to ensure that lead agencies receive sufficient information about cultural resources in a project area to avoid damaging effects to tribal cultural resources.

The NAHC also recommends, but does not require that agencies should also include with their notification letters, information regarding any cultural resources assessment that has been completed on the area of potential effect (APE), such as:

1. The results of any record search that may have been conducted at an Information Center of the California Historical Resources Information System (CHRIS), including, but not limited to:

- A listing of any and all known cultural resources that have already been recorded on or adjacent to the APE, such as known archaeological sites;
- Copies of any and all cultural resource records and study reports that may have been provided by the Information Center as part of the records search response;
- Whether the records search indicates a low, moderate, or high probability that unrecorded cultural resources are located in the APE; and
- If a survey is recommended by the Information Center to determine whether previously unrecorded cultural resources are present.

2. The results of any archaeological inventory survey that was conducted, including:

   - Any report that may contain site forms, site significance, and suggested mitigation measures.

     All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for public disclosure in accordance with Government Code section 6254.10.

3. The result of the Sacred Lands File (SLF) check conducted through the Native American Heritage Commission was <u>negative</u>.

4. Any ethnographic studies conducted for any area including all or part of the APE; and

5. Any geotechnical reports regarding all or part of the APE.

Lead agencies should be aware that records maintained by the NAHC and CHRIS are not exhaustive and a negative response to these searches does not preclude the existence of a tribal cultural resource. A tribe may be the only source of information regarding the existence of a tribal cultural resource.

This information will aid tribes in determining whether to request formal consultation. In the event that they do, having the information beforehand will help to facilitate the consultation process.

If you receive notification of change of addresses and phone numbers from tribes, please notify the NAHC. With your assistance, we can assure that our consultation list remains current.

If you have any questions, please contact me at my email address: Mathew.Lin@nahc.ca.gov

Sincerely,

Mathew Lin

Mathew Lin
Cultural Resources Analyst

Attachment

Native American Heritage Commission
Native American Contact List
Napa County
10/17/2024

County	Tribe Name	Fed (F) Non-Fed (N)	Contact Person	Contact Address	Phone #	Fax #	Email Address	Cultural Affiliation	Counties	Last Updated
Napa	Guidiville Rancheria of California	F	Michael Derry, Historian	PO Box 339 Talmage, CA, 95481	(707) 391-1665		historian@guidiville.net	Pomo	Alameda,Contra Costa,Lake,Marin,Mendocino,Napa,Sacramento,San Joaquin,Solano,Sonoma	6/21/2023
	Guidiville Rancheria of California	F	Bunny Tarin, Tribal Administrator	PO Box 339 Talmage, CA, 95481	(707) 462-3682		admin@guidiville.net	Pomo	Alameda,Contra Costa,Lake,Marin,Mendocino,Napa,Sacramento,San Joaquin,Solano,Sonoma	6/21/2023
	Mishewal-Wappo Tribe of Alexander Valley	N	Christi Gabaldon, Tribal Monitor	7095 Saint Helena Rd Santa Rosa, CA, 95404	(707) 889-1423		1tektekh@gmail.com	Wappo	Lake,Napa,Sonoma	1/31/2024
	Mishewal-Wappo Tribe of Alexander Valley	N	Scott Gabaldon, Chairperson	2275 Silk Road Windsor, CA, 95492	(707) 494-9159		scott@g4firearms.com	Wappo	Lake,Napa,Sonoma	1/31/2024
	Pinoleville Pomo Nation	F	Leona Willams, Chairperson	500 B Pinoleville Drive Ukiah, CA, 95482	(707) 463-1454	(707) 463-6601		Pomo	Lake,Mendocino,Napa,Sonoma	

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for consultation with Native American tribes under Public Resources Code Sections 21080.3.1 for the proposed Calistoga Junior / Senior High School Track and Field Improvements Project, Napa County.

Record: PROJ-2024-005447
Report Type: AB52 GIS
Counties: Napa
NAHC Group: All

Gmail

Sally Evans <sally@evans-deshazo.com>

Calistoga Junior / Senior High School Track and Field Improvements Project

Sally Evans <sally@evans-deshazo.com> Thu, Oct 17, 2024 at 3:39 PM
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~Sally
[Quoted text hidden]
--
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Appendix E Noise Modeling

Appendix

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Fundamentals of Noise

NOISE

Noise is most often defined as unwanted sound; whether it is loud, unpleasant, unexpected, or otherwise undesirable. Although sound can be easily measured, the perception of noise and the physical response to sound complicate the analysis of its impact on people. People judge the relative magnitude of sound sensation in subjective terms such as "noisiness" or "loudness."

Noise Descriptors

The following are brief definitions of terminology used in this chapter:

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

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

- **Decibel (dB).** A unitless measure of sound, expressed on a logarithmic scale and with respect to a defined reference sound pressure. The standard reference pressure is 20 micropascals (20 μPa).

- **Vibration Decibel (VdB).** A unitless measure of vibration, expressed on a logarithmic scale and with respect to a defined reference vibration velocity. In the U.S., the standard reference velocity is 1 micro-inch per second (1×10^{-6} in/sec).

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

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

- **Statistical Sound Level (L_n).** The sound level that is exceeded "n" percent of time during a given sample period. For example, the L_{50} level is the statistical indicator of the time-varying noise signal that is exceeded 50 percent of the time (during each sampling period); that is, half of the sampling time, the changing noise levels are above this value and half of the time they are below it. This is called the "median sound level." The L_{10} level, likewise, is the value that is exceeded 10 percent of the time (i.e., near the maximum) and this is often known as the "intrusive sound level." The L_{90} is the sound level exceeded 90 percent of the time and is often considered the "effective background level" or "residual noise level."

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

Characteristics of Sound

When an object vibrates, it radiates part of its energy in the form of a pressure wave. Sound is that pressure wave transmitted through the air. Technically, airborne sound is a rapid fluctuation or oscillation of air pressure above and below atmospheric pressure that creates sound waves.

Sound can be described in terms of amplitude (loudness), frequency (pitch), or duration (time). Loudness or amplitude is measured in dB, frequency or pitch is measured in Hertz [Hz] or cycles per second, and duration or time variations is measured in seconds or minutes.

Amplitude

Unlike linear units such as inches or pounds, decibels are measured on a logarithmic scale. Because of the physical characteristics of noise transmission and perception, the relative loudness of sound does not closely match the actual amounts of sound energy. Table 1 presents the subjective effect of changes in sound pressure levels. Ambient sounds generally range from 30 dBA (very quiet) to 100 dBA (very loud). Changes of 1 to 3 dB are detectable under quiet, controlled conditions, and changes of less than 1 dB are usually not discernible (even under ideal conditions). A 3 dB change in noise levels is considered the minimum change that is detectable with human hearing in outside environments. A change of 5 dB is readily discernible to most people in an exterior environment, and a 10 dB change is perceived as a doubling (or halving) of the sound.

Table 1 Noise Perceptibility

Change in dB	Noise Level
± 3 dB	Barely perceptible increase
± 5 dB	Readily perceptible increase
± 10 dB	Twice or half as loud
± 20 dB	Four times or one-quarter as loud

Source: California Department of Transportation (Caltrans). 2013, September. Technical Noise Supplement ("TeNS").

Frequency

The human ear is not equally sensitive to all frequencies. Sound waves below 16 Hz are not heard at all, but are "felt" more as a vibration. Similarly, though people with extremely sensitive hearing can hear sounds as high as 20,000 Hz, most people cannot hear above 15,000 Hz. In all cases, hearing acuity falls off rapidly above about 10,000 Hz and below about 200 Hz.

When describing sound and its effect on a human population, A-weighted (dBA) sound levels are typically used to approximate the response of the human ear. The A-weighted noise level has been found to correlate well with people's judgments of the "noisiness" of different sounds and has been used for many years as a measure of community and industrial noise. Although the A-weighted scale and the energy-equivalent metric are commonly used to quantify the range of human response to individual events or general community sound levels, the degree of annoyance or other response also depends on several other perceptibility factors, including:

- Ambient (background) sound level
- General nature of the existing conditions (e.g., quiet rural or busy urban)
- Difference between the magnitude of the sound event level and the ambient condition
- Duration of the sound event
- Number of event occurrences and their repetitiveness
- Time of day that the event occurs

Duration

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

Because community receptors are more sensitive to unwanted noise intrusion during the evening and at night, state law and many local jurisdictions use an adjusted 24-hour noise descriptor called the Community Noise Equivalent Level (CNEL) or Day-Night Noise Level (L_{dn}). The CNEL descriptor requires that an artificial increment (or "penalty") of 5 dBA be added to the actual noise level for the hours from 7:00 PM to 10:00

PM and 10 dBA for the hours from 10:00 PM to 7:00 AM. The L_{dn} descriptor uses the same methodology except that there is no artificial increment added to the hours between 7:00 PM and 10:00 PM. Both descriptors give roughly the same 24-hour level, with the CNEL being only slightly more restrictive (i.e., higher). The CNEL or L_{dn} metrics are commonly applied to the assessment of roadway and airport-related noise sources.

Sound Propagation

Sound dissipates exponentially with distance from the noise source. This phenomenon is known as "spreading loss." For a single-point source, sound levels decrease by approximately 6 dB for each doubling of distance from the source (conservatively neglecting ground attenuation effects, air absorption factors, and barrier shielding). For example, if a backhoe at 50 feet generates 84 dBA, at 100 feet the noise level would be 79 dBA, and at 200 feet it would be 73 dBA. This drop-off rate is appropriate for noise generated by on-site operations from stationary equipment or activity at a project site. If noise is produced by a line source, such as highway traffic, the sound decreases by 3 dB for each doubling of distance over a reflective ("hard site") surface such as concrete or asphalt. Line source noise in a relatively flat environment with ground-level absorptive vegetation decreases by an additional 1.5 dB for each doubling of distance.

Psychological and Physiological Effects of Noise

Physical damage to human hearing begins at prolonged exposure to noise levels higher than 85 dBA. Exposure to high noise levels affects the entire system, with prolonged noise exposure in excess of 75 dBA increasing body tensions, thereby affecting blood pressure and functions of the heart and the nervous system. Extended periods of noise exposure above 90 dBA results in permanent cell damage, which is the main driver for employee hearing protection regulations in the workplace. For community environments, the ambient or background noise problem is widespread, through generally worse in urban areas than in outlying, less-developed areas. Elevated ambient noise levels can result in noise interference (e.g., speech interruption/masking, sleep disturbance, disturbance of concentration) and cause annoyance. Since most people do not routinely work with decibels or A-weighted sound levels, it is often difficult to appreciate what a given sound pressure level number means. To help relate noise level values to common experience, Table 2 shows typical noise levels from familiar sources.

Table 2 Typical Noise Levels

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

Source: California Department of Transportation (Caltrans). 2013, September. Technical Noise Supplement ("TeNS").

Vibration Fundamentals

Vibration is an oscillatory motion through a solid medium in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. Vibration is normally associated with activities stemming from operations of railroads or vibration-intensive stationary sources, but can also be associated with construction equipment such as jackhammers, pile drivers, and hydraulic hammers. As with noise, vibration can be described by both its amplitude and frequency. Vibration displacement is the distance that a point on a surface moves away from its original static position; velocity is the instantaneous speed that a point on a surface moves; and acceleration is the rate of change of the speed. Each of these descriptors can be used to correlate vibration to human response, building damage, and acceptable equipment vibration levels. During construction, the operation of construction equipment can cause groundborne vibration. During the operational phase of a project, receptors may be subject to levels of vibration that can cause annoyance due to noise generated from vibration of a structure or items within a structure.

Vibration amplitudes are usually described in terms of either the peak particle velocity (PPV) or the root mean square (RMS) velocity. PPV is the maximum instantaneous peak of the vibration signal and RMS is the square root of the average of the squared amplitude of the signal. PPV is more appropriate for evaluating potential building damage and RMS is typically more suitable for evaluating human response.

As with airborne sound, annoyance with vibrational energy is a subjective measure, depending on the level of activity and the sensitivity of the individual. To sensitive individuals, vibrations approaching the threshold of perception can be annoying. Persons accustomed to elevated ambient vibration levels, such as in an urban environment, may tolerate higher vibration levels. Table 3 displays the human response and the effects on buildings resulting from continuous vibration (in terms of various levels of PPV).

Table 3 Human Reaction to Typical Vibration Levels

Vibration Level, PPV (in/sec)	Human Reaction	Effect on Buildings
0.006–0.019	Threshold of perception, possibility of intrusion	Vibrations unlikely to cause damage of any type
0.08	Vibrations readily perceptible	Recommended upper level of vibration to which ruins and ancient monuments should be subjected
0.10	Level at which continuous vibration begins to annoy people	Virtually no risk of “architectural” (i.e. not structural) damage to normal buildings
0.20	Vibrations annoying to people in buildings	Threshold at which there is a risk to “architectural” damage to normal dwelling – houses with plastered walls and ceilings
0.4–0.6	Vibrations considered unpleasant by people subjected to continuous vibrations and unacceptable to some people walking on bridges	Vibrations at a greater level than normally expected from traffic, but would cause “architectural” damage and possibly minor structural damage

Source: California Department of Transportation (Caltrans). 2020, April. *Transportation and Construction Vibration Guidance Manual.* Prepared by ICF International.

AMBIENT NOISE MONITORING DATA

Project: CALI-02.0
User: CS
Location: ST-1

					A-weighted dBA												
Number	**Start Date**	**Start Time**	**End Time**	**Duration**	L_{eq}	L_{max}	L_{min}	L_{1}	L_{2}	L_{5}	L_{8}	L_{10}	L_{25}	L_{50}	L_{90}	L_{95}	L_{99}
1	10/11/2024	5:00:00 PM	6:00:00 PM	1:00	59.8	86.3	35.3	71.7	69.3	65.7	63.6	62.5	56.8	50.2	38.5	37.7	36.8
2	10/11/2024	6:00:00 PM	7:00:00 PM	1:00	70.2	95.3	41.1	80.8	79.3	76.8	75	73.9	68.1	62.7	54.1	51.9	48.3
3	10/11/2024	7:00:00 PM	8:00:00 PM	1:00	73.8	93.5	61.9	83.4	81.9	79.4	77.9	77.1	73.3	70.3	66.1	65.4	64.4
4	10/11/2024	8:00:00 PM	9:00:00 PM	1:00	75.5	102.5	63.2	84.5	82.5	79.9	78.5	77.8	74.5	71.4	67.2	66.4	65.3

Project: CALI-02.0
User: CS
Location: ST-2

					A-weighted dBA												
Number	**Start Date**	**Start Time**	**End Time**	**Duration**	L_{eq}	L_{max}	L_{min}	L_1	L_2	L_5	L_8	L_{10}	L_{25}	L_{50}	L_{90}	L_{95}	L_{99}
1	10/11/2024	5:00:00 PM	6:00:00 PM	1:00	49.3	66.9	41.9	57.9	56.5	54.1	53.2	52.6	49.9	45.7	42.9	42.6	42.2
2	10/11/2024	6:00:00 PM	7:00:00 PM	1:00	56.2	74.9	43.3	67	64.8	61.5	60	59.2	55.5	51.2	46.6	46	45.1
3	10/11/2024	7:00:00 PM	8:00:00 PM	1:00	65.5	79.2	55.3	73.3	72.3	70.8	69.9	69.4	66.6	62.4	57.7	57.1	56.2
4	10/11/2024	8:00:00 PM	9:00:00 PM	1:00	64.9	81.7	55.4	73.7	72.5	70.8	69.5	68.8	65.3	61.1	57.5	57.1	56.3

Project: CALI-02.0
User: CS
Location: ST-3

					A-weighted dBA												
Number	**Start Date**	**Start Time**	**End Time**	**Duration**	L_{eq}	L_{max}	L_{min}	L_1	L_2	L_5	L_8	L_{10}	L_{25}	L_{50}	L_{90}	L_{95}	L_{99}
1	10/11/2024	5:00:00 PM	6:00:00 PM	1:00	50.6	68.7	44.1	59.1	57	54.6	53.3	52.6	50.3	48.3	45.6	45.2	44.5
2	10/11/2024	6:00:00 PM	7:00:00 PM	1:00	55.1	73.5	44.9	65.5	63.3	60	58.3	57.6	54	50.6	47.1	46.6	45.8
3	10/11/2024	7:00:00 PM	8:00:00 PM	1:00	63.6	79.6	49.9	72.9	71.3	69	67.8	67.3	64.4	60.1	53.7	52.8	51.4
4	10/11/2024	8:00:00 PM	9:00:00 PM	1:00	63.2	78.5	49.9	73.3	71.8	69.3	67.8	67.1	63.1	57.6	52.5	51.8	51

Search Locations Log In (/login) Go Ad Free

Recent Cities
Calistoga, CA (94515) (/weather/us/ca/calistoga/38.58,-122.58) San Bernardino, CA (/weather/us/ca/san-bernardino/34.10,-117.29)

Elev **108** ft, **38.58** °N, **122.58** °W

Central Calistoga - KCACALIS74

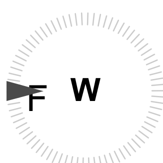
FORECAST FOR CALISTOGA, CA (/WEATHER/US/CA/CALISTOGA/KCACALIS74)

Station Summary

Online(updated 11 seconds ago)

CURRENT CONDITIONS

73.8 F

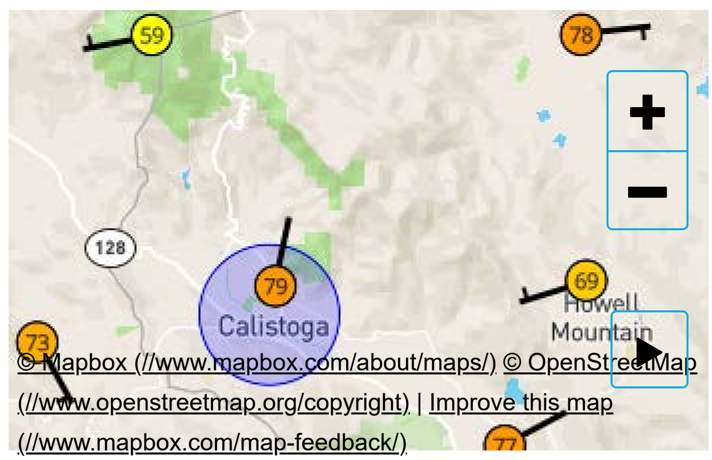


WIND & GUST
4.0 / 4.0 mph

Feels Like
72.5 °

DEWPOINT **43.0** ° F	PRECIP RATE **0.00** in/hr
PRESSURE **30.11** in	HUMIDITY **34** %
PRECIP ACCUM **0.00** in	UV **--**

MAP



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lat=38.60810955296063&lon=-122.5106993376636&zoom

PWS CURRENT CONDITIONS

TEMPERATURE

CURRENT

74°

DEWPOINT

43.0 °F

HUMIDITY

34 %

WIND

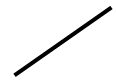
WIND FROM

W

GUST

4.0 mph

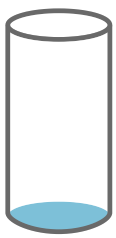
PRESSURE



CURRENT

30.11 In

PRECIPITATION



PRECIP RATE

0.00 in/hr

PRECIP TOTAL

0.00 in

UV

Weather History for KCACALIS74

Daily Mode | October | 10 | 2024

Previous **View** Next

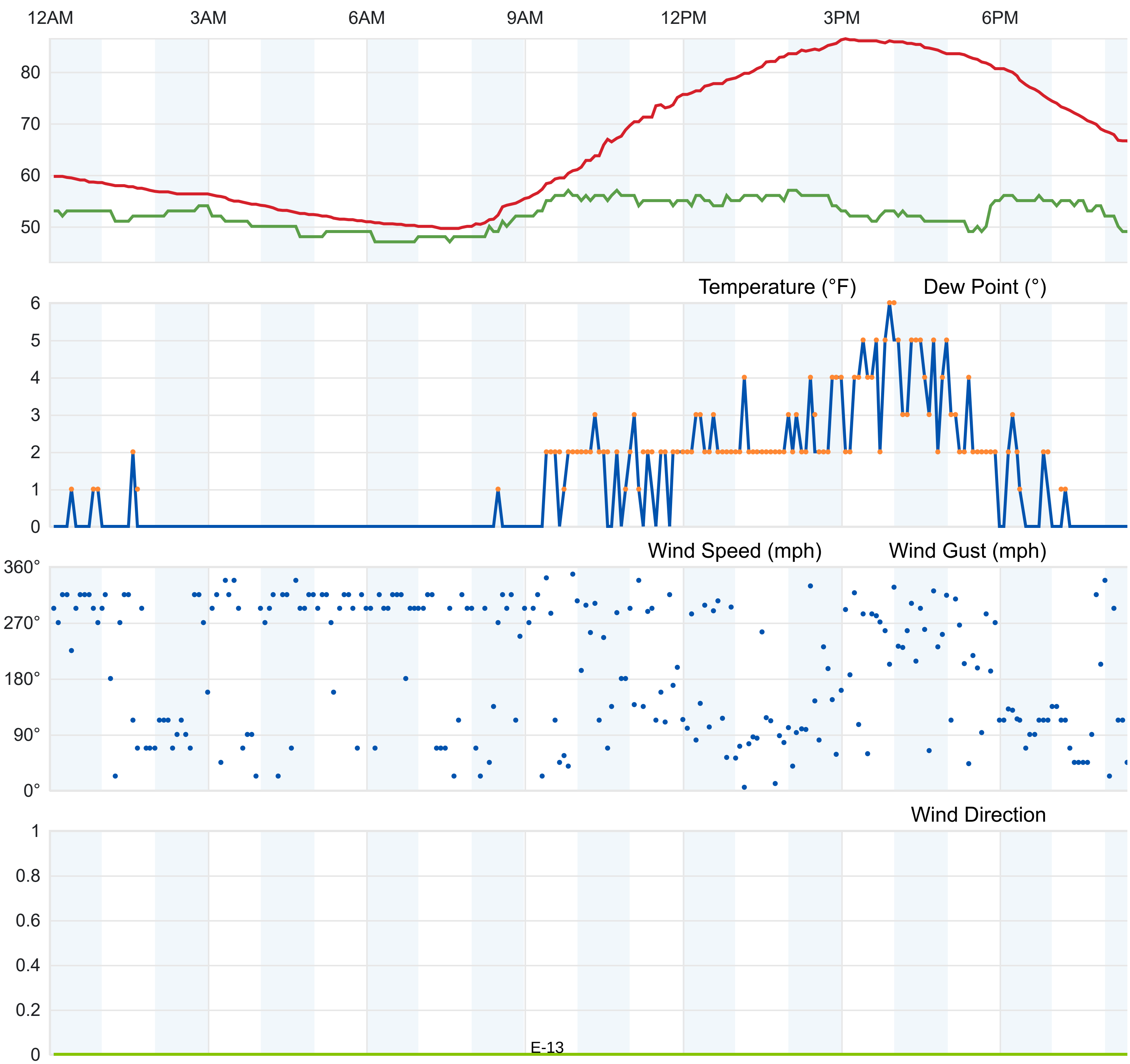
Summary
October 10, 2024

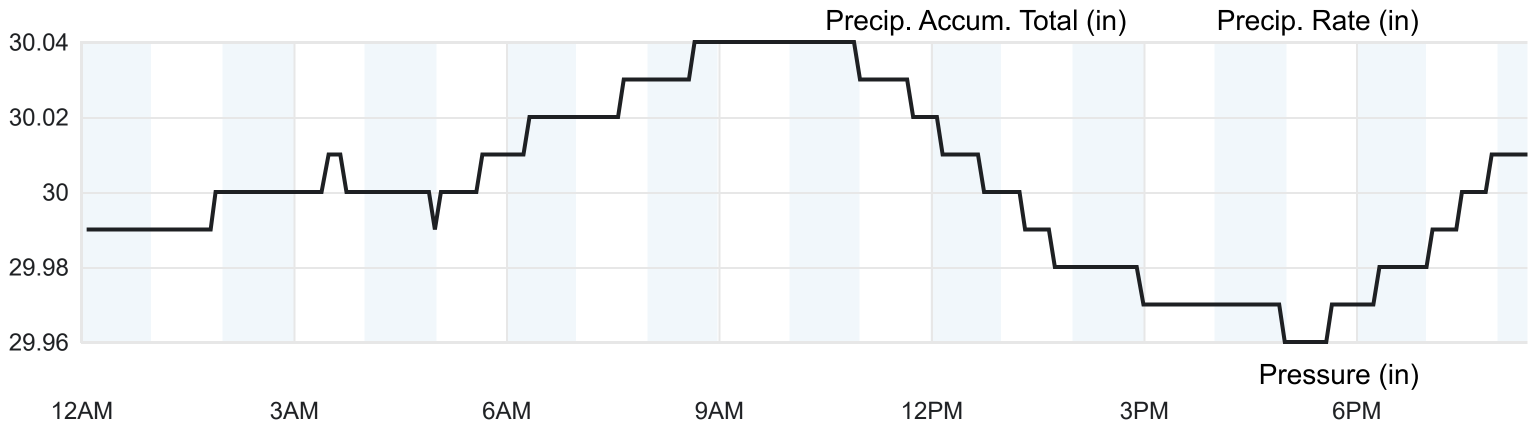
	High	Low	Average
Temperature	**86.4** °F	**49.6** °F	**65.2** °F
Dew Point	**57.0** °F	**43.0** °F	**51.1** °F
Humidity	**94** %	**31** %	**66** %
Precipitation	**0.00** in	**--**	**--**

	High	Low	Average
Wind Speed	**6.0** mph	**0.0** mph	**0.4** mph
Wind Gust	**6.0** mph	--	**0.6** mph
Wind Direction	--	--	**WSW**
Pressure	**30.04** in	**29.96** in	--

Graph Table

October 10, 2024




Precip. Accum. Total (in)
Precip. Rate (in)
30.04
30.02
30
29.98
29.96
Pressure (in)
12AM
3AM
6AM
9AM
12PM
3PM
6PM

LOCAL REGULATIONS AND STANDARDS

10 NOISE ELEMENT

The purpose of the Noise Element is to identify and appraise noise generation in the community in order to minimize problems from intrusive sound and to ensure that new development does not expose people to unacceptable noise levels.

A. Background Information

The Noise Element analyzes and quantifies, to the extent practicable, current and projected noise levels from all significant noise sources. As required by law, information contained in the Noise Element has been considered in the development of the Land Use Designation Map, Figure LU-4, with the goal of minimizing the exposure of community residents to excessive noise.

Government Code Section 65302(f) identifies potential noise sources the General Plan must assess, which include roadways, railroad operations, aviation-related operations, industrial facilities and other stationary sources.

The following noise sources are potentially of community-wide significance in Calistoga:

- Noise from vehicular traffic on regional highways and city arterials.
- Local industrial sources, including the bottling plants.
- Other ground stationary sources such as seasonal noise from wind machines and the sprint car races at the County Fairgrounds.

The gliderport was not considered in this analysis since its use as a landing field was abandoned in 1999 and the site is currently vacant. Also not subjected to technical analysis are extremely localized noise sources and the City siren, which is sounded daily at noon. Intermittent noise sources are regulated by the Noise Ordinance; issues concerning the City siren are discussed in greater detail below. As part of the General Plan, the Noise Element establishes overall policy guidance for new development that could create or be subject to noise impacts and does address each potential noise source. The Noise Element includes an action to revise the Noise Ordinance address individual noise sources.

Understanding Noise

Noise may be defined as unwanted sound.

Noise can be defined in many ways, but is usually associated with unwanted sound. Noise is usually objectionable when it interferes with people's daily life, such as in the evening when people are having a conversation over dinner, or trying to sleep. In Calistoga, noise interference is particularly important given the interest in retaining the small-town character of the community, and because of the community's tradition of being a destination for rest and relaxation.

The objectionable nature of sound is caused by its pitch or its loudness. *Pitch* is the height or depth of a tone or sound, depending on the relative rapidity (frequency) of the vibrations by which it is produced. Higher-pitched signals sound louder to humans than sounds with a lower pitch. *Loudness* is caused by the intensity of sound waves combined with the reception characteristics of the ear. Intensity may be compared with the height of an ocean wave: it is a measure of the amplitude of the sound wave.

Beyond the concepts of pitch and loudness, there are several noise measurement scales which are used to describe noise in a particular location. These are listed in Table N-1. The most basic noise measurement is the decibel (dB), which is a unit of measurement indicating the relative amplitude of a sound. The zero on the decibel scale is based on the lowest sound level that the healthy, unimpaired human ear can detect. Sound levels in decibels are calculated on a logarithmic basis. An increase of 10 decibels represents a ten-fold increase in acoustic energy, while 20 decibels is 100 times more intense, 30 decibels is 1,000 times more intense, etc. Generally, the human ear cannot perceive a difference between two noises that are less than 3 decibels different from one another.

Except in carefully-controlled laboratory experiments, a change of one dB cannot be detected.

A change in level of at least 5 dB is required before any noticeable change in community response would be expected.

A 10 dB change is heard as approximately a doubling in loudness, and would almost certainly cause an adverse change in community response.

There are several methods of refining decibel scales to make them reflect human perception. Most commonly used in California is the *A-weighted sound level* or dBA. This scale gives greater weight to the frequencies of sound to which the human ear is most sensitive. Representative outdoor and indoor noise levels in units of dBA are shown in Table N-2. For example, light traffic heard from a distance of 100 feet would have a level of 50 dBA. A jet taking off 200 feet away would create 120 dBA.

Because sound levels can vary markedly over a short period of time, a method for describing either the average character of the sound or the statistical behavior of the variations must be used. Most commonly, environmental sounds are described in terms of their level of acoustical energy averaged over a period of time. This energy-equivalent sound/noise descriptor is called L_{eq}. The most common L_{eq} averaging period is hourly, but L_{eq} can describe noise events of any specified time period.

Since sensitivity to noise increases during the evening and at night – because excessive noise interferes with the ability to sleep -- 24-hour descriptors have been developed that increase the weighting for noise that occurs during quiet times of day. The increase is referred to as a penalty. For example, the Community Noise Equivalent Level (CNEL) measures the cumulative noise exposure in a place, with a 5 dB penalty added to evening (7:00 pm - 10:00 pm) and a 10 dB penalty added to nocturnal (10:00 pm - 7:00 am) noise levels. The Day/Night Average Sound Level, Ldn, is essentially the same as CNEL, with the exception that the evening time period is dropped and all occurrences during this three-hour period are grouped into the daytime period.

Existing Noise Sources

The primary source of community noise in Calistoga is vehicular traffic on the roadway network. Traffic noise exists in varying degrees throughout the community. Other localized sources of noise which affect nearby vicinities include light industry, agricultural operations, agricultural wind turbines and sprint car

Calistoga's noise levels are quite low. Roadway traffic is the most significant community-wide noise factor in Calistoga. Overall, most of Calistoga is a quiet rural town.

TABLE N-1 DEFINITIONS OF ACOUSTICAL TERMS

Term	Definitions
Decibel (dB)	A unit describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micropascals (20 micronewtons per square meter).
Frequency (Hz)	The number of complete pressure fluctuations per second above and below atmospheric pressure.
A-Weighted Sound Level (dBA)	Sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network, which de-emphasizes very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise. All sound levels in this report are A-weighted, unless reported otherwise.
L_{01}, L_{10}, L_{50}, L_{90}	The A-weighted noise levels that are exceeded 1%, 10%, 50%, and 90% (respectively) of the time during the measurement period.
Equivalent Noise Level (L_{eq})	The average A-weighted noise level during the measurement period.
Community Noise Equivalent Level (CNEL)	The Average A-weighted noise level during a 24-hour day, obtained after adding 5 decibels to measurements taken in the evening (7 to 10 pm) and 10 decibels to measurements taken between 10 pm and 7 am.
Day/Night Noise Level (L_{dn})	The average A-weighted noise level during a 24-hour day, obtained after addition of 10 decibels to levels measured in the night between 10:00 pm and 7:00 am.
L_{max}, L_{min}	The maximum and minimum A-weighted noise level during the measurement period.
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.
Intrusive	That noise which intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, and time of occurrence and tonal or informational content as well as the prevailing ambient noise level.

TABLE N-2 **TYPICAL SOUND LEVELS**

Noise Generators (at a given distance from noise source)	**A-Weighted Sound Level in Decibels**	**Noise Environments**	**Subjective Impression**
	140		
Civil defense siren (100 feet)	130		
Jet take-off (200 feet)	120		Pain threshold
	110	Rock music concert	
Diesel pile drive (100 feet)	100		Very loud
Freight cars (50 feet)	90	Boiler room Printing press plant	
Pneumatic drill (50 feet) Freeway (100 feet) Vacuum cleaner (10 feet)	80 70	In kitchen with garbage disposal running	Moderately loud
	60	Data processing center	
Light traffic (100 feet) Large transformer (200 feet)	50	Department store	
	40	Private business office	Quiet
Soft whisper (5 feet)	30	Quiet bedroom	
	20	Recording studio	
	10		Threshold of hearing
	0		

races at the Napa County Fairgrounds. Noise from intermittent localized sources such as lawnmowers and leafblowers has also been expressed as a concern by some residents. In the past, the gliderport also contributed to community noise levels in Calistoga, but this facility closed in 1999. If the gliderport were to re-open, nearby residences could be affected by this noise source.

Noise Survey. A noise survey, consisting of both long-term and short-term noise measurements, was conducted in May 2000 to quantify representative noise levels throughout Calistoga. Measurement locations are mapped in Figure N-1. Long-term monitoring of noise levels was conducted at four locations over a period of approximately four days. A graphical representation of the results is contained in Figures N-2 and N-3. In addition, short-term samples were gathered at six other locations in Calistoga. During these short (10-minute) measurement periods, concurrent traffic counts were done to assist in calibrating the traffic noise model used in the development of noise contours. These measures have not been graphed because the time periods were brief. Instead, data is tabulated in Table N-3.

Table N-4 shows calculated noise contours along major roads in the City based on the noise survey results. Where no long-term measurements were conducted, noise levels were estimated based on standard engineering practices calibrated with the six short-term noise measurements. The noise contours represent roadside levels without the additional attenuation provided by roadside noise barriers, structures or topographical features.

The following paragraphs provide information about findings at each noise survey site. Unless the text states otherwise, measured noise levels are acceptable for all uses. The results show that the noise environment in Calistoga is generally one of a country town. As shown in Table N-4, most of the City is outside the 55 dB noise contour, where noise levels are acceptable for all uses. Figure N-5 provides, in graphic format, noise compatibility guidelines for different land uses. One important consequence of Calistoga's relatively quiet environment is the fact that even small increases in noise levels may seem substantial here, compared to other noisier places.

Measurement Location L1: Highway 29 North of the Silverado Trail Turnoff. This measurement was conducted 40 feet from the roadway centerline. At this distance, the measured L_{dn} was 68 dBA. Vehicular traffic on Highway 29 was the only significant source of noise affecting measurements at this location. This site is noisier than most in Calistoga, and the properties near Highway 29 are quite noisy for residential uses. However, because the noise source is a State highway, very few measures to reduce traffic noise are feasible in terms of engineering and costs. Moreover, moving even a short distance away from the road results in a significant reduction in noise.

Surveys show that about two percent of the population is highly annoyed by traffic noise of about 60 dBA L_{dn}. When the L_{dn} increases to 70 dBA, the proportion of the population highly annoyed increases to about 12 percent.

Measurement Location L2: Maggie Street. In this residential area noise sources included distant construction noise, animals, and the occasional sounds of children playing, dogs barking, birds, and horses. The measured L_{dn} was 46 dBA, which is very quiet for ambient noise measurements.

Interference with sleep and speech interference is possible when exterior noise levels are about 57-62 dBA L_{dn} with open windows and 65-70 dBA L_{dn} if windows are closed.

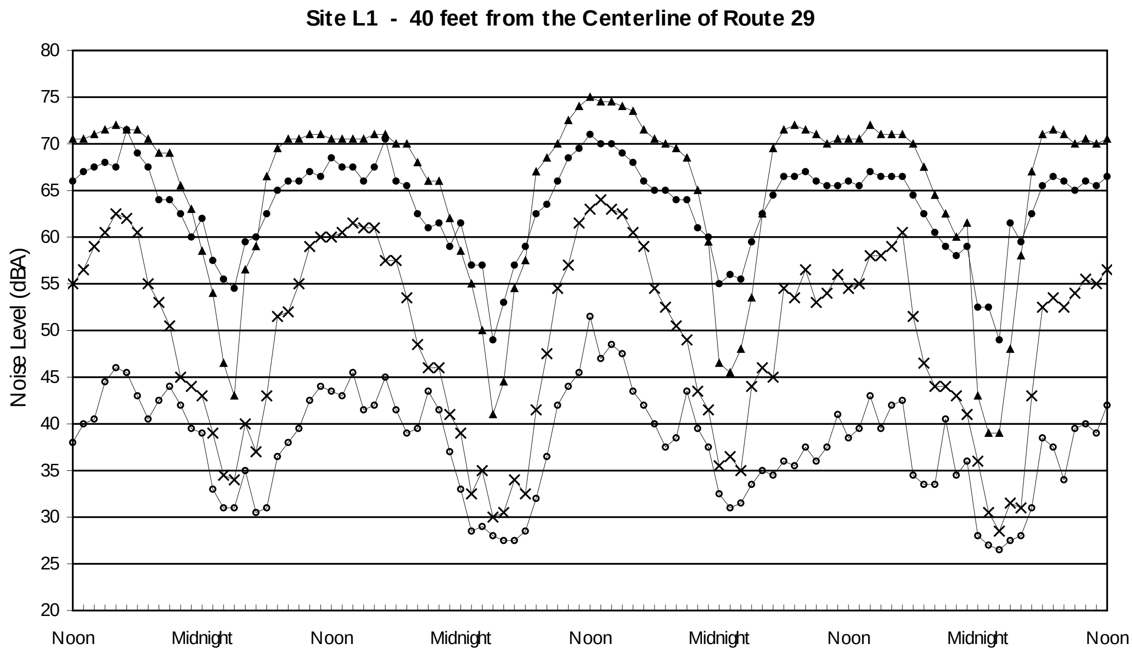
City Limit Line

L = 4 days measurement

S = 10 minute spot survey

FIGURE N-1

NOISE MEASUREMENT LOCATIONS



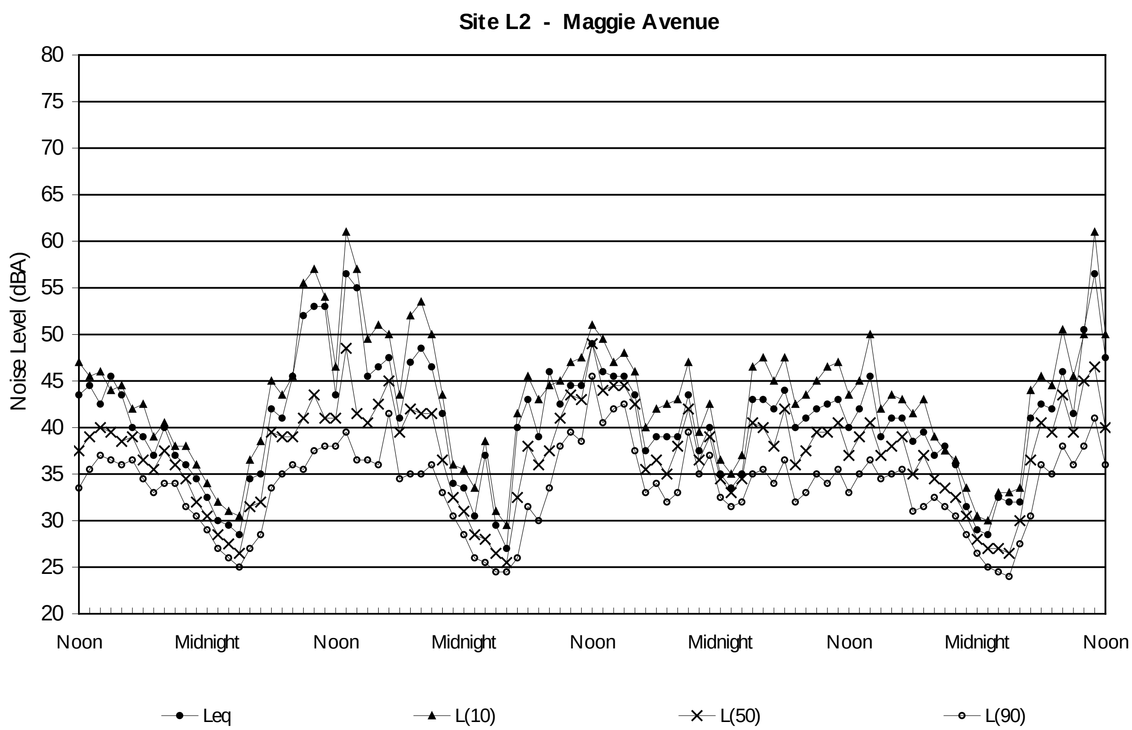
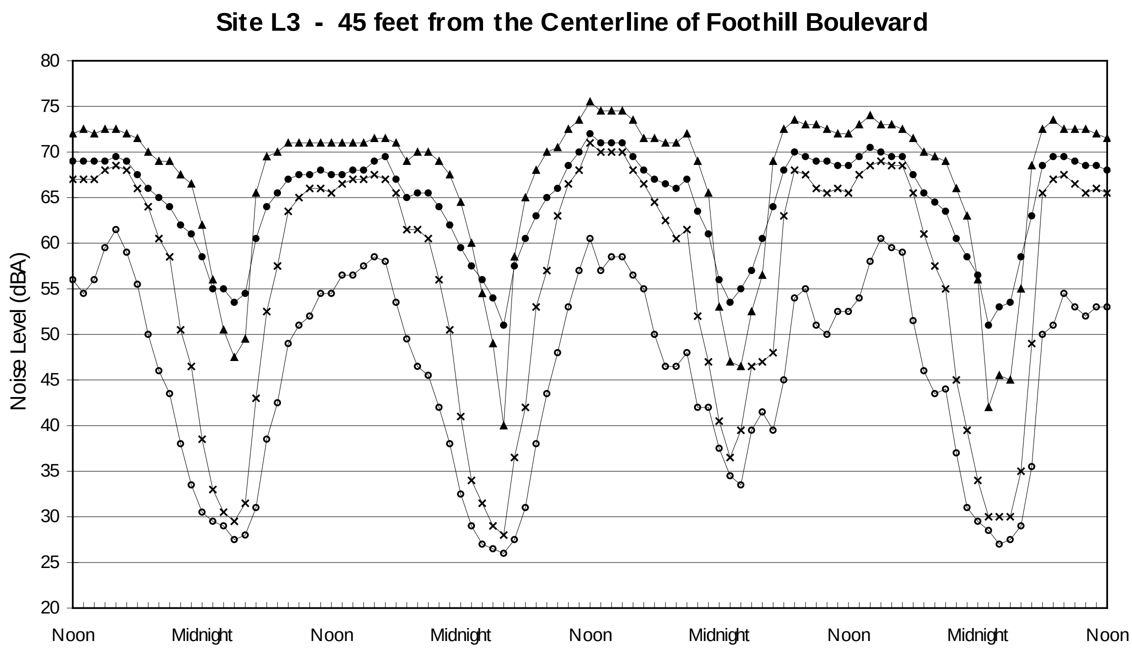


FIGURE N-2 **HOURLY NOISE LEVEL MEASUREMENTS: HIGHWAY 29 AND MAGGIE - MAY 12-16, 2001**



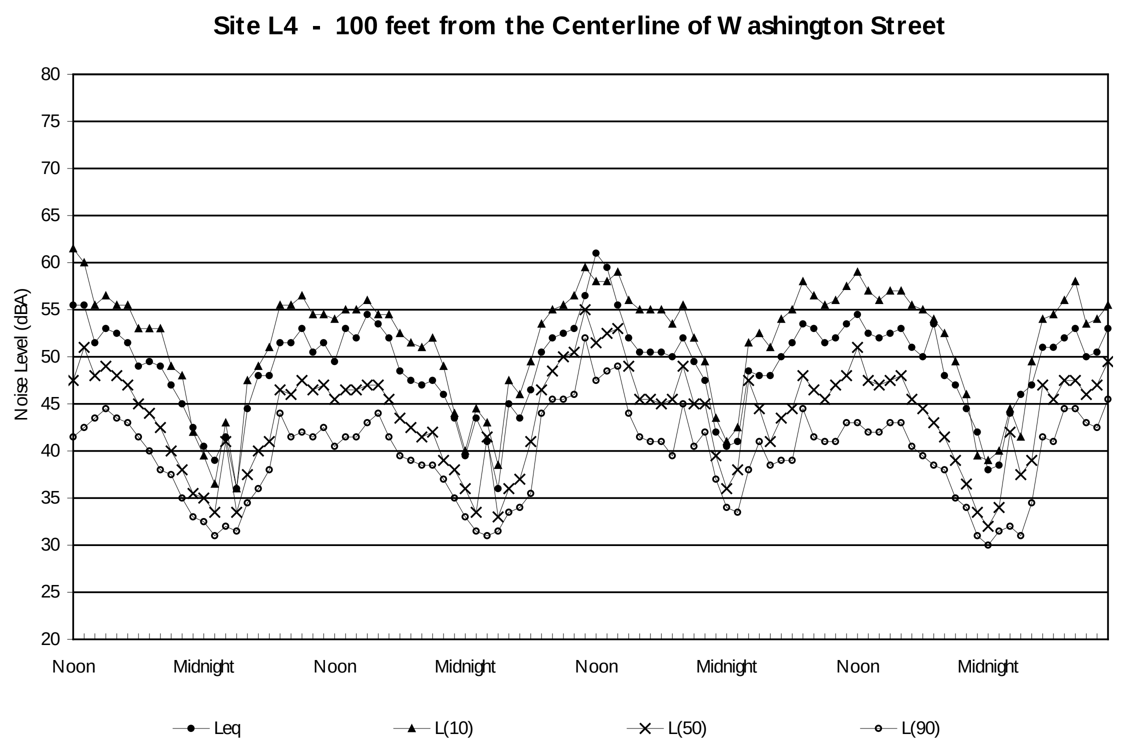


FIGURE N-3 **HOURLY NOISE LEVEL MEASUREMENTS: FOOTHILL & WASHINGTON - MAY 12-16, 2001**

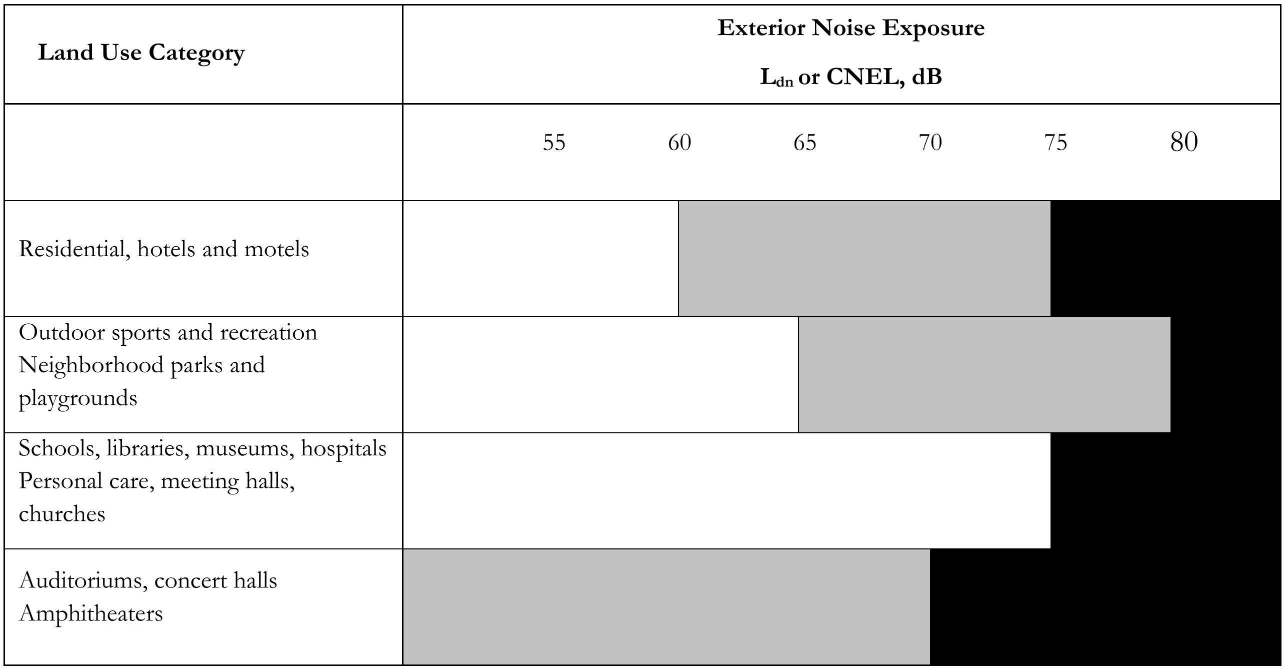
TABLE N-3 **RESULTS OF SHORT-TERM MID-DAY NOISE MEASUREMENTS** (MAY 16, 2000)

Roadway Segment		Start time	Distance from edge of near lane (feet)	Measured Noise Level					Comments
				L_{eq}	L_{01}	L_1	L_{50}	L_{90}	
S1	Tubbs Lane near Myrtledale Road	10:55	60	63	72	68	54	42	The large range between L_{90} and L_{01} shows that noise is the result of infrequent cars passing by quickly
S2	Highway 29 near Greenwood Avenue	11:15	50	62	75	67	48	37	Infrequent fast car passbys
S3	Silverado Trail near Silver Rose Inn	11:30	50	65	76	70	54	42	Infrequent fast car passbys
S4	Highway 29 south of Pine Street	11:50	40	73	81	77	70	58	Traffic with trucks moving faster than 55 mph speed limit
S5	Lincoln Avenue at Gliderport Plaza	12:05	55	62	71	66	60	52	Slow moving traffic and other downtown noise
S6	Grant Street at North Oak Street	12:20	50	55	65	57	44	38	Infrequent traffic

L_{eq} is the average noise level during the measurement period.
L_{01} is the noise level exceeded one percent of the time, L_{10} is the noise level exceeded 10 percent of the time, L_{50} is the noise level exceeded 50 percent of the time, L_{90} is the noise level exceeded 90 percent of the time.

TABLE N-4 **NOISE CONTOUR DISTANCES FROM ROADWAY CENTERLINE**

	Existing Ldn			Projected Ldn (Year 2020)		
	60 dBA	**65 dBA**	**70 dBA**	**60 dBA**	**65 dBA**	**70 dBA**
Lincoln Avenue						
from Foothill to Fair Way	200 feet	90 feet	40 feet	260 feet	120 feet	60 feet
from Fair Way to Silverado Trail	160 feet	60 feet	--	200 feet	90 feet	40 feet
from Silverado Trail to north	180 feet	80 feet	--	220 feet	100 feet	50 feet
Foothill Boulevard						
from Dunaweal to Lincoln	300 feet	140 feet	60 feet	450 feet	210 feet	100 feet
from Lincoln to Petrified Forest	250 feet	120 feet	50 feet	430 feet	210 feet	100 feet
from Petrified Forest to north	280 feet	130 feet	60 feet	530 feet	240 feet	110 feet
Silverado Trail						
from Dunaweal to Lincoln	150 feet	70 feet	--	200 feet	90 feet	40 feet
Tubbs Lane						
from Foothill to Lincoln	150 feet	70 feet	--	170 feet	80 feet	40 feet
Petrified Forest Road						
from Foothill Boulevard to west	240 feet	110 feet	50 feet	310 feet	140 feet	70 feet



NORMALLY ACCEPTABLE

Specified land use is satisfactory: any buildings involved could be of normal conventional construction, no special insulation requirements.

CONDITIONALLY ACCEPTABLE

Specified land use to be permitted only after detailed analysis of the noise reduction requirements and inclusion of noise insulation features in the design.

UNACCEPTABLE

New construction or development should generally not be permitted because mitigation is usually not feasible.

FIGURE N-4 **LAND USE COMPATIBILITY GUIDELINES FOR NOISE EXPOSURE**

Measurement Location L3: Foothill Boulevard at the Wayside Inn. This measurement was made 45 feet from the centerline of Foothill Boulevard, across from Silver Street. Automobile and truck traffic on Foothill Boulevard dominated the noise environment. The measured L_{dn} was 69 dBA. This rating is considered extremely noisy for a residential area, although it should be noted that noise drops off quickly with distance from the roadway.

Measurement Location L4: Washington Street at Second Street. The noise monitor was placed 100 feet from the roadway centerline. Vehicular traffic in the area was the only significant source of noise. The measured L_{dn} was 54 dBA, which is considered somewhat quiet.

Short-Term Measurement Locations. Although measured noise levels at the six short-term measurement locations were relatively high, all measurement locations were close to major roadways and all were for short durations of time. Noise levels over longer periods would be lower, since quieter periods would be averaged in.

As noted in Table N-3, the variation between L_{10} and L_{90} is wide at several of the measurement sites. This means there were short periods of loud noise during the measurements, but that there was less noise than at other times. Each of these locations is subject to intermittent loud noises but the median noise levels (L_{50}) for all of but one of the sites is less than 60 dBA, which means no significant noise impact indoors and limited impact for outdoor activity.

Traffic Noise. Only location S4, at Highway 29 south of Pine Street, is noisy for most of the time period measured. The measured Leq of 73 dBA is above the threshold of 68 dBA at which noise interferes with normal speech for people trying to converse standing outside at the measurement site. This noise level would not impair conversation indoors nor would the noise level be unacceptable if the receptor is separated from the street by a sound barrier such as a wall. Thus, noise levels in this area are marginally acceptable.

The noise survey results show that the major source of noise in Calistoga is traffic. Much of the noise is generated by vehicles driving faster than the speed limit, which means that enforcement of speed limits would not only improve safety but would also have noise reduction benefits. Other methods to reduce traffic noise include vehicle engine modifications, and use of alternative roadway surfacing materials.

The use of open-grade asphalt and rubberized asphalt to pave roads has been shown to provide sustained traffic noise reduction.

Sprint Car Races at the Napa County Fairgrounds. Figure N-5 shows noise level estimates for the sprint car racing at the Napa County Fairgrounds taken from the 1990 General Plan Master Environmental Assessment. During the races, noise levels in the neighborhoods surrounding the fairgrounds are substantially higher than normal. Because of the limited time and duration of the races, the L_{eq} during the event is the most representative noise measurement. The contours show that throughout a large part of Calistoga, noise is significant during the sprint car events. Therefore, this Noise Element includes actions to reduce problems from sprint car races.

Seasonal sources such as wind machines and the sprint car races are secondary sources of communitywide noise.

City Limit Line

FIGURE N-5

SPRINT CAR NOISE CONTOUR ESTIMATES

CITY OF CALISTOGA
2003 GENERAL PLAN

TABLE N-5 **NOISE CONTOURS NEAR A TYPICAL WIND MACHINE**

Contour Leq (dBA)	Distance of Contour from Wind Machine
90	126 feet
85	224 feet
80	400 feet
75	710 feet
70	1,125 feet
65	1,782 feet
60	2,518 feet
55	3,170 feet

One type of wind machine used to reduce frost damage in vineyards.

Wind Machines. Wind machines are also a source of intermittent noise in Calistoga. Wind machines are used to combat the effects of frost in the vineyards and other frost-sensitive crop areas. The intermittent and seasonal nature of their operation makes the L_{eq} (hourly average noise level descriptor) the most appropriate noise measurement. The locations of L_{eq} contours around a typical wind machine are given in Table N-5. The table indicates that the noise level would be perceived as loud, i.e. 70dbA, within an area extending 1,125 feet from the machine. This is similar to hearing a vacuum cleaner in the same room.

Industry. Little manufacturing or other potential sources of industrial noise are located in the Calistoga area. Industry is limited to two water bottling plants. One of these plants has intermittently been a source of community noise in Calistoga. In 1999, noise from new mechanical equipment at the plant resulted in complaints from the neighbors. The company instituted measures to reduce noise produced by its activities and it appears that the problem has been solved.

B. Key Findings

1. Calistoga is relatively quiet. The only on-going source of significant noise is roadway traffic. Other secondary sources include light industry, agricultural operations, agricultural wind turbines and sprint car races at the Napa County Fairgrounds. No heavy industrial activities are located in the Calistoga vicinity. However, because the level of noise is so low, increases that might seem small elsewhere could have a more perceptible effect here.

2. Given the relatively low level of noise, Calistoga's Noise Element need not be as extensive as that of other communities that are denser or more industrialized. Calistoga need not incorporate a broad array of planning policy related to noise. The incidence and extent of noise are such that most problems can be successfully addressed through the Noise Ordinance.

3. The only places in Calistoga where noise is a consistent problem are immediately adjacent to heavily traveled roads, where noise borders on unacceptable levels for residential use. The principal way to address traffic noise is through measures to reduce speeds. In the long term, there may be additional ways to reduce the amount of noise produced by modifying vehicles or even the materials used on the roadway itself.

4. Additional noise in Calistoga is caused by sprint car racing. Like many exterior recreational activities, the car racing creates noise that is likely to be more objectionable for the part of the community not attending. Measures could be instituted to work with the race organizers to attenuate the noise impacts.

5. Community noise is also generated by frost-preventing wind machines which are a component of Calistoga's agricultural base. Given the necessity of these machines to protect crops and their intermittent use, it is not appropriate to regulate them.

6. Some residents have expressed concerns about intermittent localized noise sources such as leaf blowers, lawn mowers and garbage trucks. Noise from such uses is extremely difficult to quantify or regulate in a policy document like the General Plan. Instead, these types of local noise nuisances should be addressed in the City's Noise Ordinance.

7. The Gliderport is currently closed. If it reopens, there could be noise incompatibility problems with housing located in the residential part of Washington Street downvalley from Lincoln Avenue.

8. Given the existing low noise levels, the addition of new development sensitive to noise in most parts of the City and Planning Area would not expose these sensitive receptors to unacceptable noise levels. Despite this, new development sensitive to noise should seek to minimize potential noise exposure through attenuating site and architectural design methods.

9. There is a need to prevent new development from creating unacceptable noise levels in the quiet parts of the City.

C. Goals, Objectives, Policies and Actions

Goal N-1	**Preserve current low levels of noise in Calistoga to maintain the City's rural atmosphere.**

Objective N-1.1 Use existing regulations to protect residents from the undesirable effects of excessive noise.

<u>Actions</u>

A1.1-1 Revise the Noise Ordinance so that it contains quantitative measures to maintain Calistoga's existing low level of noise, as well as measures to address localized, temporary noise sources such as leaf blowers, lawn mowers and garbage trucks.

A1.1-2 Increase enforcement of speed limits as a means to reduce vehicle noise.

A1.1-3 Encourage the County Sheriff's Department to enforce speed limits on State highways and in the unincorporated parts of the Planning Area.

Objective N-1.2 Explore innovative ways to reduce noise levels.

<u>Actions</u>

A1.2-1 Consider reducing speed limits on major roads within the City.

A1.2-2 Work with Caltrans to reduce speed limits on State highways in order to reduce noise levels.

A1.2-3 Work with State and federal agencies to actively enforce regulations dealing with noise. Examples include the California Vehicle Code governing motor vehicle noise emissions and federal vehicle construction standards.

A1.2-4 Explore the use of alternative paving materials on city streets to reduce vehicle sound levels.

A1.2-5 Work with the Napa County Transportation Planning Agency to explore the feasibility of purchasing quieter buses.

Objective N-1.3 Ensure noise exposure compatibility between neighboring land uses.

Policy

P1.3-1 New development near or around the gliderport shall be permitted and designed with consideration for avoiding exposure of new uses to unacceptable noise levels from aircraft operation.

Actions

A1.3-1 Work with the Napa County Fair Board to minimize noise by limiting or changing the sprint car races held at the County Fairgrounds.

A1.3-2 If the gliderport is reopened for aviation use, study ways to protect adjacent residences and other sensitive receptors from exposure to airport noise.

Objective N-1.4 Minimize the potential for new development projects to create unacceptable noise levels at sensitive receptors such as residential areas, hospitals, convalescent homes and schools.

Policies

P1.4-1 New residential projects shall be required to meet the following noise level standards:

- A maximum of 45 dB for interior noise level.
- A maximum of 60 dB for exterior noise level, especially when outdoor activities are important components of a project (e.g., multi-family housing).

P1.4-2 A noise study, including field noise measurement, shall be required for any proposed project which would:

- Place a potentially intrusive noise source near an existing noise sensitive receptor, or
- Place a noise-sensitive land use near an existing potentially intrusive noise source.

P1.4-3 New development projects shall not be approved unless they are generally consistent with the Noise Compatibility Guidelines contained in Figure N-5.

P1.4-4 The City shall encourage the inclusion of site design techniques for new construction to minimize noise impacts, including building placement, landscaped setbacks, orientation of noise-tolerant components (i.e., parking, utility areas, and maintenance facilities) between noise sources and the sensitive receptor areas.

P1.4-5 The City shall encourage the use of architectural design techniques to meet noise attenuation requirements, such as:

- Using noise-tolerant rooms (garages, kitchens, bathrooms) to shield noise sensitive rooms or areas (living rooms, bedrooms).
- Using architectural design techniques and building facade materials that help shield noise.

Chapter 8.20
NUISANCES

Sections:

8.20.010 Persistent noise – Declared nuisance – Abatement.

8.20.020 General noise regulations.

8.20.025 Construction activity – Noise – Prohibited hours.

8.20.030 Businesses offensive to senses prohibited.

8.20.040 Offensive premises prohibited.

8.20.050 Filth or rubbish on premises or in waterways prohibited.

8.20.010 Persistent noise – Declared nuisance – Abatement.

A. The persistent maintenance and emission of any noise or sound produced by human, animal, electrical, radio or mechanical means between the hours of 10:00 p.m., and 7:00 a.m., next ensuing, which by reason of its raucous or nerve-racking nature, disturbs the peace, quiet or comfort, or is injurious to the health of any person, constitutes a public nuisance.

B. Whenever the existence of any such nuisance comes to the attention of the Chief of Police, it shall be the Chief's duty to notify in writing the occupant of the premises upon which said nuisance exists, specifying the measures necessary to abate such nuisance, and unless the same is abated within 48 hours thereafter the occupants so notified shall be guilty of a violation of this chapter and the Chief of Police shall summarily abate such nuisance.

8.20.020 General noise regulations.

A. It is unlawful for any person, firm or corporation to use or operate or cause to be used or operated any mechanical device, machine, apparatus or instrument for intensification or amplification of the human voice or any sound or noise, in any public or private place in such a manner that the peace and good order of the neighborhood is disturbed, or that persons owning, using or occupying the property in the neighborhood are disturbed or annoyed, unless the amplification or intensification has been previously approved through an established permit process.

B. Notwithstanding any other provisions of this code, and in addition thereto, it is unlawful for any person willfully to make or continue, or cause to be made or continued, any loud, unnecessary or unusual noise which disturbs the peace and quiet of any neighborhood or which causes discomfort or annoyance to any reasonable person of normal sensitivities residing in the area.

C. In enforcing subsections (A) and (B) of this section, the standards which shall be considered in determining whether a violation of the provisions of this section exists shall include, but not be limited to, the following:

1. The volume of the noise;

2. The intensity of the noise;

3. Whether the nature of the noise is usual or unusual;

4. Whether the origin of the noise is natural or unnatural;

5. The volume and intensity of the background noise, if any;

6. The proximity of the noise to residences;

7. The nature and zoning of the area within which the noise emanates;

8. The density of the inhabitation of the area within which the noise emanates;

9. The time at which the noise occurs;

10. The duration of the noise;

11. Whether the noise is produced by a commercial or noncommercial activity. (Ord. 594 § 2, 2003; Ord. 569 § 1, 2000).

8.20.025 Construction activity – Noise – Prohibited hours.

A. It shall be unlawful for professional construction activity to occur on Sunday or between 7:00 p.m. and 7:00 a.m., any time during the week.

B. For the purpose of this chapter "professional construction activity" shall mean construction by any person other than:

1. An individual homeowner working on that person's primary residence;

2. A public utility in response to an emergency situation; or

3. City public works crew in response to an emergency situation or scheduled maintenance.

8.20.030 Businesses offensive to senses prohibited.

It is unlawful for any person to establish, maintain or carry on any business or occupation which is offensive to the senses or prejudicial to the health of the public or comfort of the inhabitants of the City, except as otherwise provided by law.

8.20.040 Offensive premises prohibited.

It is unlawful for any person within the limits of the City to own or keep or conduct upon premises under that person's control: (1) any slaughterhouse or place where animals are killed; or (2) place where animals or meats are sold after being killed; or (3) place where hogs or other animals are kept or may have been kept; or (4) privy vault, cesspool, or drainage, so that such slaughterhouse or any such place, or privy vault, cesspool or drainage accumulates filth or excrement or any deleterious substance to such degree as to become offensive to the senses, or injurious to the health, or so as to interfere with the comfortable enjoyment of life or property by any considerable number of persons or by an entire neighborhood.

8.20.050 Filth or rubbish on premises or in waterways prohibited.

It is unlawful for any person to permit or allow any slop, garbage, offal, filth, or any thing that emits a smell which is offensive to the senses to be or remain upon that person's premises, or premises under control of such person. It is unlawful for any person to deposit any ashes, filth, offal, rocks, sticks, wood, manure, or other thing in any creek or conduit within the City or running through the City, so as to prevent the flow of water therein or in or upon the premises of another within the City without permission of the person in control of said premises.

The Calistoga Municipal Code is current through Ordinance 769, and legislation passed through April 9, 2024.

CONSTRUCTION NOISE MODELING

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 12/03/2024
Case Description: CALI-02.0 Demolition

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Receptor at 50 ft	Residential	65.0	60.0	55.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Backhoe	No	40		77.6	50.0	0.0
Front End Loader	No	40		79.1	50.0	0.0
Concrete Saw	No	20		89.6	50.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Backhoe	77.6	73.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	79.1	75.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Concrete Saw	89.6	82.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	89.6	83.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 12/03/2024
Case Description: CALI-02.0 Site Preparation

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Receptor at 50 ft	Residential	65.0	60.0	55.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85.0		50.0	0.0
Front End Loader	No	40		79.1	50.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Grader	85.0	81.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	79.1	75.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	85.0	82.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 12/03/2024
Case Description: CALI-02.0 Rough Grading

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Receptor at 50 ft	Residential	65.0	60.0	55.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85.0		50.0	0.0
Dozer	No	40		81.7	50.0	0.0
Front End Loader	No	40		79.1	50.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Grader	85.0	81.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	81.7	77.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	79.1	75.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	85.0	83.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 12/03/2024
Case Description: CALI-02.0 Building Construction

**** Receptor #1 ****

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Receptor at 50 ft	Residential	65.0	60.0	55.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	50.0	0.0
Man Lift	No	20		74.7	50.0	0.0
Backhoe	No	40		77.6	50.0	0.0

Results

			Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
	Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Crane	80.6	72.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Man Lift	74.7	67.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	77.6	73.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	80.6	76.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 12/03/2024
Case Description: CALI-02.0 Architectural Coating

**** Receptor #1 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Receptor at 50 ft	Residential	65.0	60.0	55.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	50.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Compressor (air)	77.7	73.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	77.7	73.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 12/03/2024
Case Description: CALI-02.0 Paving

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Receptor at 50 ft	Residential	65.0	60.0	55.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Paver	No	50		77.2	50.0	0.0
Drum Mixer	No	50		80.0	50.0	0.0
Roller	No	20		80.0	50.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Paver	77.2	74.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Drum Mixer	80.0	77.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	80.0	73.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	80.0	79.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

CALI-02.0 - Construction Noise Modeling Attenuation Calculations

		Levels in dBA Leq			
Phase	**RCNM Reference Noise Level**	**Residential Receptor to North**	**Residential Receptor to South**	**Residential Receptor to East**	**School Campus Receptor to West**
Distance in feet	*50*	*195*	*145*	*275*	*435*
Demolition	84	72	75	69	65
Site Preparation	82	70	73	67	63
Rough Grading	83	71	74	68	64
Distance in feet	*50*	*165*	*280*	*265*	*425*
Building Construction	77	67	62	63	58
Architectural Coating	74	64	59	60	55
Distance in feet	*50*	*125*	*75*	*245*	*400*
Paving	80	72	76	66	62

Attenuation calculated through Inverse Square Law: Lp(R2) = Lp(R1) - 20Log(R2/R1)

CALI-02.0 - Vibration Damage Attenuation Calculations

		Levels, PPV (in/sec)				
Distance in feet	**Vibration Reference Level at *25 feet***	**Residential Receptor to North** *125*	**Residential Receptor to South** *75*	**Residential Receptor to East** *245*	**School Campus Receptor to West** *400*	**Historical Sam Brannan Cottage** *225*
Vibratory Roller	0.21	0.019	0.040	0.007	0.003	0.008
Hoe Ram	0.089	0.008	0.017	0.003	0.001	0.003
Large Bulldozer	0.089	0.008	0.017	0.003	0.001	0.003
Loaded Trucks	0.076	0.007	0.015	0.002	0.001	0.003
Jackhammer	0.035	0.003	0.007	0.001	0.001	0.001
Small Bulldozer	0.003	0.000	0.001	0.000	0.000	0.000

TRAFFIC NOISE MODELING

Traffic Noise Calculator: FHWA 77-108							Calistoga Jr-Sr HS field Improvement Project (CALI-02.0) Existing 2024 Traffic Noise																
	Output						Inputs															Auto Inputs	
	dBA at 50 feet			Distance to CNEL Contour																			
ID	$L_{eq\text{-}24hr}$	L_{dn}	CNEL	70 dBA	65 dBA	60 dBA	Roadway	Segment From - To		ADT	Posted Speed Limit	Grade	% Autos	% Med Trucks	% Heavy Trucks	% Daytime	% Evening	% Night	Number of Lanes	Site Condition	Distance to Reciever	Ground Absorption	Lane Distance
1	52.9	56.6	56.9	2	8	25	Lake Street	the North	Grant Street	2,090	25	0.0%	96.5%	2.0%	1.5%	75.0%	10.0%	15.0%	2	Hard	50	0	20
2	51.7	55.4	55.8	2	6	19	Lake Street	Grant Street	Fair Way	1,600	25	0.0%	96.5%	2.0%	1.5%	75.0%	10.0%	15.0%	2	Hard	50	0	20
3	51.8	55.5	55.9	2	6	19	Lake Street	Fair Way	the South	1,640	25	0.0%	96.5%	2.0%	1.5%	75.0%	10.0%	15.0%	2	Hard	50	0	20
4	51.8	55.5	55.9	2	6	19	Grant Street	the West	Lake Street	1,640	25	0.0%	96.5%	2.0%	1.5%	75.0%	10.0%	15.0%	2	Hard	50	0	20
5	50.8	54.5	54.9	2	5	16	Grant Street	Lake Street	Steveson Street	1,310	25	0.0%	96.5%	2.0%	1.5%	75.0%	10.0%	15.0%	2	Hard	50	0	20
6	48.8	52.5	52.9	1	3	10	Fair Way	the West	Lake Street	820	25	0.0%	96.5%	2.0%	1.5%	75.0%	10.0%	15.0%	2	Hard	50	0	20
7	49.2	52.9	53.3	1	3	11	Fair Way	Lake Street	the East	900	25	0.0%	96.5%	2.0%	1.5%	75.0%	10.0%	15.0%	2	Hard	50	0	20
8	48.3	52.1	52.4	1	3	9	Stevenson Street	Grant Street	the South	740	25	0.0%	96.5%	2.0%	1.5%	75.0%	10.0%	15.0%	2	Hard	50	0	20

Traffic Noise Calculator: FHWA 77-108							Calistoga Jr-Sr HS field Improvement Project (CALI-02.0) Existing 2024 Plus Project Traffic Noise																
	Output						Inputs															Auto Inputs	
	dBA at 50 feet			Distance to CNEL Contour																			
ID	$L_{eq\text{-}24hr}$	L_{dn}	CNEL	70 dBA	65 dBA	60 dBA	Roadway	Segment From - To		ADT	Posted Speed Limit	Grade	% Autos	% Med Trucks	% Heavy Trucks	% Daytime	% Evening	% Night	Number of Lanes	Site Condition	Distance to Reciever	Ground Absorption	Lane Distance
1	53.0	56.7	57.1	3	8	26	Lake Street	the North	Grant Street	2,180	25	0.0%	96.5%	2.0%	1.5%	75.0%	10.0%	15.0%	2	Hard	50	0	20
2	52.2	55.9	56.3	2	7	21	Lake Street	Grant Street	Fair Way	1,790	25	0.0%	96.5%	2.0%	1.5%	75.0%	10.0%	15.0%	2	Hard	50	0	20
3	52.1	55.8	56.1	2	7	21	Lake Street	Fair Way	the South	1,740	25	0.0%	96.5%	2.0%	1.5%	75.0%	10.0%	15.0%	2	Hard	50	0	20
4	52.0	55.7	56.1	2	6	20	Grant Street	the West	Lake Street	1,720	25	0.0%	96.5%	2.0%	1.5%	75.0%	10.0%	15.0%	2	Hard	50	0	20
5	51.2	54.9	55.3	2	5	17	Grant Street	Lake Street	Steveson Street	1,430	25	0.0%	96.5%	2.0%	1.5%	75.0%	10.0%	15.0%	2	Hard	50	0	20
6	48.9	52.7	53.0	1	3	10	Fair Way	the West	Lake Street	850	25	0.0%	96.5%	2.0%	1.5%	75.0%	10.0%	15.0%	2	Hard	50	0	20
7	49.5	53.2	53.6	1	4	11	Fair Way	Lake Street	the East	960	25	0.0%	96.5%	2.0%	1.5%	75.0%	10.0%	15.0%	2	Hard	50	0	20
8	48.5	52.2	52.6	1	3	9	Stevenson Street	Grant Street	the South	770	25	0.0%	96.5%	2.0%	1.5%	75.0%	10.0%	15.0%	2	Hard	50	0	20

Traffic Noise Calculator: FHWA 77-108 — **Calistoga Jr-Sr HS field Improvement Project (CALI-02.0) Future No Project Traffic Noise**

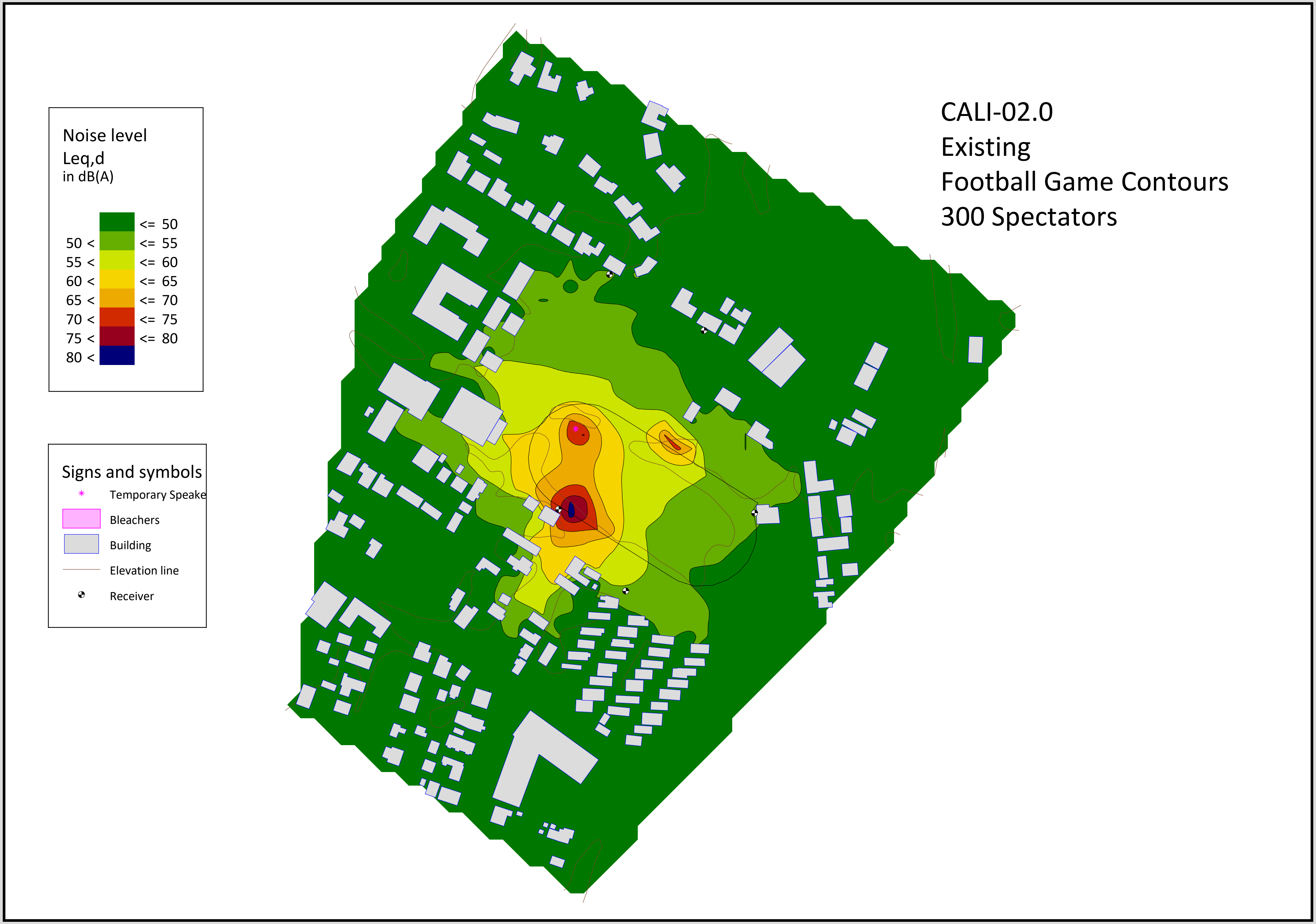
	Output						Inputs																Auto Inputs	
	dBA at 50 feet			Distance to CNEL Contour																				
ID	$L_{eq\text{-}24hr}$	L_{dn}	CNEL	70 dBA	65 dBA	60 dBA	Roadway	Segment From - To		ADT	Posted Speed Limit	Grade	% Autos	% Med Trucks	% Heavy Trucks	% Daytime	% Evening	% Night	Number of Lanes	Site Condition	Distance to Reciever		Ground Absorption	Lane Distance
1	53.0	56.7	57.1	3	8	25	Lake Street	the North	Grant Street	2,150	25	0.0%	96.5%	2.0%	1.5%	75.0%	10.0%	15.0%	2	Hard	50		0	20
2	51.8	55.5	55.9	2	6	20	Lake Street	Grant Street	Fair Way	1,650	25	0.0%	96.5%	2.0%	1.5%	75.0%	10.0%	15.0%	2	Hard	50		0	20
3	51.9	55.6	56.0	2	6	20	Lake Street	Fair Way	the South	1,690	25	0.0%	96.5%	2.0%	1.5%	75.0%	10.0%	15.0%	2	Hard	50		0	20
4	51.9	55.6	56.0	2	6	20	Grant Street	the West	Lake Street	1,690	25	0.0%	96.5%	2.0%	1.5%	75.0%	10.0%	15.0%	2	Hard	50		0	20
5	51.0	54.7	55.0	2	5	16	Grant Street	Lake Street	Steveson Street	1,350	25	0.0%	96.5%	2.0%	1.5%	75.0%	10.0%	15.0%	2	Hard	50		0	20
6	48.9	52.6	53.0	1	3	10	Fair Way	the West	Lake Street	840	25	0.0%	96.5%	2.0%	1.5%	75.0%	10.0%	15.0%	2	Hard	50		0	20
7	49.3	53.0	53.4	1	3	11	Fair Way	Lake Street	the East	930	25	0.0%	96.5%	2.0%	1.5%	75.0%	10.0%	15.0%	2	Hard	50		0	20
8	48.5	52.2	52.6	1	3	9	Stevenson Street	Grant Street	the South	760	25	0.0%	96.5%	2.0%	1.5%	75.0%	10.0%	15.0%	2	Hard	50		0	20

Traffic Noise Calculator: FHWA 77-108

Calistoga Jr-Sr HS field Improvement Project (CALI-02.0) Future Plus Project Traffic Noise

	Output						Inputs																Auto Inputs	
	dBA at 50 feet			Distance to CNEL Contour																				
ID	$L_{eq\text{-}24hr}$	L_{dn}	CNEL	70 dBA	65 dBA	60 dBA	Roadway	Segment From - To		ADT	Posted Speed Limit	Grade	% Autos	% Med Trucks	% Heavy Trucks	% Daytime	% Evening	% Night	Number of Lanes	Site Condition	Distance to Reciever		Ground Absorption	Lane Distance
1	53.2	56.9	57.2	3	8	27	Lake Street	the North	Grant Street	2,240	25	0.0%	96.5%	2.0%	1.5%	75.0%	10.0%	15.0%	2	Hard	50		0	20
2	52.3	56.0	56.4	2	7	22	Lake Street	Grant Street	Fair Way	1,840	25	0.0%	96.5%	2.0%	1.5%	75.0%	10.0%	15.0%	2	Hard	50		0	20
3	52.2	55.9	56.3	2	7	21	Lake Street	Fair Way	the South	1,790	25	0.0%	96.5%	2.0%	1.5%	75.0%	10.0%	15.0%	2	Hard	50		0	20
4	52.1	55.8	56.2	2	7	21	Grant Street	the West	Lake Street	1,770	25	0.0%	96.5%	2.0%	1.5%	75.0%	10.0%	15.0%	2	Hard	50		0	20
5	51.3	55.0	55.4	2	6	17	Grant Street	Lake Street	Steveson Street	1,470	25	0.0%	96.5%	2.0%	1.5%	75.0%	10.0%	15.0%	2	Hard	50		0	20
6	49.0	52.8	53.1	1	3	10	Fair Way	the West	Lake Street	870	25	0.0%	96.5%	2.0%	1.5%	75.0%	10.0%	15.0%	2	Hard	50		0	20
7	49.6	53.3	53.7	1	4	12	Fair Way	Lake Street	the East	990	25	0.0%	96.5%	2.0%	1.5%	75.0%	10.0%	15.0%	2	Hard	50		0	20
8	48.6	52.3	52.7	1	3	9	Stevenson Street	Grant Street	the South	790	25	0.0%	96.5%	2.0%	1.5%	75.0%	10.0%	15.0%	2	Hard	50		0	20

SoundPLAN NOISE MODELING


Noise level
Leq,d
in dB(A)
<= 50
50 < <= 55
55 < <= 60
60 < <= 65
65 < <= 70
70 < <= 75
75 < <= 80
80 <
Signs and symbols
Temporary Speake
Bleachers
Building
Elevation line
Receiver
CALI-02.0
Existing
Football Game Contours
300 Spectators

Calistoga JR/SR High School Field Improvements
Assessed receiver levels
CALI-02.0- Existing - 300 Spectators

2

Receiver	Usage	Leq,d dB(A)	Leq,n dB(A)
Grant-1	SCR	48.5	48.5
Grant-2	SCR	50.7	50.7
ST-1	SCR	75.3	75.3
ST-2	SCR	55.7	55.7
ST-3	SCR	52.7	52.7

Calistoga JR/SR High School Field Improvements
Contribution level
CALI-02.0- Existing - 300 Spectators

Source	Source group	Source ty	Tr. lane	Ldn dB(A)	Leq,d dB(A)	Leq,n dB(A)	A dB	
Receiver Grant-1 Fl G dB(A) Lr,lim dB(A) Lr,lim dB(A) Ldn 54.9 dB(A) Leq,d 48.5 dB(A) Leq,n 48.5 dB(A)								
Band	Band Noise	Area		53.1	46.7	46.7	0.0	
Away Bleacher	Crowd Noise	Area		44.0	37.6	37.6	0.0	
Home Bleacher	Crowd Noise	Area		37.8	31.4	31.4	0.0	
Temporary Speaker 2	Speakers	Point		45.7	39.3	39.3	0.0	
Temporary Speaker 1	Speakers	Point		45.7	39.3	39.3	0.0	
Receiver Grant-2 Fl G dB(A) Lr,lim dB(A) Lr,lim dB(A) Ldn 57.1 dB(A) Leq,d 50.7 dB(A) Leq,n 50.7 dB(A)								
Band	Band Noise	Area		56.3	49.9	49.9	0.0	
Away Bleacher	Crowd Noise	Area		41.8	35.4	35.4	0.0	
Home Bleacher	Crowd Noise	Area		36.8	30.4	30.4	0.0	
Temporary Speaker 2	Speakers	Point		45.4	39.0	39.0	0.0	
Temporary Speaker 1	Speakers	Point		45.4	39.0	39.0	0.0	
Receiver ST-1 Fl G dB(A) Lr,lim dB(A) Lr,lim dB(A) Ldn 81.8 dB(A) Leq,d 75.3 dB(A) Leq,n 75.3 dB(A)								
Band	Band Noise	Area		81.7	75.3	75.3	0.0	
Away Bleacher	Crowd Noise	Area		49.2	42.8	42.8	0.0	
Home Bleacher	Crowd Noise	Area		59.2	52.8	52.8	0.0	
Temporary Speaker 2	Speakers	Point		58.6	52.2	52.2	0.0	
Temporary Speaker 1	Speakers	Point		58.6	52.2	52.2	0.0	
Receiver ST-2 Fl G dB(A) Lr,lim dB(A) Lr,lim dB(A) Ldn 62.1 dB(A) Leq,d 55.7 dB(A) Leq,n 55.7 dB(A)								
Band	Band Noise	Area		60.5	54.1	54.1	0.0	
Away Bleacher	Crowd Noise	Area		48.3	41.9	41.9	0.0	
Home Bleacher	Crowd Noise	Area		53.0	46.6	46.6	0.0	
Temporary Speaker 2	Speakers	Point		50.6	44.2	44.2	0.0	
Temporary Speaker 1	Speakers	Point		50.6	44.2	44.2	0.0	
Receiver ST-3 Fl G dB(A) Lr,lim dB(A) Lr,lim dB(A) Ldn 59.1 dB(A) Leq,d 52.7 dB(A) Leq,n 52.7 dB(A)								
Band	Band Noise	Area		55.6	49.1	49.1	0.0	
Away Bleacher	Crowd Noise	Area		52.5	46.1	46.1	0.0	

Calistoga JR/SR High School Field Improvements
Contribution level - Existing

9

Source	Source group	Source ty	Tr. lane	Ldn dB(A)	Leq,d dB(A)	Leq,n dB(A)	A dB	
Home Bleacher	Crowd Noise	Area		43.3	36.9	36.9	0.0	
Temporary Speaker 2	Speakers	Point		51.1	44.6	44.6	0.0	
Temporary Speaker 1	Speakers	Point		51.1	44.7	44.7	0.0	

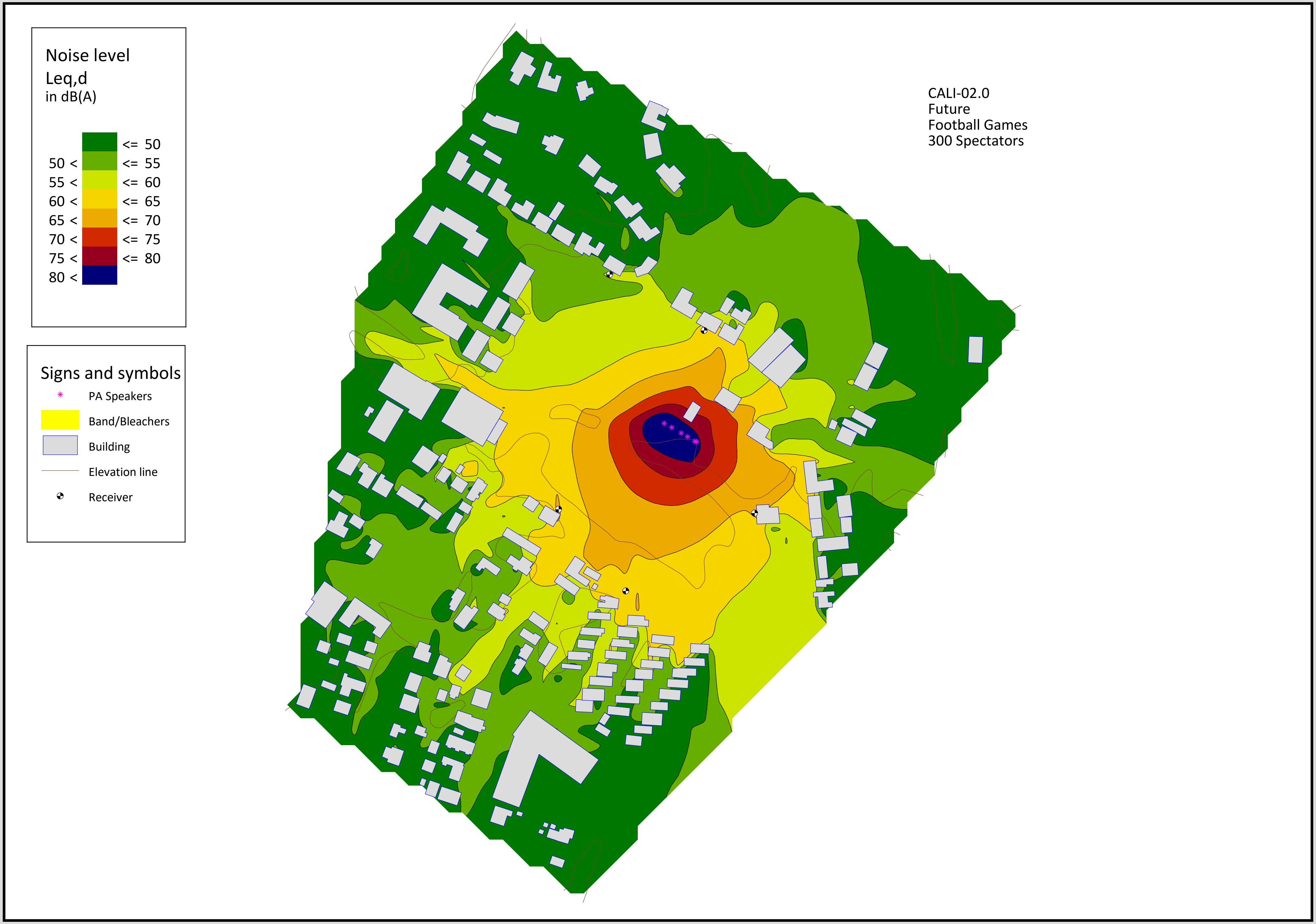
Calistoga JR/SR High School Field Improvements
Octave spectra of the sources in dB(A)
CALI-02.0- Existing - 300 Spectators

Name	Source type	I or A	L'w	Lw	KI	KT	DO-Wall	Day histogram	Emission spectrum	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	16kHz
		m,m²	dB(A)	dB(A)	dB	dB	dB			dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
Away Bleacher	Area	135.22	78.7	100.0	0.0	0.0	0	Crowd during Game 10 min 60*10 sec	American Football, Spectators`s area		74.0	89.1	96.9	92.9	92.6	86.2	77.1	
Band	Area	29.43	100.3	115.0	0.0	0.0	0	Band during Game 20% = 12 minutes	Live bands (Pop, Rock, Metal)	100.5	100.0	104.6	109.5	110.3	106.9	102.2	94.7	76.6
Home Bleacher	Area	190.45	80.2	103.0	0.0	0.0	0	Crowd during Game 10 min 60*10 sec	American Football, Spectators`s area		77.0	92.1	99.9	95.9	95.6	89.2	80.1	
Temporary Speaker 1	Point		110.0	110.0	0.0	0.0	0	Speaker during Game 12 min 36*20 sec	Average Spectrum from 2022-10-07 Survey	81.7	96.3	99.1	104.7	105.4	102.2	97.0	90.7	69.3
Temporary Speaker 2	Point		110.0	110.0	0.0	0.0	0	Speaker during Game 12 min 36*20 sec	Average Spectrum from 2022-10-07 Survey	81.7	96.3	99.1	104.7	105.4	102.2	97.0	90.7	69.3

Calistoga JR/SR High School Field Improvements
Hourly sound power level in dB(A)
CALI-02.0- Existing - 300 Spectators

5

Name	0-1 o'clock dB(A)	1-2 o'clock dB(A)	2-3 o'clock dB(A)	3-4 o'clock dB(A)	4-5 o'clock dB(A)	5-6 o'clock dB(A)	6-7 o'clock dB(A)	7-8 o'clock dB(A)	8-9 o'clock dB(A)	9-10 o'clock dB(A)	10-11 o'clock dB(A)	11-12 o'clock dB(A)	12-13 o'clock dB(A)	13-14 o'clock dB(A)	14-15 o'clock dB(A)	15-16 o'clock dB(A)	16-17 o'clock dB(A)	17-18 o'clock dB(A)	18-19 o'clock dB(A)	19-20 o'clock dB(A)	20-21 o'clock dB(A)	21-22 o'clock dB(A)	22-23 o'clock dB(A)	23-24 o'clock dB(A)
Away Bleacher	92.2	92.2	92.2	92.2	92.2	92.2	92.2	92.2	92.2	92.2	92.2	92.2	92.2	92.2	92.2	92.2	92.2	92.2	92.2	92.2	92.2	92.2	92.2	92.2
Band	108.0	108.0	108.0	108.0	108.0	108.0	108.0	108.0	108.0	108.0	108.0	108.0	108.0	108.0	108.0	108.0	108.0	108.0	108.0	108.0	108.0	108.0	108.0	108.0
Home Bleacher	95.2	95.2	95.2	95.2	95.2	95.2	95.2	95.2	95.2	95.2	95.2	95.2	95.2	95.2	95.2	95.2	95.2	95.2	95.2	95.2	95.2	95.2	95.2	95.2
Temporary Speaker 1	103.0	103.0	103.0	103.0	103.0	103.0	103.0	103.0	103.0	103.0	103.0	103.0	103.0	103.0	103.0	103.0	103.0	103.0	103.0	103.0	103.0	103.0	103.0	103.0
Temporary Speaker 2	103.0	103.0	103.0	103.0	103.0	103.0	103.0	103.0	103.0	103.0	103.0	103.0	103.0	103.0	103.0	103.0	103.0	103.0	103.0	103.0	103.0	103.0	103.0	103.0


Noise level
Leq,d
in dB(A)
<= 50
50 < <= 55
55 < <= 60
60 < <= 65
65 < <= 70
70 < <= 75
75 < <= 80
80 <
Signs and symbols
PA Speakers
Band/Bleachers
Building
Elevation line
Receiver
CALI-02.0
Future
Football Games
300 Spectators

Calistoga JR/SR High School Field Improvements
Assessed receiver levels
CALI-02.0 - Future Football Games - 300 Spectators

2

Receiver	Usage	FI	Leq,d dB(A)	Leq,n dB(A)	
ST-1	SCR	G	65.7	65.7	
ST-2	SCR	G	65.0	65.0	
ST-3	SCR	G	66.4	66.4	
ST-4	SCR	G	61.7	61.7	
ST-5	SCR	G	55.7	55.7	

Calistoga JR/SR High School Field Improvements
Contribution level
CALI-02.0 - Future Football Games - 300 Spectators

Source	Source group	Source ty	Leq,d dB(A)	Leq,n dB(A)	A dB
Receiver ST-1 Fl G Leq,d 65.7 dB(A) Leq,n 65.7 dB(A)					
Band	Band Noise	Area	59.9	59.9	0.0
Speaker 3	Speakers	Point	56.8	56.8	0.0
Speaker-5	Speakers	Point	55.8	55.8	0.0
Bleacher 300	Crowd Noise	Area	48.5	48.5	0.0
Speaker-4	Speakers	Point	56.4	56.4	0.0
Speaker 2	Speakers	Point	57.2	57.2	0.0
Speaker 1	Speakers	Point	57.3	57.3	0.0
Speaker-5	Speakers	Point	54.9	54.9	0.0
Receiver ST-2 Fl G Leq,d 65.0 dB(A) Leq,n 65.0 dB(A)					
Band	Band Noise	Area	57.2	57.2	0.0
Speaker 3	Speakers	Point	56.5	56.5	0.0
Speaker-5	Speakers	Point	57.4	57.4	0.0
Bleacher 300	Crowd Noise	Area	46.5	46.5	0.0
Speaker-4	Speakers	Point	56.8	56.8	0.0
Speaker 2	Speakers	Point	56.1	56.1	0.0
Speaker 1	Speakers	Point	54.4	54.4	0.0
Speaker-5	Speakers	Point	56.1	56.1	0.0
Receiver ST-3 Fl G Leq,d 66.4 dB(A) Leq,n 66.4 dB(A)					
Band	Band Noise	Area	60.1	60.1	0.0
Speaker 3	Speakers	Point	56.7	56.7	0.0
Speaker-5	Speakers	Point	59.0	59.0	0.0
Bleacher 300	Crowd Noise	Area	51.9	51.9	0.0
Speaker-4	Speakers	Point	57.6	57.6	0.0
Speaker 2	Speakers	Point	55.9	55.9	0.0
Speaker 1	Speakers	Point	57.3	57.3	0.0
Speaker-5	Speakers	Point	56.1	56.1	0.0
Receiver ST-4 Fl G Leq,d 61.7 dB(A) Leq,n 61.7 dB(A)					
Band	Band Noise	Area	52.6	52.6	0.0
Speaker 3	Speakers	Point	53.8	53.8	0.0
Speaker-5	Speakers	Point	53.8	53.8	0.0
Bleacher 300	Crowd Noise	Area	42.3	42.3	0.0
Speaker-4	Speakers	Point	53.7	53.7	0.0
Speaker 2	Speakers	Point	53.5	53.5	0.0
Speaker 1	Speakers	Point	53.1	53.1	0.0
Speaker-5	Speakers	Point	51.2	51.2	0.0
Receiver ST-5 Fl G Leq,d 55.7 dB(A) Leq,n 55.7 dB(A)					
Band	Band Noise	Area	49.6	49.6	0.0
Speaker 3	Speakers	Point	47.2	47.2	0.0
Speaker-5	Speakers	Point	46.4	46.4	0.0

Calistoga JR/SR High School Field Improvements
Contribution level - Football 300

9

Source	Source group	Source ty	Leq,d dB(A)	Leq,n dB(A)	A dB
Bleacher 300	Crowd Noise	Area	35.1	35.1	0.0
Speaker-4	Speakers	Point	47.1	47.1	0.0
Speaker 2	Speakers	Point	47.3	47.3	0.0
Speaker 1	Speakers	Point	46.7	46.7	0.0
Speaker-5	Speakers	Point	45.0	45.0	0.0

Calistoga JR/SR High School Field Improvements
Octave spectra of the sources in dB(A)
CALI-02.0 - Future Football Games - 300 Spectators

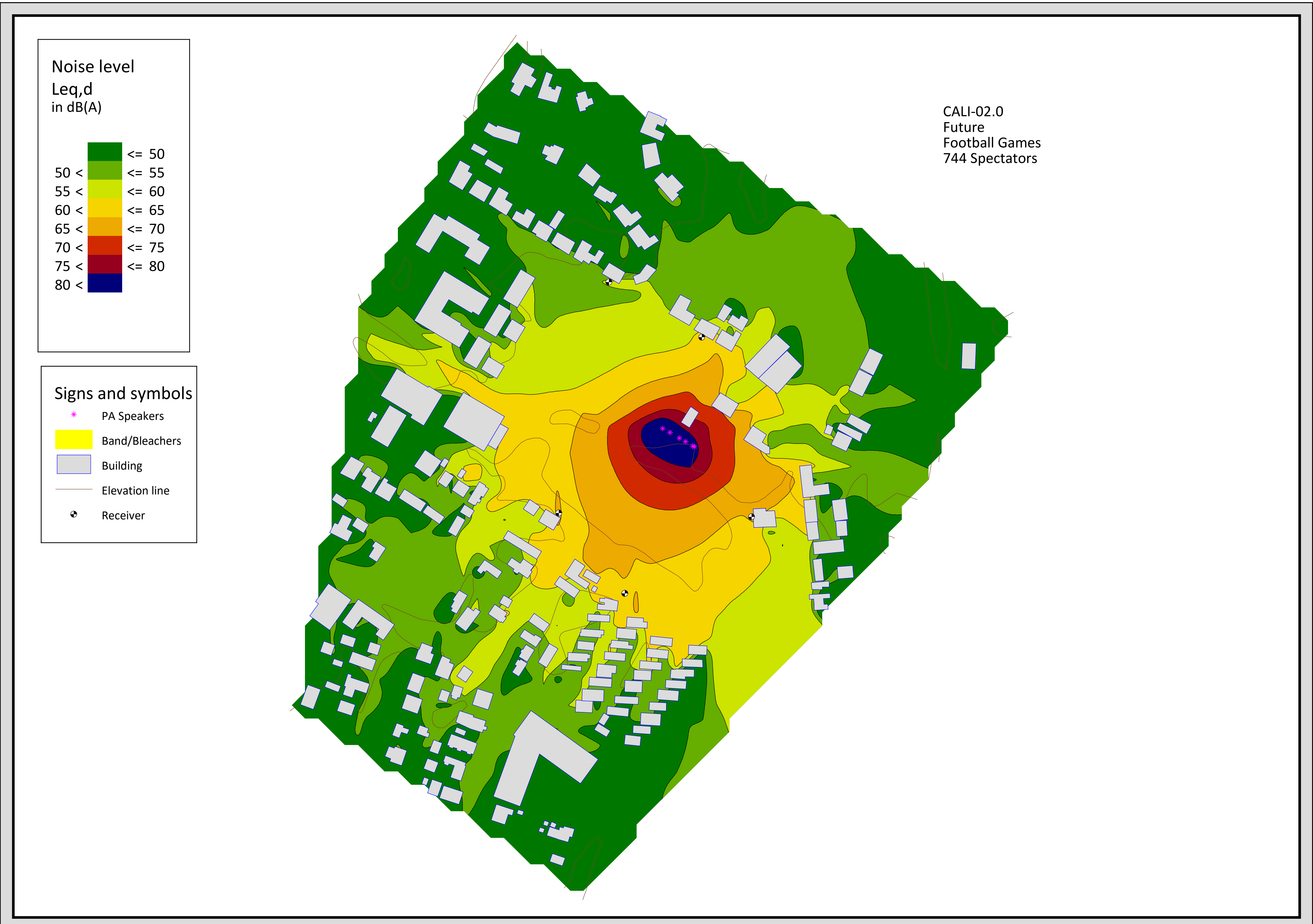
Name	Source type	I or A m,m²	L'w dB(A)	Lw dB(A)	KI dB	KT dB	DO-Wall dB	Day histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)	16kHz dB(A)
Band	Area	39.34	99.1	115.0	0.0	0.0	0	Band during Game 20% = 12 minutes	Live bands (Pop, Rock, Metal)	100.5	100.0	104.6	109.5	110.3	106.9	102.2	94.7	76.6
Bleacher 300	Area	376.79	78.9	104.7	0.0	0.0	0	Crowd during Game 10 min 60*10 sec	American Football, Spectators`s area		78.7	93.8	101.6	97.6	97.3	90.9	81.8	
Speaker-4	Point		116.0	116.0	0.0	0.0	0	Speaker during Game 12 min 36*20 sec	Average Spectrum from 2022-10-07 Survey	87.7	102.3	105.1	110.7	111.4	108.2	103.0	96.7	75.3
Speaker-5	Point		116.0	116.0	0.0	0.0	0	Speaker during Game 12 min 36*20 sec	Average Spectrum from 2022-10-07 Survey	87.7	102.3	105.1	110.7	111.4	108.2	103.0	96.7	75.3
Speaker-5	Point		116.0	116.0	0.0	0.0	0	Speaker during Game 12 min 36*20 sec	Average Spectrum from 2022-10-07 Survey	87.7	102.3	105.1	110.7	111.4	108.2	103.0	96.7	75.3
Speaker 1	Point		116.0	116.0	0.0	0.0	0	Speaker during Game 12 min 36*20 sec	Average Spectrum from 2022-10-07 Survey	87.7	102.3	105.1	110.7	111.4	108.2	103.0	96.7	75.3
Speaker 2	Point		116.0	116.0	0.0	0.0	0	Speaker during Game 12 min 36*20 sec	Average Spectrum from 2022-10-07 Survey	87.7	102.3	105.1	110.7	111.4	108.2	103.0	96.7	75.3
Speaker 3	Point		116.0	116.0	0.0	0.0	0	Speaker during Game 12 min 36*20 sec	Average Spectrum from 2022-10-07 Survey	87.7	102.3	105.1	110.7	111.4	108.2	103.0	96.7	75.3

Calistoga JR/SR High School Field Improvements Hourly sound power level in dB(A)

CALI-02.0 - Future Football Games - 300 Spectators

5

Name	0-1 o'clock dB(A)	1-2 o'clock dB(A)	2-3 o'clock dB(A)	3-4 o'clock dB(A)	4-5 o'clock dB(A)	5-6 o'clock dB(A)	6-7 o'clock dB(A)	7-8 o'clock dB(A)	8-9 o'clock dB(A)	9-10 o'clock dB(A)	10-11 o'clock dB(A)	11-12 o'clock dB(A)	12-13 o'clock dB(A)	13-14 o'clock dB(A)	14-15 o'clock dB(A)	15-16 o'clock dB(A)	16-17 o'clock dB(A)	17-18 o'clock dB(A)	18-19 o'clock dB(A)	19-20 o'clock dB(A)	20-21 o'clock dB(A)	21-22 o'clock dB(A)	22-23 o'clock dB(A)	23-24 o'clock dB(A)
Band	108.0	108.0	108.0	108.0	108.0	108.0	108.0	108.0	108.0	108.0	108.0	108.0	108.0	108.0	108.0	108.0	108.0	108.0	108.0	108.0	108.0	108.0	108.0	108.0
Bleacher 300	96.9	96.9	96.9	96.9	96.9	96.9	96.9	96.9	96.9	96.9	96.9	96.9	96.9	96.9	96.9	96.9	96.9	96.9	96.9	96.9	96.9	96.9	96.9	96.9
Speaker-4	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0
Speaker-5	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0
Speaker-5	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0
Speaker 1	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0
Speaker 2	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0
Speaker 3	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0


Noise level
Leq,d
in dB(A)
<= 50
50 < <= 55
55 < <= 60
60 < <= 65
65 < <= 70
70 < <= 75
75 < <= 80
80 <
Signs and symbols
PA Speakers
Band/Bleachers
Building
Elevation line
Receiver
CALI-02.0
Future
Football Games
744 Spectators

Calistoga JR/SR High School Field Improvements
Assessed receiver levels
CALI-02.0 - Future Football Games - 774 Spectators

2

Receiver	Usage	Leq,d dB(A)	Leq,n dB(A)	
ST-1	SCR	65.8	65.8	
ST-2	SCR	65.1	65.1	
ST-3	SCR	66.6	66.6	
ST-4	SCR	61.7	61.7	
ST-5	SCR	55.8	55.8	

PlaceWorks 3 MacArthur Place, Ste 1100 Santa Ana, CA 92707 USA

Calistoga JR/SR High School Field Improvements
Contribution level
CALI-02.0 - Future Football Games - 774 Spectators

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Source	Source group	Source ty	Leq,d dB(A)	Leq,n dB(A)
Receiver ST-1 Fl G dB(A) Lr,lim dB(A) Lr,lim dB(A) Ldn 72.2 dB(A) Leq,d 65.8 dB(A) Leq,n 65.8 dB(A)				
Band	Band Noise	Area	59.9	59.9
Speaker 3	Speakers	Point	56.8	56.8
Speaker-5	Speakers	Point	55.8	55.8
Bleacher 744	Crowd Noise	Area	52.5	52.5
Speaker-4	Speakers	Point	56.4	56.4
Speaker 2	Speakers	Point	57.2	57.2
Speaker 1	Speakers	Point	57.3	57.3
Speaker-5	Speakers	Point	54.9	54.9
Receiver ST-2 Fl G dB(A) Lr,lim dB(A) Lr,lim dB(A) Ldn 71.5 dB(A) Leq,d 65.1 dB(A) Leq,n 65.1 dB(A)				
Band	Band Noise	Area	57.2	57.2
Speaker 3	Speakers	Point	56.5	56.5
Speaker-5	Speakers	Point	57.4	57.4
Bleacher 744	Crowd Noise	Area	50.5	50.5
Speaker-4	Speakers	Point	56.8	56.8
Speaker 2	Speakers	Point	56.1	56.1
Speaker 1	Speakers	Point	54.4	54.4
Speaker-5	Speakers	Point	56.1	56.1
Receiver ST-3 Fl G dB(A) Lr,lim dB(A) Lr,lim dB(A) Ldn 73.0 dB(A) Leq,d 66.6 dB(A) Leq,n 66.6 dB(A)				
Band	Band Noise	Area	60.1	60.1
Speaker 3	Speakers	Point	56.7	56.7
Speaker-5	Speakers	Point	59.0	59.0
Bleacher 744	Crowd Noise	Area	55.9	55.9
Speaker-4	Speakers	Point	57.6	57.6
Speaker 2	Speakers	Point	55.9	55.9
Speaker 1	Speakers	Point	57.3	57.3
Speaker-5	Speakers	Point	56.1	56.1
Receiver ST-4 Fl G dB(A) Lr,lim dB(A) Lr,lim dB(A) Ldn 68.2 dB(A) Leq,d 61.7 dB(A) Leq,n 61.7 dB(A)				
Band	Band Noise	Area	52.6	52.6
Speaker 3	Speakers	Point	53.8	53.8
Speaker-5	Speakers	Point	53.8	53.8
Bleacher 744	Crowd Noise	Area	46.3	46.3
Speaker-4	Speakers	Point	53.7	53.7
Speaker 2	Speakers	Point	53.5	53.5
Speaker 1	Speakers	Point	53.1	53.1
Speaker-5	Speakers	Point	51.2	51.2
Receiver ST-5 Fl G dB(A) Lr,lim dB(A) Lr,lim dB(A) Ldn 62.2 dB(A) Leq,d 55.8 dB(A) Leq,n 55.8 dB(A)				
Band	Band Noise	Area	49.6	49.6
Speaker 3	Speakers	Point	47.2	47.2
Speaker-5	Speakers	Point	46.4	46.4

Calistoga JR/SR High School Field Improvements
Contribution level - Football 744

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Source	Source group	Source ty	Leq,d dB(A)	Leq,n dB(A)
Bleacher 744	Crowd Noise	Area	39.1	39.1
Speaker-4	Speakers	Point	47.1	47.1
Speaker 2	Speakers	Point	47.3	47.3
Speaker 1	Speakers	Point	46.7	46.7
Speaker-5	Speakers	Point	45.0	45.0

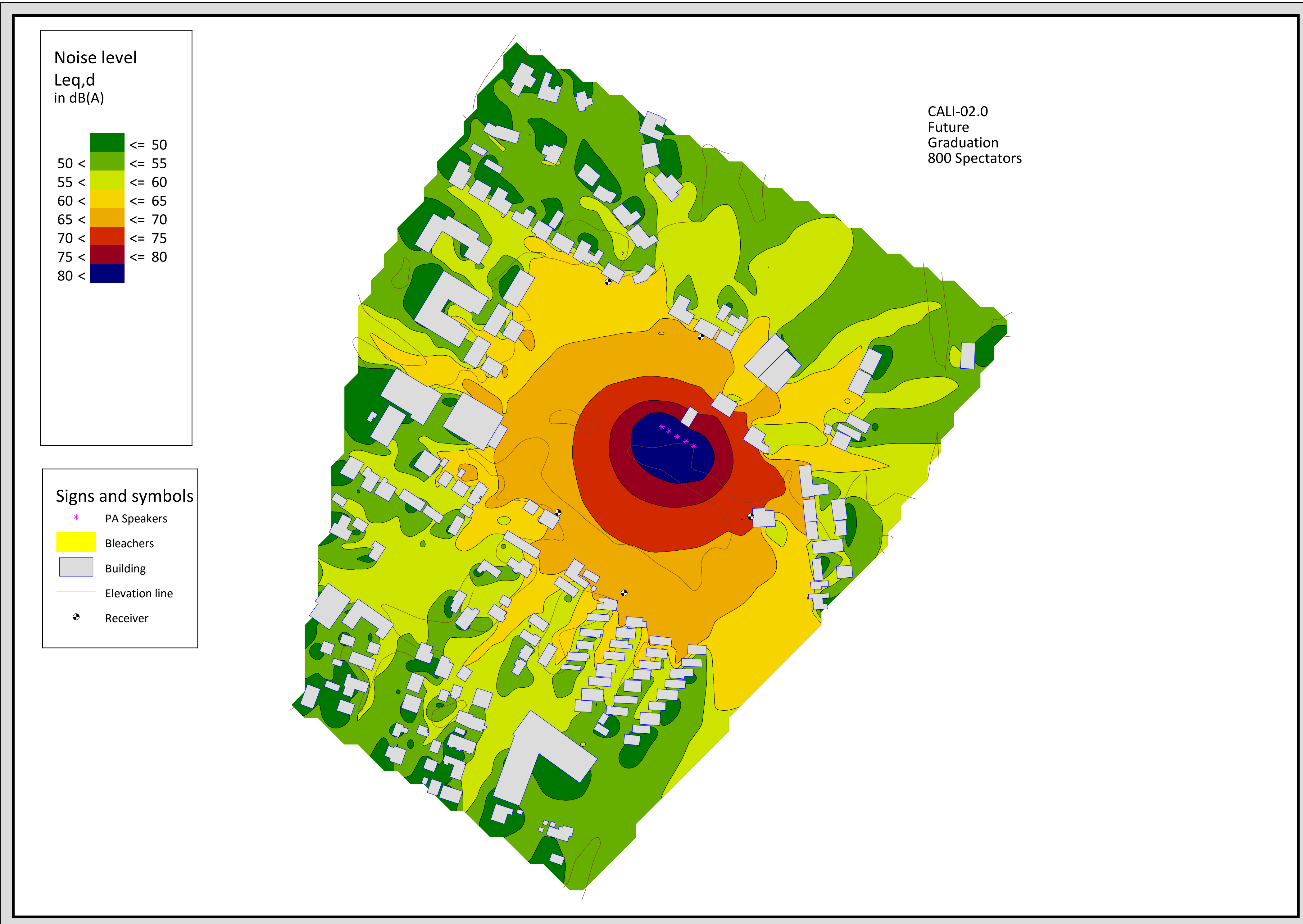
Calistoga JR/SR High School Field Improvements
Octave spectra of the sources in dB(A)
CALI-02.0 - Future Football Games - 774 Spectators

Name	Source type	I or A	L'w	Lw	KI	KT	Day histogram	Emission spectrum	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	16kHz
		m,m²	dB(A)	dB(A)	dB	dB			dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
Band	Area	39.34	99.1	115.0	0.0	0.0	Band during Game 20% = 12 minutes	Live bands (Pop, Rock, Metal)	100.5	100.0	104.6	109.5	110.3	106.9	102.2	94.7	76.6
Bleacher 744	Area	376.79	82.9	108.7	0.0	0.0	Crowd during Game 10 min 60*10 sec	American Football, Spectators`s area		82.7	97.8	105.6	101.6	101.3	94.9	85.8	
Speaker-4	Point		116.0	116.0	0.0	0.0	Speaker during Game 12 min 36*20 sec	Average Spectrum from 2022-10-07 Survey	87.7	102.3	105.1	110.7	111.4	108.2	103.0	96.7	75.3
Speaker-5	Point		116.0	116.0	0.0	0.0	Speaker during Game 12 min 36*20 sec	Average Spectrum from 2022-10-07 Survey	87.7	102.3	105.1	110.7	111.4	108.2	103.0	96.7	75.3
Speaker-5	Point		116.0	116.0	0.0	0.0	Speaker during Game 12 min 36*20 sec	Average Spectrum from 2022-10-07 Survey	87.7	102.3	105.1	110.7	111.4	108.2	103.0	96.7	75.3
Speaker 1	Point		116.0	116.0	0.0	0.0	Speaker during Game 12 min 36*20 sec	Average Spectrum from 2022-10-07 Survey	87.7	102.3	105.1	110.7	111.4	108.2	103.0	96.7	75.3
Speaker 2	Point		116.0	116.0	0.0	0.0	Speaker during Game 12 min 36*20 sec	Average Spectrum from 2022-10-07 Survey	87.7	102.3	105.1	110.7	111.4	108.2	103.0	96.7	75.3
Speaker 3	Point		116.0	116.0	0.0	0.0	Speaker during Game 12 min 36*20 sec	Average Spectrum from 2022-10-07 Survey	87.7	102.3	105.1	110.7	111.4	108.2	103.0	96.7	75.3

Calistoga JR/SR High School Field Improvements Hourly sound power level in dB(A)
CALI-02.0 - Future Football Games - 774 Spectators

5

Name	0-1 o'clock dB(A)	1-2 o'clock dB(A)	2-3 o'clock dB(A)	3-4 o'clock dB(A)	4-5 o'clock dB(A)	5-6 o'clock dB(A)	6-7 o'clock dB(A)	7-8 o'clock dB(A)	8-9 o'clock dB(A)	9-10 o'clock dB(A)	10-11 o'clock dB(A)	11-12 o'clock dB(A)	12-13 o'clock dB(A)	13-14 o'clock dB(A)	14-15 o'clock dB(A)	15-16 o'clock dB(A)	16-17 o'clock dB(A)	17-18 o'clock dB(A)	18-19 o'clock dB(A)	19-20 o'clock dB(A)	20-21 o'clock dB(A)	21-22 o'clock dB(A)	22-23 o'clock dB(A)	23-24 o'clock dB(A)
Band	108.0	108.0	108.0	108.0	108.0	108.0	108.0	108.0	108.0	108.0	108.0	108.0	108.0	108.0	108.0	108.0	108.0	108.0	108.0	108.0	108.0	108.0	108.0	108.0
Bleacher 744	100.9	100.9	100.9	100.9	100.9	100.9	100.9	100.9	100.9	100.9	100.9	100.9	100.9	100.9	100.9	100.9	100.9	100.9	100.9	100.9	100.9	100.9	100.9	100.9
Speaker-4	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0
Speaker-5	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0
Speaker-5	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0
Speaker 1	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0
Speaker 2	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0
Speaker 3	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0


Noise level
Leq,d
in dB(A)
<= 50
50 < <= 55
55 < <= 60
60 < <= 65
65 < <= 70
70 < <= 75
75 < <= 80
80 <
Signs and symbols
PA Speakers
Bleachers
Building
Elevation line
Receiver
CALI-02.0
Future
Graduation
800 Spectators

Calistoga JR/SR High School Field Improvements
Assessed receiver levels
CALI-02.0 - Graduation - 800 Spectators

2

Receiver	Usage	Fl	Leq,d dB(A)	Leq,n dB(A)	
ST-1	SCR	G	69.9	69.9	
ST-2	SCR	G	67.5	67.5	
ST-3	SCR	G	72.1	72.1	
ST-4	SCR	G	68.1	68.1	
ST-5	SCR	G	63.9	63.9	

Calistoga JR/SR High School Field Improvements
Contribution level
CALI-02.0 - Graduation - 800 Spectators

Source	Source group	Source ty	Tr. lane	Leq,d dB(A)	Leq,n dB(A)	A dB
Receiver ST-1 Fl G Lr,lim dB(A) Lr,lim dB(A) Leq,d 69.9 dB(A) Leq,n 69.9 dB(A)						
Speaker-5	Speakers	Point		54.9	54.9	0.0
Grad Bleachers	Crowd Noise	Area		68.9	68.9	0.0
Speaker-2	Speakers	Point		56.4	56.4	0.0
Speaker-3	Speakers	Point		56.0	56.0	0.0
Speaker-1	Speakers	Point		56.9	56.9	0.0
Speaker-4	Speakers	Point		55.4	55.4	0.0
Receiver ST-2 Fl G Lr,lim dB(A) Lr,lim dB(A) Leq,d 67.5 dB(A) Leq,n 67.5 dB(A)						
Speaker-5	Speakers	Point		57.4	57.4	0.0
Grad Bleachers	Crowd Noise	Area		65.2	65.2	0.0
Speaker-2	Speakers	Point		56.5	56.5	0.0
Speaker-3	Speakers	Point		56.9	56.9	0.0
Speaker-1	Speakers	Point		55.2	55.2	0.0
Speaker-4	Speakers	Point		57.1	57.1	0.0
Receiver ST-3 Fl G Lr,lim dB(A) Lr,lim dB(A) Leq,d 72.1 dB(A) Leq,n 72.1 dB(A)						
Speaker-5	Speakers	Point		59.0	59.0	0.0
Grad Bleachers	Crowd Noise	Area		71.4	71.4	0.0
Speaker-2	Speakers	Point		55.5	55.5	0.0
Speaker-3	Speakers	Point		56.7	56.7	0.0
Speaker-1	Speakers	Point		55.0	55.0	0.0
Speaker-4	Speakers	Point		57.9	57.9	0.0
Receiver ST-4 Fl G Lr,lim dB(A) Lr,lim dB(A) Leq,d 68.1 dB(A) Leq,n 68.1 dB(A)						
Speaker-5	Speakers	Point		56.1	56.1	0.0
Grad Bleachers	Crowd Noise	Area		66.2	66.2	0.0
Speaker-2	Speakers	Point		56.9	56.9	0.0
Speaker-3	Speakers	Point		56.9	56.9	0.0
Speaker-1	Speakers	Point		56.9	56.9	0.0
Speaker-4	Speakers	Point		56.5	56.5	0.0
Receiver ST-5 Fl G Lr,lim dB(A) Lr,lim dB(A) Leq,d 63.9 dB(A) Leq,n 63.9 dB(A)						
Speaker-5	Speakers	Point		46.7	46.7	0.0
Grad Bleachers	Crowd Noise	Area		63.3	63.3	0.0
Speaker-2	Speakers	Point		47.6	47.6	0.0
Speaker-3	Speakers	Point		47.4	47.4	0.0
Speaker-1	Speakers	Point		47.8	47.8	0.0
Speaker-4	Speakers	Point		47.1	47.1	0.0

Calistoga JR/SR High School Field Improvements
Octave spectra of the sources in dB(A)
CALI-02.0 - Graduation - 800 Spectators

Name	Source type	I or A m,m²	L'w dB(A)	Lw dB(A)	KI dB	KT dB	Day histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)	16kHz dB(A)
Grad Bleachers	Area	444.03	109.0	135.5	0.0	0.0	Grad Crowd Noise 2%	Spectator area (seats)				135.5					
Speaker-1	Point		116.0	116.0	0.0	0.0	Speaker during Game 12 min 36*20 sec	Average Spectrum from 2022-10-07 Survey	87.7	102.3	105.1	110.7	111.4	108.2	103.0	96.7	75.3
Speaker-2	Point		116.0	116.0	0.0	0.0	Speaker during Game 12 min 36*20 sec	Average Spectrum from 2022-10-07 Survey	87.7	102.3	105.1	110.7	111.4	108.2	103.0	96.7	75.3
Speaker-3	Point		116.0	116.0	0.0	0.0	Speaker during Game 12 min 36*20 sec	Average Spectrum from 2022-10-07 Survey	87.7	102.3	105.1	110.7	111.4	108.2	103.0	96.7	75.3
Speaker-4	Point		116.0	116.0	0.0	0.0	Speaker during Game 12 min 36*20 sec	Average Spectrum from 2022-10-07 Survey	87.7	102.3	105.1	110.7	111.4	108.2	103.0	96.7	75.3
Speaker-5	Point		116.0	116.0	0.0	0.0	Speaker during Game 12 min 36*20 sec	Average Spectrum from 2022-10-07 Survey	87.7	102.3	105.1	110.7	111.4	108.2	103.0	96.7	75.3

Calistoga JR/SR High School Field Improvements
Hourly sound power level in dB(A)
CALI-02.0 - Graduation - 800 Spectators

5

Name	0-1 o'clock dB(A)	1-2 o'clock dB(A)	2-3 o'clock dB(A)	3-4 o'clock dB(A)	4-5 o'clock dB(A)	5-6 o'clock dB(A)	6-7 o'clock dB(A)	7-8 o'clock dB(A)	8-9 o'clock dB(A)	9-10 o'clock dB(A)	10-11 o'clock dB(A)	11-12 o'clock dB(A)	12-13 o'clock dB(A)	13-14 o'clock dB(A)	14-15 o'clock dB(A)	15-16 o'clock dB(A)	16-17 o'clock dB(A)	17-18 o'clock dB(A)	18-19 o'clock dB(A)	19-20 o'clock dB(A)	20-21 o'clock dB(A)	21-22 o'clock dB(A)	22-23 o'clock dB(A)	23-24 o'clock dB(A)
Grad Bleachers	118.5	118.5	118.5	118.5	118.5	118.5	118.5	118.5	118.5	118.5	118.5	118.5	118.5	118.5	118.5	118.5	118.5	118.5	118.5	118.5	118.5	118.5	118.5	118.5
Speaker-1	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0
Speaker-2	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0
Speaker-3	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0
Speaker-4	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0
Speaker-5	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0	109.0

PlaceWorks 3 MacArthur Place, Ste 1100 Santa Ana, CA 92707 USA

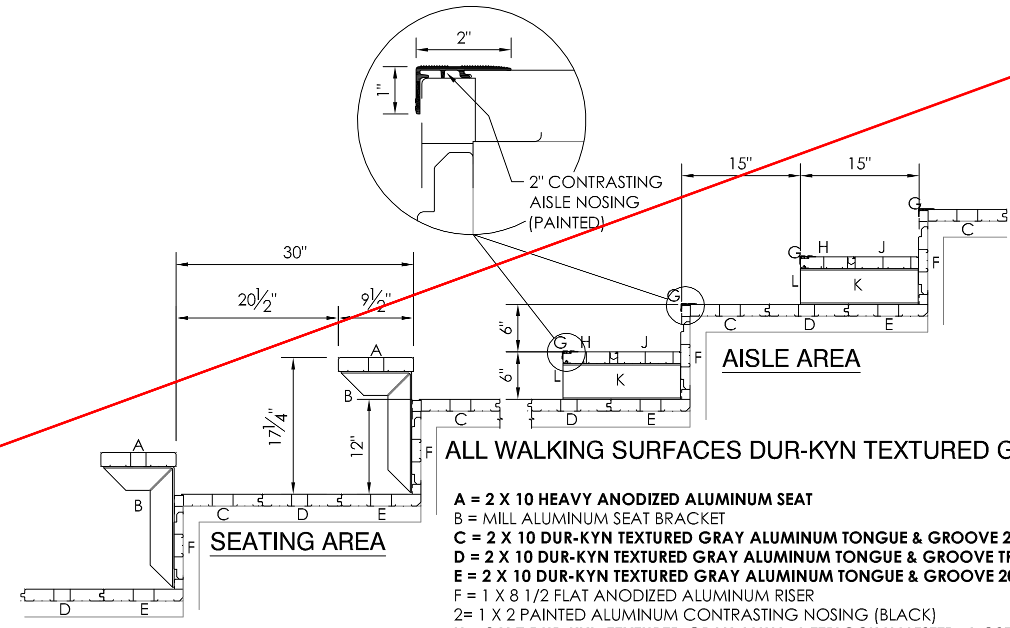
SoundPLAN 9.1

DESIGN LOADING

TREAD & SEAT AREA 100psf UNIFORM LIVE LOAD
SEAT (VERTICAL) 120 lbs/lf.
SEAT (HORIZONTAL SWAY) 24lbs/lf PARALLEL AND 10lbs/lf PERPENDICULAR TO SEAT
HANDRAIL & GUARDRAIL 50 lbs/lf IN ANY DIRECTION
HANDRAIL & GUARDRAIL 200 lbs CONCENTRATED IN ANY DIRECTION
SNOW LOADS: AS PER STATE ADOPTED CODE
WIND LOADS: AS PER STATE ADOPTED CODE
SEISMIC LOADS: AS PER STATE ADOPTED CODE
STAIR TREADS & AISLE TREADS RESIST MINIMUM CONCENTRATED LOAD OF 300 POUNDS ON AN AREA OF 4 SQUARE INCHES

NOTES

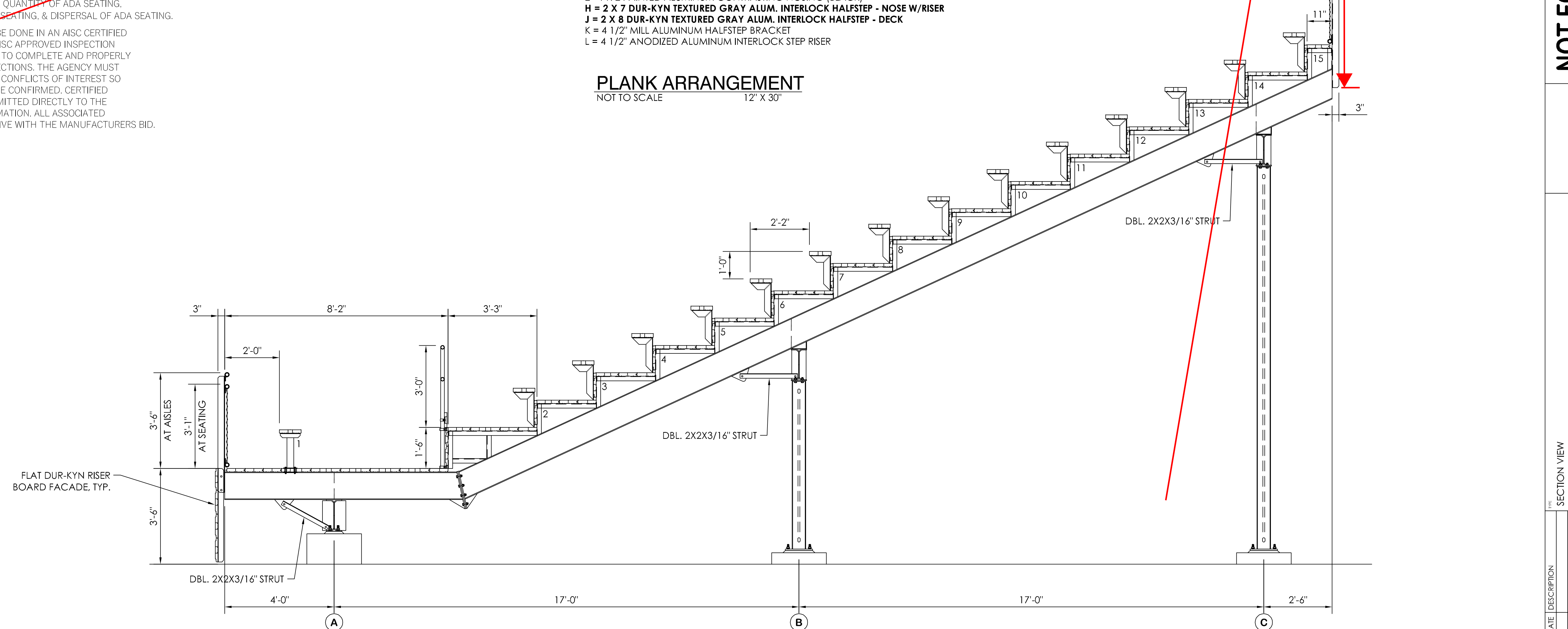
1. STRUCTURAL SHAPES MEET ONE OF THE FOLLOWING ASTM SPECIFICATIONS: A36, A36/A572 GRADE 50, A572 GRADE 50, A529-50, OR A500 GRADE B.
2. WELDS ARE ALL AROUND WITH TYPE ER70S-6 WIRE MIG.
3. ALL STEEL TO BE HOT DIPPED GALVANIZED TO A.S.T.M. A-123-89 ae1.
4. STRUCTURAL BOLTS ARE HOT DIPPED GALV. AND ARE EQUAL TO OR GREATER THAN A-307.
5. NO CONNECTIONS UTILIZING HIGH STRENGTH BOLTS ARE CLASSED AS SLIP CRITICAL.
6. ANODIZED ALUMINUM RAIL IS 1 1/4" NOMINAL PIPE SIZE. (1 5/8" O.D.)
7. SOUTHERN BLEACHER COMPANY AS A MANUFACTURER AND INSTALLER OF GRANDSTAND SEATING IS NOT AUTHORIZED TO CERTIFY PLANS AS ADA COMPLIANT. HOWEVER, TO THE BEST OF OUR KNOWLEDGE THESE PLANS MEET OR EXCEED ADA REQUIREMENTS FOR QUANTITY OF ADA SEATING, ACCESS/EGRESS TO ADA SEATING, & DISPERSAL OF ADA SEATING.
8. STEEL FABRICATION TO BE DONE IN AN AISC CERTIFIED PLANT. A THIRD PARTY AISC APPROVED INSPECTION AGENCY MUST BE HIRED TO COMPLETE AND PROPERLY DOCUMENT THESE INSPECTIONS. THE AGENCY MUST DISCLOSE ANY POSSIBLE CONFLICTS OF INTEREST SO THAT OBJECTIVITY CAN BE CONFIRMED. CERTIFIED REPORTS SHALL BE SUBMITTED DIRECTLY TO THE ARCHITECT FOR CONFIRMATION. ALL ASSOCIATED COSTS SHALL BE INCLUSIVE WITH THE MANUFACTURERS BID.



ALL WALKING SURFACES DUR-KYN TEXTURED GRAY

A = 2 X 10 HEAVY ANODIZED ALUMINUM SEAT
B = MILL ALUMINUM SEAT BRACKET
C = 2 X 10 DUR-KYN TEXTURED GRAY ALUMINUM TONGUE & GROOVE 2001 TREAD - NOSE
D = 2 X 10 DUR-KYN TEXTURED GRAY ALUMINUM TONGUE & GROOVE TREAD (#69430)
E = 2 X 10 DUR-KYN TEXTURED GRAY ALUMINUM TONGUE & GROOVE 2001 TREAD - HEEL
F = 1 X 8 1/2 FLAT ANODIZED ALUMINUM RISER
2= 1 X 2 PAINTED ALUMINUM CONTRASTING NOSING (BLACK)
H = 2 X 7 DUR-KYN TEXTURED GRAY ALUM. INTERLOCK HALFSTEP - NOSE W/RISER
J = 2 X 8 DUR-KYN TEXTURED GRAY ALUM. INTERLOCK HALFSTEP - DECK
K = 4 1/2" MILL ALUMINUM HALFSTEP BRACKET
L = 4 1/2" ANODIZED ALUMINUM INTERLOCK STEP RISER

PLANK ARRANGEMENT
NOT TO SCALE 12" X 30"



SECTION VIEW
SCALE:1/2"=1'-0"

NOT FOR CONSTR

DETAIL NUMBER
SHEET NUMBER

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Southern® BLEACHER COMPANY
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PO Box One, Graham, Texas 76450
801 Fifth Street.
Phone: 940/549-0733 Fax: 940/549-1365
Established 1946

SECTION VIEW
12" RISE X 26" TREAD / 97'-6" (14 ROWS)

CALISTOGA JT. UNIFIED SCHOOL DISTRICT
CALISTOGA HS
CALISTOGA, CALIFORNIA

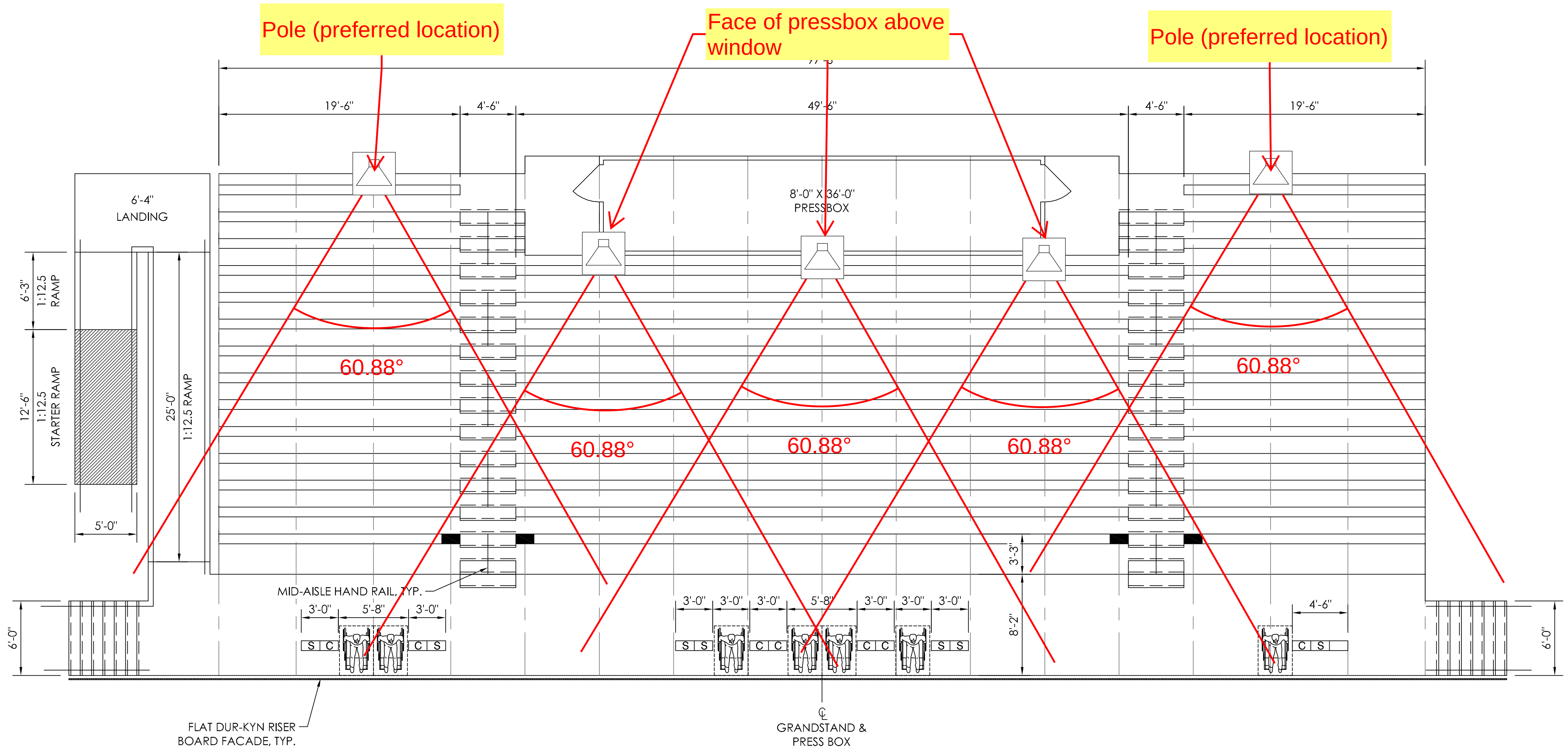
REV	BY	DATE	DESCRIPTION

DATE	DRAWN	CHECKED
1/2/23	TDW	DM

JOB NUMBER #23sd287

SHEET 1 OF 5

22" X 34" (11x17 = 1/2 indicated scale)



SEATING LAYOUT

SCALE:3/16"=1'-0"

724 TOTAL NET 18" SEATS
7 TOTAL NET 34" WHEELCHAIR SPACES C
7 TOTAL NET 18" COMPANION SEATS = C
7 TOTAL NET 18" SEMI-AMBULANT SEATS = S
4 TOTAL NET 18" AISLE SEATS =
749 TOTAL SEATING CAPACITY

DETAIL NUMBER
SHEET NUMBER

NOT FOR CONSTRUCTION

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CALISTOGA, CALIFORNIA

REV	BY	DATE	DESCRIPTION

DATE	DRAWN	CHECKED
1/2/23	TDW	DM

JOB NUMBER #23sd287

SHEET 4 OF 5

22" X 34" (11x17 = 1/2 indicated scale)

R SERIES

Premium Music

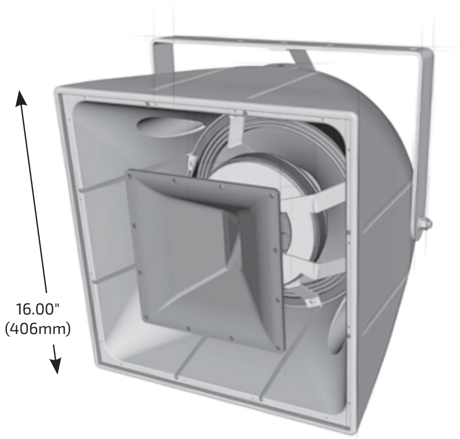
R.5-66MAX

HIGH OUTPUT FULL-RANGE 60° x 60° WEATHER-RESISTANT LOUDSPEAKER

Community®

4 EA. Biamp R.5-66MAX speakers mounted on poles and press box approx. 8' above the top of the bleacher structure. The speakers will be aimed primarily down at the seating area, not out to the field.

Amplification is 2 EA. Biamp ALC 1604D



Light Grey, Black and White (standard) shown with grille off

APPLICATIONS

MAIN PA ELEMENT *(Small to Large Size Venues)*

Arenas · Stadiums · Racetracks · Theme Parks
Amusement Parks · Outdoor Entertainment Centers
Convention Centers · Fairgrounds · Air Shows
Rodeos · Multipurpose Outdoor and Indoor Venues
Portable Sound Systems

DESCRIPTION

The R.5-66MAX is a two-way, full-range loudspeaker system designed to provide high quality voice and music reproduction in applications requiring extreme weather resistance. It is designed to withstand long-term exposure to tough, environmental conditions and to provide high output performance.

The R.5-66MAX has a 1.4-inch (36 mm) exit HF compression driver and a 12-inch (305 mm) cone 600W neodymium LF driver. The HF assembly is coaxially mounted with the LF driver allowing 60° x 60° coverage with low distortion. The system has been designed to provide a flat response with slightly rising HF.

The R.5-66MAX can act as both a musical entertainment loudspeaker and a voice PA loudspeaker simultaneously. Each system is backed by Community's five-year product warranty and fifteen-year enclosure warranty.

FEATURES

- Low distortion, high quality musicality, excellent speech intelligibility in a compact enclosure
- High sensitivity, high output (132 dB max)
- Weather-resistant, rotomolded UV resistant enclosure
- Weather-resistant grille and drivers, and moisture-sealed crossover
- Five-year product warranty / Fifteen-year enclosure warranty

TECHNICAL SPECIFICATIONS[1]			
Operating Mode	Passive with DSP		
Operating Environment	Indoor / Continuous outdoor direct exposure		
Operating Range[2]	85 Hz to 21.8 kHz		
Nominal Beamwidth (H x V)	60° x 60°		
Transducers	LF 1 x 12" (305mm) inherently weather-resistant cone with 3" voice coil, neodymium motor and aluminum demodulation ring HF – 1 x 1.4" exit compression, 2.87" voice coil, copper shorting ring, titanium diaphragm with mylar surround		
Continuous Power Handling[3] @ Nominal Impedance	Passive*	69V	600W @ 8 ohms (2400W peak)
Nominal Sensitivity[4]	Passive	@ 1W 104 dB	@ 2.83V 104 dB
Nominal Maximum SPL[5] (Whole Space)	Passive	Peak 138 dB	Continuous 132 dB
Equalized Sensitivity[6]	System	@ 1W 102 dB	@ 2.83V 102 dB
Equalized Maximum SPL[7]	System	Peak 136 dB	Continuous 130 dB
Recommended Amplifiers	Passive	600W - 1200W @ 8 ohms, (69V - 98V)	
PHYSICAL			
Input Connection	12' (3.6m) SJOW #16 cable		
Mounting Points	(5) 3/8"-16 threaded rigging points, Steel zinc-rich epoxy dual-layer powder-coated bracket; Aluminum aiming strap to secure angle		
Environmental	IP55 per IEC 60529, conforms with MIL-STD-810G		
Dimensions H x W x D	16.00" x 16.00" x 16.19" (406 x 406 x 411 mm)		
Weight	47 lbs (21.3 kg) loudspeaker and yoke		
Finish	Refer to the Technical Drawing (page 4)		
OPTIONS			
Accessories	Pole Mount Bracket: PMB-1RR or PMB-2RR External 400W Transformer (70V/100V): 70V - 400W / 200W / 100W; 100V - 400W / 200W		
Configure-to-Order (CTO)	Custom color: Exterior grade paint finish, customer defined RAL# Custom cable length and gauge		

Community strives to improve its products on a continual basis. Specifications are therefore subject to change without notice.

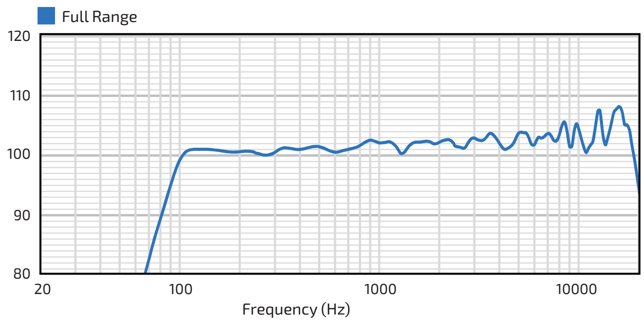
R SERIES Premium Music

R.5-66MAX

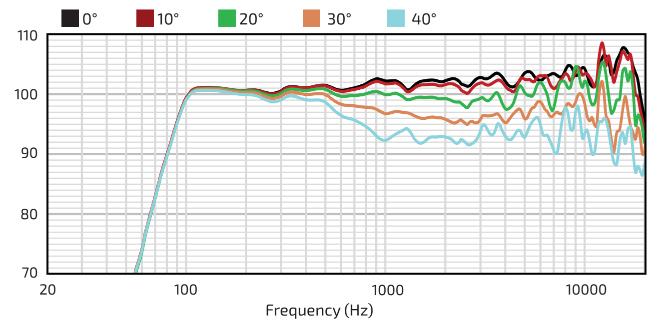
HIGH OUTPUT FULL-RANGE 60° x 60°
WEATHER-RESISTANT LOUDSPEAKER

Community®

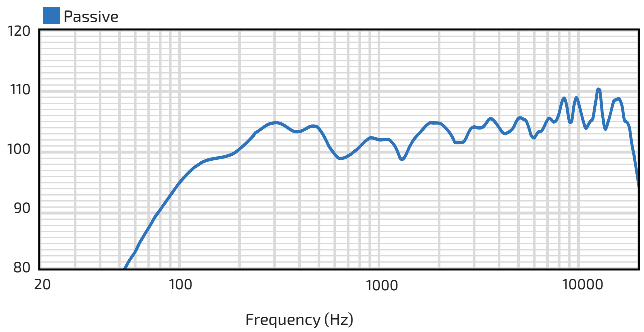
AXIAL PROCESSED RESPONSE (dB)[8]



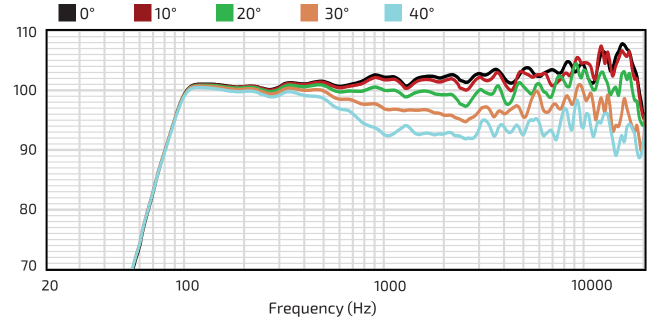
HORIZONTAL OFF-AXIS RESPONSE (dB)[10]



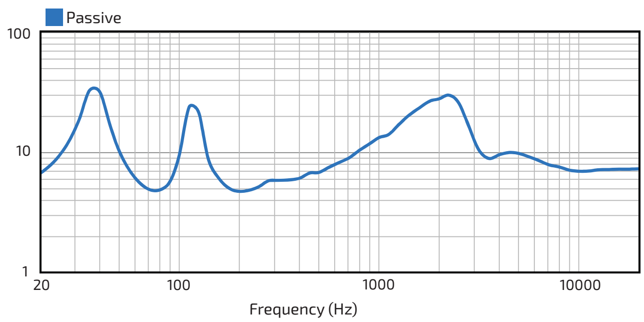
AXIAL SENSITIVITY (dB SPL)[9]



VERTICAL OFF-AXIS UP RESPONSE (dB)[10]

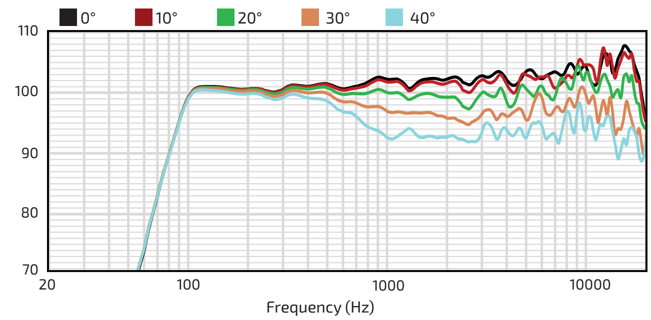


IMPEDANCE (Ohms)

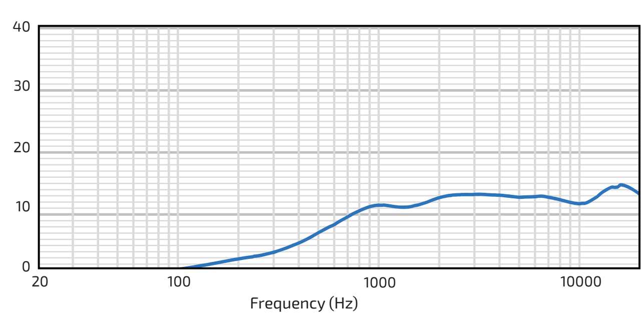


Minimum Impedance: **(Passive)** 4.8 ohms @ 200 Hz

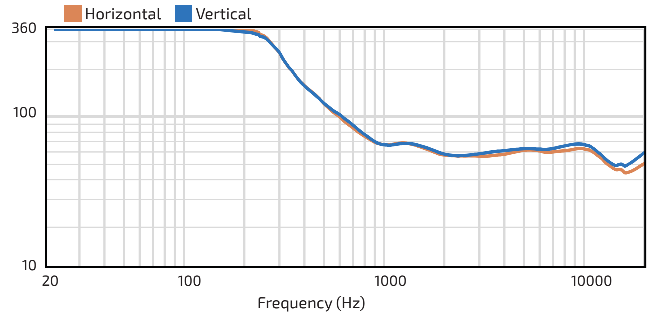
VERTICAL OFF-AXIS DOWN RESPONSE (dB)[10]



DIRECTIVITY INDEX (dB)[11]



BEAMWIDTH (Degrees)[12]

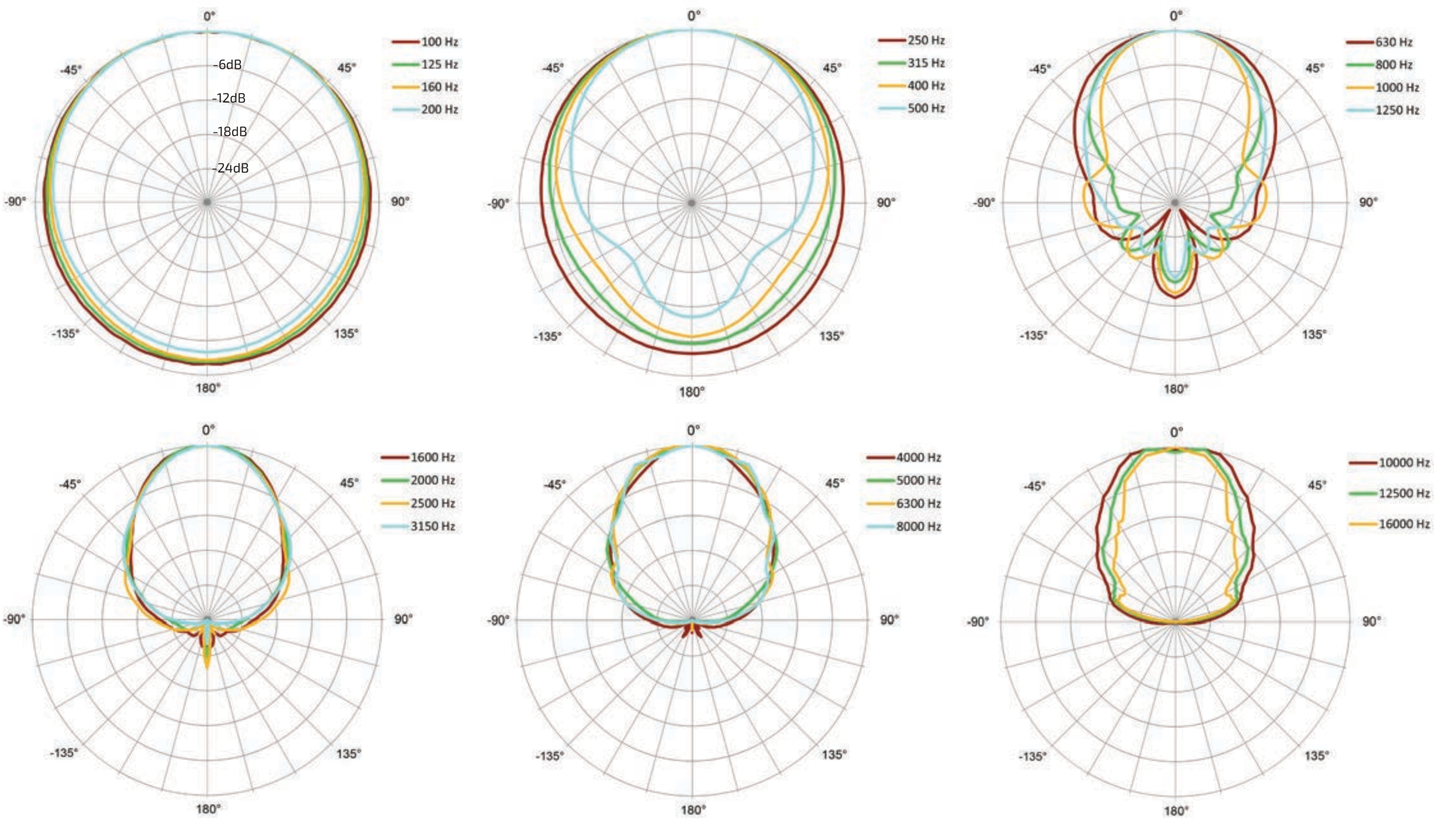


R.5-66MAX

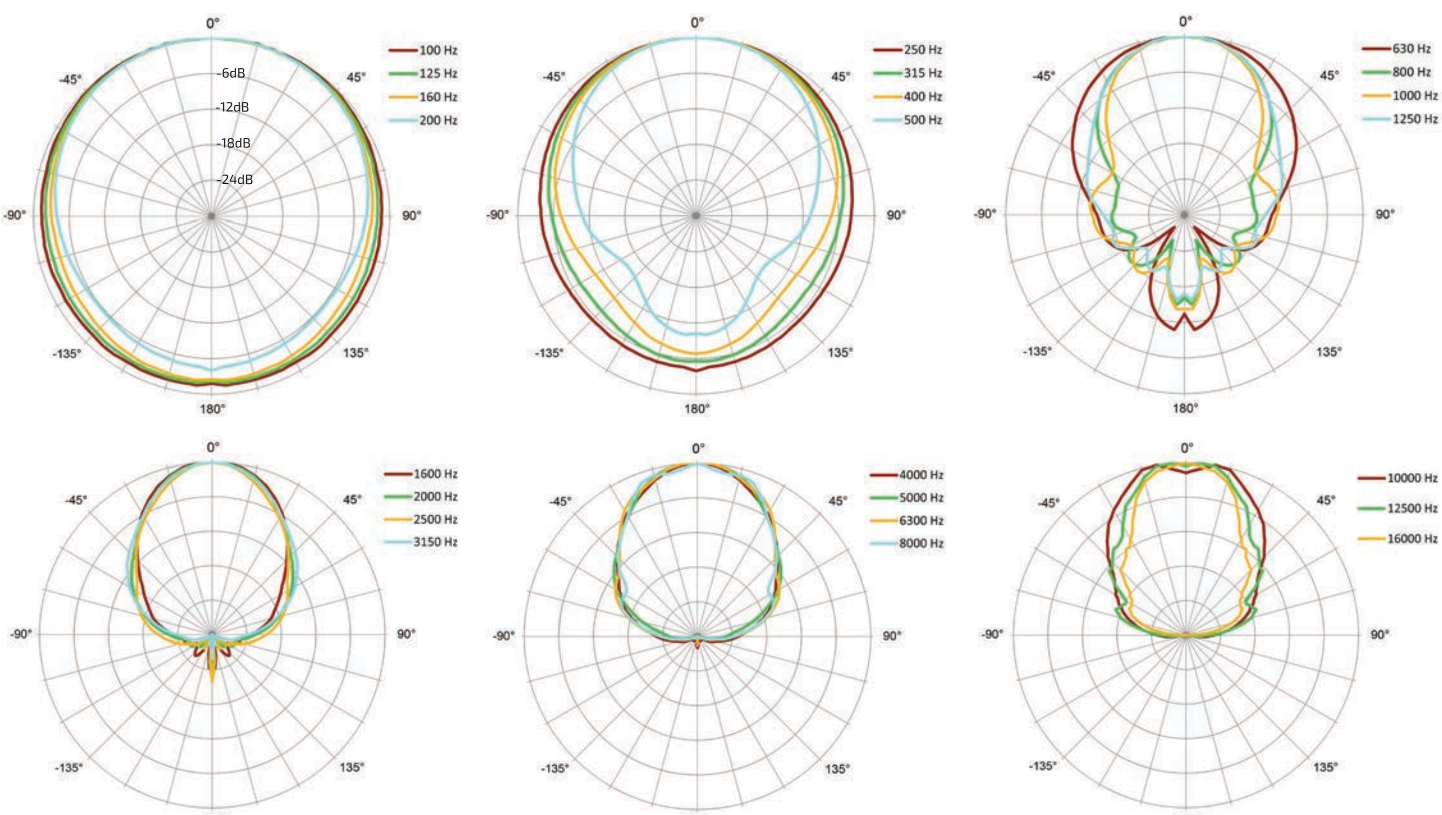
HIGH OUTPUT FULL-RANGE 60° x 60°
WEATHER-RESISTANT LOUDSPEAKER

Community®

HORIZONTAL POLAR DATA *(30dB Scale, 6dB per major division)*



VERTICAL POLAR DATA *(30dB Scale, 6dB per major division)*



R SERIES Premium Music

R.5-66MAX

HIGH OUTPUT FULL-RANGE 60° x 60°
WEATHER-RESISTANT LOUDSPEAKER

Community®

TECHNICAL DRAWING / DIMENSIONS / FINISH

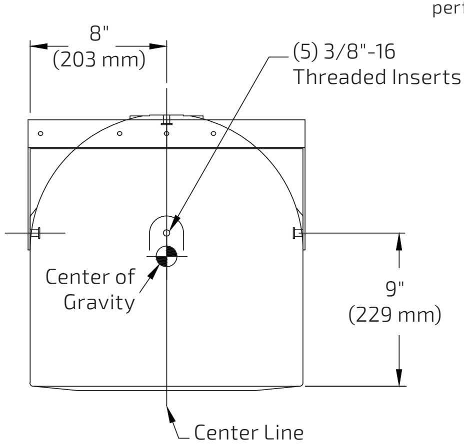
H x W x D
16.00" x 16.00" x 16.19"
(406 x 406 x 411 mm)

Unit Weight
47 lbs (21.3 kg) loudspeaker and yoke

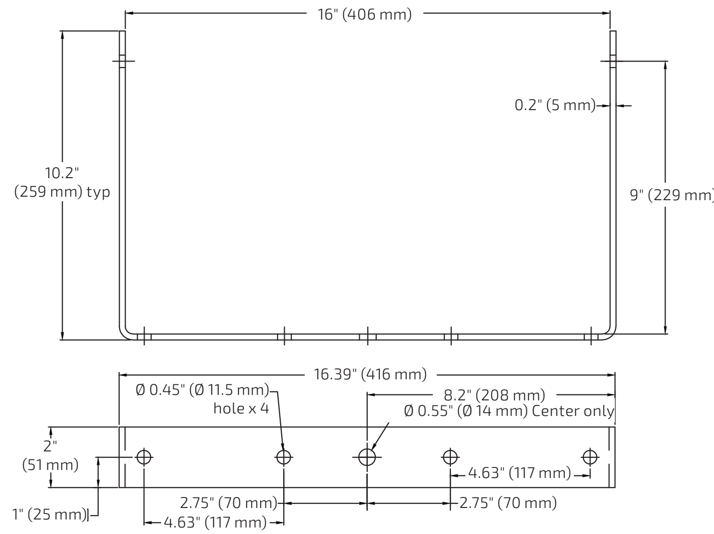
Shipping Weight
51 lbs (23.1 kg)

Grille:
3-layer Weather-Stop™ with polyester mesh, foam, zinc-rich epoxy dual-layer powder-coated perforated steel color-matched to enclosure

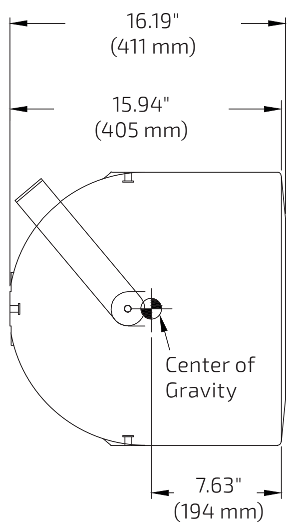
Enclosure / Finish
Rotomolded LLDPE plastic, in Black, White or Light Grey (RAL# 9004, 9003, and 7038)



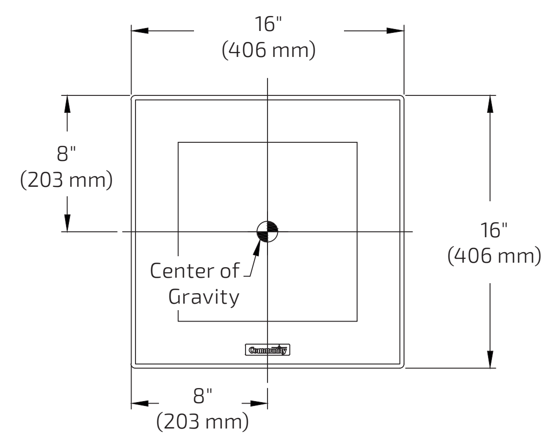
Top



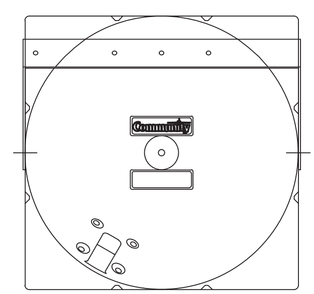
Yoke Dimensions



Sides



Front



Rear

ARCHITECTURAL SPECIFICATIONS

The loudspeaker system shall be a two-way, full-range design with one 12-inch (305 mm) high-output LF driver and one 1.4-inch (36 mm) exit HF driver coaxially mounted to a 60° x 60° molded ABS horn. Drivers shall be connected to an integral crossover with a crossover frequency of 900 Hz. The input connection shall be one 12' (3.6 m) SJOW #16-gauge cable with stripped ends. The loudspeaker enclosure shall be matte finish rotomolded linear low density polyethylene providing weather and UV resistance with a 1 mm perforated stainless steel grille backed by water-resistant treated polyester mesh and open cell foam. The steel grille shall be powder-coated with a proprietary zinc-rich epoxy dual-layer powder-coating process color-matched to the enclosure. The enclosure shall incorporate five 3/8"-16 rigging points for multiple mounting options. The system shall have an IEC 60529 IP rating of IP55W with a minimum 5-degree downward aiming angle. The system shall have a operating range of 85 Hz to 21.8 kHz (-10 dB), an input capability of 69V, and a sensitivity of 104 dB at 1W/1m with a nominal impedance of 8 ohms. The nominal dispersion shall be 60°H x 60°V. The loudspeaker shall be 16 in. (406 mm) H x 16 in. (406 mm) W x 16.19 in. (411 mm) D and weigh 44 lbs (20 kg). A steel yoke powder-coated with the same proprietary process, and color-matched, shall be included with the system.

Community®

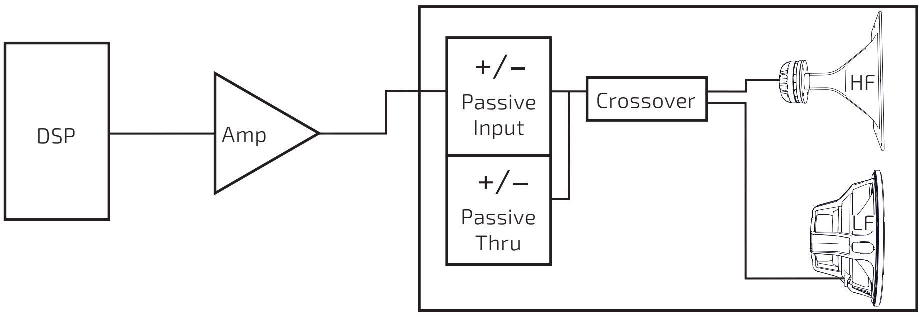
R SERIES

Premium Music

R.5-66MAX

HIGH OUTPUT FULL-RANGE 60° x 60°
WEATHER-RESISTANT LOUDSPEAKER

CONNECTION DIAGRAM



Two-way single amp

NOTES

1. *PERFORMANCE SPECIFICATIONS All measurements are taken indoor using a time-windowed and processed signal to eliminate room effects, approximating an anechoic environment, a distance of 6.0 m. All acoustic specifications are rounded to the nearest whole number. An external DSP with settings provided by Community Professional Loudspeakers is required to achieve the specified performance; further performance gains can be realized using Community's dSPEC226 loudspeaker processor with FIR power response optimization.*
2. *OPERATING RANGE The frequency range in which the on-axis processed response remains within 10dB of the average SPL.*
3. *CONTINUOUS POWER HANDLING Maximum continuous input voltage (and the equivalent power rating, in watts, at the stated nominal impedance) that the system can withstand, without damage, for a period of 2 hours using an EIA-426-B defined spectrum; with recommended signal processing and protection filters.*
4. *NOMINAL SENSITIVITY Averaged SPL over the operating range with an input voltage that would produce 1 Watt at the nominal impedance and the averaged SPL over the operating range with a fixed input voltage of 2.83V, respectively; swept sine wave axial measurements with no external processing applied in whole space, except where indicated.*
5. *NOMINAL MAXIMUM SPL Calculated based on nominal / peak power handling, respectively, and nominal sensitivity; exclusive of power compression.*
6. *EQUALIZED SENSITIVITY The respective SPL levels produced when an EIA-426-B signal is applied to the equalized loudspeaker system at a level which produces a total power of 1 Watt, in sum, to the loudspeaker subsections and also at a level which produces a total voltage, in sum, of 2.83V to the loudspeaker subsections, respectively; each referenced to a distance of 1 meter.*
7. *EQUALIZED MAXIMUM SPL The SPL produced when an EIA-426-B signal is applied to the equalized loudspeaker system, at a level which drives at least one subsection to its rated continuous input voltage limit, referenced to a distance of 1 meter. The peak SPL represents the 2:1 (6dB) crest factor of the EIA-426-B test signal.*
8. *AXIAL PROCESSED RESPONSE The on-axis variation in acoustic output level with frequency of the complete loudspeaker system with recommended signal processing applied. 1/6 octave Gaussian smoothing applied.*
9. *AXIAL SENSITIVITY The on-axis variation in acoustic output level with frequency for a 1 Watt swept sine wave, referenced to 1 meter with no signal processing. 1/6 octave Gaussian smoothing applied.*
10. *HORIZONTAL / VERTICAL OFF-AXIS RESPONSES The loudspeaker's magnitude response at various angles off-axis, with recommended signal processing applied in the operating mode which utilizes the largest number of individually amplified pass bands. 1/6 octave Gaussian smoothing applied.*
11. *DIRECTIVITY INDEX The ratio of the on-axis SPL squared to the mean squared SPL at the same distance for all points within the measurement sphere for each given frequency; expressed in dB. 1/6 octave Gaussian smoothing applied.*
12. *BEAMWIDTH The angle between the -6dB points in the polar response of the loudspeaker when driven in the operating mode which utilizes the largest number of individually amplified pass bands. 1/6 octave Gaussian smoothing applied.*

Data presented on this spec sheet represents a selection of the basic performance specifications for the model. These specifications are intended to allow the user to perform a fair, straightforward evaluation and comparison with other loudspeaker spec sheets. For a detailed analysis of this loudspeaker's performance please download the GLL file and/or the CLF file from our website: communitypro.com

Community Professional Loudspeakers
333 East Fifth Street, Chester, PA 19013-4511 USA
Phone (610) 876-3400 • Fax (610) 874-0190
www.communitypro.com • info@communitypro.com

CAUTION: Installation of loudspeakers should only be performed by trained and qualified personnel. It is strongly recommended that a licensed and certified professional structural engineer approve the mounting design.

Appendix F Traffic Impact Analysis for the Proposed Calistoga Junior-Senior High School Field and Lighting Improvements Project

Appendix

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TRAFFIC IMPACT ANALYSIS

FOR THE PROPOSED

CALISTOGA JUNIOR-SENIOR HIGH SCHOOL

FIELD & LIGHTING IMPROVEMENTS PROJECT

Prepared for

CALISTOGA JOINT UNIFIED SCHOOL DISTRICT
&
PLACEWORKS

Prepared by

GARLAND ASSOCIATES
16787 Beach Boulevard, Suite 234
Huntington Beach, CA 92647
714-330-8984

NOVEMBER 2024

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	Impacts on Daily and Peak Hour Traffic Volumes	7
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I.
INTRODUCTION AND STUDY METHODOLOGY

This report summarizes the results of a traffic/transportation impact analysis that was conducted for the field and lighting improvements project proposed by Calistoga Joint Unified School District at Calistoga Junior-Senior High School, which is located at 1608 Lake Street in Calistoga. The school campus is bounded by Lake Street on the west, Grant Street on the north, Stevenson Street on the east, and a residential area on the south that is accessed from Fair Way. The school's track and field facility and an adjacent baseball field are located on the east side of the campus.

The proposed project involves the construction of new home and visitor bleachers at the stadium to expand the overall capacity from 300 spectator seats to 774 spectator seats. The project also includes new stadium lighting at the field.

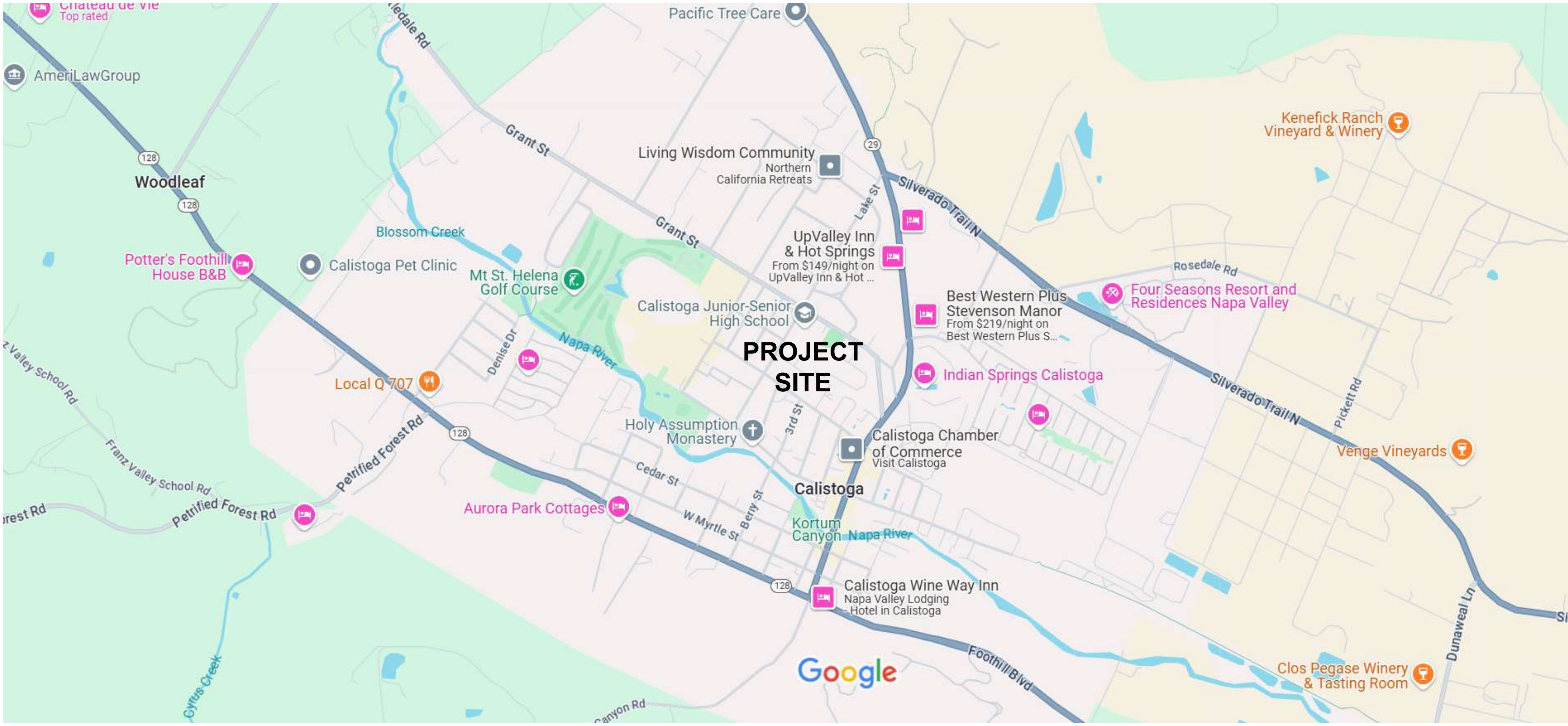
A location map showing the location of the school is provided on Figure 1 and an aerial photograph of the school and field is shown on Figure 2. The project would not result in a change in the number of students attending the junior or senior high schools. The project would provide the opportunity for additional spectators to have seating for games and other major events at the school.

An analysis has been conducted to evaluate the traffic/transportation impacts of the proposed project. The methodology for the traffic study, in general, was to address the transportation issue areas of the CEQA environmental checklist, which includes an evaluation of the project's impacts on 1) transit, roadway, bicycle, and pedestrian facilities, 2) vehicle miles traveled (VMT), 3) increased hazards or incompatible uses, and 4) emergency access.

To establish the existing conditions, an inventory was taken of the streets, sidewalks, bike lanes, and public transit routes in the vicinity of the school site. The inventory included physical features such as the number of lanes, types of traffic control devices, and crosswalk locations. In addition, traffic counts were conducted on the study area streets during the one-hour period prior to the start of a football game on a Friday evening. The increased volumes of traffic that would be generated by the expanded stadium were then quantified to determine the impacts of the project on traffic volumes.

Traffic volumes on the streets in the vicinity of the school were quantified for the following scenarios: existing conditions (2024), existing conditions plus the proposed project, future baseline conditions without the proposed project for the target year of 2025, and future conditions with the proposed project. The year 2025 was used for the future target year as that is anticipated to be the year of completion for the proposed project.

Google Maps



Map data ©2024 200 m

FIGURE 1
LOCATION MAP

Google Maps

Imagery ©2024 Google, Imagery ©2024 Airbus, Maxar Technologies, Map data ©2024 50 m

FIGURE 2
AERIAL PHOTO OF SCHOOL SITE

II.
EXISTING TRAFFIC/TRANSPORTATION CONDITIONS

The street network in the vicinity of the school site (which includes sidewalks and bike lanes), an inventory of the types of traffic control devices and crosswalk locations, and the nearby bus transit routes are described below.

Street Network

The streets that provide access to the proposed project area include Lake Street, Grant Street, Stevenson Street, and Fair Way. The following paragraphs provide a brief description of the characteristics of these streets.

Lake Street

Lake Street is a two lane north-south street that abuts the west side of the school campus. It has bike lanes and parking on both sides of the street along the school frontage and a sidewalk only on the east side of the street next to the school. North of Grant Street, Lake Street has parking on both sides of the street with no sidewalk on the west side and an intermittent sidewalk on the east side. There are no bike lanes on Lake Street north of Grant Street. South of the school site, Lake Street has parking and a sidewalk on the east side of the street; a bike lane, no parking, and no sidewalk on the west side of the street; and signs on the east side of the street indicating that the northbound lane is a bike route.

There are two driveways on the east side of Lake Street that provide access to the school's parking lot. The speed limit on Lake Street is 25 miles per hour (mph).

Grant Street

Grant Street is a two lane east-west street that abuts the north side of the school campus. It has a narrow sidewalk on the south side of the street along the school frontage and an intermittent sidewalk on the north side. It has parking on the north side of the street and no parking on the south side. West of Lake Street, Grant Street has a sidewalk on the south side of the street (for one block only) and no sidewalk on the north side. Parking is prohibited on both sides of the street except on shoulder areas away from the pavement. There are no bike lanes on Grant Street.

There are four driveways on the south side of Grant Street along the school frontage. The west driveway connects to a fire lane that provides emergency vehicle access to the school. The two middle driveways provide access to the school's athletics facilities. The east driveway provides access to a small parking lot at Palisades High School. The speed limit on Grant Street is 25 mph.

Stevenson Street

Stevenson Street is a two lane north-south street that abuts the east side of the school campus. It has parking on both sides of the street and a sidewalk only on the west side of the street. There are no bike lanes on Stevenson Street and the speed limit is 25 mph.

Fair Way

Fair Way is a two lane east-west street located approximately 400 feet south of the school campus. It has sidewalks on both sides of the street and parking only on the north side of the street. There are no bike lanes on Fair Way and the speed limit is 25 mph.

Traffic Control and Crosswalks

The existing traffic control devices and crosswalks at the study area intersections are shown in Table 1.

TABLE 1
EXISTING TRAFFIC CONTROL DEVICES & CROSSWALKS

Intersection	*Traffic Control*	*Crosswalks*
Lake Street / Grant Street	4-Way Stop Signs	On South & East Legs
Lake Street / Fair Way	4-Way Stop Signs	On All Four Legs
Grant Street / Stevenson Street	3-Way Stop Signs	None

Bus Transit Service

Napa Valley Transportation Authority (NVTA) operates a bus service called Vine Transit and Route 10 runs along Lincoln Avenue (State Route 29) approximately 300 feet southeast of the school site. It has a bus stop at the intersection of Lincoln Avenue and Fair Way. Route 10 extends from Calistoga to Napa.

Lake Transit operates Route 3 along Lincoln Avenue and it also has a bus stop at the Lincoln Avenue/Fair Way intersection. Route 3 extends from Calistoga north to Clear Lake and south to Deer Park. In addition to these two fixed route bus lines, the Calistoga shuttle is an on-demand transit service that operates within the Calistoga city limits for the general public.

III.
TRAFFIC IMPACT ANALYSIS

This section summarizes the analysis of the proposed project's impacts on study area traffic/transportation conditions. First is a discussion of the significance standards followed by a discussion of project generated traffic volumes and the impact on daily and peak hour traffic volumes. This is followed by an analysis of the impacts associated with non-motorized transportation (pedestrians and bicycles) and the findings relative to the CEQA transportation issues.

Standards of Significance

With regard to the CEQA thresholds of significance, Appendix G of the CEQA Guidelines states that a project would normally have a significant effect on the environment if the project could:

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

b) Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b), which addresses vehicle miles traveled (VMT),

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

d) Result in inadequate emergency access.

Project Generated Traffic

The volumes of traffic that would be generated by the stadium for a capacity-level event (774 spectators) were determined in order to estimate the impacts of the proposed project on the study area streets. As the field currently has bleachers with 300 seats, the volumes of traffic generated by the existing facility were also determined to quantify the net increase in traffic that would be generated by the new stadium. The trip generation rates and the anticipated volumes of traffic that would be generated by the existing bleachers and the proposed stadium are shown in Table 2 for a capacity-level event.

The trip generation rates shown in Table 2 reflect the assumption that the stadium would generate a demand of one vehicle for every four seats (for vehicles that remain parked at the site) and that an additional ten percent of the vehicles arriving at the stadium would drop passengers off then leave. The rate of one vehicle for every four seats is based on the parking requirements in the City of Calistoga Municipal Code. Section 17.36.140 of the Municipal Code, "Off-street Parking – Commercial and Industrial Uses," indicates that the parking requirement for stadiums is one space per four seats.

TABLE 2 *PROJECT GENERATED TRAFFIC*				
Facility	*Evening Hour – Pre-Event*			*Daily Traffic*
	Inbound	*Outbound*	*Total*	
TRIP GENERATION RATES				
Stadium (vehicle trips per spectator)	0.275	0.025	0.30	0.60
GENERATED TRAFFIC VOLUMES				
Existing Bleachers (300 spectators)	83	7	90	180
Proposed Stadium (774 spectators)	213	19	232	465
Net Increase (474 spectators	130	12	142	285

Table 2 indicates that a capacity-level event with 774 spectators would generate a net increase of 142 vehicle trips during the peak hour (130 inbound and 12 outbound) and 285 daily trips. A capacity-level event would occur only a few times each year for football games and special events, such as a homecoming football game, a graduation ceremony, and a band/color guard major competition. The stadium would generate fewer vehicle trips for non-capacity football games, track and field events, soccer matches, etc. The traffic impact analysis is based on a capacity-level event to represent the worst-case scenario.

Impacts on Daily and Peak Hour Traffic Volumes

To quantify the increase in traffic volumes on each nearby street resulting from a capacity-level event at the stadium, the project generated traffic shown in Table 2 was geographically distributed onto the street network using the following directional percentages. This distribution assumption for arriving vehicles is based on the layout of the existing street network, the school attendance boundaries, and observations at the school during a football game.

DISTRIBUTION OF PROJECT GENERATED TRAFFIC

- Lake Street south of Fair Way 35%
- Lake Street north of Grant Street 15%
- Fair Way west of Lake Street 10%
- Fair Way east of Lake Street 20%
- Grant Street west of Lake Street 10%
- Stevenson Street south of Grant Street 10%

The impacts of the project on daily traffic volumes are shown on Table 3 for Lake Street, Grant Street, Fair Way, and Stevenson Street. The existing conditions scenario and the year 2025 baseline scenario are shown. The daily traffic volume on Lake Street north of Grant Street, for example, would increase from 2,090 vehicles per day (vpd) to 2,180 vpd for the existing conditions scenario, which is an increase of 90 vehicles per day. The year 2025 was used for the future baseline scenario because it is anticipated to be the first year that the expanded stadium would be occupied. The year 2025 traffic volumes were estimated by expanding the existing traffic volumes by three percent.

The project traffic volumes on some of the streets are higher than the percentages shown above because many of the spectators attending games at the field drive past the school's parking lot and park on the nearby residential streets because the school's parking lot does not have enough parking spaces to accommodate the parking demand for a football game.

TABLE 3
PROJECT IMPACT ON DAILY TRAFFIC VOLUMES

Street/Location	*Without Project*	*Project Traffic*	*With Project*
EXISTING CONDITIONS AS BASELINE			
Lake Street			
North of Grant Street	2,090	90	2,180
Grant Street to Fair Way	1,600	190	1,790
South of Fair Way	1,640	100	1,740
Grant Street			
West of Lake Street	1,640	80	1,720
Lake Street to Stevenson Street	1,310	120	1,430
Fair Way			
West of Lake Street	820	30	850
East of Lake Street	900	60	960
Stevenson Street			
South of Grant Street	740	30	770
YEAR 2025 AS BASELINE			
Lake Street			
North of Grant Street	2,150	90	2,240
Grant Street to Fair Way	1,650	190	1,840
South of Fair Way	1,690	100	1,790
Grant Street			
West of Lake Street	1,690	80	1,770
Lake Street to Stevenson Street	1,350	120	1,470
Fair Way			
West of Lake Street	840	30	870
East of Lake Street	930	60	990
Stevenson Street			
South of Grant Street	760	30	790

The impacts of the project on peak hour traffic volumes are shown on Table 4. The peak hour for a football game is the one-hour period prior to the start of a game when spectators are arriving at the school site. This typically occurs from 6:00 to 7:00 on a Friday evening. The traffic counts were taken on Friday, October 11, 2024, when a football game occurred at the school's field.

TABLE 4
PROJECT IMPACT ON PEAK HOUR TRAFFIC VOLUMES

Street/Location	*Without Project*	*Project Traffic*	*With Project*
EXISTING CONDITIONS AS BASELINE			
Lake Street			
North of Grant Street	175	45	220
Grant Street to Fair Way	250	95	345

South of Fair Way	185	50	235
Grant Street			
West of Lake Street	95	40	135
Lake Street to Stevenson Street	175	60	235
Fair Way			
West of Lake Street	90	15	105
East of Lake Street	135	30	165
Stevenson Street			
South of Grant Street	135	15	150
YEAR 2025 AS BASELINE			
Lake Street			
North of Grant Street	180	45	225
Grant Street to Fair Way	260	95	355
South of Fair Way	190	50	240
Grant Street			
West of Lake Street	100	40	140
Lake Street to Stevenson Street	180	60	240
Fair Way			
West of Lake Street	95	15	110
East of Lake Street	140	30	170
Stevenson Street			
South of Grant Street	140	15	155

Non-Motorized Transportation and Transit

The proposed project would generate a demand for non-motorized travel as some event spectators and participants would travel to and from the school as pedestrians or on bicycles. The streets adjacent to the school have sidewalks on one side of the street and the two intersections on Lake Street are equipped with painted crosswalks and four-way stop signs. Bike lanes are provided on both sides of Lake Street along the school frontage and on the west side of Lake Street south of the school site.

When the pedestrian patterns were monitored in October when spectators were walking to a football game, it was observed that many people walked to the school site either from their homes or from the locations where they parked on the streets near the school site. No safety issues were observed associated with these pedestrian activities.

With regard to public transit, Vine Transit and Lake Transit operate Routes 10 and 3 on Lincoln Avenue near the school site. Bus stops for these routes are located at the intersection of Lincoln Avenue and Fair Way. It is anticipated that a negligible number of people would use the bus routes to travel to and from a game at the school. It is not anticipated that ridership on the bus routes would be noticeably affected by the proposed project.

Findings Relative to CEQA Transportation Issues

The proposed project involves the construction of an expanded stadium and new lighting at Calistoga Junior-Senior High School that will result in an additional 474 spectators at the stadium for a capacity-level event. For the transportation analysis, Appendix G of the CEQA Guidelines states that a proposed project could have a significant effect on the environment if the project would:

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

b) Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b), which addresses vehicle miles traveled (VMT),

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

d) Result in inadequate emergency access.

The findings regarding each of these issues are presented in the following sections.

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

CEQA Finding: No Impact

The Circulation Element of the City of Calistoga General Plan includes various goals, objectives, policies, and actions that outline the overall purpose of regulating and developing Calistoga's transportation systems. The Circulation Element balances the need to provide efficient ways to get from one place to another with the overall vision of Calistoga as a walkable small town, made up of a vibrant main street set within pedestrian-oriented neighborhoods.

The City is committed to the "Complete Streets" goal of creating and maintaining a comprehensive and integrated transportation network that provides safe, comfortable and convenient travel, serving all types of users, including pedestrians, bicyclists, persons with disabilities, seniors, children, users and operators of public transportation, motorists, and movers of commercial goods

The goals in the Circulation Element are as follows:

Goal CIR-1 is to maintain and enhance Calistoga's street network to serve existing and planned land uses while also maintaining the community's small-town character. Goal CIR-2 is to provide sufficient parking in the downtown, which is not applicable to this school project. Goal CIR-3 is to enhance transportation modes that minimize pollution and congestion.

The proposed stadium project is consistent with the goals presented in the Circulation Element and the project would not adversely affect the performance of any roadway, transit, or non-motorized (pedestrian and bicycle) transportation facilities. Based on the traffic analysis, the discussion of non-motorized transportation and transit, and a review of the Circulation Element of the City's General Plan, the proposed project would not conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities.

Issue: Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b), which addresses vehicle miles traveled (VMT).

CEQA Finding: Less Than Significant Impact

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

The Association of Bay Area Governments, of which the City of Calistoga is a member, adopted a document titled "SB 743 Policy Adoption Technical Assistance Program," which includes screening criteria that can be used to identify when a proposed land use development project is anticipated to result in a less than significant VMT impact. The document states that a project is presumed to have a less than significant impact on VMT if the project is a local-serving public facility, which includes schools. The document indicates that land uses in the local-serving category can be screened from requiring a detailed VMT analysis. Based on these guidelines, this stadium project would not conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b), and would have a less than significant VMT impact.

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

CEQA Finding: Less Than Significant Impact

The proposed project would not provide any on- or off-site access or circulation features that would create or increase any design hazards or incompatible uses. Access to the school site would continue to be provided by the existing driveways on the east side of Lake Street and on the south side of Grant Street. There would be no roadway improvements in the public right-of-way and all improvements within the school site would be consistent with the criteria of the California Division of the State Architect.

The increased levels of traffic, the increased number of pedestrians, and the increased number of vehicular turning movements that would occur at the driveways and at the nearby intersections would result in an increased number of traffic conflicts and a corresponding increase in the probability of an accident occurring. These impacts would not be significant, however, because the streets, intersections, and driveways are designed to accommodate the anticipated levels of vehicular and pedestrian activity. These streets and intersections have historically been accommodating school-related traffic on a daily basis for the existing school and athletics field. The proposed project's new stadium and lighting would be compatible with the design and operation of a high school, and the proposed project would not result in any major modifications to the existing access or circulation features at the school.

As the existing street network could readily accommodate the anticipated increase in vehicular, pedestrian, and bicycle activity, the proposed project would not substantially increase hazards due to a geometric design feature or incompatible uses.

Issue: Result in inadequate emergency access.

CEQA Finding: No Impact

Emergency access to the school site is provided by two driveways on Lake Street and two driveways on Grant Street as well as a maintenance/emergency access driveway on Grant Street that leads to a fire lane. The existing access and circulation features at the school, including the driveways, parking lots, on-site roadways, and fire lanes, would continue to accommodate emergency ingress and egress by fire trucks, police units, and ambulance/paramedic vehicles. The proposed project would be designed to accommodate emergency access to the new stadium. Any modifications to the access/circulation features at the school are subject to and must satisfy the District's design requirements and would be subject to approval by the Fire Department and the California Division of the State Architect. Emergency vehicles could easily access the stadium and all other areas of the school via on-site travel corridors. The proposed project would not, therefore, result in inadequate emergency access.

IV.
SUMMARY OF IMPACTS AND CONCLUSIONS

The key findings of the traffic impact analysis are presented below.

- The proposed expansion of the stadium from 300 seats to 774 seats, which is a net increase of 474 seats, would generate an additional 142 vehicle trips during the peak hour (130 inbound and 12 outbound) and 285 trips per day for a capacity-level event. The peak hour for this analysis represents the one-hour time period prior to the beginning of an event at the project site when patrons are traveling to the stadium, which would typically occur on a Friday evening between 6:00 and 7:00 p.m. for a football game. Approximately the same level of traffic would be generated at the end of an event when patrons are exiting (with the inbound and outbound traffic volumes reversed).
- An analysis of the traffic volumes on four streets in the vicinity of the school indicates that the additional traffic generated by the proposed project during a capacity-level event would not result in a substantial increase in traffic volumes on the study area streets.
- CEQA threshold of significance T-1 asks if the proposed project would conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities. The analysis indicates that there would be **no impact** because:

  - The proposed project would not adversely affect the performance or safety of any transit or non-motorized transportation facilities (pedestrians and bicycles) and would not conflict with any adopted plans, policies, or programs relative to these alternative transportation modes.

  - The Circulation Element of the City of Calistoga General Plan includes various goals, objectives, policies, and actions that outline the overall purpose of regulating and developing Calistoga's transportation systems. The Circulation Element balances the need to provide efficient ways to get from one place to another with the overall vision of Calistoga as a walkable small town, made up of a vibrant main street set within pedestrian-oriented neighborhoods. The proposed project is consistent with the goals, objectives, policies, and actions presented in the Circulation Element and would not conflict with a program, plan, ordinance, or policy of the General Plan, including transit, roadway, bicycle, and pedestrian facilities.
- CEQA threshold of significance T-2 asks if the proposed project would conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b), which addresses vehicle miles traveled (VMT). The analysis indicates that the VMT impact would be less than significant because the proposed project is a local-serving land use (a school use). The guidelines of the Association of Bay Area Governments, of which the City of Calistoga is a member, state that projects in this category would have a **less than significant impact** on VMT and can be screened from any further VMT analysis.
- CEQA threshold of significance T-3 asks if the proposed project would substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or

incompatible uses (e.g., farm equipment). The analysis indicates that the streets, intersections, and driveways are designed to accommodate the anticipated levels of vehicular and pedestrian activity and have historically been accommodating school-related traffic. The proposed project would be compatible with the design and operation of a high school and the proposed project would not result in any major modifications to the existing access or circulation features at the school. The proposed project would not, therefore, substantially increase hazards due to a geometric design feature or incompatible uses and would have a **less than significant impact**.

- CEQA threshold of significance T-4 asks if the proposed project would result in inadequate emergency access. The existing access and circulation features at the school, including the driveways, parking lots, on-site roadways, and fire lanes, would continue to accommodate emergency ingress and egress by fire trucks, police units, and ambulance/paramedic vehicles. In addition, the proposed project would be designed to accommodate emergency access to the stadium. The proposed project would not result in inadequate emergency access and there would be **no impact**.