June 2023 | Initial Study

OAK RIDGE ELEMENTARY SCHOOL REBUILD PROJECT

Sacramento City Unified School District

Prepared for:

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PLACEWORKS

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Abbreviations and Acronyms

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

Abbreviations and Acronyms

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

MPO	metropolitan planning organization
MT	metric ton
NAHC	Native American Heritage Commission
NO_X	nitrogen oxides
NPDES	National Pollution Discharge Elimination System
O_3	ozone
OES	California Office of Emergency Services
PM	particulate matter
POTW	publicly owned treatment works
ppm	parts per million
PPV	peak particle velocity
RCRA	Resource Conservation and Recovery Act
REC	recognized environmental condition
RMP	risk management plan
RMS	root mean square
RPS	renewable portfolio standard
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SIP	state implementation plan
SLM	sound level meter
SoCAB	South Coast Air Basin
SO_X	sulfur oxides
SQMP	stormwater quality management plan
SRA	source receptor area [or state responsibility area]
SUSMP	standard urban stormwater mitigation plan
SWP	State Water Project
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAC	toxic air contaminants
TNM	transportation noise model
tpd	tons per day
TRI	toxic release inventory
TTCP	traditional tribal cultural places

Abbreviations and Acronyms

USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UST	underground storage tank
UWMP	urban water management plan
V/C	volume-to-capacity ratio
VdB	velocity decibels
VHFHSZ	very high fire hazard severity zone
VMT	vehicle miles traveled
VOC	volatile organic compound
WQMP	water quality management plan
WSA	water supply assessment

1. Introduction

The Sacramento City Unified School District (District) plans to completely rebuild the Oak Ridge Elementary School campus, consisting of moving the academic portion of the campus to the northeast corner of the campus and the athletic facilities to the west, moving the existing primary campus access point on Martin Luther King Jr. Boulevard south to align with the existing 21st Avenue traffic signal, and creating a new access point for bus-emergency vehicle-pedestrian-only site access via Mendocino Boulevard at the southeast corner of the site. The school is located 4501 Martin Luther King Jr. Boulevard in the City of Sacramento. The proposed project would follow the District's master plan, Education Specifications, and 21st Century Educational Concepts. The proposed project is required to undergo an environmental review pursuant to the California Environmental Quality Act (CEQA).

As the lead agency with the principal responsibility for carrying out and approving the project, the District is required to consider the project's potential environmental consequences and determine if its benefits outweigh any significant effects. This document is an "initial study" of the effects.

1.1 PROJECT LOCATION

The 7.77-acre site contains Oak Ridge Elementary School on 4501 Martin Luther King Jr. Boulevard in the City of Sacramento. The Assessor's Parcel Number (APN) for Oak Ridge Elementary School is 020-0220-004. The project site is bound by Christian Brothers High School and a church to the north, an empty lot and commercial uses along Martin Luther King Jr. Boulevard to the west, single-family and multiple-family residential uses facing 22nd Avenue to the south, and the baseball field for Christian Brothers High School and a multiple-family complex east of the project site. The residential uses south and east of the project site are in unincorporated Sacramento County. The project site is approximately 0.95-miles east of the Sacramento Regional Transit District's light rail system (i.e., Light Rail Blue Line).

The City of Sacramento is bound by Yolo County and Solano County to the west; the City of Elk Grove to the south; and unincorporated Sacramento County to the north, east, and south. The project site is approximately 2.48 miles to the east of Interstate (I-) 5, 1.78 miles south of US Route (US-) 50, and 0.43 miles east of State Route (SR-) 99. Figure 1, *Regional Location,* Figure 2, *Local Vicinity,* and Figure 3, *Aerial Photograph,* show the project site in its regional and local contexts.

1.2 ENVIRONMENTAL SETTING

1.2.1 Existing Land Use

Facilities

The project site currently operates as a kindergarten through sixth grade school and includes also one preschool classroom. Oak Ridge Elementary School was constructed in 1953 and underwent modernization in 1999 (SCUSD 2020). The campus consists of two permanent buildings which encompass 21,899 square feet of building space and 14 portable buildings which encompass 19,921 square feet of building space. The campus contains three kindergarten classrooms; one preschool classroom; three first grade, second grade, and third grade classrooms; two fourth grade classrooms; one fifth grade and two sixth grade classroom and one shared fifth and sixth grade classroom. The campus houses 41,820 square feet of building space (SCUSD 2020). These buildings are in the western portion of the site, the hardcourts are in the central portion of the site, and the playfields are in the eastern portion of the site.

Figure 3, Aerial Photograph, shows the existing site facilities from an aerial view. Figure 4a, Existing Campus Buildings and Martin Luther King Jr. Boulevard Entrance, Figure 4b, Surrounding Uses on Martin Luther King Jr. Boulevard, and Figure 4c, Mendocino Boulevard Entrance, show photos of the project site and surrounding uses. According to the Facility Conditions Assessment for Oak Ridge Elementary School, key findings indicated the following to be in poor condition (SCUSD 2020):

- Roofs and interior wall finish of several portables
- Windows of the building containing the administration and gymnasium
- Parking lot
- Kitchen cabinetry in several of the classrooms in the permanent building.

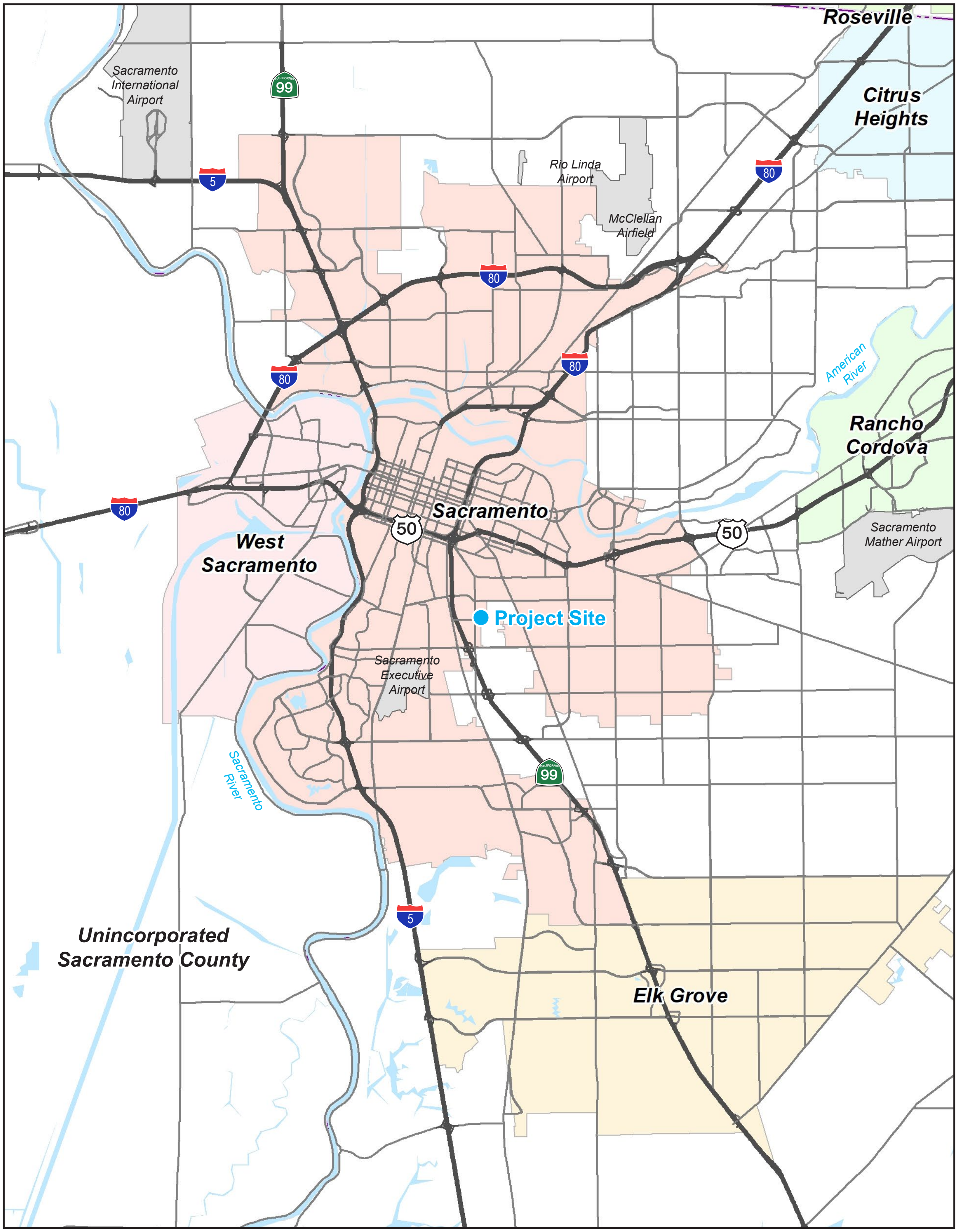
The rebuild of the project site would result in all new buildings that meet the California Department of Education's (CDE) safety standards; upgraded play equipment, field, and hardcourts; and improved and safer access and circulation.

Access and Circulation

The school's existing driveways and parking lots are located on the western portion of the site. A student drop-off loop is located on campus, accessed via Martin Luther King Jr. Blvd, and also connects to the staff parking lot. Students and parents are generally encouraged to park along surrounding streets including Martin Luther King Jr. Boulevard, 21st Avenue, 22nd Avenue and 23rd Avenue and walk to the campus to avoid congestion in the school's parking lot.

Vehicle access to the site is currently provided via two driveways to Martin Luther King Jr. Blvd. The southerly driveway is located immediately north of the 21st Avenue intersection and is one-way inbound. The northerly driveway serves outbound traffic and is located 150 feet to the north of the southerly driveway.

Figure 1 - Regional Location



Note: Unincorporated county areas are shown in white.

Source: Generated using ArcMap, 2023.

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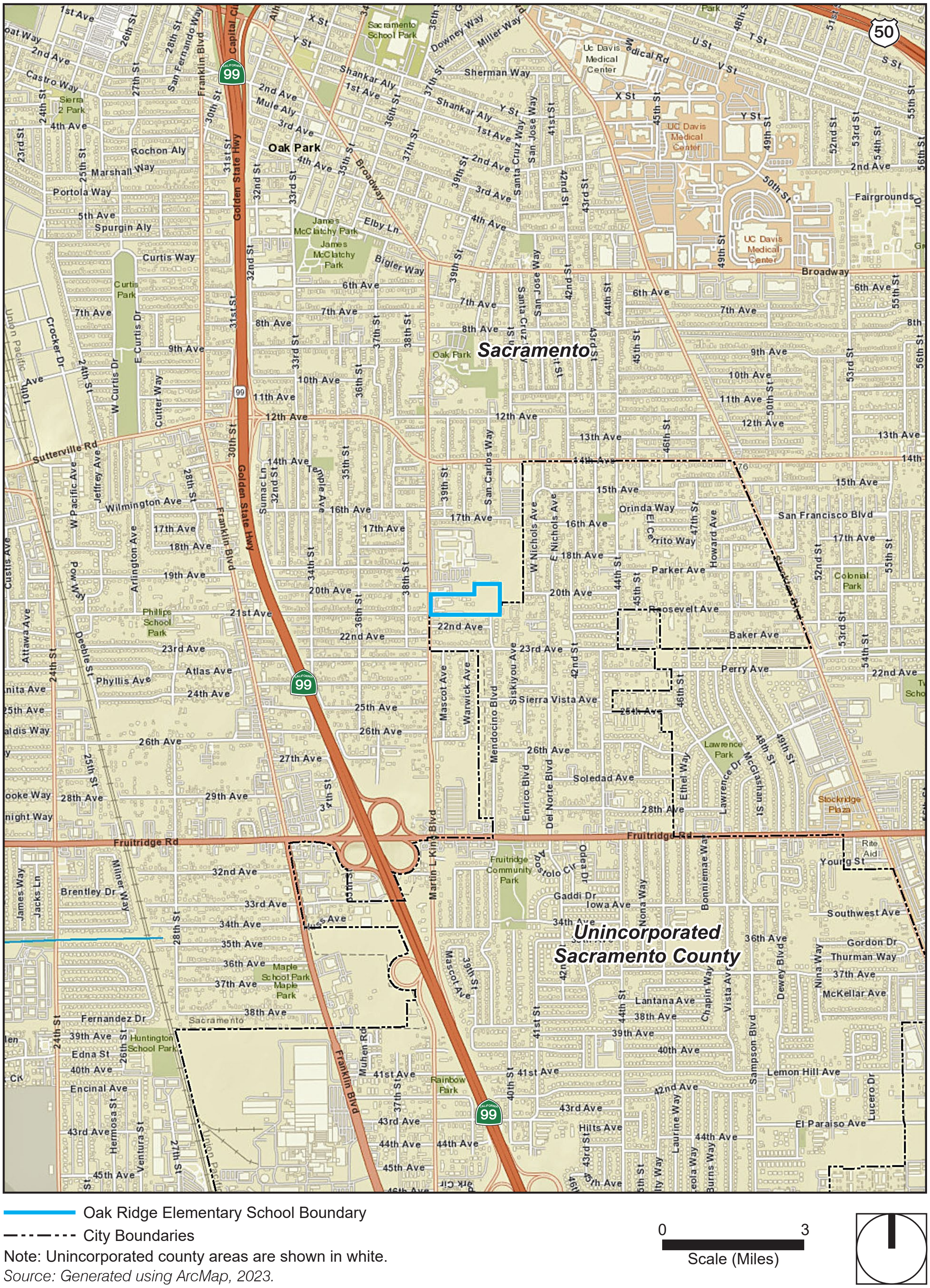
Figure 2 - Local Vicinity



Note: Unincorporated county areas are shown in white.

Source: Generated using ArcMap, 2023.

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Figure 3 - Aerial Photograph

Source: NearMap, 2023.

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4a - Existing Campus Buildings and Martin Luther King Jr. Boulevard Entrance

Campus Buildings and Parking Lot.

Campus entrance/exit on Martin Luther King Jr. Boulevard.

Source: PlaceWorks, 2023.

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4b - Surrounding Uses on Martin Luther King Jr. Boulevard

Martin Luther King Jr. Boulevard and 21st AVenue.

Church north of site.

Source: PlaceWorks, 2023.

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4c - Mendocino Boulevard Entrance

Mendocino Boulevard Entrance.

Existing Fields.

Source: PlaceWorks, 2023.

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Operations

Oak Ridge Elementary School is one of 75 schools operated by the District and serves students from preschool through the 6th grade. Kindergarten classes start school at 9 AM and are dismissed at 12:50 PM on Mondays through Fridays. Grades 1 through 3 at the school start at 9 AM and are dismissed at 3:07 PM on Mondays, Tuesdays, Wednesdays, and Fridays, and at 2:07 PM on Thursdays. Grades 4 through 6 at the school start at 9 AM and are dismissed at 3:12 PM on Mondays, Tuesdays, Wednesdays, and Fridays, and at 2:12 PM on Thursdays.

The 2021-2022 school year enrolled 475 students. Table 1, *Oak Ridge Elementary School 10-Year Enrollment History,* shows the 10-year enrollment history for Oak Ridge Elementary School. The highest enrollment of 592 students occurred in the 2016-2017 school year. Oak Ridge Elementary School's current capacity is 696 students.

Table 1 Oak Ridge Elementary School 10-Year Enrollment History

School Year	Enrollment
2022-2023	462
2021-2022	475
2020-2021	484
2019-2020	483
2018-2019	493
2017-2018	502
2016-2017	592
2015-2016	577
2014-2015	565
2013-2014	532
2012-2013	414
10-Year Average Enrollment:	**512**

Source: CDE 2023

1.2.2 Surrounding Land Uses

The project site is in a residential community with primarily single-family residences. The site is surrounded by the land uses described below.

- **North:** Williams Church-God in Christ and Christian Brothers High School.
- **East:** Christian Brothers High School baseball field and a multiple-family housing complex.
- **South:** Single-family residences and a multiple-family housing complex.
- **West:** Martin Luther King Jr. Boulevard, an empty lot, and a variety of small commercial uses.

1.3 EXISTING ZONING AND GENERAL PLAN

The City of Sacramento General Plan Land Use Designation for the project site is Public/Quasi-Public and the zoning designation is R-1 (Standard Single Family). Under the R-1 Zone, a Conditional Use Permit is required for schools (K-12), according to Section 17.204.210, R-1 Zone – Permitted Uses, of the Sacramento Municipal Code. As the project site currently operates as a school, the District does not need to apply for a Conditional Use Permit. Additionally, the District may exempt the site from local zoning under its authority, pursuant to Government Code 53094.

The properties south of the project site are in the unincorporated Sacramento County and have a Low Density Residential General Plan designation, as designated by the Sacramento County General Plan. The properties on 3821 22nd Avenue and 4009 23rd Avenue are zoned as RD-20 (Multiple Family Residential) while the single-family homes along 22nd Avenue are zoned as RD-5 (Residential). The church site north of the school site and Christian Brothers High School have a Public/Quasi-Public General Plan designation and are zoned R-1 (Standard Single-Family). The properties west of the project site have a Traditional Neighborhood Low Density General Plan Designation. The empty lot along Martin Luther King Jr. Boulevard is zoned R-1 (Standard Single-Family) and the commercial uses south of this lot are zoned C-1 (Limited Commercial).

1.4 DISTRICT ACTION REQUESTED

The Initial Study/Mitigated Negative Declaration examines the potential environmental impacts of the proposed Oak Ridge Elementary School Rebuild project (proposed project). This Initial Study/Mitigated Negative Declaration is also being prepared to address various actions by the District to adopt and implement the proposed project. It is the intent of this Initial Study/Mitigated Negative Declaration to enable the District to make an informed decision with respect to the proposed project. The District would be required to approve the Initial Study/Mitigated Negative Declaration and approve the proposed project.

1.5 PROJECT DESCRIPTION

1.5.1 Proposed Land Use

The District plans to fully redesign and reconstruct Oak Ridge Elementary School on its existing site. The capacity of the proposed new school would be 650 students and access to the site would be via Martin Luther King Jr. Boulevard on the southwest corner of the site and a second access point on Mendocino Boulevard would allow access for emergency vehicles and pedestrians. The District plans to seek matching State funds, which will trigger the need for California Department of Education (CDE) and Department of Toxic Substances Control (DTSC) approvals in addition to the CEQA process. The District seeks to submit plans to California Division of the State Architect (DSA) in February, 2023 for the demolition and site work portions of the project and October, 2023 for the buildings/final site development work. Construction is estimated to start in approximately September 2023 and construction activities would end in approximately September 2025. The school would continue to operate during all phases of construction, explained in detail below. Figure 5, *Conceptual Site Plan,* shows the proposed improvements and location of the new facilities.

Facilities

Under the proposed project, the school capacity would decrease to an enrollment capacity of 650 students, and the square footage of the buildings onsite would increase from 41,820 square feet to 52,948 square feet. All buildings would be in the northeast portion of the site; the parking lot and drop-off area would be in the southeast portion of the site; the hardcourts, play structure, and turf field would be in the west and central portion of the site; and the main driveway would extend across the southern portion of the site, providing access to the parking lot. Buildings would consist of plaster, brick and wood and metal panel siding. All proposed buildings would be designed to be all-electric.

Building A-Administration/Multi-Purpose/Kitchen Building

As seen in Figure 5, *Conceptual Site Plan,* the building located at the entryway to the campus would contain administrative offices, student and community support facilities, a multi-purpose room, and the kitchen with a connected service yard. This building would be approximately 17,093 square feet in total area. The multi-purpose room would feature a stage and a basketball court. The building would feature two entrances into the multi-purpose room and one entrance to the administration and student services section of the building.

Building C-Classrooms Building

North of the administration/multi-purpose/kitchen building would be a single two-story building that would collectively contain 15 classrooms for the first through sixth grade classes. The first level would contain three first-grade classrooms, three second grade classrooms, a PE room, an exploration space room, a library, one special education classroom, and restrooms. The second level would contain three third-grade classrooms, two fourth-grade classrooms, two fifth-grade classrooms, two sixth grade classrooms, and one flex classroom. The second level would also contain two additional special education classrooms, and restrooms. The buildings would also contain breakout spaces on both the first and second level. The buildings would contain two staircases and an elevator. At the center of the building would be an outdoor commons area. The total square footage of these buildings would be approximately 28,245 square feet.

Buildings K-Preschool, T-K, and Kindergarten Classrooms

East of the main classrooms building would be the kindergarten classroom buildings and play areas. This area would consist of two buildings, one of which would house three kindergarten classrooms and the other directly south of the other building, would house one preschool and one transitional-kindergarten (T-K) classroom. One play structure would be located north of the preschool/T-K classrooms building and the other structure would be located south of this building, fronting the school parking lot. The total square footage of these buildings would be approximately 7,610 square feet.

Outdoor Spaces

An outdoor “chill zone/quiet individual break area” would be located between the main classrooms building and administration/multi-purpose building. This space would be utilized for outdoor learning and student reflection. A garden space would be located west of the school buildings. The hardcourts would be located west of the garden area and would also feature a play structure on the northwest portion of the hardcourts.

West of the hardcourts would be a turf play area. The fields may be available for community use with reservations coordinated through the District's civic permits office.

Access and Circulation

The proposed project will remove these existing driveways and construct a new access point to the site on Martin Luther King Jr. Blvd aligning with 21st Street, creating a 4-way intersection. This new access would lead to a driveway bordering the south boundary of the site which would continue as a loop around the proposed parking lot. This driveway would also provide access to two student drop-off/pick-up zones in front of the administration/multi-purpose building. Another access point is proposed for Mendocino Boulevard and this access would be restricted to pedestrians and emergency vehicles only. A separated bus drop-off would be located at the east end of the parking lot.

A sidewalk and bike lane would be provided on the north side of the Martin Luther King Jr. Boulevard driveway. The sidewalk would continue in front of the campus and loop around the bus drop-off area, ending at the Mendocino Boulevard pedestrian access point. The existing sidewalk along Mendocino Boulevard will connect to the campus's internal sidewalk. The proposed parking lot on the southeast portion of the campus would contain 54 parking stalls including accessible parking spaces, as well as electric vehicle (EV) charging stations, as required by the 2022 CBC.

Fencing

Fencing will be provided along the perimeter of campus and both access points will contain a vehicle pipe gate. The perimeter of the areas of the campus will also be gated including the softball and soccer/play fields, the garden area, and the kindergarten facilities. Gated entry will also be provided between the campus's internal sidewalk and the Mendocino Boulevard sidewalk and into the academic area of the campus through two gates on either side of the administration/multi-purpose building.

Lighting

Lighting would be provided along the sidewalk of Martin Luther King Jr. Boulevard fronting the campus. Within the campus, lighting would be located on building faces. No lighting is proposed for the field. Lighting would be tied to a site lighting control panel. After-school programming would end by 6:30 pm. Quarterly events (Back-to-School night, 6th grade promotion, spring carnivals) may end as late as 8:00 pm.

1.5.2 Project Phasing

To accommodate students at the site during construction, redevelopment of the site would occur in three phases to allow students to safely remain on campus during construction.

During Phase 1, students and staff would utilize the existing school buildings on the western portion of the campus while the new buildings are constructed on the eastern portion of the campus. The bulk of the parking lot would be constructed during this phase as well. Underground utilities will be installed. Construction fencing would be provided along the eastern edge of the existing buildings, separating the construction work for Phase

1 from the ongoing campus activities. Construction workers and equipment would access the site via Mendocino Boulevard, greatly limiting any impact on the schools' existing operations.

During Phase 2, students and staff would utilize the newly constructed school buildings on the eastern portion of the campus while the existing portable buildings are demolished, and the new driveway is constructed on the southern portion of the site and the hard courts are constructed in the central portion. The balance of the new parking lot would also be completed in Phase 2. The existing parking lot would continue to operate during Phase 2 and a student/staff access corridor would be provided to connect the parking lot/drop-off area to the new campus buildings. Another corridor would be provided to allow pedestrian access from Mendocino Boulevard to the campus through the construction site. Fencing would be placed along perimeter of the existing permanent buildings to separate the construction activities in the center portion of the site from continued use of the existing parking lot and permanent buildings.

Phase 3 would consist of demolishing the rest of the existing school buildings and the existing parking lot on the northwest portion of the campus. During this Phase, the playfields and site frontage would be constructed and access to the newly constructed Martin Luther King Jr. Boulevard driveway and new parking would be available.

Figure 6, *Phasing Plan,* illustrates Phases 1 through 3 of the proposed project. The estimated construction phasing and duration is as follows:

Phase 1

- Construction of new campus buildings, and portion of new parking lot: September 2023 – July 2025

Phase 2

- Demolition of portables and hardcourts, construction of new hard courts, driveway, and remaining portion of parking lot: May 2025 – September 2025

Phase 3

- Demolition remaining buildings and parking lot, construction of play fields and site frontage: May 2025 – September 2025

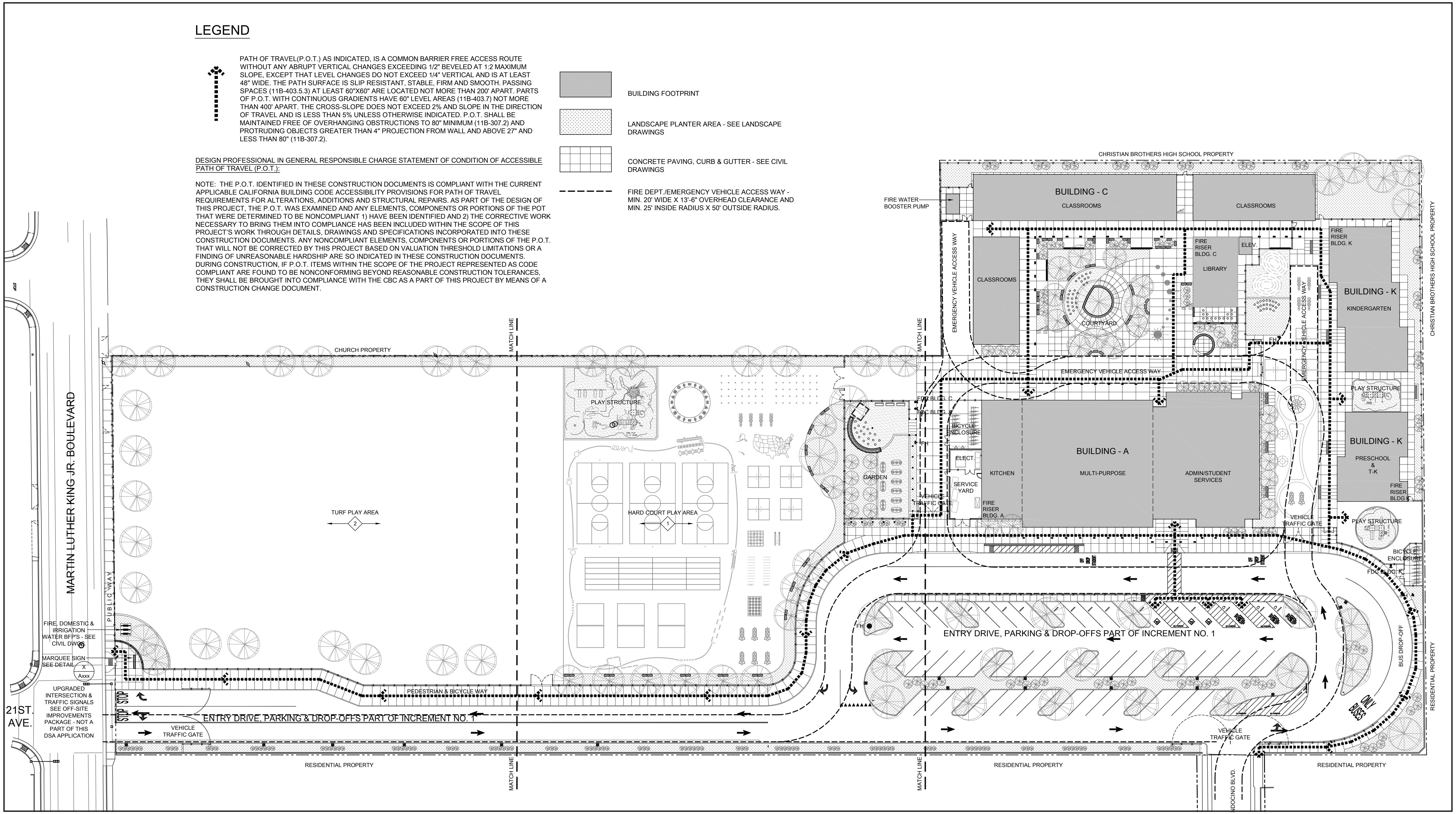
Construction

Construction activities would include building and asphalt demolition and excavation, site preparation and rough grading, utility trenching, fine grading, building construction, architectural coating, asphalt paving, finishing, and landscaping. All proposed improvements and areas of disturbances would occur within the project site, with the exception of improvements to the sidewalk fronting the project site on Martin Luther King Jr. Boulevard. Construction is proposed to take place between the hours of 7 AM and 6 PM Monday through Saturday and between 9 AM to 6 PM on Sunday, as allowed in Section 8.68.080, Exemptions, of the City's Municipal Code.

A construction worksite traffic control plan would be prepared and implemented by the District. The plan would identify haul routes, hours of construction, protective devices, warning signs, and access. The active construction and staging areas would be located on the project site. The level of construction traffic will vary throughout the duration of the project and will be dependent on specific construction tasks.

Input from the construction contractor team indicates that the work force personnel would range from about 15 persons to 65 persons working on site during Phase 1 when construction access is provided via Mendocino Boulevard. Truck traffic would similarly vary, with 2-5 trucks projected per day for deliveries and off-haul during slower periods and 6-10 trucks per day during peak days.

Figure 5 - Conceptual Site Plan



LEGEND

PATH OF TRAVEL(P.O.T.) AS INDICATED, IS A COMMON BARRIER FREE ACCESS ROUTE WITHOUT ANY ABRUPT VERTICAL CHANGES EXCEEDING 1/2" BEVELED AT 1:2 MAXIMUM SLOPE, EXCEPT THAT LEVEL CHANGES DO NOT EXCEED 1/4" VERTICAL AND IS AT LEAST 48" WIDE. THE PATH SURFACE IS SLIP RESISTANT, STABLE, FIRM AND SMOOTH. PASSING SPACES (11B-403.5.3) AT LEAST 60"X60" ARE LOCATED NOT MORE THAN 200' APART. PARTS OF P.O.T. WITH CONTINUOUS GRADIENTS HAVE 60" LEVEL AREAS (11B-403.7) NOT MORE THAN 400' APART. THE CROSS-SLOPE DOES NOT EXCEED 2% AND SLOPE IN THE DIRECTION OF TRAVEL AND IS LESS THAN 5% UNLESS OTHERWISE INDICATED. P.O.T. SHALL BE MAINTAINED FREE OF OVERHANGING OBSTRUCTIONS TO 80" MINIMUM (11B-307.2) AND PROTRUDING OBJECTS GREATER THAN 4" PROJECTION FROM WALL AND ABOVE 27" AND LESS THAN 80" (11B-307.2).

DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE STATEMENT OF CONDITION OF ACCESSIBLE PATH OF TRAVEL (P.O.T.):

NOTE: THE P.O.T. IDENTIFIED IN THESE CONSTRUCTION DOCUMENTS IS COMPLIANT WITH THE CURRENT APPLICABLE CALIFORNIA BUILDING CODE ACCESSIBILITY PROVISIONS FOR PATH OF TRAVEL REQUIREMENTS FOR ALTERATIONS, ADDITIONS AND STRUCTURAL REPAIRS. AS PART OF THE DESIGN OF THIS PROJECT, THE P.O.T. WAS EXAMINED AND ANY ELEMENTS, COMPONENTS OR PORTIONS OF THE POT THAT WERE DETERMINED TO BE NONCOMPLIANT 1) HAVE BEEN IDENTIFIED AND 2) THE CORRECTIVE WORK NECESSARY TO BRING THEM INTO COMPLIANCE HAS BEEN INCLUDED WITHIN THE SCOPE OF THIS PROJECT'S WORK THROUGH DETAILS, DRAWINGS AND SPECIFICATIONS INCORPORATED INTO THESE CONSTRUCTION DOCUMENTS. ANY NONCOMPLIANT ELEMENTS, COMPONENTS OR PORTIONS OF THE P.O.T. THAT WILL NOT BE CORRECTED BY THIS PROJECT BASED ON VALUATION THRESHOLD LIMITATIONS OR A FINDING OF UNREASONABLE HARDSHIP ARE SO INDICATED IN THESE CONSTRUCTION DOCUMENTS. DURING CONSTRUCTION, IF P.O.T. ITEMS WITHIN THE SCOPE OF THE PROJECT REPRESENTED AS CODE COMPLIANT ARE FOUND TO BE NONCONFORMING BEYOND REASONABLE CONSTRUCTION TOLERANCES, THEY SHALL BE BROUGHT INTO COMPLIANCE WITH THE CBC AS A PART OF THIS PROJECT BY MEANS OF A CONSTRUCTION CHANGE DOCUMENT.

Source: Nacht & Lewis, 2023.

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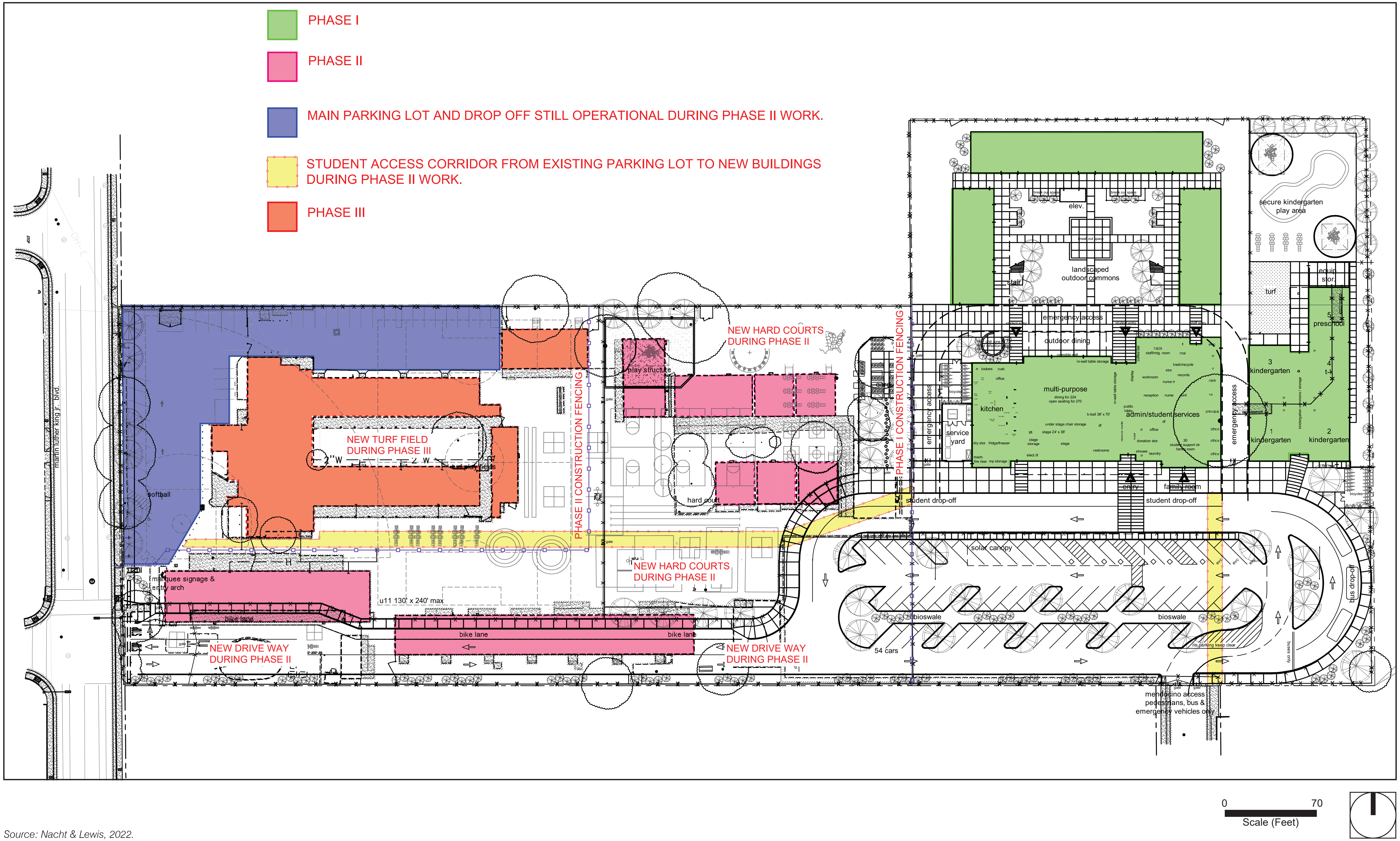
Figure 6 - Phasing Plan



Source: Nacht & Lewis, 2022.

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2. Environmental Checklist

2.1 PROJECT INFORMATION

1. **Project Title:** Oak Ridge Elementary School Rebuild Project

2. **Lead Agency Name and Address:**
   Sacramento City Unified School District
   425 1st Avenue
   Sacramento, CA 95818

3. **Contact Person and Phone Number:**
   Nathaniel Browning, Facilities Director
   Facilities Support Services
   916.257.9640

4. **Project Location:** The 7.77-acre site encompasses Oak Ridge Elementary School at 4501 Martin Luther King Jr. Boulevard, in the City of Sacramento. The Assessor's Parcel Number (APN) for Oak Ridge Elementary School is 020-0220-004.

5. **Project Sponsor's Name and Address:**
   Sacramento City Unified School District
   425 1st Avenue
   Sacramento, CA 95818

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

7. **Zoning:** R-1

8. **Description of Project:**
   The District plans to fully redesign and reconstruct the project site, including moving the main access point to the campus on Martin Luther King Jr. Boulevard to align with 21st Avenue. The capacity of the proposed school would decrease to 650 students; buildings would be limited to two stories; and access to the site would be via driveways on Martin Luther King Jr. Boulevard and Mendocino Boulevard.

9. **Surrounding Land Uses and Setting:**
   The project site is bound by Christian Brothers High School and a church to the north, an empty lot and commercial uses along Martin Luther King Jr. Boulevard to the west, single-family and multiple-family residential uses facing 22nd Street to the south, and the baseball field for Christian Brothers High School and a multiple-family complex east of the project site. The residential uses south and east of the project site are located in the unincorporated Sacramento County. The project site is approximately 0.95-mile east of a railway.

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

- City of Sacramento
- California Department of Education, School Facilities Planning Division (CDE)
- California Department of General Services, Division of State Architect (DSA)
- Central Valley Regional Water Quality Control Board

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

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

Per District policy, the District sent Assembly Bill 52 (AB 52) notification letters to the following tribes on March 22, 2023: Wilton Rancheria, Buena Vista Rancheria, Shingle Springs Band of Miwok Indians, Upper Lake Rancheria, and the United Auburn Indian Community of the Auburn Rancheria. The Wilton Rancheria and Shingle Springs Band of Miwok Indians Tribes responded and did not wish to consult. The Wilton Rancheria tribe's recommendations have been incorporated into the IS/MND. See Section 3.18, *Tribal Cultural Resources*, for more information.

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

2.3 DETERMINATION (TO BE COMPLETED BY THE LEAD AGENCY)

On the basis of this initial evaluation:

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

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

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

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

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

Signature	*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.

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3. Environmental Analysis

This section provides an evaluation of the impact categories and questions contained in the checklist and identifies mitigation measures, if applicable.

3.1 AESTHETICS

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

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

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

Less Than Significant Impact. A scenic vista is a viewpoint that provides expansive views of a highly valued landscape for the benefit of the public. Some scenic vistas are officially designated by public agencies or informally designated by tourist guides. Vistas provide visual access or panoramic views to a large geographic area and are generally at a point where surrounding views are greater than one mile away. Panoramic views are usually associated with vantage points over a section of urban or natural areas that provide a geographic orientation not commonly available. Examples of panoramic views might include an urban skyline, valley, mountain range, large open space area, the ocean, or other water bodies. A substantial adverse effect to a scenic vista is one that degrades the view from such a designated view spot.

The Environmental Resources Element of the City's General Plan lists the Sacramento and American Rivers and adjacent greenways, landmarks, and the State Capitol as scenic resources. The project site is not adjacent to such scenic resources; the project site is surrounded by residential uses. The project site is currently developed as a school site and upon project completion, the project site would continue to be used as an elementary school. Therefore, the proposed project would not obstruct or alter scenic resources. Impacts would be less than significant.

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

No Impact. A scenic highway is generally considered a stretch of public roadway that is designated a scenic corridor by a federal, state, or local agency. The California Department of Transportation (Caltrans) defines a scenic highway as any freeway, highway, road, or other public right-of-way that traverses an area of exceptional scenic quality.

The closest designated state scenic highway is SR-160, approximately 5 miles southwest of the project site (Caltrans 2022). Due to the distance and intervening structures, project development would not result in impacts to scenic resources within a designated state scenic highway. Therefore, no impact would occur.

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

Less Than Significant Impact. The project site is located within a fully urbanized area with development surrounding the site in all directions. The project site currently operates as a school and upon project completion, the project site would continue to be used as an elementary school. Therefore, the proposed project is consistent with its R-1 zoning. There are no scenic resources visible from the perimeter of the campus. The proposed project would not adversely affect scenic views as none exist in the area. The project area is a residential community.

The proposed project would not substantially change the existing character of the site. The proposed project would be compatible with the existing development pattern onsite and the character of the surrounding area. Building materials and colors would complement the existing development on adjacent properties. The proposed buildings would consist of plaster, brick and wood and metal panel siding, which would complement the colors and building materials used in the surrounding area. Although the visual qualities of the project site during construction would not appear better than the existing condition of the properties, the construction worksite would be temporary. The finished project would include landscaping and new buildings and exterior finishes that would complement the surrounding structures. Compared to current conditions, which includes buildings on the western portion of the site, the proposed project would consolidate the proposed buildings to the eastern portion of the site and the proposed playfields and hardcourts would be on the western side of the site. Although project implementation would alter the visual appearance of the site, the improvements would not substantially degrade the visual character and quality of the project site and surrounding area. Therefore, impacts would be less than significant.

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

Less Than Significant Impact. The two major causes of light pollution are glare and spill light. Spill light is caused by misdirected light that illuminates areas outside the intended area to be lit. Glare occurs when a bright object is against a dark background, such as oncoming vehicle headlights or an unshielded light bulb. The project site currently generates light from its buildings (interior and exterior) and parking lot. Vehicle headlights, streetlights, and exterior and interior building lights also exist in the surrounding area.

As shown in Figure 3, *Aerial Photograph*, the project site is surrounded by residential uses to the south and east. Residential uses are considered light-sensitive receptors, that is, land uses that are sensitive to lighting. The proposed buildings would have plaster, brick and wood and metal panel siding that are not reflective. Parking light poles and security lighting throughout the school would be installed. The proposed project does not include field lighting. The proposed lighting would be directed onto the intended area to be lit and would not spill off the campus. Light and glare levels caused by the proposed project would not be substantially greater than existing levels. Therefore, light and glare impacts would be less than significant.

3.2 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:

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

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

No Impact. The project site has no agricultural or farm use on it, nor is there agricultural or farm use in its immediate proximity. No project-related farmland conversion impact would occur. The project site is fully developed and is not mapped as important farmland by the Division of Land Resource Protection; the site is mapped as "Urban and Built-Up Land" (CDC 2022a). No impact would occur.

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

No Impact. The zoning designation for the project site is R-1. The proposed project would not conflict with agricultural zoning or a Williamson Act contract as it is not zoned for agricultural use. 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. There is no Williamson Act contract in effect onsite. 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. Project development would not conflict with existing zoning for forest land, timberland, or timberland production. Forest land is defined as "land that can support 10-percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits" (California PRC § 12220[g]). Timberland is defined as "land…which is available for, and capable of, growing a crop of trees of any commercial species used to produce lumber and other forest products, including trees" (California PRC § 4526). The project site is zoned as R-1. Project implementation would not cause rezoning of forestland or timberland. Therefore, no impact would occur.

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

No Impact. The project site does not contain forestland, nor is the project site zoned as forestland. . The project site is developed, and implementation of the proposed project would not convert forestland to non-forest use or result in a loss of forestland. 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. Maps from the Division of Land Resource Protection indicate that there is no important farmland or forest land on the project site or within the surrounding vicinity. Project development would not indirectly cause conversion of such land to nonagricultural or non-forest use. No impact would occur.

3.3 AIR QUALITY

The Air Quality section addresses the impacts of the proposed project on ambient air quality and the exposure of people, especially sensitive individuals, to unhealthy 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, Greenhouse Gas Emissions Data, and Health Risk Assessment*.

Air Pollutants of Concern

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 Sacramento Valley Air Basin (SVAB), which is managed by the Sacramento Metro Air Quality Management District (SMAQMD), is nonattainment area for California and National O_3 and National $PM_{2.5}$ AAQS (SMAQMD 2022). SMAQMD 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 (TACs). 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 United States 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:

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	

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

Less Than Significant Impact. A consistency determination plays an important role in local agency project review by linking local planning and individual projects to the 2017 Sacramento Regional 2008 8-Hour Ozone Attainment and Further Reasonable Progress Plan (Sacramento Ozone Plan). Air Districts in the Sacramento region prepared the Sacramento Ozone Plan, which stands as the applicable air quality plan for the region, as a revision to the California State Implementation Plan (SIP) (CARB 2018). The Sacramento Ozone Plan demonstrated that the Sacramento Area would attain ozone standards in 2024 and contained the required planning elements including an emission inventory, reasonable further progress (RFP) demonstration with a baseline year of 2012, transportation conformity budgets for the years 2020 and 2023, and RFP and attainment contingency provisions.

The SIP plans and control measures are based on information derived from regional growth projections based on general plans developed by the City of Sacramento to forecast future emission levels in the SVAB. As such, projects that propose development consistent with the growth anticipated or development that is less dense that is associated with the City of Sacramento General Plan would be consistent with the SIP. Changes in population, housing, or employment growth projections have the potential to affect SMAQMD's demographic projections and therefore the assumptions in SIP. Typically, only large, regionally significant projects have the potential to affect regional growth projections.

The proposed project involves the redesign and reconstruction of Oak Ridge Elementary School. As discussed in Section 3.14, *Population and Housing*, the capacity of the school would remain the same under the rebuild, so the proposed project would not increase population growth in the area. The project site is currently designated

Public/Quasi-Public, and the District does not need to apply for a Conditional Use Permit since the project site currently operates as a school. Therefore, the proposed land use development would be consistent with the City of Sacramento Zoning Ordinance and is permitted under City approval and issuance of a site plan review.

Additionally, based on the scope and nature of the proposed project, it is anticipated to generate fewer than 1,000 new jobs and would develop less than 500,000 square feet of new business floor space. Thus, it would not meet the criteria for a project of statewide, regional, or areawide significance established under CEQA Guidelines Section 15206(b)(2). Therefore, the proposed project would not affect the regional emissions inventory or conflict with strategies in the SIP. This impact would be less than significant.

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

Less Than Significant Impact with Mitigation Incorporated. As stated, the SVAB is designated under the California and Federal AAQS as nonattainment for ozone and under the California AAQS as nonattainment for $PM_{2.5}$ (SMAQMD 2022). Any project that produces a significant project-level regional air quality impact in an area that is in nonattainment adds to the cumulative impact. Air quality impacts of the proposed project were evaluated based on the *Guide to Air Quality Assessment in Sacramento County* (AQ Guidelines) (SMAQMD 2009). Development projects below the regional significance thresholds are not expected to generate sufficient criteria pollutant emissions to violate any air quality standard or contribute substantially to an existing or projected air quality violation. The following describes project-related impacts from short-term construction activities and long-term operation of the proposed project.

SMAQMD also released its *Guidance to Address the Friant Ranch Ruling for CEQA Projects in the Sac Metro Air District* in October 2020 to provide methodology to assess the specific correlation between mass emissions generated and the effect of health raised in *Sierra Club v. County of Fresno* (Friant Ranch, L.P.) (2018) 6 Cal.5th 502, Case No. S21978 (SMAQMD 2020c). This guidance document was developed with input from Yolo-Solano AQMD, Placer County Air Pollution Control District, El Dorado County Air Quality Management District, and Feather River Air Quality Management District. These air districts, in addition to SMAQMD, comprises the Sacramento Federal Nonattainment Area (SFNA) and the Five-Air-District Region.

The Friant Ranch guidance document provides insight on the health effects that may result from a project emitting at the maximum thresholds of significance (TOS) levels in the Five-Air-District Region for NO_X, ROGs, PM, CO, and SO_X. It includes two look-up tables for estimating health effects for strategic areas where growth exceeding the TOS level is anticipated. For purposes of the look-up tables, a TOS level of 82 lbs/day, which represents the highest TOS level between the thresholds established by the SFNA air districts, is utilized. The Minor Project Health Effects Screening Tool uses the location of a project to estimate interpolated health effects based on the TOS level of 82 lbs/day and the health effects of 41 hypothetical sources. The Strategic Area Project Screening Modeling tool uses the NO_X, ROG, and $PM_{2.5}$ emissions of a project to interpolate health effects based on the health effects of six potential strategic area project locations at levels two and eight times the 82 lbs/day TOS level. The health effects of criteria pollutant emissions at the TOS level are conservative estimates that can be used in environmental documents.

Regional Short-Term Construction Impacts

Construction activities produce combustion emissions from various sources, such as onsite heavy-duty construction vehicles, vehicles hauling materials to and from the site, and motor vehicles transporting the construction crew. Site preparation activities produce fugitive dust emissions (PM_{10} and $PM_{2.5}$) 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 project would result in emissions of ROG, NO_X, CO, PM_{10}, and $PM_{2.5}$.

Construction Fugitive Dust

Ground disturbing activities during construction would generate fugitive dust (PM_{10} and $PM_{2.5}$). The amount of dust generated during construction would be highly variable and is dependent on the amount of material being disturbed, the type of material, moisture content, and meteorological conditions. If uncontrolled, PM_{10} and $PM_{2.5}$ levels downwind of actively disturbed areas could possibly exceed State standards. The proposed project would be subject SMAQMD's Rule 403, *Fugitive Dust*, that would reduce impacts related to fugitive dust generated during project construction. Nonetheless, the SMAQMD's current CEQA guidance recommends that the SMAQMD's Basic Construction Emission Control Practices (BMPs) be included as part of a project's Mitigation Monitoring and Reporting Program for the project to be measured against the SMAQMD's non-zero PM significance threshold. Should a project not implement these BMPs, the SMAQMD significance threshold for construction-generated PM would be zero. As such, Mitigation Measure AQ-1 would be required to ensure the SMAQMD's Basic Construction BMPs are incorporated into project construction to reduce impacts related to fugitive dust to less than significant.

Construction Exhaust Emissions

The proposed project would result in demolition, site preparation, grading, building construction, paving, and architectural coating activities. Analysis of construction emissions is based on the preliminary construction duration and normalized CalEEMod default schedule developed for the proposed project. As noted in Section 1.5.2, *Project Description*, construction of the proposed project would involve demolition of the existing buildings and asphalt onsite, site preparation, grading, new building construction, landscaping, and installation of fields and parking lot.

A quantified analysis of the proposed project's construction emissions was conducted using the California Emissions Estimator Model (CalEEMod) Version 2022.1 based on information provided by the District and default equipment mix for each construction phase. Construction is assumed to begin in September 2023 and last until September 2025. As noted in Section 1.5.2, the construction would occur within three separate phases with the first phase consisting of the construction of the new academic buildings on the eastern portion of the campus while school operations continue on the western portion of campus. The second phase consists of the demolition of the portable buildings and hardcourts and construction of the new hard courts, driveway and parking lot. The third phase consists of the construction of the play fields and site frontage and demolition of the existing permanent buildings. School operations would continue on-site throughout Phases 2 and 3 in the eastern portion of the campus within the newly constructed school buildings. As such, the proposed project was modeled under three phases reflecting the activities and timing summarized above and in Section 1.5.2.

Potential construction-related air quality impacts are determined by comparing the maximum daily criteria air pollutants emissions generated by project construction to the SMAQMD significance thresholds in Table 2, *Maximum Daily Regional Construction Emissions*. Maximum daily emissions shown therein are based on the highest maximum daily emission rates between Winter and Summer seasonal modeling results. Annual criteria air pollutant emissions generated by project construction are compared against the applicable SMAQMD significance thresholds in Table 3, *Annual Regional Construction Emissions*. As previously mentioned, because the proposed project would be required to implement dust control measures under Mitigation Measure AQ-1, the applicable significance threshold for PM_{10} would be 80 pounds per day and 14.6 tons per year and $PM_{2.5}$ would be 82 pounds per day and 15 tons per year, rather than a significance threshold of zero for all construction-generated PM. It is important to note that the annual significance thresholds for construction only apply to PM_{10} and $PM_{2.5}$. As such, Table 3 is limited to annual emission estimates for PM.

Table 2 Maximum Daily Regional Construction Emissions

	Maximum Daily Criteria Air Pollutants (lbs/day)[1, 2]			
Construction Activity	**ROG**	**NO_X**	**Total PM_{10}**	**Total $PM_{2.5}$**
Phase 1				
2023	4.04	41	14.1	6.12
2024	1.31	11.8	0.79	0.53
2025	13.2	17.3	1.22	0.77
Phase 2				
2025	1.74	15.7	12.4	4.5
Phase 3				
2025	1.14	10.9	5.77	1.79
Maximum Daily Construction Emissions	**13.2**	**17.3**	**14.1**	**6.12**
SMAQMD Max. Daily Project-Level Thresholds	**NA**	**85**	**80**	**82**
Exceeds Max. Daily Threshold?	--	No	No	No

Source: CalEEMod, Version 2022.1
Notes:
[1] Air quality modeling based on a construction schedule and information provided by the District. Where specific information regarding project-related construction activities was not available, construction assumptions were based on CalEEMod defaults, which are based on construction surveys conducted by South Coast AQMD of construction equipment and phasing for comparable projects.
[2] Includes implementation of fugitive dust control measures required by SMAQMD under Rule 403, including watering disturbed areas a minimum of two times per day, reducing speed limit to 15 miles per hour on unpaved surfaces, replacing ground cover quickly, and street.

Table 3 Annual Regional Construction Emissions

Construction Activity	Annual Criteria Air Pollutants (tons/year)[1, 2]	
	Total PM_{10}	Total $PM_{2.5}$
Phase 1		
2023	0.17	0.08
2024	0.1	0.07
2025	0.05	0.03
Phase 2		
2025	0.15	0.04
Phase 3		
2025	0.11	0.02
SMAQMD Annual Project-Level Thresholds	**14.6**	**15**
Exceeds Annual Threshold?	No	No

Source: CalEEMod, Version 2022.1

Notes:

[1] Air quality modeling based on a construction schedule and information provided by the District. Where specific information regarding project-related construction activities was not available, construction assumptions were based on CalEEMod defaults, which are based on construction surveys conducted by South Coast AQMD of construction equipment and phasing for comparable projects.

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

As shown above in Table 2 and Table 3, criteria air pollutant emissions from construction equipment exhaust would not exceed the SMAQMD maximum daily or annual significance thresholds. In addition, fugitive dust impacts would be reduced by implementation of Mitigation Measure AQ-1. Therefore, impacts from project-related construction activities to the regional air quality would be less than significant with mitigation.

Long-Term Operation-Related Impacts

Typical long-term air pollutant emissions generated by a land use would be generated by area sources (e.g., landscape fuel use, aerosols, and architectural coatings), mobile sources from vehicle trips, and energy use (natural gas) associated with the land use, as applicable. The proposed project involves a redesign and reconstruction of Oakridge Elementary School and would result in no change to student capacity. The SMAQMD has adopted operational screening criteria to determine whether new land use development projects would present a potential to exceed SMAQMD significance thresholds (SMAQMD 2018). As the proposed project is the reconstruction of an elementary school, the appropriate SMAQMD screening criteria would be the Educational, Elementary School land use criteria, listed below:

- Ozone Precursor Screening Level: 365,000 square feet, or 4,350 students.
- PM Screening Level: 760,000 square feet, or 9,100 students.

The proposed project would not involve any increase in student enrollment beyond existing conditions. Moreover, the proposed project would constitute the demolition of the existing buildings totaling approximately 41,820 square feet and construction of new buildings totaling approximately 52,948 square feet, for an approximate increase of 11,128 square feet. As both the new student enrollment (0 students) and new building space (11,128 square feet) would be less than the SMAQMD's applicable screening criteria, the proposed project would be considered to generate operational criteria air pollutant and ozone precursor emissions below the SMAQMD significance thresholds. Therefore, impacts to the regional air quality associated with operation of the project would be less than significant.

Mitigation Measures

AQ-1 The project shall implement the following Basic Construction Best Management Practices recommended by the Sacramento Metropolitan Air Quality Management District (SMAQMD). Grading plans for the project shall clearly list these requirements:

- Water all exposed surfaces two times daily. Exposed surfaces include, but are not limited to soil piles, graded areas, unpaved parking areas, staging areas, and access roads.
- Cover or maintain at least two feet of free board space on haul trucks transporting soil, sand, or other loose material on the site. Any haul trucks that would be traveling along freeways or major roadways should be covered.
- Use wet power vacuum street sweepers to remove any visible trackout mud or dirt onto adjacent public roads at least once a day. Use of dry power sweeping is prohibited.
- Limit vehicle speeds on unpaved roads to 15 miles per hour (mph).
- All roadways, driveways, sidewalks, parking lots to be paved should be completed as soon as possible. In addition, building pads should be laid as soon as possible after grading unless seeding or soil binders are used.
- Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes [California Code of Regulations, Title 13, sections 2449(d)(3) and 2485]. Provide clear signage that posts this requirement for workers at the entrances to the site.
- Provide current certificate(s) of compliance for CARB's In-Use Off-Road Diesel-Fueled Fleets Regulation [California Code of Regulations, Title 13, sections 2449 and 2449.1].
- Maintain all construction equipment in proper working condition according to manufacturer's specifications. The equipment must be checked by a certified mechanic and determined to be running in proper condition before it is operated.

With implementation of Mitigation Measure AQ-1, the proposed project would implement applicable dust control BMPs to reduce the generation of fugitive dust during project construction. By implementing these BMPs, the proposed project is considered to have a less than significant impact related to construction-generated $PM_{2.5}$ and PM_{10}, as discussed above and illustrated in Table 2 and Table 3.

c) Expose sensitive receptors to substantial pollutant concentrations?

Less Than Significant Impact with Mitigation Incorporated. The significance of localized project impacts depends on whether the project would cause substantial concentrations of criteria air pollutants for which the SMAQMD is designated as nonattainment under the California or National AAQS.

CO Hotspots

Areas of vehicle congestion have the potential to create pockets of CO, called hotspots. These pockets have the potential to exceed the State 1-hour standard of 20 ppm or the 8-hour standard of 9.0 ppm. Since 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 longer periods and are subject to reduced speeds.

An overarching goal of the 2020 Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS) for the Sacramento region is to concentrate development in areas Within existing urban areas rather than allocate new growth in outlying areas where substantial transportation investments would be necessary to achieve the per capita passenger vehicle VMT and associated GHG emissions reductions (SACOG 2019). The proposed project would serve the local population and is located in close proximity to existing roadways, transit, and bicycle and pedestrian routes. Thus, the proposed project would be consistent with the overall goals of the 2020 MTP/SCS and would not hinder the capital improvements outlined in the Sacramento Area Council of Government's (SACOG) Congestion Management Process (CMP).

As the SMAQMD does not currently have adopted CO hotspot screening guidance, guidance from the Bay Area Air Quality Management District (BAAQMD) is utilized herein to determine whether the proposed project may result in potentially significant impacts related to CO hotspot generation. Under existing and future vehicle emission rates, a project would have to increase traffic volumes at a single intersection to more than 44,000 vehicles per hour—or 24,000 vehicles per hour where vertical and/or horizontal air does not mix—in order to generate a significant CO impact (BAAQMD 2017a). As mentioned in the traffic/transportation analysis, the proposed project would not result in an increase in student capacity and the traffic associated with these students and staff would be traveling on the area's roadway network regardless of the status of this proposed project. Therefore, the proposed project would not have the potential to substantially increase CO hotspots at intersections in the SVAB.

In addition, the potential for CO hotspots to be generated in the SVAB is extremely unlikely because of the improvements in vehicle emission rates and control efficiencies. Most land use development projects would not expose sensitive receptors to substantial pollutant concentrations and analysis of CO hotspots is not warranted. Furthermore, the proposed project would not increase exposure at the project site from proximity to the surrounding roadways and freeways. Therefore, localized air quality impacts related to mobile-source emissions would be less than significant, and no mitigation measures are required.

Health Risk

Construction Community Risk and Hazards

The proposed project would elevate concentrations of TACs (i.e., DPM) in the vicinity of sensitive land uses during temporary construction activities that would use offroad equipment operating onsite, and at different levels depending on the type of activity (for example, limited to none during installation of utilities, and more during grading activities). Construction modeling considered years 2023-2025 for the duration of project construction.

The nearest receptor types to the project site are offsite residents surrounding the project site, offsite workers across Martin Luther King Jr Boulevard at Signs by Tran, offsite students at Christian Brothers High School north of the project site, offsite daycare patrons at Shiloh Arms Child Development Center southeast of the project site, and onsite students at Oak Ridge Elementary School. A site-specific construction Health Risk Assessment (HRA) of TACs was prepared to quantify potential health risk emissions during project construction (see Appendix A). The results of the analysis are shown in Table 4, *Unmitigated Construction Risk Summary,* and demonstrates that the SMAQMD's significance thresholds could be exceeded without mitigation.

Table 4 Unmitigated Construction Risk Summary

Receptor	Cancer Risk (per million)	Chronic Hazards
Maximum Exposed Receptor – Off-site Resident [1]	69.58	0.047
Maximum Exposed Receptor – Off-site Students [2]	10.23	0.060
Maximum Exposed Receptor – Off-site Daycare [1]	11.23	0.006
Maximum Exposed Receptor – Off-site Workers	0.24	0.044
Maximum Exposed Receptor – On-site Students [2]	6.66	0.046
SMAQMD Threshold	**10**	**1.0**
Exceeds Threshold?	Yes	No

Source: Appendix A

[1] In accordance with the latest 2015 OEHHA guidance, the calculated total cancer risk conservatively assumes that the risk for the residential and daycare Maximally Exposed Receptors (MERs) consists of a pregnant woman in the third trimester that subsequently gives birth to an infant during the approximately 1.82-year construction period; therefore, calculated risk values were multiplied by a factor of 10.

[2] The calculated risk values for the students were multiplied by a factor of 3.

[3] Calculations were completed using CARB's HARP2 program.

As illustrated in Table 4, the proposed project would exceed the cancer risk significance threshold of 10 in one million for the maximum exposed off-site residential, off-site student, and off-site daycare receptors. As shown in Table 4, neither the on-site student nor the off-site worker receptors would experience a cancer risk that exceeds SMAQMD significance thresholds, and none of the identified nearby receptors would experience a chronic hazard that exceeds SMAQMD significance thresholds during project construction. Because nearby receptors could experience a cancer risk greater than the SMAQMD's significance threshold, Mitigation Measure AQ-2 would be required to ensure that project construction utilizes Tier 4 Final engines for equipment greater than 25 horsepower to reduce the localized concentrations of DPM. The mitigated HRA results specifically for all receptors shown in Table 4, which incorporate implementation of Mitigation Measure AQ-2, are presented in Table 5, *Mitigated Construction Risk Summary*.

Table 5 Mitigated Construction Risk Summary

Receptor	Cancer Risk (per million)	Chronic Hazards
Maximum Exposed Receptor – Off-site Resident [1]	6.83	0.006
Maximum Exposed Receptor – Off-site Students [2]	1.01	0.008
Maximum Exposed Receptor – Off-site Daycare [1]	1.08	0.001
Maximum Exposed Receptor – Off-site Workers	0.04	0.007
Maximum Exposed Receptor – On-site Students [2]	0.60	0.005
SMAQMD Threshold	**10**	**1.0**
Exceeds Threshold?	No	No

Source: Appendix A

[1] In accordance with the latest 2015 OEHHA guidance, the calculated total cancer risk conservatively assumes that the risk for the residential MER consists of a pregnant woman in the third trimester that subsequently gives birth to an infant during the approximately 1.82-year construction period; therefore, calculated risk values were multiplied by a factor of 10.

[2] The calculated risk values for the students were multiplied by a factor of 3.

[3] Calculations were completed using CARB's HARP2 program.

[4] Modeling includes Mitigation Measure AQ-2, which requires the use of Tier 4 Final engines for construction equipment greater than 25 horsepower.

As shown in Table 5, implementation of Mitigation Measure AQ-2 would reduce cancer risk impacts at the maximum exposed off-site residential, off-site student, and off-site daycare receptors to below SMAQMD's significance threshold of 10 in one million.

Because cancer risks for all nearby receptor types would be below SMAQMD significance thresholds after mitigation, construction activities associated with the proposed project are less than significant with mitigation.

Health Effects of Exceeding the Criteria Air Pollutant Thresholds

Contributing to the nonattainment status would also contribute to elevating health effects associated to 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. Potential health effects from construction-related $PM_{2.5}$, ROG, and NO_X emissions are listed below and based on the scenario at which a project would generate these criteria air pollutants at 82 lbs/day.

Per the Minor Project Health Effects Screening Tool of the SMAQMD Friant Ranch guidance document, based on the project site location and the default TOS level of 82 lbs/day, the resulting estimated health effects related to $PM_{2.5}$ emissions include the following (see Appendix A):

- Increasing asthma-related emergency room visits for the 0- to 99-year-old age range group by 1.1 incidence, or 0.006 percent of the 18,419 total incidences for this category in the Five-Air-District Region.

- Increasing asthma-related hospital admissions for the 0- to 64-year-old age range group by 0.073 incidence, or 0.004 percent of the total 1,846 incidences for this category in the Five-Air-District Region.
- Increasing respiratory-related hospital admissions for the 65- to 99-year-old age range group by 0.30 incidence, or 0.002 percent of the total 19,644 incidences for this category in the Five-Air-District Region
- Increasing mortality for the 30- to 99-year-old age range group by 2.1 incidence, or 0.005 percent of the total 44,766 incidences for this category in the Five-Air-District Region.

Estimated health effects related to ROG and NO_X, represented through the ozone health endpoint, include the following:

- Increasing asthma-related emergency room visits for the 0- to 17-year-old age range group by 0.04 incidence, or 0.007 percent of the 5,859 total incidences for this category in the Five-Air-District Region.
- Increasing asthma-related emergency room visits for the 18- to 99-year-old age range group by 0.63 incidence, or 0.005 percent of the 12,560 total incidences for this category in the Five-Air-District Region.
- Increasing respiratory-related hospital admissions for the 65- to 99-year-old age range group by 0.07 incidence, or <0.001 percent of the total 19,644 incidences for this category in the Five-Air-District Region.
- Increasing mortality for the 0- to 99-year-old age range group by 0.046 incidence, or <0.001 percent of the total 30,386 incidences for this category in the Five-Air-District Region.

As listed above, the estimated health effects related to $PM_{2.5}$, ROG, and NO_X emissions within the Five-Air District Region due to the proposed project would result in a very small increase over the background incidence of premature deaths. Therefore, the proposed project emissions would have lower estimated health effects compared to this conservative estimate at the maximum 82 lbs/day TOS level and would not have a significance air quality impact.

Operation Phase Community Risk and Hazards

The purpose of this environmental evaluation is to identify the significant effects of the proposed project on the environment, not the significant effects of the environment on the proposed project (*California Building Industry Association v. Bay Area Air Quality Management District [2015] 62 Cal.4th 369 [Case No. S213478]*). In general, CEQA does not require an environmental evaluation to analyze the environmental effects of attracting development and people to an area. However, the environmental evaluation must analyze the impacts of environmental hazards on future users when the proposed project exacerbates an existing environmental hazard or condition or if there is an exception to this exemption identified in the Public Resources Code. Schools, residential, commercial, and office uses do not use substantial quantities of TACs and typically do not exacerbate existing hazards, so these thresholds are typically applied to new industrial projects. However, Section 21151.8 of the Public Resources Code requires evaluation of air quality hazards for school site acquisition or construction of K-12 schools.

The proposed project involves the demolition and reconstruction of the Oak Ridge Elementary School campus facilities. In addition, it is within a residential community and is not within a quarter mile of any permitted or non-permitted facilities (e.g., warehousing). Furthermore, there are also no freeways or busy corridors within a quarter mile of the project site.[1] Therefore, it is not anticipated that the onsite students and staff would be exposed to an actual or potential endangerment from surrounding emissions sources and carcinogenic and non-carcinogenic impacts would be less than significant. No mitigation measures are required.

Mitigation Measures

AQ-2 Construction contractors shall, at minimum, use equipment that meet the United States Environmental Protection Agency's (EPA) Tier 4 Final emissions standards for off-road diesel-powered construction equipment of 25 horsepower, unless it can be demonstrated to the Sacramento Unified School District that such equipment is not commercially available. For purposes of this mitigation measure, "commercially available" shall mean the availability of Tier 4 Final engines similar to the availability for other large-scale construction projects in the city occurring at the same time and taking into consideration factors such as (i) potential significant delays to critical-path timing of construction and (ii) geographic proximity to the project site of Tier 4 Final equipment. Where such equipment is not commercially available, as demonstrated by the construction contractor, Tier 4 Interim or Tier 3 equipment retrofitted with a California Air Resources Board's Level 3 Verified Diesel Emissions Control Strategy (VDECS) shall be used. This requirement shall apply to all activities (e.g., foundation, pile driving, vertical construction) related to construction of the proposed project.

In addition, the following shall also be completed:

- Prior to construction, the project engineer shall ensure that all construction (e.g., grading and building) plans clearly show the requirement for EPA Tier 4 Final emissions standards for construction equipment of 25 horsepower or more.
- The construction equipment list shall state the makes, models, Equipment Identification Numbers, Engine Family Numbers, and number of construction equipment on-site. Equipment shall be properly serviced and maintained in accordance with the manufacturer's recommendations.
- To the extent that equipment is available and cost-effective, contractors shall use electric, hybrid, or alternate-fueled off-road construction equipment.
- Contractors shall use electric construction tools, such as saws, drills, and compressors, where grid electricity is available.
- Construction contractors shall ensure that all nonessential idling of construction equipment is restricted to five minutes or less in compliance with Section 2449 of the California Code of Regulations, Title 13, Article 4.8, Chapter 9.

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[1] Roadways that, on an average day, have traffic in excess of 50,000 vehicles in a rural area, as defined in Section 50101 of the Health and Safety Code, and 100,000 vehicles in an urban area, as defined in Section 50104.7 of the Health and Safety Code.

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

Less Than Significant Impact. The project site would continue to operate as a school. Therefore, the proposed project would not result in a change in land use that would generate odors and no objectionable odors are anticipated to result from the operational activity of the proposed project. The type of facilities that are considered to have objectionable odors include wastewater treatments plants, compost facilities, landfills, solid waste transfer stations, fiberglass manufacturing facilities, paint/coating operations (e.g., auto body shops), dairy farms, petroleum refineries, asphalt batch plants, chemical manufacturing, and food manufacturing facilities. The proposed project does not fit into these types of facilities and would not generate objectionable odors that would lead to a public nuisance.

During construction activities, construction equipment exhaust, application of asphalt and architectural coatings would temporarily generate odors. However, any construction-related odor emissions would be low in concentration and temporary. Additionally, odors would typically 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.

Furthermore, the proposed project would be required to comply with SMAQMD Rule 402, *Public Nuisance*, which prohibits the discharge of air contaminants or other materials that would be a nuisance or annoyance to the public.

In summary, construction-related odor emissions would be temporary, and the proposed project is not considered the type of use that would generate odors that would affect a substantial number of people. Additionally, the proposed project is required to comply with SMAQMD Rule 402, and thus odor-related impacts to offsite land uses would be less than significant.

3.4 BIOLOGICAL RESOURCES

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

- *Arborist Survey Report for the Oak Ridge Elementary School Rebuild Project*, ECORP Consulting, Inc., February 10, 2023

A complete copy of the report is included in Appendix B to this Initial Study.

Would the project:

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

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

Less Than Significant Impact. Candidate species are plants and animals that have been studied and the US Fish and Wildlife Service (USFWS) has concluded that they should be proposed for addition to the federal endangered and threatened species list.

Sensitive biological resources are habitats[2] or individual species that have special recognition by federal, state, or local conservation agencies and organizations as endangered, threatened, or rare. The California Department of Fish and Wildlife (CDFW), USFWS, and organizations like the California Native Plant Society maintain watch lists of such resources.

"Special status species" is a universal term in the scientific community for species that are considered sufficiently rare that they require special consideration and/or protection and should be or have been listed as rare, threatened, or endangered by USFWS and/or CDFW.

Candidate and Sensitive Species

The project site is currently developed with a school and is within an urbanized portion of the City. The project site is bound by Christian Brothers High School and a church to the north, an empty lot and commercial uses along Martin Luther King Jr. Boulevard to the west, single-family and multiple-family residential uses facing 22nd Street to the south, and the baseball field for Christian Brothers High School and a multiple-family complex east of the project site. Given that the project site and surrounding area are developed and disturbed by human activities, it is unlikely that there is candidate or sensitive species onsite. Therefore, impacts would be less than significant.

Special Status Species

There are no special-status species previously documented within the project site boundaries.

Special Status Plants

An Arborist Report was prepared for the project site to identify, map, and assess the general condition of all trees on the project site (ECORP 2023). A total of 120 trees were inventoried in the study area (the 7.7-acre Oak Ridge Elementary School campus); which includes 37 coast live oak (*Q. agrifolia*), ten holly oak (*Q. ilex*), eight crepe myrtle (*Lagerstroemia indica*), eight Chinese privet (*Ligustrum sinense*), five tree of heaven (*Ailanthus altissima*), four camellia (*Camellia* sp*.),* three common fig (F*icus carica*), three valley oak, two bay laurel (*Laurus nobilis),* two Carolina cherry (*Prunus caroliniana*), two London plane (*Platanus* × *acerifolia*), two orange (*Citrus* sp.), one Asian pear (*Pyrus pyrifolia*), one Meyer lemon (*Citrus* × *meyeri*), one California redwood (*Sequoia sempervirens*), one loquat (*Eriobotrya japonica*), one mock orange (*Pittosporum tobira*), one nectarine (*Prunus persica*), one olive (*Olea europaea),* one persimmon (*Diospyros virginiana*), one pine (*Pinus* sp.), one pineapple guava (*Acca sellowiana*), one plum (*Prunus* sp.), one pluot (*Prunus* sp.), one red oak (*Q. rubra*), and 21 trees that could not be identified due to visual barriers or winter leaf drop. (ECORP 2023). Additionally, one dead tree was inventoried. As none of the trees found in the study area are state or federally listed endangered, threatened, or rare plants, impacts to the trees would be less than significant.

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[2] Per the California Department of Fish and Wildlife, habitat is where a given plant or animal species meets its requirements for food, cover, and water in both space and time.

Special Status Wildlife

Based on database search results and wildlife surveys in the project area, the following special-status species are known to occur in or adjacent to the project site: California tiger salamander, monarch butterfly, valley elderberry longhorn beetle, vernal pool fairy shrimp, and vernal pool tadpole shrimp (USFWS 2022). However, these species are not discussed further because they and/or suitable habitats are absent from the project site.

The project site is developed with an existing school. No special-status wildlife species occur within the project area due to historical and continued disturbance and use. However, native migratory birds may be present in the project area. All locations with a shrub- or tree-canopy layer in the project area may provide suitable nesting habitat for a diverse assemblage of migratory birds.

The site is developed and includes existing school buildings and facilities. A total of 120 trees were inventoried in the study area. The ornamental trees onsite could be used for nesting by birds protected under the Migratory Bird Treaty Act (MBTA) (US Code Title 16, Sections 703-712), and California Fish and Game Code Sections 3503 et seq. Tree or vegetation removal would be required for the project; therefore, the project could result in direct impacts on migratory birds if they are nesting in the affected trees and vegetation during construction. Indirect impacts on migratory birds could result from noise and vibration during construction if birds were nesting in the trees adjacent to the project area. Therefore, per Mitigation Measure BIO-1, a preconstruction nesting bird survey is required within 14 days of the beginning of ground disturbance during the nesting season. Additionally, per Mitigation Measure BIO-2, a no-disturbance buffer around the nest shall be established if active nests are found. Impacts would be less than significant with implementation of mitigation.

Mitigation Measures

BIO-1	Conduct a pre-construction nesting raptor and bird survey of all suitable habitat on the project site within 14 days of the commencement of ground disturbance (e.g., tree/vegetation removal, mass grading) during the nesting season (February 1 to August 31). Where accessible, surveys should be conducted within 300 feet of the project site for nesting raptors and 100 feet of the project site for other nesting birds.
BIO-2	If active nests are found, a no-disturbance buffer around the nest shall be established. The buffer distance shall be established by a qualified biologist in consultation with CDFW. The buffer shall be maintained until the fledglings are capable of flight and become independent of the nest tree, to be determined by a qualified biologist. Once the young are independent of the nest, no further measures are necessary.

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 communities that are considered rare in the region by regulatory agencies; known to provide habitat for sensitive animal or plant species; or known to be important wildlife corridors. Riparian habitats are those occurring along the banks of rivers and streams.

The project site is developed with an existing school. No riparian habitats are identified onsite (USFWS 2022). As such, no impacts would occur.

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

No Impact. Wetlands are defined under the federal Clean Water Act as land that is flooded or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that normally does support, a prevalence of vegetation adapted to life in saturated soils. Wetlands include areas such as streams, swamps, marshes, and bogs.

The project site is currently developed with an existing school. No wetland or drainage areas are identified on the project site (USFWS 2022). Therefore, no impacts would occur to wetlands or drainage areas.

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

The Migratory Bird Treaty Act (50 Code of Federal Regulations Part 10 and Part 21) protects migratory birds, their occupied nests, and their eggs from disturbance or destruction. "Migratory birds" include all nongame, wild birds found in the U.S., except for the house sparrow (*Passer domesticus*), European starling (*Sturnus vulgaris*), and rock pigeon (*Columba livia*).

The proposed project is heavily used and is in an urbanized area. There are no significant habitat features (e.g., wetlands or riparian areas) within or adjacent to the project site, and project development is not expected to impact wildlife movement. However, the ornamental trees onsite could be used for nesting by birds protected under the Migratory Bird Treaty Act (MBTA) (US Code Title 16, Sections 703-712), and California Fish and Game Code Sections 3503 et seq. Tree or vegetation removal would be required for the project; therefore, the project could result in direct impacts on migratory birds if they are nesting in the affected trees and vegetation during construction. Indirect impacts on migratory birds could result from noise and vibration during construction if birds were nesting in the trees adjacent to the project area. Therefore, per Mitigation Measure BIO-1, a pre-construction nesting bird survey is required within 14 days of the commencement of ground disturbance during the nesting season. Additionally, per Mitigation Measure BIO-2, a no-disturbance buffer around the nest shall be established if active nests are found. Therefore, impacts would be less than significant with implementation of mitigation.

Mitigation Measures

Implement Mitigation Measures BIO-1 and BIO-2.

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

Less Than Significant With Mitigation Incorporated. See Impact 3.4(a), above. According to the Arborist Report, 120 trees were found in the study area; it is anticipated that 62 of the 120 living trees within the study area would be removed. (ECORP 2023). Eight additional trees have trunks located on private property and would have indirect impacts. Indirect impacts means that there will be impacts at the soil level within the Tree Protection Zone of the tree through some form of ground disturbance. To avoid damage to these eight trees during construction activities, Mitigation Measures BIO-3 and BIO-4 shall be implemented. Mitigation Measure BIO-3 provides standards for avoiding the driplines of the affected trees while Mitigation Measure BIO-4 provides standards for grading beneath tree driplines, when applicable. The remaining 51 surveyed trees are located along the school's fence line, either growing against or through the fence. These trees would be removed if the campus's fencing is to be removed and replaced.

Of the 120 trees in the study area, 17 inventoried trees are considered private protected trees[3] per the City's tree ordinance (Chapter 12.56, Tree Planting, Maintenance, and Conservation, of the City of Sacramento Municipal Code) because they are located on private property and are either native oaks with a diameter at standard height of 12 inches or larger or are a non-oak with a diameter at standard height of 24 inches or larger. Six of these 17 private protected trees (i.e., tag numbers 12, 125, 132, 159, 160, and 161) would be removed to accommodate the new campus site plan. While the City's tree ordinance does not apply to the District's property, it provides standards for protection and replacement of trees on City and private property. Therefore, impacts would be less than significant with implementation of mitigation and compliance with the City's tree ordinance.

Mitigation Measures

BIO-3 During construction activities, the following standards shall be required to preserve the trees located on surrounding private properties (i.e., tag numbers 21, 33, 34, 35, 36, 37, 46, and 47):

a. Avoid grade cuts greater than 1 foot within the driplines of preserved trees and within 5 feet of their trunks.

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[3] According to the City of Sacramento's Municipal Code, a private protected tree means:

1. A tree that is designated by city council resolution to have special historical value, special environmental value, or significant community benefit, and is located on private property;
2. Any native Valley Oak (*Quercus lobata*), Blue Oak (*Quercus douglasii*), Interior Live Oak (*Quercus wislizenii*), Coast Live Oak (*Quercus agrifolia*), California Buckeye (*Aesculus californica*), or California Sycamore (*Platanus racemosa*), that has a diameter at standard height of 12 inches or more, and is located on private property;
3. A tree that has a diameter at standard height of 24 inches or more located on private property that:
   i. is an undeveloped lot; or
   ii. does not include any single unit or duplex dwellings; or
   iii. a tree that has a diameter at standard height of 32 inches or more located on private property that includes any single unit or duplex dwellings.

b. Avoid fill greater than 1 foot within the driplines of preserved trees and any placement of fill within 5 feet of their trunks.

c. Avoid trenching within the driplines of preserved trees. If it is absolutely necessary to install underground utilities within the driplines of a preserved tree, it is recommended that the trench be either bored or drilled.

d. Avoid installing irrigation systems within the driplines of preserved tree(s) as it may be detrimental to the long-term survival of the preserved tree(s).

e. Limit landscaping beneath preserved trees be limited to non-plant materials such as boulders, cobbles, wood chips, etc., or plant species tolerant of the natural semi-arid environs of the trees.

f. Drip irrigation should be limited to approximately twice per summer for the understory plants.

BIO-4 For grading activities that would occur below the driplines of trees located in the surrounding private properties (i.e., tag numbers 21, 33, 34, 35, 36, 37, 46, and 47), the following standards shall be required to avoid damage to the applicable trees:

a. Major roots 2 inches or greater in diameter encountered within the tree's dripline in the course of excavation from beneath trees that are not to be removed should be kept moist and covered with earth as soon as feasible. Roots 1 inch to 2 inches in diameter that are severed should be trimmed, treated with pruning compound, and covered with earth as soon as possible.

b. Support roots that are inside the dripline of the tree should be protected to the extent feasible. Hand-digging is recommended in the vicinity of major trees to prevent root cutting and mangling by heavy equipment.

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?

Less Than Significant Impact. The project site is not within a Natural Community Conservation Plan or Habitat Conservation Plan area. The project site does not contain sensitive biological resources given its disturbed nature; the proposed project would be required to comply with Mitigation Measures BIO-3 and BIO-4. Impacts would be less than significant.

3.5 CULTURAL RESOURCES

Would the project:

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

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

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

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

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

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

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

The project site contains Oak Ridge Elementary School, which opened in 1951. There are no state or national historic resources on the project site (NPS 2020; OHP 2023). Construction of the proposed project would occur within the project boundary. Therefore, no impacts would occur.

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

Less Than Significant Impact with Mitigation Incorporated. Implementation of the proposed project would require ground disturbing activities such as ground clearing, excavation, grading, and other construction activities. Although the project site is already developed, potential buried resources could be unearthed during ground disturbing activities. Mitigation Measure CUL-1 requires that if any evidence of cultural resources is discovered, all work within the vicinity of the find will stop until a qualified archaeological consultant can assess the find and make recommendations. Therefore, impacts to archaeological resources would be reduced to a less than significant impact with mitigation.

Mitigation Measures

CUL-1 Prior to grading activities, a qualified archaeological monitor shall be identified to be on call during ground-disturbing activities. If archeological resources are discovered during excavation and/or construction activities, construction shall stop within 100 feet of the find, and the qualified archaeologist shall be consulted to determine whether the resource requires further study. The archaeologist shall make recommendations to the District to protect the discovered resources.

If the resources are deemed to be non-tribal, the archaeological resources recovered shall be provided to the North Central Information Center and California State University, Sacramento Natural History Museums, or any other local museum or repository willing and able to accept and house the resource to preserve for future scientific study.

If the resources are deemed to be tribal-related, the Wilton Rancheria will be contacted to assess the significance of any find as well, in order to obtain recommendations on how best to proceed. Tribal-related archaeological resources discovered will be left in place in order to minimize handling until consultation with the qualified archaeological monitor and the Wilton Rancheria can be arranged in order to determine the appropriate next steps. Continued work in the area of the archaeological find will only proceed after authorization from the District in coordination with the Wilton Rancheria and the qualified archaeological monitor. The Wilton Rancheria contact information is as follows:

Wilton Rancheria – Cultural Preservation Department
Tel: 916.683.6000
cpd@wiltonrancheria-nsn.gov

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

Less Than Significant Impact. The project site is currently developed and would require grading and other ground disturbing activities. California Health and Safety Code Section 7050.5 requires that if human remains are discovered on a project site, disturbance of the site shall halt until the coroner has conducted an investigation into the circumstances, manner, and cause of death, and has made recommendations concerning their treatment and disposition to the person responsible for the excavation, or to his or her authorized representative. If the coroner determines that the remains are not subject to his or her authority and has reason to believe they area Native American, he or she shall contact the NAHC by telephone within 24 hours. Impacts to human remains would be less than significant.

3.6 ENERGY

Existing Conditions

Pacific Gas & Electric (PG&E) supplies natural gas to much of northern and central California – from Humboldt and Shasta counties in the north to Kern and Santa Barbara counties in the south – including the infrastructure for the City of Sacramento.

Sacramento Municipal Utility District (SMUD) is the nation's sixth largest community-owned, not-for-profit electric utility to provide electricity to most of Sacramento County and small portions of Placer and Yolo Counties (SMUD 2023a). SMUD has outlined in their 2030 Clean Energy Vision to commit to a goal of zero carbon emissions in their power supply by 2030. To reach this goal, SMUD is considering ideas such as new technology (e.g., green hydrogen, biofuels, long duration storage), business models that engage customers with their connected devices, and gas-fired power plant replacement to reduce emissions.

The current project site is served by both electricity and natural gas connections. Electricity is supplied to the project site by SMUD. Natural gas and associated infrastructure are provided and maintained by PG&E.

Current energy demands are derived from the operation of the existing Oak Ridge Elementary School. Energy demand from the existing land uses includes building energy (e.g., electricity used for lighting and natural gas used for heating) and energy demand from vehicle trips.

Would the project:

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

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

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

Short-Term Construction Impacts

Electrical Energy

Construction of the proposed project would not require electricity to power most construction equipment. The electricity used during construction would vary during different phases of construction, where the majority of construction equipment during demolition and excavation, site preparation, trenching, and grading would be gas-powered or diesel-powered, and the later construction activities, such as architectural coatings, could require electric-powered equipment. Overall, the use of electricity would be temporary in nature and would fluctuate according to the activity of construction. Additionally, it is anticipated that the majority of electric-powered construction equipment would be hand tools (e.g., power drills, table saws, compressors) and lighting, which would result in minimal electricity usage during construction activities. Therefore, as electricity consumption during project construction would be minimal and would occur when necessary to complete construction of the proposed project, 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 depends on the type and number of trips, vehicle miles traveled, fuel efficiency of vehicles, and travel mode. Transportation energy used during construction would come from the transport and use of construction equipment, delivery vehicles, and construction employee vehicles that would use diesel fuel and/or gasoline. The use of energy resources by these vehicles would fluctuate according to the activity of construction and would be temporary. Upon completion of project construction, all construction equipment would cease. Furthermore, the construction contractors are anticipated to minimize non-essential idling of construction equipment during construction in accordance with Section 2449 of the California Code of Regulations, Title 13, Article 4.8, Chapter 9, which limits the nonessential idling of diesel-powered off-road equipment to five minutes. Such required practices would limit wasteful and unnecessary energy consumption.

In general, there are no unusual characteristics that would directly or indirectly cause construction activities to be any less efficient than would occur elsewhere (restrictions on equipment, labor, types of activities, etc.). The proposed utility infrastructure would connect to the existing water, sewer, storm drain system, and electricity networks in the area since the land use intensity will remain the same. Therefore, it is expected that construction energy usage associated with the proposed project would not be any more inefficient, wasteful, or unnecessary than similar projects and impacts would be less than significant with respect to construction-related energy demands.

Long-Term Impacts During Operation

Operation of the proposed project is expected to decrease energy consumption for electricity and natural gas. Operational use of energy would include heating, cooling, and ventilation of buildings; water heating; operation of electrical systems, use of on-site equipment and appliances; and indoor, outdoor, perimeter, electric vehicle (EV) charging stations, solar panel canopy, battery storage, and parking lot lighting.

Electrical Energy

The proposed project involves the redesign and reconstruction of the existing Oak Ridge Elementary School to the northeast corner of the campus. The proposed project would redesigned all buildings to be all-electric, include EV charging stations. Electrical service to the proposed project would be provided by SMUD connections to existing electrical lines and new on-site infrastructure.

While the proposed project would result in an increase of 11,128 square feet beyond existing conditions, the 52,948 square-foot building would be required to comply with the Building Energy Efficiency Standards and California Green Building Standards Code (CALGreen). New and replacement buildings in compliance with these standards would generally have greater energy efficiency than existing buildings onsite. Furthermore, the proposed project would receive energy through SMUD to provide energy for the All-Electric buildings. Encouraging sustainable and energy-efficient building practices and using more renewable energy strategies will further reduce building-related per capita energy consumption after buildout of the campus and move closer toward achieving zero net energy. Compliance with these codes would decrease overall reliance on fossil fuels and increase reliance on renewable energy sources for electricity generation. Thus, operation of the proposed buildings would not result in wasteful or unnecessary electricity.

Natural Gas

Implementation of the proposed project would not generate an increased demand for natural gas since the campus would encompass only All-Electric buildings onsite.

Transportation Energy

The proposed project is not anticipated to increase student or adult staff capacity for the schools, and thus implementation of the proposed project would not generate additional vehicle fuel usage or vehicle miles traveled compared to existing conditions.

The proposed project includes improvements to the access and circulation system for the project site. The proposed project would move existing access points create a new access point (align with 21st Avenue) which would lead to a driveway bordering the south boundary of the site and continue as a loop around the parking lot. A separate sidewalk and bike lane would be provided on the north side of the Martin Luther King Jr. Boulevard driveway. Thus, the new proposed access and circulation network would allow traffic to flow more efficiently and decrease transportation-related energy by increasing drop-off/pick-up zones near campus and improve pedestrian and bike lanes.

Additionally, fuel efficiency of vehicles during the buildout year of 2025 would on average improve compared to vehicle fuel efficiencies experienced under existing conditions, thereby resulting in a lower per capita fuel consumption in 2025 assuming travel distances, travel modes, and trip rates remain the same. The improvement in fuel efficiency would be attributable to the statewide fuel reduction strategies and regulatory compliances (e.g., CAFE standards), resulting in new cars that are more fuel efficient and the attrition of older, less fuel-efficient vehicles. The CAFE standards are not directly applicable to land use development projects, but to car manufacturers. Thus, the District's students and staff do not have direct control in determining the fuel efficiency of vehicles manufactured and that are 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 the population of the project site's region more fuel-efficient vehicle options.

Moreover, the proposed project would be required to include EV ready spaces consistent with the 2022 CALGreen voluntary Tier 2 nonresidential measures for EV capable spaces contained in the other Tier 1 BMP would on average increase reliance on electricity for transportation energy demand. As electricity consumed in California is required to meet the increasing renewable energy mix requirements under the State's RPS and accelerated by SB 100, greater and greater proportions of electricity consumed for transportation energy demand envisioned under the proposed project would continue to be sourced from renewable energy sources rather than fossil fuels. Since vehicle fuel efficiencies would improve year over year through the buildout year of 2025 and result in a decrease in overall per capita transportation energy consumption, impacts would be less than significant with respect to operation-related fuel usage.

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

No Impact. The State's electricity grid is transitioning to renewable energy under California's Renewable Energy Program. Renewable sources of electricity include wind, small hydropower, solar, geothermal, biomass, and biogas. Electricity production from renewable sources is generally considered carbon neutral. Executive Order S-14-08, signed in November 2008, expanded the state's renewable portfolios standard (RPS) to 33 percent renewable power by 2020. This standard was adopted by the legislature in 2011 (SB X1-2). Senate Bill 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, Senate Bill 100 (SB 100) was signed and raised California's RPS requirements to 60 percent by 2030, with interim targets, and 100 percent by 2045. The bill also established a state policy that eligible renewable energy resources and zero-carbon resources supply 100 percent of all retail sales of electricity to California end-use customers and 100 percent of electricity procured to serve all state agencies by December 31, 2045. Under SB 100 the state cannot increase carbon emissions elsewhere in the western grid or allow resource shuffling to achieve the 100 percent carbon-free electricity target.

The statewide RPS goal is not directly applicable to individual development projects but to utilities and energy providers such as SMUD, which is the utility that would provide all of the electricity needs for the proposed project. Compliance of SMUD in meeting the RPS goals would ensure the State meets its objective in transitioning to renewable energy, especially since SMUD has an ambitious goal of reaching zero carbon emissions in their power supply by 2030 (SMUD 2023b). Furthermore, implementation of the proposed project would encompass only All-Electric buildings onsite, include EV charging infrastructure consistent with CALGreen Tier 2 standards, as required by Mitigation Measure GHG-1, as well as include a solar panel canopy and be compliant with the current CALGreen and Title 24 Building Energy Efficiency Standards, which would result in greater energy efficiency and more renewable energy use than existing buildings.

Therefore, implementation of the proposed project would not conflict or obstruct plans for renewable energy or energy efficiency, and impacts would be less than significant.

3.7 GEOLOGY AND SOILS

Would the project:

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		

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

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

Less Than Significant Impact. Fault rupture impacts occur when a structure is situated on top of an active fault that displaces in two separate directions during an earthquake. The Alquist-Priolo Earthquake Fault Zoning Act was adopted in 1972 to prevent the construction of buildings in areas where active faults have surface expression. Surface fault rupture is earth surface broken by fault movement. Sudden surface rupture from severe earthquakes can cause extensive property damage, but even slow fault movement (known as "fault creep") can cause displacement that results in offset or disfiguring of curbs, streets, buildings, and other infrastructure.

The project site is not in an Alquist-Priolo Earthquake Fault Zone and no fault lines traverse the site (CDC 2022b; CDC 2022c). Therefore, impacts would be less than significant.

ii) Strong seismic ground shaking?

Less Than Significant Impact. As stated in 3.7.a.i, above, the project site is not on a known fault zone or within an earthquake fault zone. The nearest fault to the project site is a pre-quaternary fault is approximately 4.68 miles northeast of the site; the Midland Fault is approximately 20.7 miles southwest of the project site. 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 upon three main contributing factors: 1) cohesionless, granular soils having relatively low densities (usually of Holocene age); 2) shallow groundwater (generally less than 50 feet); and 3) moderate to high seismic ground shaking. According to the Sacramento County Local Hazard Management Plan, the Delta and areas of downtown Sacramento are at risk of liquefaction; however, there have been no past events of liquefaction that affected the city (Sacramento County 2021). Therefore, liquefaction occurring at the project site is unlikely. Additionally, all structures would be built to adhere to the 2022 California Building Code (CBC), or the most recent version, and the DSA criteria, which provides minimum standards to protect property and public welfare by regulating design and construction to reduce the effects of adverse soil conditions. Therefore, impacts would be less than significant.

iv) Landslides?

Less Than Significant Impact. Landsliding is a type of erosion in which masses of earth and rock move downslope as a single unit. No landslides have been mapped on the site (CDC 2022d). The project site is relatively flat. Furthermore, all structures on the site would comply with the 2022 CBC, or most recent version, as well as the DSA criteria, which provides minimum standards to protect property and public welfare by regulating design and construction to reduce the effects of adverse soil conditions.

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

Less Than Significant Impact. Erosion is a normal and inevitable geologic process whereby earthen materials are loosened, worn away, decomposed, or dissolved, and removed from one place and transported to another. The project site is an existing school site with paved and impervious surfaces (parking lot, buildings, hardcourts) as well as pervious surfaces (turf field, vegetation). The project site would implement structural and nonstructural best management practices before and during construction to control surface runoff and erosion to retain sediment on the project site. Once the proposed project is constructed, soil erosion would be controlled with improvements installed on the project site. Therefore, a less than significant impact would occur.

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 3.7.a.iii and iv, the project site is not in a liquefaction or landslide zone. Lateral spreading is a phenomenon where large blocks of intact, non-liquefied soil move downslope on a large, liquefied substratum; the mass moves toward an unconfined area, such as a descending slope or stream-cut bluff and has been known to move on slope gradients as little as one degree. The topography of the site is relatively flat, and therefore, impacts from lateral spreading would be less than significant.

Subsidence of basins attributed to overdraft of groundwater aquifers or over pumping of petroleum reserves has been reported in various parts of California. Collapsible soils may appear strong and stable in their natural (dry) state, but they rapidly consolidate under wetting, generating large and often unexpected settlements. Seismically induced settlement consists of dynamic settlement of unsaturated soil (above groundwater) and liquefaction-induced settlement (below groundwater). These settlements occur primarily in low-density sandy soil due to the reduction in volume during and shortly after an earthquake. The proposed project would not require the withdrawal of groundwater from the site and is not within areas of land subsidence according to USGS (USGS 2023). Impacts to subsidence would be less than significant.

The proposed project would be required to comply with CBC and DSA criteria which would ensure adequate design and construction of building foundations to resist soil movement. 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 swell when they become wet and shrink when they dry out resulting in the potential for cracked building foundations. All structures built onsite would adhere to the 2022 CBC, or most recent version. Additionally, since the site would be part of a school site, the California Geological Survey and Division of the State Architect would ensure that all potential impacts to the buildings would be sufficiently reduced. Therefore, the project site would not have less than significant impacts on exposing people or the proposed structures to adverse effects associated with expansive soils.

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 of a septic tank or alternative wastewater disposal system but would not utilize the local sewer 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 are fossilized remains of past life on earth, such as bones, shells, leaves, tracks, burrows, and impressions. The project site is currently developed. The proposed project would require limited grading and other ground disturbing construction activities to accommodate the construction of the proposed project and utility requirements. Due to the ground disturbance associated with construction, there is potential that natural landform beneath the site would be encountered during construction and that subsurface resources and/or paleontological resources would be discovered. Implementation of Mitigation Measure GEO-1 would ensure that if resources are discovered during ground disturbing activities that resources would be recovered in accordance with state and federal requirements. Implementation of Mitigation Measure GEO-1 would reduce impacts to paleontological resources to a less than significant level.

Mitigation Measures

GEO-1	Prior to construction, the District shall identify a qualified paleontologist to be on-call. If unique paleontological resources are discovered during excavation and/or construction activities, construction shall stop within 50 feet of the find, and the qualified paleontologist shall be consulted to determine whether the resource requires further study. The paleontologist shall make recommendations to the District to protect the discovered resources. Any paleontological resources recovered shall be provided to the North Central Information Center and California State University, Sacramento Natural History Museums, or repository willing and able to accept and house the resource to preserve for future scientific study.

3.8 GREENHOUSE GAS EMISSIONS

Existing Conditions

The existing elementary school generates GHG emissions from transportation sources, energy (natural gas and purchased energy), and area sources such as landscaping equipment.

Discussion

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 emissions 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 (N2O), sulfur hexafluoride (SF6), hydrofluorocarbons, perfluorocarbons, and chlorofluorocarbons.[4]

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. Black carbon emissions are not included in the GHG analysis because the California Air Resources Board (CARB) does not include this pollutant in the state's Assembly Bill (AB) 32 inventory and treats this short-lived climate pollutant separately. A background discussion on the GHG regulatory setting and GHG modeling can be found in Appendix A to this Initial Study.

Would the project:

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	

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

Less Than Significant Impact With Mitigation Incorporated. Global climate change is not confined to a particular project area and is generally accepted as the consequence of global industrialization over the last 200 years. A typical project, even a very large one, does not generate enough greenhouse gas emissions on its own

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[4] 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.

to influence global climate change significantly; hence, the issue of global climate change is, by definition, a cumulative environmental impact.

Project-related construction GHG emissions are shown in Table 6, *Project-Related Construction GHG Emissions.* Implementation of the proposed project would result in the demolition and reconstruction of an existing elementary school. The proposed elementary school buildings square footage would increase by 11,128 square feet when compared to the existing building square footage. As such, there may be a net increase in area sources (e.g., consumer cleaning products) and energy usage (i.e., electricity). However, the proposed project would not result in an increase in student capacity and therefore would not result in an increase in mobile emissions beyond existing conditions. While building square footage would increase when compared to the existing structures onsite, the new buildings would be designed to be All-Electric and would be compliant with the current California Building Standards Code and, thus, would be more energy-efficient in comparison to the existing structures. Therefore, the overall energy consumption per square foot of building space under the proposed project is expected to be less than that of the existing structures onsite.

Impacts During Construction

The SMAQMD has adopted a construction GHG significance threshold of 1,100 metric tons of carbon dioxide ($MTCO_2e$) per year. Should a land use development project exceed this amount of GHG emissions in a given year, it would present a potentially significant impact warranting mitigation. As shown in Table 6, construction of the proposed project would not generate annual GHG emissions that would exceed the SMAQMD threshold of 1,100 $MTCO_2e$ per year.

Table 6 Project-Related Construction GHG Emissions

Source	GHG Emissions
	$MTCO_2e$ Per Year
Construction	
Year 2023	148
Year 2024	345
Year 2025	369
Annual Maximum	**369**
SMAQMD GHG Threshold	**1,100 $MTCO_2e$/Yr**
Exceeds Threshold?	**No**

Source: CalEEMod, Version 2022.1., SMAQMD 2020a
Notes: MT = metric tons; $MTCO_2e$ = metric ton of carbon dioxide equivalent

Long-Term Impacts During Operation

The SMAQMD has adopted a GHG significance threshold for GHG emissions from operation of a project, which is 1,100 $MTCO_2e$ per year in addition to implementation of best management practices (BMPs) for GHG emissions. To assess a project's potential to exceed the 1,100 $MTCO_2e$ per year significance threshold, the SMAQMD has adopted operational screening criteria to qualitatively assess a project's potential GHG emissions impacts (SMAQMD 2018). As the proposed project is the reconstruction of an elementary school, the appropriate SMAQMD screening criteria would be the Educational, Elementary School land use criteria, listed below:

- GHG Screening Level: 57,000 square feet, or 676 students.

The proposed project would not involve any increase in student enrollment beyond existing conditions. Moreover, the proposed project would constitute the demolition of the existing buildings totaling approximately 41,820 square feet and construction of new buildings totaling approximately 52,948 square feet, for an approximate increase of 11,128 square feet. As both the new student enrollment (0 students) and new building space (11,128 square feet) would be less than the SMAQMD's applicable screening criteria, the proposed project would be considered to generate operational GHG emissions below the SMAQMD significance threshold of 1,100 $MTCO_2e$ per year.

In addition to the above significance threshold, the SMAQMD has two BMPs that must be included in the proposed project for impacts to be determined less than significant:

- Require all buildings to use all electric energy systems, and
- Include parking stalls with electric vehicle (EV) charging infrastructure consistent with the requirements of the applicable California Green Building Standards Code (CALGreen) Tier 2 nonresidential measures, except that all EV capable spaces shall be instead EV ready.

Without these BMPs, the proposed project would have the potential to have significant impacts on the environment. The SMAQMD has developed this threshold to ensure that new GHG emissions would be reviewed and assessed for mitigation, thereby contributing to GHG emissions reduction goals of AB 32, SB 32, the Scoping Plan, and Executive Order B-30-15 (SMAQMD 2021).

The proposed project, by design, would satisfy the first BMP of an All-Electric building design but would not be designed to implement the second required BMP of including EV charging infrastructure consistent with the current CALGreen Tier 2 nonresidential measures. Therefore, operational GHG emissions associated with the proposed project may result in cumulative contribution to GHG emissions. Impacts would be potentially significant; therefore, Mitigation Measure GHG-1 is required to ensure the proposed project incorporates EV charging infrastructure consistent with the SMAQMD's required EV charging infrastructure BMP.

Mitigation Measures

GHG-1 The project shall comply with the applicable 2022 California Green Building Standards Code (CALGreen) Tier 2 standards which are a requirement under the Sacramento Metropolitan Air Quality Management District (SMAQMD) Greenhouse Gas (GHG) Best Management Practices (BMPs). Plans shall identify the number of EV parking spaces with chargers that meet the current CALGreen Tier 2 standards, except all EV capable spaces shall be instead EV ready.

With implementation of Mitigation Measure GHG-1, the proposed project would be required to install the applicable number of EV parking spaces per CALGreen Tier 2 requirements for projects subject to SMAQMD's GHG BMPs. Therefore, the proposed project would implement both of the required BMPs identified in the SMAQMD CEQA Guide, by design and through the incorporation of Mitigation Measure GHG-1, and impacts would be less than significant with mitigation incorporated (SMAQMD 2020a).

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

Less Than Significant Impact. Applicable plans adopted for the purpose of reducing GHG emissions include CARB's Scoping Plan and SACOG's 2020 MTP/SCS. A consistency analysis with these plans is presented below.

California Air Resources Board Scoping Plan

CARB's Scoping Plan is California's GHG reduction strategy to achieve the state's GHG emissions reduction target established by SB 32, which is to reduce GHG emissions to 40 percent below 1990 emission levels by year 2030. CARB recently adopted the 2022 Scoping Plan to achieve the state's carbon neutrality goals under EO B-55-18. The CARB Scoping Plan is applicable to state agencies and is not directly applicable to cities/counties or individual projects (i.e., the Scoping Plan does not require the school district to adopt policies, programs, or regulations to reduce GHG emissions). However, new regulations adopted by the state agencies outlined in the Scoping Plan result in GHG emissions reductions at the local level. As a result, local jurisdictions benefit from reductions in transportation emissions rates, increases in water efficiency in the building and landscape codes, and other statewide actions that affect a local jurisdiction's emissions inventory from the top down. Statewide strategies to reduce GHG emissions include the LCFS and changes in the corporate average fuel economy standards (e.g., Pavley I and Pavley California Advanced Clean Cars program).

Reconstruction of the proposed project would adhere to the programs and regulations identified by the Scoping Plan and implemented by state, regional, and local agencies to achieve the statewide GHG reduction goals of AB 32, SB 32, and AB 1279. In addition, the required SMAQMD GHG BMPs, which the proposed project would either include by design or is required to incorporate by Mitigation Measure GHG-1, go beyond the requirements of the current CALGreen and Building Energy Efficiency Standards in effect at the time when applying for building permits. The proposed project would also not increase student capacity and thus would not increase vehicle miles traveled (VMT). Therefore, the proposed project would be consistent with State efforts to reduce motor vehicle emissions and generate GHG emissions consistent with the reduction goals of AB 32, SB 32, and AB 1279. The proposed project would not obstruct implementation of the CARB Scoping Plan, and a less than significant impact would occur.

2020 Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS)

SACOG adopted the 2020 MTP/SCS in November 2019, which lays out the transportation investment and land use strategy to support an economically prosperous region (SACOG 2019). The 2020 MTP/SCS provides a general idea of future land use patterns to meet the housing needs of the region and outlines transportation planning that reduces GHG emissions from vehicles consistent with state climate goals. The overarching strategy in the 2020 MTP/SCS is to foster a balance of new housing and job growth near job centers with mobility options to reduce the growth rate of vehicle miles traveled. Additionally, this plan emphasizes more frequent transit services and to build an efficient multimodal system (including bike or car share, ride-hailing options, bus, and light rail) to provide more travel choices to residents throughout the region. The projected regional development, when integrated with the proposed regional transportation network in the 2020 MTP/SCS, would reduce per-capita GHG emissions related to vehicular travel and achieve the 19 percent GHG reduction per-capita target for the SACOG region.

The 2020 MTP/SCS does not require that local general plans, specific plans, or zoning be consistent with the SCS, but does provide incentives for consistency to governments and developers. The proposed project would result in reconstruction of a new elementary school with newer, more efficient buildings that would serve the surrounding residential area. As discussed in Section 3.14, *Population and Housing*, the new students that would fill the new classrooms would be existing residents living within the District's service boundary, and the proposed project would not directly increase population growth in the area. Therefore, the proposed project would not interfere with SACOG's ability to implement the regional strategies in the 2020 MTP/SCS, and a less than significant impact would occur.

3.9 HAZARDS AND HAZARDOUS MATERIALS

The term "hazardous material" is defined in different ways by different regulatory programs. For purposes of this environmental document, the definition of "hazardous material" is similar to that in the California Health and Safety Code, Section 25501:

> Hazardous materials that, because of their quantity, concentration, or physical or chemical characteristics, pose a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment.

"Hazardous waste" is a subset of hazardous materials, and the definition is essentially the same as that in the California Health and Safety Code, Section 25517, and in the California Code of Regulations, Title 22, Section 66261.2:

> Hazardous wastes are those that, because of their quantity, concentration, or physical, chemical, or infectious characteristics, may either cause, or significantly contribute to an increase in mortality or an increase in serious illness, or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed.

Hazardous materials can be categorized as hazardous nonradioactive chemical materials, radioactive materials, and biohazardous materials (infectious agents such as microorganisms, bacteria, molds, parasites, viruses, and medical waste).

Would the project:

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

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

Less Than Significant Impact. Project construction would require small amounts of hazardous materials, including fuels, greases and other lubricants, and coatings such as paint. The handling, use, transport, and disposal of hazardous materials by the construction phase of the project would comply with existing regulations of several agencies–the EPA, Occupational Safety and Health Administration (OSHA), California Division of Occupational Safety and Health (Cal/OSHA), and the US Department of Transportation (DOT). The proposed project would operate as an elementary school. Project maintenance may require the use of cleaners, solvents, pesticides, and other custodial products that are potentially hazardous. These materials would be used in relatively small quantities, clearly labeled, and stored in compliance with state and federal requirements. With the exercise of normal safety practices, the project would not create substantial hazards to the public or the environment. Therefore, a less than significant impact would occur.

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. Construction projects typically maintain supplies onsite for containing and cleaning small spills of hazardous materials. However, construction activities would not involve a significant amount of hazardous materials, and their use would be temporary. Furthermore, project construction workers would be trained on the proper use, storage, and disposal of hazardous materials. Operation of the site would continue as existing conditions and would not warrant use of hazardous materials in quantities that could result in conditions.

The proposed project would be required to be constructed in accordance with the Storm Water Pollution Prevention Plan (SWPPP) which includes best management practices (BMPs) to reduce or eliminate pollutants in stormwater discharges. BMPs for hazardous materials may include, but are not limited to, off-site refueling, placement of generators on impervious surfaces, establishing cleanout areas for cement, etc. While the risk of exposure to hazardous materials cannot be eliminated, adherence to existing regulations would ensure compliance with safety standards related to the use and storage of hazardous materials and with the safety procedures mandated by applicable federal, state, and local laws and regulations. Compliance with these regulations would ensure that risks resulting from the routine transportation, use, storage, or disposal of hazardous materials or hazardous wastes associated with the proposed project and the potential for accident or upset is 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?

No Impact. Christian Brothers High School is located within 0.25-mile of the project site. However, the project site would continue to operate as an elementary school and would not emit hazardous emissions or handle hazardous materials or substances. Therefore, no impact would occur.

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. The project site is not listed on GeoTracker but is listed on EnviroStor as a school investigation site (DTSC 2023; SWRCB 2023). A Phase I Site Assessment was conducted at the site in 2005. The cleanup status for Oak Ridge Elementary School was "No Action Required" as of September 2, 2005. Therefore, impacts 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?

Less Than Significant Impact. The project site is 1.49 miles northeast of the Sacramento Executive Airport. As with the existing conditions, the proposed project would operate as an educational institution and no changes to the uses onsite would occur. As such, the students and staff at the project site would not be exposed to safety hazards or noise in excess to what they are exposed to under existing conditions. The project site is not within a safety zone (SACOG 1999). Therefore, impacts would be less than significant.

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

Less Than Significant Impact. The proposed project would not conflict with adopted emergency response or evacuation plans. The surrounding roadways would continue to provide emergency access to the project site and surrounding properties during construction and operation. Both the City Fire Marshal and DSA would be required to approve fire access around the site. As part of the DSA process, a Fire and Life Safety Review would be conducted when DSA would review building construction and how occupants can safely exit the buildings in case of a fire. The proposed project would not result in inadequate emergency access, and 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. The project site is not located in a very high fire hazard severity zone (VHFHSZ) (CAL FIRE 2023). The project site is located in an urbanized portion of the City. The proposed project would be required to comply with the 2022 CBC and 2022 California Fire Code (CFC). Therefore, impacts would be less than significant.

3.10 HYDROLOGY AND WATER QUALITY

Would the project:

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	

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

Less Than Significant Impact. The project site is within the jurisdiction of the Central Valley Regional Water Quality Control Board (RWQCB). Drainage and surface water discharges during construction and operation of the proposed project would not violate any water quality standards or waste discharge requirements. However, site preparation and other soil-disturbing activities during construction of the project could temporarily increase the amount of soil erosion and siltation entering the local stormwater drainage system.

The proposed project would disturb approximately 7.7 acres. Pursuant to Section 402 of the Clean Water Act, the US Environmental Protection Agency has established regulations under the National Pollution Discharge Elimination System (NPDES) program to control direct stormwater discharges. In California, the State Water Resources Control Board administers the NPDES permitting program and is responsible for developing permitting requirements. The NPDES program regulates industrial pollutant discharges, including construction activities for sites larger than one acre. Since implementation of the proposed project would disturb more than one acre, the proposed project would be subject to the NPDES Construction General Permit requirements (Order No. 2009-0009-DWQ).

Construction

Clearing, grading, excavation, and construction activities associated with the project have the potential to 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. To minimize these potential impacts, the proposed project would be required to comply with the NPDES Construction General Permit as well as the best management practices (BMPs) to control erosion and prevent any discharge of sediments from the site to reduce potential impacts to less than significant levels.

Operation

For site operations, structural BMPs, such as landscaping, would reduce runoff. Therefore, a less than significant impact to water quality standards would occur.

The proposed project would also be required to comply with applicable federal, state, and local regulations. Provided that the standard BMPs are implemented, the proposed project would not substantially degrade water quality. A less than significant impact would occur.

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 proposed project does not propose groundwater wells that would extract groundwater from an aquifer, nor would the proposed project affect recharge capabilities for the basin, as there are no wetlands onsite. Therefore, a less than significant would occur.

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

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

Less Than Significant Impact. The proposed project would not alter the course of a stream or river. Construction of the project would increase the potential for erosion and siltation. However, the proposed project would include BMPs such as landscaping, which would reduce runoff, and improvements would be constructed over a short period of time. Therefore, a less than significant impact would occur.

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 proposed project would not alter the course of a stream. Project implementation would include pervious and impervious surfaces on site. With the use of BMPs and compliance with local, state, and federal regulations, to ensure that drainage patterns and stormwater runoff are maintained, impacts would be less than significant.

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

Less Than Significant Impact. Project implementation would include pervious and impervious surfaces on site. With the proposed BMPs, impacts associated with impervious surfaces would be reduced. The proposed project would be required to comply with local, state, and federal regulations pertaining to stormwater. Therefore, the proposed project would not exceed the capacity of existing or planned stormwater drainage systems. Impacts would be less than significant.

iv) Impede or redirect flood flows?

Less Than Significant Impact. The project site is developed with an existing school and is within Zone X, indicating minimal risk of flooding (Flood Insurance Rate Map ID #06067C0190H) (FEMA 2012). Since the likelihood of floods in the project area is low, the proposed project would have a less than significant impact on impeding or redirecting flood flows.

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. Although there are no large water tanks in the area that could impact the proposed project site, there are dams in the region that could create flooding impacts. According to the Department of Water Resources' California Dam Breach Inundation Maps, the project site is not within the inundation zone of any dams or reservoirs (DWR 2023). The nearest dam to the project site is the Nimbus Dam, approximately 15 miles northeast of the project site. Given the distance and varying topography, impacts of seiche affecting the project site is less than significant.

A tsunami is earthquake-induced flooding that is created from a large displacement of the ocean floor. The site is over 80 miles east of the Pacific Ocean; therefore, the likelihood of a tsunami impacting the project site is not likely. No impact would occur.

A mudflow is a landslide event in which debris, land mass, and soils are saturated during their displacement. The project site is relatively flat, with no slopes near the site that are capable of generating a mudflow. No mudflow impacts would occur.

Provided that standard BMPs are implemented, the proposed project would not substantially degrade water quality. As impacts related to the occurrence of site inundation by seiche, tsunami, or mudflow are less than significant, the release of pollutants would be less than significant.

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

Less Than Significant Impact. The proposed project would not obstruct or conflict with the implementation of a water quality control plan or sustainable water management plan. The proposed project would comply with the water quality and use requirements of these plans through the implementation of BMPs. Therefore, impacts would be less than significant.

3.11 LAND USE AND PLANNING

Would the project:

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

a) Physically divide an established community?

No Impact. The project site is surrounded by residential and commercial uses in addition to a church and Christian Brothers High School to the north. The proposed project consists of rebuilding school buildings within the project site boundaries. The proposed project would not divide an established residential community because it would occur entirely on an existing school property. 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?

Less Than Significant Impact. The project site is currently zoned R-1 and the existing land use designation is Public/Quasi-Public. Implementation of the proposed project would not change the zoning or land use designations of the site. The proposed project would not change the uses on site, and impacts would be less than significant.

3.12 MINERAL RESOURCES

Would the project:

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

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

No Impact. There are four mineral resources zones (MRZ):

- **MRZ-1.** Adequate information indicates that no significant mineral deposits are present or likely to be present.
- **MRZ-2.** Adequate information indicates that significant mineral deposits are present or there is a high likelihood for their presence, and development should be controlled.
- **MRZ-3.** The significance of mineral deposits cannot be determined form the available data.
- **MRZ-4.** There is insufficient data to assign any other MRZ designation.

The project site is in MRZ-3, where the known or inferred mineral occurrences of undetermined mineral resource significance exists (CDC 2018). The project site and its surroundings areas are not developed for mineral extractions. The areas surrounding the project site are developed with buildings, and therefore, no loss of known resources would result from project implementation. No impact would occur.

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

No Impact. The policies in the City of Sacramento Environmental Resources Element indicate that mineral resource extractions occur in the MRZ-2 zones of the city. The project site currently operates as a school and no mining activities occur onsite. Therefore, the proposed project would not result in a loss of availability of a mining site, and no impact would occur.

3.13 NOISE

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

- *Noise Analysis,* PlaceWorks, May 2023

A complete copy of the report is included in Appendix C to this Initial Study.

Noise Fundamentals

Noise is defined as unwanted sound and, when overexposed, 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, federal, state, and local governments have established criteria to protect public health and safety and to prevent the disruption of certain human activities, such as classroom instruction, communication, or sleep. Additional information on noise and vibration fundamentals and applicable regulations are contained in Appendix C.

Environmental Setting

Existing Noise Environment

Located west of the project site is State Route 99 Freeway 0.4 miles away.

The proposed project is an existing school complex consisting of two schools, (Oak Ridge Elementary and Oak Ridge Preschool). The project site is in a predominantly residential area with a noise environment influenced primarily by transportation noise from local roadways, State Route 99 approximately 0.4 miles to the west, school activity from the Christian Brothers High School approximately 200 feet to the north of the project site. Noise from nearby residential uses and the Williams Memorial Church of God in Christ (e.g., property maintenance and vehicle noise) also contribute to the total noise environment intermittently in the project vicinity as well as flights from the Sacramento Executive Airport approximately 1.4 miles southwest.

The City of Sacramento General Plan's Noise Element includes future noise contours to assess the noise and land use compatibility of a project site. According to the future noise contour table, the project site is within the 65 to 70 dBA CNEL contour for roadway noise from the State Route 99 Freeway, which is considered "normally acceptable" per the City's community noise and land use standards for schools.

Sensitive Receptors

Certain land uses are particularly sensitive to noise and vibration. These uses include residences, schools, hospital facilities, houses of worship, and open space/recreation areas where quiet environments are necessary for the enjoyment, public health, and safety of the community. Sensitive receptors surrounding the proposed project site include adjacent single-family residences to the south, multi-family residences to the east, and residences approximately 65 feet from the edge of the project site to the west. In addition, Williams Memorial Church of God in Christ is directly adjacent to the north and Christian Brothers High School is approximately 200 feet north of the project site.

Applicable Standards

State Noise Regulations

Title 5, Section 14040(q) California Department of Education

Under Title 5, the California Department of Education (CDE) regulations require the school district to consider noise in the site selection process. As recommended by CDE guidance, if a school district is considering a potential school site near a freeway or other source of noise, it should hire an acoustical engineer to determine the level of sound that the site is exposed to and to assist in designing the school should that site be chosen.

California Building Code

The State of California regulates freeway noise, sets standards for sound transmission, provides occupational noise control criteria, identifies noise standards, and provides guidance for local land use compatibility. State law requires that each county and city adopt a general plan that includes a noise element which is to be prepared according to guidelines adopted by the Governor's Office of Planning and Research. The purpose of the noise element is to "limit the exposure of the community to excessive noise levels."

The California Green Building Standards Code (CALGreen) has requirements for insulation that affect exterior-interior noise transmission for nonresidential structures. Pursuant to CALGreen Section 5.507.4.1, Exterior Noise Transmission, an architectural acoustics study may be required when a project site is within a 65 dBA CNEL or L_{dn} noise contour of an airport, freeway or expressway, railroad, industrial source or fixed-guideway source. Where noise contours are not readily available, if buildings are exposed to a noise level of 65 dBA L_{eq} during any hour of operation, specific wall and ceiling assembly and sound-rated windows may be necessary to reduce interior noise to acceptable levels.

City of Sacramento General Plan Noise Standards

Exterior Noise Standards

The City has developed policies related to noise and land use compatibility based on Federal and State exterior noise abatement criteria. The proposed project is the redevelopment of an existing school complex, and the City of Sacramento General Plan finds an exterior noise level of 70 dBA CNEL to be acceptable for schools and churches, and 60 dBA CNEL to be normally acceptable for single-family residential as shown in Table EC-1 in the General Plan.

EC 3.1.2 Exterior Incremental Noise Standards. The City shall require noise mitigation for all development that increases existing noise levels by more than the allowable increment shown in Table 7 (Table EC 2 in the General Plan), to the extent feasible.

Table 7 City of Sacramento Existing Exterior Noise Standards Allowable Increase

Residence and Buildings where People Normally Sleep[a]		Institutional Land Uses with Primarily Daytime and Evening Uses[b]	
Existing L_{dn}	Allowable Noise Increment	Existing Peak Hour Leq	Allowable Noise Increment
45	8	45	12
50	5	50	9
55	3	55	6
60	2	60	5
65	1	65	3
70	1	70	3
75	0	75	1
80	0	80	0

Source: City of Sacramento General Plan 2030, Table EC-2, Exterior Incremental Noise Impact Standards for Noise-Sensitive Uses (dBA)
Notes:
[a] This category includes homes, hospitals, and hotels where a nighttime sensitivity to noise is assumed to be of utmost importance.
[b] This category includes schools, libraries, theaters, and churches where it is important to avoid interference with such activities as speech, meditation, and concentration on reading material.

EC 3.1.5 Interior Vibration Standards. The City shall require construction projects anticipated to generate a significant amount of vibration to ensure acceptable interior vibration levels at nearby residential and commercial uses based on the current City or Federal Transit Administration (FTA) criteria.

EC 3.1.10 Construction Noise. The City shall require development projects subject to discretionary approval to assess potential construction noise impacts on nearby sensitive uses and to minimize impacts on these uses, to the extent feasible.

City of Sacramento Municipal Code Noise Ordinance

Exterior Noise Standards

The Sacramento Municipal Code includes noise regulations in Title 8 – Health and Safety, Chapter 8.68 – Noise Control (referred to generally as the Noise Ordinance). Of the regulations in Chapter 8.68, not all are applicable to the Proposed Project. The following regulations would apply to the Proposed Project:

Section 8.68.060 sets standards for cumulative exterior noise levels at residential and agricultural properties, including exterior noise standards of 55 dBA from 7:00 a.m. to 10:00 p.m., and 50 dBA from 10:00 p.m. to 7:00 a.m. Per Section 8.68.060(b), the allowable decibel increase above the exterior noise standards in any one hour are:

- 0 dBA for cumulative period of 30 minutes per hour (L_{50});
- 5 dBA for cumulative period of 15 minutes per hour(L_{25});
- 10 dBA for cumulative period of 5 minutes per hour(L_{8});
- 15 dBA for cumulative period of 1 minutes per hour(L_{2});
- 20 dBA not to be exceeded for any time per hour(L_{max}).

In addition, per Section 8.68.060(c), each of the noise limits above shall be reduced by 5 dBA for impulsive or simple tone noises, or for noises consisting of speech or music. If the ambient noise level exceeds that permitted by any of the first four noise limit categories specified in subsection (b) above, the allowable noise limit shall be increased in five dBA increments in each category to encompass the ambient noise level. If the ambient noise level exceeds the fifth noise level category, the maximum ambient noise level shall be the noise limit for that category.

Exemptions

Section 8.68.080 exempts certain activities from Chapter 8.68, including "noise sources due to the erection (including excavation), demolition, alteration or repair of any building or structure" as long as these activities are limited to between the hours of 7 a.m. and 6 p.m. Monday through Saturday, and between the hours of 9 a.m. and 6 p.m. on Sunday. Section 8.68.080 also requires the use of exhaust and intake silencers for internal combustion engines and provides for construction work to occur outside of the designated hours if the work is of urgent necessity and in the interest of public health and welfare for a period not to exceed three days.

Federal Transit Administration

The City of Sacramento does not have a quantified threshold for temporary construction noise and vibration. Therefore, to determine impact significance, the following FTA criteria are adopted.

A vibration or construction noise impact would occur if:

- Vibration levels would exceed 0.20 inches/second (in/sec) peak particle velocity (PPV) at the façade of a non-engineered structure (e.g., wood-frame residential). Additionally, the FTA's threshold of 72 vibration velocity (VdB) for frequent events will be used to assess vibration annoyance to residences at the nearby sensitive receptors.
- Project construction activities would generate noise levels greater than 80 dBA L_{eq} at the sensitive receptor property line.

Would the project result in:

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	

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

Less Than Significant Impact with Mitigation Incorporated.

Construction Noise

The total duration for project construction is anticipated to be approximately 24 months with a start date of September 2023 and a completion date of September 2025. Construction equipment for the proposed project would include equipment such as concrete saws, dozers, tractors, loaders, graders, rollers, pavers, and air compressors.

Two types of short-term noise impacts could occur during construction: (1) mobile-source noise from transport of workers, material deliveries, and debris and soil haul and (2) stationary-source noise from use of construction equipment.

Construction Vehicles

The transport of workers and materials to and from the construction site would incrementally increase noise levels along site access roadways. Individual construction vehicle pass-bys including haul trucks may create momentary noise levels of up to approximately 85 dBA L_{max} at 50 feet. However, these occurrences would generally be infrequent and over short periods of time.

Worker and vendor trips would total a maximum of 53 daily trips during overlapping building construction, paving, and architectural coating of Phase 1 and 1 haul truck trip during demolition of Phase 1.[5] Based on data provided by the KD Anderson & Associates, existing AM peak hour volumes collected from traffic counts in 2023 in the project area are approximately 1,040 (between 22nd avenue and Martin Luther King Blvd). The addition of up to 53 daily construction trips would result in a noise level increase less than 0.1 dBA over existing conditions which would be an indiscernible increase to nearby sensitive receivers. Therefore, construction-related trip noise would result in a less-than-significant impact.

Construction Equipment

Noise generated by onsite 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 stage of construction involves different kinds of equipment and has distinct noise characteristics. Noise levels from construction activities are typically dominated by the loudest 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 activity phase is determined by combining the L_{eq} contributions from each piece of equipment used at a given time, while accounting for the ongoing time-variations of noise emissions. Heavy-duty equipment, such as a dozer or a loader, can have maximum, short-duration noise levels of up to 85 dBA Lmax at 50 feet. However, overall noise emissions vary considerably, depending on the specific activity

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[5] Based on information provided by Sacramento School District and the Project's air quality modeling.

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 ignoring other attenuation effects from air absorption, ground effects, and shielding effects) from the source in the direction of a receiver, the average noise levels at noise-sensitive receptors could vary considerably, because mobile construction equipment would move around the site with different loads and power requirements.

Average noise levels from project-related construction activities are calculated by modeling the three loudest pieces of equipment per activity phase. Equipment for grading and site preparation is modeled at spatially averaged distances (i.e., from the acoustical center of the general construction site to the property line of the nearest receptors) because the area around the center of construction activities best represents the potential average construction-related noise levels at the various sensitive receptors for mobile equipment. Similarly, construction noise from paving, asphalt demolition, and building demolitions is modeled from the center of nearest paving or from the center of the developmental phasing areas. Construction equipment for building construction and architectural coating is modeled from the edge of the proposed building to the nearest sensitive receptors.

The project is anticipated to be constructed in three developmental phases. The construction analysis modeled the worst-case scenario of the activity phases within each development phase. For example, all three Phases have demolition activity, but demolition under Phase 2 and 3 is the worst case because at times construction activity could be closer to sensitive receptors and equipment mix averaged slightly louder than under Phase 2 and 3 compared to Phase 1.

The expected construction equipment mix was categorized by construction activity using the Federal Highway Administration (FHWA) Roadway Construction Noise Model (RCNM). The associated, aggregate sound levels—grouped by construction activity—are summarized in Table 8, *Project-Related Construction Noise, dBA Leq*. RCNM modeling input and output worksheets are included in Appendix C.

Table 8 Project-Related Construction Noise, dBA Leq

Construction Activity Phase	RCNM Reference Noise Level	Nearest Off-campus Receptors			
		Williams Memorial Church of God in Christ (North Receptor)	Multi-Family Residence at 4609 Mendocino Blvd (East Receptor)	Single Family Residences at 3835-4017 22nd Avenue (South Receptor/s)	Single Family Residence at 3830 21st Avenue (West Receptor)
Distance in feet	50	150	200	200	260
Phase 2,3 Demolition	85	76	73	73	71
Phase 2 Site Prep	85	75	73	73	70
Phase 2,3 Rough Grading	85	75	73	73	70
Distance in feet	50	450	30	165	733
Phase 1 Building Construction	80	61	**84**	70	57
Phase 1,2,3 Architectural Coating	74	55	78	64	51
Distance in feet	50	285	235	80	536
Phase 1,2 Asphalt Paving	85	70	71	**81**	64
Maximum dBA L_{eq}		**76**	**84**	**81**	**64**
Exceeds 80 dBA L_{eq} Threshold?		**No**	**Yes**	**Yes**	**No**

Notes: Calculations performed with the FHWA RCNM software are included in Appendix C.

Off-Campus Receptors

Construction is proposed to take place during the municipal code allowable hours of 7:00 AM to 6:00 PM, Monday through Saturday and between the hours of 9:00 AM to 6:00 PM on Sundays. As shown in Table 8, on average noise levels would not exceed the FTA threshold of 80 dBA L_{eq} at the nearest sensitive receptors, except for residence(s) to the south during paving activity and the residence to the east during building construction. This exceedance would result in a potentially significant short-term noise impact.

With the implementation of Mitigation Measure N-1 noise from construction at the nearby impacted sensitive receptors would be reduced to a less than significant impact. Implementation of Mitigation Measure N-1 would reduce noise levels by at least 6 dBA with the use of the best available noise control techniques, specifically the use of proper engine mufflers. A study prepared for the US Department of Transportation found that in cases where a particular piece of equipment either does not have or has a very poor muffler the application of a good muffler will reduce the overall noise by 6 to 12 dBA (Toth 1979). The construction equipment modeled is assumed to not have any mufflers or sound attenuating devices installed. Therefore, reducing noise levels from the highest noise level produced of 84 dBA to 78 dBA L_{eq}. Thus, noise levels would be below the FTA criteria for temporary construction noise of 80 dBA L_{eq}.

Mitigation Measures

N-1 The Sacramento City Unified School District shall adopt a Construction Noise Control Plan, including, but not be limited to the following:

- Limit construction to the hours allowed by the City of Sacramento (7:00 AM to 6:00 PM, Monday through Saturday and between the hours of 9:00 AM to 6:00 PM on Sundays) and prohibit construction on federal holidays.
- At least 30 days prior to the start of construction activities, all off-site businesses and residents within 300 feet of the project site shall be notified of the planned construction activities. The notification shall include a brief description of the project, the activities that would occur, the hours when construction would occur, and the construction period's overall duration. The notification shall include the telephone numbers of the Sacramento City Unified School District's and contractor's authorized representatives that are assigned to respond in the event of a noise or vibration complaint.
- At least 10 days prior to the start of construction activities, a sign shall be posted at the entrance(s) to the job site, clearly visible to the public, that includes permitted construction days and hours, as well as the Sacramento City Unified School District Facility Department's project hotline number and contractor's authorized representatives contact information that are assigned to respond in the event of a noise or vibration complaint. If the authorized contractor's representative receives a complaint, he/she shall investigate, take appropriate corrective action, and report the action to the Sacramento City Unified School District.
- During the entire active construction period, equipment and trucks used for project construction shall utilize the best available noise control techniques (e.g., improved mufflers, equipment re-design, use of intake silencers, ducts, engine enclosures, and acoustically attenuating shields or shrouds).
- Require the contractor to use impact tools (e.g., jack hammers and hoe rams) that are hydraulically or electrically powered wherever possible. Where the use of pneumatic tools is unavoidable, an exhaust muffler on the compressed air exhaust shall be used along with external noise jackets on the tools.
- During the entire active construction period, stationary noise sources shall be located as far from sensitive receptors as possible, and they shall be muffled.
- During the entire active construction period, noisy operations shall be combined so that they occur in the same time period as the total noise level produced would not be significantly greater than the level produced if the operations were performed separately (and the noise would be of shorter duration).
- Select haul routes that avoid the greatest amount of sensitive use areas.
- Signs shall be posted at the job site entrance(s), within the on-site construction zones, and along queueing lanes (if any) to reinforce the prohibition of unnecessary engine idling. All other equipment shall be turned off if not in use for more than 5 minutes.

- During the entire active construction period and to the extent feasible, the use of noise-producing signals, including horns, whistles, alarms, and bells, shall be for safety warning purposes only. The construction manager shall use smart back-up alarms, which automatically adjust the alarm level based on the background noise level or switch off back-up alarms and replace with human spotters in compliance with all safety requirements and laws.

On-Campus Receptors

Students would remain in the existing classrooms on site, while development of the remodeled school commences for the eastern half of the project site. Once phase one of developing the project site is completed, students would be allowed to move into the new buildings constructed during phase one; the portable classrooms would be demolished along with the development of the new center playground and southern driveway during phase two. During phase 3 the remaining northwest of the existing project site would be demolished of the existing buildings and the remaining play equipment would be installed and access to the new driveway would be made available along Martin Luther King Blvd. Students would be exposed to onsite construction noise during all three phases. Most construction equipment could operate within 50 to 100 feet from existing classrooms. As shown in Table 8, exterior construction noise levels can reach up to 85 dBA L_{eq}. Typical exterior to interior noise transmission loss (attenuation) for school buildings is 25 dBA with windows closed. Additionally, a fence would be incorporated to separate active construction from active classrooms, thus reducing noise levels by at least 5 dBA. Furthermore, with Mitigation Measure N-1 which would be required to reduce noise levels at the off-campus receptors, incorporation of Mitigation Measure N-1 would further reduce on-campus noise levels by 6 dBA. Thus, interior noise levels at classrooms are estimated to be 60 dBA or less. This would be a less-than-significant impact.

Operational Noise

Traffic Noise

With the planned school remodel, the proposed project would not result in an increase in the number of students on the Project Site. Additionally, there are no planned roadway upgrades associated with the proposed project. Therefore, the project would not result in a significant change in long-term traffic volumes. Therefore, traffic noise increases from the proposed project on nearby roadway segments would be less than significant and no mitigation measures are necessary.

Mechanical Equipment

The construction of new buildings would have mechanical HVAC systems. HVAC equipment would be new, and it is anticipated that the associated noise would be similar to existing HVAC equipment or quieter. For reference, typical HVAC noise is 72 dBA at 3 feet and the nearest sensitive receptors are residences approximately 30 feet to the southeast of the proposed Building K. At that distance, HVAC noise levels would attenuate to 42 dBA or less. This would not exceed the municipal code exterior noise limits for single-family residences during the daytime hours as shown in section 8.68.060 of the Sacramento Municipal Code (e.g., 55 dBA daytime). This impact would be less than significant.

Recreational Noise

The project includes the following:

- A new turf field on the western portion of the project site where the existing school buildings are located;
- Reconfiguration of the existing kindergarten and elementary playgrounds, and basketball hardcourts to the center portion of the site;

These additions and reconfigurations could change the existing noise environment during outdoor student recreation activities. The reconfiguration of the existing kindergarten and elementary playgrounds and hardcourts to be relocated to the center of the project site would not cause a significant noise increase or change in use of its existing outdoor recreational uses. Under the proposed project, the reconfiguration of outdoor recreational uses would be located further away from some of the surrounding residences than currently located under existing conditions. However, the addition and use of the new proposed turf field could increase recreational noise levels at nearby sensitive receptors where they were previously not impacted by outdoor school noise. PlaceWorks staff have collected noise measurements that relate to soccer activity on a turf field. Noise measurements data show that at a distance of 15 feet noise levels from soccer field activities are 60 dBA L_{eq}. The nearest sensitive receptor to the proposed soccer field would be located approximately 50 feet to the north. At that distance, noise from the proposed soccer field would attenuate to 50 dBA L_{eq}. Therefore, noise from the new soccer field to the nearest residence would be below the City of Sacramento's exterior noise standards as set in the municipal code in section 8.68.060 for residential land uses for both day and nighttime criteria (55 and 50 dBA L_{eq} respectively). Therefore, recreational noise would be less than significant.

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

Less Than Significant Impact.

Operational Vibration

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

Construction Vibration

Vibration Annoyance

Groundborne vibration is rarely annoying to people who are outdoors, so it is usually evaluated in terms of indoor receivers. For annoyance, vibration is typically noticed nearby when objects in a building generate noise from rattling windows or picture frames. Since construction activities are typically distributed throughout the project site, vibration annoyance impacts are typically based on average vibration levels (levels that would be experienced by sensitive receptors most of the time). Therefore, to represent the worst-case vibration level, distances to the nearest sensitive residential buildings are measured from the edge of the project site boundary that would contain certain vibration generating equipment. For vibration annoyance, the FTA vibration level limit of 72 VdB will apply to the surrounding residential receptors and for institutional land uses such as the church that is to the north of the project site the FTA vibration limit of 75 VdB will apply.

Table 9 shows the vibration levels from typical earthmoving construction equipment at the nearest receptors. As shown in the table, construction-generated vibration levels would exceed 72 VdB at the nearby residences and 75 VdB at the Church. Therefore, impacts related to construction vibration annoyance would be potentially significant. However, with implementation of Mitigation Measure N-2 these impacts would be reduced to less than significant.

Table 9 Worst-Case Annoyance Vibration Levels from Construction Equipment

Equipment	Vibration Levels (VdB)				
	Reference Levels at 25 feet	Williams Memorial Church of God in Christ (15 feet North)	Multi-Family Residence at 4609 Mendocino Blvd (10 feet East)	Multi-Family Residence at 3825 Martin Luther King Jr. Blvd (25 feet South)	Single-Family Residence at 3830 21st Avenue (65 feet West)
Vibratory Roller	94.0	NA	**105.9**	**94.0**	**81.6**
Large Bulldozer	87.0	NA	NA	**87.0**	**74.6**
Loaded Trucks	86.0	NA	NA	NA	**73.6**
Static Roller	82.0	NA	**93.9**	**82.0**	69.6
Jackhammer	79.0	**85.7**	NA	NA	66.6
Small Bulldozer	58.0	NA	NA	58.0	45.6
FTA Threshold	-	75	72	72	72
Exceeds Threshold?	**-**	**Yes**	**Yes**	**Yes**	**Yes**

Source: FTA 2018.
NA – Not Applicable
Bold numbers indicate values that exceed the FTA annoyance criteria.
Distances are from the edge of the overall construction zone to the nearest receptor building within each land use type.

Vibration Damage

Construction Vibration

Construction operations can generate varying degrees of ground vibration, depending on the construction procedures and equipment. Operation 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 architectural damage at the highest levels. Vibration from construction activities rarely reaches the levels that can damage structures.

For reference, a vibration level of 0.2 in/sec PPV is used as the limit for non-engineered timber and masonry buildings (which would apply to the surrounding structures) (FTA 2018). Vibration damage is measured from the edge of the project site to the nearest structure's façade because vibration damage, unlike human vibration perception or annoyance, is determined by measuring instantaneous peak particle velocity generated by equipment. Table 10 summarizes vibration levels for typical construction equipment at a reference distance of 25 feet and at the nearest sensitive receptors. The nearest structure to proposed construction activities is the residences approximately 10 feet or less to the east of the project site. If paving, demolition, grading, and earthwork equipment operates within approximately 10 feet or less of the residences, the 0.2 in/sec PPV threshold would be exceeded.

Table 10 Vibration Damage Levels for Typical Construction Equipment

Equipment	PPV (in/sec)				
	FTA Reference at 25 feet	Williams Memorial Church of God in Christ (15 feet North)	Multi-Family Residence at 4609 Mendocino Blvd (10 feet East)	Multi-Family Residence at 3825 Martin Luther King Jr. Blvd (25 feet South)	Single-Family Residence at 3830 21st Avenue (65 feet West)
Vibratory Roller	0.21	**0.452**	**0.830**	**0.210**	0.050
Static Roller	0.05	0.108	0.198	0.050	0.012
Large Bulldozer	0.089	0.191	**0.352**	0.089	0.021
Loaded Trucks	0.076	0.164	**0.300**	0.076	0.018
Jackhammer	0.035	0.075	0.138	0.035	0.008
Small Bulldozer	0.003	0.006	0.012	0.003	0.001

Sources: Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual,* September 2018. New Zealand Transport Agency 2012.
NA= Not Applicable
Bold = Threshold exceedance

As shown in Table 10, vibration levels would result in an exceedance of 0.2 in/sec PPV at any of the nearby sensitive receptors to the proposed remodeling, resulting in a potentially significant impact, however, with implementation of Mitigation Measure N-2 these results would be reduced to less than significant.

Mitigation Measures

N-2 The Sacramento Unified School District shall ensure the following occur during construction activities:

- Vibratory compaction that is within 55 to 140 feet of any surrounding residential structure shall use a static roller in lieu of a vibratory roller. At a distance greater than 25 feet, a vibratory roller would no longer exceed 0.20 in/sec PPV but would exceed 72 VdB. Therefore, a static roller shall be used within 55 to 140 feet where levels would be reduced to 72 VdB or less and mitigate both vibration damage and vibration annoyance impacts.
- Paving activities within 55 feet of a residential structure will employ self-compacting pea gravel for the base and a concrete finish as to not require vibratory compaction or use of a static roller.
- Grading and earthwork activities within 15 feet of adjacent residential structures shall be conducted with off-road equipment that is limited to 100 horsepower or less.
- Relocate loaded trucks as far away as feasibly possible from nearby residences (preferably by 80 feet to reduce below 72 VdB) and reduce vehicle idling to prevent vibration annoyance to nearby residences.

- Demolition activities within 80 feet of nearby residences shall be required to use small bulldozers in lieu of large bulldozers in order to reduce vibration annoyance levels below 72 VdB, at distances greater than 80 feet from nearby residences a large bulldozer would no longer exceed 72 VdB and would be permissible under FTA guidelines.

- For jackhammer use to the north, closest to the church where the existing parking lot resides; use of a single jackhammer will be permitted only at any time for demolition of pavement. If demolition of pavement is required within 20 feet of the Church alternatives that generate less vibration would be necessary (i.e hand tools or a hydro demolition tractor). At distances from 20 to 35 feet a jackhammer would be allowed to operate but would be restricted to 30 events/uses in a day to fall under the FTA infrequent event criterion for institutional land uses. At distances from 30 to 35 feet a jackhammer would be allowed to operate but would be restricted to 30 to 70 events/uses in a day to fall under the FTA occasional event criterion for institutional land uses. At distances greater than 35 feet, impacts from a jackhammer would be less than significant and no restriction would apply.

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?

Less than Significant. The proposed project is located approximately 1.4 miles southwest of the Sacramento Executive Airport. According to the Sacramento Airport Land Use Commission Plan (ALUCP) Noise Contour the project site is located outside the 65 dBA CNEL contour for the Sacramento Executive Airport (Sacramento County Airport System 2023). As shown in the Sacramento 2030 General Plan, normally acceptable noise levels for schools would be 70 dBA CNEL. Therefore, since the project is located outside of the 65 dBA CNEL contour of the Sacramento Executive Airport, the project would not expose people working in the project area to excessive aircraft noise levels above the standards set in the Sacramento General Plan. Thus, the impact would be less than significant.

3.14 POPULATION AND HOUSING

Would the project:

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

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 result in no increase in student enrollment. It is expected that the students that would fill the new classrooms would be existing residents living within the District's service boundary, and the proposed project would not directly increase population growth in the area. No construction of home or businesses is proposed, nor extension of roads or other infrastructure. Project implementation would not induce population growth. No impact would occur.

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

No Impact. Project construction would be restricted to the existing campus, and no housing would be displaced replaced. No impact would occur.

3.15 PUBLIC SERVICES

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

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

a) Fire protection?

Less Than Significant Impact. The closest fire station to the project site is the Sacramento Fire Department Station 6, located at 3301 Martin Luther King Jr. Boulevard in the City of Sacramento, approximately 0.7-mile northwest of the project site. Both the City Fire Marshal and DSA would be required to approve fire access around the site. Therefore, project implementation would not substantially affect the Department's response times or require expansion of fire protection services such that new or physically altered fire stations would be required. Impacts would be less than significant.

b) Police protection?

Less Than Significant Impact. Law enforcement and police protection services are provided by the Sacramento Police Department at 5303 Franklin Boulevard in Sacramento, approximately 0.6 miles southwest of the site. The improved parking and circulation onsite would reduce congestion in the adjacent neighborhood and emergency vehicle access to the site would expand to include Mendocino Boulevard in addition to Martin Luther King Jr. Boulevard, potentially reducing response times to the site. Therefore, project implementation would not warrant additional law enforcement facilities. Impacts to police protection services would be less than significant.

c) Schools?

No Impact. School service needs are related to the size of a residential population, geographic area served, and community characteristics. The proposed project would completely rebuild the project site. Once constructed, the new school facilities would continue to serve the existing programs of Oak Ridge Elementary School (grades K-6) and students in the District's attendance area. The proposed project would not increase the population in the attendance boundary or otherwise increase demand for school services. The proposed project would not result in changes in land uses (e.g., housing) that would result in population growth or create a greater demand for school services. Therefore, no impact would occur.

d) Parks?

No Impact. Impacts to public parks and recreational facilities are generally caused by population or employment growth. The proposed project would not increase population or employment. The proposed project would not result in the increased demand for additional parks and recreation services either on-site or in the surrounding area. Therefore, physical impacts to parks and recreation from increased population growth would not occur. No impacts to parks would occur.

e) Other public facilities?

No Impact. The proposed project would not result in impacts associated with the provision of other new or physically altered public facilities (e.g., libraries, hospitals, childcare, teen or senior centers). Physical impacts to public services are usually associated with population in-migration and growth, which increase the demand for public services and facilities. No new population would be generated by the proposed uses; therefore, no increased demand on other public facilities is anticipated. 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	

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

Less Than Significant Impact. Similar to existing conditions, operation of the project site would not require students to use existing neighborhood or regional parks. However, during construction activities, students would not have access to recreational facilities. This impact would be temporary as the proposed project, once completed, would enhance and update the school's outdoor recreational spaces. Impacts to offsite recreational facilities as a result of the proposed project would not result in negative impacts. 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. As discussed in section 3.16(a), the proposed project would not require construction of offsite recreational facilities to accommodate its program. The proposed project includes the rebuilding and enhancing of the recreational facilities at the project site. The environmental effects related to the whole project, including the recreational facility improvements and additions, are discussed throughout this Initial Study. Impacts would be less than significant.

3.17 TRANSPORTATION

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

- *Transportation Impact Analysis,* KD Anderson & Associates, Inc., April 2023

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

Existing Setting

Roadways

Martin Luther King Jr. Blvd is a 2-lane north-south facility through the study area with Class II on-street bike lanes. On-street parking is permitted in most areas. The City of Sacramento General Plan Citywide Circulation Diagram identifies the street as a Major Collector. The Circulation Diagram also identifies the street as a 2-lane facility and indicates it is planned to remain a 2-lane facility in the future. The roadway currently carries approximately 1,200 peak hour vehicles in the vicinity of the project site. The posted speed is 35 mph.

20th Avenue is a local 2-lane east-west street with residential frontage and extends approximately 2,000 feet west from Martin Luther King Jr. Blvd to 32nd Street. The roadway is stop sign controlled at Martin Luther King Jr. Blvd. 21st Avenue is a 2-lane east-west street with residential frontage which extends west from Martin Luther King Jr. Blvd and provides an undercrossing of Highway 99 and intersects Franklin Blvd immediately west of Highway 99. 21st Avenue is the only roadway between the 12th Avenue and Fruitridge Road interchanges with Highway 99 which provides circulation to the west side of the highway. The 21st Avenue intersection with Martin Luther King Jr. Blvd is signalized. No left turn channelization is provided on Martin Luther King Jr. Blvd at the intersection.

22nd Avenue is a local 2-lane east-west street with residential frontage and extends approximately 2,000 feet west from Martin Luther King Jr. Blvd and 800 feet to the east where it intersects Mendocino Blvd. The roadway is stop sign controlled at Martin Luther King Jr. Blvd. The east and west side intersection with Martin Luther King Jr. Blvd is offset by approximately 125 feet. Mendocino Blvd is a local 2-lane north-south street with residential frontage and extends south from the south border of the school site to Fruitridge Road and terminates approximately 2,500 feet south of Fruitridge Road.

Pedestrian Facilities

All streets in the vicinity of the school site provide sidewalks. Signal controlled pedestrian crossings are provided at the Martin Luther King Jr. Blvd / 21st Avenue intersection on the north and west sides of the intersection. Oak Ridge Elementary School staff also provides a school crossing guard at the intersection during school arrival and departure periods.

Transit Service

Sacramento Regional Transit (RT) provides bus service within the project area. The project site is approximately 0.95-miles east of the Sacramento Regional Transit District's light rail system. RT Route 67 extends north on Martin Luther King Jr. Blvd from Fruitridge Road and then follows 21st Avenue west to Franklin Blvd. Bus stops are located on 21st Avenue immediately west of Martin Luther King Jr. Blvd and on Martin Luther King Jr. Blvd on the north side of 23rd Avenue. Oak Ridge Elementary School is not served with District school bus service and no future service is currently planned to be provided with the rebuild of the campus.

Would the project:

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

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

No Impact. The proposed reconstruction of Oak Ridge Elementary School would not adversely affect the school's vehicular, pedestrian, or bicycle access, nor the onsite circulation system. The proposed project would result in an improvement to the access and circulation system. The existing primary campus access point on Martin Luther King Jr. Blvd would be moved south to align with the 21st Avenue signalized intersection, and a new access point would be created for emergency vehicles and pedestrians via Mendocino Boulevard. The Martin Luther Kind Jr. Boulevard access point would lead to a driveway bordering the south boundary of the site which would continue as a loop around the proposed parking lot. This driveway would also provide access to two student drop-off/pick-up zones in front of the administration/multi-purpose building.

A sidewalk and bike lane would be provided on the north side of the Martin Luther King Jr. Boulevard driveway. The sidewalk would continue in front of the campus and loop around the bus drop-off area, ending at the Mendocino Boulevard pedestrian access point. The existing sidewalk along Mendocino Boulevard will connect to the campus's internal sidewalk. The proposed parking lot on the southeast portion of the campus would contain 54 parking stalls including accessible parking spaces. Bike racks would be provided on the school campus to accommodate student and staff members who would ride bicycles to and from the school. The school replacement project would not significantly affect any public transportation facilities or operation because the proposed project would result in a decrease in capacity, and therefore, a decrease in public transit users.

Because Martin Luther King Jr. Blvd access improvements will need to be approved by the City of Sacramento, a Local Traffic Operational Analysis (LTA) was completed and included in Appendix D which addresses the effects of the project within the context of City General Plan requirements, confirms the adequacy of site access and supports the subsequent preparation of a Traffic Signal Design Concept Report needed for the proposed modifications to the Martin Luther King Jr. Blvd / 21st Avenue intersection traffic signal.

As described in the LTA, the proposed access and school drop-off design is projected to significantly improve conditions at the Martin Luther King Jr. Blvd / 21st Avenue intersection associated with pedestrian activity during both the morning drop-off period and afternoon pick-up loading times. The on-site circulation system, together with the location of the new campus buildings is projected to move school drop-off and pick-up activity from the adjacent street system to the on-site loading area. This is projected to eliminate the majority of school pedestrian crossings at the intersection and improve intersection vehicle delays.

In summary, the proposed project would not adversely affect traffic conditions on the study area street network or internal circulation system, nor would it affect the performance of any transit or non-motorized transportation facilities. The proposed project would not conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway bicycle, and pedestrian facilities. Therefore, no impact would occur.

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

No 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 eliminate auto delay, LOS, another similar measures of vehicular capacity or traffic congestion as the sole basis for determining significant impacts under CEQA. As part of the new CEQA Guidelines, the new criteria "shall promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses" (Public Resources Code Section 21099(b)(1)).

Pursuant to SB 743, the California Natural Resources Agency adopted revisions to the CEQA Guidelines on December 28, 2018, to implement SB 743. CEQA Guidelines Section 15064.3 describes how transportation impacts are to be analyzed after SB 743. Under the new Guidelines, metrics related to "vehicle miles traveled" (VMT) were required beginning July 1, 2020, to evaluate the significance of transportation impacts under CEQA for development projects, land use plans, and transportation infrastructure projects. The State provided an "opt-in period" and did not require lead agencies to apply for a VMT metric until July 1, 2020. However, in January 2020, State courts stated that under the Public Resources Code Section 21099, subdivision (b)(2), "automobile delay, as described solely by level of service or similar measures of vehicular capacity or traffic congestion shall not be considered a significant impact on the environment" under CEQA, except for roadway capacity projects.

As stated in the "Technical Advisory on Evaluating Transportation Impact in CEQA" (California Office or Planning and Research, December 2018) and the "Vehicle Miles Traveled – Focused Transportation Impact Study Guide (Caltrans, May 20, 2020), projects that generate or attract fewer than 110 trips per day generally may be assumed to cause a less-than-significant transportation impact and can be screened from a CEQA VMT analysis because they fall into the small project category.

While the proposed project would not result in an increase in the number of students at the project site, and would result in a reduced student capacity, the traffic associated with these students and staff would be traveling on the area's roadway network regardless of the status of the proposed project. The demand is generated by the number of eligible and age-appropriate students in the area and is not generated by the size of the school's buildings. As there would be no increase in traffic volumes and as the proposed project is well below the CEQA VMT threshold of 110 trips per day, the proposed project can be screened from any further CEQA VMT analysis and would not result in a significant impact relative to VMT.

In addition to the State of California screening methodology, the "Transportation Analysis Guidelines" used by the County of Sacramento state that a project can be screened from requiring a CEQA VMT analysis if the project is a "Local-Serving Public Facilities/Services" type of land use, which includes a public K-12 school. As the proposed project falls into that category, it can be screened from any further VMT analysis.

Therefore, the proposed project would have no VMT impacts. No significant impact would occur.

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

This is also a safety improvement, as it will remove school-age pedestrians and parents from these street crossings.

No 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 for vehicles, bicyclists, and pedestrians would continue to occur via properly designed driveways, sidewalks, and onsite pedestrian pathways. The streets, intersections, driveways, and onsite circulation system are designed to accommodate the anticipated levels of vehicular and pedestrian activity and have historically been accommodating school-related traffic on a daily basis. They would continue to be compatible with the design and operation of a school. Additionally, the design of internal drive aisles, access driveways, and other circulation improvements would be required to adhere to the requirements of the Division of the State Architect and the City of Sacramento Fire Department. Compliance with established design standards would ensure that hazards due to design features would not occur and that the placement of the circulation improvements would not create a conflict for motorists, pedestrians, or bicyclists traveling within or around the project site. Furthermore, the proposed improvements to the project's site on-site circulation system are expected to improve safety on-site as it will remove school age pedestrians and parents from these street crossings. As the proposed project would not result in adverse changes to the access or circulation features at the project site or surrounding areas, and would improve access and circulation, no impacts would occur.

d) Result in inadequate emergency access?

No Impact. The proposed access and circulation features at the project site, including the driveways, onsite circulation roads, parking lots, and fire lanes, would accommodate emergency ingress and egress by fire trucks, police units, and ambulance/paramedic vehicles. The proposed project would accommodate emergency access to all areas of the campus. Additionally, the design of internal drive aisles, access driveways, and other circulation improvements would be required to adhere to the requirements of the Division of the State Architect and the City of Sacramento Fire Department. Compliance with established design standards would ensure emergency access within the site is adequate. Therefore, no impact would occur.

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		

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

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

No Impact. The project site contains Oak Ridge Elementary School; the project site is not identified as a state or national historic resource, as indicated in Section 3.5(a), above. Construction of the proposed project would be within the footprint of the project site's boundaries. Therefore, there would be no impacts to historical resources.

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

Less Than Significant Impact with Mitigation Incorporated. As part of the AB 52 process, Native American tribes must submit a written request to the District to be notified of projects within their traditionally and culturally affiliated area. District must provide written, formal notification to those tribes within 14 days of deciding to undertake a project. The tribe must respond to the District within 30 days of receiving this notification if they want to engage in consultation on the project, and the District must begin the consultation process within 30 days of receiving the tribe's request. Consultation concludes under these circumstances: 1) the parties agree to mitigation measures to avoid a significant effect on a tribal cultural resources; 2) a party, acting in good faith and after reasonable effort, concludes mutual agreement cannot be reached; or 3) a tribe does not engage in the consultation process or provide comments.

The District has not been contacted, per AB 52, and the consultation process has not been triggered. However, per District policy, the District sent notification letters to the following tribes on March 22, 2023: Wilton Rancheria, Buena Vista Rancheria, Shingle Springs Band of Miwok Indians, Upper Lake Rancheria, and the United Auburn Indian Community of the Auburn Rancheria.

On March 27, 2023, the Wilton Rancheria Tribe responded stating that the project site falls within the Tribe's ancestral territory, and provided mitigation measures should inadvertent discoveries be made during construction, which have been incorporated in Mitigation Measure TCR-1. The Wilton Rancheria Tribe indicated that they do not have any concerns with the project but would like to discuss the possibility of adding interpretive/education signage to recognize the indigenous history of the area. On April 17, 2023, the Shingle Springs Band of Miwok Indians Tribe responded stating that the Tribe is not aware of any known cultural resources on the site and would like continued updates if during the progress of the project new information or human remains are found; the Tribe did not request consultation.

The project site is not identified as historically significant in a California Register of Historic Resources or meets any of the criteria for listing in the National Register of Historic Places. Although the project site is currently developed, as the proposed project would include ground-disturbing activities, there is a potential to discover previously unidentified subsurface tribal cultural resources. Therefore, Mitigation Measure TCR-1 has been incorporated to reduce impacts to a less than significant level.

Mitigation Measures

TCR-1 Prior to any ground disturbing construction activities, a Wilton Rancheria Native American monitor shall be identified to be on call.

Upon discovery of any tribal cultural resources, construction activities shall cease within 100 feet of the find until the tribal monitor can assess the find and provide recommendations. The evaluation of all tribal cultural resources unearthed by project construction activities shall be evaluated by the tribal monitor. If the resources are Native American in origin, the tribal monitor shall coordinate with the District regarding treatment of these resources as well as notifying local tribes of the find. Typically, the tribe(s) will request reburial, preservation in place within the landscape, the minimization of handling of the objects, construction monitoring of any further activities, or returning objects to a location within the project area where they will not be subject to future impacts. The District may continue work on other parts of the project site while evaluation and, if necessary, mitigation takes place (CEQA Guidelines Section 15064.5[f]). Work in the area(s) of the cultural find may only proceed after all necessary investigation and evaluation of the discovery under the requirements of CEQA, including AB 52, have been satisfied, as well as with authorization from the District in coordination with the Tribe. If the tribal monitor determines a resource to constitute a "historical resource" or "unique archaeological resource," time and funding sufficient to allow for implementation of avoidance measures or appropriate mitigation must be available. The treatment plan established for the resources shall be in accordance with CEQA Guidelines Section 15064.5(f) for historical resources and Public Resources Code Section 21083.2(b) for unique archaeological resources.

The project contractor shall implement any measures deemed by the District to be necessary and feasible to preserve in place, avoid, or minimize impacts to the resource, including but not limited to, facilitating the appropriate tribal treatment of the find, as necessary. Treatment that preserves or restores the cultural character and integrity of a tribal cultural resource may include tribal monitoring, culturally appropriate recovery of cultural objects, and reburial of cultural objects or cultural soil.

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 for curation, only if specifically requested by the Tribe. The District shall be responsible for ensuring that a public, nonprofit institution with a research interest in the materials, such as the North Central Information Center and California State University, Sacramento Natural History Museums, curate any historic archaeological material that is not Native American in origin if such an institution agrees to accept the material. If no institution accepts the archaeological material, the District shall offer it to a local historical society for educational purposes or retain the material and use it for educational purposes. The Wilton Rancheria contact information is as follows:

Wilton Rancheria – Cultural Preservation Department
Tel: 916.683.6000
cpd@wiltonrancheria-nsn.gov

3.19 UTILITIES AND SERVICE SYSTEMS

Would the project:

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

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

Less Than Significant Impact. The proposed project involves the rebuilding of an existing school. The proposed project would result in no change to student capacity. The proposed project would demolish and reconstruct all utilities onsite. Therefore, as utilities would not be expanded or relocated, 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. The proposed project is within the Central Valley Regional Water Quality Control Board region. As student capacity at the site would not change, the water needs are expected to remain the same when compared to existing conditions; therefore, the City's water supply is anticipated to be sufficient for the proposed project and 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. The City of Sacramento is responsible for the collection of wastewater within the City. The proposed project would result in no change to student capacity; therefore, it is anticipated that the wastewater facilities would continue to have adequate capacity to serve the proposed project. Therefore, 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. Waste from the proposed project would be transported to the Sacramento County Landfill at 12701 Kiefer Boulevard in Sloughhouse, California. The Sacramento County Landfill has a maximum daily permitted disposal rate of 10,815 tons per day (CalRecycle 2019). The Landfill has a remaining capacity of 112,900,000 cubic yards and a cease operation date of January 1, 2026 (CalRecycle 2019).

The proposed improvements would not result in an increase in the student or staff populations, and therefore, generation of waste during operational activities would be less than existing conditions. Project impacts on landfill capacity 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. Solid waste would be generated during construction and operation of the proposed project. The proposed project would comply with all regulations pertaining to solid waste, such as the California Integrated Waste Management Act. The District and its construction contractor would comply with all applicable laws and regulations and make every effort to reuse and/or recycle the construction debris that would otherwise be taken to a landfill. Hazardous waste, such as paint used during construction, would be disposed of only at facilities permitted to receive them in accordance with local, state, and federal regulations. The proposed project would comply with all applicable local, state, and federal statutes and regulations related to solid waste disposal. Therefore, impacts would be less than significant.

3.20 WILDFIRE

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

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

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

Less Than Significant Impact. The proposed project would not conflict with adopted emergency response or evacuation plans. The surrounding roadways would continue to provide emergency access to the project site and surrounding properties during construction and operation. Both the City Fire Marshal and DSA would be required to approve fire access around the site. As part of the DSA process, a Fire and Life Safety Review would be conducted when DSA would review building construction and how occupants can safely exit the buildings in case of a fire. The proposed project would not result in inadequate emergency access, and 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. There are three primary factors used in assessing wildfire hazards—topography, weather, and fuel. The project site is relatively flat and is in a predominantly urbanized environment. The proposed project would not impact weather or topography. At project completion, the site would include pervious and impervious surfaces. According to CAL FIRE, the project site is not within a VHFHSZ (CAL FIRE 2023). Therefore, the project and site conditions would not contribute to an increase in exposure to wildfire risk. By complying with the CBC and CFC, 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. Due to the reconfiguration of buildings onsite, the proposed project would require changes to the connections to utilities such as electricity, water, and sewer. The utilities would be installed to meet service requirements. The construction of infrastructure improvements for the project would not directly fire risk. The project site is currently developed and located in an urbanized portion of the city. 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 relatively flat. No landslides have been mapped on the site (CDC 2022d). Additionally, the project site is developed with an existing school and is within Zone X as shown in Flood Insurance Rate Map ID #06067C0190H (FEMA 2012). Construction activities related to the proposed project would be subject to compliance with the CBC and would include BMPs. Therefore, with implementation of BMPs and compliance with the CBC, impacts would be less than significant.

3.21 MANDATORY FINDINGS OF SIGNIFICANCE

Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
XXI. MANDATORY FINDINGS OF SIGNIFICANCE.				
a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?		X		
b) Does the project have 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 substantiated in Section 3.4, *Biological Resources*, tree or vegetation removal would be required for the proposed project; therefore, the project could result in direct impacts on special-status wildlife during construction. However, compliance with Mitigation Measures BIO-1 through BIO-2 would ensure that impacts to biological resources do not occur.

As substantiated in Section 3.5, *Cultural Resources*, no historic resources were identified on-site and, therefore, the project site does not have the potential to eliminate important examples of California history or prehistory. Because the property has been previously disturbed, it is not anticipated that unknown tribal cultural resources are present on-site. However, compliance with Mitigation Measure CUL-1 would ensure that impacts to archeological resources do not occur.

As substantiated in Section 3.7, *Geology and Soils*, the proposed project would require limited grading and other ground disturbing construction activities to accommodate the construction of the proposed project and utility requirements. Due to the ground disturbance associated with construction, there is potential that natural landform beneath the site would be encountered during construction and that subsurface resources and/or paleontological resources would be discovered. However, compliance with Mitigation Measure GEO-1 would ensure that impacts to paleontological resources do not occur.

As substantiated in Section 3.18, *Tribal Cultural Resources*, the project site is not identified as historically significant in a California Register of Historic Resources or meets any of the criteria for listing in the National Register of Historic Places. Although the project site is currently developed, as the proposed project would include ground-disturbing activities, there is a potential to discover previously unidentified subsurface tribal cultural resources. However, compliance with Mitigation Measure TCR-1 would ensure that impacts to tribal cultural resources do not occur.

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

Less Than Significant Impact. The issues relevant to project development are confined to the immediate project site and surrounding area. Additionally, the project site is in an area of the city where supporting utility infrastructure (e.g., water, wastewater, electricity, natural gas, and drainage) and services (e.g., solid waste collection) currently exist. Project implementation would not require the construction of new or expansion of existing utility infrastructure and services.

Furthermore, impacts related to other topical areas, such as air quality, GHG, hydrology and water quality, and traffic, would not be cumulatively considerable with development of the project in conjunction with other cumulative projects. In consideration of the preceding factors, the project's contribution to cumulative impacts would be rendered less than significant; therefore, project impacts would not be cumulatively considerable.

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

Less Than Significant Impact. As discussed in the respective topical sections of this Initial Study, implementation of the proposed project would not result in significant impacts in the areas of GHG, geology and soils, hazards and hazardous materials, hydrology and water quality, noise, or wildfire, which may cause adverse effects on human beings. Therefore, impacts related to these environmental effects were deemed to be less than significant.

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5. List of Preparers

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Appendix A Air Quality, Greenhouse Gas Emissions Analysis, and Health Risk Assessment

Appendix A.1 CalEEMod Modeling, Modeling Inputs, and Emission Summary Sheets

CalEEMod Inputs - Oak Ridge Elementary School Project, Construction P1

Name: Oak Ridge Elementary School Project, Construction
Land Use Scale: Project/site
Land Use Subtypes: Educational Elementary School
Project Location: 4501 Martin Luther King Jr Blvd
County: Sacramento
Land Use Setting: Suburban
TAZ: 544
Operational Year: 2025
Electric Utility: Sacramento Municipal Utility District (SMUD)
Gas Utility: Pacific Gas & Electric (PG&E)
Air Basin: Sacramento Valley
Air District: Sacramento Metropolitant AQMD

Proiect Site Acreage 3.86
Disturbed Site Acreage 3.86

Project Components

Demolition	**Building Square Feet (SQFT)**	***Tons***		
Building Demolition	0	0		
Asphalt Demolition	2,920	43		
New Construction	**Building Square Feet (SQFT)**	**Building Footprint (BSF)**	**Acres**	**Stories/Levels**
Admin/Multi-Purpose Building	17,093	17,093	0.39	1
Classrooms Building	28,245	11,605	0.27	2
Kindergarten Buildings	7,610	7,610	0.17	1
TOTAL	52,948		0.83	
Other Land Uses	**SQFT**	**Building Footprint**	**Acres**	**Number of Stalls**
Parking Lot	57,905	NA	1.33	52
Total Non-Parking Asphalt	12,300	NA	0.28	
Total Hardscape (excluding parking, hardcourts, and	39,000	NA	0.90	
Landscaping	***SQFT***	***Acres***		
Landscaping	22,500	0.52		

CalEEMod Land Use Inputs

Land Use Type	Land Use Subtype	Size Metric	Size	Lot Acreage	Building Square Feet	Landscape Area Square Feet	Special Landscape Area Square Feet
Educational	Elementary School	1000 sqft	52.95	0.83	52,948	22,500	0
Parking	Parking Lot	1000 sqft	57.91	1.33	57,905	0	0
Parking	Other Asphalt Surfaces	1000 sqft	12.30	0.28	12,300	0	0
Parking	Other Non-Asphalt Surfaces	1000 sqft	39.00	0.90	39,000	0	0
				3.34	**162,153**	**22,500**	**0**

Demolition

Component	Amount to be Demolished (Tons)	Haul Truck Capacity (Tons)[1]	Haul Distance (miles)[1]	Total Trip Ends	Duration (days)	Trip Ends/Day
Building Demolition Debris Haul	0	20	20	0	36	0
Asphalt Demolition Debris Haul	43	20	20	6	36	1
Total	43			6		1

Notes:

[1] CalEEMod default used.

Architectural Coating[1]

	Non-Residential
Interior Painted (%):	95%
Exterior Painted (%):	65%

SMAQMD Rule 1113	< 50 flat / ≤ 100 nonflat
CalEEMod Default	**grams/liter**
Interior Paint VOC content:	75
Exterior Paint VOC content:	75

Notes:

[1] CalEEMod default used.

Structures	Land Use Square Feet	CalEEMod Factor[1]	Total Paintable Surface Area	Paintable Interior Area[2]	Paintable Exterior Area[2]
Residential Structures					
Educational	52,948	2.0	105,896	75,451	17,208
				75,451	**17,208**
Parking[3]					
Parking Lot (Striping)	109,205	6%		-	**6,552**
			Totals	**75,451**	**23,760**

Notes:

[1] CalEEMod assumes the total surface for painting equals 2.0 times the floor square footage for non-residential use.

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

[3] Architectural coatings for the parking lot is based on CalEEMod default.

CalEEMod Construction Measures/Required Basic Construction Emission Control Practices (BMPs)

C-10-A	Water Exposed Surfaces	Frequency per day:	2	
		PM10:	61	% Reduction
		PM2.5:	61	% Reduction
C-11	Limit Vehicle Speeds on Unpaved Roads	Miles per hour speed limit:	25	
		PM10:	44	% Reduction
		PM25:	44	% Reduction
C-12	Sweep Paved Roads	PM10:	9	% Reduction
		PM25:	9	% Reduction

Pavement Volume to Weight Conversion P1

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 Demo	2,920	0.333	973	89	86,519	43.26

[1] Based on information provided by applicant.

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

[3] https://www.calrecycle.ca.gov/swfacilities/cdi/Tools/Calculations

Construction Activities and Schedule Assumptions: Oak Ridge Elementary School Project P1

*based on overall construction duration provided by the Applicant

Default Construction Schedule

Construction Activities	Phase Type	Start Date	End Date	CalEEMod Duration (Workday)
Demolition	Demolition	9/1/2023	9/29/2023	20
Site Preparation	Site Preparation	9/30/2023	10/7/2023	5
Rough Grading	Rough Grading	10/8/2023	10/19/2023	8
Building Construction	Building Construction	10/20/2023	9/6/2024	230
Asphalt Paving	Paving	8/13/2024	9/6/2024	18
Architectural Coating	Architectural Coating	8/13/2024	9/6/2024	18

Normalization Calculations

CalEEMod Default Duration		Construction Duration	
9/1/2023	9/6/2024	9/1/2023	7/1/2025
days of construction	371	days of construction	669
years of construction	1.02	years of construction	1.8
months of construction	12.20	months of construction	22

Normalization Factor: 1.80

P1 New Construction Schedule (CalEEMod)

Construction Activities	Start Date	End Date	CalEEMod Duration (Workday)
Demolition	9/1/2023	10/20/2023	36
Site Preparation	10/21/2023	11/2/2023	9
Rough Grading	11/3/2023	11/22/2023	14
Building Construction	11/23/2023	6/25/2025	415
Asphalt Paving	5/13/2025	6/25/2025	32
Architectural Coating	5/13/2025	6/25/2025	32

Overlapping Construction Schedule (CalEEMod)

Construction Activities	Start Date	End Date	CalEEMod Duration (Workday)
Demolition	9/1/2023	10/20/2023	36
Site Preparation	10/21/2023	11/2/2023	9
Rough Grading	11/3/2023	11/22/2023	14
Building Construction	11/23/2023	5/12/2025	415
Building Construction, Asphalt Paving, and Architectural Coating	5/13/2025	6/25/2025	32

CalEEMod Construction Off-Road Equipment Inputs P1

**Used CalEEMod default equipment.*

General Construction Hours: Mon-Fri and 8:00 AM to 7:00 PM (with 1 hr break)

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.*

Construction Equipment Details

CalEEMod Equipment	# of Equipment	hr/day	hp	load factor	Total Trips/Day	On-Site Water Truck Travel Distance (miles/day)
Demolition						
Concrete/Industrial Saws	1	8	33	0.73		
Rubber Tired Dozers	2	8	367	0.4		
Excavators	3	8	36	0.38		
Worker Trips/Day					15	
Vendor Trips					0	
Hauling Trips (TOTAL TRIPS)					1	
Water Trucks		Acres Disturbed:	1		6	0.8
Site Preparation						
Tractors/Loaders/Backhoes	4	8	84	0.37		
Rubber Tired Dozers	3	8	367	0.4		
Worker Trips/Day					18	
Vendor Trips					0	
Hauling Trips (TOTAL TRIPS)					0	
Water Trucks		Acres Disturbed:	3.50		18	2.9
Grading						
Graders	1	8	148	0.41		
Rubber Tired Dozers	1	8	367	0.4		
Tractors/Loaders/Backhoes	3	8	84	0.37		
Excavators	1	8	36	0.38		
Worker Trips					15	
Vendor Trips					0	
Hauling Trips (TOTAL TRIPS)					0	
Water Trucks		Acres Disturbed:	2.50		14	2.1
Building Construction						
Cranes	1	7	367	0.29		
Forklifts	3	8	82	0.2		
Generator Sets	1	7	14	0.74		
Tractors/Loaders/Backhoes	3	7	84	0.37		
Welders	1	8	46	0.45		
Worker Trips					22	
Vendor Trips					9	
Hauling Trips (TOTAL TRIPS)					0	
Asphalt Paving						
Cement and Mortar Mixers	2	6	10	0.56		
Pavers	1	8	81	0.42		
Rollers	2	6	36	0.38		
Paving Equipment	2	6	89	0.36		
Worker Trips					18	
Vendor Trips					0	
Hauling Trips (TOTAL TRIPS)					0	
Architectural Coating						
Air Compressors	1	6	37	0.48		
Worker Trips					4	
Vendor Trips					0	
Hauling Trips (TOTAL TRIPS)					0	

Construction Trips Worksheet P1

Phase Name	Worker Trip Ends Per Day	Vendor Trip Ends Per Day	Total Haul Truck Trip Ends	Start Date	End Date	Workdays
Demolition	15	6	1	9/1/2023	10/23/2023	36
Site Preparation	18	18	0	10/24/2023	11/6/2023	9
Rough Grading	15	14	0	11/7/2023	11/27/2023	14
Building Construction	22	9	0	11/28/2023	6/30/2025	415
Asphalt Paving	18	0	0	5/15/2025	6/30/2025	32
Architectural Coating	4	0	0	5/15/2025	6/30/2025	32

Construction Activity (Overlapping)	Worker Trip Ends Per Day	Vendor Trip Ends Per Day	Total Trip Ends Per Day	Start Date	End Date	Workdays
Demolition	15	6	1	9/1/2023	10/23/2023	36
Site Preparation	18	18	0	10/24/2023	11/6/2023	9
Rough Grading	15	14	0	11/7/2023	11/27/2023	14
Building Construction	22	9	0	11/28/2023	5/14/2025	415
Building Construction, Asphalt Paving, and Architectural Coating	44	9	0	5/15/2025	6/30/2025	32
Maximum Daily Trips	**44**	**18**	**0**			

CalEEMod Inputs - Oak Ridge Elementary School Project, Construction P2

Name:	Oak Ridge Elementary School Project, Construction	
Land Use Scale:	Project/site	
Land Use Subtypes:	Educational	Elementary School
Project Location:	4501 Martin Luther King Jr Blvd	
County:	Sacramento	
Land Use Setting:	Suburban	
TAZ:	544	
Operational Year:	2025	
Electric Utility:	Sacramento Municipal Utility District (SMUD)	
Gas Utility:	Pacific Gas & Electric (PG&E)	
Air Basin:	Sacramento Valley	
Air District:	Sacramento Metropolitant AQMD	

Project Site Acreage	2.52
Disturbed Site Acreage	2.52

Project Components				
Demolition	**Building Square Feet (SQFT)**	***Tons***		
Building Demolition	23,415	1,077		
Asphalt Demolition	44,200	655		
Landscaping	***SQFT***	***Acres***		
Landscaping	24,570	0.56		
Other Land Uses	**SQFT**	**Building Footprint**	**Acres**	**Number of Stalls**
Parking Lot	30,208	NA	0.69	Unknown
Total Non-Parking Asphalt	37,950	NA	0.87	
Total Hardscape (excluding parking, hardcourts, and aspl	16,830	NA	0.39	

CalEEMod Land Use Inputs

Land Use Type	Land Use Subtype	Size Metric	Size	Lot Acreage	Building Square Feet	Landscape Area Square Feet	Special Landscape Area Square Feet
Parking	Parking Lot	1000 sqft	30.21	0.69	30,208	24,570	0
Parking	Other Asphalt Surfaces	1000 sqft	37.95	0.87	37,950	0	0
Parking	Other Non-Asphalt Surfaces	1000 sqft	16.83	0.39	16,830	0	0
				1.95	**84,988**	**24,570**	**0**

Demo Haul Trip Calculation P2

Source: CalEEMod User's Guide Version 2022.1, Appendix C

Conversion factors

0.046	ton/SF
0.5	tons/cy
20	tons
40	CY
2	CY/ton

Building	BSF Demo	Tons/SF	Tons[1]	Haul Truck (CY)	Haul Truck (Ton)[2]	Round Trips	Total Trip Ends
Combined Building Demo	23,415	0.046	1,077	40	20	54	108

Notes:

[1] Tonnage of building demolition debris to be hauled offsite provided by Applicant.

[2] CalEEMod default haul truck capacity used.

Pavement Volume to Weight Conversion P2

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 Demo	44,200	0.333	14,733	89	1,309,630	654.81

[1] Based on information provided by applicant.

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

[3] https://www.calrecycle.ca.gov/swfacilities/cdi/Tools/Calculations

Construction Activities and Schedule Assumptions: Oak Ridge Elementary School Project P2

*based on overall construction duration provided by the Applicant

Default Construction Schedule

Construction Activities	**Phase Type**	**Start Date**	**End Date**	**CalEEMod Duration (Workday)**
Demolition	Demolition	5/1/2025	5/29/2025	20
Site Preparation	Site Preparation	5/30/2025	6/1/2025	2
Rough Grading	Rough Grading	6/2/2025	6/7/2025	4
Asphalt Paving	Paving	6/8/2025	6/18/2025	10
Architectural Coating	Architectural Coating	6/8/2025	6/18/2025	10

Normalization Calculations

CalEEMod Default Duration		**Construction Duration**	
5/1/2025	6/18/2025	5/1/2025	9/1/2025
days of construction	48	days of construction	123
years of construction	0.13	years of construction	0.34
months of construction	1.58	months of construction	4

Normalization Factor: 2.56

CalEEMod Construction Off-Road Equipment Inputs P2

**Used CalEEMod default equipment.*

General Construction Hours: Mon-Fri and 8:00 AM to 7:00 PM (with 1 hr break)

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.*

Construction Equipment Details

CalEEMod Equipment	# of Equipment	hr/day	hp	load factor	total trips/Day	On-Site Water Truck Travel Distance (miles/day)
Demolition						
Concrete/Industrial Saws	1	8	84	0.37		
Tractors/Loaders/Backhoes	3	8	36	0.38		
Rubber Tired Dozers	1	8	367	0.4		
Worker Trips/Day					13	
Vendor Trips					0	
Hauling Trips (TOTAL TRIPS)					3	
Water Trucks		Acres Disturbed:	2		10	1.7
Site Preparation						
Tractors/Loaders/Backhoes	1	8	84	0.37		
Graders	1	8	148	0.41		
Rubber Tired Dozers	1	8	367	0.4		
Worker Trips/Day					8	
Vendor Trips					0	
Hauling Trips (TOTAL TRIPS)					0	
Water Trucks		Acres Disturbed:	2.50		14	2.1
Grading						
Graders	1	8	148	0.41		
Rubber Tired Dozers	1	8	367	0.4		
Tractors/Loaders/Backhoes	2	8	84	0.37		
Worker Trips					10	
Vendor Trips					0	
Hauling Trips (TOTAL TRIPS)					0	
Water Trucks		Acres Disturbed:	2		10	1.7
Asphalt Paving						
Cement and Mortar Mixers	1	6	10	0.56		
Pavers	1	6	81	0.42		
Paving Equipment	1	8	89	0.36		
Rollers	1	7	36	0.38		
Tractors/Loaders/Backhoes	1	8	84	0.37		
Worker Trips					13	
Vendor Trips					0	
Hauling Trips (TOTAL TRIPS)					0	
Architectural Coating						
Air Compressors	1	6	37	0.48		
Worker Trips					4	
Vendor Trips					0	
Hauling Trips (TOTAL TRIPS)					0	

Construction Trips Worksheet P2

Phase Name	Worker Trip Ends Per Day	Vendor Trip Ends Per Day	Haul Truck Trip Ends	Total Haul Truck Trip Ends	Start Date	End Date	Workdays
Demolition	13	10	0	3	5/1/2025	5/12/2025	8
Site Preparation	8	14	0	0	5/13/2025	5/13/2025	1
Rough Grading	10	10	0	0	5/14/2025	5/15/2025	2
Asphalt Paving	13	0	0	0	5/16/2025	9/2/2025	77
Architectural Coating	4	0	0	0	8/28/2025	9/2/2025	4

Construction Activity (Overlapping)	Worker Trip Ends Per Day	Vendor Trip Ends Per Day	Haul Truck Trip Ends Per Day	Total Trip Ends Per Day	Start Date	End Date	Workdays
Demolition	13	10	0	3	5/1/2025	5/12/2025	8
Site Preparation	8	14	0	0	5/13/2025	5/13/2025	1
Rough Grading	10	10	0	0	5/14/2025	5/15/2025	2
Asphalt Paving	13	0	0	0	5/16/2025	8/27/2025	77
Building Construction, Asphalt Paving, and Architectural Coating	17	0	0	0	8/28/2025	9/2/2025	4
Maximum Daily Trips	**17**	**14**	**0**	**3**			

CalEEMod Inputs - Oak Ridge Elementary School Project, Construction P3

Name:	Oak Ridge Elementary School Project, Construction	
Land Use Scale:	Project/site	
Land Use Subtypes:	Educational	Elementary School
Project Location:	4501 Martin Luther King Jr Blvd	
County:	Sacramento	
Land Use Setting:	Suburban	
TAZ:	544	
Operational Year:	2025	
Electric Utility:	Sacramento Municipal Utility District (SMUD)	
Gas Utility:	Pacific Gas & Electric (PG&E)	
Air Basin:	Sacramento Valley	
Air District:	Sacramento Metropolitant AQMD	

Proiect Site Acreage	1.60
Disturbed Site Acreage	1.60

Project Components			
Demolition	**Building Square Feet (SQFT)**	***Tons***	
Building Demolition	19,195	883	
Asphalt Demolition	44,260	656	
Other Land Uses	**SQFT**	**Building Footprint**	**Acres**
Total Non-Parking Asphalt	5,600	NA	0.13
Landscaping	63,230	NA	1.45

CalEEMod Land Use Inputs

Land Use Type	Land Use Subtype	Size Metric	Size	Lot Acreage	Building Square Feet	Landscape Area Square Feet	Special Landscape Area Square Feet
Parking	Other Asphalt Surfaces	1000 sqft	5.60	0.13	5,600		63,230
				0.13	**5,600**		**63,230**

Demo Haul Trip Calculation P3

Source: CalEEMod User's Guide Version 2022.1, Appendix C

Conversion factors

0.046	ton/SF
0.5	tons/cy
20	tons
40	CY
2	CY/ton

Building	BSF Demo	Tons/SF	Tons[1]	Haul Truck (CY)	Haul Truck (Ton)[2]	Round Trips	Total Trip Ends
P3 Building Demo	19,195	0.046	883	40	20	44	88
Total	19,195					44	88

Notes:

[1] Tonnage of building demolition debris to be hauled offsite provided by Applicant.

[2] CalEEMod default haul truck capacity used.

Pavement Volume to Weight Conversion P3

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)
P3 Asphalt Demo	44,260	0.333	14,753	89	1,311,407	655.70
TOTAL	**44,260**					**655.70**

[1] Based on information provided by applicant.

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

[3] https://www.calrecycle.ca.gov/swfacilities/cdi/Tools/Calculations

Construction Activities and Schedule Assumptions: Oak Ridge Elementary School Project P3

*based on overall construction duration provided by the Applicant

Default Construction Schedule

Construction Activities	**Phase Type**	**Start Date**	**End Date**	**CalEEMod Duration (Workday)**
Demolition	Demolition	5/1/2025	5/15/2025	10
Site Preparation	Site Preparation	5/16/2025	5/17/2025	1
Rough Grading	Rough Grading	5/18/2025	5/20/2025	2
Asphalt Paving	Paving	5/21/2025	5/26/2025	5
Architectural Coating	Architectural Coating	5/21/2025	5/26/2025	5

Normalization Calculations

CalEEMod Default Duration		**Construction Duration**	
5/1/2025	5/26/2025	5/1/2025	9/1/2025
days of construction	25	days of construction	123
years of construction	0.07	years of construction	0
months of construction	0.82	months of construction	4

Normalization Factor: 4.92

CalEEMod Construction Off-Road Equipment Inputs P3

**Used CalEEMod default equipment.*

General Construction Hours: Mon-Fri and 8:00 AM to 7:00 PM (with 1 hr break)

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.*

Construction Equipment Details						
CalEEMod Equipment	**# of Equipment**	**hr/day**	**hp**	**load factor**	**total trips/Day**	**On-Site Water Truck Travel Distance (miles/day)**
Demolition						
Concrete/Industrial Saws	1	8	33	0.73		
Tractors/Loaders/Backhoes	2	6	84	0.37		
Rubber Tired Dozers	1	1	367	0.4		
Worker Trips/Day					10	
Vendor Trips					0	
Hauling Trips (TOTAL TRIPS)					3	
Water Trucks		Acres Disturbed:	1.5		8	1.2
Site Preparation						
Graders	1	8	148	0.41		
Tractors/Loaders/Backhoes	1	8	84	0.37		
Worker Trips/Day					5	
Vendor Trips					0	
Hauling Trips (TOTAL TRIPS)					0	
Water Trucks		Acres Disturbed:	1.00		6	0.8
Grading						
Graders	1	6	148	0.41		
Rubber Tired Dozers	1	6	367	0.4		
Tractors/Loaders/Backhoes	3	7	84	0.37		
Worker Trips					8	
Vendor Trips					0	
Hauling Trips (TOTAL TRIPS)					0	
Water Trucks		Acres Disturbed:	2.50		14	2.1
Asphalt Paving						
Pavers	1	7	81	0.42		
Cement and Mortar Mixers	4	6	10	0.56		
Tractors/Loaders/Backhoes	1	7	84	0.37		
Rollers	1	7	36	0.38		
Worker Trips					18	
Vendor Trips					0	
Hauling Trips (TOTAL TRIPS)		Acres Disturbed:	0.50		4	
Architectural Coating						
Air Compressors	1	6	37	0.48		
Worker Trips					4	
Vendor Trips					0	
Hauling Trips (TOTAL TRIPS)					0	

Construction Trips Worksheet P3

Phase Name	Worker Trip Ends Per Day	Vendor Trip Ends Per Day	Haul Truck Trip Ends	Total Haul Truck Trip Ends	Start Date	End Date	Workdays
Demolition	10	8	0	3	5/1/2025	5/12/2025	8
Site Preparation	5	6	0	0	5/13/2025	5/13/2025	1
Rough Grading	8	14	0	0	5/14/2025	5/15/2025	2
Asphalt Paving	18	0	0	4	5/16/2025	9/2/2025	78
Architectural Coating	4	0	0	0	8/28/2025	9/2/2025	4

Construction Activity (Overlapping)	Worker Trip Ends Per Day	Vendor Trip Ends Per Day	Haul Truck Trip Ends Per Day	Total Trip Ends Per Day	Start Date	End Date	Workdays
Demolition	10	8	0	3	5/1/2025	5/12/2025	8
Site Preparation	5	6	0	0	5/13/2025	5/13/2025	1
Rough Grading	8	14	0	0	5/14/2025	5/15/2025	2
Asphalt Paving	18	0	0	4	5/16/2025	8/27/2025	78
Asphalt Paving and Architectural Coating	22	0	0	4	8/28/2025	9/2/2025	4
Maximum Daily Trips	**22**	**14**	**0**	**4**			

SCUS-05 Phase 1 Custom Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	SCUS-05 Phase 1
Construction Start Date	9/1/2023
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.00
Precipitation (days)	36.4
Location	38.53403326021936, -121.46406187438532
County	Sacramento
City	Sacramento
Air District	Sacramento Metropolitan AQMD
Air Basin	Sacramento Valley
TAZ	544
EDFZ	13
Electric Utility	Sacramento Municipal Utility District
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.12

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
Elementary School	52.9	1000sqft	0.83	52,948	22,500	0.00	—	—

Parking Lot	57.9	1000sqft	1.33	0.00	0.00	0.00	—	—
Other Asphalt Surfaces	12.3	1000sqft	0.28	0.00	0.00	0.00	—	—
Other Non-Asphalt Surfaces	39.0	1000sqft	0.90	0.00	0.00	0.00	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-5	Use Advanced Engine Tiers
Construction	C-10-A	Water Exposed Surfaces
Construction	C-10-B	Water Active Demolition Sites
Construction	C-11	Limit Vehicle Speeds on Unpaved Roads
Construction	C-12	Sweep Paved Roads

2. Emissions Summary

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	3.50	2.92	27.9	24.7	0.03	1.20	1.36	2.56	1.11	0.17	1.28	—	3,860	3,860	0.17	0.07	1.38	3,887
2024	1.57	1.31	11.8	14.7	0.03	0.50	0.29	0.79	0.46	0.07	0.53	—	2,911	2,911	0.13	0.07	1.71	2,936
2025	2.46	13.2	17.3	23.9	0.04	0.71	0.51	1.22	0.65	0.12	0.77	—	4,344	4,344	0.17	0.08	2.58	4,376
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	4.84	4.04	41.0	36.8	0.05	1.81	22.4	24.2	1.67	10.4	12.1	—	6,026	6,026	0.26	0.13	0.06	6,072

2024	1.56	1.30	11.8	14.4	0.03	0.50	0.29	0.79	0.46	0.07	0.53	—	2,882	2,882	0.12	0.07	0.04	2,905
2025	1.47	1.22	11.0	14.2	0.03	0.44	0.29	0.73	0.40	0.07	0.47	—	2,873	2,873	0.12	0.07	0.04	2,895
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	0.69	0.57	5.52	5.23	0.01	0.24	1.09	1.34	0.22	0.42	0.65	—	885	885	0.04	0.02	0.17	892
2024	1.12	0.93	8.46	10.3	0.02	0.36	0.20	0.56	0.33	0.05	0.38	—	2,069	2,069	0.09	0.05	0.53	2,085
2025	0.59	1.47	4.35	5.69	0.01	0.17	0.12	0.29	0.16	0.03	0.19	—	1,116	1,116	0.05	0.02	0.28	1,125
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	0.13	0.10	1.01	0.95	< 0.005	0.04	0.20	0.24	0.04	0.08	0.12	—	147	147	0.01	< 0.005	0.03	148
2024	0.20	0.17	1.54	1.88	< 0.005	0.07	0.04	0.10	0.06	0.01	0.07	—	342	342	0.01	0.01	0.09	345
2025	0.11	0.27	0.79	1.04	< 0.005	0.03	0.02	0.05	0.03	0.01	0.03	—	185	185	0.01	< 0.005	0.05	186

2.3. Construction Emissions by Year, Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	0.47	0.44	5.08	19.4	0.03	0.07	0.86	0.93	0.07	0.12	0.19	—	3,860	3,860	0.17	0.07	1.38	3,887
2024	0.49	0.44	3.39	16.4	0.03	0.08	0.29	0.37	0.08	0.07	0.15	—	2,911	2,911	0.13	0.07	1.71	2,936
2025	0.81	11.9	6.05	25.9	0.04	0.12	0.51	0.64	0.12	0.12	0.24	—	4,344	4,344	0.17	0.08	2.58	4,376
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	0.64	0.59	5.14	29.6	0.05	0.11	9.32	9.42	0.11	4.15	4.26	—	6,026	6,026	0.26	0.13	0.06	6,072
2024	0.48	0.43	3.45	16.1	0.03	0.08	0.29	0.37	0.08	0.07	0.15	—	2,882	2,882	0.12	0.07	0.04	2,905
2025	0.47	0.42	3.39	16.0	0.03	0.08	0.29	0.37	0.08	0.07	0.15	—	2,873	2,873	0.12	0.07	0.04	2,895
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2023	0.11	0.10	0.98	4.58	0.01	0.02	0.51	0.53	0.02	0.18	0.20	—	885	885	0.04	0.02	0.17	892
2024	0.34	0.31	2.45	11.5	0.02	0.06	0.20	0.26	0.06	0.05	0.10	—	2,069	2,069	0.09	0.05	0.53	2,085
2025	0.19	1.15	1.40	6.33	0.01	0.03	0.12	0.15	0.03	0.03	0.06	—	1,116	1,116	0.05	0.02	0.28	1,125
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	0.02	0.02	0.18	0.84	< 0.005	< 0.005	0.09	0.10	< 0.005	0.03	0.04	—	147	147	0.01	< 0.005	0.03	148
2024	0.06	0.06	0.45	2.10	< 0.005	0.01	0.04	0.05	0.01	0.01	0.02	—	342	342	0.01	0.01	0.09	345
2025	0.03	0.21	0.26	1.15	< 0.005	0.01	0.02	0.03	0.01	0.01	0.01	—	185	185	0.01	< 0.005	0.05	186

3. Construction Emissions Details

3.1. Demolition (2023) - 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	3.39	2.84	27.3	23.5	0.03	1.20	—	1.20	1.10	—	1.10	—	3,425	3,425	0.14	0.03	—	3,437
Demolition	—	—	—	—	—	—	0.08	0.08	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	1.06	1.06	< 0.005	0.11	0.11	—	4.74	4.74	< 0.005	< 0.005	0.01	4.99
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.39	2.84	27.3	23.5	0.03	1.20	—	1.20	1.10	—	1.10	—	3,425	3,425	0.14	0.03	—	3,437
Demolition	—	—	—	—	—	—	0.08	0.08	—	0.01	0.01	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	1.06	1.06	< 0.005	0.11	0.11	—	4.71	4.71	< 0.005	< 0.005	< 0.005	4.96
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.33	0.28	2.70	2.32	< 0.005	0.12	—	0.12	0.11	—	0.11	—	338	338	0.01	< 0.005	—	339
Demolition	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.10	0.10	< 0.005	0.01	0.01	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.49
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.05	0.49	0.42	< 0.005	0.02	—	0.02	0.02	—	0.02	—	55.9	55.9	< 0.005	< 0.005	—	56.1
Demolition	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	—	0.08	0.08	< 0.005	< 0.005	< 0.005	0.08
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.05	1.05	0.00	0.00	0.15	0.15	0.00	0.04	0.04	—	177	177	0.01	0.01	0.77	180
Vendor	0.02	0.01	0.36	0.13	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	180	180	0.01	0.03	0.45	189
Hauling	0.01	< 0.005	0.14	0.05	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	72.8	72.8	0.01	0.01	0.15	76.6
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.07	0.77	0.00	0.00	0.15	0.15	0.00	0.04	0.04	—	157	157	< 0.005	0.01	0.02	159
Vendor	0.02	0.01	0.38	0.13	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	180	180	0.01	0.03	0.01	188
Hauling	0.01	< 0.005	0.15	0.05	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	72.8	72.8	0.01	0.01	< 0.005	76.4
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.01	0.01	0.01	0.08	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	15.9	15.9	< 0.005	< 0.005	0.03	16.1
Vendor	< 0.005	< 0.005	0.04	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	17.7	17.7	< 0.005	< 0.005	0.02	18.6
Hauling	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	7.18	7.18	< 0.005	< 0.005	0.01	7.54
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.63	2.63	< 0.005	< 0.005	0.01	2.67
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.94	2.94	< 0.005	< 0.005	< 0.005	3.08
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.19	1.19	< 0.005	< 0.005	< 0.005	1.25

3.2. Demolition (2023) - Mitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.36	0.36	4.51	18.2	0.03	0.06	—	0.06	0.06	—	0.06	—	3,425	3,425	0.14	0.03	—	3,437
Demolition	—	—	—	—	—	—	0.05	0.05	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.59	0.59	< 0.005	0.06	0.06	—	4.74	4.74	< 0.005	< 0.005	0.01	4.99
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.36	0.36	4.51	18.2	0.03	0.06	—	0.06	0.06	—	0.06	—	3,425	3,425	0.14	0.03	—	3,437
Demolition	—	—	—	—	—	—	0.05	0.05	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.59	0.59	< 0.005	0.06	0.06	—	4.71	4.71	< 0.005	< 0.005	< 0.005	4.96

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.04	0.44	1.79	< 0.005	0.01	—	0.01	0.01	—	0.01	—	338	338	0.01	< 0.005	—	339
Demolition	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.49
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.08	0.33	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	55.9	55.9	< 0.005	< 0.005	—	56.1
Demolition	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.08	0.08	< 0.005	< 0.005	< 0.005	0.08
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.05	1.05	0.00	0.00	0.15	0.15	0.00	0.04	0.04	—	177	177	0.01	0.01	0.77	180
Vendor	0.02	0.01	0.36	0.13	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	180	180	0.01	0.03	0.45	189
Hauling	0.01	< 0.005	0.14	0.05	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	72.8	72.8	0.01	0.01	0.15	76.6
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.07	0.77	0.00	0.00	0.15	0.15	0.00	0.04	0.04	—	157	157	< 0.005	0.01	0.02	159
Vendor	0.02	0.01	0.38	0.13	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	180	180	0.01	0.03	0.01	188
Hauling	0.01	< 0.005	0.15	0.05	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	72.8	72.8	0.01	0.01	< 0.005	76.4
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.08	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	15.9	15.9	< 0.005	< 0.005	0.03	16.1
Vendor	< 0.005	< 0.005	0.04	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	17.7	17.7	< 0.005	< 0.005	0.02	18.6

Hauling	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	7.18	7.18	< 0.005	< 0.005	0.01	7.54
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.63	2.63	< 0.005	< 0.005	0.01	2.67
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.94	2.94	< 0.005	< 0.005	< 0.005	3.08
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.19	1.19	< 0.005	< 0.005	< 0.005	1.25

3.3. Site Preparation (2023) - 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	4.70	3.95	39.7	35.5	0.05	1.81	—	1.81	1.66	—	1.66	—	5,295	5,295	0.21	0.04	—	5,314
Dust From Material Movemen	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	2.39	2.39	< 0.005	0.24	0.24	—	8.48	8.48	< 0.005	< 0.005	< 0.005	8.92
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.98	0.87	< 0.005	0.04	—	0.04	0.04	—	0.04	—	131	131	0.01	< 0.005	—	131
Dust From Material Movemen	—	—	—	—	—	—	0.48	0.48	—	0.25	0.25	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	0.21	0.21	< 0.005	< 0.005	< 0.005	0.22
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.18	0.16	< 0.005	0.01	—	0.01	0.01	—	0.01	—	21.6	21.6	< 0.005	< 0.005	—	21.7
Dust From Material Movement	—	—	—	—	—	—	0.09	0.09	—	0.05	0.05	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.03	0.03	< 0.005	< 0.005	< 0.005	0.04
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.08	0.90	0.00	0.00	0.18	0.18	0.00	0.04	0.04	—	183	183	< 0.005	0.01	0.02	185
Vendor	0.06	0.02	1.15	0.39	< 0.005	0.01	0.14	0.14	0.01	0.04	0.04	—	539	539	0.04	0.08	0.04	564
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.63	4.63	< 0.005	< 0.005	0.01	4.70
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	13.3	13.3	< 0.005	< 0.005	0.01	13.9
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	—	0.77	0.77	< 0.005	< 0.005	< 0.005	0.78
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.20	2.20	< 0.005	< 0.005	< 0.005	2.31
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.4. Site Preparation (2023) - Mitigated

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	0.50	0.50	2.59	28.3	0.05	0.10	—	0.10	0.10	—	0.10	—	5,295	5,295	0.21	0.04	—	5,314
Dust From Material Movemen	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	1.34	1.34	< 0.005	0.13	0.13	—	8.48	8.48	< 0.005	< 0.005	< 0.005	8.92
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.06	0.70	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	131	131	0.01	< 0.005	—	131
Dust From Material Movemen	—	—	—	—	—	—	0.19	0.19	—	0.10	0.10	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.21	0.21	< 0.005	< 0.005	< 0.005	0.22
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.13	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	21.6	21.6	< 0.005	< 0.005	—	21.7

Dust From Material Movemen	—	—	—	—	—	—	0.03	0.03	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.03	0.03	< 0.005	< 0.005	< 0.005	0.04
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.08	0.90	0.00	0.00	0.18	0.18	0.00	0.04	0.04	—	183	183	< 0.005	0.01	0.02	185
Vendor	0.06	0.02	1.15	0.39	< 0.005	0.01	0.14	0.14	0.01	0.04	0.04	—	539	539	0.04	0.08	0.04	564
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.63	4.63	< 0.005	< 0.005	0.01	4.70
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	13.3	13.3	< 0.005	< 0.005	0.01	13.9
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	—	0.77	0.77	< 0.005	< 0.005	< 0.005	0.78
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.20	2.20	< 0.005	< 0.005	< 0.005	2.31
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.5. Grading (2023) - 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	2.43	2.04	20.0	19.7	0.03	0.94	—	0.94	0.87	—	0.87	—	2,958	2,958	0.12	0.02	—	2,968
Dust From Material Movemen	—	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	2.78	2.78	< 0.005	0.28	0.28	—	9.61	9.61	< 0.005	< 0.005	< 0.005	10.1
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.08	0.77	0.76	< 0.005	0.04	—	0.04	0.03	—	0.03	—	113	113	< 0.005	< 0.005	—	114
Dust From Material Movemen	—	—	—	—	—	—	0.27	0.27	—	0.13	0.13	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.11	0.11	< 0.005	0.01	0.01	—	0.37	0.37	< 0.005	< 0.005	< 0.005	0.39
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.01	0.14	0.14	< 0.005	0.01	—	0.01	0.01	—	0.01	—	18.8	18.8	< 0.005	< 0.005	—	18.8
Dust From Material Movemen	—	—	—	—	—	—	0.05	0.05	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	—	0.06	0.06	< 0.005	< 0.005	< 0.005	0.06
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.07	0.77	0.00	0.00	0.15	0.15	0.00	0.04	0.04	—	157	157	< 0.005	0.01	0.02	159
Vendor	0.05	0.02	0.90	0.30	< 0.005	0.01	0.11	0.11	0.01	0.03	0.03	—	419	419	0.03	0.06	0.03	439
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	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.18	6.18	< 0.005	< 0.005	0.01	6.27
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	16.1	16.1	< 0.005	< 0.005	0.02	16.9
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	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.02	1.02	< 0.005	< 0.005	< 0.005	1.04
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.67	2.67	< 0.005	< 0.005	< 0.005	2.79
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

3.6. Grading (2023) - Mitigated

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	0.29	0.29	2.04	17.8	0.03	0.06	—	0.06	0.06	—	0.06	—	2,958	2,958	0.12	0.02	—	2,968

Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	1.56	1.56	< 0.005	0.16	0.16	—	9.61	9.61	< 0.005	< 0.005	< 0.005	10.1
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.08	0.68	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	113	113	< 0.005	< 0.005	—	114
Dust From Material Movement	—	—	—	—	—	—	0.11	0.11	—	0.05	0.05	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	0.37	0.37	< 0.005	< 0.005	< 0.005	0.39
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.12	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	18.8	18.8	< 0.005	< 0.005	—	18.8
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	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.06	0.06	< 0.005	< 0.005	< 0.005	0.06
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.07	0.77	0.00	0.00	0.15	0.15	0.00	0.04	0.04	—	157	157	< 0.005	0.01	0.02	159
Vendor	0.05	0.02	0.90	0.30	< 0.005	0.01	0.11	0.11	0.01	0.03	0.03	—	419	419	0.03	0.06	0.03	439
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	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.18	6.18	< 0.005	< 0.005	0.01	6.27
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	16.1	16.1	< 0.005	< 0.005	0.02	16.9
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	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.02	1.02	< 0.005	< 0.005	< 0.005	1.04
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.67	2.67	< 0.005	< 0.005	< 0.005	2.79
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.7. Building Construction (2023) - 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	1.50	1.26	11.8	13.2	0.02	0.55	—	0.55	0.51	—	0.51	—	2,397	2,397	0.10	0.02	—	2,406
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	0.11	0.10	0.90	1.01	< 0.005	0.04	—	0.04	0.04	—	0.04	—	183	183	0.01	< 0.005	—	184
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	0.02	0.02	0.16	0.18	< 0.005	0.01	—	0.01	0.01	—	0.01	—	30.3	30.3	< 0.005	< 0.005	—	30.4
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	0.10	0.09	0.11	1.14	0.00	0.00	0.22	0.22	0.00	0.05	0.05	—	233	233	0.01	0.01	0.03	235
Vendor	0.03	0.01	0.56	0.19	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	260	260	0.02	0.04	0.02	272
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	0.01	0.01	0.01	0.09	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	18.2	18.2	< 0.005	< 0.005	0.04	18.5
Vendor	< 0.005	< 0.005	0.04	0.01	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	—	19.9	19.9	< 0.005	< 0.005	0.02	20.8
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	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.02	3.02	< 0.005	< 0.005	0.01	3.06
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.29	3.29	< 0.005	< 0.005	< 0.005	3.44
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

3.8. Building Construction (2023) - Mitigated

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	0.35	0.33	2.84	14.8	0.02	0.08	—	0.08	0.07	—	0.07	—	2,397	2,397	0.10	0.02	—	2,406
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	0.03	0.03	0.22	1.13	< 0.005	0.01	—	0.01	0.01	—	0.01	—	183	183	0.01	< 0.005	—	184
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	0.04	0.21	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	30.3	30.3	< 0.005	< 0.005	—	30.4
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	0.10	0.09	0.11	1.14	0.00	0.00	0.22	0.22	0.00	0.05	0.05	—	233	233	0.01	0.01	0.03	235
Vendor	0.03	0.01	0.56	0.19	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	260	260	0.02	0.04	0.02	272
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	0.01	0.01	0.01	0.09	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	18.2	18.2	< 0.005	< 0.005	0.04	18.5
Vendor	< 0.005	< 0.005	0.04	0.01	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	—	19.9	19.9	< 0.005	< 0.005	0.02	20.8
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	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.02	3.02	< 0.005	< 0.005	0.01	3.06
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.29	3.29	< 0.005	< 0.005	< 0.005	3.44
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. Building Construction (2024) - 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	1.44	1.20	11.2	13.1	0.02	0.50	—	0.50	0.46	—	0.46	—	2,398	2,398	0.10	0.02	—	2,406
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	1.44	1.20	11.2	13.1	0.02	0.50	—	0.50	0.46	—	0.46	—	2,398	2,398	0.10	0.02	—	2,406
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	1.03	0.86	8.04	9.39	0.02	0.36	—	0.36	0.33	—	0.33	—	1,717	1,717	0.07	0.01	—	1,723

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	0.19	0.16	1.47	1.71	< 0.005	0.07	—	0.07	0.06	—	0.06	—	284	284	0.01	< 0.005	—	285
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	0.11	0.10	0.07	1.44	0.00	0.00	0.22	0.22	0.00	0.05	0.05	—	258	258	0.01	0.01	1.05	262
Vendor	0.03	0.01	0.49	0.18	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	256	256	0.02	0.04	0.65	268
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	0.10	0.09	0.10	1.06	0.00	0.00	0.22	0.22	0.00	0.05	0.05	—	229	229	0.01	0.01	0.03	231
Vendor	0.03	0.01	0.52	0.18	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	256	256	0.02	0.04	0.02	267
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	0.07	0.06	0.06	0.78	0.00	0.00	0.16	0.16	0.00	0.04	0.04	—	168	168	< 0.005	0.01	0.33	170
Vendor	0.02	0.01	0.37	0.13	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	183	183	0.01	0.03	0.20	192
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	0.01	0.01	0.01	0.14	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	27.8	27.8	< 0.005	< 0.005	0.05	28.2
Vendor	< 0.005	< 0.005	0.07	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	30.3	30.3	< 0.005	< 0.005	0.03	31.7
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

3.10. Building Construction (2024) - Mitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.35	0.33	2.83	14.8	0.02	0.08	—	0.08	0.07	—	0.07	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.35	0.33	2.83	14.8	0.02	0.08	—	0.08	0.07	—	0.07	—	2,398	2,398	0.10	0.02	—	2,406
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	0.25	0.24	2.03	10.6	0.02	0.05	—	0.05	0.05	—	0.05	—	1,717	1,717	0.07	0.01	—	1,723
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	0.05	0.04	0.37	1.94	< 0.005	0.01	—	0.01	0.01	—	0.01	—	284	284	0.01	< 0.005	—	285
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	0.11	0.10	0.07	1.44	0.00	0.00	0.22	0.22	0.00	0.05	0.05	—	258	258	0.01	0.01	1.05	262
Vendor	0.03	0.01	0.49	0.18	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	256	256	0.02	0.04	0.65	268
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	0.10	0.09	0.10	1.06	0.00	0.00	0.22	0.22	0.00	0.05	0.05	—	229	229	0.01	0.01	0.03	231
Vendor	0.03	0.01	0.52	0.18	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	256	256	0.02	0.04	0.02	267
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	0.07	0.06	0.06	0.78	0.00	0.00	0.16	0.16	0.00	0.04	0.04	—	168	168	< 0.005	0.01	0.33	170
Vendor	0.02	0.01	0.37	0.13	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	183	183	0.01	0.03	0.20	192
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	0.01	0.01	0.01	0.14	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	27.8	27.8	< 0.005	< 0.005	0.05	28.2
Vendor	< 0.005	< 0.005	0.07	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	30.3	30.3	< 0.005	< 0.005	0.03	31.7
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. 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	1.35	1.13	10.4	13.0	0.02	0.43	—	0.43	0.40	—	0.40	—	2,398	2,398	0.10	0.02	—	2,406
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	1.35	1.13	10.4	13.0	0.02	0.43	—	0.43	0.40	—	0.40	—	2,398	2,398	0.10	0.02	—	2,406
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	0.46	0.39	3.60	4.49	0.01	0.15	—	0.15	0.14	—	0.14	—	826	826	0.03	0.01	—	829
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	0.08	0.07	0.66	0.82	< 0.005	0.03	—	0.03	0.02	—	0.02	—	137	137	0.01	< 0.005	—	137
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	0.10	0.09	0.06	1.34	0.00	0.00	0.22	0.22	0.00	0.05	0.05	—	252	252	< 0.005	0.01	0.97	256
Vendor	0.03	0.01	0.45	0.17	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	251	251	0.02	0.04	0.65	263
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	0.09	0.08	0.08	0.99	0.00	0.00	0.22	0.22	0.00	0.05	0.05	—	224	224	0.01	0.01	0.03	227

Vendor	0.03	0.01	0.49	0.17	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	251	251	0.02	0.04	0.02	262
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	0.03	0.03	0.03	0.35	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	79.2	79.2	< 0.005	< 0.005	0.14	80.3
Vendor	0.01	< 0.005	0.16	0.06	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	86.4	86.4	0.01	0.01	0.10	90.5
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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	13.1	13.1	< 0.005	< 0.005	0.02	13.3
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	14.3	14.3	< 0.005	< 0.005	0.02	15.0
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

3.12. Building Construction (2025) - Mitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.35	0.33	2.82	14.8	0.02	0.08	—	0.08	0.07	—	0.07	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.35	0.33	2.82	14.8	0.02	0.08	—	0.08	0.07	—	0.07	—	2,398	2,398	0.10	0.02	—	2,406
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	0.12	0.11	0.97	5.11	0.01	0.03	—	0.03	0.03	—	0.03	—	826	826	0.03	0.01	—	829
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	0.02	0.02	0.18	0.93	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	137	137	0.01	< 0.005	—	137
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	0.10	0.09	0.06	1.34	0.00	0.00	0.22	0.22	0.00	0.05	0.05	—	252	252	< 0.005	0.01	0.97	256
Vendor	0.03	0.01	0.45	0.17	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	251	251	0.02	0.04	0.65	263
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	0.09	0.08	0.08	0.99	0.00	0.00	0.22	0.22	0.00	0.05	0.05	—	224	224	0.01	0.01	0.03	227
Vendor	0.03	0.01	0.49	0.17	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	251	251	0.02	0.04	0.02	262
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	0.03	0.03	0.03	0.35	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	79.2	79.2	< 0.005	< 0.005	0.14	80.3
Vendor	0.01	< 0.005	0.16	0.06	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	86.4	86.4	0.01	0.01	0.10	90.5
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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	13.1	13.1	< 0.005	< 0.005	0.02	13.3

Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	14.3	14.3	< 0.005	< 0.005	0.02	15.0
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

3.13. 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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.72	0.61	5.42	6.93	0.01	0.24	—	0.24	0.22	—	0.22	—	1,060	1,060	0.04	0.01	—	1,064
Paving	—	0.13	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.05	0.48	0.61	< 0.005	0.02	—	0.02	0.02	—	0.02	—	92.9	92.9	< 0.005	< 0.005	—	93.3
Paving	—	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	0.01	0.01	0.09	0.11	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.4	15.4	< 0.005	< 0.005	—	15.4
Paving	—	< 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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.05	1.05	0.00	0.00	0.18	0.18	0.00	0.04	0.04	—	199	199	< 0.005	0.01	0.76	202
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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.07	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	15.9	15.9	< 0.005	< 0.005	0.03	16.1
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	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.63	2.63	< 0.005	< 0.005	< 0.005	2.66
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

3.14. Paving (2025) - Mitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.20	0.19	1.99	7.32	0.01	0.04	—	0.04	0.04	—	0.04	—	1,060	1,060	0.04	0.01	—	1,064
Paving	—	0.13	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.17	0.64	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	92.9	92.9	< 0.005	< 0.005	—	93.3
Paving	—	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	0.03	0.12	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.4	15.4	< 0.005	< 0.005	—	15.4
Paving	—	< 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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.05	1.05	0.00	0.00	0.18	0.18	0.00	0.04	0.04	—	199	199	< 0.005	0.01	0.76	202
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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.07	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	15.9	15.9	< 0.005	< 0.005	0.03	16.1
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	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.63	2.63	< 0.005	< 0.005	< 0.005	2.66
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

3.15. 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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	—	11.0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.08	0.10	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.7	11.7	< 0.005	< 0.005	—	11.7
Architectural Coatings	—	0.97	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	—	1.94	1.94	< 0.005	< 0.005	—	1.94
Architectural Coatings	—	0.18	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.02	0.02	0.01	0.27	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	50.5	50.5	< 0.005	< 0.005	0.19	51.2
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.03	4.03	< 0.005	< 0.005	0.01	4.09
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	—	0.67	0.67	< 0.005	< 0.005	< 0.005	0.68
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

3.16. Architectural Coating (2025) - Mitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.65	0.96	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	11.0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.06	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.7	11.7	< 0.005	< 0.005	—	11.7
Architectural Coatings	—	0.97	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	—	1.94	1.94	< 0.005	< 0.005	—	1.94
Architectural Coatings	—	0.18	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.02	0.02	0.01	0.27	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	50.5	50.5	< 0.005	< 0.005	0.19	51.2
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.03	4.03	< 0.005	< 0.005	0.01	4.09
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	—	0.67	0.67	< 0.005	< 0.005	< 0.005	0.68
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Demolition	Demolition	9/1/2023	10/20/2023	5.00	36.0	—
Site Preparation	Site Preparation	10/21/2023	11/2/2023	5.00	9.00	—
Grading	Grading	11/3/2023	11/22/2023	5.00	14.0	—
Building Construction	Building Construction	11/23/2023	6/25/2025	5.00	415	—
Paving	Paving	5/13/2025	6/25/2025	5.00	32.0	—
Architectural Coating	Architectural Coating	5/13/2025	6/25/2025	5.00	32.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Demolition	Excavators	Diesel	Average	3.00	8.00	36.0	0.38
Demolition	Rubber Tired Dozers	Diesel	Average	2.00	8.00	367	0.40
Site Preparation	Rubber Tired Dozers	Diesel	Average	3.00	8.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	4.00	8.00	84.0	0.37
Grading	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
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	3.00	8.00	84.0	0.37
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Paving	Cement and Mortar Mixers	Diesel	Average	2.00	6.00	10.0	0.56
Paving	Pavers	Diesel	Average	1.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	6.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	6.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Concrete/Industrial Saws	Diesel	Tier 4 Final	1.00	8.00	33.0	0.73
Demolition	Excavators	Diesel	Tier 4 Final	3.00	8.00	36.0	0.38
Demolition	Rubber Tired Dozers	Diesel	Tier 4 Final	2.00	8.00	367	0.40
Site Preparation	Rubber Tired Dozers	Diesel	Tier 4 Final	3.00	8.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	4.00	8.00	84.0	0.37
Grading	Excavators	Diesel	Tier 4 Final	1.00	8.00	36.0	0.38
Grading	Graders	Diesel	Tier 4 Final	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Tier 4 Final	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	3.00	8.00	84.0	0.37
Building Construction	Cranes	Diesel	Tier 4 Final	1.00	7.00	367	0.29
Building Construction	Forklifts	Diesel	Tier 4 Final	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	3.00	7.00	84.0	0.37
Building Construction	Welders	Diesel	Tier 4 Final	1.00	8.00	46.0	0.45
Paving	Cement and Mortar Mixers	Diesel	Average	2.00	6.00	10.0	0.56
Paving	Pavers	Diesel	Tier 4 Final	1.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Tier 4 Final	2.00	6.00	89.0	0.36
Paving	Rollers	Diesel	Tier 4 Final	2.00	6.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Tier 4 Final	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	15.0	14.3	LDA,LDT1,LDT2
Demolition	Vendor	6.00	8.80	HHDT,MHDT
Demolition	Hauling	0.94	20.0	HHDT
Demolition	Onsite truck	1.00	0.80	HHDT
Site Preparation	—	—	—	—
Site Preparation	Worker	17.5	14.3	LDA,LDT1,LDT2
Site Preparation	Vendor	18.0	8.80	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	1.00	1.80	HHDT
Grading	—	—	—	—
Grading	Worker	15.0	14.3	LDA,LDT1,LDT2
Grading	Vendor	14.0	8.80	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	1.00	2.10	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	22.2	14.3	LDA,LDT1,LDT2
Building Construction	Vendor	8.68	8.80	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	0.00	—	HHDT
Paving	—	—	—	—
Paving	Worker	17.5	14.3	LDA,LDT1,LDT2
Paving	Vendor	0.00	8.80	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	0.00	—	HHDT

Architectural Coating	—	—	—	—
Architectural Coating	Worker	4.45	14.3	LDA,LDT1,LDT2
Architectural Coating	Vendor	0.00	8.80	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	0.00	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	15.0	14.3	LDA,LDT1,LDT2
Demolition	Vendor	6.00	8.80	HHDT,MHDT
Demolition	Hauling	0.94	20.0	HHDT
Demolition	Onsite truck	1.00	0.80	HHDT
Site Preparation	—	—	—	—
Site Preparation	Worker	17.5	14.3	LDA,LDT1,LDT2
Site Preparation	Vendor	18.0	8.80	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	1.00	1.80	HHDT
Grading	—	—	—	—
Grading	Worker	15.0	14.3	LDA,LDT1,LDT2
Grading	Vendor	14.0	8.80	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	1.00	2.10	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	22.2	14.3	LDA,LDT1,LDT2
Building Construction	Vendor	8.68	8.80	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT

Building Construction	Onsite truck	0.00	—	HHDT
Paving	—	—	—	—
Paving	Worker	17.5	14.3	LDA,LDT1,LDT2
Paving	Vendor	0.00	8.80	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	0.00	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	4.45	14.3	LDA,LDT1,LDT2
Architectural Coating	Vendor	0.00	8.80	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	0.00	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

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	75,451	17,208	6,553

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 (Building Square Footage)	Acres Paved (acres)
Demolition	0.00	0.00	0.00	2,920	—
Site Preparation	0.00	0.00	13.5	0.00	—

Grading	0.00	0.00	14.0	0.00	—
Paving	0.00	0.00	0.00	0.00	2.51

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Elementary School	0.00	0%
Parking Lot	1.33	100%
Other Asphalt Surfaces	0.28	100%
Other Non-Asphalt Surfaces	0.90	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2023	0.00	375	0.01	< 0.005
2024	0.00	375	0.01	< 0.005
2025	0.00	375	0.01	< 0.005

8. User Changes to Default Data

Screen	Justification
Land Use	Overridden to accommodate the specificity provided by the client for the "building square feet"
Construction: Architectural Coatings	Updated coated area for non-residential interior and exterior areas based on information provided by architect.
Construction: Construction Phases	Phase 1 schedule
Construction: Off-Road Equipment	Removed for construction equipment overlap

Construction: Dust From Material Movement	anticipated site disturbance based on equipment use

SCUS-5 Phase 2 Custom Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	SCUS-5 Phase 2
Construction Start Date	5/1/2025
Lead Agency	Sacramento City Unified School District
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.00
Precipitation (days)	36.4
Location	38.53412936744945, -121.46400993961811
County	Sacramento
City	Sacramento
Air District	Sacramento Metropolitan AQMD
Air Basin	Sacramento Valley
TAZ	544
EDFZ	13
Electric Utility	Sacramento Municipal Utility District
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.12

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
Parking Lot	30.2	1000sqft	0.69	0.00	24,570	0.00	—	—

Other Asphalt Surfaces	38.0	1000sqft	0.87	0.00	0.00	0.00	—	—
Other Non-Asphalt Surfaces	16.8	1000sqft	0.39	16,830	0.00	0.00	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-5	Use Advanced Engine Tiers
Construction	C-10-A	Water Exposed Surfaces
Construction	C-10-B	Water Active Demolition Sites
Construction	C-11	Limit Vehicle Speeds on Unpaved Roads
Construction	C-12	Sweep Paved Roads

2. Emissions Summary

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	1.92	1.74	15.6	16.5	0.03	0.65	9.51	10.2	0.60	3.69	4.29	—	3,562	3,562	0.18	0.17	2.63	3,619
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.40	0.40	3.17	3.45	0.01	0.12	0.86	0.99	0.11	0.21	0.32	—	694	694	0.03	0.03	0.19	703
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2025	0.07	0.07	0.58	0.63	< 0.005	0.02	0.16	0.18	0.02	0.04	0.06	—	115	115	0.01	< 0.005	0.03	116

2.3. Construction Emissions by Year, Mitigated

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

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.42	1.28	3.99	16.0	0.03	0.06	4.20	4.25	0.06	1.51	1.56	—	3,562	3,562	0.18	0.17	2.63	3,619
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.09	0.15	0.78	3.38	0.01	0.01	0.47	0.49	0.01	0.10	0.12	—	694	694	0.03	0.03	0.19	703
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.02	0.03	0.14	0.62	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.02	—	115	115	0.01	< 0.005	0.03	116

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	—	—	—	—	—	—	0.75	0.75	—	0.11	0.11	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	2.25	2.25	< 0.005	0.23	0.23	—	7.84	7.84	< 0.005	< 0.005	0.01	8.25
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.24	0.21	1.95	2.11	< 0.005	0.08	—	0.08	0.07	—	0.07	—	348	348	0.01	< 0.005	—	350
Demolition	—	—	—	—	—	—	0.10	0.10	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.31	0.31	< 0.005	0.03	0.03	—	1.09	1.09	< 0.005	< 0.005	< 0.005	1.15
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.04	0.36	0.38	< 0.005	0.01	—	0.01	0.01	—	0.01	—	57.7	57.7	< 0.005	< 0.005	—	57.9
Demolition	—	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	0.18	0.18	< 0.005	< 0.005	< 0.005	0.19
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.04	0.75	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	142	142	< 0.005	0.01	0.54	144
Vendor	0.03	0.01	0.52	0.19	< 0.005	< 0.005	0.08	0.08	< 0.005	0.02	0.02	—	289	289	0.02	0.04	0.75	303
Hauling	0.08	0.02	1.13	0.44	< 0.005	0.01	0.16	0.17	0.01	0.04	0.05	—	629	629	0.06	0.10	1.32	662
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.08	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	18.1	18.1	< 0.005	< 0.005	0.03	18.3
Vendor	< 0.005	< 0.005	0.08	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	40.4	40.4	< 0.005	0.01	0.05	42.3
Hauling	0.01	< 0.005	0.17	0.06	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	87.9	87.9	0.01	0.01	0.08	92.3
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.99	2.99	< 0.005	< 0.005	0.01	3.03
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.69	6.69	< 0.005	< 0.005	0.01	7.00
Hauling	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	14.6	14.6	< 0.005	< 0.005	0.01	15.3

3.2. Demolition (2025) - Mitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.25	0.25	2.27	14.6	0.02	0.05	—	0.05	0.05	—	0.05	—	2,494	2,494	0.10	0.02	—	2,502
Demolition	—	—	—	—	—	—	0.48	0.48	—	0.07	0.07	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	1.26	1.26	< 0.005	0.13	0.13	—	7.84	7.84	< 0.005	< 0.005	0.01	8.25
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.03	0.32	2.03	< 0.005	0.01	—	0.01	0.01	—	0.01	—	348	348	0.01	< 0.005	—	350

Demolition	—	—	—	—	—	—	0.07	0.07	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	1.09	1.09	< 0.005	< 0.005	< 0.005	1.15
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.06	0.37	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	57.7	57.7	< 0.005	< 0.005	—	57.9
Demolition	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.18	0.18	< 0.005	< 0.005	< 0.005	0.19
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.04	0.75	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	142	142	< 0.005	0.01	0.54	144
Vendor	0.03	0.01	0.52	0.19	< 0.005	< 0.005	0.08	0.08	< 0.005	0.02	0.02	—	289	289	0.02	0.04	0.75	303
Hauling	0.08	0.02	1.13	0.44	< 0.005	0.01	0.16	0.17	0.01	0.04	0.05	—	629	629	0.06	0.10	1.32	662
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.08	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	18.1	18.1	< 0.005	< 0.005	0.03	18.3
Vendor	< 0.005	< 0.005	0.08	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	40.4	40.4	< 0.005	0.01	0.05	42.3
Hauling	0.01	< 0.005	0.17	0.06	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	87.9	87.9	0.01	0.01	0.08	92.3
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.99	2.99	< 0.005	< 0.005	0.01	3.03
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.69	6.69	< 0.005	< 0.005	0.01	7.00
Hauling	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	14.6	14.6	< 0.005	< 0.005	0.01	15.3

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
Dust From Material Movement	—	—	—	—	—	—	6.26	6.26	—	3.00	3.00	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	2.78	2.78	< 0.005	0.28	0.28	—	9.28	9.28	< 0.005	< 0.005	0.02	9.77
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.17	0.17	< 0.005	0.01	—	0.01	0.01	—	0.01	—	28.3	28.3	< 0.005	< 0.005	—	28.4
Dust From Material Movement	—	—	—	—	—	—	0.09	0.09	—	0.04	0.04	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.04	0.04	< 0.005	< 0.005	< 0.005	—	0.13	0.13	< 0.005	< 0.005	< 0.005	0.13
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.68	4.68	< 0.005	< 0.005	—	4.70

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	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.02	0.02	< 0.005	< 0.005	< 0.005	0.02
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.45	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	85.1	85.1	< 0.005	< 0.005	0.33	86.4
Vendor	0.04	0.02	0.73	0.27	< 0.005	0.01	0.11	0.11	0.01	0.03	0.03	—	405	405	0.03	0.06	1.05	424
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	—	1.06	1.06	< 0.005	< 0.005	< 0.005	1.08
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	5.55	5.55	< 0.005	< 0.005	0.01	5.81
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	—	0.18	0.18	< 0.005	< 0.005	< 0.005	0.18
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.92	0.92	< 0.005	< 0.005	< 0.005	0.96
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

3.4. Site Preparation (2025) - Mitigated

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

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

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.19	0.19	1.01	11.9	0.02	0.04	—	0.04	0.04	—	0.04	—	2,065	2,065	0.08	0.02	—	2,072
Dust From Material Movemen	—	—	—	—	—	—	2.44	2.44	—	1.17	1.17	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	1.56	1.56	< 0.005	0.16	0.16	—	9.28	9.28	< 0.005	< 0.005	0.02	9.77
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.16	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	28.3	28.3	< 0.005	< 0.005	—	28.4
Dust From Material Movemen	—	—	—	—	—	—	0.03	0.03	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	—	0.13	0.13	< 0.005	< 0.005	< 0.005	0.13
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.68	4.68	< 0.005	< 0.005	—	4.70
Dust From Material Movemen	—	—	—	—	—	—	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	—	0.02	0.02	< 0.005	< 0.005	< 0.005	0.02
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.45	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	85.1	85.1	< 0.005	< 0.005	0.33	86.4
Vendor	0.04	0.02	0.73	0.27	< 0.005	0.01	0.11	0.11	0.01	0.03	0.03	—	405	405	0.03	0.06	1.05	424
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	—	1.06	1.06	< 0.005	< 0.005	< 0.005	1.08
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	5.55	5.55	< 0.005	< 0.005	0.01	5.81
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	—	0.18	0.18	< 0.005	< 0.005	< 0.005	0.18
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.92	0.92	< 0.005	< 0.005	< 0.005	0.96
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	—	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	2.25	2.25	< 0.005	0.23	0.23	—	7.84	7.84	< 0.005	< 0.005	0.01	8.25
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.04	0.39	0.40	< 0.005	0.02	—	0.02	0.02	—	0.02	—	67.3	67.3	< 0.005	< 0.005	—	67.5
Dust From Material Movement	—	—	—	—	—	—	0.19	0.19	—	0.09	0.09	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	0.21	0.21	< 0.005	< 0.005	< 0.005	0.23
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.07	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.1	11.1	< 0.005	< 0.005	—	11.2
Dust From Material Movement	—	—	—	—	—	—	0.04	0.04	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.04	0.04	< 0.005	< 0.005	< 0.005	0.04
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.03	0.60	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	114	114	< 0.005	< 0.005	0.44	115
Vendor	0.03	0.01	0.52	0.19	< 0.005	< 0.005	0.08	0.08	< 0.005	0.02	0.02	—	289	289	0.02	0.04	0.75	303
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	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.83	2.83	< 0.005	< 0.005	0.01	2.87
Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	7.92	7.92	< 0.005	< 0.005	0.01	8.29
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	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.48
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.31	1.31	< 0.005	< 0.005	< 0.005	1.37
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

3.6. Grading (2025) - Mitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23	0.23	1.20	14.2	0.02	0.05	—	0.05	0.05	—	0.05	—	2,455	2,455	0.10	0.02	—	2,463
Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	1.26	1.26	< 0.005	0.13	0.13	—	7.84	7.84	< 0.005	< 0.005	0.01	8.25
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.03	0.39	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	67.3	67.3	< 0.005	< 0.005	—	67.5
Dust From Material Movement	—	—	—	—	—	—	0.08	0.08	—	0.04	0.04	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.21	0.21	< 0.005	< 0.005	< 0.005	0.23
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.1	11.1	< 0.005	< 0.005	—	11.2
Dust From Material Movement	—	—	—	—	—	—	0.01	0.01	—	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	—	0.04	0.04	< 0.005	< 0.005	< 0.005	0.04
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.03	0.60	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	114	114	< 0.005	< 0.005	0.44	115
Vendor	0.03	0.01	0.52	0.19	< 0.005	< 0.005	0.08	0.08	< 0.005	0.02	0.02	—	289	289	0.02	0.04	0.75	303
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	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.83	2.83	< 0.005	< 0.005	0.01	2.87
Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	7.92	7.92	< 0.005	< 0.005	0.01	8.29

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	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.48
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.31	1.31	< 0.005	< 0.005	< 0.005	1.37
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.7. 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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	—	0.16	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.04	0.33	0.46	< 0.005	0.01	—	0.01	0.01	—	0.01	—	70.6	70.6	< 0.005	< 0.005	—	70.9
Paving	—	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	0.01	0.01	0.06	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.7	11.7	< 0.005	< 0.005	—	11.7

Paving	—	< 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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.04	0.75	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	142	142	< 0.005	0.01	0.54	144
Vendor	-0.01	> -0.005	-0.10	-0.04	> -0.005	> -0.005	-0.02	-0.02	> -0.005	> -0.005	> -0.005	—	-57.8	-57.8	> -0.005	-0.01	-0.15	-60.6
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	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	9.21	9.21	< 0.005	< 0.005	0.02	9.34
Vendor	> -0.005	> -0.005	-0.01	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005	—	-4.12	-4.12	> -0.005	> -0.005	> -0.005	-4.31
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.52	1.52	< 0.005	< 0.005	< 0.005	1.55
Vendor	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005	—	-0.68	-0.68	> -0.005	> -0.005	> -0.005	-0.71
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

3.8. Paving (2025) - Mitigated

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

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

Off-Road Equipment	0.15	0.14	1.30	6.89	0.01	0.03	—	0.03	0.03	—	0.03	—	992	992	0.04	0.01	—	995
Paving	—	0.16	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.09	0.49	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	70.6	70.6	< 0.005	< 0.005	—	70.9
Paving	—	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	0.02	0.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.7	11.7	< 0.005	< 0.005	—	11.7
Paving	—	< 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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.04	0.75	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	142	142	< 0.005	0.01	0.54	144
Vendor	-0.01	> -0.005	-0.10	-0.04	> -0.005	> -0.005	-0.02	-0.02	> -0.005	> -0.005	> -0.005	—	-57.8	-57.8	> -0.005	-0.01	-0.15	-60.6
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	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	9.21	9.21	< 0.005	< 0.005	0.02	9.34
Vendor	> -0.005	> -0.005	-0.01	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005	—	-4.12	-4.12	> -0.005	> -0.005	> -0.005	-4.31
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.52	1.52	< 0.005	< 0.005	< 0.005	1.55
Vendor	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005	—	-0.68	-0.68	> -0.005	> -0.005	> -0.005	-0.71
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. 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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	—	0.91	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.06	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.51	9.51	< 0.005	< 0.005	—	9.54
Architectural Coatings	—	0.06	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.57	1.57	< 0.005	< 0.005	—	1.58
Architectural Coatings	—	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
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.10. Architectural Coating (2025) - Mitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.65	0.96	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	0.91	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.05	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.51	9.51	< 0.005	< 0.005	—	9.54
Architectural Coatings	—	0.06	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.57	1.57	< 0.005	< 0.005	—	1.58
Architectural Coatings	—	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
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Demolition	Demolition	5/1/2025	7/10/2025	5.00	51.0	—
Site Preparation	Site Preparation	7/11/2025	7/17/2025	5.00	5.00	—
Grading	Grading	7/18/2025	7/31/2025	5.00	10.0	—
Paving	Paving	8/1/2025	9/5/2025	5.00	26.0	—
Architectural Coating	Architectural Coating	8/1/2025	9/5/2025	5.00	26.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Demolition	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Demolition	Tractors/Loaders/Backhoes	Diesel	Average	3.00	8.00	84.0	0.37
Site Preparation	Graders	Diesel	Average	1.00	8.00	148	0.41
Site Preparation	Rubber Tired Dozers	Diesel	Average	1.00	7.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
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
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	Paving Equipment	Diesel	Average	1.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	1.00	7.00	36.0	0.38
Paving	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

Demolition	Concrete/Industrial Saws	Diesel	Tier 4 Final	1.00	8.00	33.0	0.73
Demolition	Rubber Tired Dozers	Diesel	Tier 4 Final	1.00	8.00	367	0.40
Demolition	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	3.00	8.00	84.0	0.37
Site Preparation	Graders	Diesel	Tier 4 Final	1.00	8.00	148	0.41
Site Preparation	Rubber Tired Dozers	Diesel	Tier 4 Final	1.00	7.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1.00	8.00	84.0	0.37
Grading	Graders	Diesel	Tier 4 Final	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Tier 4 Final	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	2.00	7.00	84.0	0.37
Paving	Cement and Mortar Mixers	Diesel	Average	1.00	6.00	10.0	0.56
Paving	Pavers	Diesel	Tier 4 Final	1.00	6.00	81.0	0.42
Paving	Paving Equipment	Diesel	Tier 4 Final	1.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Tier 4 Final	1.00	7.00	36.0	0.38
Paving	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1.00	8.00	84.0	0.37
Architectural Coating	Air Compressors	Diesel	Tier 4 Final	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	14.3	LDA,LDT1,LDT2
Demolition	Vendor	10.0	8.80	HHDT,MHDT
Demolition	Hauling	8.49	20.0	HHDT

Demolition	Onsite truck	1.00	1.70	HHDT
Site Preparation	—	—	—	—
Site Preparation	Worker	7.50	14.3	LDA,LDT1,LDT2
Site Preparation	Vendor	14.0	8.80	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	1.00	2.10	HHDT
Grading	—	—	—	—
Grading	Worker	10.0	14.3	LDA,LDT1,LDT2
Grading	Vendor	10.0	8.80	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	1.00	1.70	HHDT
Paving	—	—	—	—
Paving	Worker	12.5	14.3	LDA,LDT1,LDT2
Paving	Vendor	-2.00	8.80	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	0.00	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	0.00	14.3	LDA,LDT1,LDT2
Architectural Coating	Vendor	0.00	8.80	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	0.00	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	12.5	14.3	LDA,LDT1,LDT2
Demolition	Vendor	10.0	8.80	HHDT,MHDT

Demolition	Hauling	8.49	20.0	HHDT
Demolition	Onsite truck	1.00	1.70	HHDT
Site Preparation	—	—	—	—
Site Preparation	Worker	7.50	14.3	LDA,LDT1,LDT2
Site Preparation	Vendor	14.0	8.80	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	1.00	2.10	HHDT
Grading	—	—	—	—
Grading	Worker	10.0	14.3	LDA,LDT1,LDT2
Grading	Vendor	10.0	8.80	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	1.00	1.70	HHDT
Paving	—	—	—	—
Paving	Worker	12.5	14.3	LDA,LDT1,LDT2
Paving	Vendor	-2.00	8.80	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	0.00	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	0.00	14.3	LDA,LDT1,LDT2
Architectural Coating	Vendor	0.00	8.80	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	0.00	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

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	0.00	0.00	5,099

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Ton of Debris)	Material Exported (Ton of Debris)	Acres Graded (acres)	Material Demolished (Ton of Debris)	Acres Paved (acres)
Demolition	0.00	0.00	0.00	1,732	—
Site Preparation	0.00	0.00	4.69	0.00	—
Grading	0.00	0.00	10.0	0.00	—
Paving	0.00	0.00	0.00	0.00	1.95

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Parking Lot	0.69	100%
Other Asphalt Surfaces	0.87	100%
Other Non-Asphalt Surfaces	0.39	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O

2025	0.00	375	0.01	< 0.005

8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	Adjusted to account for overlapping construction schedule.
Construction: Trips and VMT	included water trucks

SCUS-5 Phase 3 Custom Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	SCUS-5 Phase 3
Construction Start Date	5/1/2025
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.00
Precipitation (days)	36.4
Location	38.533984847293596, -121.46392544771638
County	Sacramento
City	Sacramento
Air District	Sacramento Metropolitan AQMD
Air Basin	Sacramento Valley
TAZ	544
EDFZ	13
Electric Utility	Sacramento Municipal Utility District
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.12

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Other Asphalt Surfaces	5.60	1000sqft	0.13	0.00	0.00	63,230	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-5	Use Advanced Engine Tiers
Construction	C-10-A	Water Exposed Surfaces
Construction	C-10-B	Water Active Demolition Sites
Construction	C-11	Limit Vehicle Speeds on Unpaved Roads
Construction	C-12	Sweep Paved Roads

2. Emissions Summary

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	1.37	1.14	10.9	10.8	0.02	0.47	8.28	8.75	0.43	2.89	3.33	—	2,213	2,213	0.11	0.14	2.27	2,240
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.20	0.16	1.52	1.77	< 0.005	0.05	0.61	0.66	0.05	0.13	0.18	—	392	392	0.02	0.02	0.17	399
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.04	0.03	0.28	0.32	< 0.005	0.01	0.11	0.12	0.01	0.02	0.03	—	64.8	64.8	< 0.005	< 0.005	0.03	66.0

2.3. Construction Emissions by Year, Mitigated

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

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.37	0.40	2.99	10.5	0.02	0.06	3.81	3.85	0.06	1.20	1.24	—	2,213	2,213	0.11	0.14	2.27	2,240
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.06	0.06	0.66	1.77	< 0.005	0.01	0.35	0.36	0.01	0.07	0.08	—	392	392	0.02	0.02	0.17	399
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.01	0.01	0.12	0.32	< 0.005	< 0.005	0.06	0.07	< 0.005	0.01	0.01	—	64.8	64.8	< 0.005	< 0.005	0.03	66.0

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	0.56	0.47	4.33	5.65	0.01	0.16	—	0.16	0.14	—	0.14	—	852	852	0.03	0.01	—	855
Demolition	—	—	—	—	—	—	0.69	0.69	—	0.10	0.10	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	1.59	1.59	< 0.005	0.16	0.16	—	6.03	6.03	< 0.005	< 0.005	0.01	6.34

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.58	0.76	< 0.005	0.02	—	0.02	0.02	—	0.02	—	114	114	< 0.005	< 0.005	—	115
Demolition	—	—	—	—	—	—	0.09	0.09	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.21	0.21	< 0.005	0.02	0.02	—	0.81	0.81	< 0.005	< 0.005	< 0.005	0.85
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.11	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	18.9	18.9	< 0.005	< 0.005	—	19.0
Demolition	—	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.04	0.04	< 0.005	< 0.005	< 0.005	—	0.13	0.13	< 0.005	< 0.005	< 0.005	0.14
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.03	0.60	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	114	114	< 0.005	< 0.005	0.44	115
Vendor	0.03	0.01	0.42	0.16	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	231	231	0.02	0.03	0.60	243
Hauling	0.07	0.02	1.05	0.41	< 0.005	0.01	0.15	0.16	0.01	0.04	0.05	—	582	582	0.06	0.09	1.22	612
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	13.9	13.9	< 0.005	< 0.005	0.03	14.1
Vendor	< 0.005	< 0.005	0.06	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	31.1	31.1	< 0.005	< 0.005	0.03	32.5
Hauling	0.01	< 0.005	0.15	0.05	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	78.2	78.2	0.01	0.01	0.07	82.1

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.30	2.30	< 0.005	< 0.005	< 0.005	2.33
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	5.14	5.14	< 0.005	< 0.005	0.01	5.38
Hauling	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	12.9	12.9	< 0.005	< 0.005	0.01	13.6

3.2. Demolition (2025) - Mitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.10	1.47	5.63	0.01	0.02	—	0.02	0.02	—	0.02	—	852	852	0.03	0.01	—	855
Demolition	—	—	—	—	—	—	0.44	0.44	—	0.07	0.07	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.89	0.89	< 0.005	0.09	0.09	—	6.03	6.03	< 0.005	< 0.005	0.01	6.34
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.20	0.76	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	114	114	< 0.005	< 0.005	—	115
Demolition	—	—	—	—	—	—	0.06	0.06	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.12	0.12	< 0.005	0.01	0.01	—	0.81	0.81	< 0.005	< 0.005	< 0.005	0.85
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.04	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	18.9	18.9	< 0.005	< 0.005	—	19.0

Demolitio	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	—	0.13	0.13	< 0.005	< 0.005	< 0.005	0.14
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.03	0.60	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	114	114	< 0.005	< 0.005	0.44	115
Vendor	0.03	0.01	0.42	0.16	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	231	231	0.02	0.03	0.60	243
Hauling	0.07	0.02	1.05	0.41	< 0.005	0.01	0.15	0.16	0.01	0.04	0.05	—	582	582	0.06	0.09	1.22	612
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	13.9	13.9	< 0.005	< 0.005	0.03	14.1
Vendor	< 0.005	< 0.005	0.06	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	31.1	31.1	< 0.005	< 0.005	0.03	32.5
Hauling	0.01	< 0.005	0.15	0.05	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	78.2	78.2	0.01	0.01	0.07	82.1
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.30	2.30	< 0.005	< 0.005	< 0.005	2.33
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	5.14	5.14	< 0.005	< 0.005	0.01	5.38
Hauling	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	12.9	12.9	< 0.005	< 0.005	0.01	13.6

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	0.56	0.47	4.16	5.57	0.01	0.21	—	0.21	0.20	—	0.20	—	859	859	0.03	0.01	—	862
Dust From Material Movement	—	—	—	—	—	—	0.53	0.53	—	0.06	0.06	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	1.06	1.06	< 0.005	0.11	0.11	—	4.58	4.58	< 0.005	< 0.005	0.01	4.82
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.06	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.8	11.8	< 0.005	< 0.005	—	11.8
Dust From Material Movement	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.06	0.06	< 0.005	< 0.005	< 0.005	0.07
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.95	1.95	< 0.005	< 0.005	—	1.95
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	0.02	0.02	0.01	0.30	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	56.8	56.8	< 0.005	< 0.005	0.22	57.6

Vendor	0.02	0.01	0.31	0.12	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	174	174	0.01	0.03	0.45	182
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	—	0.71	0.71	< 0.005	< 0.005	< 0.005	0.72
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.38	2.38	< 0.005	< 0.005	< 0.005	2.49
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	—	0.12	0.12	< 0.005	< 0.005	< 0.005	0.12
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.39	0.39	< 0.005	< 0.005	< 0.005	0.41
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

3.4. Site Preparation (2025) - Mitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.08	0.42	5.99	0.01	0.02	—	0.02	0.02	—	0.02	—	859	859	0.03	0.01	—	862
Dust From Material Movement	—	—	—	—	—	—	0.21	0.21	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.59	0.59	< 0.005	0.06	0.06	—	4.58	4.58	< 0.005	< 0.005	0.01	4.82

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.8	11.8	< 0.005	< 0.005	—	11.8
Dust From Material Movemen	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.06	0.06	< 0.005	< 0.005	< 0.005	0.07
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.95	1.95	< 0.005	< 0.005	—	1.95
Dust From Material Movemen	—	—	—	—	—	—	< 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	0.02	0.02	0.01	0.30	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	56.8	56.8	< 0.005	< 0.005	0.22	57.6
Vendor	0.02	0.01	0.31	0.12	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	174	174	0.01	0.03	0.45	182
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	—	0.71	0.71	< 0.005	< 0.005	< 0.005	0.72
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.38	2.38	< 0.005	< 0.005	< 0.005	2.49
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	—	0.12	0.12	< 0.005	< 0.005	< 0.005	0.12
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.39	0.39	< 0.005	< 0.005	< 0.005	0.41
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

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	1.29	1.09	10.1	10.0	0.02	0.46	—	0.46	0.43	—	0.43	—	1,714	1,714	0.07	0.01	—	1,720
Dust From Material Movement	—	—	—	—	—	—	5.31	5.31	—	2.57	2.57	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	2.78	2.78	< 0.005	0.28	0.28	—	9.28	9.28	< 0.005	< 0.005	0.02	9.77
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.03	0.28	0.28	< 0.005	0.01	—	0.01	0.01	—	0.01	—	47.0	47.0	< 0.005	< 0.005	—	47.1

Dust From Material Movement	—	—	—	—	—	—	0.15	0.15	—	0.07	0.07	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.08	0.08	< 0.005	0.01	0.01	—	0.25	0.25	< 0.005	< 0.005	< 0.005	0.27
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.05	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	7.77	7.77	< 0.005	< 0.005	—	7.80
Dust From Material Movement	—	—	—	—	—	—	0.03	0.03	—	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	—	0.04	0.04	< 0.005	< 0.005	< 0.005	0.04
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.45	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	85.1	85.1	< 0.005	< 0.005	0.33	86.4
Vendor	0.04	0.02	0.73	0.27	< 0.005	0.01	0.11	0.11	0.01	0.03	0.03	—	405	405	0.03	0.06	1.05	424
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	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.13	2.13	< 0.005	< 0.005	< 0.005	2.15
Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	11.1	11.1	< 0.005	< 0.005	0.01	11.6
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	—	0.35	0.35	< 0.005	< 0.005	< 0.005	0.36
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.84	1.84	< 0.005	< 0.005	< 0.005	1.92

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

3.6. Grading (2025) - Mitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.16	0.16	0.84	9.79	0.02	0.03	—	0.03	0.03	—	0.03	—	1,714	1,714	0.07	0.01	—	1,720
Dust From Material Movement	—	—	—	—	—	—	2.07	2.07	—	1.00	1.00	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	1.56	1.56	< 0.005	0.16	0.16	—	9.28	9.28	< 0.005	< 0.005	0.02	9.77
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.27	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	47.0	47.0	< 0.005	< 0.005	—	47.1
Dust From Material Movement	—	—	—	—	—	—	0.06	0.06	—	0.03	0.03	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.04	0.04	< 0.005	< 0.005	< 0.005	—	0.25	0.25	< 0.005	< 0.005	< 0.005	0.27
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	7.77	7.77	< 0.005	< 0.005	—	7.80

Dust From Material Movemen	—	—	—	—	—	—	0.01	0.01	—	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	—	0.04	0.04	< 0.005	< 0.005	< 0.005	0.04
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.45	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	85.1	85.1	< 0.005	< 0.005	0.33	86.4
Vendor	0.04	0.02	0.73	0.27	< 0.005	0.01	0.11	0.11	0.01	0.03	0.03	—	405	405	0.03	0.06	1.05	424
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	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.13	2.13	< 0.005	< 0.005	< 0.005	2.15
Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	11.1	11.1	< 0.005	< 0.005	0.01	11.6
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	—	0.35	0.35	< 0.005	< 0.005	< 0.005	0.36
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.84	1.84	< 0.005	< 0.005	< 0.005	1.92
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.7. 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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.61	0.51	4.37	5.31	0.01	0.19	—	0.19	0.18	—	0.18	—	823	823	0.03	0.01	—	826
Paving	—	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.03	0.30	0.36	< 0.005	0.01	—	0.01	0.01	—	0.01	—	56.4	56.4	< 0.005	< 0.005	—	56.6
Paving	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.05	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.34	9.34	< 0.005	< 0.005	—	9.37
Paving	—	< 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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.05	1.05	0.00	0.00	0.18	0.18	0.00	0.04	0.04	—	199	199	< 0.005	0.01	0.76	202
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

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	12.4	12.4	< 0.005	< 0.005	0.02	12.6
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.05	2.05	< 0.005	< 0.005	< 0.005	2.08
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

3.8. Paving (2025) - Mitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.27	0.23	2.09	5.55	0.01	0.06	—	0.06	0.06	—	0.06	—	823	823	0.03	0.01	—	826
Paving	—	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.02	0.02	0.14	0.38	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	56.4	56.4	< 0.005	< 0.005	—	56.6
Paving	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.03	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.34	9.34	< 0.005	< 0.005	—	9.37
Paving	—	< 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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.05	1.05	0.00	0.00	0.18	0.18	0.00	0.04	0.04	—	199	199	< 0.005	0.01	0.76	202
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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	12.4	12.4	< 0.005	< 0.005	0.02	12.6
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.05	2.05	< 0.005	< 0.005	< 0.005	2.08
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

3.9. 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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	—	0.06	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.06	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.15	9.15	< 0.005	< 0.005	—	9.18
Architectural Coatings	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.51	1.51	< 0.005	< 0.005	—	1.52
Architectural Coatings	—	< 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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.10. Architectural Coating (2025) - Mitigated

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

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

Off-Road Equipment	0.02	0.02	0.65	0.96	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	0.06	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.04	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.15	9.15	< 0.005	< 0.005	—	9.18
Architectural Coatings	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.51	1.51	< 0.005	< 0.005	—	1.52
Architectural Coatings	—	< 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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Demolition	Demolition	5/1/2025	7/8/2025	5.00	49.0	—
Site Preparation	Site Preparation	7/10/2025	7/16/2025	5.00	5.00	—
Grading	Grading	7/17/2025	7/30/2025	5.00	10.0	—
Paving	Paving	7/31/2025	9/3/2025	5.00	25.0	—
Architectural Coating	Architectural Coating	7/31/2025	9/3/2025	5.00	25.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

Demolition	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Demolition	Rubber Tired Dozers	Diesel	Average	1.00	1.00	367	0.40
Demolition	Tractors/Loaders/Backhoes	Diesel	Average	2.00	6.00	84.0	0.37
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
Grading	Graders	Diesel	Average	1.00	6.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	6.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Average	1.00	7.00	84.0	0.37
Paving	Cement and Mortar Mixers	Diesel	Average	4.00	6.00	10.0	0.56
Paving	Pavers	Diesel	Average	1.00	7.00	81.0	0.42
Paving	Rollers	Diesel	Average	1.00	7.00	36.0	0.38
Paving	Tractors/Loaders/Backhoes	Diesel	Average	1.00	7.00	84.0	0.37
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Concrete/Industrial Saws	Diesel	Tier 4 Final	1.00	8.00	33.0	0.73
Demolition	Rubber Tired Dozers	Diesel	Tier 4 Final	1.00	1.00	367	0.40
Demolition	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	2.00	6.00	84.0	0.37
Site Preparation	Graders	Diesel	Tier 4 Final	1.00	8.00	148	0.41
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1.00	8.00	84.0	0.37

Grading	Graders	Diesel	Tier 4 Final	1.00	6.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Tier 4 Final	1.00	6.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1.00	7.00	84.0	0.37
Paving	Cement and Mortar Mixers	Diesel	Average	4.00	6.00	10.0	0.56
Paving	Pavers	Diesel	Tier 4 Final	1.00	7.00	81.0	0.42
Paving	Rollers	Diesel	Tier 4 Final	1.00	7.00	36.0	0.38
Paving	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1.00	7.00	84.0	0.37
Architectural Coating	Air Compressors	Diesel	Tier 4 Final	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	10.0	14.3	LDA,LDT1,LDT2
Demolition	Vendor	8.00	8.80	HHDT,MHDT
Demolition	Hauling	7.86	20.0	HHDT
Demolition	Onsite truck	1.00	1.20	HHDT
Site Preparation	—	—	—	—
Site Preparation	Worker	5.00	14.3	LDA,LDT1,LDT2
Site Preparation	Vendor	6.00	8.80	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	1.00	0.80	HHDT
Grading	—	—	—	—
Grading	Worker	7.50	14.3	LDA,LDT1,LDT2

Grading	Vendor	14.0	8.80	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	1.00	2.10	HHDT
Paving	—	—	—	—
Paving	Worker	17.5	14.3	LDA,LDT1,LDT2
Paving	Vendor	0.00	8.80	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	0.00	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	0.00	14.3	LDA,LDT1,LDT2
Architectural Coating	Vendor	0.00	8.80	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	0.00	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	10.0	14.3	LDA,LDT1,LDT2
Demolition	Vendor	8.00	8.80	HHDT,MHDT
Demolition	Hauling	7.86	20.0	HHDT
Demolition	Onsite truck	1.00	1.20	HHDT
Site Preparation	—	—	—	—
Site Preparation	Worker	5.00	14.3	LDA,LDT1,LDT2
Site Preparation	Vendor	6.00	8.80	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	1.00	0.80	HHDT
Grading	—	—	—	—

Grading	Worker	7.50	14.3	LDA,LDT1,LDT2
Grading	Vendor	14.0	8.80	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	1.00	2.10	HHDT
Paving	—	—	—	—
Paving	Worker	17.5	14.3	LDA,LDT1,LDT2
Paving	Vendor	0.00	8.80	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	0.00	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	0.00	14.3	LDA,LDT1,LDT2
Architectural Coating	Vendor	0.00	8.80	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	0.00	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

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	0.00	0.00	336

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	1,539	—
Site Preparation	0.00	0.00	2.50	0.00	—
Grading	0.00	0.00	7.50	0.00	—
Paving	0.00	0.00	0.00	0.00	0.13

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Other Asphalt Surfaces	0.13	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	375	0.01	< 0.005

8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	Phase 3 schedule

Appendix A.2 Health Risk Assessment, AERMOD Modeling, and HARP2 Output Files

Onsite Construction PM10 Exhaust Emissions - Unmitigated

Year	Construction Activity	Days of Activity	Max Daily Emissions (lbs/day)	Emissions (lbs)	Total Construction Days	Average Hourly Emissions (lbs/hr)	Emission Rate (g/s)	Phase
2023	P1 Demolition	36	1.21	87.80	86	1.28E-01	0.016079	Phase 1
	P1 Site Preparation	9	1.82					
	P1 Grading	14	0.95					
	P1 Building Construction	27	0.55					
2024	P1 Building Construction	262	0.50	131	262	6.25E-02	0.007875	
2025	P1 Building Construction	126	0.43	62.82	126	6.23E-02	0.007853	
	P1 Paving	32	0.24					
	P1 Architectural Coating	32	0.03					
2023-2025	**P1 All Activities**	-	-	**281.62**	**474**	**7.43E-02**	**9.36E-03**	**Phase 1**
2025	P2 Demolition	51	0.58	44.58	92	6.06E-02	7.63E-03	Phase 2
	P2 Site Preparation	5	0.57					
	P2 Grading	10	0.65					
	P2 Paving	26	0.20					
	P2 Architectural Coating	26	0.03					
2025	P3 Demolition	49	0.17	19.31	89	2.71E-02	3.42E-03	Phase 3
	P3 Site Preparation	5	0.22					
	P3 Grading	10	0.47					
	P3 Paving	25	0.19					
	P3 Architectural Coating	25	0.03					
2025	**P2-3 All Activities**	-	-	**63.89**	**92**	**8.68E-02**	**1.09E-02**	**Phases 2-3**

Offsite Construction PM10 Exhaust Emissions - Unmitigated

Year	Construction Activity	Days of Activity	Max Daily Emissions (lbs/day)	Emissions (lbs)	Total Construction Days	Average Hourly Emissions (lbs/hr)	Hauling Emissions w/in 0.25-mile (lbs/hr) [3]	Emission Rate (g/s)	Phase
2023	P1 Demolition	36	0.01	2.67	86	3.87E-03	1.16E-04	1.46E-05	Phase 1
	P1 Site Preparation	9	0.01						
	P1 Grading	14	0.01						
	P1 Building Construction	27	0.01						
2024	P1 Building Construction	262	0.01	1.31	262	6.25E-04	1.88E-05	2.36E-06	
2025	P1 Building Construction	126	0.01	0.63	126	6.25E-04	1.88E-05	2.36E-06	
	P1 Paving	32	0.00						
	P1 Architectural Coating	32	0.00						
2023-2025	**P1 All Activities**	-	-	**4.61**	**474**	**1.21E-03**	**3.64E-05**	**4.59E-06**	**Phase 1**
2025	P2 Demolition	51	0.02	0.87	92	1.18E-03	3.53E-05	4.44E-06	Phase 2
	P2 Site Preparation	5	0.01						
	P2 Grading	10	0.01						
	P2 Paving	26	0.00						
	P2 Architectural Coating	26	0.00						
2025	P3 Demolition	49	0.02	0.86	89	1.21E-03	3.62E-05	4.57E-06	Phase 3
	P3 Site Preparation	5	0.01						
	P3 Grading	10	0.01						
	P3 Paving	25	0.00						
	P3 Architectural Coating	25	0.00						
2025	**P2-3 All Activities**	-	-	**1.73**	**92**	**2.34E-03**	**7.03E-05**	**8.86E-06**	**Phases 2-3**

Note: Emissions evenly distributed over all modeled volume sources.

Hauling Length (miles) [3]	20.00	miles
(mile) [4]	0.60	miles
Hours per work day (7:00 AM to 4:00 PM, 1-hour of breaks)	8.00	hours

[1] DPM emissions taken as PM_{10} exhaust emissions from CalEEMod average daily emissions.

[2] Construction durations determined for each year to adjust receptor exposures to the exposure durations for each construction year (see App C - Risk Calculations).

[3] Based on CalEEMod default 20 mile hauling distance.

[4] Emissions from CalEEMod offsite average daily emissions, which is based on proportioned haul truck trip distances , are adjusted to evaluate emissions from the 0.6-mile route within 1,000 of the project site.

[5] Work hours applied in By Hour/Day (HRDOW) variable emissions module in air dispersion model (see App C - Air Dispersion Model Output Files).

Phase 1 **3.1. Demolition (2023)**

Construction On-Site

		PM10E
Category	lbs/day	
Off-Road Equipment		1.200
Demolition		0.000
Onsite truck		0.005
Total		1.205

Construction Off-Site

		PM10E
Category	lbs/day	
Worker		0.000
Vendor		0.005
Hauling		0.005
Total		0.010

Phase 1 **3.3. Site Preparation (2023)**

Construction On-Site

		PM10E
Category	lbs/day	
Off-Road Equipment		1.810
Dust From Material Movement		0.000
Onsite truck		0.005
Total		1.815

Construction Off-Site

		PM10E
Category	lbs/day	
Worker		0.000
Vendor		0.010
Hauling		0.000
Total		0.010

Phase 1 **3.5. Grading (2023)**

Construction On-Site

		PM10E
Category	lbs/day	
Off-Road Equipment		0.940
Dust from Material Movement		0.000
Onsite Truck		0.005
Total		0.945

Construction Off-Site

		PM10E
Category	lbs/day	
Worker		0.000
Vendor		0.010
Hauling		0.000
Total		0.010

Phase 2 **3.1. Demolition (2025)**

Construction On-Site

		PM10E
Category	lbs/day	
Off-Road Equipment		0.570
Demolition		0.000
Onsite truck		0.005
Total		0.575

Construction Off-Site

		PM10E
Category	lbs/day	
Worker		0.000
Vendor		0.005
Hauling		0.010
Total		0.015

Phase 2 **3.3. Site Preparation (2025)**

Construction On-Site

		PM10E
Category	lbs/day	
Off-Road Equipment		0.560
Demolition		0.000
Onsite truck		0.005
Total		0.565

Construction Off-Site

		PM10E
Category	lbs/day	
Worker		0.000
Vendor		0.010
Hauling		0.000
Total		0.010

Phase 2 **3.5. Grading (2025)**

Construction On-Site

		PM10E
Category	lbs/day	
Off-Road Equipment		0.640
Demolition		0.000
Onsite truck		0.005
Total		0.645

Construction Off-Site

		PM10E
Category	lbs/day	
Worker		0.000
Vendor		0.005
Hauling		0.000
Total		0.005

Phase 3 **3.1. Demolition (2025)**

Construction On-Site

		PM10E
Category	lbs/day	
Off-Road Equipment		0.160
Demolition		0.000
Onsite truck		0.005
Total		0.165

Construction Off-Site

		PM10E
Category	lbs/day	
Worker		0.000
Vendor		0.005
Hauling		0.010
Total		0.015

Phase 3 **3.3. Site Preparation (2025)**

Construction On-Site

		PM10E
Category	lbs/day	
Off-Road Equipment		0.210
Demolition		0.000
Onsite truck		0.005
Total		0.215

Construction Off-Site

		PM10E
Category	lbs/day	
Worker		0.000
Vendor		0.005
Hauling		0.000
Total		0.005

Phase 3 **3.5. Grading (2025)**

Construction On-Site

		PM10E
Category	lbs/day	
Off-Road Equipment		0.460
Demolition		0.000
Onsite truck		0.005
Total		0.465

Construction Off-Site

		PM10E
Category	lbs/day	
Worker		0.000
Vendor		0.010
Hauling		0.000
Total		0.010

Phase 1 3.7. Building Construction (2023)

Construction On-Site

		PM10E
Category	lbs/day	
Off-Road Equipment		0.550
Onsite truck		0.000
Total		0.550

Construction Off-Site

		PM10E
Category	lbs/day	
Worker		0.000
Vendor		0.005
Hauling		0.000
Total		0.005

Phase 1 3.9. Building Construction (2024)

Construction On-Site

		PM10E
Category	lbs/day	
Off-Road Equipment		0.500
Onsite truck		0.000
Total		0.500

Construction Off-Site

		PM10E
Category	lbs/day	
Worker		0.000
Vendor		0.005
Hauling		0.000
Total		0.005

Phase 1 3.11. Building Construction (2025)

Construction On-Site

		PM10E
Category	lbs/day	
Off-Road Equipment		0.430
Onsite truck		0.000
Total		0.430

Construction Off-Site

		PM10E
Category	lbs/day	
Worker		0.000
Vendor		0.005
Hauling		0.000
Total		0.005

Phase 2 3.7. Paving (2025)

Construction On-Site

		PM10E
Category	lbs/day	
Off-Road Equipment		0.200
Paving		0.000
Total		0.200

Construction Off-Site

		PM10E
Category	lbs/day	
Worker		0.000
Vendor		0.000
Hauling		0.000
Total		0.000

Phase 2 3.9. Architectural Coating (2025)

Construction On-Site

		PM10E
Category	lbs/day	
Off-Road Equipment		0.030
Architectural Coatings		0.000
Onsite truck		0.000
Total		0.030

Construction Off-Site

		PM10E
Category	lbs/day	
Worker		0.000
Vendor		0.000
Hauling		0.000
Total		0.000

Phase 3 3.7. Paving (2025)

Construction On-Site

		PM10E
Category	lbs/day	
Off-Road Equipment		0.190
Paving		0.000
Total		0.190

Construction Off-Site

		PM10E
Category	lbs/day	
Worker		0.000
Vendor		0.000
Hauling		0.000
Total		0.000

Phase 3 3.9. Architectural Coating (2025)

Construction On-Site

		PM10E
Category	lbs/day	
Off-Road Equipment		0.030
Architectural Coatings		0.000
Onsite truck		0.000
Total		0.030

Construction Off-Site

		PM10E
Category	lbs/day	
Worker		0.000
Vendor		0.000
Hauling		0.000
Total		0.000

Phase 1 **3.13. Paving (2025)**

Construction On-Site

Category	lbs/day	PM10E
Off-Road Equipment		0.240
Paving		0.000
Onsite truck		0.000
Total		0.240

Construction Off-Site

Category	lbs/day	PM10E
Worker		0.000
Vendor		0.000
Hauling		0.000
Total		0.000

Phase 1 **3.15. Architectural Coating (2025)**

Construction On-Site

Category	lbs/day	PM10E
Off-Road Equipment		0.030
Architectural Coatings		0.000
Onsite truck		0.000
Total		0.030

Construction Off-Site

Category	lbs/day	PM10E
Worker		0.000
Vendor		0.000
Hauling		0.000
Total		0.000

Onsite Construction PM10 Exhaust Emissions - Mitigated (Tier 4 Final for Equipment >25 hp)

Year	Construction Activity	Days of Activity	Max Daily Emissions (lbs/day)	Emissions (lbs)	Total Construction Days	Average Hourly Emissions (lbs/hr)	Emission Rate (g/s)	Phase
2023	P1 Demolition	36	0.07	6.36	86	9.24E-03	0.001164	Phase 1
	P1 Site Preparation	9	0.11					
	P1 Grading	14	0.07					
	P1 Building Construction	27	0.08					
2024	P1 Building Construction	262	0.08	20.96	262	1.00E-02	0.001260	
2025	P1 Building Construction	126	0.08	11.52	126	1.14E-02	0.001440	
	P1 Paving	32	0.04					
	P1 Architectural Coating	32	0.01					
2023-2025	**P1 All Activities**	**-**	**-**	**38.84**	**474**	**1.02E-02**	**1.29E-03**	**Phase 1**
2025	P2 Demolition	51	0.06	4.49	92	6.10E-03	7.69E-04	Phase 2
	P2 Site Preparation	5	0.05					
	P2 Grading	10	0.06					
	P2 Paving	26	0.03					
	P2 Architectural Coating	26	0.01					
2025	P3 Demolition	49	0.03	3.33	89	4.67E-03	5.88E-04	Phase 3
	P3 Site Preparation	5	0.03					
	P3 Grading	10	0.04					
	P3 Paving	25	0.06					
	P3 Architectural Coating	25	0.01					
2025	**P2-3 All Activities**	**-**	**-**	**7.82**	**92**	**1.06E-02**	**1.34E-03**	**Phases 2-3**

Offsite Construction PM10 Exhaust Emissions - Mitigated (Tier 4 Final for Equipment >25 hp)

Year	Construction Activity	Days of Activity	Max Daily Emissions (lbs/day)	Emissions (lbs)	Total Construction Days	Average Hourly Emissions (lbs/hr)	Hauling Emissions w/in 0.25-mile (lbs/hr) [3]	Emission Rate (g/s)	Phase
2023	P1 Demolition	36	0.01	2.67	86	3.87E-03	1.16E-04	1.46E-05	Phase 1
	P1 Site Preparation	9	0.01						
	P1 Grading	14	0.01						
	P1 Building Construction	27	0.01						
2024	P1 Building Construction	262	0.01	1.31	262	6.25E-04	1.88E-05	2.36E-06	
2025	P1 Building Construction	126	0.01	0.63	126	6.25E-04	1.88E-05	2.36E-06	
	P1 Paving	32	0.00						
	P1 Architectural Coating	32	0.00						
2023-2025	**P1 All Activities**	**-**	**-**	**4.61**	**474**	**1.21E-03**	**3.64E-05**	**4.59E-06**	**Phase 1**
2025	P2 Demolition	51	0.02	0.87	92	1.18E-03	3.53E-05	4.44E-06	Phase 2
	P2 Site Preparation	5	0.01						
	P2 Grading	10	0.01						
	P2 Paving	26	0.00						
	P2 Architectural Coating	26	0.00						
2025	P3 Demolition	49	0.02	0.86	89	1.21E-03	3.62E-05	4.57E-06	Phase 3
	P3 Site Preparation	5	0.01						
	P3 Grading	10	0.01						
	P3 Paving	25	0.00						
	P3 Architectural Coating	25	0.00						
2025	**P2-3 All Activities**	**-**	**-**	**1.73**	**92**	**2.34E-03**	**7.03E-05**	**8.86E-06**	**Phases 2-3**

Note: Emissions evenly distributed over all modeled volume sources.

Hauling Length (miles) [3]	20.00	miles
(mile) [4]	0.60	miles
Hours per work day (7:00 AM to 4:00 PM, 1-hour of breaks)	8.00	hours

[1] DPM emissions taken as PM_{10} exhaust emissions from CalEEMod average daily emissions.

[2] Construction durations determined for each year to adjust receptor exposures to the exposure durations for each construction year (see App C - Risk Calculations).

[3] Based on CalEEMod default 20 mile hauling distance.

[4] Emissions from CalEEMod offsite average daily emissions, which is based on proportioned haul truck trip distances , are adjusted to evaluate emissions from the 0.6-mile route within 1,000 of the project site.

[5] Work hours applied in By Hour/Day (HRDOW) variable emissions module in air dispersion model (see App C - Air Dispersion Model Output Files).

Phase 1 **3.1. Demolition (2023)**

Construction On-Site

		PM10E
Category	lbs/day	
Off-Road Equipment		0.060
Demolition		0.000
Onsite truck		0.005
Total		0.065

Construction Off-Site

		PM10E
Category	lbs/day	
Worker		0.000
Vendor		0.005
Hauling		0.005
Total		0.010

Phase 1 **3.3. Site Preparation (2023)**

Construction On-Site

		PM10E
Category	lbs/day	
Off-Road Equipment		0.100
Dust From Material Movement		0.000
Onsite truck		0.005
Total		0.105

Construction Off-Site

		PM10E
Category	lbs/day	
Worker		0.000
Vendor		0.010
Hauling		0.000
Total		0.010

Phase 1 **3.5. Grading (2023)**

Construction On-Site

		PM10E
Category	lbs/day	
Off-Road Equipment		0.060
Dust from Material Movement		0.000
Onsite Truck		0.005
Total		0.065

Construction Off-Site

		PM10E
Category	lbs/day	
Worker		0.000
Vendor		0.010
Hauling		0.000
Total		0.010

Phase 2 **3.1. Demolition (2025)**

Construction On-Site

		PM10E
Category	lbs/day	
Off-Road Equipment		0.050
Demolition		0.000
Onsite truck		0.005
Total		0.055

Construction Off-Site

		PM10E
Category	lbs/day	
Worker		0.000
Vendor		0.005
Hauling		0.010
Total		0.015

Phase 2 **3.3. Site Preparation (2025)**

Construction On-Site

		PM10E
Category	lbs/day	
Off-Road Equipment		0.040
Demolition		0.000
Onsite truck		0.005
Total		0.045

Construction Off-Site

		PM10E
Category	lbs/day	
Worker		0.000
Vendor		0.010
Hauling		0.000
Total		0.010

Phase 2 **3.5. Grading (2025)**

Construction On-Site

		PM10E
Category	lbs/day	
Off-Road Equipment		0.050
Demolition		0.000
Onsite truck		0.005
Total		0.055

Construction Off-Site

		PM10E
Category	lbs/day	
Worker		0.000
Vendor		0.005
Hauling		0.000
Total		0.005

Phase 3 **3.1. Demolition (2025)**

Construction On-Site

		PM10E
Category	lbs/day	
Off-Road Equipment		0.020
Demolition		0.000
Onsite truck		0.005
Total		0.025

Construction Off-Site

		PM10E
Category	lbs/day	
Worker		0.000
Vendor		0.005
Hauling		0.010
Total		0.015

Phase 3 **3.3. Site Preparation (2025)**

Construction On-Site

		PM10E
Category	lbs/day	
Off-Road Equipment		0.020
Demolition		0.000
Onsite truck		0.005
Total		0.025

Construction Off-Site

		PM10E
Category	lbs/day	
Worker		0.000
Vendor		0.005
Hauling		0.000
Total		0.005

Phase 3 **3.5. Grading (2025)**

Construction On-Site

		PM10E
Category	lbs/day	
Off-Road Equipment		0.030
Demolition		0.000
Onsite truck		0.005
Total		0.035

Construction Off-Site

		PM10E
Category	lbs/day	
Worker		0.000
Vendor		0.010
Hauling		0.000
Total		0.010

Phase 1 3.7. Building Construction (2023)

Construction On-Site

		PM10E
Category	lbs/day	
Off-Road Equipment		0.080
Onsite truck		0.000
Total		0.080

Construction Off-Site

		PM10E
Category	lbs/day	
Worker		0.000
Vendor		0.005
Hauling		0.000
Total		0.005

Phase 1 3.9. Building Construction (2024)

Construction On-Site

		PM10E
Category	lbs/day	
Off-Road Equipment		0.080
Onsite truck		0.000
Total		0.080

Construction Off-Site

		PM10E
Category	lbs/day	
Worker		0.000
Vendor		0.005
Hauling		0.000
Total		0.005

Phase 1 3.11. Building Construction (2025)

Construction On-Site

		PM10E
Category	lbs/day	
Off-Road Equipment		0.080
Onsite truck		0.000
Total		0.080

Construction Off-Site

		PM10E
Category	lbs/day	
Worker		0.000
Vendor		0.005
Hauling		0.000
Total		0.005

Phase 2 3.7. Paving (2025)

Construction On-Site

		PM10E
Category	lbs/day	
Off-Road Equipment		0.030
Paving		0.000
Total		0.030

Construction Off-Site

		PM10E
Category	lbs/day	
Worker		0.000
Vendor		0.000
Hauling		0.000
Total		0.000

Phase 2 3.9. Architectural Coating (2025)

Construction On-Site

		PM10E
Category	lbs/day	
Off-Road Equipment		0.005
Architectural Coatings		0.000
Onsite truck		0.000
Total		0.005

Construction Off-Site

		PM10E
Category	lbs/day	
Worker		0.000
Vendor		0.000
Hauling		0.000
Total		0.000

Phase 3 3.7. Paving (2025)

Construction On-Site

		PM10E
Category	lbs/day	
Off-Road Equipment		0.060
Paving		0.000
Total		0.060

Construction Off-Site

		PM10E
Category	lbs/day	
Worker		0.000
Vendor		0.000
Hauling		0.000
Total		0.000

Phase 3 3.9. Architectural Coating (2025)

Construction On-Site

		PM10E
Category	lbs/day	
Off-Road Equipment		0.005
Architectural Coatings		0.000
Onsite truck		0.000
Total		0.005

Construction Off-Site

		PM10E
Category	lbs/day	
Worker		0.000
Vendor		0.000
Hauling		0.000
Total		0.000

Phase 1 **3.13. Paving (2025)**

Construction On-Site

Category	lbs/day	PM10E
Off-Road Equipment		0.040
Paving		0.000
Onsite truck		0.000
Total		0.040

Construction Off-Site

Category	lbs/day	PM10E
Worker		0.000
Vendor		0.000
Hauling		0.000
Total		0.000

Phase 1 **3.15. Architectural Coating (2025)**

Construction On-Site

Category	lbs/day	PM10E
Off-Road Equipment		0.005
Architectural Coatings		0.000
Onsite truck		0.000
Total		0.005

Construction Off-Site

Category	lbs/day	PM10E
Worker		0.000
Vendor		0.000
Hauling		0.000
Total		0.000

Unmitigated Construction DPM Concentrations - MER Identification

Phase 1 Construction					
MER Type	REC ID	X	Y	P1 CONC	P2-3 CONC
Resident	R_895 (R)	634129.42	4266181.73	0.23518	0.01719
High School Student (Christian Brothers)	CBHS_677 (HS)	634073.03	4266269.63	0.30027	0.04956
Daycare	DC_001 (DC)	634095.41	4266023.03	0.03238	0.02601
On-Site Preschool Student	ORES_157 (PS)	634000.02	4266221.37	0.10225	-
Off-Site Preschool Student	SHPS_001 (PS)	633780.15	4266557.94	0.00411	0.00777
Worker	W_005 (W)	634100.49	4266028.81	0.03584	0.02532

Phases 2-3 Construction					
MER Type	REC ID	X	Y	P1 CONC	P2-3 CONC
Resident	R_2279 (R)	633975.69	4266112.74	0.01819	0.16148
High School Student	CBHS_225 (HS)	633903.03	4266229.63	0.01095	0.25682
Daycare	DC_001 (DC)	634095.41	4266023.03	0.03238	0.02601
On-Site Preschool Student	ORES_006 (PS)	634017.98	4266193.24	-	0.23015
Off-Site Preschool Student	SHPS_001 (PS)	633780.15	4266557.94	0.00411	0.00777
Worker	W_002 (W)	633871.99	4266232.21	0.00742	0.22066

Combined MERs					
MER	REC ID	X	Y	P1 CONC	P2-3 CONC
P1 Resident	R_895 (R)	634129.42	4266181.73	0.23518	0.01719
P2-3 Resident	R_2279 (R)	633975.69	4266112.74	0.01819	0.16148
P1 High School Student	CBHS_677 (HS)	634073.03	4266269.63	0.30027	0.04956
P2-3 High School Student	CBHS_225 (HS)	633903.03	4266229.63	0.01095	0.25682
Daycare	DC_001 (DC)	634095.41	4266023.03	0.03238	0.02601
On-Site Preschool Student	Varies	Varies	Varies	0.10225	0.23015
Off-Site Preschool Student	SHPS_001 (PS)	633780.15	4266557.94	0.00411	0.00777
P1 Worker	W_005 (W)	634100.49	4266028.81	0.03584	0.02532
P2-3 Worker	W_002 (W)	633871.99	4266232.21	0.00742	0.22066

Notes:

1. MER = Maximally Exposed Receptor; the receptor of each type which experiences the highest DPM concentration exposure during each phase of construction.
2. Because on-site preschool students consist of the same pool of students on the Oak Ridge Elementary School campus, the maximum DPM concentration for all project phases are used for that receptor risk assessment.
3. The Daycare and On-site Preschool Student MERs represent the same location among all project phases.

Unmitigated Construction DPM Health Risk

Phase 1 Construction

GRP1	GRP2	POLID	POLABBREV	CONC	Hazard Index	RISK_SUM	Risk Per Million	INH_RISK	SOIL_RISK	DERMAL_RISK	MMILK_RISK
P1 Resident	R_895 (R)	9901	DieselExhPM	0.23518	0.047	6.84E-05	68.39	6.84E-05	0.00E+00	0.00E+00	0.00E+00
P2-3 Resident	R_2279 (R)	9901	DieselExhPM	0.01819	0.004	5.29E-06	5.29	5.29E-06	0.00E+00	0.00E+00	0.00E+00
P1 High School Student	CBHS_677 (HS)	9901	DieselExhPM	0.30027	0.060	1.02E-05	10.16	1.02E-05	0.00E+00	0.00E+00	0.00E+00
P2-3 High School Student	CBHS_225 (HS)	9901	DieselExhPM	0.01095	0.002	3.71E-07	0.37	3.71E-07	0.00E+00	0.00E+00	0.00E+00
Daycare	DC_001 (DC)	9901	DieselExhPM	0.03238	0.006	9.42E-06	9.42	9.42E-06	0.00E+00	0.00E+00	0.00E+00
On-Site Preschool Student	ORES_157 (PS)	9901	DieselExhPM	0.10225	0.020	4.26E-06	4.26	4.26E-06	0.00E+00	0.00E+00	0.00E+00
Off-Site Preschool Student	SHPS_001 (PS)	9901	DieselExhPM	0.00411	0.001	1.71E-07	0.17	1.71E-07	0.00E+00	0.00E+00	0.00E+00
P1 Worker	W_005 (W)	9901	DieselExhPM	0.03584	0.007	1.35E-07	0.14	1.35E-07	0.00E+00	0.00E+00	0.00E+00
P2-3 Worker	W_002 (W)	9901	DieselExhPM	0.00742	0.001	2.80E-08	0.03	2.80E-08	0.00E+00	0.00E+00	0.00E+00

Phases 2-3 Construction

GRP1	GRP2	POLID	POLABBREV	CONC	Hazard Index	RISK_SUM	Risk Per Million	INH_RISK	SOIL_RISK	DERMAL_RISK	MMILK_RISK
P1 Resident	R_895 (R)	9901	DieselExhPM	0.01719	0.003	1.20E-06	1.20	1.20E-06	0.00E+00	0.00E+00	0.00E+00
P2-3 Resident	R_2279 (R)	9901	DieselExhPM	0.16148	0.032	1.13E-05	11.27	1.13E-05	0.00E+00	0.00E+00	0.00E+00
P1 High School Student	CBHS_677 (HS)	9901	DieselExhPM	0.04956	0.010	6.54E-08	0.07	6.54E-08	0.00E+00	0.00E+00	0.00E+00
P2-3 High School Student	CBHS_225 (HS)	9901	DieselExhPM	0.25682	0.051	3.39E-07	0.34	3.39E-07	0.00E+00	0.00E+00	0.00E+00
Daycare	DC_001 (DC)	9901	DieselExhPM	0.02601	0.005	1.82E-06	1.82	1.82E-06	0.00E+00	0.00E+00	0.00E+00
On-Site Preschool Student	ORES_006 (PS)	9901	DieselExhPM	0.23015	0.046	2.40E-06	2.40	2.40E-06	0.00E+00	0.00E+00	0.00E+00
Off-Site Preschool Student	SHPS_001 (PS)	9901	DieselExhPM	0.00777	0.002	8.09E-08	0.08	8.09E-08	0.00E+00	0.00E+00	0.00E+00
P1 Worker	W_005 (W)	9901	DieselExhPM	0.02532	0.005	2.39E-08	0.02	2.39E-08	0.00E+00	0.00E+00	0.00E+00
P2-3 Worker	W_002 (W)	9901	DieselExhPM	0.22066	0.044	2.08E-07	0.21	2.08E-07	0.00E+00	0.00E+00	0.00E+00

Combined Construction Risk

GRP1	GRP2	POLID	POLABBREV	MAX CONC	Hazard Index	RISK_SUM	Risk Per Million	INH_RISK	SOIL_RISK	DERMAL_RISK	MMILK_RISK
P1 Resident	R_895 (R)	9901	DieselExhPM	0.23518	0.047	6.96E-05	69.58	6.96E-05	0.00E+00	0.00E+00	0.00E+00
P2-3 Resident	R_2279 (R)	9901	DieselExhPM	0.16148	0.032	1.66E-05	16.56	1.66E-05	0.00E+00	0.00E+00	0.00E+00
P1 High School Student	CBHS_677 (HS)	9901	DieselExhPM	0.30027	0.060	1.02E-05	10.23	1.02E-05	0.00E+00	0.00E+00	0.00E+00
P2-3 High School Student	CBHS_225 (HS)	9901	DieselExhPM	0.25682	0.051	7.10E-07	0.71	7.10E-07	0.00E+00	0.00E+00	0.00E+00
Daycare	DC_001 (DC)	9902	DieselExhPM	0.03238	0.006	1.12E-05	11.23	1.12E-05	0.00E+00	0.00E+00	0.00E+00
On-Site Preschool Student	-	9903	DieselExhPM	0.23015	0.046	6.66E-06	6.66	6.66E-06	0.00E+00	0.00E+00	0.00E+00
Off-Site Preschool Student	SHPS_001 (PS)	9904	DieselExhPM	0.00777	0.002	2.52E-07	0.25	2.52E-07	0.00E+00	0.00E+00	0.00E+00
P1 Worker	W_005 (W)	9905	DieselExhPM	0.03584	0.007	1.59E-07	0.16	1.59E-07	0.00E+00	0.00E+00	0.00E+00
P2-3 Worker	W_002 (W)	9901	DieselExhPM	0.22066	0.044	2.36E-07	0.24	2.36E-07	0.00E+00	0.00E+00	0.00E+00

Notes:

1. HARP2 Risk Assessment Standalone Tool v22118 was used for all cancer risk calculations.
2. Project emissions were modeled with AERMOD v21112 to identify annual average DPM concentrations at the receptor MER locations noted above.
3. Because on-site preschool students consist of the same pool of students at the Oak Ridge Elementary School campus, the maximum DPM concentration for all project phases is used for that receptor risk assessment.
4. The Daycare and On-site Preschool Student MERs represent the same location among all project phases.
5. HARP2 exposure durations provide limited selections. For Phase 1, construction would occur over 1.82 years; therefore, 2 years were selected in HARP. For Phases 2 and 3, construction would occur over 0.35 year; therefore, 0.5 year was selected in HARP.
7. These HARP2 risk calculations assume students are present on campus year round consistent with residential receptors to account for after school and summer programs.
8. At school and daycare receptor locations, student receptors represent maximum risk between student and worker receptors. Therefore, worker receptors are not shown at school or daycare locations.

Mitigated Construction DPM Health Risk

Phase 1 Construction												
GRP1	GRP2	POLID	POLABBREV	CONC	Hazard Index	RISK_SUM	Risk Per Million	INH_RISK	SOIL_RISK	DERMAL_RISK	MMILK_RISK
P1 Resident	R_895 (R)	9901	DieselExhPM	0.03241	0.006	6.73E-06	6.73	6.73E-06	0.00E+00	0.00E+00	0.00E+00
P2-3 Resident	R_2279 (R)	9901	DieselExhPM	0.00251	0.001	5.21E-07	0.52	5.21E-07	0.00E+00	0.00E+00	0.00E+00
P1 High School Student	CBHS_677 (HS)	9901	DieselExhPM	0.04139	0.008	1.00E-06	1.00	1.00E-06	0.00E+00	0.00E+00	0.00E+00
P2-3 High School Student	CBHS_225 (HS)	9901	DieselExhPM	0.00152	0.000	3.68E-08	0.04	3.68E-08	0.00E+00	0.00E+00	0.00E+00
Daycare	DC_001 (DC)	9901	DieselExhPM	0.00447	0.001	9.28E-07	0.93	9.28E-07	0.00E+00	0.00E+00	0.00E+00
On-Site Preschool Student	ORES_157 (PS)	9901	DieselExhPM	0.0141	0.003	4.20E-07	0.42	4.20E-07	0.00E+00	0.00E+00	0.00E+00
Off-Site Preschool Student	SHPS_001 (PS)	9901	DieselExhPM	0.00059	0.000	1.76E-08	0.02	1.76E-08	0.00E+00	0.00E+00	0.00E+00
P1 Worker	W_005 (W)	9901	DieselExhPM	0.00494	0.001	1.86E-08	0.02	1.86E-08	0.00E+00	0.00E+00	0.00E+00
P2-3 Worker	W_002 (W)	9901	DieselExhPM	0.00104	0.000	3.92E-09	0.00	3.92E-09	0.00E+00	0.00E+00	0.00E+00

Phases 2-3 Construction											
GRP1	GRP2	POLID	POLABBREV	CONC	Hazard Index	RISK_SUM	Risk Per Million	INH_RISK	SOIL_RISK	DERMAL_RISK	MMILK_RISK
P1 Resident	R_895 (R)	9901	DieselExhPM	0.00195	0.000	9.72E-08	0.10	9.72E-08	0.00E+00	0.00E+00	0.00E+00
P2-3 Resident	R_2279 (R)	9901	DieselExhPM	0.0182	0.004	9.07E-07	0.91	9.07E-07	0.00E+00	0.00E+00	0.00E+00
P1 High School Student	CBHS_677 (HS)	9901	DieselExhPM	0.0054	0.001	5.09E-09	0.01	5.09E-09	0.00E+00	0.00E+00	0.00E+00
P2-3 High School Student	CBHS_225 (HS)	9901	DieselExhPM	0.03773	0.008	3.56E-08	0.04	3.56E-08	0.00E+00	0.00E+00	0.00E+00
Daycare	DC_001 (DC)	9901	DieselExhPM	0.00296	0.001	1.48E-07	0.15	1.48E-07	0.00E+00	0.00E+00	0.00E+00
On-Site Preschool Student	ORES_006 (PS)	9901	DieselExhPM	0.02405	0.005	1.79E-07	0.18	1.79E-07	0.00E+00	0.00E+00	0.00E+00
Off-Site Preschool Student	SHPS_001 (PS)	9901	DieselExhPM	0.00102	0.000	7.59E-09	0.01	7.59E-09	0.00E+00	0.00E+00	0.00E+00
P1 Worker	W_005 (W)	9901	DieselExhPM	0.00288	0.001	2.72E-09	0.00	2.72E-09	0.00E+00	0.00E+00	0.00E+00
P2-3 Worker	W_002 (W)	9901	DieselExhPM	0.03344	0.007	3.15E-08	0.03	3.15E-08	0.00E+00	0.00E+00	0.00E+00

Combined Construction Risk											
GRP1	GRP2	POLID	POLABBREV	MAX CONC	Hazard Index	RISK_SUM	Risk Per Million	INH_RISK	SOIL_RISK	DERMAL_RISK	MMILK_RISK
P1 Resident	R_895 (R)	9901	DieselExhPM	0.03241	0.006	6.83E-06	6.83	6.83E-06	0.00E+00	0.00E+00	0.00E+00
P2-3 Resident	R_2279 (R)	9901	DieselExhPM	0.0182	0.004	1.43E-06	1.43	1.43E-06	0.00E+00	0.00E+00	0.00E+00
P1 High School Student	CBHS_677 (HS)	9901	DieselExhPM	0.04139	0.008	1.01E-06	1.01	1.01E-06	0.00E+00	0.00E+00	0.00E+00
P2-3 High School Student	CBHS_225 (HS)	9901	DieselExhPM	0.03773	0.008	7.23E-08	0.07	7.23E-08	0.00E+00	0.00E+00	0.00E+00
Daycare	DC_001 (DC)	9902	DieselExhPM	0.00447	0.001	1.08E-06	1.08	1.08E-06	0.00E+00	0.00E+00	0.00E+00
On-Site Preschool Student	-	9903	DieselExhPM	0.02405	0.005	5.99E-07	0.60	5.99E-07	0.00E+00	0.00E+00	0.00E+00
Off-Site Preschool Student	SHPS_001 (PS)	9904	DieselExhPM	0.00102	0.000	2.51E-08	0.03	2.51E-08	0.00E+00	0.00E+00	0.00E+00
P1 Worker	W_005 (W)	9905	DieselExhPM	0.00494	0.001	2.13E-08	0.02	2.13E-08	0.00E+00	0.00E+00	0.00E+00
P2-3 Worker	W_002 (W)	9901	DieselExhPM	0.03344	0.007	3.55E-08	0.04	3.55E-08	0.00E+00	0.00E+00	0.00E+00

Notes:

1. HARP2 Risk Assessment Standalone Tool v22118 was used for all cancer risk calculations.

2. Project emissions were modeled with AERMOD v21112 to identify annual average DPM concentrations at the receptor MER locations noted above.

3. Because on-site preschool students consist of the same pool of students at the Oak Ridge Elementary School campus, the maximum DPM concentration for all project phases is used for that receptor risk assessment.

4. The Daycare and On-site Preschool Student MERs represent the same location among all project phases.

5. HARP2 exposure durations provide limited selections. For Phase 1, construction would occur over 1.82 years; therefore, 2 years were selected in HARP. For Phases 2 and 3, construction would occur over 0.35 year; therefore, 0.5 year was selected in HARP.

7. These HARP2 risk calculations assume students are present on campus year round consistent with residential receptors to account for after school and summer programs.

8. At school and daycare receptor locations, student receptors represent maximum risk between student and worker receptors. Therefore, worker receptors are not shown at school or daycare locations.

9. Annual average concentrations are expressed in $\mu g/m^3$.

P1 High School Student MER HARP Inputs

```
HARP2 - HRACalc (dated 22118) 5/12/2023 10:32:14 AM - Output Log

GLCs loaded successfully
Pollutants loaded successfully
**********************************
RISK SCENARIO SETTINGS

Receptor Type: Resident
Scenario: Cancer
Calculation Method: HighEnd

**********************************
EXPOSURE DURATION PARAMETERS FOR CANCER

Start Age: 14
Total Exposure Duration: 2

Exposure Duration Bin Distribution
3rd Trimester Bin: 0
0<2 Years Bin: 0
2<9 Years Bin: 0
2<16 Years Bin: 2
16<30 Years Bin: 0
16 to 70 Years Bin: 0

**********************************
PATHWAYS ENABLED

NOTE: Inhalation is always enabled and used for all assessments.  The remaining
pathways are only used for cancer and noncancer chronic assessments.

Inhalation: True
Soil: True
Dermal: True
Mother's milk: True
Water: False
Fish: False
Homegrown crops: False
Beef: False
Dairy: False
Pig: False
Chicken: False
Egg: False

**********************************
INHALATION

Daily breathing rate: Moderate8HR

**Worker Adjustment Factors**
```

```
Worker adjustment factors enabled: NO

**Fraction at time at home**
3rd Trimester to 16 years: OFF
16 years to 70 years: OFF

**********************************
SOIL & DERMAL PATHWAY SETTINGS

Deposition rate (m/s): 0.05
Soil mixing depth (m): 0.01
Dermal climate: Mixed

**********************************
TIER 2 SETTINGS

Tier2 adjustments were used in this assessment.  Please see the input file for
details.
Tier2 - What was changed: ED or start age changed|DBRs changed|FAH changed|Soil
intake rates changed|Dermal intake rates changed|MMilk intake rates changed|
Calculating cancer risk
Cancer risk saved to: C:\Users\LPark\Documents\HARP - RAST\SCUS-05_P1
Emissions\P1_High School Student MER_CancerRisk.csv
HRA ran successfully
```

P1 Preschool Student MER HARP Inputs

```
HARP2 - HRACalc (dated 22118) 5/12/2023 10:38:27 AM - Output Log

GLCs loaded successfully
Pollutants loaded successfully
**********************************
RISK SCENARIO SETTINGS

Receptor Type: Resident
Scenario: Cancer
Calculation Method: HighEnd

**********************************
EXPOSURE DURATION PARAMETERS FOR CANCER

Start Age: 3
Total Exposure Duration: 2

Exposure Duration Bin Distribution
3rd Trimester Bin: 0
0<2 Years Bin: 0
2<9 Years Bin: 2
2<16 Years Bin: 0
16<30 Years Bin: 0
16 to 70 Years Bin: 0

**********************************
PATHWAYS ENABLED

NOTE: Inhalation is always enabled and used for all assessments.  The remaining
pathways are only used for cancer and noncancer chronic assessments.

Inhalation: True
Soil: True
Dermal: True
Mother's milk: True
Water: False
Fish: False
Homegrown crops: False
Beef: False
Dairy: False
Pig: False
Chicken: False
Egg: False

**********************************
INHALATION

Daily breathing rate: Moderate8HR

**Worker Adjustment Factors**
```

```
Worker adjustment factors enabled: NO

**Fraction at time at home**
3rd Trimester to 16 years: OFF
16 years to 70 years: OFF

**********************************
SOIL & DERMAL PATHWAY SETTINGS

Deposition rate (m/s): 0.05
Soil mixing depth (m): 0.01
Dermal climate: Mixed

**********************************
TIER 2 SETTINGS

Tier2 adjustments were used in this assessment.  Please see the input file for
details.
Tier2 - What was changed: ED or start age changed|DBRs changed|FAH changed|Soil
intake rates changed|Dermal intake rates changed|MMilk intake rates changed|
Calculating cancer risk
Cancer risk saved to: C:\Users\LPark\Documents\HARP - RAST\SCUS-05_P1
Emissions\P1_Preschool Student MER_CancerRisk.csv
HRA ran successfully
```

P1 Residential and Daycare MER HARP Inputs

```
HARP2 - HRACalc (dated 22118) 5/12/2023 10:34:29 AM - Output Log

GLCs loaded successfully
Pollutants loaded successfully
**********************************
RISK SCENARIO SETTINGS

Receptor Type: Resident
Scenario: Cancer
Calculation Method: HighEnd

**********************************
EXPOSURE DURATION PARAMETERS FOR CANCER

Start Age: -0.25
Total Exposure Duration: 2

Exposure Duration Bin Distribution
3rd Trimester Bin: 0.25
0<2 Years Bin: 2
2<9 Years Bin: 0
2<16 Years Bin: 0
16<30 Years Bin: 0
16 to 70 Years Bin: 0

**********************************
PATHWAYS ENABLED

NOTE: Inhalation is always enabled and used for all assessments.  The remaining
pathways are only used for cancer and noncancer chronic assessments.

Inhalation: True
Soil: True
Dermal: True
Mother's milk: True
Water: False
Fish: False
Homegrown crops: False
Beef: False
Dairy: False
Pig: False
Chicken: False
Egg: False

**********************************
INHALATION

Daily breathing rate: LongTerm24HR

**Worker Adjustment Factors**
```

```
Worker adjustment factors enabled: NO

**Fraction at time at home**
3rd Trimester to 16 years: ON
16 years to 70 years: ON

**********************************
SOIL & DERMAL PATHWAY SETTINGS

Deposition rate (m/s): 0.05
Soil mixing depth (m): 0.01
Dermal climate: Mixed

**********************************
TIER 2 SETTINGS

Tier2 adjustments were used in this assessment.  Please see the input file for
details.
Tier2 - What was changed: ED or start age changed|DBRs changed|FAH changed|Soil
intake rates changed|Dermal intake rates changed|MMilk intake rates changed|
Calculating cancer risk
Cancer risk saved to: C:\Users\LPark\Documents\HARP - RAST\SCUS-05_P1
Emissions\P1_Residential and Daycare MER_CancerRisk.csv
HRA ran successfully
```

P1 Worker MER HARP Inputs

```
HARP2 - HRACalc (dated 22118) 5/12/2023 10:15:24 AM - Output Log

GLCs loaded successfully
Pollutants loaded successfully
**********************************
RISK SCENARIO SETTINGS

Receptor Type: Worker
Scenario: Cancer
Calculation Method: HighEnd

**********************************
EXPOSURE DURATION PARAMETERS FOR CANCER

Start Age: 16
Total Exposure Duration: 2

Exposure Duration Bin Distribution
3rd Trimester Bin: 0
0<2 Years Bin: 0
2<9 Years Bin: 0
2<16 Years Bin: 0
16<30 Years Bin: 2
16 to 70 Years Bin: 0

**********************************
PATHWAYS ENABLED

NOTE: Inhalation is always enabled and used for all assessments.  The remaining
pathways are only used for cancer and noncancer chronic assessments.

Inhalation: True
Soil: True
Dermal: True
Mother's milk: False
Water: False
Fish: False
Homegrown crops: False
Beef: False
Dairy: False
Pig: False
Chicken: False
Egg: False

**********************************
INHALATION

Daily breathing rate: Moderate8HR

**Worker Adjustment Factors**
```

```
Worker adjustment factors enabled: NO

**Fraction at time at home**
3rd Trimester to 16 years: OFF
16 years to 70 years: OFF

**********************************
SOIL & DERMAL PATHWAY SETTINGS

Deposition rate (m/s): 0.05
Soil mixing depth (m): 0.01
Dermal climate: Mixed

**********************************
TIER 2 SETTINGS

Tier2 adjustments were used in this assessment.  Please see the input file for
details.
Tier2 - What was changed: ED or start age changed|DBRs changed|FAH changed|Soil
intake rates changed|Dermal intake rates changed|MMilk intake rates changed|
Calculating cancer risk
Cancer risk saved to: C:\Users\LPark\Documents\HARP - RAST\SCUS-05\P1_Worker
MER_CancerRisk.csv
HRA ran successfully
```

P2-3 High School Student MER HARP Inputs

```
HARP2 - HRACalc (dated 22118) 5/12/2023 10:42:01 AM - Output Log

GLCs loaded successfully
Pollutants loaded successfully
**********************************
RISK SCENARIO SETTINGS

Receptor Type: Resident
Scenario: Cancer
Calculation Method: HighEnd

**********************************
EXPOSURE DURATION PARAMETERS FOR CANCER

Start Age: 16
Total Exposure Duration: 0.5

Exposure Duration Bin Distribution
3rd Trimester Bin: 0
0<2 Years Bin: 0
2<9 Years Bin: 0
2<16 Years Bin: 0
16<30 Years Bin: 0.5
16 to 70 Years Bin: 0

**********************************
PATHWAYS ENABLED

NOTE: Inhalation is always enabled and used for all assessments.  The remaining
pathways are only used for cancer and noncancer chronic assessments.

Inhalation: True
Soil: True
Dermal: True
Mother's milk: True
Water: False
Fish: False
Homegrown crops: False
Beef: False
Dairy: False
Pig: False
Chicken: False
Egg: False

**********************************
INHALATION

Daily breathing rate: Moderate8HR

**Worker Adjustment Factors**
```

```
Worker adjustment factors enabled: NO

**Fraction at time at home**
3rd Trimester to 16 years: OFF
16 years to 70 years: OFF

**********************************
SOIL & DERMAL PATHWAY SETTINGS

Deposition rate (m/s): 0.05
Soil mixing depth (m): 0.01
Dermal climate: Mixed

**********************************
TIER 2 SETTINGS

Tier2 adjustments were used in this assessment.  Please see the input file for
details.
Tier2 - What was changed: ED or start age changed|DBRs changed|FAH changed|Soil
intake rates changed|Dermal intake rates changed|MMilk intake rates changed|
Calculating cancer risk
Cancer risk saved to: C:\Users\LPark\Documents\HARP - RAST\SCUS-05_P2-3
Emissions\P2_High School Student MER_CancerRisk.csv
HRA ran successfully
```

P2-3 Preschool Student MER HARP Inputs

```
HARP2 - HRACalc (dated 22118) 5/12/2023 10:40:46 AM - Output Log

GLCs loaded successfully
Pollutants loaded successfully
**********************************
RISK SCENARIO SETTINGS

Receptor Type: Resident
Scenario: Cancer
Calculation Method: HighEnd

**********************************
EXPOSURE DURATION PARAMETERS FOR CANCER

Start Age: 5
Total Exposure Duration: 0.5

Exposure Duration Bin Distribution
3rd Trimester Bin: 0
0<2 Years Bin: 0
2<9 Years Bin: 0.5
2<16 Years Bin: 0
16<30 Years Bin: 0
16 to 70 Years Bin: 0

**********************************
PATHWAYS ENABLED

NOTE: Inhalation is always enabled and used for all assessments.  The remaining
pathways are only used for cancer and noncancer chronic assessments.

Inhalation: True
Soil: True
Dermal: True
Mother's milk: True
Water: False
Fish: False
Homegrown crops: False
Beef: False
Dairy: False
Pig: False
Chicken: False
Egg: False

**********************************
INHALATION

Daily breathing rate: Moderate8HR

**Worker Adjustment Factors**
```

```
Worker adjustment factors enabled: NO

**Fraction at time at home**
3rd Trimester to 16 years: OFF
16 years to 70 years: OFF

**********************************
SOIL & DERMAL PATHWAY SETTINGS

Deposition rate (m/s): 0.05
Soil mixing depth (m): 0.01
Dermal climate: Mixed

**********************************
TIER 2 SETTINGS

Tier2 adjustments were used in this assessment.  Please see the input file for
details.
Tier2 - What was changed: ED or start age changed|DBRs changed|FAH changed|Soil
intake rates changed|Dermal intake rates changed|MMilk intake rates changed|
Calculating cancer risk
Cancer risk saved to: C:\Users\LPark\Documents\HARP - RAST\SCUS-05_P2-3
Emissions\P2_Preschool Student MER_CancerRisk.csv
HRA ran successfully
```

P2-3 Residential and Daycare MER HARP Inputs

```
HARP2 - HRACalc (dated 22118) 5/12/2023 10:43:40 AM - Output Log

GLCs loaded successfully
Pollutants loaded successfully
**********************************
RISK SCENARIO SETTINGS

Receptor Type: Resident
Scenario: Cancer
Calculation Method: HighEnd

**********************************
EXPOSURE DURATION PARAMETERS FOR CANCER

Start Age: 1
Total Exposure Duration: 0.5

Exposure Duration Bin Distribution
3rd Trimester Bin: 0
0<2 Years Bin: 0.5
2<9 Years Bin: 0
2<16 Years Bin: 0
16<30 Years Bin: 0
16 to 70 Years Bin: 0

**********************************
PATHWAYS ENABLED

NOTE: Inhalation is always enabled and used for all assessments.  The remaining
pathways are only used for cancer and noncancer chronic assessments.

Inhalation: True
Soil: True
Dermal: True
Mother's milk: True
Water: False
Fish: False
Homegrown crops: False
Beef: False
Dairy: False
Pig: False
Chicken: False
Egg: False

**********************************
INHALATION

Daily breathing rate: Moderate8HR

**Worker Adjustment Factors**
```

```
Worker adjustment factors enabled: NO

**Fraction at time at home**
3rd Trimester to 16 years: ON
16 years to 70 years: ON

**********************************
SOIL & DERMAL PATHWAY SETTINGS

Deposition rate (m/s): 0.05
Soil mixing depth (m): 0.01
Dermal climate: Mixed

**********************************
TIER 2 SETTINGS

Tier2 adjustments were used in this assessment.  Please see the input file for
details.
Tier2 - What was changed: ED or start age changed|DBRs changed|FAH changed|Soil
intake rates changed|Dermal intake rates changed|MMilk intake rates changed|
Calculating cancer risk
Cancer risk saved to: C:\Users\LPark\Documents\HARP - RAST\SCUS-05_P2-3
Emissions\P2_Residential and Daycare MER_CancerRisk.csv
HRA ran successfully
```

P2-3 Worker MER HARP Inputs

```
HARP2 - HRACalc (dated 22118) 5/12/2023 10:45:03 AM - Output Log

GLCs loaded successfully
Pollutants loaded successfully
**********************************
RISK SCENARIO SETTINGS

Receptor Type: Worker
Scenario: Cancer
Calculation Method: HighEnd

**********************************
EXPOSURE DURATION PARAMETERS FOR CANCER

Start Age: 18
Total Exposure Duration: 0.5

Exposure Duration Bin Distribution
3rd Trimester Bin: 0
0<2 Years Bin: 0
2<9 Years Bin: 0
2<16 Years Bin: 0
16<30 Years Bin: 0.5
16 to 70 Years Bin: 0

**********************************
PATHWAYS ENABLED

NOTE: Inhalation is always enabled and used for all assessments.  The remaining
pathways are only used for cancer and noncancer chronic assessments.

Inhalation: True
Soil: True
Dermal: True
Mother's milk: False
Water: False
Fish: False
Homegrown crops: False
Beef: False
Dairy: False
Pig: False
Chicken: False
Egg: False

**********************************
INHALATION

Daily breathing rate: Moderate8HR

**Worker Adjustment Factors**
```

```
Worker adjustment factors enabled: NO

**Fraction at time at home**
3rd Trimester to 16 years: OFF
16 years to 70 years: OFF

**********************************
SOIL & DERMAL PATHWAY SETTINGS

Deposition rate (m/s): 0.05
Soil mixing depth (m): 0.01
Dermal climate: Mixed

**********************************
TIER 2 SETTINGS

Tier2 adjustments were used in this assessment.  Please see the input file for
details.
Tier2 - What was changed: ED or start age changed|DBRs changed|FAH changed|Soil
intake rates changed|Dermal intake rates changed|MMilk intake rates changed|
Calculating cancer risk
Cancer risk saved to: C:\Users\LPark\Documents\HARP - RAST\SCUS-05_P2-3
Emissions\P2_Worker MER_CancerRisk.csv
HRA ran successfully
```

Control Pathway

AERMOD

Dispersion Options

Titles

Oak Ridge Elementary Construction HRA
Phase 1 Construction

Dispersion Options

☐ Regulatory Default ☒ Non-Default Options

☒ Flat & Elevated Terrain
☐ No Stack-Tip Downwash (NOSTD)
☐ Run in Screening Mode
☐ Conversion of NOx to NO2 (OLM or PVMRM)
☐ No Checks for Non-Sequential Met Data
☒ Fast All Sources (FASTALL)
☐ Fast Area Sources (FASTAREA)
☐ Optimized Area Source Plume Depletion
☐ Gas Deposition

BETA Options:

☐ Capped and Horizontal Stack Releases
☐ Adjusted Friction Velocity (u*) in AERMET (ADJ_U*)
☐ Low Wind Options

☐ SCIM (Sampled Chronological Input Model)
☐ Ignore Urban Night / Daytime Transition (NOURBTRAN)

Dispersion Coefficient

Urban
Population:
Name (Optional):
Roughness Length:

Output Type

☒ 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

PM2.5

Averaging Time Options

Hours	☒	☐	☐	☐	☐	☐	☐	☐
	1	2	3	4	6	8	12	24

☐ Month ☒ Period ☐ Annual

Exponential Decay

☐ Yes ☒ No

Terrain Height Options

☐ Flat ☒ Elevated

SO: Meters
RE: Meters
TG: Meters

Flagpole Receptors

☒ Yes ☐ No

Default Height = 1.80 m

Optional Files

☐ Re-Start File ☐ Init File ☐ Multi-Year Analyses ☐ Event Input File ☒ Error Listing File

Detailed Error Listing File

Filename: SCUS-05_P1_Project Emissions.err

Control Pathway

Dispersion Options

Titles

Oak Ridge Elementary Construction HRA
Phases 2 and 3 Construction

Dispersion Options

☐ Regulatory Default ☒ Non-Default Options

- ☒ Flat & Elevated Terrain
- ☐ No Stack-Tip Downwash (NOSTD)
- ☐ Run in Screening Mode
- ☐ Conversion of NOx to NO2 (OLM or PVMRM)
- ☐ No Checks for Non-Sequential Met Data
- ☒ Fast All Sources (FASTALL)
- ☐ Fast Area Sources (FASTAREA)
- ☐ Optimized Area Source Plume Depletion
- ☐ Gas Deposition

BETA Options:

- ☐ Capped and Horizontal Stack Releases
- ☐ Adjusted Friction Velocity (u*) in AERMET (ADJ_U*)
- ☐ Low Wind Options

- ☐ SCIM (Sampled Chronological Input Model)
- ☐ Ignore Urban Night / Daytime Transition (NOURBTRAN)

Dispersion Coefficient

Urban

Population:
Name (Optional):
Roughness Length:

Output Type

- ☒ 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

PM2.5

Averaging Time Options

Hours	☒	☐	☐	☐	☐	☐	☐	☐
	1	2	3	4	6	8	12	24

☐ Month ☒ Period ☐ Annual

Exponential Decay

☐ Yes ☒ No

Terrain Height Options

☐ Flat ☒ Elevated

SO: Meters
RE: Meters
TG: Meters

Flagpole Receptors

☒ Yes ☐ No

Default Height = 1.80 m

Control Pathway

Optional Files

☐ Re-Start File ☐ Init File ☐ Multi-Year Analyses ☐ Event Input File ☑ Error Listing File

Detailed Error Listing File

Filename: SCUS-05_P2_P3_Project Emissions.err

Meteorology Pathway

AERMOD

Met Input Data

Surface Met Data

Filename: Sac Executive Airport\14-18.SFC

Format Type: Default AERMET format

Profile Met Data

Filename: Sac Executive Airport\14-18.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): 7.00 [m]

Meteorological Station Data

Stations	Station No.	Year	X Coordinate [m]	Y Coordinate [m]	Station Name
Surface		2014			SACRAMENTO/EXECUTIVE ARPT
Upper Air		2014			OAKLAND/WSO AP

Data Period

Data Period to Process

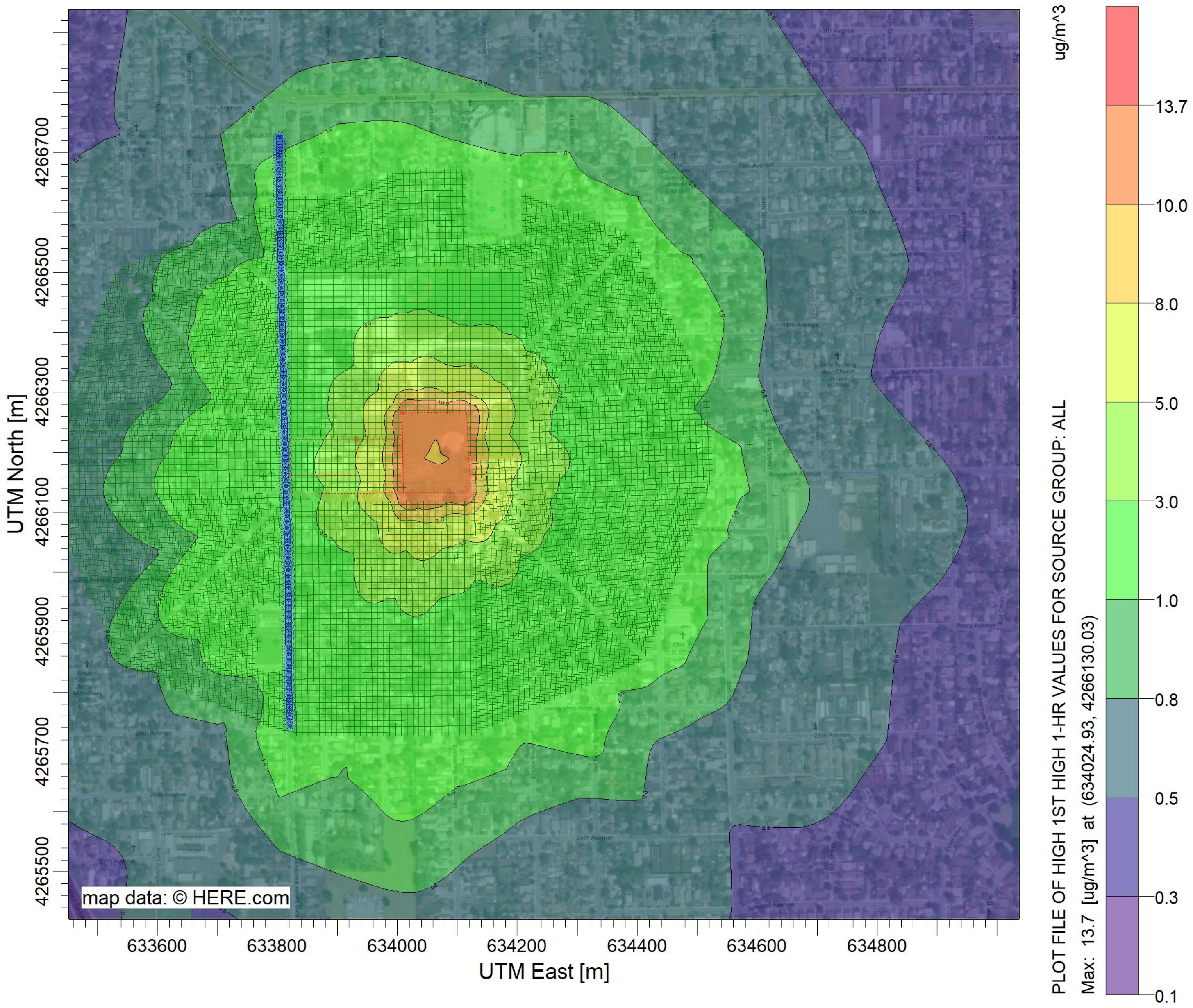
Start Date: 1/1/2014 Start Hour: 1 End Date: 12/25/2018 End Hour: 24

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

PROJECT TITLE:

Oak Ridge Elementary Construction HRA
Phase 1 Construction



PLOT FILE OF HIGH 1ST HIGH 1-HR VALUES FOR SOURCE GROUP: ALL

Max: 13.7 [ug/m^3] at (634024.93, 4266130.03)

COMMENTS:

SOURCES:
4

RECEPTORS:
8605

OUTPUT TYPE:
Concentration

MAX:
13.7 ug/m^3

COMPANY NAME:

MODELER:

DATE:
5/17/2023

SCALE: 1:10,333
0 0.3 km

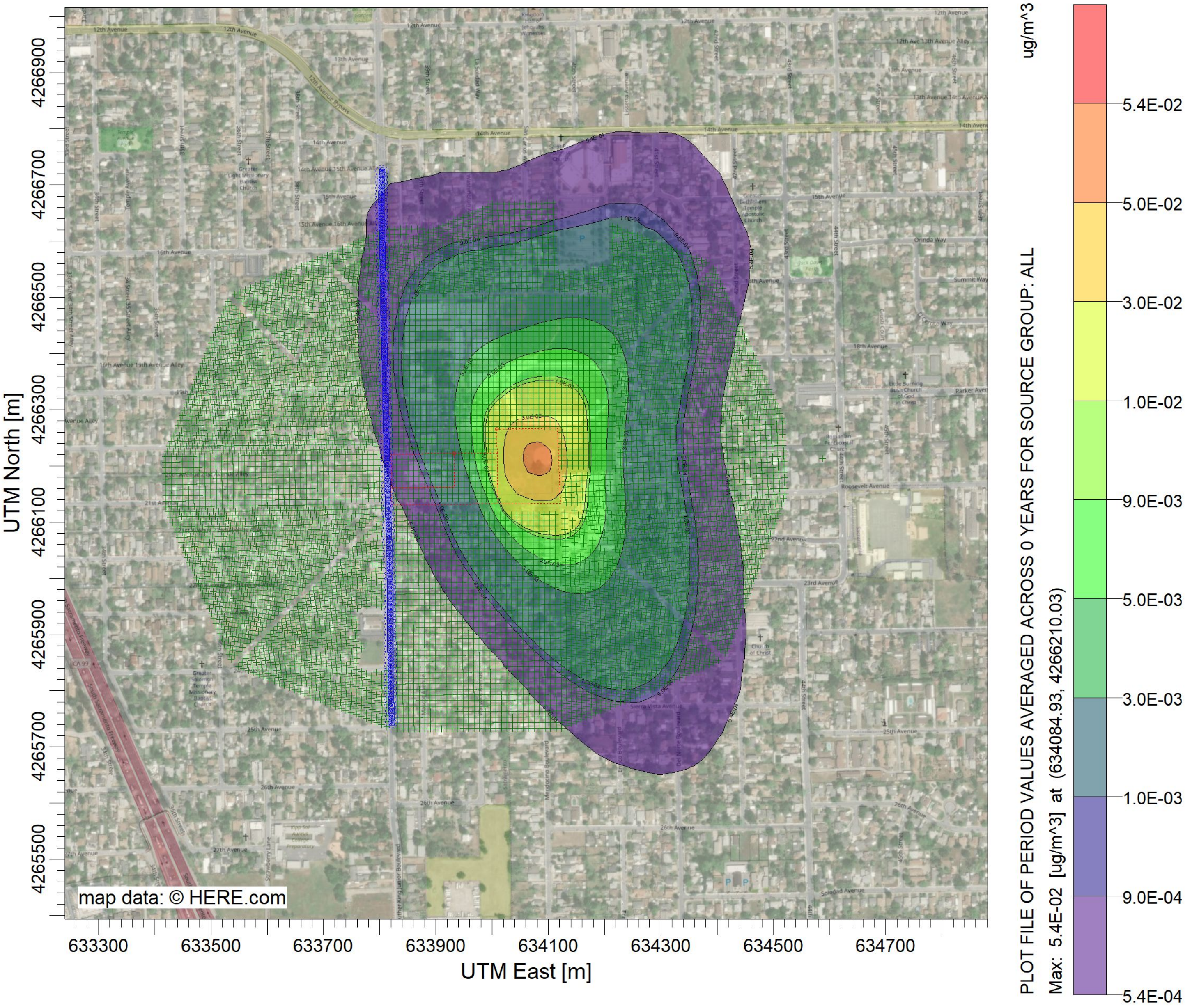
PROJECT NO.:

AERMOD View - Lakes Environmental Software

C:\Users\LPark\Documents\SCUS-05_P1_Project Emissions\SCUS-05_P1_Project Emissions.isc

PROJECT TITLE:

Oak Ridge Elementary Construction HRA
Phase 1 Construction



PLOT FILE OF PERIOD VALUES AVERAGED ACROSS 0 YEARS FOR SOURCE GROUP: ALL

Max: 5.4E-02 [ug/m^3] at (634084.93, 4266210.03)

COMMENTS:

SOURCES:
4

RECEPTORS:
8605

OUTPUT TYPE:
Concentration

MAX:
5.4E-02 ug/m^3

COMPANY NAME:

MODELER:

DATE:
5/17/2023

SCALE: 1:11,044

0 ▬▬ 0.3 km

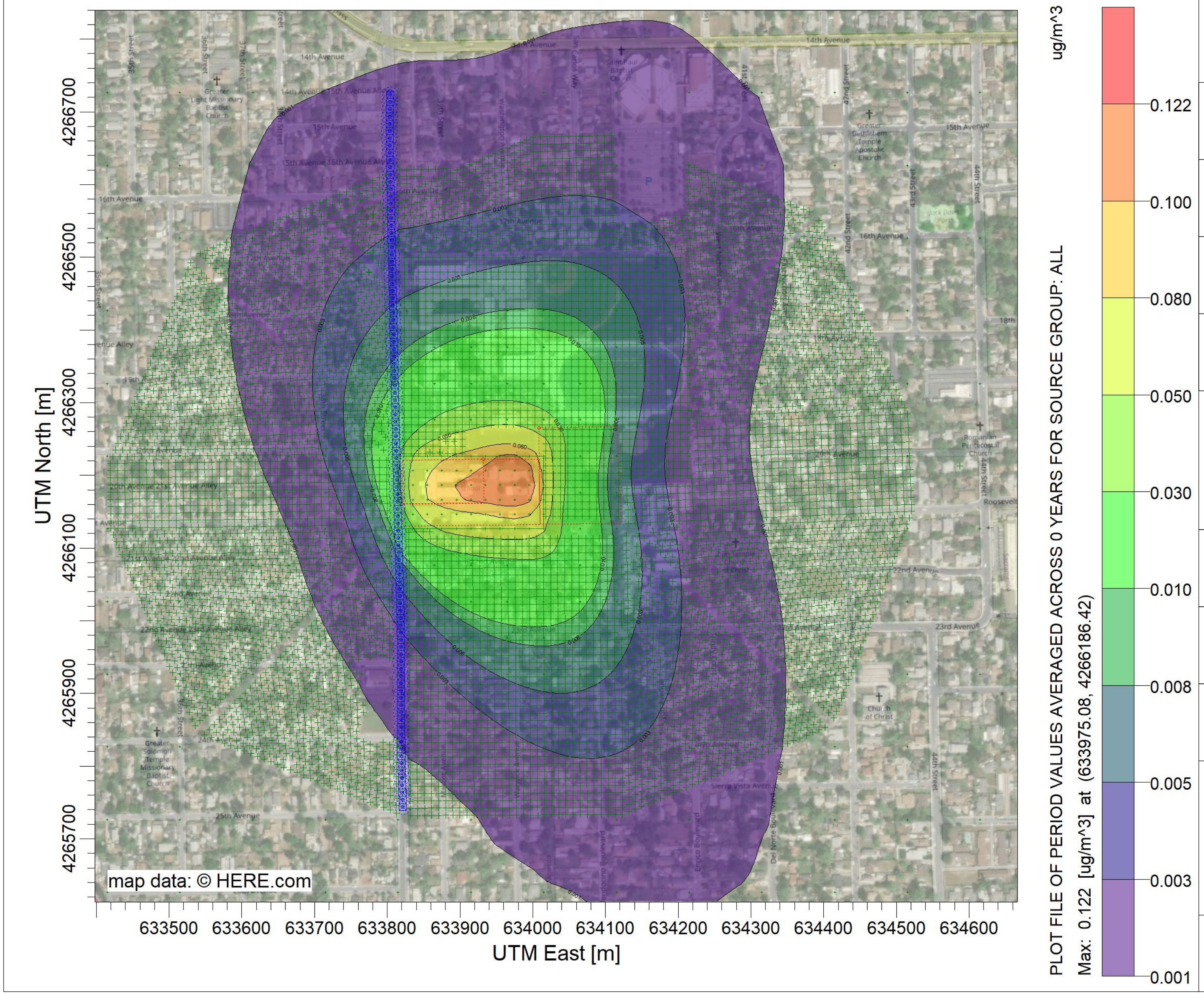
PROJECT NO.:

AERMOD View - Lakes Environmental Software

C:\Users\LPark\Documents\SCUS-05_P1_Mit\SCUS-05_P1_Mit.isc

PROJECT TITLE:

Oak Ridge Elementary Construction HRA
Phases 2 and 3 Construction



PLOT FILE OF PERIOD VALUES AVERAGED ACROSS 0 YEARS FOR SOURCE GROUP: ALL

Max: 0.122 [ug/m^3] at (633975.08, 4266186.42)

COMMENTS:

SOURCES:

4

RECEPTORS:

16194

OUTPUT TYPE:

Concentration

MAX:

0.122 ug/m^3

COMPANY NAME:

MODELER:

DATE:

5/17/2023

SCALE: 1:8,352

0 0.2 km

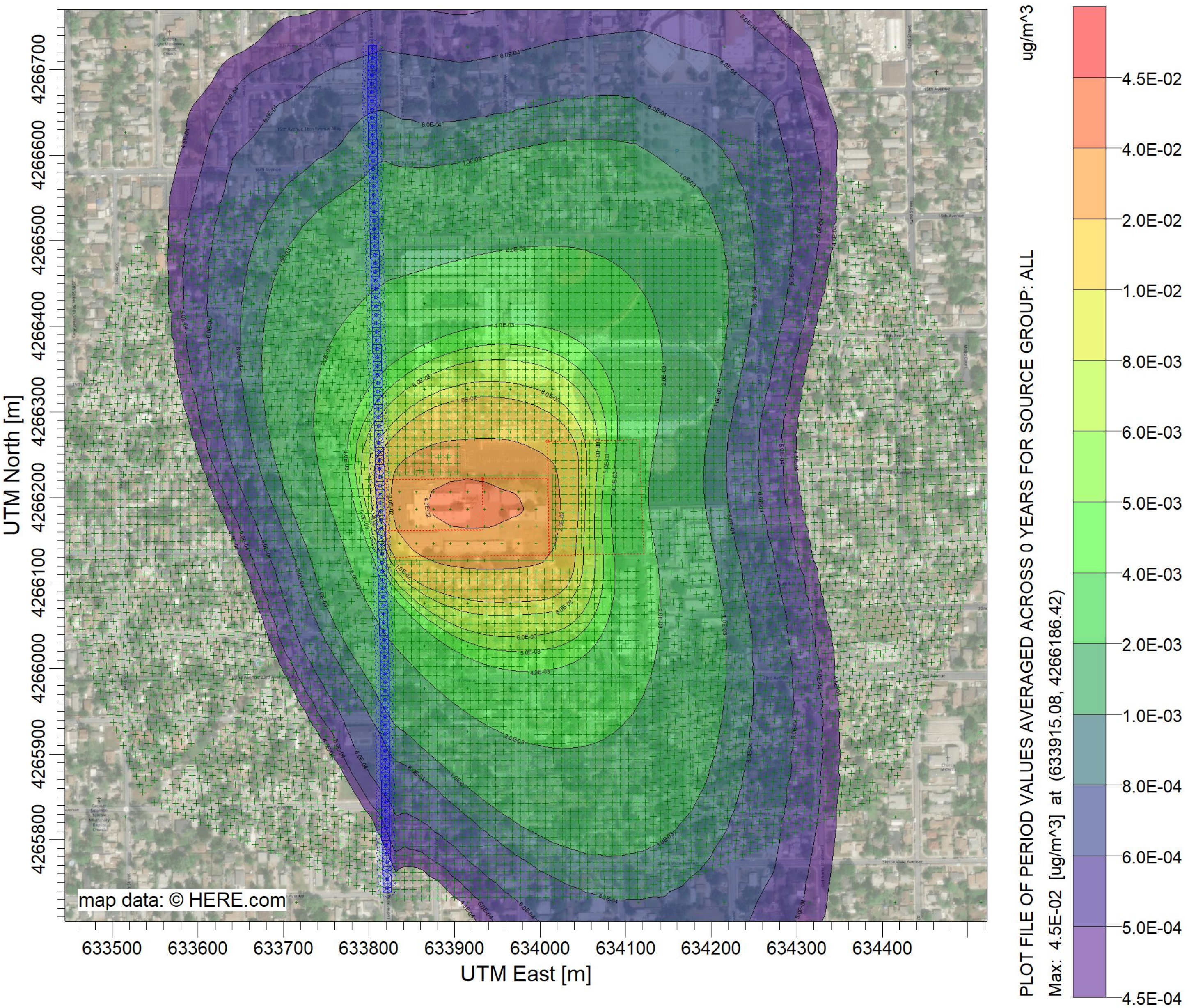
PROJECT NO.:

AERMOD View - Lakes Environmental Software

C:\Users\LPark\Documents\SCUS-05_P2_P3_Project Emissions\SCUS-05_P2_P3_Project Emissions.isc

PROJECT TITLE:

Oak Ridge Elementary Construction HRA
Phases 2 and 3 Construction



COMMENTS:

SOURCES:

4

RECEPTORS:

16194

OUTPUT TYPE:

Concentration

MAX:

4.5E-02 ug/m^3

COMPANY NAME:

MODELER:

DATE:

5/17/2023

SCALE: 1:7,256

0 0.2 km

PROJECT NO.:

AERMOD View - Lakes Environmental Software

C:\Users\LPark\Documents\SCUS-05_P2_P3_Mit\SCUS-05_P2_P3_Mit.isc

Appendix B Arborist Survey Report

Arborist Survey Report
for the
Oak Ridge Elementary School Rebuild Project

City of Sacramento, California

Prepared For:

Sacramento City Unified School District

Prepared By:

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS
2525 Warren Drive
Rocklin, California 95677

February 10, 2023

CONTENTS

LIST OF FIGURES

LIST OF APPENDICES

LIST OF ACRONYMS AND ABBREVIATIONS

Term	Description
City Ordinance	Article 12.56.050 of the City of Sacramento Tree Ordinance
DSH	Diameter at standard height
Project	Oak Ridge Elementary School Rebuild Project

1.0 INTRODUCTION

ECORP Consulting, Inc. conducted an arborist survey for the Oak Ridge Elementary School Rebuild Project (Project) located in the City of Sacramento, California. The purpose of this survey was to identify, map, and assess the general condition of all trees within the Study Area according to Article 12.56.050 of the City of Sacramento Tree Ordinance (City Ordinance). However, the City Ordinance does not apply to schools so they were only used to guide the survey. It is anticipated that all trees within the Study Area will either be removed, pruned, or have some ground-disturbing activity within their dripline radius.

2.0 SITE DESCRIPTION

The Study Area is located north of 22nd Avenue, east of Martin Luther King Jr. Boulevard, south of 17th Avenue, and west of West Nichols Avenue, in the City of Sacramento, California. The approximately 7.7-acre Study Area corresponds to a portion of Section 20, Township 8 North, Range 5 East (Mount Diablo Base and Meridian) of the "Sacramento East, California" 7.5-minute quadrangle (U.S. Geological Survey 1992). The approximate center of the Study Area is located at 38.534011° North and -121.462747° West within the Lower Sacramento Watershed (Hydrologic Unit Code #18020163; Natural Resources Conservation Service et al. 2019). The Study Area is a school; therefore, the grounds are primarily composed of asphalt, mowed grass, and maintained beds planted with ornamental and native trees. The surrounding land use is heavily residential, with a church and high school to the north.

3.0 METHODS

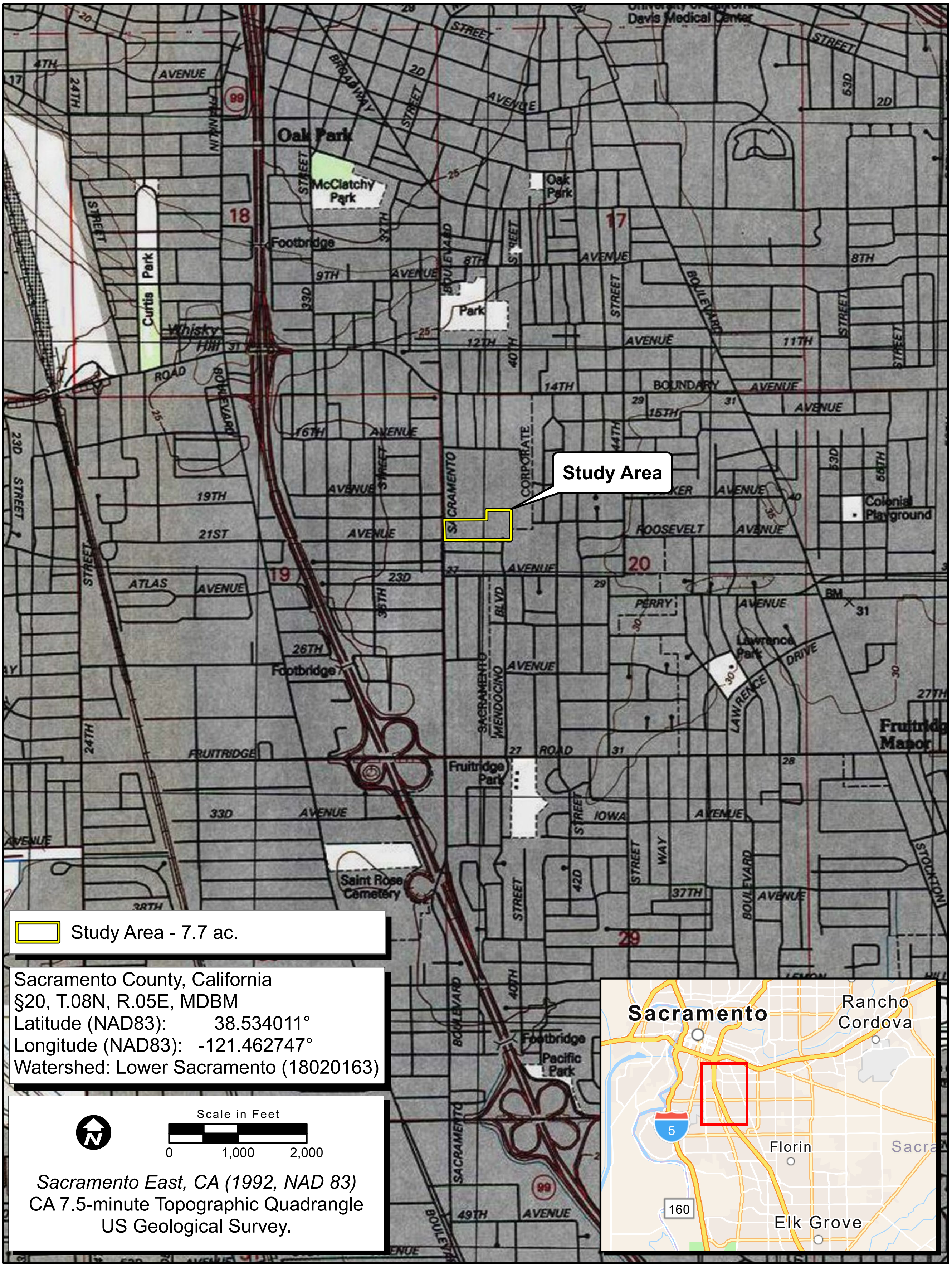
ECORP arborist Krissy Walker-Berry (International Society of Arboriculture Certification #WE-11308A), with ECORP biologist Gabrielle Attisani, conducted the field survey on January 20, 2023. ECORP staff walked the Study Area during the field survey, and recorded data using a submeter capable Global Positioning System unit.

ECORP surveyed all trees with trunks or a portion of their dripline radius in the Study Area. Tree tags were not installed on trees that were inaccessible or too small to tag properly; they were assigned the numbers 1 to 62. The following terms are defined in the Tree Preservation Code (City of Sacramento 2022):

- **Arborist Report:** A report prepared by a qualified arborist that may include, as determined by the director, information concerning the location of, condition of, and potential impacts of proposed development on one or more City Trees or Private Protected Trees.

- **City Tree:** Any tree the trunk of which, when measured 4.5 feet above ground, is partially or completely located in a city park, on real property the city owns in fee, or on a public right-of-way, including any street, road, sidewalk, park strip, mow strip, or alley.

Location: N:\2023\2023-001 Oak Ridge Elementary School Rebuild Project\MAPS\Location_Vicinity\ORESRP Location and Vicinity.aprx - ORESRP Location and Vicinity 20230130 (jwelsh - 1/30/2023)



Study Area - 7.7 ac.

Sacramento County, California
§20, T.08N, R.05E, MDBM
Latitude (NAD83): 38.534011°
Longitude (NAD83): -121.462747°
Watershed: Lower Sacramento (18020163)

Scale in Feet
0 1,000 2,000

Sacramento East, CA (1992, NAD 83)
CA 7.5-minute Topographic Quadrangle
US Geological Survey.

Map Date: 1/30/2023
Sources: ESRI, USGS

Figure 1. Project Location and Vicinity

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

2023-001 Oak Ridge Elementary School Rebuild Project

- **Diameter at Standard Height (DSH):** The diameter of a tree measured at 4.5 feet above ground level on the high side of the tree. For a tree that branches at or below 4.5 feet, DSH means the diameter at the narrowest point between the grade and the branching point. *The height of this measurement is noted for trees measured below 4.5 feet above grade.* For a tree with a common root system that branches at the ground, DSH means the sum of the diameter of the largest trunk and one-half the cumulative diameter of the remaining trunks at 4.5 feet above natural grade. *For multi-trunked trees, this report lists total aggregate diameter along with each trunk's diameter.*

- **Private Protected Tree:**

  1. A tree that is designated by city council resolution to have special historical value, special environmental value, or significant community benefit, and is located on private property;

  2. Any native Valley Oak (*Quercus lobata*), Blue Oak (*Q. douglasii*), Interior Live Oak (*Q. wislizenii*), Coast Live Oak (*Q. agrifolia*), California Buckeye (*Aesculus californica*), or California Sycamore (*Platanus racemosa*), that has a DSH of 12 inches or more, and is located on private property;

  3. A tree that has a DSH of 24 inches or more located on private property that:

     i. is an undeveloped lot; or

     ii. does not include any single unit or duplex dwellings; or

     iii. a tree that has a DSH of 32 inches or more located on private property that includes any single unit or duplex dwellings.

- **Tree Protection Zone:** The area around a tree within the outermost circumference of the canopy or as set forth in a tree protection plan.

Data collected included species, tree tag number, DSH, dripline radius, and condition. The survey results are intended for general Project planning purposes only; therefore, these results should not be considered a detailed tree analysis (i.e., results do not include hazard assessment, tree health diagnosis, preservation/removal recommendations, or pruning advisement). DSH is defined above. The remaining terms are defined below:

- **Condition:** An estimate of the tree's overall health. This includes evaluation of foliage, evidence of wound healing, evidence of fungal attack, density of insect galls, and the amount and condition of attached deadwood. Condition was rated on a five-point scale (i.e., poor, fair to poor, fair, fair to good, good).

- **Dripline Radius:** A perfect circle around the tree with the radius being equal to the longest branch of the tree.
- **Structure:** An estimate of the tree's structural soundness, based on obvious external evidence. This evaluates the obvious potential for structural failure of one or more major branches or trunks, the environment and condition of the root crown, symmetry of the canopy, and any noticeable effects of crowding caused by adjacent trees. Structure was rated on a five-point scale (i.e., poor, fair to poor, fair, fair to good, good).

4.0 RESULTS

ECORP inventoried a total of 120 trees in the Study Area. This includes 37 coast live oak (*Q. agrifolia*), ten holly oak (*Q. ilex*), eight crepe myrtle (*Lagerstroemia indica*), eight Chinese privet (*Ligustrum sinense*), five tree of heaven (*Ailanthus altissima*), four camellia (*Camellia* sp.*),* three common fig (F*icus carica*), three valley oak, two bay laurel (*Laurus nobilis),* two Carolina cherry (*Prunus caroliniana*), two London plane (*Platanus* × *acerifolia*), two orange (*Citrus* sp.), one Asian pear (*Pyrus pyrifolia*), one Meyer lemon (*Citrus* × *meyeri*), one California redwood (*Sequoia sempervirens*), one loquat (*Eriobotrya japonica*), one mock orange (*Pittosporum tobira*), one nectarine (*Prunus persica*), one olive (*Olea europaea),* one persimmon (*Diospyros virginiana*), one pine (*Pinus* sp.), one pineapple guava (*Acca sellowiana*), one plum (*Prunus* sp.), one pluot (*Prunus* sp.), one red oak (*Q. rubra*), and 21 trees that could not be identified due to visual barriers or winter leaf drop. Additionally, ECORP inventoried one dead tree. A map depicting the locations of the inventoried trees is included as Appendix A. Detailed tree survey data for each tree are included as Appendix B. Representative site photographs are included as Appendix C.

A separate arborist report was prepared for four oak trees (tag #s 132, 159, 160, and 161). This report provides detailed information regarding the recommended retention or removal of those trees and is included as Appendix D.

Seventeen trees are considered Private Protected Trees because they are located on private property and are either native oaks with a DSH of 12 or larger or are a non-oak with a DSH of 24 or larger.

5.0 IMPACTS AND CONCLUSIONS

Based on the Project plans provided by PlaceWorks, Inc., 62 of 120 living trees found during the inventory are proposed for removal. Eight additional trees have trunks located on private property and will have indirect impacts. Indirect impacts means that there will be impacts at the soil level within the Tree Protection Zone of the tree through some form of ground disturbance. The remaining 51 trees are located along the school's fence line, either growing against or through the fence. It is unclear whether these trees will need to be removed as part of the Project. However, it would be expected that all of those trees would require removal if the school fence needs to be removed.

The recommendations in Section 6.0 apply to the eight indirectly impacted trees.

6.0 TREE PRESERVATION RECOMMENDATIONS

6.1 Development Recommendations

The following recommendations will help mitigate damage to preserved trees caused by land development:

a. Avoid grade cuts greater than 1 foot within the driplines of preserved trees and within 5 feet of their trunks.

b. Avoid fill greater than 1 foot within the driplines of preserved trees and any placement of fill within 5 feet of their trunks.

c. Avoid trenching within the driplines of preserved trees. If it is absolutely necessary to install underground utilities within the driplines of a preserved tree, it is recommended that the trench be either bored or drilled.

d. Avoid installing irrigation systems within the driplines of preserved tree(s) as it may be detrimental to the long-term survival of the preserved tree(s).

e. Limit landscaping beneath preserved trees be limited to non-plant materials such as boulders, cobbles, wood chips, etc., or plant species tolerant of the natural semi-arid environs of the trees. Drip irrigation should be limited to approximately twice per summer for the understory plants.

6.2 Grading Beneath Tree Driplines

Grading beneath trees to be saved should be given special attention to avoid creating conditions adverse to the tree's health. The natural ground within the driplines of protected trees should remain as undisturbed as possible. Specific recommendations for work within the dripline are as follows:

a. Major roots 2 inches or greater in diameter encountered within the tree's dripline in the course of excavation from beneath trees that are not to be removed should be kept moist and covered with earth as soon as feasible. Roots 1 inch to 2 inches in diameter that are severed should be trimmed, treated with pruning compound, and covered with earth as soon as possible.

b. Support roots that are inside the dripline of the tree should be protected to the extent feasible. Hand-digging is recommended in the vicinity of major trees to prevent root cutting and mangling by heavy equipment.

7.0 REFERENCES

City of Sacramento. 2022. Tree Planting, Maintenance, and Conservation- Chapter 12.56. Available online at: https://www.cityofsacramento.org/-/media/Corporate/Files/Public-Works/Maintenance-Services/SCC-1256.pdf?la=en. Accessed online January 18, 2023.

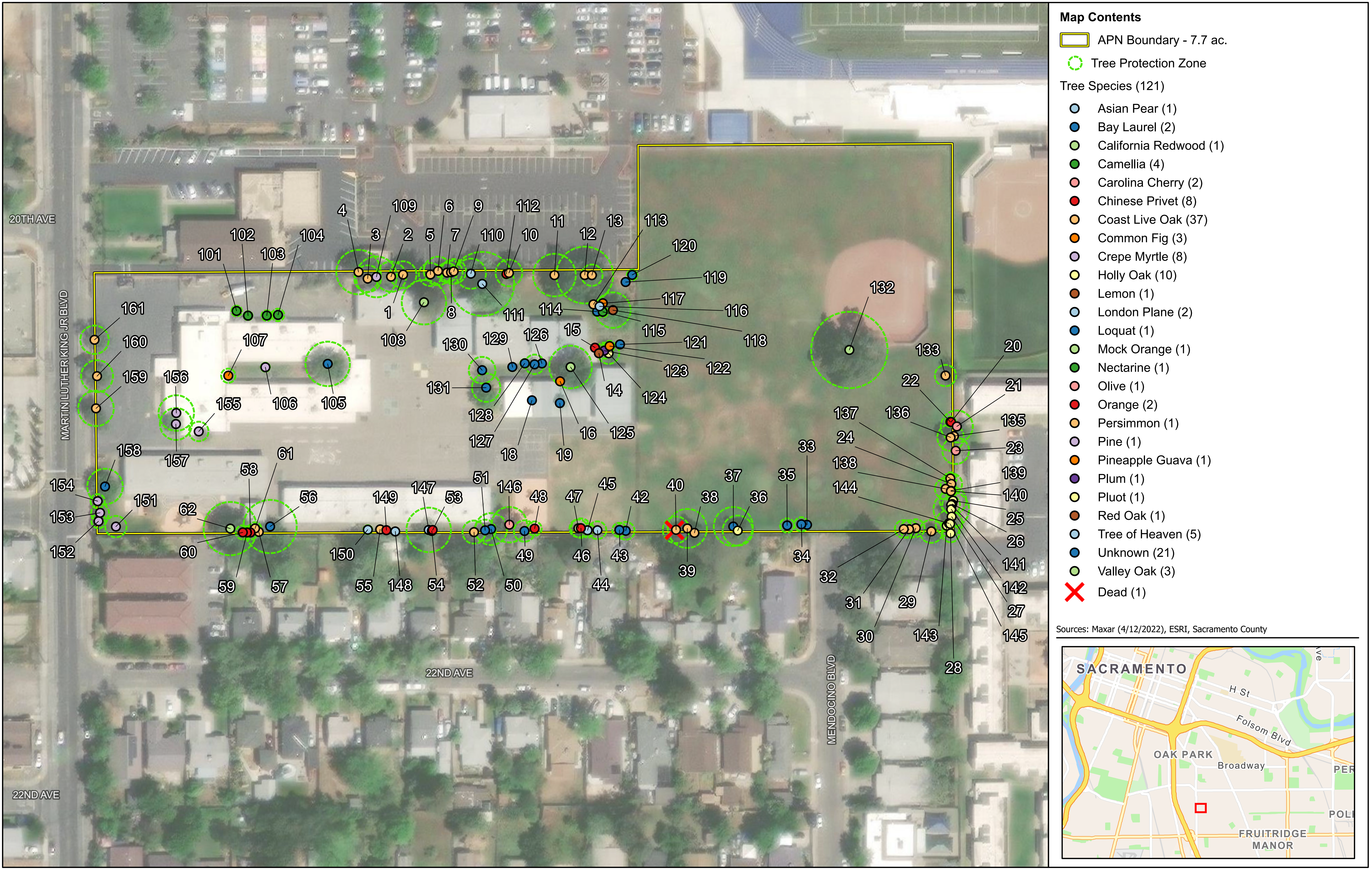
Natural Resources Conservation Service, U.S. Geological Survey, and U.S. Environmental Protection Agency. 2019. Watershed Boundary Dataset for California. Available online: https://datagateway.nrcs.usda.gov.

U.S. Geological Survey. 1992. “Sacramento East, California” 7.5-minute Quadrangle.

LIST OF APPENDICES

APPENDIX A

Arborist Survey Results



Map Contents

☐ APN Boundary - 7.7 ac.

◌ Tree Protection Zone

Tree Species (121)

- ● Asian Pear (1)
- ● Bay Laurel (2)
- ● California Redwood (1)
- ● Camellia (4)
- ● Carolina Cherry (2)
- ● Chinese Privet (8)
- ● Coast Live Oak (37)
- ● Common Fig (3)
- ● Crepe Myrtle (8)
- ● Holly Oak (10)
- ● Lemon (1)
- ● London Plane (2)
- ● Loquat (1)
- ● Mock Orange (1)
- ● Nectarine (1)
- ● Olive (1)
- ● Orange (2)
- ● Persimmon (1)
- ● Pine (1)
- ● Pineapple Guava (1)
- ● Plum (1)
- ● Pluot (1)
- ● Red Oak (1)
- ● Tree of Heaven (5)
- ● Unknown (21)
- ● Valley Oak (3)
- ✕ Dead (1)

Sources: Maxar (4/12/2022), ESRI, Sacramento County

Location: N:\2023\2023-001 Oak Ridge Elementary School Rebuild Project\MAPS\Biological_Resources\ORESRP Biological Resources.aprx - ORESRP Arborist 20230210 (jwelsh - 2/10/2023)

Map Date: 2/10/2023

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Scale in Feet
0 50 100

Appendix A. Arborist Survey Results

2023-001 Oak Ridge Elementary School Rebuild Project

APPENDIX B

Tree Survey Data (January 20, 2023)

Oak Ridge Elementary School Rebuild Project
Tree Survey Data (January 20, 2023)

Tree Tag #	**Common Name**	**Latin Name**	**DSH (inches)**	**Dripline (feet)**	**Structure**	**Health**	**Stem Description (if multiple)**	**Field Note**	**Impact**	**Private Protected Tree**
1	Coast Live Oak	*Quercus agrifolia*	14.5	15	Fair	Fair to Good		Growing through fence	Unclear	**Yes**
2	Coast Live Oak	*Quercus agrifolia*	14	17	Fair to Good	Fair to Good		Growing against fence	Unclear	**Yes**
3	Coast Live Oak	*Quercus agrifolia*	13	15	Fair to Poor	Fair to Poor		Growing through fence, sucker sprouts	Unclear	**Yes**
4	Coast Live Oak	*Quercus agrifolia*	20	25	Fair to Poor	Fair to Poor		Sucker sprouts at old cuts, growing against fence	Unclear	**Yes**
5	Coast Live Oak	*Quercus agrifolia*	9	13	Fair to Good	Good		Growing against fence	Unclear	No
6	Coast Live Oak	*Quercus agrifolia*	10.5	16	Fair	Fair to Good		Growing through fence	Unclear	No
7	Coast Live Oak	*Quercus agrifolia*	11	11	Fair	Fair to Good		Growing against fence	Unclear	No
8	Coast Live Oak	*Quercus agrifolia*	6	13	Fair	Fair to Good		Growing against fence	Unclear	No
9	Coast Live Oak	*Quercus agrifolia*	7	14	Fair to Good	Fair		Growing against fence	Unclear	No
10	Coast Live Oak	*Quercus agrifolia*	15	15	Fair	Fair to Good		Growing through fence	Unclear	**Yes**
11	Coast Live Oak	*Quercus agrifolia*	25	24	Fair	Fair to Good		Growing through fence	Unclear	**Yes**
12	Coast Live Oak	*Quercus agrifolia*	31	32	Fair to Good	Fair		Sprouts at cut limbs	**Removal**	**Yes**
13	Coast Live Oak	*Quercus agrifolia*	6	12	Fair	Fair to Good		Growing under adjacent tree	**Removal**	No
14	Meyer Lemon	*Citrus × meyeri*	2.5	3	Good	Good			**Removal**	No
15	Orange	*Citrus* sp.	4.5	4	Good	Good			**Removal**	No
16	Common fig	*Ficus carica*	–	–	–	–		Small, growing between trailers, unable to see DSH	**Removal**	No
18	Unknown	–	–	–	–	–		Between trailers, unable to see	**Removal**	No
19	Unknown	–	–	–	–	–		Between trailers, unable to see	**Removal**	No
20	Chinese Privet	*Ligustrum sinense*	7.1	5	Fair to Poor	Fair	2.6,1,3.5	Growing through fence, 1st stem 4" above grade, other stems 1" above grade	Unclear	No
21	Carolina Cherry	*Prunus caroliniana*	11	18	Fair	Fair			Indirect Impact	No
22	Coast Live Oak	*Quercus agrifolia*	4.3	6	Fair to Poor	Good		Growing through fence, 2.8' above grade	Unclear	No
23	Carolina Cherry	*Prunus caroliniana*	14	15	Fair to Poor	Fair to Poor		Crown dieback, trunk rot, 9" above grade	**Removal**	No
24	Coast Live Oak	*Quercus agrifolia*	4.5	12	Fair to Poor	Fair		Growing through fence, 1" above grade	Unclear	No
25	Holly Oak	*Quercus ilex*	3	15	Fair to Poor	Fair to Poor		1" above grade	**Removal**	No
26	Holly Oak	*Quercus ilex*	2	2	Fair to Poor	Fair to Poor		Growing through fence, 2" above grade	Unclear	No
27	Holly Oak	*Quercus ilex*	7	3	Poor	Fair to Poor	2,1,3,1	Growing through fence, topped, 1" above grade	Unclear	No
28	Holly Oak	*Quercus ilex*	3.5	10	Fair	Fair to Good		Growing through fence	Unclear	No
29	Coast Live Oak	*Quercus agrifolia*	9	13	Fair to Poor	Fair		Growing through fence	Unclear	No
30	Coast Live Oak	*Quercus agrifolia*	7	10	Fair	Fair		Growing through fence, 1" above grade	Unclear	No
31	Coast Live Oak	*Quercus agrifolia*	2	10	Fair to Poor	Fair		Growing through fence	Unclear	No
32	Coast Live Oak	*Quercus agrifolia*	7	10	Fair to Poor	Fair to Poor		Growing through fence , 1" above grade	Unclear	No
33	Unknown	–	7					On other side of fence, unable to see DSH	Indirect Impact	No
34	Unknown	–	–	8	–	–		On other side of fence, unable to see DSH	Indirect Impact	No
35	Unknown	–	–	8	–	–		On other side of fence, unable to see DSH	Indirect Impact	No
36	Holly Oak	*Quercus ilex*	23	17	Fair	Fair	6,9,8	On other side of fence	Indirect Impact	No
37	Unknown	–	12	22	Fair	Fair		Behind fence, 3' above grade	Indirect Impact	No
38	Coast Live Oak	*Quercus agrifolia*	2	4	Fair	Fair to Good		Growing through fence, 3" above grade	Unclear	No
39	Coast Live Oak	*Quercus agrifolia*	15	22	Fair to Good	Fair to Good		Growing against fence	Unclear	**Yes**
40	Coast Live Oak	*Quercus agrifolia*	9	15	Fair to Poor	Fair		Growing through fence	Unclear	No
41	–	–	–	–	–	Dead			**Removal**	No
42	Bay Laurel	*Laurus nobilis*	15	10	Fair to Poor	Fair to Good	4,1,1,1,1,4,2,1	Growing through fence	Unclear	No
43	Bay Laurel	*Laurus nobilis*	4	8	Fair to Poor	Fair		Growing through fence, 2" above grade	Unclear	No
44	Tree of Heaven	*Ailanthus altissima*	6	10	Fair to Poor	Fair to Poor		Growing through fence, 2.5' above grade	Unclear	No
45	Tree of Heaven	*Ailanthus altissima*	–	8	Fair	Fair		Growing through fence, unable to see DSH	Unclear	No
46	Chinese Privet	*Ligustrum sinense*	–	11	Fair	Fair to Good		On other side of fence, unable to see DSH	Indirect Impact	No

Oak Ridge Elementary School Rebuild Project
Tree Survey Data (January 20, 2023)

Tree Tag #	Common Name	Latin Name	DSH (inches)	Dripline (feet)	Structure	Health	Stem Description (if multiple)	Field Note	Impact	Private Protected Tree
47	Mock Orange	*Pittosporum tobira*	–	10	Good	Good		Unable to see DSH	Indirect Impact	No
48	Chinese Privet	*Ligustrum sinense*	7	8	Fair to Poor	Fair		Growing through fence , 5" above grade	Unclear	No
49	Unknown	–	5	12	Fair to Poor	Fair		Growing through fence, 2' above grade	Unclear	No
50	Unknown	–	22	18	Fair to Poor	Fair		Growing through fence, 8" above grade	Unclear	No
51	Unknown	–	15	12	Fair to Poor	Poor		Sloughing bark	**Removal**	No
52	Coast Live Oak	*Quercus agrifolia*	2	13	Fair to Poor	Fair		2' above grade	**Removal**	No
53	Chinese Privet	*Ligustrum sinense*	18	3	Poor	Fair to Poor		Cut at 2.5' with stump sprouts	**Removal**	No
54	Coast Live Oak	*Quercus agrifolia*	0.9	4	Fair to Poor	Fair to Poor			**Removal**	No
55	Coast Live Oak	*Quercus agrifolia*	0.4	3	Fair to Poor	Fair			**Removal**	No
56	Unknown	–	22	30	Fair to Good	Fair to Good		2' above grade	**Removal**	No
57	Coast Live Oak	*Quercus agrifolia*	2	3	Fair to Poor	Fair to Poor		Growing through fence, 2" above grade	Unclear	No
58	Chinese Privet	*Ligustrum sinense*	3.5	8	Fair to Good	Fair to Good		Growing against fence	Unclear	No
59	Chinese Privet	*Ligustrum sinense*	3.5	7	Fair to Good	Fair to Good		Growing against fence, 3" above grade	Unclear	No
60	Chinese Privet	*Ligustrum sinense*	4	8	Fair	Fair		Growing against fence, 1" above grade	Unclear	No
61	Coast Live Oak	*Quercus agrifolia*	2	7	Fair	Fair to Good		1" above grade	**Removal**	No
62	Valley Oak	*Quercus lobata*	–	30	Fair	Fair		Unable to see DSH	**Removal**	No
101	Camellia	*Camellia* sp.	7.9	6	Good	Good		4" above grade	**Removal**	No
102	Camellia	*Camellia* sp.	7.7	5	Good	Good		3" above grade	**Removal**	No
103	Camellia	*Camellia* sp.	5.8	6	Good	Good		5" above grade	**Removal**	No
104	Camellia	*Camellia* sp.	7	7	Good	Good		7" above grade	**Removal**	No
105	Unknown	–	16.7	25	Good	Good			**Removal**	No
106	Crepe Myrtle	*Lagerstroemia indica*	2.2	5	Fair	Good		Lawn mower damage at base	**Removal**	No
107	Common fig	*Ficus carica*	4.4	8	Fair to Poor	Fair to Good		Trunk damage, stump sprouts	**Removal**	No
108	California Redwood	*Sequoia sempervirens*	44.7	25	Fair to Good	Good		Sprouts at base	**Removal**	**Yes**
109	Pine	*Pinus* sp.	25.3	23	Fair to Poor	Fair to Poor		Multiple previous branch cuts with oozing sap, 45 degree lean	**Removal**	**Yes**
110	London Plane	*Platanus × acerifolia*	16.2	17	Fair	Fair		Topped to stay under power line	**Removal**	No
111	London Plane	*Platanus × acerifolia*	28	36	Good	Good			**Removal**	**Yes**
112	Orange	*Citrus* sp.	18.6	5	Poor	Fair to Poor	10.2,4.4,4	Growing through fence, sucker sprouts, main trunk half missing, 2 small stem 15" above grade	Unclear	No
113	Persimmon	*Diospyros virginiana*	2.7	4	Fair	Fair		2" above grade	**Removal**	No
114	Unknown	–	3.3	5	Good	Good		In garden, 12" above grade	**Removal**	No
115	Nectarine	*Prunus persica*	3.7	6	Good	Good		In garden, 1.9' above grade	**Removal**	No
116	Asian Pear	*Pyrus pyrifolia*	2.2	3	Fair to Good	Good		In garden, 9" above grade	**Removal**	No
117	Pineapple Guava	*Acca sellowiana*	1.9	3	Good	Good		In garden, 5" above grade	**Removal**	No
118	Red Oak	*Quercus rubra*	12.6	20	Good	Good			**Removal**	No
119	Unknown	–	0.9	2	Fair	Good		Growing through compost bin, 1.5' above grade	**Removal**	No
120	Unknown	–	2.9	6	Good	Good			**Removal**	No
121	Loquat	*Eriobotrya japonica*	2.9	3	Fair to Poor	Poor		1" above grade	**Removal**	No
122	Common fig	*Ficus carica*	4.2	6	Good	Good		9" above grade	**Removal**	No
123	Plum	*Prunus* sp.	5.7	9	Fair	Good		9" above grade	**Removal**	No
124	Pluot	*Prunus* sp.	6.8	12	Fair	Fair to Good		12" above grade	**Removal**	No
125	Valley Oak	*Quercus lobata*	21	24	Fair	Fair		Codominant branching	**Removal**	**Yes**
126	Unknown	–	5	4	Fair	Fair to Good		1" above grade	**Removal**	No
127	Unknown	–	6.2	11	Fair	Fair to Good		18" above grade	**Removal**	No

Oak Ridge Elementary School Rebuild Project
Tree Survey Data (January 20, 2023)

Tree Tag #	Common Name	Latin Name	DSH (inches)	Dripline (feet)	Structure	Health	Stem Description (if multiple)	Field Note	Impact	Private Protected Tree
128	Unknown	–	6.2	5	Fair	Fair to Good		2' above grade	**Removal**	No
129	Unknown	–	2.4	4	Fair to Poor	Fair to Poor			**Removal**	No
130	Unknown	–	7	15	Fair to Poor	Fair to Good		Girdling roots	**Removal**	No
131	Unknown	–	11.7	16	Fair to Good	Good			**Removal**	No
132	Valley Oak	*Quercus lobata*	45.8	43	Fair	Fair		Refer to previous arborist report for detailed data	**Removal**	**Yes**
133	Coast Live Oak	*Quercus agrifolia*	–	12	Fair to Poor	Fair to Good		Growing through fence, Unable to see DSH	Unclear	No
135	Coast Live Oak	*Quercus agrifolia*	3	4	Fair to Poor	Fair to Poor		Growing through fence, 1" above grade	Unclear	No
136	Coast Live Oak	*Quercus agrifolia*	16	15	Fair to Poor	Fair	15,1	Growing through fence, 1st stem 21" above grade, 2nd stem 5" above grade	Unclear	**Yes**
137	Coast Live Oak	*Quercus agrifolia*	3.5	7	Fair	Good		Growing through fence, 1" above grade	Unclear	No
138	Coast Live Oak	*Quercus agrifolia*	8	12	Fair to Poor	Fair		Growing through fence, 3" above grade	Unclear	No
139	Coast Live Oak	*Quercus agrifolia*	5	7	Fair	Fair		Growing through fence, 1" above grade	Unclear	No
140	Coast Live Oak	*Quercus agrifolia*	3	6	Fair to Poor	Fair		Growing through fence, 1" above grade	Unclear	No
141	Holly Oak	*Quercus ilex*	10	10	Fair to Poor	Fair to Good	8,2	Growing through fence, both 2" above grade	Unclear	No
142	Holly Oak	*Quercus ilex*	11	20	Fair	Fair		Growing through fence, 16" above grade	Unclear	No
143	Holly Oak	*Quercus ilex*	11	6	Poor	Fair to Poor	6,3,1,1	Growing through fence, topped, 2" above grade	Unclear	No
144	Holly Oak	*Quercus ilex*	8.2	15	Fair	Fair		Growing through fence	Unclear	No
145	Holly Oak	*Quercus ilex*	2.1	5	Fair to Poor	Fair	2.1	Growing through fence	Unclear	No
146	Olive	*Olea europaea*	22.3	20	Fair	Fair		2.5' above grade	**Removal**	No
147	Tree of Heaven	*Ailanthus altissima*	12.1	25	Poor	Fair		Growing through fence and girdling trunk	Unclear	No
148	Tree of Heaven	*Ailanthus altissima*	2	4	Fair	Fair		Growing through fence, 1" above grade	Unclear	No
149	Chinese Privet	*Ligustrum sinense*	4	4	Poor	Fair to Poor		1" above grade	**Removal**	No
150	Tree of Heaven	*Ailanthus altissima*	9	5	Poor	Fair to Poor		Growing through fence, 6" above grade	Unclear	No
151	Crepe Myrtle	*Lagerstroemia indica*	5.5	12	Fair to Good	Good			**Removal**	No
152	Crepe Myrtle	*Lagerstroemia indica*	5.3	8	Fair to Good	Good		4' above grade	**Removal**	No
153	Crepe Myrtle	*Lagerstroemia indica*	5	10	Fair to Good	Good		4' above grade	**Removal**	No
154	Crepe Myrtle	*Lagerstroemia indica*	4.1	8	Fair to Good	Good			**Removal**	No
155	Crepe Myrtle	*Lagerstroemia indica*	6.9	11	Good	Good			**Removal**	No
156	Crepe Myrtle	*Lagerstroemia indica*	7.5	20	Fair to Good	Good			**Removal**	No
157	Crepe Myrtle	*Lagerstroemia indica*	6.9	18	Fair to Good	Fair to Poor		4' above grade	**Removal**	No
158	Unknown	–	20.2	20	Fair	Fair to Good		2' above grade	**Removal**	No
159	Coast Live Oak	*Quercus agrifolia*	25.9	20	Poor	Poor		9" above grade. Refer to previous arborist report for detailed data	**Removal**	**Yes**
160	Coast Live Oak	*Quercus agrifolia*	22	18	Poor	Poor		Refer to previous arborist report for detailed data	**Removal**	**Yes**
161	Coast Live Oak	*Quercus agrifolia*	29	16	Poor	Poor		12" above grade. Refer to previous arborist report for detailed data	**Removal**	**Yes**

APPENDIX C

Representative Site Photographs

Photo 1. Overview of trees within western classroom cluster, looking east. Photo taken January 20, 2023.

Photo 2. Holly Oak along eastern boundary, looking east. Photo taken January 20, 2023.

APPENDIX D

CalTLC Arborist Report

CalTLC
TENDER LOVING CARE FOR YOUR TREES
California Tree and Landscape Consulting, Inc.

December 21, 2022

Ms. Meredith Collins, Program Manager
Innovative Construction Services
5433 El Camino Ave #2
Carmichael, CA 95608
meredith@icscm.com
916.870.3754

SUBJECT: ARBORIST REPORT FOR 4 OAK TREES GROWING ON THE PROPERTY AT 4501 MARTIN LUTHER KING JR, OAK RIDGE ELEMENTARY SCHOOL, SACRAMENTO, CA

Dear Ms. Collins,

Thank you for the opportunity to provide Arborist Consulting Services. This report includes the observations and assessment of the four oak trees growing on the school property at 4501 Martin Luther King Jr Blvd, Sacramento, CA. Three trees are growing in the parking lot planting space along Martin Luther King Jr. Blvd. One tree is growing in the sports field on the east side of the campus. The site is being renovated and a new school building is being built on the sports field and the existing building area will be the playground and sports area. You were asking if the trees should be removed or retained based on condition and growing site.

Report Summary: The site was inspected on Wednesday, December 14, 2022, at approximately 12:00 pm. The property is an elementary school campus. The property has a few trees growing on it, and this inspection was only to learn about the 4 trees for the project design.

Three trees are Coast Live Oak, growing in a planting space between the parking lot and the fence behind the sidewalk along Martin Luther King Jr. Blvd. The three trees were found to be in poor condition with a small soil area to grow in, some dieback in branches. All native oak trees are protected by the City of Sacramento. The trees can be retained with careful asphalt repair work. If the fence and pavement are being replaced, the fate of the trees will need to be considered. If the three trees are removed, they are protected and will have to be mitigated.

The fourth tree is a large Valley Oak growing in the sports field area The large Valley Oak in the sports field was found to be in fair condition with burls on the trunk, long heavy branches, and minimal trunk and branch decay for a tree this large. The tree could be pruned to reduce the overall crown size from approximately 85 feet to possibly 60 feet by removing end weights and long branches. Construction around the base should be kept up to 10 feet away for patio or walkways and 30 feet for the buildings outside of the reduced canopy. If this tree is to be removed it will need to be mitigated.

The risk of the trees are the common risks on a school site including people and any improvements on the property such as the sports field dugout, and the vehicles in the parking lot and parked along the street. The likelihood of failure for the 3 parking lot trees is possible tree is a large branch or main leader to the homes. The likelihood of failure for the large Oak is probable. The likelihood of impact is medium for all 4 trees, the 3 trees impacting vehicles or people and the large oak impacting people. The site users under the large oak are likely to not be around the tree during a storm event, or very high wind. If the tree is not pruned, the likelihood of failure is due to end weight leverage, and Valley Oaks ma be common to have branch failures on long branches during hot weather. The likelihood of failure and impact is unlikely for the three oaks and somewhat likely for the large oak. The consequences to the vehicles or people would be significant for the 3 oaks. The consequences would be severe for the large oak. The risk associated with the 3 oak trees is low. The risk associated with the large oak tree is moderate.

If the site design allows for the retention of the trees, the most reasonable mitigation for all 4 trees would be pruning. The dead branches and long weight branches on the 3 oaks can be removed and the trees will continue to grow. The large oak tree will require significant pruning to reduce the size of the crown. If the timing allows, the pruning should be done in two phases, the first removing the heaviest weights some branches receiving up to 20% leverage weight removal, and the remainder 10 to 15% leverage weight removal. The second phase after the tree grows would be to achieve the crown reduction for the space allowed by the new building.

If the new design requires changes to the parking or does not allow space for the large tree to grow, the trees should be removed and mitigation will be required, in the amount of 123 diameter inches. A permit will likely be required by the City for the tree removal and significant reduction pruning on the large oak.

Assignment: Ms. Collins contacted our office on October 4, 2022 requesting an inspection and findings on 4 trees growing on the school campus that may be impacted by the proposed campus re-design and reconstruction. We offered a proposal and we agreed to an appointment.

All site information and history were provided by Mr. Isaac White. The assignment requires the following activities: visit the site, verify the trees, assess the trees, provide a report for the team to make a decision on the fate of the trees.

The City of Sacramento defines a private protected tree as *(highlighted as appropriate)*:

A. A tree that is designated by city council resolution to have special historical value, special environmental value, or significant community benefit, and is located on private property;

B. Any native Valley Oak (Quercus lobata), Blue Oak (Quercus douglasii), Interior Live Oak (Quercus wislizenii), Coast Live Oak (Quercus agrifolia), California Buckeye (Aesculus californica), or California Sycamore (Platanus racemosa), that has a DSH of 12 inches or more, and is located on private property;

C. A tree that has a DSH of 24 inches or more located on private property that:

1. is an undeveloped lot; or

2. does not include any single unit or duplex dwellings; or

D. A tree that has a DSH of 32 inches or more located on private property that includes any single unit or duplex dwellings.

Definition B defines the 4 subject trees as private protected trees.

The process for determining approval of a permit application includes:

a. The health and structural condition of the tree;
b. Whether the proposed regulated work conforms to current best management practices for the tree care industry;
c. The above and below ground space available for root and crown growth;
d. The desirability of the species;
e. Whether the proposed work would improve growing conditions of neighboring trees;
f. The approximate age of the tree compared with the average life span for the species;
g. Whether or not the tree is acting as a host for an organism that is pathogenic to other trees;
h. The need for the proposed work in order to develop property; and
i. Whether there are reasonable means of accomplishing the applicant’s goal with less impact to the tree.

The Tree Replacement Standard is:

2. Any other tree replacement plan must provide for the replacement of trees at a ratio of one inch DSH of tree replaced for each inch DSH of tree removed (1:1 ratio).

The results of the inspection are included in this report.

Observations: The site was visited on Wednesday, December 14, 2022 at about 12:00 pm. Three trees are Coast Live Oak (*Quercus agrifolia*) growing in the fenced parking lot behind the sidewalk along the street frontage on the west side of the campus. The fourth tree is a Valley Oak (*Quercus lobata*) growing in the sports field on the east side of the campus. The trees were measured with a diameter tape at the appropriate height to determine the diameter. The Valley Oak was measured at 60 inches due to several burls that obscured the true diameter of the lower trunk. The Coast Live Oaks were measured one at 42 inches and 2 at 12 inches due to the co-dominant leaders on all 3 trees.

The tools used were a diameter tape, 12” probe, hand mattocks, tape measure, mallet, tree tags, hammer, nails, and camera. The trees were numbered and tree tags were nailed to the trees approximately 6 feet above grade on the north side of the stems.

The trees were assessed and rated for health and structure, and overall condition considering: leaf quality, size, color and density; vitality; dieback; root impacts; branch structure, branch attachment, crotch structure, trunk flare, surface roots, decay, insects and diseases, growth habit, any physical damages, lean, and other issues that affect the condition of the trees. The trees were also considered for impacts from the proposed construction.

The rating system used for both health, structure, and overall condition is:

(0) 0%	dead or stumps;
(1) 1-20%	very poor/severe decline;
(2) 21-40%	poor/declining;
(3) 41-60%	fair;
(4) 61-80%	good; and
(5) 81-100%	excellent.

For tree risk assessment, the targets for the tree are the vehicles in the parking lot and on the street for the three trees and people on the site for all 4 trees. The fenced dugout under the oak was not considered an important target.

The highest risk is the likelihood of failure of a large branch on the large Valley Oak. The likelihood of a large branch failure is probable. The likelihood of a trunk failure is possible. The likelihood of impact is medium for either failure. The likelihood of failure and impact from a large branch is somewhat likely. The consequences to the people would be severe. The risk is moderate.

The highest risk is the likelihood of failure of smaller branches on the three Coast Live Oaks. The likelihood of a smaller branch failure is possible. The likelihood of a trunk failure is possible. The likelihood of impact is medium for either failure. The likelihood of failure and impact from smaller branches is unlikely. The consequences to vehicles or people would be significant. The risk is low.

The data from the inspection is included in the Tree Inspection at Oak Ridge Elementary School 4501 Martin Luther King Jr. Blvd Tree List.

Other testing or examination: No other testing or examination was requested at the time of the site inspection or recommended as a result of the inspection.

Discussion: The inspection was for the purpose of the campus design planning. The very large Valley Oak is a concern for pruning as a preventative maintenance treatment to an asset. Other than the needs to prune the tree, the considerations are for the construction. How much space is needed to design and construct the campus buildings, and what will the needs be for space around the tree. If the buildings require more space than a 60 feet wide opening for the tree, or if the area around the base of the tree cannot keep clear of permanent concrete for 20 feet, the tree should be considered for removal. If the tree can be designed around with: space around the buildings; modular pavement products that will reduce compaction and allow changes to the surface without significant impact to the roots; and the tree can be properly pruned, maintained, and protected during the construction; the large Valley Oak should be able to continue to grow and be an asset on the campus property. If the tree is going to be retained, it will need tree protection fencing with a 4" deep mulch layer over the soil and branch pruning. The pruning should be performed in 2 phases, the first to reduce branch failure now, and the second to size the crown for the space between the buildings.

The 3 Coast Live Oaks by the parking lot also are a consideration for the new design. Will the parking lot be a play area without pavement, or will the pavement and parking remain. Will the existing fence and gate need to be moved or removed, and what will that impact to the root systems on the trees. If the trees can be designed and constructed around, the trees can be pruned and should continue to grow on the site. If the fence is being renovated, the farthest south tree is growing over the angle iron track for the gate, and that will need to be carefully removed. The three trees are growing in a relatively small soil area and asphalt will need to be removed and replaced in a careful manner. If the trees are going to remain, retaining the asphalt around the trees for as long as possible is the best tree protection for these trees. The construction protection fencing will need to be outside the edge of the soil, or far enough out to protect any low branches that are not going to be pruned from construction equipment that could cause a branch impact. Then the final asphalt replacement will need to be performed with care removing the asphalt with minimal root impact, and consideration of a geotextile layer of the roots to reduce soil compaction for the new paving.

The report is intended to provide the current conditions of the trees and what design space and protection is needed for the trees to be constructed around. If all that care and space is acceptable to the design, the trees can be retained. If not, the trees may need to be removed and inch for inch diameter mitigation up to 123 diameter inches may be required.

It may be possible to move the large Valley Oak tree, as the area around the tree is open and the root ball could be captured for the move. Also, moving it on site would be a possibility as the same site for a move requires little road or transport needs. Moving the 3 Coast Live Oak would be more difficult due to the fence and other restrictions in capturing the root ball needed for the moves.

Conclusion: There are 4 existing oak trees on the school campus. The trees are in a reasonable condition to retain on the site with maintenance options provided. If the new design for the campus will not accommodate the space and care the trees need, the trees will need to be removed, and likely mitigated, or the large Valley Oak may be able to be moved.

Please contact me at 650-740-3461, or gordon@mannandtrees.com, if you have any questions about this report.

Respectfully submitted,

Gordon Mann
Consulting Arborist and Urban Forester
Registered Consulting Arborist #480
ISA Certified Arborist and Municipal Specialist #WE-0151AM
CaUFC Certified Urban Forester #127
ISA Qualified Tree Risk Assessor #1005

Nevada County Fire Safe Council Defensible Space Advisory Training
Mann Made Resources
Auburn, CA
650-740-3461
Fax 530-268-0926
gordon@mannandtrees.com
www.mannandtrees.com

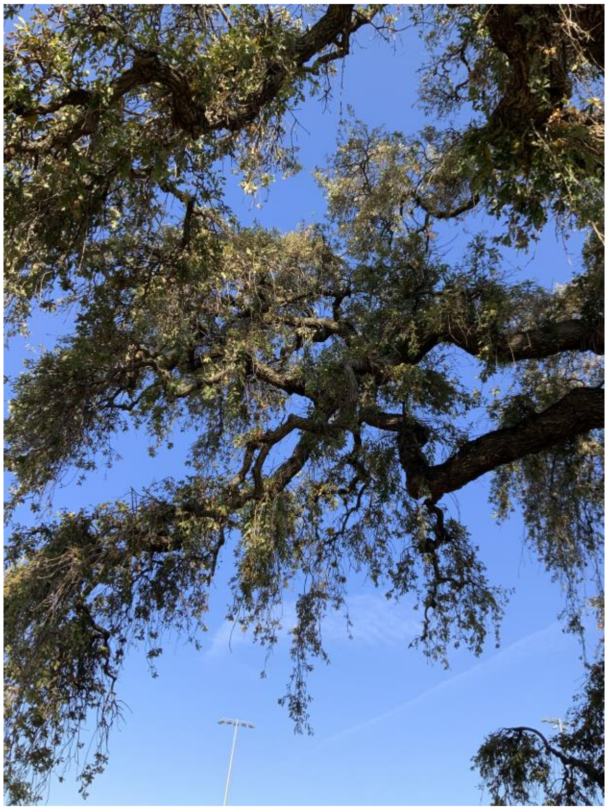
Images

Aerial view of the 4 trees included in the inspection

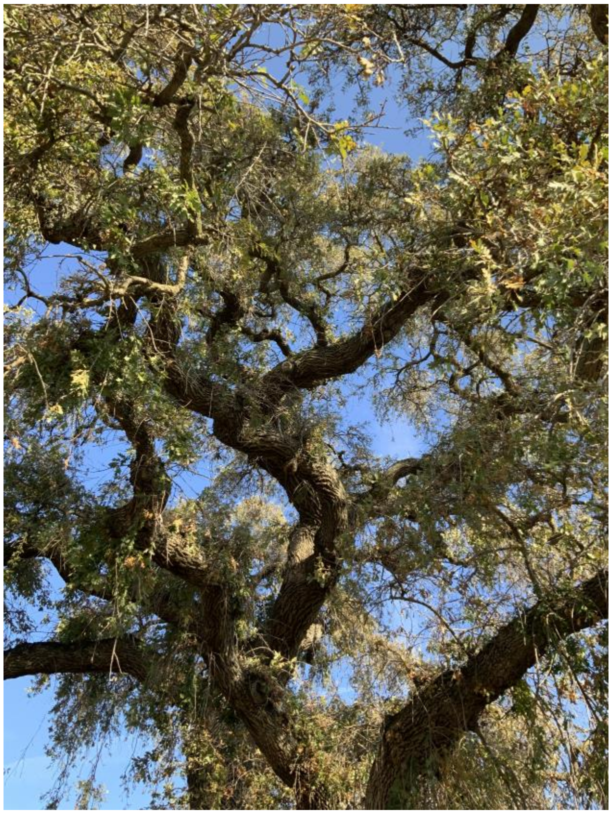
Valley Oak

Upper crotch attachments in Valley Oak

Base of Valley Oak with burls on lower trunk, and location near dugout



Large long leveraged branches to prune



Large long leveraged branches to prune

Large long leveraged branches to prune

Target pruning for the large oak from the E

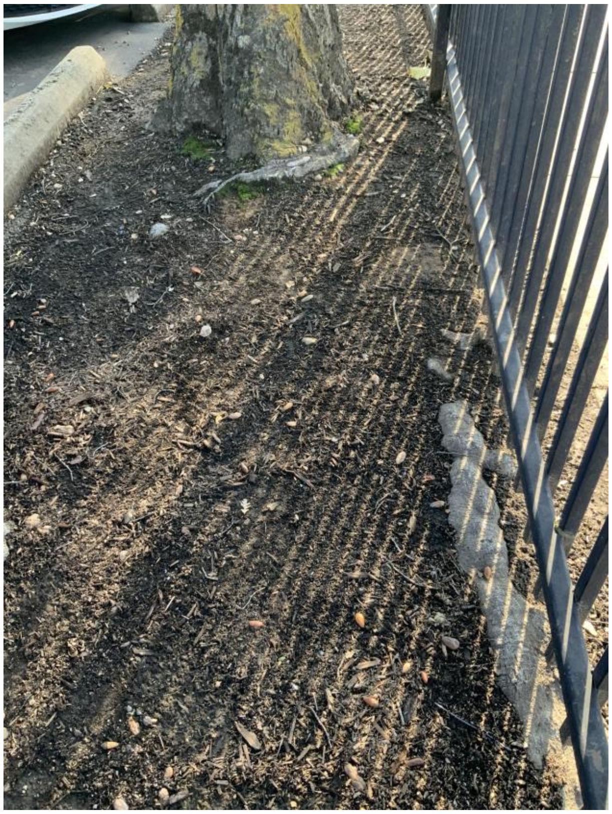
Target pruning for the large oak from the N

Tree 3255

Tree 3256

Tree 3267

Base of 3255



Base of 3256

Base of 3257

Pruning Specifications

Location: There are 4 trees to be pruned on the campus, identified on the aerial image above, 3 Coast Live Oak in the parking and 1 Valley Oak in the playing field.

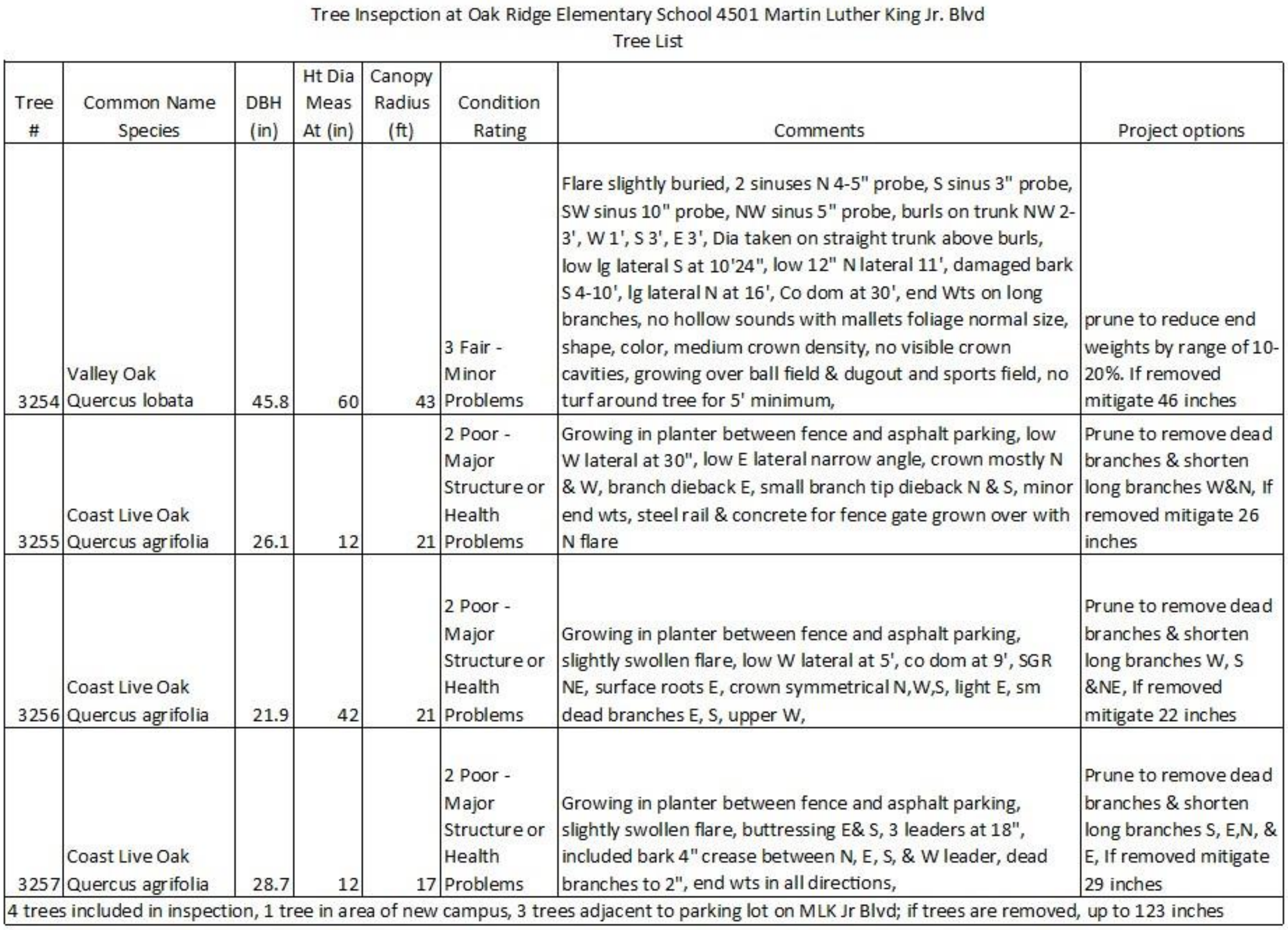
Objective: The trees to be pruned are to reduce the risk of branch failure, and manage the size of the trees on the school campus while retaining as large a crown as possible.

The pruning will be performed in the outer quarter to third of the crown on live branches and anywhere in the crown to remove dead branches. The smallest possible cuts to reduce the end weight leverage and shorten long branches as possible will be made. On the 3 Cost Live Oaks the largest pruning cut will be 4 inches diameter. On the large Valley Oak the pruning cuts will usually be two to four inches diameter and some large lateral branch reduction cuts will be 6, 8, 10, and 12 inches diameter to reduce the crown. A rare heading cut may be needed.

The total amount of live foliage to be removed from the Coast Live Oaks will be 10% or 15%

The total amount of live foliage to be removed from the Valley Oak will be 15% or 10%. If removed in two phases, the first phase will be 10% to 15% of the foliage, and the second phase will be 10% of the foliage.

Tree List



Tree Insepction at Oak Ridge Elementary School 4501 Martin Luther King Jr. Blvd

Tree List

Tree #	Common Name Species	DBH (in)	Ht Dia Meas At (in)	Canopy Radius (ft)	Condition Rating	Comments	Project options
3254	Valley Oak Quercus lobata	45.8	60	43	3 Fair - Minor Problems	Flare slightly buried, 2 sinuses N 4-5" probe, S sinus 3" probe, SW sinus 10" probe, NW sinus 5" probe, burls on trunk NW 2-3', W 1', S 3', E 3', Dia taken on straight trunk above burls, low lg lateral S at 10'24", low 12" N lateral 11', damaged bark S 4-10', lg lateral N at 16', Co dom at 30', end Wts on long branches, no hollow sounds with mallets foliage normal size, shape, color, medium crown density, no visible crown cavities, growing over ball field & dugout and sports field, no turf around tree for 5' minimum,	prune to reduce end weights by range of 10-20%. If removed mitigate 46 inches
3255	Coast Live Oak Quercus agrifolia	26.1	12	21	2 Poor - Major Structure or Health Problems	Growing in planter between fence and asphalt parking, low W lateral at 30", low E lateral narrow angle, crown mostly N & W, branch dieback E, small branch tip dieback N & S, minor end wts, steel rail & concrete for fence gate grown over with N flare	Prune to remove dead branches & shorten long branches W&N, If removed mitigate 26 inches
3256	Coast Live Oak Quercus agrifolia	21.9	42	21	2 Poor - Major Structure or Health Problems	Growing in planter between fence and asphalt parking, slightly swollen flare, low W lateral at 5', co dom at 9', SGR NE, surface roots E, crown symmetrical N,W,S, light E, sm dead branches E, S, upper W,	Prune to remove dead branches & shorten long branches W, S &NE, If removed mitigate 22 inches
3257	Coast Live Oak Quercus agrifolia	28.7	12	17	2 Poor - Major Structure or Health Problems	Growing in planter between fence and asphalt parking, slightly swollen flare, buttressing E& S, 3 leaders at 18", included bark 4" crease between N, E, S, & W leader, dead branches to 2", end wts in all directions,	Prune to remove dead branches & shorten long branches S, E,N, & E, If removed mitigate 29 inches
4 trees included in inspection, 1 tree in area of new campus, 3 trees adjacent to parking lot on MLK Jr Blvd; if trees are removed, up to 123 inches							

Assignment Assumptions and Limiting Conditions

1. Consultant assumes that any legal description provided to Consultant is correct and that title to property is good and marketable. Consultant assumes no responsibility for legal matters. Consultant assumes all property appraised or evaluated is free and clear, and is under responsible ownership and competent management.
2. Consultant assumes that the property and its use do not violate applicable codes, ordinances, statutes or regulations.
3. Although Consultant has taken care to obtain all information from reliable sources and to verify the data insofar as possible, Consultant does not guarantee and is not responsible for the accuracy of information provided by others.
4. Client may not require Consultant to testify or attend court by reason of any report unless mutually satisfactory contractual arrangements are made, including payment of an additional fee for such Services as described in the Consulting Arborist Agreement.
5. Unless otherwise required by law, possession of this report does not imply right of publication or use for any purpose by any person other than the person to whom it is addressed, without the prior express written consent of the Consultant.
6. Unless otherwise required by law, no part of this report shall be conveyed by any person, including the Client, the public through advertising, public relations, news, sales or other media without the Consultant‘s prior express written consent.
7. This report and any values expressed herein represent the opinion of the Consultant, and the Consultant’s fee is in no way contingent upon the reporting of a specific value, a stipulated result, the occurrence of a subsequent event or upon any finding to be reported.
8. Sketches, drawings and photographs in this report, being intended as visual aids, are not necessarily to scale and should not be construed as engineering or architectural reports or surveys. The reproduction of any information generated by architects, engineers or other consultants and any sketches, drawings or photographs is for the express purpose of coordination and ease of reference only. Inclusion of such information on any drawings or other documents does not constitute a representation by Consultant as to the sufficiency or accuracy of the information.
9. Unless otherwise agreed, (1) information contained in this report covers only the items examined and reflects the condition of those items at the time of inspection; and (2) the inspection is limited to visual examination of accessible items without dissection, excavation, probing or coring. Consultant makes no warranty or guarantee, express or implied that the problems or deficiencies of the plans or property in question may not arise in the future.
10. Loss or alteration of any part of this Agreement invalidates the entire report.

Report Assumptions and Limitations:

This report provides information about the subject trees at the times of the inspection. Trees and conditions may change over time. This report is only valid for the trees with the conditions present at the times of the inspections. All observations were made while standing on the ground. The inspection consisted of visual observations, using a probe to gain additional information about decay and hollow portions of the tree, and if needed, light excavation was performed to observe shallow depth areas below grade at the base of the trees. No further examinations were requested or performed.

Sincere attempts were made to accurately locate the trees and show the trees on the pan. All tree locations were attempted to be shown as observed in the field.

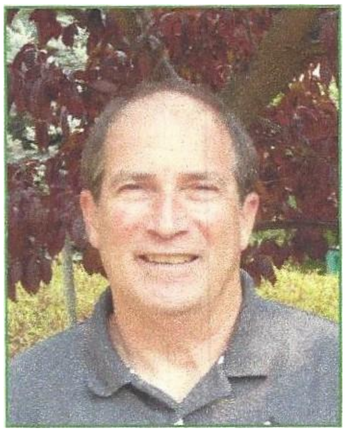
Arborists are tree specialists who use their education, knowledge, training and experience to examine trees, recommend measures to enhance the beauty and health of trees, and attempt to reduce the risk of living near trees. Clients may choose to accept or disregard the recommendations of the arborist or seek additional advice.

Arborists cannot detect every condition that could possibly lead to the structural failure of a tree. Trees are living organisms that can fail in ways we do not fully understand. Conditions are often hidden within trees and below ground. Arborists cannot guarantee that a tree will be healthy or safe under all circumstances, or for a specified period of time. Likewise, remedial treatments, like any medicine, cannot be guaranteed.

Treatments, pruning, and removal of trees may involve considerations beyond the scope of the arborist's services such as property boundaries, property ownership, site lines, disputes between neighbors, landlord-tenant matters, etc. Arborists cannot take such issues into account unless complete and accurate information is given to the arborist. The person hiring the arborist accepts full responsibility for authorizing the recommended treatment or remedial measures.

Trees can be managed, but they cannot be controlled. To live near a tree is to accept some degree of risk. The only way to eliminate all risks is to eliminate all trees. Our company goal is to help clients enjoy life with trees, and grow better trees.

California Tree and Landscape Consulting, Inc.



GORDON MANN

EDUCATION AND QUALIFICATIONS

1977	Bachelor of Science, Forestry, University of Illinois, Champaign.
1982 - 1985	Horticulture Courses, College of San Mateo, San Mateo.
1984	Certified as an Arborist, WE-0151A, by the International Society of Arboriculture (ISA).
2004	Certified as a Municipal Specialist, WE-0151AM, by the ISA.
2011	Registered Consulting Arborist, #480, by the American Society of Consulting Arborists (ASCA).
2003	Graduate of the ASCA Consulting Academy.
2006	Certified as an Urban Forester, #127, by the California Urban Forests Council (CaUFC).
2011	TRACE Tree Risk Assessment Certified, continued as an ISA Qualified Tree Risk Assessor (T.R.A.Q.).

PROFESSIONAL EXPERIENCE

2016 – Present	CALIFORNIA TREE AND LANDSCAPE CONSULTING, INC (CalTLC). Vice President and Consulting Arborist. Auburn. Mr. Mann provides consultation to private and public clients in health and structure analysis, inventories, management pianning for the care of trees, tree appraisal, risk assessment and management, and urban forest management plans.
1986 - Present	MANN MADE RESOURCES. Owner and Consulting Arborist. Auburn. Mr. Mann provides consultation in municipal tree and risk management, public administration, and developing and marketing tree conservation products.
2015 – 2017	CITY OF RANCHO CORDOVA, CA. Contract CityArborist. Mr. Mann serves as the City's first arborist, developing the tree planting and tree maintenance programs, performing tree inspections, updating ordinances, providing public education, and creating a management plan,
1984 - 2007	CITY OF REDWOOD CITY, CA. City Arborist, Arborist, and Public Works Superintendent. Mr. Mann developed the Tree Preservation and Sidewalk Repair Program, supervised and managed the tree maintenance program, performed inspections and administered the Tree Preservation Ordinance. Additionally, he oversaw the following Public Works programs: Streets, Sidewalk, Traffic

Signals and Streetlights, Parking Meters, Signs and Markings, and Trees.

1982 - 1984CITY OF SAN MATEO, CA. Tree Maintenance Supervisor.

For the City of San Mateo, Mr. Mann provided supervision and management of the tree maintenance program, and inspection and administration of the Heritage Tree Ordinance.

1977 - 1982VILLAGE OF BROOKFIELD, IL. Village Forester.

Mr. Mann provided inspection of tree contractors, tree inspections, managed the response to Dutch Elm Disease. He developed an in-house urban forestry program with leadworker, supervision, and management duties to complement the contract program.

1979 INTERNATIONAL SOCIETY OF ARBORICULTURE. Member.

- Board of Directors (2015 - Present)
- True Professional ofArboriculture Award (2011) o In recognition of material and substantial contribution to the progress of arboriculture and having given unselfishly to support arboriculture.

1982 - Present WESTERN CHAPTER ISA (WCISA). Member.

- Chairman of the Student Committee (2014 - Present)
- Member of the Certification Committee (2007 - Present)
- Member of the Municipal Committee (2009 - 2014) • Award of Merit (2016) In recognition of outstanding meritorious service in advancing the principles, ideals and practices of arboriculture.
- Annual Conference Chair (2012)
- President (1992 - 1993)
- Award of Achievement and President's Award (1990)
- 1985 - Present CALIFORNIA URBAN FORESTS COUNCIL (CaUFC). Member; Board Member (2010 - Present)

1985 - Present SOCIETY OF MUNICIPAL ARBORISTS (SMA). Member. e Legacy Project of the Year (2015) o In recognition of outstanding meritorious service in advancing the principles, ideals and practices of arboriculture.

- Board Member (2005 - 2007)

2001 - Present AMERICAN SOCIETY OF CONSULTING ARBORISTS.
Member. e Board of Directors (2006 - 2013)

- President (2012)

2001 - Present CAL FIRE. Advisory Position.

- Chairman of the California Urban Forestry Advisory Committee (2014 - Present)

2007 – Present AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI): A300 TREE MAINTENANCE STANDARDS COMMITTEE. SMA Representative and Alternate.

- Alternative Representative for SMA (2004 - 2007; 2012 - Present)
- Representative for SMA (2007 - 2012)

2007 - Present SACRAMENTO TREE FOUNDATION. Member and Employee.

- Co-chairman of the Technical Advisory Committee (2012 - 2018), member 2018- present
- Urban Forest Services Director (2007 - 2009)
- Facilitator of the Regional Ordinance Committee (2007 - 2009)

1988 - 1994 TREE CLIMBING COMPETITION. Chairman.

- Chairman for Northern California (1988 - 1992)
- Chairperson for International (1991 - 1994)

PUBLICATIONS AND LECTURES

Mr. Mann has authored numerous articles in newsletters and magazines such as Western Arborist, Arborist News, City Trees, Tree Care Industry Association, Utility Arborists Association, CityTrees, and Arborists Online, covering a range of topics on Urban Forestry, Tree Care, and Tree Management. He has developed and led the training for several programs with the California Arborist Association. Additionally, Mr. Mann regularly presents at numerous professional association meetings on urban tree management topics.

Certificate of Performance

I, Gordon Mann, certify that:

> I have personally inspected the trees and site referred to in this report, and have stated my findings accurately. The extent of the inspection is stated in the attached report under Assignment;
>
> I have no current or prospective interest in the vegetation, or the property that is the subject of this report and have no personal interest or bias with respect to the parties involved;
>
> The analysis, opinions and conclusions stated herein are my own and are based on current scientific procedures and facts;
>
> My analysis, opinions, and conclusions were developed, and this report has been prepared according to commonly accepted arboricultural practices;
>
> No one provided significant professional assistance to me, except as indicated within the report;
>
> My compensation is not contingent upon the reporting of a predetermined conclusion that favors the cause of the client, or any other party, nor upon the results of the assignment, the attainment of stipulated results, or the occurrence of any subsequent events.

I further certify that I am a member in good standing of the International Society of Arboriculture (ISA) and an ISA Certified Arborist and Municipal Specialist. I am also a Registered Consulting Arborist member in good standing of the American Society of Consulting Arborists. I have been involved in the practice of arboriculture and the care and study of trees for over 43 years.

Signed:

Gordon Mann
Date: December 21, 2022

Appendix C Noise Analysis

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 ($1x10^{-6}$ 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.

LOCAL REGULATIONS AND STANDARDS

Noise

Policies in this section protect residents, businesses, and visitors from noise hazards by establishing exterior and interior noise standards. Higher exterior noise standards are allowed for residential infill projects and mixed-use developments, as long as the interior noise standard is maintained. Mixed-use projects will be required to mitigate for on-site noise sources to ensure compatibility of uses. These policies also require construction noise impacts to be mitigated and require the reduction of noise from vehicles and aircrafts to protect residents, businesses, and visitors.

Existing noise contours for major sources in Sacramento, which include motor vehicles on roadways, aircraft at Sacramento International Airport and Executive Airport, light rail and heavy rail are shown in Appendix D. Future noise contours for roadways, based on projected development under the 2030 General Plan, are also shown in Appendix D.

Photograph courtesy of Michael Zwahlen

GOAL EC 3.1

Noise Reduction. Minimize noise impacts on human activity to ensure the health and safety of the community.

Policies

EC 3.1.1 **Exterior Noise Standards.** The City shall require noise mitigation for all development where the projected exterior noise levels exceed those shown in Table EC 1, to the extent feasible. *(RDR)*

Table EC 1 Exterior Noise Compatibility Standards for Various Land Uses

Land Use Type	*Highest Level of Noise Exposure That Is Regarded as “Normally Acceptable”[a] (L_{dn}[b] or CNEL[c])*
Residential—Low Density Single Family, Duplex, Mobile Homes	60 dBA[d,e]
Residential—Multi-family	65 dBA
Urban Residential Infill[f] and Mixed-Use Projects[g]	70 dBA
Transient Lodging—Motels, Hotels	65 dBA
Schools, Libraries, Churches, Hospitals, Nursing Homes	70 dBA
Auditoriums, Concert Halls, Amphitheaters	Mitigation based on site-specific study
Sports Arena, Outdoor Spectator Sports	Mitigation based on site-specific study
Playgrounds, Neighborhood Parks	70 dBA
Golf Courses, Riding Stables, Water Recreation, Cemeteries	75 dBA
Office Buildings—Business, Commercial and Professional	70 dBA
Industrial, Manufacturing, Utilities, Agriculture	75 dBA

SOURCE: Governor’s Office of Planning and Research, *State of California General Plan Guidelines 2003*, October 2003

a. As defined in the *Guidelines*, “Normally Acceptable” means that the “specified land use is satisfactory, based upon the assumption that any building involved is of normal conventional construction, without any special noise insulation requirements.”

b. L_{dn} or Day Night Average Level is an average 24-hour noise measurement that factors in day and night noise levels.

c. CNEL or Community Noise Equivalent Level measurements are a weighted average of sound levels gathered throughout a 24-hour period.

d. dBA or A-weighted decibel scale is a measurement of noise levels.

e. The exterior noise standard for the residential area west of McClellan Airport known as McClellan Heights/Parker Homes is 65 dBA.

f. With land use designations of Central Business District, Urban Neighborhood (Low, Medium, or High) Urban Center (Low or High), Urban Corridor (Low or High).

g. All mixed-use projects located anywhere in the City of Sacramento.

EC 3.1.2 **Exterior Incremental Noise Standards.** The City shall require noise mitigation for all development that increases existing noise levels by more than the allowable increment shown in Table EC 2, to the extent feasible. *(RDR)*

Table EC 2 Exterior Incremental Noise Impact Standards for Noise-Sensitive Uses (dBA)

Residences and buildings where people normally sleep[a]		*Institutional land uses with primarily daytime and evening uses*[b]	
Existing L_{dn}	*Allowable Noise Increment*	*Existing Peak Hour L_{eq}*	*Allowable Noise Increment*
45	8	45	12
50	5	50	9
55	3	55	6
60	2	60	5
65	1	65	3
70	1	70	3
75	0	75	1
80	0	80	0

SOURCE: Federal Transit Administration, *Transit Noise Impact and Vibration Assessment*, May 2006

a. This category includes homes, hospitals, and hotels where a nighttime sensitivity to noise is assumed to be of utmost importance.

b. This category includes schools, libraries, theaters, and churches where it is important to avoid interference with such activities as speech, meditation, and concentration on reading material.

EC 3.1.3 **Interior Noise Standards.** The City shall require new development to include noise mitigation to assure acceptable interior noise levels appropriate to the land use type: 45 dBA L_{dn} for residential, transient lodgings, hospitals, nursing homes and other uses where people normally sleep; and 45 dBA L_{eq} (peak hour) for office buildings and similar uses. *(RDR)*

EC 3.1.4 **Interior Noise Review for Multiple, Loud Short-Term Events.** In cases where new development is proposed in areas subject to frequent, high-noise events (such as aircraft over-flights, or train and truck pass-bys), the City shall evaluate noise impacts on any sensitive receptors from such events when considering whether to approve the development proposal, taking into account potential for sleep disturbance, undue annoyance, and interruption in conversation, to ensure that the proposed development is compatible within the context of its surroundings. *(RDR)*

NOISE TERMINOLOGY

Community Noise Equivalent Level (CNEL). *An L_{dn} with an additional 5 dBA "penalty" for the evening hours between 7:00 P.M. and 10:00 P.M. This is essentially a measure of ambient noise.*

Day-Night Average Noise Level (L_{dn}). *A 24-hour average L_{eq} with a 10 dBA "penalty" added to noise levels during the hours of 10:00 P.M. to 7:00 A.M. to account for increased sensitivity that people tend to have to nighttime noise. Because of this penalty, the L_{dn} would always be higher than its corresponding 24-hour L_{eq} (e.g., a constant 60 dBA noise over 24 hours would have a 60 dBA L_{eq}, but a 66.4 dBA L_{dn}).*

dBA. *Measurement unit for "a-weighted decibels," which are commonly used for measuring environmental and industrial noise and the potential hearing damage associated noise health effects.*

Equivalent Energy Noise Level (L_{eq}). *Constant noise level that would deliver the same acoustic energy to the ear of a listener as the actual time-varying noise would deliver over the same exposure time. No "penalties" are added to any noise levels during the exposure time; L_{eq} would be the same regardless of the time of day during which the noise occurs.*

Sound Exposure Level or Single Event Level (SEL). *A descriptor used to characterize the severity of short-duration sound events. SEL is the time-averaged, constant intensity, A-weighted sound level over a one-second reference time that would produce the same sound exposure as the actual time-varying sound over the actual exposure time. In practice, SEL is usually applied in situations were there are multiple sound events, each one having its own characteristic SEL.*

EC 3.1.5 **Interior Vibration Standards.** The City shall require construction projects anticipated to generate a significant amount of vibration to ensure acceptable interior vibration levels at nearby residential and commercial uses based on the current City or Federal Transit Administration (FTA) criteria. *(RDR)*

See ERC 2, Parks and Recreation, for additional policies on parks and recreation.

EC 3.1.6 **Vibration Screening Distances.** The City shall require new residential and commercial projects located adjacent to major freeways, hard rail lines, or light rail lines to follow the FTA screening distance criteria. *(RDR)*

EC 3.1.7 **Vibration.** The City shall require an assessment of the damage potential of vibration-induced construction activities, highways, and rail lines in close proximity to historic buildings and archaeological sites and require all feasible mitigation measures be implemented to ensure no damage would occur. *(RDR)*

EC 3.1.8 **Operational Noise.** The City shall require mixed-use, commercial, and industrial projects to mitigate operational noise impacts to adjoining sensitive uses when operational noise thresholds are exceeded. *(RDR)*

See LU 4, Neighborhoods, and M 4, Roadways, for additional policies on residential streets, connectivity, and roadways.

EC 3.1.9 **Compatibility with Park and Recreation Uses.** The City shall limit the hours of operation for parks and active recreation areas in residential areas to minimize disturbance to residences. *(RDR/SO)*

EC 3.1.10 **Construction Noise.** The City shall require development projects subject to discretionary approval to assess potential construction noise impacts on nearby sensitive uses and to minimize impacts on these uses, to the extent feasible. *(RDR)*

EC 3.1.11 **Alternatives to Sound Walls.** The City shall encourage the use of design strategies and other noise reduction methods along transportation corridors in lieu of sound walls to mitigate noise impacts and enhance aesthetics. *(RDR)*

EC 3.1.12 **Residential Streets.** The City shall discourage widening streets or converting streets to one-way in residential areas where the resulting increased traffic volumes would raise ambient noise levels. *(MPSP/SO)*

EC 3.1.13 **Vehicle Purchase.** The City shall purchase vehicles and equipment with low noise generation and maintain them to minimize noise. *(SO)*

GOAL EC 3.2

Airport Noise. Minimize exposure to high noise levels in areas of the city affected by Mather, Executive, McClellan, and Sacramento International Airports.

See LU 8, Public/Quasi-Public and Special Uses and M 8, Aviation, for additional policies related to airports and aviation.

Policies

EC 3.2.1 **Land Use Compatibility.** The City shall limit residential development within the 65 dBA CNEL airport noise contour, or in accordance with plans prepared by the Airport Land Use Commission, and shall only approve noise-compatible land uses. *(RDR)*

EC 3.2.2 **Hazardous Noise Protection.** The City shall discourage outdoor activities or uses in areas outside the 70 dBA CNEL airport noise contour where people could be exposed to hazardous noise levels. *(RDR)*

EC 3.2.3 **Cooperative Noise Reduction.** The City shall work with the Sacramento County Airport Systems (SCAS) to monitor aircraft noise, implement noise-reducing operation measures (i.e., Fly Quiet, Fly Neighborly programs), and promote pilot awareness of noise sensitive land uses. *(IGC)* page left intentionally blank

NOISE CONTOURS

APPENDIX C

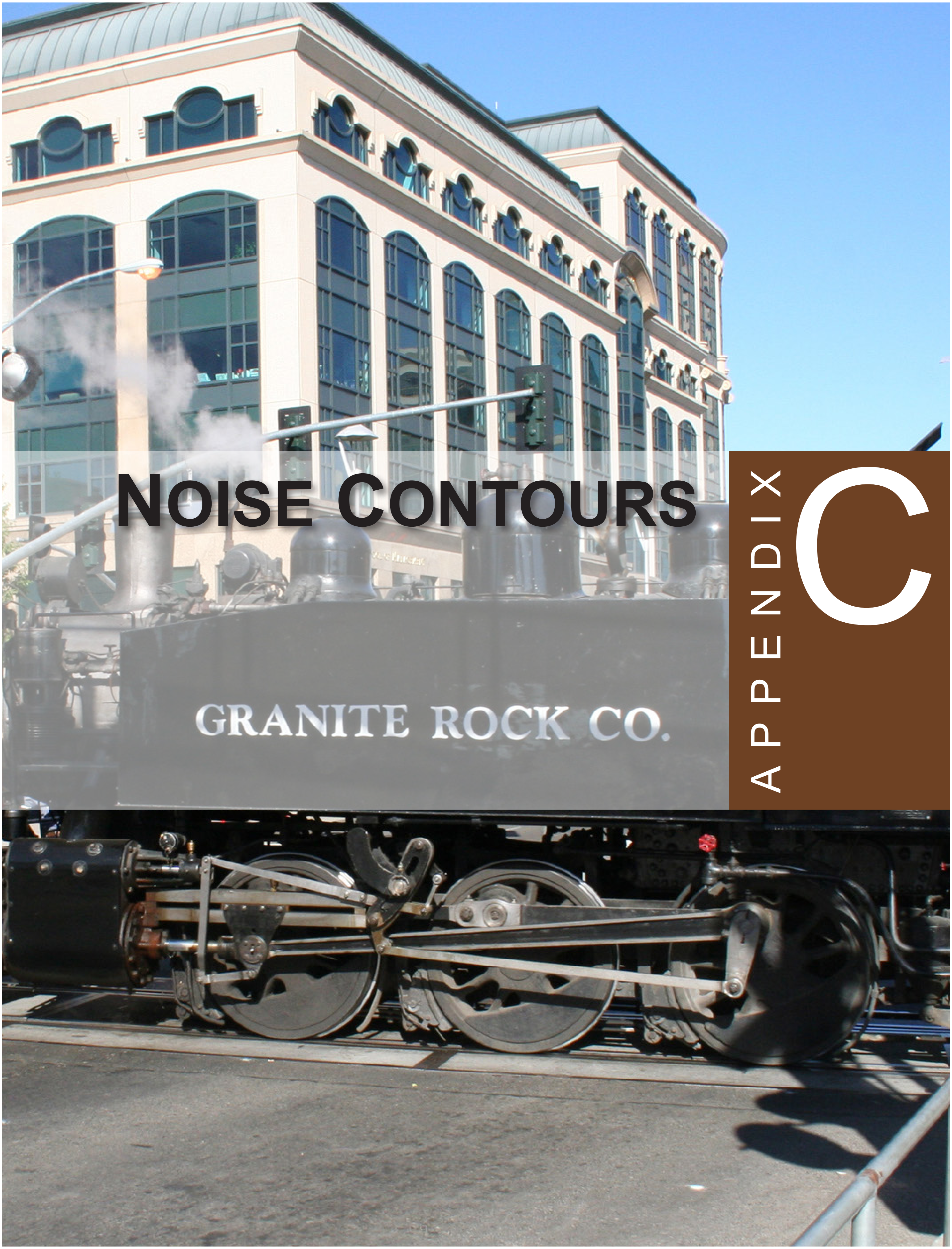


Table 4.8-4 2035 General Plan Noise Levels and Contours

Roadway	From	To	CNEL dBA @ 50’		dBA	Distance to Contour from Centerline (feet)			
			Existing Conditions	2035 General Plan Conditions	Change (2035 GP-Existing)	70 dBA	65 dBA	60 dBA	55 dBA
El Centro Rd	Hankview Rd	Radio Rd	64.9	65.5	0.6	18	56	178	563
El Centro Rd/W El Camino Rd	Radio Rd	I-80	61.4	64.6	3.2	14	45	144	454
W Elkhorn Blvd	E Commerce Way	Natomas Blvd	68.5	70.6	2.1	57	181	571	1805
Del Paso Rd	Power Line Rd	I-5	68.4	69.3	0.9	43	135	428	1354
Del Paso Rd	I-5	Natomas Blvd	73	73	0	99	314	992	3138
Del Paso Rd	Natomas Blvd	Gateway Park Blvd	69.7	72.2	2.5	83	262	830	2624
San Juan Rd	El Centro Rd	Duckhorn Dr	61.1	62.6	1.5	9	28	90	285
Del Paso Rd	Gateway Park Blvd	Northgate Blvd	68.3	71	2.7	63	198	625	1977
Northgate Blvd	Main Ave	North Market Blvd	67	68.3	1.4	34	108	341	1077
Northgate Blvd	North Market Blvd	I-80	69.6	70.7	1.1	59	187	593	1874
Natomas Blvd	W Elkhorn Blvd	Del Paso Rd	68.4	69.8	1.4	48	153	483	1527
Truxel Rd	Arena Blvd	I-80	71.1	72.5	1.4	90	284	897	2836
Truxel Rd	Del Paso Rd	Arena Blvd	67.5	68.2	0.8	33	105	333	1053
North Market Blvd	Truxel Rd	Northgate Blvd	65.8	67.1	1.3	26	81	257	813
Arena Blvd	I-5	Truxel Rd	65.8	66.7	0.9	23	73	232	735
Arena Blvd	El Centro Rd	I-5	67.6	67.6	0	29	91	289	912
E Commerce Way	W Elkhorn Blvd	N Park Dr	61.9	65.8	3.9	19	59	188	594
E Commerce Way	N Park Dr	Del Paso Rd	68	70.5	2.5	56	177	559	1768
E Commerce Way	Del Paso Rd	Arena Blvd	65.1	69.5	4.4	44	140	444	1404
Del Paso Blvd	Globe Ave	El Camino Ave	57.4	60.5	3.1	6	18	57	179
Del Paso Blvd	El Camino Ave	Marysville Blvd	62.6	63.3	0.7	11	34	106	335
Del Paso Blvd	Marysville Blvd	Arcade Blvd	57	59.1	2.1	4	13	40	128
Rio Linda Blvd	Marysville Blvd	Norwood Ave	62.8	64.5	1.7	14	44	140	442
Rio Linda Blvd	Norwood Ave	Arcade Blvd	61.8	62.5	0.7	9	28	89	283
Rio Linda Blvd	Arcade Blvd	Lampasas Ave	63	63.6	0.7	12	37	116	366
Marysville Blvd	Rio Linda Blvd	Bell Ave	57.7	57.8	0.1	3	9	30	95
Marysville Blvd	I-80	Arcade Blvd	63.5	64	0.5	13	40	126	399
Marysville Blvd	Arcade Blvd	Del Paso Blvd	60	60.3	0.3	5	17	54	171
Norwood Ave	Main Ave	I-80	66.6	68	1.4	32	100	317	1003
Norwood Ave	Silver Eagle Rd	El Camino Ave	63.1	63.9	0.8	12	39	123	388

Table 4.8-4 2035 General Plan Noise Levels and Contours

Roadway	From	To	CNEL dBA @ 50’		dBA	Distance to Contour from Centerline (feet)			
			Existing Conditions	2035 General Plan Conditions	Change (2035 GP-Existing)	70 dBA	65 dBA	60 dBA	55 dBA
El Camino Ave	Grove Ave	Del Paso Blvd	63.6	65	1.4	16	50	160	504
El Camino Ave	Del Paso Blvd	I-80 Business	68.5	68.9	0.3	39	122	385	1218
Arden Way	Del Paso Blvd	Royal Oaks Dr	64.1	64.6	0.5	14	46	144	456
Arden Way	Royal Oaks Dr	I-80 Business	65.7	66.6	0.9	23	72	229	723
Grand Ave	Norwood Ave	Rio Linda Blvd	58.2	58.4	0.2	3	11	35	109
Silver Eagle Rd	Northgate Blvd	Norwood Ave	64.7	65.4	0.7	17	55	174	549
Main Ave	Northgate Blvd	Norwood Ave	67.2	69.4	2.1	43	137	432	1366
Main Ave	Norwood Ave	Rio Linda Blvd	64.4	69	4.6	40	126	398	1258
Main Ave	Marysville Blvd	Raley Blvd	52.4	59.6	7.2	5	14	46	144
W Elkhorn Blvd	Natomas Blvd	Rio Linda Blvd	68.2	69.9	1.7	49	156	494	1561
Arcade Blvd	Marysville Blvd	Roseville Rd	68	68.3	0.3	34	107	337	1067
RALEY BL	Ascot Ave	Bell Ave	67.2	70.9	3.7	61	192	608	1923
Bell Ave	Norwood Ave	Winters St	61.2	61.2	0	7	21	66	209
Roseville Rd	Arcade Blvd	Watt Ave	67.3	70.7	3.4	59	188	593	1875
Winters St	Bell Ave	I-80	60.2	61.6	1.4	7	23	72	228
Royal Oaks Dr	Arden Way	SR-160	58.8	59.5	0.7	4	14	45	141
Dry Creek Rd	Marysville Blvd	Grand Ave	54.7	54.7	0	1	5	15	46
Arden Garden Connector	Northgate Blvd	Del Paso Blvd	67.3	68	0.6	31	99	313	991
San Juan Rd	Truxel Rd	Northgate Blvd	66.4	67.6	1.2	28	90	285	900
W El Camino Ave	I-80	I-5	66.1	67.7	1.6	30	94	296	937
W El Camino Ave	I-5	Truxel Rd	67.7	67.7	0	29	93	294	929
W El Camino Ave	Truxel Rd	Northgate Blvd	66	67.3	1.3	27	85	270	855
W El Camino Ave	Northgate Blvd	Grove Ave	61.8	63.8	2	12	38	120	380
Garden Hwy	I-80	Orchard Ln	57.3	57.3	0	3	8	27	84
Garden Hwy	Gateway Oaks Dr	I-5	68.9	69	0.1	39	125	395	1248
Northgate Blvd	I-80	San Juan Rd	68.3	69.2	1	42	133	419	1325
Northgate Blvd	Silver Eagle Rd	Arden Garden Connector	69.3	70.2	0.8	52	164	519	1642
Truxel Rd	W El Camino Ave	Garden Hwy	65	68.5	3.5	36	113	356	1127
Truxel Rd	San Juan Rd	W El Camino Ave	67.6	68.7	1.1	37	117	369	1168
Truxel Rd	I-80	San Juan Rd	69.4	69.6	0.2	45	143	452	1428
I St	5th St	12th St	62.9	63.8	0.9	12	38	120	378
I St	21st St	29th St	55.7	56.8	1.1	2	8	24	76
L St	5th St	15th St	59.9	60.8	0.9	6	19	60	191

Table 4.8-4 2035 General Plan Noise Levels and Contours

Roadway	From	To	CNEL dBA @ 50'		dBA	Distance to Contour from Centerline (feet)			
			Existing Conditions	2035 General Plan Conditions	Change (2035 GP-Existing)	70 dBA	65 dBA	60 dBA	55 dBA
L St	15th St	29th St	59.3	59.3	0	4	14	43	135
P St	16th St	29th St	59.9	59.9	0	5	16	49	156
J St	3rd St	7th St	63.5	63.5	0	11	36	113	358
J St	21st St	29th St	62.2	64.2	2	13	41	131	413
Q St	3rd St	10th St	61.6	61.9	0.3	8	24	77	243
7th St	P St	J St	55.1	58.8	3.7	4	12	38	121
12th St	D St	I St	57.7	57.7	0	3	9	30	93
12th St	N St	P St	49.7	50	0.3	1	2	5	16
15th St	X St	Broadway	58.6	59.3	0.8	4	14	43	136
15th St	J St	P St	60.8	60.8	0	6	19	60	191
16th St	P St	W St	61.9	61.9	0	8	25	78	247
29th St	J St	P St	60.7	63.6	2.9	11	36	115	362
30th St	P St	J St	58.7	61.4	2.7	7	22	68	216
Alhambra Blvd	Stockton Blvd	Broadway	61.7	61.7	0	7	23	74	234
Broadway	3rd St	5th St	59.4	59.5	0.1	4	14	45	141
Broadway	Riverside Blvd	Franklin Blvd	61.7	63.3	1.6	11	34	107	337
Richards Blvd	Bercut Dr	N 7th St	65.7	65.8	0	19	60	188	596
Exposition Blvd	SR-160	I-80 Business	67.1	67.6	0.5	28	90	285	900
Exposition Blvd	I-80 Business	Arden Way	72.2	73.4	1.1	109	344	1088	3442
Arden Way	I-80 Business	Exposition Blvd	71.3	72	0.8	80	253	802	2535
El Camino Ave	I-80 Business	Howe Ave	70.9	71.3	0.4	67	212	671	2121
Marconi Ave	I-80 Business	Bell St	68.8	68.8	0	38	119	375	1186
Auburn Blvd	Howe Ave	Watt Ave	62.7	64.2	1.5	13	41	131	413
Auburn Blvd	Watt Ave	SR-244	68.5	68.9	0.4	39	122	387	1222
Auburn Blvd	El Camino Ave	Arcade Blvd	60.9	63	2.2	10	32	101	319
American River Dr	Howe Ave	Watt Ave	63.8	64.9	1.1	15	49	154	487
Heritage Ln	Arden Way	Exposition Blvd	59.8	61	1.2	6	20	63	200
Howe Ave	US-50	Fair Oaks Blvd	69.3	70.1	0.9	52	163	516	1632
Howe Ave	Fair Oaks Blvd	Hurley Way	69.3	70.5	1.2	56	177	558	1766
Howe Ave	Hurley Way	El Camino Ave	68.7	70	1.3	50	159	503	1589
Howe Ave	El Camino Ave	Auburn Blvd	67.2	70	2.8	50	159	502	1588
Alta Arden Ex	Howe Ave	Fulton Ave	67.3	68.3	1	34	107	339	1073
Fair Oaks Blvd	Howe Ave	Munroe St	69.9	69.9	0	49	154	488	1544
Fair Oaks Blvd	Munroe St	Watt Ave	71.3	71.6	0.4	73	230	728	2301
Fair Oaks Blvd	Watt Ave	Eastern Ave	73	73.6	0.6	115	364	1150	3636

Table 4.8-4 2035 General Plan Noise Levels and Contours

Roadway	From	To	CNEL dBA @ 50'		dBA	Distance to Contour from Centerline (feet)			
			Existing Conditions	2035 General Plan Conditions	Change (2035 GP-Existing)	70 dBA	65 dBA	60 dBA	55 dBA
Watt Ave	Fair Oaks Blvd	US-50	74.3	75	0.7	160	504	1595	5045
Elvas Ave/56th St	52nd St	H St	63	65.8	2.8	19	60	191	603
Elvas Ave	J ST	Folsom Blvd	66.4	66.9	0.5	25	78	247	780
H St	Alhambra Blvd	45th St	64.2	64.2	0	13	42	132	419
H St	45th St	Carlson Dr	64.4	65.7	1.3	19	59	188	593
J St	Alhambra Blvd	56th St	64.1	64.3	0.3	14	43	136	430
Folsom Blvd	47th St	65th St	68.3	69.3	1	43	135	428	1354
Folsom Blvd	Howe Ave	Jackson Hwy	69.6	70.5	0.9	57	179	565	1788
Howe Ave	US 50	14th Ave	71.1	72.1	1	82	259	819	2588
Stockton Blvd	Alhambra Blvd	US-50	60.5	63.1	2.6	10	32	101	320
Jackson Hwy	Folsom Blvd	S Watt Ave	66.9	69.3	2.4	43	135	428	1354
Hornet Dr	US-50 WB Ramps	Folsom Blvd	64	65.4	1.4	17	55	174	551
La Rivera Dr	Watt Ave	Folsom Blvd	66.7	66.8	0	24	75	238	751
Carlson Dr	Moddison Ave	H St	59.6	60.4	0.8	5	17	55	172
College Town Dr	Hornet Dr	La Rivera Dr	63.5	65.1	1.6	16	52	164	517
39th St	Folsom Blvd	J St	55.7	57.4	1.7	3	9	27	87
59th St	Folsom Blvd	Broadway	62.4	62.4	0	9	27	87	274
C St	33rd St	McKinley Blvd	61.2	64.3	3.2	14	43	136	429
Sutterville Rd	Riverside Blvd	Freeport Blvd	62.8	62.9	0.1	10	31	97	306
Sutterville Rd	24th St	Franklin Blvd	65.1	65.6	0.5	18	57	180	569
Seamas Ave	I-5	S Land Park Dr	64.3	64.8	0.6	15	48	152	479
Fruitridge Rd	S Land Park Dr	Freeport Blvd	64.3	64.3	0	13	42	133	421
Fruitridge Rd	Freeport Blvd	Franklin Blvd	66.2	66.5	0.3	22	71	223	707
Fruitridge Rd	Franklin Blvd	SR-99	65.8	65.9	0.1	19	61	193	612
Franklin Blvd	Broadway	5th Ave	61.8	65.1	3.3	16	52	163	516
Franklin Blvd	Sutterville Rd	Fruitridge Rd	67.9	68.7	0.8	37	118	373	1180
Freeport Blvd	Sutterville Rd (S)	Fruitridge Rd	68.3	68.7	0.4	37	117	369	1168
Riverside Blvd	Broadway	2nd Ave	59.6	60.2	0.6	5	16	52	165
Riverside Blvd	Sutterville Rd	Seamas Ave	58.5	58.5	0.1	4	11	36	113
Land Park Dr	Broadway	Vallejo Way	60.8	61.1	0.3	6	20	64	204
S Land Park Dr	Sutterville Rd	Seamas Ave	56.9	57	0.1	3	8	25	80
24th St	Sutterville Rd	Fruitridge Rd	62.2	63	0.8	10	32	100	316
Stockton Blvd	US-50	Broadway	66.3	66.9	0.6	25	78	247	782

Table 4.8-4 2035 General Plan Noise Levels and Contours

Roadway	From	To	CNEL dBA @ 50'		dBA	Distance to Contour from Centerline (feet)			
			Existing Conditions	2035 General Plan Conditions	Change (2035 GP-Existing)	70 dBA	65 dBA	60 dBA	55 dBA
Stockton Blvd	Broadway	Fruitridge Rd	67.6	67.9	0.2	31	97	305	966
Broadway	Alhambra Blvd	Stockton Blvd	66.3	67.2	0.9	27	84	265	838
Broadway	Stockton Blvd	65th St	66.1	66.5	0.5	22	71	225	710
65th St	Elvas Ave	14th Ave	68.5	69.4	0.9	43	137	433	1371
Power Inn Rd	14th Ave	Fruitridge Rd	70.8	71.6	0.8	73	229	726	2295
12th Ave	Martin Luther King Jr Blvd	SR-99	62.8	62.9	0.1	10	31	98	311
14th Ave	65th St	Power Inn Rd	64.4	66	1.6	20	63	198	627
Florin Perkins Rd	Folsom Blvd	Fruitridge Rd	66.9	66.9	0	25	78	247	780
Fruitridge Rd	SR-99	44th St	65.4	66.3	0.9	21	67	213	675
Fruitridge Rd	44th St	Stockton Blvd	70.5	70.9	0.4	61	193	610	1929
Fruitridge Rd	Stockton Blvd	65th St	65.6	66.2	0.6	21	66	208	657
Fruitridge Rd	65th St	Florin Perkins Rd	67.6	68.2	0.6	33	104	330	1043
Fruitridge Rd	Florin Perkins Rd	S Watt Ave	67.6	68.5	0.9	35	112	355	1122
Martin Luther King Jr Blvd	Broadway	Fruitridge Rd	60.3	61.1	0.9	7	21	65	206
T St	Stockton Blvd	59th St	53.5	54	0.5	1	4	12	40
33rd St	4th Ave	12th Ave	57.9	58.3	0.4	3	11	34	108
Raley Blvd	Bell Ave	I-80	68.4	70	1.6	50	157	497	1573
S Watt Ave	US-50	Kiefer Blvd	72.1	74.3	2.2	135	426	1347	4260
Florin Rd	Riverside Blvd	Havenside Dr	63.1	63.4	0.3	11	35	110	347
Florin Rd	Havenside Dr	I-5	67.9	68.6	0.7	36	114	361	1142
Riverside Blvd/ Pocket Rd	Florin Rd	Greenhaven dr	63.9	64	0	13	40	125	396
Pocket Rd	Greenhaven dr	Freeport Blvd	66.3	67.1	0.8	26	81	258	815
43rd Ave	Gloria Dr	13th St	58.8	58.8	0	4	12	38	120
S Land Park Dr	Windbridge Dr	Florin Rd	58.2	58.5	0.2	4	11	35	111
Gloria Dr	Florin Rd	43rd Ave	56.6	56.6	0	2	7	23	72
Greenhaven Dr	Gloria Dr	Florin Rd	60.6	60.7	0.1	6	19	59	186
Freeport Blvd	Pocket Rd	South City Limits	66.1	70.2	4	52	164	518	1638
Freeport Blvd	Florin Rd	Pocket Rd	68.2	68.7	0.6	37	118	373	1181
24th St	Fruitridge Rd	Florin Rd	67.2	67.9	0.7	31	98	309	977
24th St	Florin Rd	Meadowview Rd	63.8	65.4	1.5	17	55	173	546
Meadowview Rd	Freeport Blvd	Brookfield Dr	69.8	69.8	0	48	152	479	1516
Florin Rd	Freeport Blvd	Franklin Blvd	69.5	70	0.5	50	157	496	1569

Table 4.8-4 2035 General Plan Noise Levels and Contours

Roadway	From	To	CNEL dBA @ 50’		dBA	Distance to Contour from Centerline (feet)			
			Existing Conditions	2035 General Plan Conditions	Change (2035 GP-Existing)	70 dBA	65 dBA	60 dBA	55 dBA
43rd Ave/Blair Ave	13th St	Freeport Blvd	59.6	59.6	0.1	5	14	46	145
47th Ave	24th St	Franklin Blvd	69.3	70.1	0.8	51	162	512	1618
Franklin Blvd	Fruitridge Rd	47th Ave	67.3	68.1	0.8	33	103	326	1031
Stockon Blvd	Florin Rd	Mack Rd	70	71.2	1.2	66	209	659	2085
65th St	14th Ave	Fruitridge Rd	68	68.7	0.6	37	116	368	1164
65th Ex	Elder Creek Rd	Stockton Blvd	68.2	68.7	0.5	37	117	371	1174
Power Inn Rd	Fruitridge Rd	Florin Rd	69.8	70.4	0.6	55	173	546	1726
S Watt Ave	Kiefer Blvd	Jackson Hwy	70.8	73.9	3.2	124	392	1239	3919
Florin Rd	Franklin Blvd	SR-99	71.9	72.4	0.5	87	276	872	2756
Florin Rd	SR-99	65th St	73.2	73.9	0.7	122	385	1216	3847
Florin Rd	65th St	Stockton Blvd	70.5	71.7	1.2	74	234	741	2343
Florin Rd	Stockton Blvd	Power Inn Rd	69.5	70.3	0.8	53	168	531	1678
Florin Rd	Power Inn Rd	Florin Perkins Rd	69	70.1	1.1	51	162	513	1624
Elder Creek Rd	Stockton Blvd	Florin Perkins Rd	69.5	70.2	0.7	52	164	519	1642
Elder Creek Rd	Florin Perkins Rd	Hedge Ave	65.1	68.9	3.8	39	122	387	1223
Florin Perkins Rd	Fruitridge Rd	Elder Creek Rd	68.8	69.2	0.5	42	132	419	1324
Florin Perkins Rd	Elder Creek Rd	Florin Rd	68.6	68.6	0	36	115	364	1150
Mack Rd	Meadowview Rd	Franklin Blvd	69.6	69.6	0	46	144	457	1444
Mack Rd	Franklin Blvd	Center Pkwy	70.5	70.9	0.4	62	195	618	1953
Mack Rd	Center Pkwy	Stockton Blvd	69.9	70.4	0.5	55	174	551	1744
Center Pkwy	Tangerine Ave	Mack Rd	60.4	60.7	0.3	6	19	59	186
Center Pkwy	Mack Rd	Bruceville Rd	60.9	60.9	0	6	19	61	194
Valley Hi Dr	Franklin Blvd	Center Pkwy	64.1	64.8	0.7	15	48	151	479
Valley Hi Dr	Center Pkwy	Mack Rd	67.2	67.2	0	27	84	265	838
Bruceville Rd	Valley Hi Dr	Consumnes River Blvd	64.7	66.7	2	23	73	232	734
Bruceville Rd	Consumnes River Blvd	Calvine Rd	70.9	70.9	0	61	194	614	1941
Franklin Blvd	Village Wood Dr	Big Horn Blvd	66.9	66.9	0	25	78	247	780
Franklin Blvd	Mack Rd	Turnbridge Dr	69.3	69.7	0.4	47	147	466	1474
Franklin Blvd	47th Ave	Turnbridge Dr	70.1	70.5	0.4	56	176	557	1762
Stockton Blvd	Fruitridge Rd	Florin Rd	69.8	70.2	0.4	52	165	521	1648
65th Ex	Stockton Blvd	Florin Rd	68.5	69	0.5	40	126	398	1258
Power Inn Rd	Florin Rd	Elsie Ave	70.7	71	0.4	64	201	637	2013

Table 4.8-4 2035 General Plan Noise Levels and Contours

Roadway	From	To	CNEL dBA @ 50’		dBA	Distance to Contour from Centerline (feet)			
			Existing Conditions	2035 General Plan Conditions	Change (2035 GP-Existing)	70 dBA	65 dBA	60 dBA	55 dBA
47th Ave	Franklin Blvd	SR-99	71.1	71.7	0.6	74	233	737	2331
47th Ave	SR-99	Stockton Blvd	71.1	71.4	0.3	69	217	686	2169
Franklin Blvd	Mack Rd	Village Wood Dr	69.3	69.5	0.2	44	140	441	1396
Elkhorn Blvd	SR-99	E Commerce Way	69.1	70.1	1	51	163	515	1628
Freeport Blvd	Sutterville Rd (N)	Sutterville Rd (S)	65.4	65.7	0.2	18	58	184	582
Folsom Blvd	US-50	Howe Ave	69.3	70.5	1.2	56	177	559	1768
Cosumnes River Blvd	Franklin Blvd	Center Pkwy	67.9	70.5	2.6	56	179	565	1786
Freeport Blvd	21st St	Sutterville Rd (N)	64.9	65.9	1	19	62	195	615
Freeport Blvd	Broadway	21st St	60.6	62.5	1.9	9	28	89	280
Land Park Dr	Vallejo Way	13th Ave (S)	61.4	61.4	0.1	7	22	69	219
Land Park Dr	13th Ave (S)	Sutterville Rd	59.2	59.4	0.2	4	14	44	139
Riverside Blvd	7th Ave	Sutterville Rd	63.9	65.2	1.3	17	52	166	524
Riverside Blvd	2nd Ave	7th Ave	61.1	61.6	0.5	7	23	72	228
24th St	Donner Way	Sutterville Rd	52.2	54.9	2.7	2	5	15	49
Sutterville Rd	Freeport Blvd	Sutterville Bypass	64.6	64.7	0	15	46	146	462
5th St	Broadway	Vallejo Way	55.4	56.4	1	2	7	22	70
Broadway	5th St	Riverside Blvd	60.6	60.6	0	6	18	57	182
Elder Creek Rd	Florin Perkins Rd	S Watt Ave	65.9	68.4	2.4	34	108	343	1084
Richards Blvd	N 7th St	N 12th St	63	66.5	3.6	23	71	226	714
12th St	Richards Blvd	D St	65.2	66.7	1.5	23	74	235	743
16th St	Richards Blvd	I St	69.6	70.2	0.6	52	165	523	1654
N 7th St	Richards Blvd	B St	60	63.9	3.9	12	39	124	391
Florin Rd	I-5	Freeport Blvd	69.4	69.8	0.4	48	150	475	1503
Cosumnes River Blvd	Center Pkwy	SR-99	66.3	68	1.7	32	100	316	999
Garden Hwy	Orchard Ln	Gateway Oaks Dr	69.4	69.4	0	44	138	437	1383
J St	7th St	10th St	62.9	62.9	0	10	31	98	310
J St	10th St	16th St	63.2	63.3	0	11	34	106	335
P St	16th St	9th St	59.7	59.7	0	5	15	46	146
P St	9th St	2nd St	59.8	59.8	0	5	15	48	152
Franklin Blvd	5th Ave	Sutterville Rd	65.2	67	1.8	25	80	252	797
J St/Fair Oaks Blvd	H St	Howe Ave	61.2	63.9	2.7	12	39	124	392
Folsom Blvd	Jackson Hwy	S Watt Ave	63.9	64.6	0.7	14	45	144	455

Table 4.8-4 2035 General Plan Noise Levels and Contours

Roadway	From	To	CNEL dBA @ 50'		dBA	Distance to Contour from Centerline (feet)			
			Existing Conditions	2035 General Plan Conditions	Change (2035 GP-Existing)	70 dBA	65 dBA	60 dBA	55 dBA
Riverside Blvd/43rd Ave	Florin Rd	Gloria Dr	67.9	68	0.1	31	99	315	995
Freeport Blvd	Fruitridge Rd	Florin Rd	67.9	68.7	0.8	37	117	369	1168
Garden Hwy	I-5	Truxel Rd	72.2	72.8	0.6	95	301	952	3012
Garden Hwy	Truxel Rd	Northgate Blvd	73.4	73.7	0.3	118	375	1184	3745
Norwood Ave	I-80	Silver Eagle Rd	66.2	67	0.8	25	80	252	797
SR-99	W Elkhorn Blvd	I-5/SR-99 Interchange	79.2	81.1	1.9	644	2035	6436	20352
I-5	I-5/SR-99 Interchange	Arena Blvd	83.3	84.3	1	1345	4255	13455	42547
I-5	Arena Blvd	I-5/I-80 Interchange	83.8	85	1.2	1595	5043	15948	50432
I-5	I-5/I-80 Interchange	W El Camino Ave	82.2	83.3	1	1064	3364	10637	33638
I-5	W El Camino Ave	Richards Blvd	84.6	85.2	0.5	1640	5187	16401	51866
I-5	Richards Blvd	J St	84.6	84.8	0.2	1518	4800	15179	48000
I-5	J St	I-5/I-80 Business & US 50 Interchange	84.5	84.4	-0.1	1384	4375	13835	43750
I-5	I-5/I-80 Business & US-50 Interchange	Sutterville Rd	82.5	82.6	0.1	912	2883	9115	28826
I-5	Sutterville Rd	43rd Ave	83.4	83.7	0.3	1173	3709	11730	37094
I-5	43rd Ave	Florin Rd	81.6	82.1	0.4	807	2552	8071	25523
I-5	Florin Rd	City Limits	80.9	81.6	0.7	716	2263	7156	22630
SR-99	SR-99/I-80 Business/US-50 Interchange	Fruitridge Rd	85.3	86.1	0.8	2027	6410	20271	64102
SR-99	Fruitridge Rd	47th Ave	83.9	85.2	1.4	1670	5281	16701	52813
SR-99	47th Ave	Mack Rd	84.4	85.7	1.2	1842	5824	18417	58240
SR-99	Mack Rd	Sheldon Rd	82	83.4	1.5	1103	3487	11026	34867
I-80	Garden Hwy	I-5/I-80 Interchange	81.2	81.6	0.5	731	2312	7310	23117
I-80	I-5/I-80 Interchange	Northgate Blvd	83.5	83.7	0.2	1167	3689	11666	36890
I-80	Northgate Blvd	Watt Ave	83.6	83.8	0.1	1187	3753	11868	37530
US-50/I-80 Business	I-5/US-50 & I-80 Business Interchange	SR-99/US-50/I-80 Business Interchange	86.1	86.6	0.5	2288	7235	22878	72346

Table 4.8-4 2035 General Plan Noise Levels and Contours

Roadway	From	To	CNEL dBA @ 50'		dBA	Distance to Contour from Centerline (feet)			
			Existing Conditions	2035 General Plan Conditions	Change (2035 GP-Existing)	70 dBA	65 dBA	60 dBA	55 dBA
US-50	SR-99/ US-50/I-80 Business Interchange	65th St	85.7	86	0.3	1974	6241	19737	62413
US-50	65th St	S Watt Ave	84.5	84.7	0.2	1464	4628	14637	46285
I-80 Business	SR-99/ US-50/I-80 Business Interchange	J St	82.7	83.4	0.7	1102	3484	11018	34842
I-80 Business	J St	SR-160 Interchange	84.3	84.1	-0.2	1286	4068	12864	40678
I-80 Business	SR-160 Interchange	El Camino Ave	84.1	84.7	0.6	1488	4705	14879	47053
I-80 Business	El Camino Ave	Marconi Ave	83.8	84.5	0.6	1402	4434	14021	44339
I-80 Business	Marconi Ave	Fulton Ave	83.3	83.6	0.3	1156	3656	11560	36557
I-80 Business	Fulton Ave	City Limits	83.5	83.7	0.2	1173	3709	11730	37094
SR-160	Richards Blvd	Business 80 Interchange	77.6	78.7	1.1	372	1175	3716	11750

Note: The yellow highlighted roadways would experience incremental noise increases that exceed standards shown in Table EC-2 in the proposed policies

Source: Modeled by Ascent Environmental 2014

Sacramento, California City Code

Title 8 HEALTH AND SAFETY

Chapter 8.68 NOISE CONTROL

Article I. General Provisions

Article II. Noise Standards

Article I. General Provisions

8.68.010 Legislative findings.

A. Excessive, unnecessary or offensive noise within the city is detrimental to the public health, safety, welfare and the peace and quiet of the inhabitants of the city and therefore is declared a public nuisance; and

B. Every person in the city is entitled to live in an environment free from excessive, unnecessary or offensive noise levels; and

C. The establishment of maximum permissible noise levels will further the public health, safety, welfare and peace and quiet of county inhabitants. (Prior code § 66.01.101)

8.68.020 Declaration of policy.

It is declared to be the policy and purpose of this chapter to assess complaints of noises alleged to exceed the ambient noise levels. Further, it is declared to be the policy to contain sound levels in the city at their present levels with the ultimate goal of reducing such levels, when and where feasible and without causing undue burdens, to meet the noise standards set forth in this chapter. (Prior code § 66.01.102)

8.68.030 Liberal construction.

This chapter shall be liberally construed so as to effectuate its purposes. (Prior code § 66.01.103)

8.68.040 Definitions.

The following words, phrases and terms as used in this chapter shall have the following meanings:

“Agricultural property” means a parcel of property used in part or whole for agricultural purposes.

“Ambient noise level” means the all-encompassing noise level associated with a given environment, being a composite of sounds from all sources, excluding the alleged offensive noise, at the location and approximate time at which a comparison with the alleged offensive noise is to be made.

“Cumulative period” means an additive period of time composed of individual time segments which may be continuous or interrupted.

“Decibel” or “dB” means a unit which denotes the ratio between two quantities which are proportional to power; the number of decibels corresponding to the ratio of two amounts of power is ten (10) times the logarithm to the base of ten (10) of this ratio.

“Emergency work” means the use of any machinery, equipment, vehicle, manpower or other activity in an effort to protect, maintain, provide or restore safe conditions in the community or for citizenry, or work by private or public utilities when restoring utility service.

“Hertz” means a unit of measurement of frequency, numerically equal to cycles per second.

“Impulsive noise” means a noise characterized by brief excursions of sound pressures whose peak levels are very much greater than the ambient noise level, such as might be produced by the impact of a pile driver, punch press or a drop hammer, typically with one second or less duration.

“Noise level” means the “A” weighed sound pressure level in decibels obtained by using a sound level meter at slow response with a reference pressure of twenty (20) microPascals. The unit of measurement shall be designated as dBA.

“Person” means a person, firm, association, copartnership, joint venture, corporation or any entity, public or private in nature.

“Portable gasoline-powered blower” means any portable power equipment that is powered by a gasoline engine and commonly used in landscape or property maintenance to blow, disperse, or redistribute dust, dirt, leaves, grass clippings, cuttings, and trimmings from trees and shrubs or other debris on sidewalks, driveways, lawns, or other surfaces.

“Residential property” means a parcel of real property which is developed and used either in part or in whole for residential purposes other than transient uses such as hotels and motels, and other than nonconforming residential uses within C-4, M-1, M-2, M-1-S, and M-2-S zones.

“Simple tone noise” or “pure tone noise” means a noise characterized by the presence of a predominant frequency or frequencies such as might be produced by whistle or hum.

“Sound level meter” means an instrument that meets or exceeds American National Standard Institute’s Standard S1.4-1971 for Type 2 sound level meters or an instrument and the associated recording and analyzing equipment which will provide equivalent data.

“Sound pressure level” means a sound pressure level of a sound, in decibels, as defined in ANSI Standards 51.2-1962 and 51.13-1921; that is, twenty (20) times the logarithm to the base ten (10) of the ratio of the pressure of the sound to a reference pressure, which reference pressure shall be 0.0002 dynes per square centimeter. (Prior code § 66.01.105)

8.68.050 Sound level measurement (general).

A. Any noise level measurements made pursuant to the provisions of this chapter shall be performed using a sound level meter as defined in Section 8.68.040 of this chapter.

B. The location selected for measuring exterior noise levels shall be at any point on the receiver’s affected property. In the case of interior noise measurements, the windows shall be in normal seasonal configuration and the measurement shall be made at a point at least four feet from the wall, ceiling or floor nearest the affected occupied area. (Prior code § 66.01.106)

Article II. Noise Standards

8.68.060 Exterior noise standards.

A. The following noise standards unless otherwise specifically indicated in this article shall apply to all agricultural and residential properties.

1. From seven a.m. to ten p.m. the exterior noise standard shall be fifty-five (55) dBA.

2. From ten p.m. to seven a.m. the exterior noise standard shall be fifty (50) dBA.

B. It is unlawful for any person at any location to create any noise which causes the noise levels when measured on agricultural or residential property to exceed for the duration of time set forth following, the specified exterior noise standards in any one hour by:

	Cumulative Duration of the Intrusive Sound	**Allowance Decibels**
1.	Cumulative period of 30 minutes per hour	0
2.	Cumulative period of 15 minutes per hour	+5
3.	Cumulative period of 5 minutes per hour	+10

	Cumulative Duration of the Intrusive Sound	Allowance Decibels
4.	Cumulative period of 1 minute per hour	+15
5.	Level not to be exceeded for any time per hour	+20

C. Each of the noise limits specified in subsection B of this section shall be reduced by five dBA for impulsive or simple tone noises, or for noises consisting of speech or music.

D. If the ambient noise level exceeds that permitted by any of the first four noise limit categories specified in subsection B of this section, the allowable noise limit shall be increased in five dBA increments in each category to encompass the ambient noise level. If the ambient noise level exceeds the fifth noise level category, the maximum ambient noise level shall be the noise limit for that category. (Prior code § 66.02.201)

8.68.070 Interior noise standards.

A. In any apartment, condominium, townhouse, duplex or multiple dwelling unit it is unlawful for any person to create any noise from inside his or her unit that causes the noise level when measured in a neighboring unit during the periods ten p.m. to seven a.m. to exceed:

1. Forty-five (45) dBA for a cumulative period of more than five minutes in any hour;

2. Fifty (50) dBA for a cumulative period of more than one minute in any hour;

3. Fifty-five (55) dBA for any period of time.

B. If the ambient noise level exceeds that permitted by any of the noise level categories specified in subsection A of this section, the allowable noise limit shall be increased in five dBA increments in each category to encompass the ambient noise level. (Prior code § 66.02.202)

8.68.080 Exemptions.

The following activities shall be exempted from the provisions of this chapter:

A. School bands, school athletic and school entertainment events. School entertainment events shall not include events sponsored by student organizations;

B. Activities conducted on parks and public playgrounds, provided such parks and public playgrounds are owned and operated by a public entity;

C. Any mechanical device, apparatus or equipment related to or connected with emergency activities or emergency work;

D. Noise sources due to the erection (including excavation), demolition, alteration or repair of any building or structure between the hours of seven a.m. and six p.m., on Monday, Tuesday, Wednesday, Thursday, Friday and Saturday, and between nine a.m. and six p.m. on Sunday; provided, however, that the operation of an internal combustion engine shall not be exempt pursuant to this subsection if such engine is not equipped with suitable exhaust and intake silencers which are in good working order. The director of building inspections, may permit work to be done during the hours not exempt by this subsection in the case of urgent necessity and in the interest of public health and welfare for a period not to exceed three days. Application for this exemption may be made in conjunction with the application for the work permit or during progress of the work;

E. Noise sources associated with agricultural operations provided such operations take place between the hours of six a.m. and eight p.m.; provided, however, that the operation of an internal combustion engine shall not be exempt pursuant to this subsection if such engine is not equipped with suitable exhaust and intake silencers which are in good working order;

F. Any mechanical device, apparatus or equipment which are utilized for the protection or salvage of agricultural crops during period of adverse weather conditions or when the use of mobile noise sources is necessary for pest control; provided, however, that the operation of an internal combustion engine shall not be exempt pursuant to this subsection if such engine is not equipped with suitable exhaust and intake silencers which are in good working order;

G. Noise sources associated with maintenance of street trees and residential area property provided said activities take place between the hours of seven a.m. and six p.m.;

H. Tree and park maintenance activities conducted by the city department of parks and community services; provided, however, that use of portable gasoline-powered blowers within two hundred (200) feet of residential property shall comply with the requirements of Section 8.68.150 of this chapter;

I. Any activity to the extent provisions of Chapter 65 of Title 42 of the United States Code, and Articles 3 and 3.5 of Chapter 4 of Division 9 of the Public Utilities Code of the state of California preempt local control of noise regulations and land use regulations related to noise control of airports and their surrounding geographical areas, any noise source associated with the construction, development, manufacture, maintenance, testing or operation of any aircraft engine, or of any weapons system or subsystems which are owned, operated or under the jurisdiction of the United States, any other activity to the extent regulation thereof has been preempted by state or federal law or regulation;

J. Any noise sources associated with the maintenance and operation of aircraft or airports which are owned or operated by the United States. (Ord. 2010-021 § 10; prior code § 66.02.203)

8.68.090 Pre-existing industrial or commercial facilities—Transition period.

A. Any industrial or commercial facility in existence prior to the effective date of this chapter shall be allowed a one year period commencing on said date within which to comply with this chapter.

B. During said one year period all such facilities shall make reasonable efforts to be in compliance and to reduce noise which exceeds the standards specified in this chapter. Commencing at the end of one year after the effective date of this chapter, any such facility shall be subject to all applicable requirements of this chapter.

C. If any facility which is not in compliance by the end of said one year period applies for a variance pursuant to Section 8.68.260 of this chapter, in deciding whether to grant a variance the hearing board shall take into account the extent to which the applicant has endeavored to reduce noise during said one year period to meet the standards specified in this chapter.

D. This section applies only to a commercial or industrial facility already in existence or for which the work of improvement had commenced prior to the effective date of this chapter.

E. As used in this section “industrial facility” means any building, structure, factory, plant, premises or portion thereof used for manufacturing or industrial purposes and “commercial facility” means any building, structure, premise or portion thereof used for wholesale or retail commercial purposes. (Prior code § 66.02.204)

8.68.100 Schools, hospitals and churches.

It is unlawful for any person to create any noise which causes the noise level at any school, hospital or church while the same is in use to exceed the noise standards specified in Section 8.68.060 of this chapter or to create any noise which unreasonably interferes with the use of such institution or unreasonably disturbs or annoys patients in the hospital. In any disputed case, interfering noise which is ten (10) dBA or more, greater than the ambient noise level at the building, shall be deemed excessive and unlawful. (Prior code § 66.02.205)

8.68.110 Residential pumps, fans and air conditioners.

A. It is unlawful for any person to operate any residential fans, air conditioners, stationary pumps, stationary cooling towers, stationary compressors, similar mechanical device or any combination thereof installed after the effective date of this chapter in any manner so as to create any noise which would cause the maximum noise level to exceed:

1. Sixty (60) dBA at any point at least one foot inside the property line of the affected residential or agricultural property and three to five feet above ground level;

2. Fifty-five (55) dBA in the center of a neighboring patio three to five feet above ground level;

3. Fifty-five (55) dBA outside of the neighboring living area window nearest the equipment location, measurements shall be taken with the microphone not more than three feet from the window opening but at least three feet from any other surface.

B. Equipment installed five years after the effective date of this chapter must comply with a maximum limit of fifty-five (55) dBA at any point at least one foot inside the property line of the affected residential or agricultural property and three to five feet above ground level.

C. Equipment installed before the effective date of this chapter must comply with a limit of sixty-five (65) dBA maximum sound level, at any point at least one foot inside the property line of the affected agricultural or residential property and three to five feet above ground level after the effective date of this chapter. (Prior code § 66.02.206)

8.68.120 Off-road vehicles.

It is unlawful for any person to operate any motorcycle or recreational off-road vehicle on or off a public road in such a manner that the noise level exceeds the exterior noise standards specified in Section 8.68.060 of this chapter. (Prior code § 66.02.207)

8.68.130 Waste disposal vehicles.

It is unlawful for any person authorized to engage in waste disposal service or garbage collection to operate any truck-mounted waste or garbage loading and/or composting equipment or similar mechanical device in any manner so as to create any noise exceeding the following level, when measured at a distance of fifty (50) feet from the equipment or any agricultural or residential property.

A. New equipment purchased or leased on or after a date six months from the effective date of this chapter shall not exceed a noise level of eighty (80) dBA.

B. New equipment purchased or leased on or after forty-two (42) months from the effective date of this chapter shall not exceed a noise level of seventy-five (75) dBA.

C. Present equipment shall not exceed a noise level of eighty (80) dBA on or after five years from the effective date of this chapter.

The provisions of this section shall not abridge or conflict with the powers of the state over motor vehicle control. (Prior code § 66.02.208)

8.68.140 Recovery of police officer cost for multiple responses to large parties or gatherings.

A. When a large party or gathering occurs at a premises and a police officer at the scene determines that there is a threat to the public peace, health, safety or general welfare, the person(s) in charge of the premises and the person(s) responsible for the event, or if any of those persons are minors, then the parent(s) or guardian(s) of those minors will be held jointly and severally liable for the cost of providing police personnel on special security assignment over and above the services normally provided by the department to respond to such events. The police personnel utilized during a second response after the first warning to control the threat to the public peace, health, safety or general welfare shall be deemed to be on special security assignment over and above the services normally provided. The costs of such special security assignment may include minor damages to city property and/or injuries to city personnel.

B. The fee charged will not be in excess of five hundred dollars ($500.00) for a single incident. No fee shall be assessed unless a written warning has been issued by police personnel during the first response. The city reserves its legal options to elect any other legal remedies when said costs or damage exceed five hundred dollars ($500.00).

C. The expense of services provided by special security assignment officers shall be charged against the person liable for the expenses under this section. The charge constitutes a debt of that person to the city, and is collectible by said city in the same manner as in the case of an obligation under a contract, express or implied. (Prior code § 66.02.209)

8.68.150 Findings.

A. Outdoor recreational activities involving amplified sound, including, but not limited to, athletic events, sporting events, entertainment events and concerts, may create excessive noise which is detrimental to the public health, safety, welfare and the peace and quiet of the inhabitants of the city and its environs.

B. Prevailing weather conditions within the city, including temperature inversions, cause the sounds of outdoor activities to bounce in varying directions and reach varying residential locations at different times, sometimes close to the source of sound and sometimes farther away, sometimes in one direction from the sound source and sometimes in another direction. These conditions are particularly acute during the months of September and October.

C. The city's existing noise regulations, which require extended off-site measurements of the sound rather than measurements at its source, are very cumbersome and expensive to enforce, especially in connection with outdoor recreational activities.

D. Studies by the environmental health division of the Sacramento County environmental management department conclude that imposing a volume limit of ninety-six (96) dba l_{eq} measured at the sound booth or other reasonable location within one hundred fifty (150) feet of the source of amplified sound at an outdoor activity is generally equivalent to the limits already imposed by the city's noise regulations which measure sound levels off-site, in that it is substantially likely that sound levels in excess of ninety-six (96) dba l_{eq} will result in many violations of provisions of this chapter, while sound levels of ninety-six (96) dba leq or lower are likely to result in few such violations.

E. Limiting sound levels of outdoor activities to ninety-six (96) dba l_{eq} and requiring amplified sound not to be used at outdoor activities after ten p.m. on Sunday through Thursday, and after eleven p.m. at other times, is necessary to protect the public health, safety, welfare and the peace and quiet of the inhabitants of the city and its environs.

F. A sound level of ninety-six (96) dba is as loud as or louder than a refuse truck three feet from the listener, a jet plane taking off one thousand (1000) feet from the listener, or a train horn one hundred (100) feet from the listener.

G. Limiting sound levels at the source is content neutral. It helps to avoid the problem of complaints being received, and therefore measurements being made and enforcement undertaken, only in connection with certain kinds of activities, or certain kinds of music, which some people may consider objectionable and not other kinds of activities or music which may be just as loud.

H. A variance procedure can be devised to raise the sound limit or modify the time restrictions upon a showing that a facility, because of its design, location or other characteristics, is capable of handling higher sound levels or later activities without substantially increasing the likelihood that violations of the other provisions of this chapter will occur. (Prior code § 66.02.210)

8.68.160 Outdoor recreational activities.

A. It is unlawful for any person to conduct, or permit to be conducted on its property, any outdoor recreational activity, including, but not limited to, athletic events, sporting events, entertainment events and concerts at which amplified noise, amplified music, or amplified sound exceeding the following levels is created: ninety-six (96) dba leq during the months of September and October; ninety-eight (98) dba leq during the months of November through August. The noise, music or sound shall be measured at the sound booth or other reasonable location which is not more than one hundred fifty (150) feet from the source. Every person conducting, or permitting to be conducted, on its property, any outdoor recreational activity shall, upon request, permit the chief of the environmental health division, Sacramento environmental management department, or the chief's designee, to place a sound level monitor (with or without an accompanying staff member) at a location described in this subsection to monitor sound levels.

B. Time Limits.

1. Sunday through Thursday. Except as provided in subsection (B)(2) of this section, the amplified sound associated with the outdoor activities described in subsection A of this section shall commence not earlier than nine a.m. and shall be terminated no later than ten p.m. on Sunday, Monday, Tuesday, Wednesday and Thursday.

2. Friday, Saturday and the Day Before Specified Holidays. The amplified sound associated with the outdoor activities described in subsection A of this section shall commence not earlier than nine a.m. and shall be terminated no later than eleven p.m. on Friday, Saturday and the day before the specified holidays listed below. For purposes of this provision, the specified holidays are the holidays specified in Government Code Sections 6700 and 6701, as those sections may be amended from time to time. (Prior code § 66.02.211)

8.68.170 Deviation from the sound limits, time limits and place of sound measurement requirements of Section 8.68.160—Planning and design commission approval.

In addition to the special condition permits authorized by section 8.68.250 and the variances authorized by section 8.68.260 of this chapter, the operator of any outdoor activity may seek approval to deviate from any or all of the following: (a) the maximum sound limits, (b) the time limits, or (c) the requirement for the place of sound measurement as set forth in section 8.68.160, on the grounds that due to the nature or design of the operator's facility or its location, it is capable of handling a higher sound level or amplified sound ending at a later time without substantially increasing the likelihood that violations of any other standards set forth in this chapter will occur. As part of the application, the applicant shall submit a report of the sound-related characteristics of the facility prepared by an acoustical engineer, and shall pay an application fee set by resolution of the city council.

A. Applications Filed after July 1, 1995. Applications filed after July 1, 1995 shall be heard and decided pursuant to the following procedures:

1. Applications. An application to deviate from the foregoing requirements of section 8.68.160 which is filed after July 1, 1995 shall be heard and decided by the planning and design commission, and shall be subject to the general requirements applicable to applications for planning and design commission conditional use permits as set forth in chapter 17.808.

2. Hearing Procedure. A public hearing shall be held by the planning and design commission. Notice of the public hearing shall be given in the same manner as notice is given of a hearing on a planning and design commission conditional use permit. Notice of the hearing shall also be given by publication in at least one newspaper of general circulation at least ten days prior to the date of the hearing.

3. Approval. The planning and design commission may approve an application to deviate from the maximum sound limit, time limits, or place of sound measurement requirements if it finds that, due to the nature, design or location of the operator's facility, it is capable of handling a higher sound level or an amplified sound ending at a later time or having the sound measured at a different location without substantially increasing the likelihood that violations of any other standards set forth in this chapter will occur and that approval of the application will not be detrimental to the public health, safety or welfare as it relates to noise. The planning and design commission may impose such conditions as may be necessary to carry out the intent and purpose of this chapter and to protect the public health, safety or welfare as it relates to noise. The planning and design commission shall adopt findings and render its decision in the same manner that it decides applications for conditional use permits.

4. Appeal. Any person dissatisfied with the decision of the planning and design commission on an application to deviate from the maximum sound limit, time limits or place of sound measurement requirements of section 8.68.160 may appeal that decision to the city council by filing a notice of appeal with the city clerk pursuant to section 1.24.010. Any appeal shall be filed within ten days of the date of the planning and design commission decision. The city clerk shall thereafter notice the matter for hearing before the city council by publishing notice of the hearing on the appeal in at least one newspaper of general circulation at least seven days prior to the hearing and by sending written notice by mail to appellant(s) and the applicant at least seven days prior to the date of the hearing of the appeal.

5. Modification or Revocation of Approval of Deviation. An approval to deviate from the requirements of section 8.68.160 shall be subject to modification or revocation by the planning and design commission in the same manner as a conditional use permit pursuant to the provisions of chapter 17.808.

B. Applications Filed on or Before July 1, 1995. An application to deviate from the requirements of section 8.68.160 filed on or before July 1, 1995 shall be heard and decided by the city manager pursuant to the following procedures:

1. Procedure. No public hearing by the city manager shall be required. The city manager may approve an application to deviate from the maximum sound limit, time limits, or place of sound measurement requirements if the manager finds that, due to the nature, design or location of the operator's facility, it is capable of handling a higher sound level or an amplified sound ending at a later time or having the sound measured at a different location without substantially increasing the likelihood that violations of any other standards set forth in this chapter will occur and that approval of the application will not be detrimental to the public health, safety or welfare as it relates to noise. The city manager may impose such conditions as may be necessary to carry out the intent and purpose of this chapter and to protect the public health, safety or welfare as it relates to noise.

2. Notice. After the city manager's decision on the application, the city manager shall provide written notice by mail to all owners of real property shown on the latest equalized assessment roll within a radius of 300 feet of the real property which is the subject of the application. In lieu of the assessment roll, the city manager may utilize records of the county assessor or tax collector which contains more recent information than the assessment roll. The notice shall advise the owners of the nature of the deviation sought and the decision of the city manager and of the owner's right to appeal the decision of the city manager to the city council within ten days of the date of the notice. The city manager shall also publish notice of the decision in at least one newspaper of general circulation.

3. Appeal. Any person dissatisfied with the decision of the city manager on an application to deviate from the maximum sound limit, time limits or place of sound measurement requirements of section 8.68.160 may appeal that decision to the city council by filing a notice of appeal with the city clerk pursuant to section 1.24.010. Any appeal shall be filed within ten days of the date of the city manager's decision. The city clerk shall thereafter notice the matter for hearing before the city council by publishing notice of the hearing on the appeal in at least one newspaper of general circulation at least seven days prior to the hearing and by sending written notice by mail to appellant(s) and the applicant at least seven days prior to the date of the hearing of the appeal.

4. Modification or Revocation of Approval of Deviation. An approval to deviate from the requirements of section 8.68.160 shall be subject to modification or revocation by the planning and design commission in the same manner as a conditional use permit pursuant to the provisions of chapter 17.808. (Ord. 2013-0021 § 19; Ord. 2012-004 § 23; prior code § 66.02.212)

8.68.180 Portable gasoline-powered blowers.

A. It is unlawful for any person to operate any portable gasoline-powered blower on residential property or within two hundred (200) feet of residential property, except between the hours of nine a.m. and six p.m. Monday through Saturday and between the hours of ten a.m. and four p.m. on Sunday.

B. It is unlawful for any person to operate any portable gasoline-powered blower on residential property or within two hundred (200) feet of residential property during the hours permitted by subsection A of this section if the blower creates noise exceeding the following specified levels measured at a distance of fifty (50) feet from the blower:

1. Blowers purchased or otherwise acquired between May 15, 1992, and November 15, 1995, shall not exceed seventy (70) dba.

2. Blowers purchased or otherwise acquired after November 15, 1995, shall not exceed sixty-five (65) dba.

3. Blowers in use on or before the effective date of the ordinance codified in this chapter or purchased or otherwise acquired before May 15, 1992, shall not exceed seventy (70) dba after November 15, 1993. (Prior code § 66.02.213)

Article III. General Noise Regulations

8.68.190 General noise regulations.

Notwithstanding any other provisions of this chapter and in addition thereto, it is unlawful for any person 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 sensitiveness residing in the area.

The standards which may be considered in determining whether a violation of the provisions of this section exists shall include, but not be limited to, the following:

A. The sound level of the objectionable noise;

B. The sound level of the ambient noise;

C. The proximity of the noise to residential sleeping facilities;

D. The nature and zoning of the area within which the noise emanates;

E. The density of the inhabitation of the area within which the noise emanates;

F. The time of day or night the noise occurs;

G. The duration of the noise and its tonal informational or musical content;

H. Whether the noise is continuous, recurrent or intermittent;

I. Whether the noise is produced by a commercial or noncommercial activity. (Prior code § 66.03.301)

8.68.200 Specific unlawful noises.

Notwithstanding any other provision of the chapter to the contrary, the following acts, among others, are declared to be loud, disturbing, and unnecessary noises in violation of this chapter, but such enumeration shall not be deemed to be exclusive, namely:

A. Motor Noises. Any noise made by the motor of any automobile, truck, tractor, motorcycle, not reasonably required in the operation thereof under the circumstances and shall include but not be limited to backfiring and motor racing.

B. Horns and Signaling Devices. The sounding of any horn or signaling device on any automobile, motorcycle, trolley coach or other vehicle on any street or public place of the city, except as a danger warning; the creation by means of any such signaling device of any unreasonably loud or harsh sound; and the sounding of any such device for an unnecessary and unreasonable period of time. The use of any signaling device except one operated by hand or electricity; the use of any horn, whistle or any other device operated by engine exhaust; and the use of any such signaling device when traffic is for any reason held up.

C. Yelling and Shouting. Yelling, shouting, hooting, whistling, singing or blowing of horns on the public streets, particularly between the hours of ten p.m. and seven a.m. or at any time or place so as to annoy or disturb the quiet, comfort, or repose of persons in any office, or in any dwelling, hotel, motel, apartment or other type of residence, or of any persons in the vicinity.

D. Pile Drivers, Hammers, Etc. The operation between the hours of ten p.m. and seven a.m. of any pile driver, steam shovel, pneumatic hammer, derrick, steam or electric hoist or other appliance, the use of which is attended by loud or unusual noise.

E. Tools. The use or operation between the hours of ten p.m. and seven a.m. of any power saw, power planer, or other powered tool or appliance or saw or hammer, or other tool, so as to disturb the quiet, comfort, or repose of persons in any dwelling, hotel, motel, apartment, or other type of residence, or of any person in the vicinity.

F. Blowers. The operating of any noise-creating blower or power fan or any internal combustion engine the operation of which causes noise due to the explosion of operating gases or fluids, unless the noise from such blower or fan is muffled and such engine is equipped with a muffler device sufficient to deaden such noise.

G. Exhausts. The discharge into the open air of the exhaust of any steam engine, stationary internal combustion engine, motor boat, or motor vehicle except through a muffler or other device which will effectively prevent loud or explosive noises therefrom.

H. Loading, Unloading—Opening Boxes. The creation of a loud and excessive noise in connection with loading or unloading any vehicle or the opening and destruction of bales, boxes, crates, and containers.

I. Hawkers, Peddlers and Vendors. The shouting and crying of peddlers, hawkers and vendors which disturbs the peace and quiet of persons in the neighborhood.

J. Drums. The use of any drum or other instrument or device for the purpose of attracting attention by creation of noise to any performance, show or sale.

K. Transportation of Metal Rails, Pillars and Columns. The transportation of rails, pillars or columns of iron, steel or other material, over and along streets and other public places upon carts, drays, cars, trucks in any manner so as to cause loud noises or to disturb the peace and quiet of persons in the vicinity thereof.

L. Animals, Birds, Fowls. The keeping of any animal, fowl, or bird which by causing frequent or long continued noise shall disturb the comfort or repose of persons in the vicinity.

M. Any noise emitted from a radio, tape player, tape recorder, record player, compact disc player or any other audible audio equipment, or television outdoors on or in any publicly owned property or place, including, but not limited to, public parks, when such noise is audible to a person of normal hearing sensitivity one hundred (100) feet from said radio, tape player, tape recorder, record player, compact disc player or any other audible audio equipment, or television.

1. Notwithstanding any other provision of this chapter, no notice to appear shall be issued or criminal complaint shall be filed for a violation of this subsection M unless the offending party is first given a verbal or written notification of violation by any peace officer or other person charged with enforcing this subsection M and a reasonable opportunity to correct said violation.

2. Notwithstanding any other provision of this code, any person violating this subsection M shall be guilty of an infraction and upon conviction thereof, shall be fined in accordance with the provisions of Section 36900 (b) of the California Government Code.

This subsection M shall not apply to any act prohibited by Section 10.12.090 of this code or to broadcasting from any vehicle as defined and regulated by Sections 10.60.010 through 10.60.090 of this code, to the use of radios, tape players, tape recorders, record players, compact disc players or any other audible audio equipment, or televisions in the course of an assembly for which a permit has been issued pursuant to Sections 12.72.160 through 12.72.180 of this code or to a parade as defined and regulated by Sections 12.48.010 through 12.48.080 of this code, or to the use of radios, tape players, tape recorders, record players, compact disc players or any other audible audio equipment, or televisions regulated by Section 12.44.210 of this code. This subsection M shall apply notwithstanding the provisions of subsection B of Section 8.68.080 of this chapter.

As used in this subsection M, “person of normal hearing sensitivity” means a person who has a hearing threshold level of between zero and twenty-five (25) decibels HL averaged over the frequencies five hundred (500), one thousand (1000) and two thousand (2000) hertz. (Ord. 2003-011 § 1; prior code § 66.03.302)

8.68.210 Railroad locomotive whistles.

Except in cases of emergency or imminent danger, no person shall blow any railroad locomotive whistle within the city. (Prior code § 66.03.303)

Article IV. Administrative Procedures

8.68.220 Administration.

Except for the enforcement of Section 8.68.200 of this chapter which shall be the responsibility of the chief of police, and except for the enforcement of Section 8.68.060 of this chapter which shall be the responsibility of the director of public works and the director of utilities in addition to any other person authorized to enforce that section, the administration of this chapter is vested in the Sacramento City/county health officer. The health officer shall be responsible for:

A. Employing individuals trained in acoustical engineering or an equivalent field to assist the health officer in the administration of this chapter;

B. Training field inspectors;

C. Procuring measuring instruments and training inspectors in their calibration and operation;

D. Conducting a public education program in all aspects of noise control;

E. Coordinating the noise control program with other governmental agencies. (Ord. 2002-004 § 9, 2002; prior code § 66.04.401)

8.68.230 Noise control program—Recommendations.

At least every third year following the effective date of this chapter, the health officer shall evaluate the effectiveness of the noise control program and shall make recommendations to the city council for its improvement. (Prior code § 66.04.402)

8.68.240 Rules and standards.

Within one year after the effective date of this chapter, the health officer with the advice and assistance of other appropriate governmental agencies, shall investigate and recommend to the city council the following:

A. Rules and procedures to be used in measuring noise;

B. Noise standards for motor vehicle operation within the city. However, nothing within this chapter shall be deemed to abridge or conflict with the powers of the state over motor vehicle control;

C. Noise standards governing the construction, repair or demolition of a structure including streets and other thoroughfares;

D. Recommendations, if appropriate, for the establishment of sound levels standards for nonresidentially zoned areas within the city. (Prior code § 66.04.403)

8.68.250 Special condition permits.

Notwithstanding any provision of this chapter, the zoning administrator may grant special condition permits for a period not exceeding three days when the general purpose and intent of this chapter can be carried out by the granting of the special condition permit, provided, however, that no permit shall be issued for any activity which violates a provision of Section 8.68.080(E) of this chapter. Said special condition permits may be renewed for periods not exceeding three days at the discretion of the zoning administrator. (Prior code § 66.04.404)

8.68.260 Variance procedure.

A. The owner or operator of a noise source that violates any of the provisions of this chapter may file an application for a variance from the provisions of this chapter. The application shall set forth all actions taken to comply with this chapter, the reasons why immediate compliance cannot be achieved, a proposed method for achieving compliance, and a proposed time schedule for its accomplishment. If the applicant determines that compliance cannot be feasibly achieved at all, the application shall also set forth the reasons for such determination, the actions that have been taken to comply with this chapter, a proposed method for complying as nearly as is feasible, and a proposed time schedule for its accomplishment. The application shall be accompanied by a fee in the amount established by resolution of the city council. A separate application shall be filed for each noise source; provided, however, that several mobile sources under common ownership or several fixed sources on a single property may be combined into one application.

B. Except as provided in subsections C and D of this section, relating to required findings, terms and conditions of granting a variance, and factors to take into consideration, the application for a variance under this section shall be accepted and processed and a decision on the application shall be made in the same manner and subject to the same procedures and requirements as a zoning administrator variance under section 17.808.210 of this code.

C. After the public hearing, the decision-maker may grant a variance if it finds, after full consideration of all of the facts, that strict compliance with the requirements of this chapter will cause practical difficulties, unnecessary hardship, or unreasonable expense. A variance may be for a limited period and may be subject to any terms, conditions, and requirements as the decision-maker deems reasonable to achieve maximum compliance with the provisions of this chapter. The terms, conditions and requirements may include, but shall not be limited to, limitations on noise levels and operating hours.

D. Each variance shall set forth the approved method of achieving maximum compliance and a time schedule for its accomplishment. The decision-maker shall consider the magnitude of nuisance caused by the offensive noise, the uses of property within the area of impingement by the noise, the time factors related to study, design, financing and construction of remedial work, the economic factors related to age and useful life of equipment and the general public interest and welfare. (Ord. 2013-0021 § 20; Ord. 2009-042 § 1; prior code § 66.04.405)

8.68.270 Appeals.

The decision of the zoning administrator on a variance under this chapter shall be subject to appeal as provided in chapter 17.812. (Ord. 2013-0021 § 21; Ord. 2011-044 § 18; prior code § 66.04.407)

8.68.280 Violations.

A. Upon the receipt of a complaint from any person, the chief of police, the health officer or their duly authorized representatives may investigate and assess whether the alleged noise levels exceed the noise standards set forth in this chapter. If such officers have reason to believe that any provision(s) of this chapter has been violated, they may cause written notice to be served upon the alleged violator. Such notice shall specify the provision(s) of this chapter alleged to have been violated and the facts alleged to constitute a violation, including dBA readings noted and the time and place of their detection and may include an order that corrective action be taken within a specified time. If corrective action is not taken within such specified time or any extension thereof approved by the health officer, upon conviction the violation shall constitute a misdemeanor. Each such violation committed or permitted to continue shall constitute a separate offense and shall be punishable as such.

B. Notwithstanding any contrary provision of this code, each fifteen (15) minute period that a violation of Section 8.68.060 occurs shall constitute a separate violation. The administrative penalty for each violation of Section 8.68.060 shall be one thousand dollars ($1,000.00). (Ord. 2005-083 § 1; Ord. 2002-004 § 10; prior code § 66.04.408)

8.68.290 Other remedies.

A. Provisions of this chapter are to be construed as an added remedy of abatement of the public nuisance declared and not in conflict or derogation of any other action, proceedings or remedies provided by law.

B. Any violation of the provisions of this chapter shall be, and the same is declared to be unlawful and a public nuisance, and the duly constituted authorities of the city shall, upon order of the city council, immediately commence actions or proceedings for the abatement or enjoinment thereof in the manner provided by law and shall take such steps and shall apply to such court or courts as may have jurisdiction to grant such relief as will abate such nuisance. (Prior code § 66.04.409)

Contact:

City Clerk: 916-808-7200

CONSTRUCTION NOISE MODELING

```
                 Roadway Construction Noise Model (RCNM),Version 1.1

Report date:          04/25/2023
Case Description:      SCUS-05:Phase 1

                      **** Receptor #1 ****

                            Baselines (dBA)
Description            Land Use       Daytime    Evening    Night
-----------           --------       -------    -------    -----
Architectural Coating    Residential       60.0       55.0     50.0

                         Equipment
                         ---------
                         Spec    Actual    Receptor    Estimated
             Impact  Usage    Lmax    Lmax      Distance    Shielding
Description        Device   (%)     (dBA)   (dBA)      (feet)      (dBA)
-----------        ------  -----    -----   -----     --------    ---------
Compressor (air)       No     40           77.7        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
---------------------  ------  ------     ------  ------  ------  ------  ------  ------    ------  ------  ------  ------  ------  ------
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:          04/25/2023
Case Description:        SCUS-05:Phase 1

                    **** Receptor #1 ****

                              Baselines (dBA)
Description       Land Use        Daytime    Evening    Night
-----------       --------        -------    -------    -----
Asphalt Paving    Residential        60.0       55.0     50.0

                         Equipment
                         ---------
                            Spec    Actual    Receptor    Estimated
                 Impact  Usage    Lmax    Lmax      Distance    Shielding
Description          Device   (%)    (dBA)   (dBA)      (feet)       (dBA)
-----------          ------  -----    -----   -----      --------    ---------
Concrete Mixer Truck       No     40           78.8         50.0          0.0
Tractor              No     40    84.0              50.0          0.0
Pavement Scarafier         No     20           89.5         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
---------------------  ------  ------     ------  ------  ------  ------  ------  ------     ------  ------  ------  ------  ------  ------
Concrete Mixer Truck      78.8    74.8       N/A     N/A     N/A     N/A     N/A     N/A       N/A     N/A     N/A     N/A
N/A     N/A
Tractor               84.0    80.0       N/A     N/A     N/A     N/A     N/A     N/A       N/A     N/A     N/A     N/A     N/A
N/A
Pavement Scarafier        89.5    82.5       N/A     N/A     N/A     N/A     N/A     N/A       N/A     N/A     N/A     N/A     N/A
N/A
          Total      89.5    84.9       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:          04/25/2023
Case Description:       SCUS-05:Phase 1

                    **** Receptor #1 ****

                          Baselines (dBA)
Description             Land Use       Daytime    Evening    Night
-----------           --------       -------    -------    -----
Building Construction    Residential       60.0       55.0     50.0

                       Equipment
                       ---------
                       Spec    Actual    Receptor    Estimated
              Impact  Usage    Lmax    Lmax      Distance    Shielding
Description       Device   (%)     (dBA)   (dBA)      (feet)       (dBA)
-----------       ------  -----     -----   -----     --------    ---------
Front End Loader       No     40           79.1         50.0          0.0
Front End Loader       No     40           79.1         50.0          0.0
Front End Loader       No     40           79.1         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
---------------------  ------  ------     ------  ------  ------  ------  ------  ------    ------  ------  ------  ------  ------  ------
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
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
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      79.1    79.9       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:          04/25/2023
Case Description:       SCUS-05:Phase 1

                      **** Receptor #1 ****

                            Baselines (dBA)
Description   Land Use       Daytime   Evening   Night
-----------   --------       -------   -------   -----
Demolition    Residential       60.0      55.0     50.0

                         Equipment
                         ---------
                       Spec    Actual    Receptor    Estimated
            Impact  Usage    Lmax    Lmax      Distance    Shielding
Description     Device  (%)     (dBA)   (dBA)     (feet)      (dBA)
-----------     ------  -----    -----   -----     --------    ---------
Concrete Saw       No     20           89.6        50.0         0.0
Dozer           No     40           81.7        50.0         0.0
Excavator        No     40           80.7        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
---------------------  ------  ------     ------  ------  ------  ------  ------  ------    ------  ------  ------  ------  ------  ------
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
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
Excavator             80.7    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
         Total      89.6    84.6       N/A     N/A     N/A     N/A     N/A     N/A      N/A     N/A     N/A     N/A     N/A
N/A
```

```
                Roadway Construction Noise Model (RCNM),Version 1.1

Report date:          04/25/2023
Case Description:       SCUS-05:Phase 1

                        **** Receptor #1 ****

                              Baselines (dBA)
Description      Land Use       Daytime    Evening    Night
-----------      --------       -------    -------    -----
Rough Grading    Residential       60.0       55.0     50.0

                          Equipment
                          ---------
                          Spec    Actual    Receptor    Estimated
             Impact  Usage    Lmax    Lmax      Distance    Shielding
Description        Device   (%)     (dBA)   (dBA)     (feet)       (dBA)
-----------        ------  -----    -----   -----     --------    ---------
Grader               No     40     85.0               50.0         0.0
Dozer                No     40            81.7        50.0         0.0
Tractor              No     40     84.0               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
---------------------  ------  ------     ------  ------  ------  ------  ------  ------     ------  ------  ------  ------  ------  ------
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
Tractor                 84.0    80.0      N/A     N/A     N/A     N/A     N/A     N/A       N/A     N/A     N/A     N/A     N/A
N/A
            Total      85.0    84.6      N/A     N/A     N/A     N/A     N/A     N/A       N/A     N/A     N/A     N/A     N/A
N/A
```

```
                Roadway Construction Noise Model (RCNM),Version 1.1

Report date:          04/25/2023
Case Description:       SCUS-05:Phase 1

                     **** Receptor #1 ****

                           Baselines (dBA)
Description        Land Use       Daytime    Evening    Night
-----------        --------       -------    -------    -----
Site Preparation    Residential       60.0       55.0     50.0

                       Equipment
                       ---------
                       Spec    Actual    Receptor    Estimated
             Impact  Usage    Lmax    Lmax      Distance    Shielding
Description        Device  (%)     (dBA)   (dBA)      (feet)      (dBA)
-----------        ------  -----    -----   -----     --------    ---------
Tractor              No     40     84.0              50.0         0.0
Front End Loader       No     40            79.1        50.0         0.0
Dozer                No     40            81.7        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
---------------------  ------  ------     ------  ------  ------  ------  ------  ------    ------  ------  ------  ------  ------  ------
Tractor              84.0    80.0       N/A     N/A     N/A     N/A     N/A     N/A       N/A     N/A     N/A     N/A     N/A
N/A
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
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
          Total      84.0    82.8       N/A     N/A     N/A     N/A     N/A     N/A       N/A     N/A     N/A     N/A     N/A
N/A
```

```
                Roadway Construction Noise Model (RCNM),Version 1.1

Report date:          05/02/2023
Case Description:       SCUS-05 Phase 2

                      **** Receptor #1 ****

                            Baselines (dBA)
Description             Land Use       Daytime    Evening    Night
-----------             --------       -------    -------    -----
Architectural Coating    Residential      60.0       55.0     50.0

                         Equipment
                         ---------
                         Spec    Actual    Receptor    Estimated
              Impact  Usage    Lmax    Lmax      Distance    Shielding
Description       Device   (%)     (dBA)   (dBA)      (feet)       (dBA)
-----------       ------  -----    -----   -----     --------    ---------
Compressor (air)       No     40           77.7        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
---------------------  ------  ------     ------  ------  ------  ------  ------  ------    ------  ------  ------  ------  ------  ------
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:          05/02/2023
Case Description:       SCUS-05 Phase 2

                     **** Receptor #1 ****

                           Baselines (dBA)
Description       Land Use        Daytime    Evening    Night
-----------       --------        -------    -------    -----
Asphalt Paving    Residential       60.0       55.0      50.0

                        Equipment
                        ---------
                          Spec    Actual    Receptor    Estimated
                Impact  Usage    Lmax    Lmax      Distance    Shielding
Description          Device   (%)    (dBA)   (dBA)     (feet)      (dBA)
-----------          ------  -----    -----   -----     --------    ---------
Concrete Mixer Truck       No     40           78.8        50.0        0.0
Pavement Scarafier         No     20           89.5        50.0        0.0
Tractor                No     40     84.0              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
---------------------  ------  ------     ------  ------  ------  ------  ------  ------    ------  ------  ------  ------  ------  ------
Concrete Mixer Truck      78.8    74.8       N/A     N/A     N/A     N/A     N/A     N/A      N/A     N/A     N/A     N/A
N/A     N/A
Pavement Scarafier       89.5    82.5       N/A     N/A     N/A     N/A     N/A     N/A      N/A     N/A     N/A     N/A     N/A
N/A
Tractor                 84.0    80.0       N/A     N/A     N/A     N/A     N/A     N/A      N/A     N/A     N/A     N/A     N/A
N/A
          Total      89.5    84.9       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:          05/02/2023
Case Description:       SCUS-05 Phase 2

                     **** Receptor #1 ****

                              Baselines (dBA)
Description   Land Use       Daytime    Evening    Night
-----------   --------       -------    -------    -----
Demolition    Residential       60.0       55.0     50.0

                         Equipment
                         ---------
                         Spec    Actual    Receptor    Estimated
            Impact  Usage    Lmax    Lmax      Distance    Shielding
Description       Device   (%)     (dBA)   (dBA)      (feet)       (dBA)
-----------        ------  -----    -----   -----     --------    ---------
Concrete Saw          No     20            89.6        50.0         0.0
Tractor            No     40    84.0              50.0         0.0
Dozer              No     40           81.7        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
---------------------  ------  ------     ------  ------  ------  ------  ------  ------     ------  ------  ------  ------  ------  ------
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
Tractor              84.0    80.0       N/A     N/A     N/A     N/A     N/A     N/A       N/A     N/A     N/A     N/A     N/A
N/A
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
         Total      89.6    85.3       N/A     N/A     N/A     N/A     N/A     N/A       N/A     N/A     N/A     N/A     N/A
N/A
```

```
                Roadway Construction Noise Model (RCNM),Version 1.1

Report date:          05/02/2023
Case Description:       SCUS-05 Phase 2

                     **** Receptor #1 ****

                           Baselines (dBA)
Description      Land Use       Daytime    Evening    Night
-----------      --------       -------    -------    -----
Rough Grading    Residential       60.0       55.0     50.0

                        Equipment
                        ---------
                        Spec    Actual    Receptor    Estimated
            Impact  Usage    Lmax    Lmax      Distance    Shielding
Description       Device   (%)     (dBA)   (dBA)      (feet)       (dBA)
-----------        ------  -----    -----   -----     --------    ---------
Grader              No     40     85.0               50.0         0.0
Tractor             No     40     84.0               50.0         0.0
Dozer               No     40            81.7        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
---------------------  ------  ------     ------  ------  ------  ------  ------  ------     ------  ------  ------  ------  ------  ------
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
Tractor                84.0    80.0      N/A     N/A     N/A     N/A     N/A     N/A       N/A     N/A     N/A     N/A     N/A
N/A
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
         Total       85.0    84.6      N/A     N/A     N/A     N/A     N/A     N/A       N/A     N/A     N/A     N/A     N/A
N/A
```

```
                Roadway Construction Noise Model (RCNM),Version 1.1

Report date:         05/02/2023
Case Description:       SCUS-05 Phase 2

                      **** Receptor #1 ****

                            Baselines (dBA)
Description        Land Use       Daytime    Evening    Night
-----------        --------       -------    -------    -----
Site Preparation    Residential       60.0       55.0     50.0

                         Equipment
                         ---------
                         Spec    Actual    Receptor    Estimated
               Impact  Usage    Lmax    Lmax      Distance    Shielding
Description        Device   (%)     (dBA)   (dBA)      (feet)       (dBA)
-----------        ------  -----    -----   -----      --------    ---------
Grader               No     40     85.0                50.0         0.0
Tractor              No     40     84.0                50.0         0.0
Dozer                No     40             81.7        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
----------------------  ------  ------     ------  ------  ------  ------  ------  ------     ------  ------  ------  ------  ------  ------
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
Tractor                84.0    80.0      N/A     N/A     N/A     N/A     N/A     N/A       N/A     N/A     N/A     N/A     N/A
N/A
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
          Total      85.0    84.6      N/A     N/A     N/A     N/A     N/A     N/A       N/A     N/A     N/A     N/A     N/A
N/A
```

```
                    Roadway Construction Noise Model (RCNM),Version 1.1

Report date:          05/02/2023
Case Description:        SCUS-05 Phase 3

                          **** Receptor #1 ****

                                   Baselines (dBA)
Description              Land Use       Daytime    Evening    Night
-----------              --------       -------    -------    -----
Architectural Coating    Residential       60.0       55.0     50.0

                              Equipment
                              ---------
                              Spec    Actual    Receptor    Estimated
               Impact  Usage    Lmax    Lmax      Distance    Shielding
Description       Device  (%)     (dBA)   (dBA)      (feet)      (dBA)
-----------       ------  -----    -----   -----     --------    ---------
Compressor (air)       No     40           77.7        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
---------------------  ------  ------    ------  ------  ------  ------  ------  ------    ------  ------  ------  ------  ------  ------
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:          05/02/2023
Case Description:       SCUS-05 Phase 3

                      **** Receptor #1 ****

                              Baselines (dBA)
Description       Land Use       Daytime    Evening    Night
-----------       --------       -------    -------    -----
Asphalt Paving    Residential       60.0       55.0     50.0

                          Equipment
                          ---------
                             Spec    Actual    Receptor    Estimated
                Impact  Usage    Lmax    Lmax      Distance    Shielding
Description          Device  (%)     (dBA)   (dBA)      (feet)       (dBA)
-----------            ------  -----    -----   -----     --------    ---------
Paver                    No     50          77.2        50.0         0.0
Concrete Mixer Truck        No    40           78.8        50.0          0.0
Tractor                   No     40    84.0              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
---------------------  ------  ------     ------  ------  ------  ------  ------  ------    ------  ------  ------  ------  ------  ------
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
Concrete Mixer Truck      78.8    74.8       N/A    N/A    N/A    N/A    N/A    N/A      N/A    N/A    N/A    N/A
N/A    N/A
Tractor                84.0    80.0      N/A    N/A    N/A    N/A    N/A    N/A      N/A    N/A    N/A    N/A    N/A
N/A
          Total     84.0    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:          05/02/2023
Case Description:       SCUS-05 Phase 3

                     **** Receptor #1 ****

                           Baselines (dBA)
Description   Land Use       Daytime    Evening    Night
-----------   --------       -------    -------    -----
Demolition    Residential       60.0       55.0     50.0

                        Equipment
                        ---------
                        Spec    Actual    Receptor    Estimated
             Impact  Usage    Lmax    Lmax     Distance    Shielding
Description       Device   (%)     (dBA)   (dBA)      (feet)       (dBA)
-----------       ------  -----    -----   -----     --------    ---------
Concrete Saw          No     20           89.6        50.0          0.0
Tractor            No     40     84.0             50.0          0.0
Dozer              No     40           81.7        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
---------------------  ------  ------     ------  ------  ------  ------  ------  ------    ------  ------  ------  ------  ------  ------
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
Tractor              84.0    80.0       N/A     N/A     N/A     N/A     N/A     N/A      N/A     N/A     N/A     N/A     N/A
N/A
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
          Total     89.6    85.3       N/A     N/A     N/A     N/A     N/A     N/A      N/A     N/A     N/A     N/A     N/A
N/A
```

```
                Roadway Construction Noise Model (RCNM),Version 1.1

Report date:          05/02/2023
Case Description:       SCUS-05 Phase 3

                         **** Receptor #1 ****

                                Baselines (dBA)
Description      Land Use       Daytime    Evening    Night
-----------      --------       -------    -------    -----
Rough Grading    Residential       60.0       55.0     50.0

                            Equipment
                            ---------
                            Spec    Actual    Receptor    Estimated
               Impact  Usage    Lmax    Lmax      Distance    Shielding
Description       Device   (%)     (dBA)   (dBA)      (feet)        (dBA)
-----------       ------  -----    -----   -----     --------    ---------
Grader              No     40    85.0               50.0         0.0
Dozer               No     40            81.7       50.0         0.0
Tractor             No     40    84.0               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
---------------------  ------  ------    ------  ------  ------  ------  ------  ------    ------  ------  ------  ------  ------  ------
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
Tractor                84.0    80.0      N/A     N/A     N/A     N/A     N/A     N/A       N/A     N/A     N/A     N/A     N/A
N/A
           Total     85.0    84.6      N/A     N/A     N/A     N/A     N/A     N/A       N/A     N/A     N/A     N/A     N/A
N/A
```

```
                Roadway Construction Noise Model (RCNM),Version 1.1

Report date:          05/02/2023
Case Description:       SCUS-05 Phase 3

                     **** Receptor #1 ****

                           Baselines (dBA)
Description        Land Use       Daytime    Evening    Night
-----------        --------       -------    -------    -----
Site Preparation    Residential       60.0       55.0     50.0

                        Equipment
                        ---------
                        Spec    Actual    Receptor    Estimated
              Impact  Usage    Lmax    Lmax      Distance    Shielding
Description        Device   (%)    (dBA)   (dBA)     (feet)      (dBA)
-----------        ------  -----    -----   -----     --------    ---------
Grader              No     40    85.0              50.0         0.0
Tractor             No     40    84.0              50.0         0.0
Front End Loader       No     40           79.1        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
---------------------  ------  ------    ------  ------  ------  ------  ------  ------    ------  ------  ------  ------  ------  ------
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
Tractor              84.0    80.0      N/A     N/A     N/A     N/A     N/A     N/A      N/A     N/A     N/A     N/A     N/A
N/A
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    84.1      N/A     N/A     N/A     N/A     N/A     N/A      N/A     N/A     N/A     N/A     N/A
N/A
```

SCUS-05 - Construction Noise Modeling Attenuation Calculations

Levels in dBA Leq

Phase	**RCNM Reference Noise Level**	**Williams Memorial Church of God in Christ (North Receptor)**	**Multi-Family Residence at 4609 Meddocino Blvd (East Receptor)**	**Single Family Residences at 3835-4017 22nd Avenue (South Receptor/s)**	**Single Family Residence at 3830 21st Avenue (West Receptor)**
Distance in feet	*50*	*150*	*200*	*200*	*260*
Phase 2,3 Demolition	85	76	73	73	71
Phase 2 Site Prep	85	75	73	73	70
Phase 2,3 Rough Grading	85	75	73	73	70
Distance in feet	*50*	*450*	*30*	*165*	*733*
Phase 1 Building Construction	80	61	84	70	57
Phase 1,2,3 Architectural Coating	74	55	78	64	51
Distance in feet	*50*	*285*	*235*	*80*	*536*
Phase 1,2 Asphalt Paving	85	70	71	81	64

Attenuation calculated through Inverse Square Law: Lp(R2) = Lp(R1) - 20Log(R2/R1)

SCUS-05 - Vibration Damage Attenuation Calculations

Levels in in/sec PPV

Distance in feet	**Vibration Reference Level at *25 feet***	**Church of God in Christ (North)** *15*	**Residence at 4609 Mendocino Blvd** *10*	**Residence at 3825 Martin Luther King** *25*	**Residence at 3830 21st Avenue (West)** *65*
Vibratory Roller	0.21	0.452	0.830	0.210	0.050
Static Roller	0.05	0.108	0.198	0.050	0.012
Large Bulldozer	0.089	0.191	0.352	0.089	0.021
Loaded Trucks	0.076	0.164	0.300	0.076	0.018
Jackhammer	0.035	0.075	0.138	0.035	0.008
Small Bulldozer	0.003	0.006	0.012	0.003	0.001

SCUS-05 - Vibration Annoyance Attenuation Calculations

		Levels in VdB			
Equipment	**Vibration @ 25 ft**	**Williams Memorial Church of God in Christ (North)**	**Multi-Family Residence at 4609 Mendocino Blvd (East)**	**Multi-Family Residence at 3825 Martin Luther King Jr. Blvd (South)**	**Single-Family Residence at 3830 21st Avenue (West)**
Distance in feet		*15*	*10*	*25*	*65*
Vibratory Roller	94.0	NA	105.9	94.0	81.6
Large Bulldozer	87.0	NA	NA	87.0	74.6
Loaded Trucks	86.0	NA	NA	NA	73.6
Static Roller	82.0	NA	93.9	82.0	69.6
Jackhammer	79.0	85.7	NA	NA	66.6
Small Bulldozer	58.0	NA	NA	58.0	45.6

STATIONARY NOISE MODELING

SCUS-05 - Stationary Noise Modeling Attenuation Calculations

Phase		HVAC Reference Level	Receptor to North
	Distance in feet	*3*	*30*
HVAC		72.0	52

Phase		Playfield Reference Level	Receptor to South
	Distance in feet	*15*	*50*
Soccer Field		60.0	50

Attenuation calculated through Inverse Square Law: Lp(R2) = Lp(R1) - 20Log(R2/R1)

Appendix D Transportation Impact Analysis

TRANSPORTATION IMPACT ANALYSIS

FOR

OAK RIDGE ELEMENTARY SCHOOL REBUILD PROJECT (SCUS-05.0)

Sacramento, CA

Prepared For:

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3 Macarthur Place, Suite 1100
Santa Ana, CA 92707

Prepared by:

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April 25, 2023

5424-06

TRANSPORTATION IMPACT ANALYSIS FOR OAK RIDGE ELEMENTARY SCHOOL REBUILD PROJECT (SCUS-05.0)

Sacramento, CA

TABLE OF CONTENTS

TRANSPORTATION IMPACT ANALYSIS FOR OAK RIDGE ELEMENTARY SCHOOL REBUILD PROJECT (SCUS-05.0)

INTRODUCTION

This Transportation Impact Analysis (TIA) has been prepared addressing the impacts of the Oak Ridge Elementary Rebuild Project under the California Environmental Quality Act (CEQA). The analysis focuses on Vehicle Miles Traveled (VMT) as well as alternative transportation modes and safety, including discussion of access to state highways. Because Martin Luther King Jr. Blvd access improvements will need to be approved by the City of Sacramento, a Local Traffic Operational Analysis (LTA) is also included which addresses the effects of the project within the context of City General Plan requirements, confirms the adequacy of site access, supports the CEQA safety analysis and supports the subsequent preparation of a Traffic Signal Design Concept Report (DCR) needed for the proposed modifications to the Martin Luther King Jr. Blvd / 21st Avenue intersection traffic signal. The LTA portion of this study addresses "Existing Conditions" and "Existing Plus Project Conditions," and any additional improvement recommendations that should be implemented concurrent with the project. Figure 1 displays the project site location.

Project Description

The Sacramento City Unified School District plans to completely rebuild the Oak Ridge Elementary School campus, consisting of moving the academic portion of the campus to the northeast corner of the campus and the athletic facilities to the west, moving the existing primary campus access point on Martin Luther King Jr. Blvd south to align with the 21st Avenue signalized intersection, and creating a new access point for emergency vehicles and pedestrians via Mendocino Boulevard.

The school's existing driveways and parking lots are located on the western portion of the site. A student drop-off loop is located on campus, accessed via Martin Luther King Jr. Blvd, and also connects to the staff parking lot.

Students and parents are generally encouraged to park along surrounding streets including Martin Luther King Jr. Boulevard, 21st Avenue, 22nd Avenue and 23rd Avenue and walk to the campus to avoid congestion in the school's parking lot.

Vehicle access to the site is currently provided via two driveways to Martin Luther King Jr. Blvd. The southerly driveway is located immediately north of the 21st Avenue intersection and is one-way inbound. The northerly driveway serves outbound traffic and is located 150 feet to the north of the southerly driveway. The proposed project will remove these existing driveways and construct a new access point to the site on Martin Luther King Jr. Blvd aligning with 21st Street, creating a 4-way intersection. This new access would lead to a driveway bordering the south boundary of the site which would continue as a loop around the proposed parking lot. This driveway would also provide access to two student drop-off/pick-up zones in front of the administration/multi-purpose building. Another access point is proposed for Mendocino Blvd and this access would be restricted to pedestrians and emergency vehicles only. A separated bus drop-off would be located at the east end of the parking lot.

A sidewalk and bike lane would be provided on the north side of the Martin Luther King Jr. Boulevard driveway. The sidewalk would continue in front of the campus and loop around the bus drop-off area, ending at the Mendocino Boulevard pedestrian access point. The existing sidewalk along Mendocino Boulevard will connect to the campus's internal sidewalk. The proposed parking lot on the southeast portion of the campus would contain 54 parking stalls including accessible parking spaces. Figure 2 displays the project site plan.

School Operations

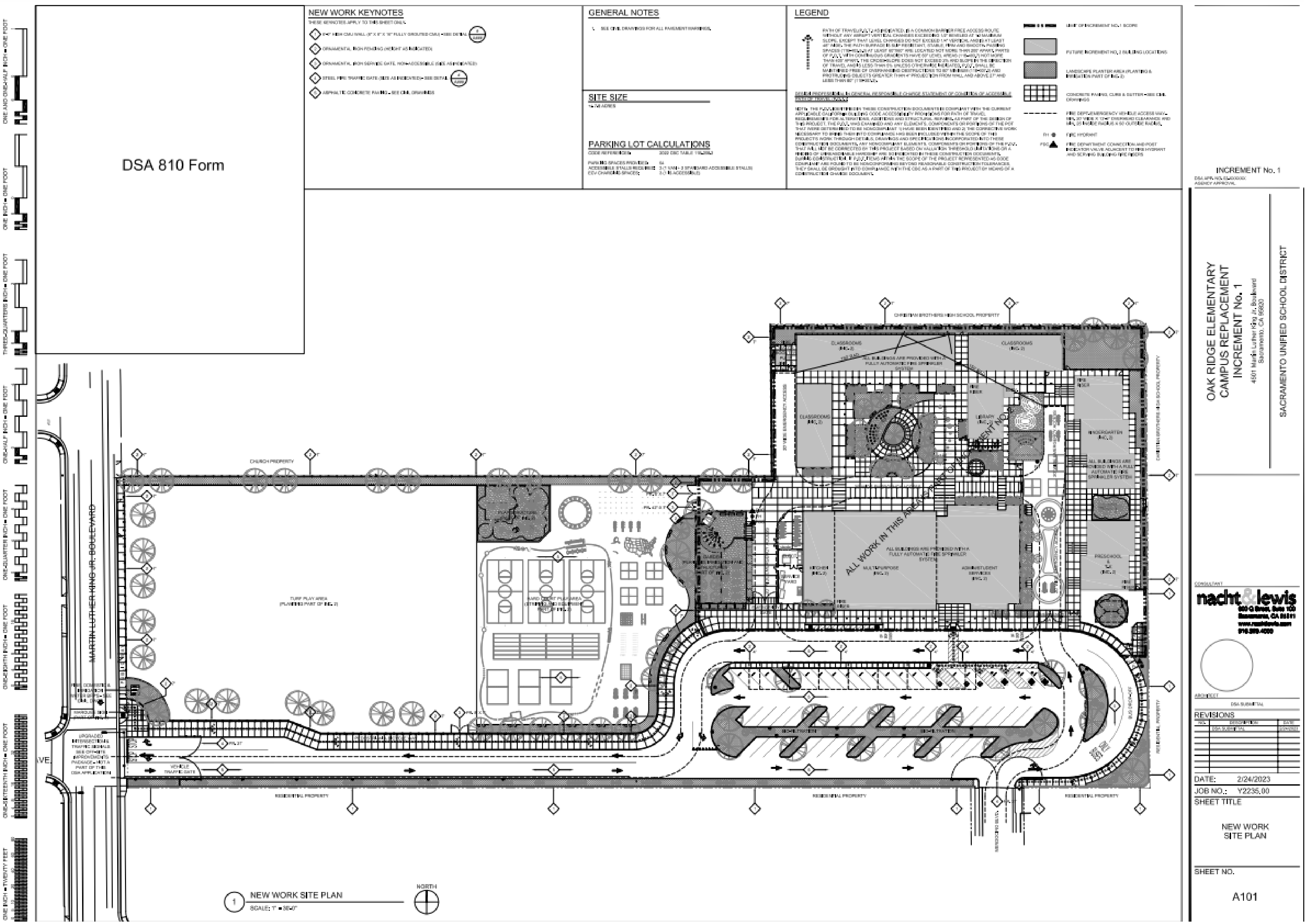
Oak Ridge Elementary School serves students from kindergarten through the 6th grade. Kindergarten classes start school at 9:00 AM and are dismissed at 12:50 PM on Mondays through Fridays. Grades 1 through 3 start at 9:00 AM and are dismissed at 3:07 PM on Mondays, Tuesdays, Wednesdays, and Fridays, and at 2:07 PM on Thursdays. Grades 4 through 6 start at 9:00 AM and are dismissed at 3:12 PM on Mondays, Tuesdays, Wednesdays, and Fridays, and at 2:12 PM on Thursdays. This school schedule will not change with rebuilding of the campus.

The 2021-2022 school year enrolled 475 students and 462 students are currently enrolled for the 2022-2023 school year. Based upon enrollment history for the last 10-years for Oak Ridge Elementary School, the highest enrollment of 592 students occurred in the 2016-2017 school year. The rebuild project will provide for enrollment of up to 600 students and this traffic analysis has been prepared considering the maximum enrollment potential.

VICINITY MAP

KD Anderson & Associates, Inc.
Transportation Engineers
0000-00 RA 4/21/2023

figure 1



SITE PLAN

KD Anderson & Associates, Inc.
Transportation Engineers

0000-00 RA 4/21/2023

figure 2

EXISTING SETTING

Roadways

Martin Luther King Jr. Blvd is a 2-lane north-south facility through the study area with Class II on-street bike lanes. On-street parking is permitted in most areas. The City of Sacramento General Plan Citywide Circulation Diagram identifies the street as a Major Collector. The Circulation Diagram also identifies the street as a 2-lane facility and indicates it is planned to remain a 2-lane facility in the future. The roadway currently carries approximately 1,200 peak hour vehicles in the vicinity of the project site. The posted speed is 35 mph.

20th Avenue is a local 2-lane east-west street with residential frontage and extends approximately 2,000 feet west from Martin Luther King Jr. Blvd to 32nd Street. The roadway is stop sign controlled at Martin Luther King Jr. Blvd.

21st Avenue is a 2-lane east-west street with residential frontage which extends west from Martin Luther King Jr. Blvd and provides an undercrossing of Highway 99 and intersects Franklin Blvd immediately west of Highway 99. 21st Avenue is the only roadway between the 12th Avenue and Fruitridge Road interchanges with Highway 99 which provides circulation to the west side of the highway. The 21st Avenue intersection with Martin Luther King Jr. Blvd is signalized. No left turn channelization is provided on Martin Luther King Jr. Blvd at the intersection.

22nd Avenue is a local 2-lane east-west street with residential frontage and extends approximately 2,000 feet west from Martin Luther King Jr. Blvd and 800 feet to the east where it intersects Mendocino Blvd. The roadway is stop sign controlled at Martin Luther King Jr. Blvd. The east and west side intersection with Martin Luther King Jr. Blvd is offset by approximately 125 feet.

Mendocino Blvd is a local 2-lane north-south street with residential frontage and extends south from the south border of the school site to Fruitridge Road and terminates approximately 2,500 feet south of Fruitridge Road.

Pedestrian Facilities

All streets in the vicinity of the school site provide sidewalks. Signal controlled pedestrian crossings are provided at the Martin Luther King Jr. Blvd / 21st Avenue intersection on the north and west sides of the intersection. Oak Ridge Elementary School staff also provides a school crossing guard at the intersection during school arrival and departure periods.

Transit Service

Sacramento Regional Transit (RT) provides bus service within the project area. The project site is approximately 0.95-miles east of the Sacramento Regional Transit District's light rail system. RT Route 67 extends north on Martin Luther King Jr. Blvd from Fruitridge Road and then follows 21st Avenue west to Franklin Blvd. Bus stops are located on 21st Avenue immediately west of Martin Luther King Jr. Blvd and on Martin Luther King Jr. Blvd on the north side of 23rd Avenue. No

Oak Ridge elementary students were observed to use this RT service. Oak Ridge Elementary School is not served with District school bus service and no future service is currently planned to be provided with the rebuild of the campus.

Traffic Data

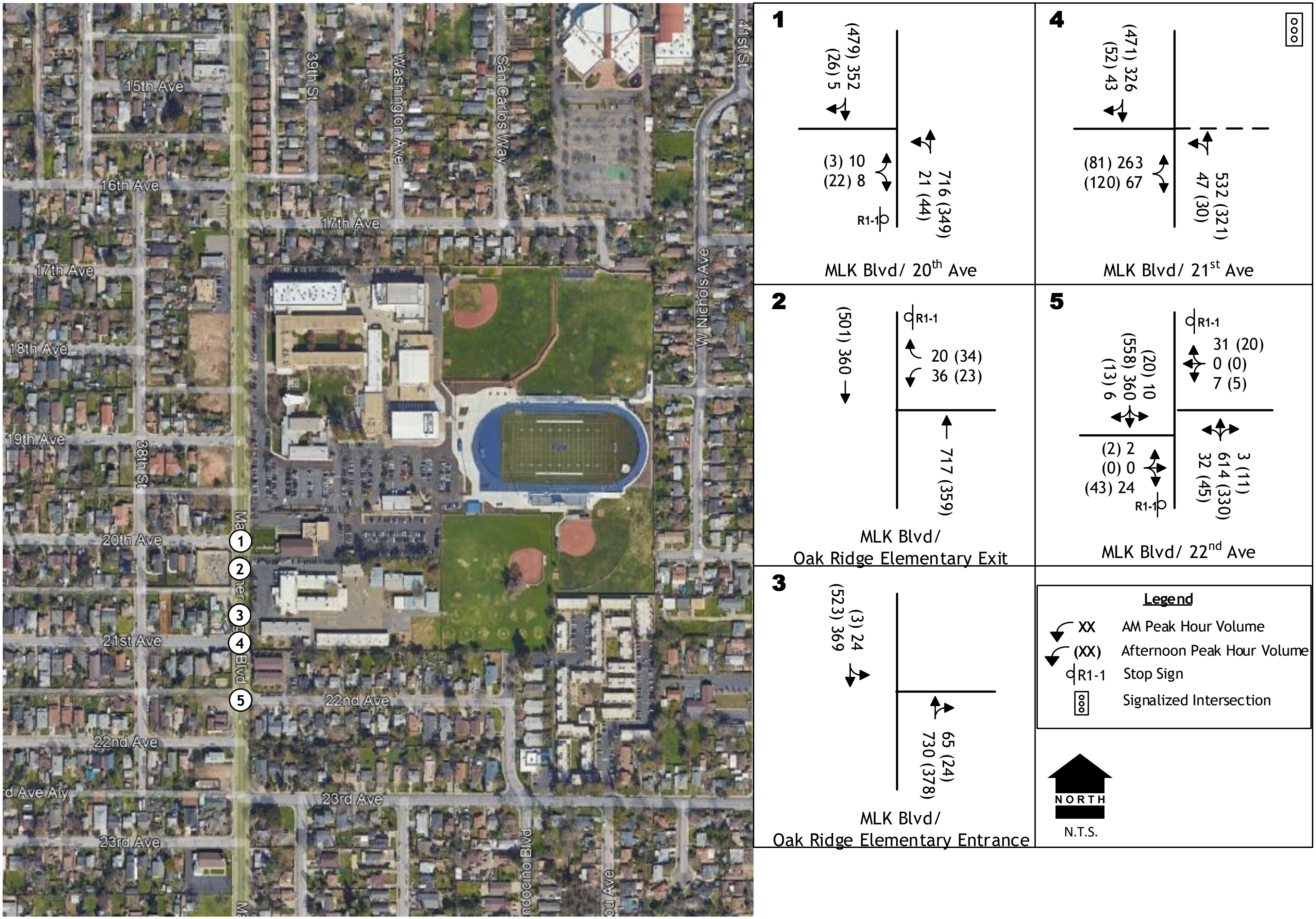
A.m. peak hour (7:00 to 9:00 a.m.) and afternoon peak hour (2:00 to 4:00 p.m.) traffic volume counts were conducted for this analysis. Traffic count data was collected over two hours in 15-minute intervals, and the four consecutive intervals with the greatest overall total traffic volumes identified as the "peak hour". Figure 3 displays existing peak hour intersection volumes. Traffic counts are appended. Existing queuing at study intersections as it relates to the general condition of on-site and off-site drop-off and loading activity was also observed, as was the number of on-street parked cars associated with school drop-off and pick-up activity. Traffic counts were conducted at the following intersections:

1. MLK Blvd / 20th Avenue
2. MLK Blvd / Oak Ridge Elementary Exit
3. MLK Blvd / Oak Ridge Elementary Entrance
4. MLK Blvd / 21st Avenue
5. MLK Blvd / 22nd Avenue

Traffic Field Observations

Peak hour traffic in the study area is heavily influenced by traffic generated by Christian Brothers High School. Table 1 displays Oak Ridge Elementary and Christian Brothers High School start and end times as well as the morning and afternoon peak hour times of adjacent street traffic. The peak hour of adjacent street traffic is largely driven by high school traffic. Elementary school traffic primarily occurs outside of the morning peak traffic hour and ends towards the beginning of the afternoon peak hour of the adjacent street traffic. Morning peak hour traffic on area streets was observed to result in long queue formations on Martin Luther King Jr. Blvd and on 21st Avenue. Afternoon conditions were observed to be better, but also experience periods of congestion on Martin Luther King Jr. Blvd due to high school operations.

In the morning, long vehicle queues extend south from the high school past the elementary school site and were observed to extend south past the elementary school for approximately a quarter mile to the 25th Avenue intersection. This condition is a result of high school traffic backing up on Martin Luther King Jr. Blvd from the high school driveways to the 21st Avenue signalized intersection. Northbound traffic to the high school utilizes northbound Martin Luther King Jr. Blvd as well as eastbound 21st Avenue. For a period of approximately 20 minutes in advance of the high school start time, these queues can prevent both northbound and eastbound traffic from utilizing available green time at the signalized intersection. Northbound and eastbound traffic was observed to be unable to advance through the intersection due to vehicle queues immediately north of the intersection. This condition then generates large vehicle queues on both northbound Martin Luther King Jr. Blvd south of 21st Avenue and on eastbound 21st Avenue. This condition persists for a number of signal cycles.



EXISTING TRAFFIC VOLUMES AND LANE CONFIGURATIONS

Following this period of high school traffic, pedestrian traffic associated with elementary school drop-off's on the adjacent street system further exacerbates this condition. Morning drop-off's occur near the Martin Luther King Jr. Blvd / 21st Avenue intersection, primarily on 21st Avenue and on the west side of Martin Luther King Jr. Blvd. School children and many parents then cross the west side and north side of the intersection to the school grounds. A school crossing guard assists these crossings. These crossings in turn conflict with northbound left turns from Martin Luther King Jr. Blvd to 21st Avenue and with eastbound left turns from 21st Avenue to northbound Martin Luther King Jr. Blvd. As no left turn lane is provided on Martin Luther King Jr. Blvd, northbound left turn traffic further inhibits northbound traffic flow.

Table 2 displays pedestrian counts observed at the subject intersection. As shown, approximately 100 pedestrians cross Martin Luther King Jr. Blvd in both the morning and afternoon hours, with 38 pedestrians crossing 21st Avenue in the morning. The proposed access and school drop-off design is projected to significantly improve conditions at the Martin Luther King Jr. Blvd / 21st Avenue intersection associated with pedestrian activity during both the morning drop-off period and afternoon pick-up loading times. The on-site circulation system, together with the location of the new campus buildings is projected to move school drop-off and pick-up activity from the adjacent street system to the on-site loading area. This is projected to eliminate the majority of school pedestrian crossings at the intersection and improve intersection vehicle delays. This is also a safety improvement, as it will remove school age pedestrians and parents from these street crossings.

Vehicle traffic at the existing school driveways to Martin Luther King Jr. Blvd also experience delays accessing the roadway due to congestion on Martin Luther King Jr. Blvd. Vehicles exiting the site typically must wait for a gap in queued traffic to access the roadway. Vehicles entering the site also experience delays due to congestion on Martin Luther King Jr. Blvd and due to the entrance driveway location being immediately north of 21st Avenue. It is noted that school driveway gates are typically closed at the afternoon school bell due to the very limited on-site vehicle storage.

TABLE 1
SCHOOL AND PEAK TRAFFIC HOURS

Oak Ridge Elementary School	9:00 a.m. start	3:07 – 3:12 p.m. end
Christian Brothers High School	8:40 a.m. start	3:10 p.m. end
Peak Hour of Oak Ridge traffic	8:20 – 9:20 a.m.	2:30 – 3:30 p.m.
Peak Hour of adjacent street traffic	7:45 – 8:45 a.m.	3:00 – 4:00 p.m.

TABLE 2
EXISTING PEDESTRIAN VOLUMES
MARTIN LUTHER KING Jr. BLVD / 21st AVENUE

	Morning	Afternoon
North Side Martin Luther King Jr. Blvd crosswalk	97	107
West side 21st Avenue crosswalk	38	0

Collision History

Accident data for Martin Luther King Jr. Blvd at the study intersections has been compiled. Collision history has been identified for the last three years using data available from the Statewide Integrated Traffic Records System (SWITRS). This information indicates one injury accident at the 22nd Avenue intersection involving a pedestrian crossing Martin Luther King Jr. Blvd. Two accidents were reported at the 20th Avenue intersection. These were reported as one property damage accident and one injury accident associated with a head-on collision. Six (6) accidents were reported at the 21st Avenue intersection. These consisted of five (5) injury accidents and one property damage accident. The type of accidents consisted of two (2) rear-end, three (3) broadside and one head-on accident. The consultant cannot draw any definite conclusions from this collision data, but broadside accidents are typically associated with uncontrolled left turns.

PROJECT PHASING AND CONSTRUCTION TRAFFIC

In order to accommodate students at the site, redevelopment of the site would occur in three phases to allow students to remain on campus during construction.

During Phase 1, students and staff would utilize the existing school buildings on the western portion of the campus while the new buildings are constructed on the eastern portion of the campus. Construction workers and equipment would access the site via Mendocino Blvd.

During Phase 2, students and staff would utilize the newly constructed school buildings on the eastern portion of the campus while the existing portable buildings are removed and the new driveway is constructed on the southern portion of the site. The new parking lot would also be completed in Phase 2. The existing parking lot would continue to operate during Phase 2 and a student/staff access corridor would be provided to connect the parking lot/drop-off area to the new campus buildings.

Phase 3 would consist of demolishing the rest of the existing school buildings and the existing parking lot on the west portion of the campus. During this Phase, the playfields and site frontage would be constructed and access to the newly constructed Martin Luther King Jr. Boulevard driveway and new parking lot would be available.

The level of construction traffic will vary throughout the duration of the project and will be dependent on specific construction tasks. Input from the construction contractor team indicates that the work force personnel would range from about 15 persons to 65 persons working on site during Phase 1 when construction access is provided via Mendocino Blvd. Truck traffic will similarly vary, with 2-5 trucks projected per day for deliveries and off-haul during slower periods and 6-10 trucks per day during peak days. Working days will be Monday through Friday from 7:00 a.m. – 3:30 p.m. This will place construction worker arrivals and departures outside of school day arrivals and departures for both Oak Ridge Elementary and the adjacent high school.

A construction worksite traffic control plan would be prepared and implemented by the District. The plan would identify haul routes, hours of construction, protective devices, warning signs, and access.

Use of Martin Luther King Jr. Blvd to 23rd Avenue and Mendocino Blvd likely represents the most direct route to the construction access point to minimize travel through residential neighborhoods. 23rd Avenue is a 38 foot wide street and Mendocino Blvd is 32 feet in width. 22nd Avenue is slightly narrower at 30 feet in width. This route from Martin Luther King Jr. Blvd would result in construction traffic travelling on approximately 850 feet of 23rd Avenue and 450 feet of Mendocino Blvd.

Project Trip Generation

Traffic generated by Oak Ridge Elementary School is not projected to increase with the rebuild project, as maximum student enrollment will not be increased with the project. Project trip generation has been quantified based upon traffic counts conducted at the site and field observations on the surrounding street system to determine projected traffic at the new access driveway. Projected peak hour traffic volumes into and out of the new site driveway are displayed in Figure 4 and these volumes consider several factors for purposes of evaluating traffic operations. Although overall trip generation is not projected to change, traffic which is currently oriented to the adjacent street system and which parks on the street for student drop-off and pick-up is projected to enter the new site driveway and access the student loading area. Project traffic has been quantified relative to the peak hour of adjacent street traffic as well as the peak hour of traffic generated by the elementary school site. This latter component has been used in evaluating on-site circulation associated with student drop-off and pick-up activity. Lastly, traffic volumes associated with the current enrollment of 462 students have been factored to represent a maximum enrollment of 600 students for purposes of evaluating on site circulation and intersection operations at the new driveway connection to the Martin Luther King Jr. Blvd / 21st Avenue intersection.

Trip Distribution. The regional distribution of project trips has been determined based on consideration of current travel patterns and intersection traffic counts. Table 3 summarizes this information.

TABLE 3
EXISTING TRIP DISTRIBUTION

	Morning		Afternoon	
	Inbound	**Outbound**	**Inbound**	**Outbound**
North via Martin Luther King Blvd	18%	30%	12%	10%
South via Martin Luther King Blvd	46%	24%	60%	58%
West via 20th Avenue	6%	12%	5%	8%
West via 21st Avenue	21%	23%	14%	12%
West via 22nd Avenue	3%	3%	3%	3%
East via 22nd Avenue	6%	8%	6%	9%

Vehicle Miles Traveled (VMT)

Level of Service (LOS) has been used in the past in California Environmental Quality Act (CEQA) documents to identify the significance of a project's impact on traffic operating conditions. As noted in the California Governor's Office of Planning and Research (OPR) document *Technical Advisory on Evaluating Transportation Impacts in CEQA* (California Governor's Office of Planning and Research 2018),

> "Senate Bill 743 (Steinberg, 2013), which was codified in Public Resources Code section 21099, required changes to the guidelines implementing CEQA (CEQA Guidelines) (Cal. Code Regs., Title 14, Div. 6, Ch. 3, § 15000 et seq.) regarding the analysis of transportation impacts. . . OPR has proposed, and the California Natural Resources Agency (Agency) has

> certified and adopted, changes to the CEQA Guidelines that identify vehicle miles traveled (VMT) as the most appropriate metric to evaluate a project's transportation impacts. With the California Natural Resources Agency's certification and adoption of the changes to the CEQA Guidelines, automobile delay, as measured by "level of service" and other similar metrics, generally no longer constitutes a significant environmental effect under CEQA. (Pub. Resources Code, § 21099, subd. (b)(3).)"

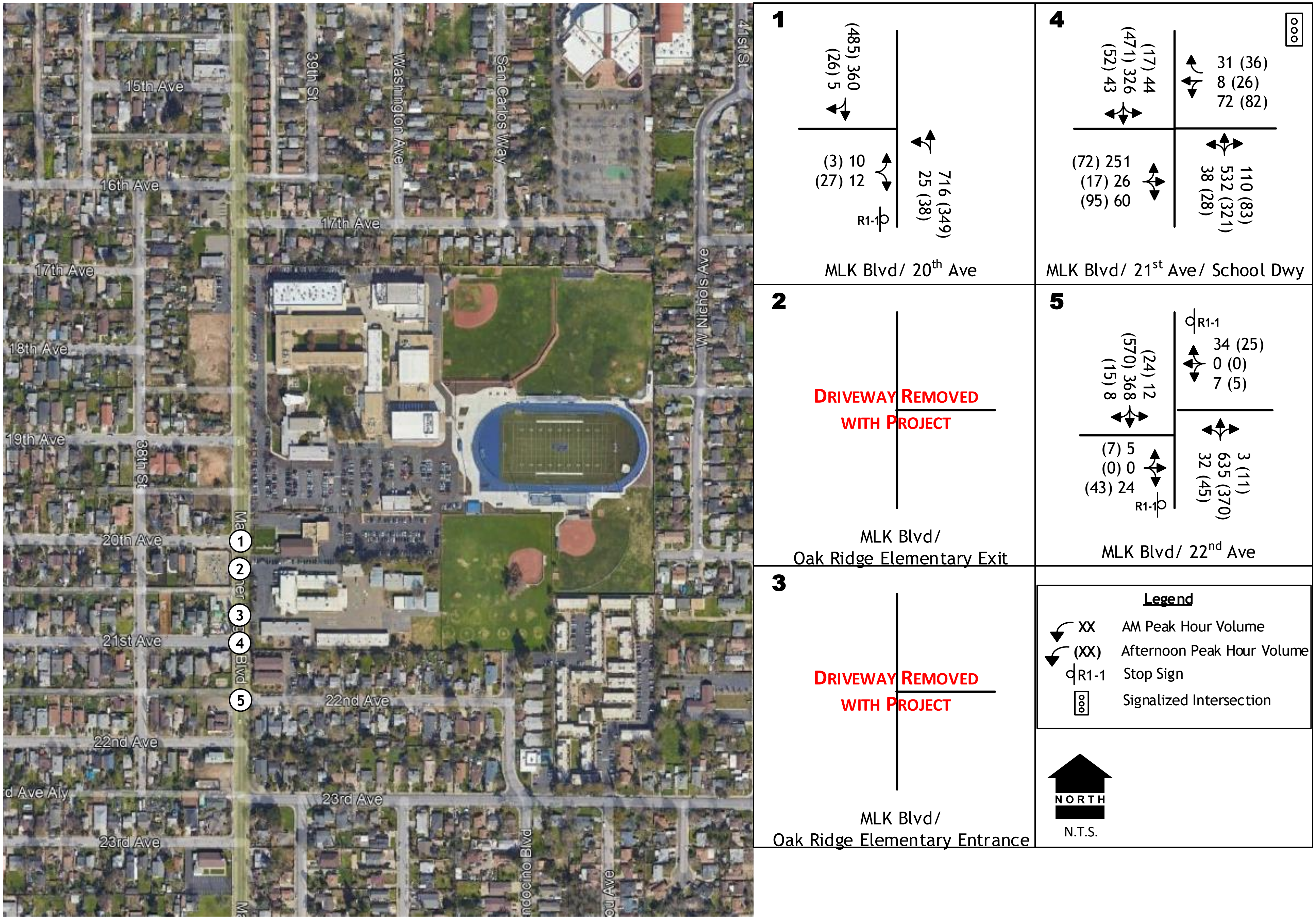
For land use projects, OPR identified Vehicle Miles Traveled (VMT) per capita, VMT per employee, and net VMT as new metrics for transportation analysis. The CEQA Guidelines state that lead agencies may establish "thresholds of significance" to assist with the determination of significant impacts of a project. The CEQA Guidelines generally state that projects that decrease VMT can be assumed to have a less than significant transportation impact. The CEQA Guidelines do not provide any specific criteria on how to determine what level of project VMT would be considered a significant impact.

Methods and Significance Criteria. The OPR *Technical Advisory* provides general direction regarding the methods to be employed and significance criteria to evaluate VMT impacts, absent policies adopted by local agencies. The directive addresses several aspects of VMT impact analysis, and is organized as follows:

Screening Criteria. Screening criteria can be used to quickly identify whether sufficient evidence exists to presume a project will have a less than significant VMT impact without conducting a detailed study. However, each project should be evaluated against the evidence supporting that screening criteria to determine if it applies. Projects meeting at least one of the criteria below can be presumed to have a less than significant VMT impact, absent substantial evidence that the project will lead to a significant impact.

- ***Small Projects:*** Defined as a project that generates 110 or fewer average daily vehicle trips.
- ***Affordable Housing:*** Defined as a project consisting of deed-restricted affordable housing.
- ***Local Serving Retail***: Defined as retail uses of 50,000 square feet or less can be presumed to have a less than significant impact.
- ***Projects in Low VMT-Generating Area:*** Defined as a residential or office project that is in a VMT efficient area based on an available VMT Estimation Tool. The project must be consistent in size and land use type (i.e., density, mix of uses, transit accessibility, etc.) as the surrounding built environment.
- ***Proximity to High Quality Transit.*** The directive notes that employment and residential development located within ½ mile of a high-quality transit corridor can be presumed to have a less than significant impact.

Screening Evaluation. The extent to which the proposed project's VMT impacts can be presumed to be less than significant has been determined based on review of the OPR directive's screening criteria and general guidance. As the Oak Ridge Elementary School Rebuild Project will not increase maximum enrollment capacity above current levels and the school assignment area boundaries will remain unchanged, project trip generation quantities and trip lengths are projected to remain unchanged. As such, VMT impacts can be presumed to be less than significant.



EXISTING PLUS PROJECT TRAFFIC VOLUMES AND LANE CONFIGURATIONS

State Highway facilities

The project site is approximately 2.48 miles to the east of Interstate 5, 1.78 miles south of Highway 50 and 0.43 miles east of State Route 99. The Oak Ridge Elementary School Rebuild projects impact to state highway facilities is projected to be less than significant. The project will not increase maximum school enrollment capacity and the quantity of traffic generated by the site as well as the directional distribution of regional traffic which might be oriented to the state highway system is projected to remain as occurs today.

School Access and Circulation

The proposed project access driveway will extend 500 feet east from Martin Luther King Jr. Blvd prior to entering the parking lot and drop off-area loop system. The driveway would be 27 feet in width and widen to 39 feet near the Martin Luther King Jr. Blvd intersection to provide two outbound lanes at the intersection. These will consist of a shared left+through lane and a right turn lane. The right turn lane will be 135 feet long.

The parking lot will provide 54 parking spaces. This is based upon a 9% student load per City of Sacramento requirements. In general, this is intended to provide roughly 40 staff parking spaces and 14 spaces for visitors. The number of parking spaces is estimated to be satisfactory based upon the number of spaces in the existing parking lot and observed utilization of these spaces. The existing parking lot provides 46 parking spaces. Field observations in the morning and afternoon indicated that two to five spaces were available in the existing parking lot.

The student drop-off curb lane will be 280 feet long and this will accommodate approximately 10 vehicles. The balance of the loop driveway in the parking lot area is approximately 450 feet in length. This length, together with the 500 feet of driveway to be provided prior to entering the parking lot / drop-off area provides on-site storage for approximately 38 vehicles in advance of the drop-off lane.

On-Site Drop-off and Loading. The flow of traffic through any school's drop-off and loading zones can have an effect on off-site traffic conditions, as delays created by drop-off and loading can create peak period queues that extend back onto adjacent public streets.

Morning Drop-off. The adequacy of the drop-off area is linked to the rate at which parent vehicles can maneuver into the zone and students can be unloaded. Assuming some assistance from staff who will direct students into and out of vehicles, each space could accommodate one drop-off every 15-20 seconds, or about 30 drop-offs per minute for the 10 space drop-off area. With a maximum enrollment of 600 students, 250 morning inbound vehicles are projected for the site. Thus, if all 250 inbound parent vehicles used the drop-off area, it would take 8-10 minutes to drop off all students. In reality a portion of the drop-off demand is likely to be dispersed to the parking lot area rather than the designated zone. In addition, the majority of drop-off activity will be dispersed into a roughly 20 minute arrival period. Given this demand, together with the proposed on-site vehicle storage, it is estimated that morning arrivals can be accommodated on-site the majority of the time without appreciable queues extending onto the adjacent street system.

Afternoon Conditions. Conditions at the end of the school day are inherently different since many parents arrive before the school day ends to wait for their student, while others arrive after the school bell. The combination of staff vehicles and waiting parent vehicles would need to be accommodated in parking spaces, the loading area and the available on-site driveway storage area. As indicated, this consists of the 10 car loading area and a driveway and loop area accommodating another 38 vehicles. In addition, approximately 14 parking spaces might be available for student pickup. It has been assumed that the central driveway parking lot aisle would not be available to store vehicles for student pick-up. As such, storage for 62 vehicles might typically be available on-site for student pick-up.

The total number of vehicles expected to be waiting or parked as the school day ends has been determined from observations of existing conditions at the site. This consists of traffic counts at the existing driveways and associated vehicles parked on the surrounding street system. As previously indicated, some pick-up activity currently occurs on-site at some times. However, the existing driveway gates are most often closed during afternoon pick-up, as on-site vehicle storage is very limited. As such, parents park on the surrounding street system.

In the afternoon, a peak of 46 vehicles was observed to be parked and waiting either on-site or on the surrounding street system at one time. Adjusting this number for a maximum enrollment of 600 students indicates that a peak of approximately 60 vehicles might be expected. This number is very close to the 62 vehicles which would be accommodated on-site and resulting demand would typically not be expected to extend onto the adjacent street system.

LEVEL OF SERVICE ANALYSIS

Methods of Analysis - Level of Service

To assess the quality of project traffic conditions, Levels of Service were calculated at study intersections. "Level of Service" (LOS) is a qualitative measure of traffic operating conditions whereby a letter grade "A" through "F", corresponding to progressively worsening traffic operating conditions, is assigned to an intersection or roadway segment. The City of Sacramento has identified LOS ‘D’ as the general minimum standard for its roadways.

The City of Sacramento General Plan Goals and Policies section indicates the City shall implement a flexible context-sensitive Level of Service (LOS) standard and will measure traffic operations against the vehicle LOS thresholds established in this policy. LOS thresholds have been defined based upon community values with respect to modal priorities, land use context, economic development, and environmental resources and constraints. As such, the City has established variable LOS thresholds appropriate for the unique characteristics of the City’s diverse neighborhoods and communities. The City will strive to operate the roadway network at LOS D or better for vehicles during typical weekday conditions, including AM and PM peak hour with the following exceptions described below and mapped on Figure M-1. It is noted here that the exceptions mapped on Figure M-1 do not include Martin Luther King Jr. Blvd and therefore the LOS D standard is generally applicable to the roadway.

Intersection Analysis Methodology. Procedures used for calculating Levels of Service at signalized intersections are presented in the Transportation Research Board’s *Highway Capacity Manual, 6th Edition*. In addition to traffic volume, these procedures make use of geometric information and in the case of traffic signals, signal timing data. *Synchro* Version 11 software was used to determine the levels of service for all signalized intersections. Table 4 presents typical Level of Service characteristics for signalized and unsignalized intersections.

TABLE 4
INTERSECTION LEVEL OF SERIVE CRITERIA

Level of Service	Signalized Intersection	Unsignalized Intersection	Roadway (Daily)
"A"	Uncongested operations, all queues clear in a single-signal cycle. Delay ≤ 10.0 sec	Little or no delay. Delay ≤ 10 sec/veh	Completely free flow.
"B"	Uncongested operations, all queues clear in a single cycle. Delay > 10.0 sec and ≤ 20.0 sec	Short traffic delays. Delay > 10 sec/veh and ≤ 15 sec/veh	Free flow, presence of other vehicles noticeable.
"C"	Light congestion, occasional backups on critical approaches. Delay > 20.0 sec and ≤ 35.0 sec	Average traffic delays. Delay > 15 sec/veh and ≤ 25 sec/veh	Ability to maneuver and select operating speed affected.
"D"	Significant congestion of critical approaches but intersection functional. Cars required to wait through more than one cycle during short peaks. No long queues formed. Delay > 35.0 sec and ≤ 55.0 sec	Long traffic delays. Delay > 25 sec/veh and ≤ 35 sec/veh	Unstable flow, speeds and ability to maneuver restricted.
"E"	Severe congestion with some long standing queues on critical approaches. Blockage of intersection may occur if traffic signal does not provide for protected turning movements. Traffic queue may block nearby intersection(s) upstream of critical approach(es). Delay > 55.0 sec and ≤ 80.0 sec	Very long traffic delays, failure, extreme congestion. Delay > 35 sec/veh and ≤ 50 sec/veh	At or near capacity, flow quite unstable.
"F"	Total breakdown, stop-and-go operation. Delay > 80.0 sec	Intersection blocked by external causes. Delay > 50 sec/veh	Forced flow, breakdown.

Sources: Highway Capacity Manual, 6th Edition Transportation Research Board (TRB).

Existing Levels of Service

Table 5 summarizes existing intersection levels of service. Level of service calculations are appended. As shown, LOS A to F is experienced in the morning peak hour at individual unsignalized intersection approaches. LOS E operations are calculated at the Martin Luther King Jr. Blvd / 21st Avenue intersection. As discussed in the Traffic Field Observations section of this report, peak period queues on Martin Luther King Jr. Blvd can significantly affect operations at this intersection and substantially increase delays during peak periods of the peak traffic hour.

Similarly, LOS B operations are identified for the southbound left turn into the school driveway in the morning peak hour. Observed conditions were worse than this as vehicle queues on Martin Luther King Jr. Blvd can block this movement during peak periods.

Existing afternoon intersection operations are better, with levels of service ranging from A to D.

TABLE 5
EXISTING LEVELS OF SERVICE

Intersection	Control	Level of Service			
		AM Peak Hour		PM Peak Hour	
		LOS	Delay	LOS	Delay
Martin Luther King Blvd / 20th Avenue	EB Stop				
Eastbound		E	46.3	C	16.1
Northbound left		A	8.8	A	9.3
Martin Luther King Blvd / School Exit	WB Stop				
Westbound left		F	110.5	D	29.9
Martin Luther King Blvd / School Entrance	None				
Southbound left		B	11.9	A	8.8
Martin Luther King Blvd / 21st Avenue	Signal	E	55.3	B	15.6
Martin Luther King Blvd / 22nd Avenue	EB, WB Stop				
Eastbound		C	18.6	C	23.5
Westbound		D	30.6	D	28.1
Southbound left		A	9.6	A	8.4
Northbound left		A	9.0	A	9.7

Traffic Signal Warrants. To further characterize current traffic conditions, the volume of traffic occurring at the unsignalized study intersections was compared to Warrant #3 (peak hour traffic volume) presented in the California Manual of Traffic Control Devices (CA MUTCD). The 20th Avenue and 22nd Avenue intersections with Martin Luther King Jr. Blvd do not meet this volume criteria for installation of a traffic signal.

Existing plus Project Levels of Service

Intersection levels of service are summarized in Table 6. The Oak Ridge Elementary School Rebuild Project would construct a new access driveway to Martin Luther King Jr. Blvd aligned with 21st Avenue to provide signalized access to the site. This will result in a 4-way signalized intersection.

Level of service E to C operations are projected at the signalized intersection. These calculations assume existing geometrics on Martin Luther King Jr. Blvd. No left turn channelization is provided at the intersection. As discussed for existing intersection operations, peak period queues on Martin Luther King Jr. Blvd can significantly affect operations at this intersection and substantially increase delays during peak periods of the peak traffic hour. Level of service calculations do not fully reflect these actual field conditions. With project intersection modifications, a new westbound approach will be added and southbound left turn movements will also be introduced to the signalized intersection. Without left turn channelization, left turns would be expected to further contribute to observed queues.

It is recommended that the feasibility of left turn channelization on Martin Luther King Jr. Blvd be analyzed as part of the Design Concept Report (DCR) for the intersection. The City of Sacramento requires a DCR for all new traffic signals or signal modifications. This report would also evaluate left turn phasing options such as protected operation or protected / permitted phasing.

Levels of service associated with adding left turn lanes on Martin King Luther Jr. Blvd together with protected left turn phasing have been calculated for this report. Level of Service E with average delay 68.7 seconds is projected for the a.m. peak traffic hour. The increase in total average delay at the intersection would generally be attributable to adding the protected left turn phases. An exhibit has also been prepared displaying an alternative for restriping Martin Luther King Jr. Blvd to provide left turn channelization at the intersection. This would require removal of on-street parking north and south of the intersection. See Figure 5.

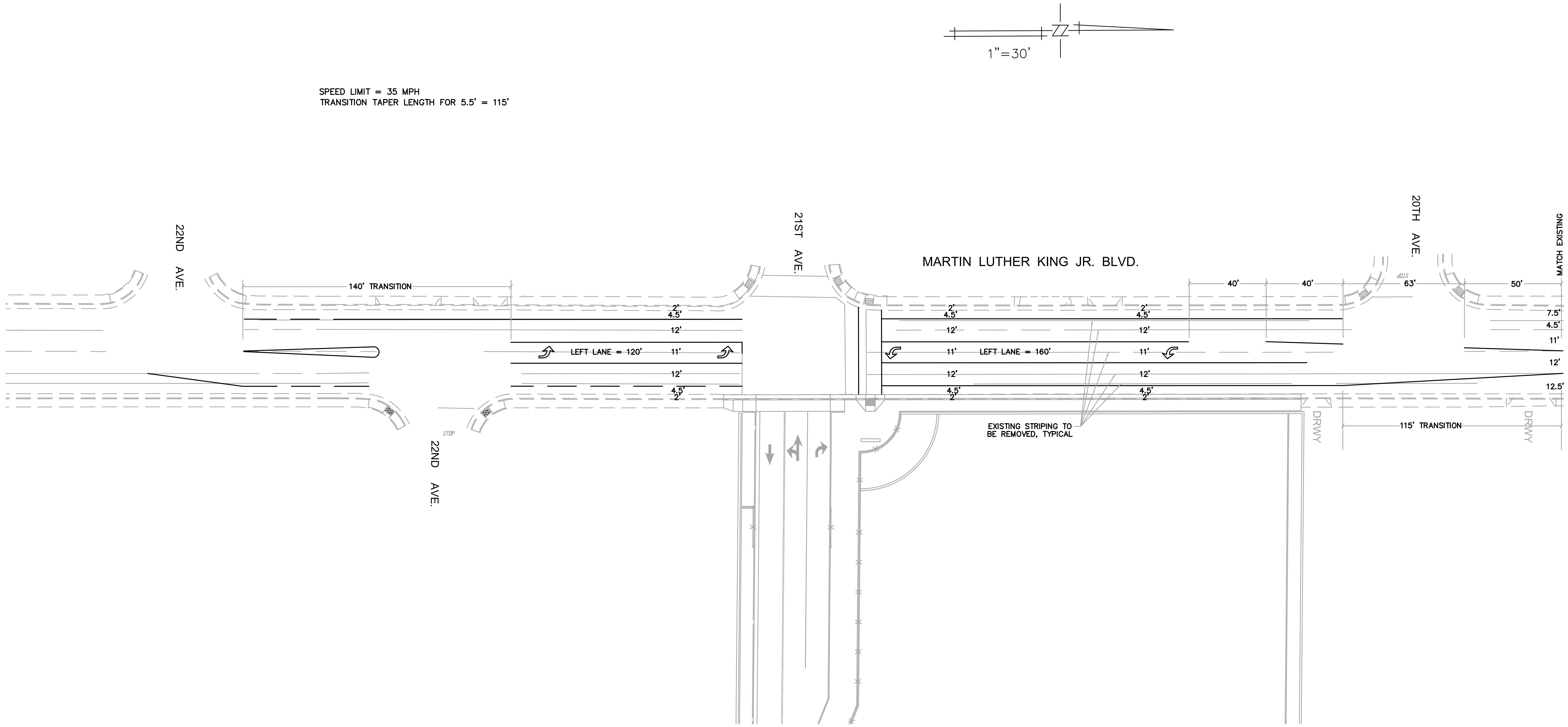
Turn Lane Queues. The lengths of peak period queues created in turn lanes at the intersection has also been determined as a byproduct of the HCM LOS analysis, and 95th percentile queues have been identified for the Martin Luther King Jr. Blvd / 21st Avenue intersection. These are summarized in Table 7. Queue calculations are appended. As shown, vehicle queues are projected to be accommodated in the turn lane lengths.

TABLE 6
EXISTING PLUS PROJECT LEVELS OF SERVICE

Intersection	Control	Level of Service			
		AM Peak Hour		PM Peak Hour	
		LOS	Delay	LOS	Delay
Martin Luther King Blvd / 20th Avenue	EB Stop				
Eastbound		E	45.2	C	16.1
Northbound left		A	8.9	A	9.3
Martin Luther King Blvd / 21st Avenue	Signal	E	60.2	C	23.5
Martin Luther King Blvd / 22nd Avenue	EB, WB Stop				
Eastbound		D	28.9	E	47.5
Westbound		D	32.0	D	30.5
Southbound left		A	9.7	A	9.7
Northbound left		A	9.0	A	8.6

TABLE 7
PROJECTED VEHICLE QUEUE LENGTHS
MARTIN LUTHER KING JR. BLVD / 21ST AVENUE
EXISTING PLUS PROJECT CONDITIONS WITH LEFT TURN LANES

	Peak Hour		**Storage**
	AM	**PM**	
Westbound Left + Thru Lane	130 ft	170 ft	500 ft
Westbound Right Turn Lane	55 ft	60 ft	135 ft
Northbound Left Turn Lane	70 ft	80 ft	120 ft
Southbound Left Turn Lane	15 ft	85 ft	160 ft



0 1 2
FOR REDUCED PLANS
ORIGINAL SCALE IS IN INCHES

SCALE : 1"=30'

K D Anderson
Transportation Engineers

3853 Taylor Road, Suite G
Loomis, California 95650
(916)660-1555

STRIPING EXHIBIT
MARTIN LUTHER KING JR BLVD LEFT TURN LANES

FIGURE 5

APPENDIX

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 23-070004-002

Day: Wednesday

City: Sacramento

TOTALS

AM

Date: 1/18/2023

NS/EW Streets:	Martin Luther King Jr Blvd			Martin Luther King Jr Blvd			21st Ave/Oak Ridge Elementary School Entrance Dwy			21st Ave/Oak Ridge Elementary School Entrance Dwy							
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND				UTURNS			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
LANES:	0	0	0	0	0	0	0	0	0	0	0	0					
7:30 AM	2	53	2	1	20	4	4	0	4	0	0	0	90	0	0	0	0
7:35 AM	2	40	0	1	21	2	10	1	4	0	0	0	81	0	0	0	0
7:40 AM	2	66	1	0	26	0	13	0	5	0	0	0	113	0	0	0	0
7:45 AM	10	65	0	2	25	5	7	0	2	0	0	0	116	0	0	0	0
7:50 AM	11	39	2	2	24	2	6	0	3	0	0	0	89	0	0	0	0
7:55 AM	5	38	2	0	31	4	9	2	8	0	0	0	99	0	0	0	0
8:00 AM	3	38	5	0	28	3	14	1	3	0	0	0	95	0	0	0	0
8:05 AM	7	38	3	3	41	7	8	1	14	0	0	0	122	0	0	0	0
8:10 AM	5	45	2	2	27	2	13	0	7	0	0	0	103	0	0	0	0
8:15 AM	1	49	4	1	25	3	14	0	6	0	0	0	103	0	0	0	0
8:20 AM	0	59	4	3	26	0	20	4	5	0	0	0	121	0	0	0	0
8:25 AM	0	41	3	3	18	6	46	3	3	0	0	0	123	0	0	0	0
8:30 AM	1	29	6	2	23	0	47	2	1	0	0	0	111	0	0	0	0
8:35 AM	1	21	5	1	21	8	31	4	7	0	0	0	99	0	0	0	0
8:40 AM	3	25	9	5	37	3	28	3	8	0	0	0	121	0	0	0	0
8:45 AM	2	32	13	3	29	6	6	2	3	0	0	0	96	0	0	0	0
8:50 AM	2	14	11	2	29	3	4	6	6	0	0	0	77	0	0	0	0
8:55 AM	0	17	9	5	26	3	5	8	7	0	0	0	80	0	0	0	0
9:00 AM	1	24	15	4	36	2	6	2	12	0	0	0	102	0	0	0	0
9:05 AM	1	22	10	5	26	1	2	1	7	0	0	0	75	1	0	0	0
9:10 AM	0	17	3	5	36	2	1	0	1	0	0	0	65	0	0	0	0
9:15 AM	3	26	2	2	9	1	4	0	4	0	0	0	51	0	0	0	0
9:20 AM	1	16	2	1	26	1	3	0	5	0	0	0	55	0	0	0	0
9:25 AM	1	34	1	1	14	2	2	0	2	0	0	0	57	0	0	0	0

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
TOTAL VOLUMES :	64	848	114	54	624	70	303	40	127	0	0	0	2244	1	0	0	0
APPROACH %'s :	6.24%	82.65%	11.11%	7.22%	83.42%	9.36%	64.47%	8.51%	27.02%	#DIV/0!	#DIV/0!	#DIV/0!					

AM Peak Hr Begins at: 745 AM

PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	47	487	45	24	326	43	243	20	67	0	0	0	1302
PEAK HR FACTOR :		0.643			0.642			0.529			0.000		0.882

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 23-070004-002

Day: Wednesday

City: Sacramento

TOTALS

PM

Date: 1/18/2023

NS/EW Streets:	Martin Luther King Jr Blvd			Martin Luther King Jr Blvd			21st Ave/Oak Ridge Elementary School Entrance Dwy			21st Ave/Oak Ridge Elementary School Entrance Dwy				UTURNS			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND							
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
LANES:	0	0	0	0	0	0	0	0	0	0	0	0					
2:00 PM	2	18	2	1	22	1	2	0	3	0	0	0	51	0	0	0	0
2:05 PM	5	23	0	1	28	0	1	0	5	0	0	0	63	0	0	0	0
2:10 PM	4	18	4	0	30	1	1	0	10	0	0	0	68	0	0	0	0
2:15 PM	1	20	3	0	29	1	5	0	7	0	0	0	66	0	0	0	0
2:20 PM	3	26	2	0	29	1	2	0	6	0	0	0	69	0	0	0	0
2:25 PM	4	31	3	1	40	4	6	1	6	0	0	0	96	0	0	0	0
2:30 PM	1	23	7	1	24	5	5	1	10	0	0	1	78	0	0	0	0
2:35 PM	4	25	2	2	40	1	5	0	8	0	0	0	87	0	0	0	0
2:40 PM	1	19	1	0	22	3	7	1	6	0	0	0	60	0	0	0	0
2:45 PM	2	23	1	0	30	7	6	0	4	0	0	0	73	0	0	0	0
2:50 PM	1	20	0	0	30	5	7	0	5	0	0	0	68	0	0	0	0
2:55 PM	7	30	0	0	25	5	8	0	5	0	0	0	80	0	0	0	0
3:00 PM	5	26	0	0	21	2	6	0	8	0	0	0	68	0	0	0	0
3:05 PM	3	18	0	0	27	1	7	0	7	0	0	0	63	0	0	0	0
3:10 PM	2	26	0	0	31	0	14	0	8	0	0	0	81	1	0	0	0
3:15 PM	3	10	3	1	22	5	11	4	11	0	0	0	70	0	0	0	0
3:20 PM	2	31	6	2	38	8	9	2	13	0	0	0	111	0	1	0	0
3:25 PM	3	39	4	0	55	7	0	1	14	0	0	0	123	0	0	0	0
3:30 PM	5	27	0	0	42	9	4	0	17	0	0	0	104	0	0	0	0
3:35 PM	3	35	1	0	60	4	5	0	3	0	0	0	111	0	0	0	0
3:40 PM	0	16	0	0	46	5	5	0	7	0	0	0	79	0	0	0	0
3:45 PM	2	31	3	0	45	4	4	0	10	0	0	0	99	0	0	0	0
3:50 PM	2	27	0	0	36	3	6	0	10	0	0	0	84	0	0	0	0
3:55 PM	0	18	0	0	48	4	3	0	12	0	0	0	85	0	0	0	0
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
TOTAL VOLUMES :	65	580	42	9	820	86	129	10	195	0	0	1	1937	1	1	0	0
APPROACH %'s :	9.46%	84.43%	6.11%	0.98%	89.62%	9.40%	38.62%	2.99%	58.38%	0.00%	0.00%	100.00%					

PM Peak Hr Begins at: 300 PM

PEAK HR START TIME :	300 PM												TOTAL
PEAK HR VOL :	30	304	17	3	471	52	74	7	120	0	0	0	1078
PEAK HR FACTOR :		0.636			0.685			0.644			0.000		0.730

CONTROL : Signalized

PREPARED BY NATIONAL DATA & SURVEYING SERVICES

PROJECT#: 23-070004-002
N/S Street: Martin Luther King Jr Blvd
E/W Street: 21st Ave/Oak Ridge Elementary School Entrance Dwy
DATE: 1/18/2023
DAY: Wednesday
CITY: Sacramento

A M

PEDESTRIANS

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
7:30 AM	0	0	0	0	0	0	0	0
7:35 AM	0	0	0	0	0	0	1	1
7:40 AM	0	0	0	0	0	1	0	0
7:45 AM	0	0	0	0	0	0	0	0
7:50 AM	0	0	0	0	0	0	0	0
7:55 AM	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	3	0	0	0
8:05 AM	0	0	0	0	2	0	0	0
8:10 AM	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0
8:20 AM	5	0	0	0	0	0	2	0
8:25 AM	2	0	0	0	0	0	4	0
8:30 AM	1	1	0	0	0	0	2	0
8:35 AM	5	1	0	0	1	0	2	0
8:40 AM	6	0	0	0	0	0	5	0
8:45 AM	7	1	0	0	0	0	2	1
8:50 AM	7	0	0	0	1	0	0	0
8:55 AM	22	2	0	0	1	0	5	1
9:00 AM	11	4	0	0	1	0	2	1
9:05 AM	8	7	0	0	0	0	4	1
9:10 AM	0	3	0	0	0	0	1	1
9:15 AM	3	0	0	0	0	0	2	0
9:20 AM	0	0	0	0	0	0	0	0
9:25 AM	0	1	0	0	0	0	0	0
TOTALS	**77**	**20**	**0**	**0**	**9**	**1**	**32**	**6**

BIKES

T I M E	NB			SB			EB			WB		
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR
7:30 AM	0	1	0	0	0	0	0	0	0	0	0	0
7:35 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:40 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:50 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:55 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:05 AM	0	1	0	0	0	0	0	0	0	0	0	0
8:10 AM	0	0	0	0	1	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:20 AM	0	0	2	0	0	0	0	0	0	1	0	0
8:25 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:35 AM	1	0	0	0	0	0	0	0	1	0	0	0
8:40 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:50 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:55 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:05 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:10 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	1	1	0	0	0	0	0	0	0	0	0	0
9:20 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:25 AM	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	**2**	**3**	**2**	**0**	**1**	**0**	**0**	**0**	**1**	**1**	**0**	**0**

P M

PEDESTRIANS

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
2:00 PM	0	0	0	0	0	0	0	0
2:05 PM	0	0	0	0	0	0	0	0
2:10 PM	0	0	0	0	0	0	0	0
2:15 PM	0	0	0	0	0	0	0	0
2:20 PM	0	0	0	0	0	0	0	0
2:25 PM	0	0	0	1	0	0	0	0
2:30 PM	0	0	0	0	0	0	0	0
2:35 PM	0	0	0	0	0	0	0	0
2:40 PM	0	0	0	0	0	0	0	0
2:45 PM	0	0	0	0	0	0	0	0
2:50 PM	0	0	0	0	0	3	0	0
2:55 PM	0	0	0	1	0	0	0	0
3:00 PM	2	0	0	0	0	0	0	0
3:05 PM	17	4	4	1	0	0	0	0
3:10 PM	5	32	2	0	0	0	0	0
3:15 PM	7	37	0	0	0	0	0	0
3:20 PM	3	0	1	0	0	0	0	0
3:25 PM	0	0	1	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0
3:35 PM	0	0	0	0	0	0	0	0
3:40 PM	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0
3:50 PM	0	0	0	0	0	0	0	0
3:55 PM	0	0	0	0	0	0	0	0
TOTALS	**34**	**73**	**8**	**3**	**0**	**3**	**0**	**0**

BIKES

T I M E	NB			SB			EB			WB		
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR
2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
2:05 PM	0	0	0	0	0	0	0	0	0	0	0	0
2:10 PM	0	0	0	0	0	0	0	0	0	0	0	0
2:15 PM	0	1	0	0	0	0	0	0	0	0	0	0
2:20 PM	0	0	0	0	0	0	0	0	0	0	0	0
2:25 PM	0	0	0	0	0	0	0	0	0	0	0	0
2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
2:35 PM	0	1	0	0	0	0	0	0	0	0	0	0
2:40 PM	0	0	0	0	1	0	0	0	0	0	0	0
2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
2:50 PM	0	0	0	0	0	0	0	0	0	0	0	0
2:55 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:05 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:10 PM	0	0	0	0	1	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:20 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:25 PM	0	0	0	0	0	0	0	1	0	0	0	0
3:30 PM	0	0	1	0	0	0	0	0	0	1	0	0
3:35 PM	0	1	0	0	1	0	0	0	0	0	0	0
3:40 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:50 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:55 PM	0	1	0	0	0	0	0	0	0	0	0	0
TOTALS	**0**	**4**	**1**	**0**	**3**	**0**	**0**	**1**	**0**	**1**	**0**	**0**

PREPARED BY NATIONAL DATA & SURVEYING SERVICES

Pedestrian Count

PROJECT#: 23-070004-002
N/S Street: Martin Luther King Jr Blvd
E/W Street: 21st Ave/Oak Ridge Elementary School Entrance Dwy
DATE: 1/18/2023 DAY: Wednesday
CITY: Sacramento

	Start:	End:
AM	7:30	9:30
NOON		
PM	14:00	16:00

AM	77
NOON	0
PM	34

→

←

20	AM
0	NOON
73	PM

NORTH LEG

AM	NOON	PM
6	0	0

↓

AM	NOON	PM
1	0	3

↓

WEST LEG

EAST LEG

↑

32	0	0
AM	NOON	PM

↑

9	0	0
AM	NOON	PM

SOUTH LEG

AM	0
NOON	0
PM	8

→

←

0	AM
0	NOON
3	PM

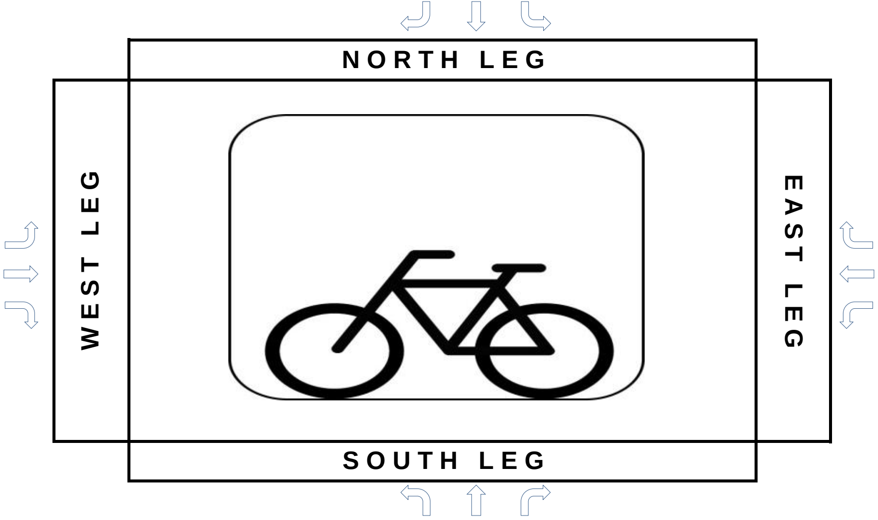
PREPARED BY NATIONAL DATA & SURVEYING SERVICES

Bicycle Count

	Start:	End:
AM	7:30	9:30
NOON		
PM	14:00	16:00

PROJECT#: 23-070004-002
N/S Street: Martin Luther King Jr Blvd
E/W Street: 21st Ave/Oak Ridge Elementary School Entrance Dwy
DATE: 1/18/2023 DAY: Wednesday
CITY: Sacramento

AM	0	1	0
NOON	0	0	0
PM	0	3	0



AM	**NOON**	**PM**
0	0	0
0	0	1
1	0	0

AM	**NOON**	**PM**
0	0	0
0	0	0
1	0	1

AM	2	3	2
NOON	0	0	0
PM	0	4	1

ITM Peak Hour Summary

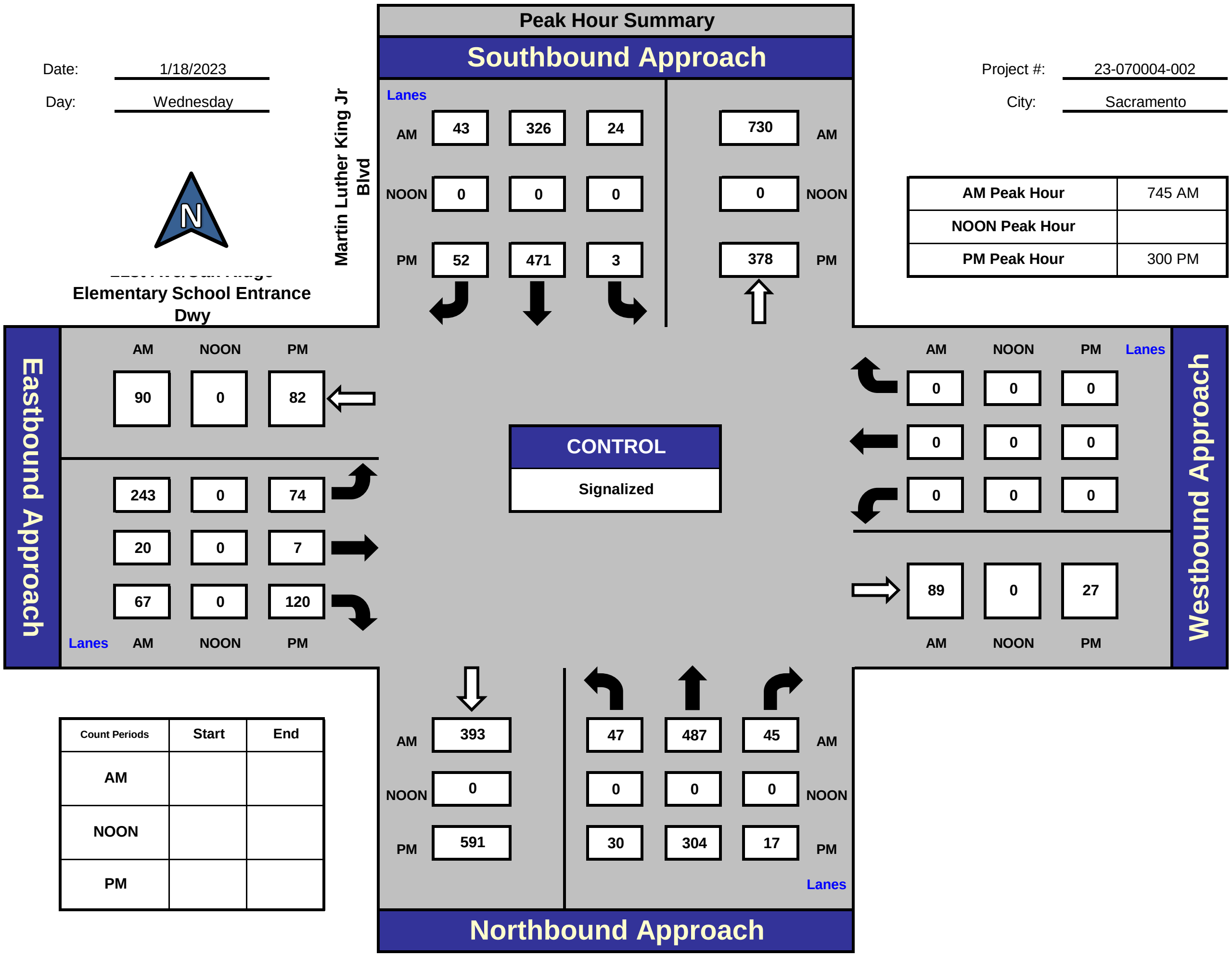
Prepared by:

National Data & Surveying Services

Martin Luther King Jr Blvd and 21st Ave/Oak Ridge Elementary School Entrance Dwy , Sacramento

Date: 1/18/2023
Day: Wednesday

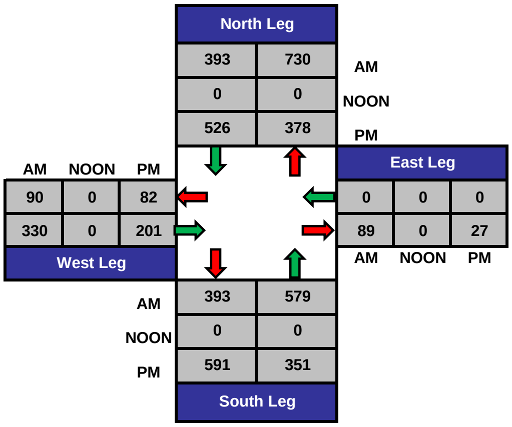
Project #: 23-070004-002
City: Sacramento



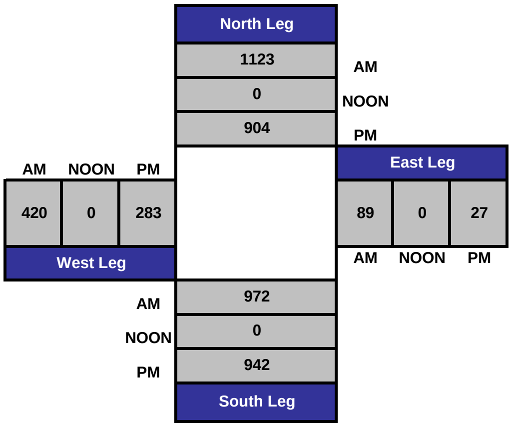
AM Peak Hour	745 AM
NOON Peak Hour	
PM Peak Hour	300 PM

Count Periods	Start	End
AM		
NOON		
PM		

Total Ins & Outs



Total Volume Per Leg



Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 23-070004-003

Day: Wednesday

City: Sacramento

TOTALS
AM

Date: 1/18/2023

NS/EW Streets:	Martin Luther King Jr Blvd			Martin Luther King Jr Blvd			22nd Ave			22nd Ave							
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND				UTURNS			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
LANES:	0	0	0	0	0	0	0	0	0	0	0	0					
7:30 AM	1	51	0	0	24	0	0	0	0	1	0	2	79	0	0	0	0
7:35 AM	4	46	0	0	24	0	0	0	1	1	0	2	78	0	0	0	0
7:40 AM	4	61	0	1	31	0	1	0	2	1	0	1	102	0	0	0	0
7:45 AM	3	71	0	1	25	1	0	0	1	1	0	4	107	0	0	0	0
7:50 AM	5	49	1	1	25	1	0	0	2	0	0	5	89	1	0	0	0
7:55 AM	5	41	0	2	37	0	0	0	1	1	0	2	89	0	0	0	0
8:00 AM	1	47	0	2	27	0	0	0	5	0	0	1	83	0	0	0	0
8:05 AM	1	44	0	0	51	3	0	0	4	0	0	3	106	0	0	0	0
8:10 AM	1	48	1	1	35	1	1	0	2	1	0	2	93	0	0	0	0
8:15 AM	1	54	0	1	30	0	0	0	0	0	0	2	88	0	0	0	0
8:20 AM	2	59	1	0	30	0	0	0	1	1	0	2	96	0	0	0	0
8:25 AM	4	43	0	1	21	0	0	0	5	0	0	5	79	0	0	0	0
8:30 AM	4	25	0	1	20	1	0	0	9	0	0	7	67	0	0	0	0
8:35 AM	1	30	1	3	26	1	0	0	2	0	0	0	64	0	0	1	0
8:40 AM	3	33	3	1	42	0	0	0	2	3	0	5	92	0	0	0	0
8:45 AM	5	37	0	1	33	0	0	0	6	1	0	2	85	0	0	0	0
8:50 AM	1	26	0	2	32	1	0	0	2	0	0	4	68	0	0	0	0
8:55 AM	1	31	0	1	32	0	0	0	0	1	0	9	75	0	0	0	0
9:00 AM	4	26	2	3	40	2	0	0	2	0	0	4	83	0	0	0	0
9:05 AM	1	28	0	0	37	0	0	0	1	0	0	2	69	0	0	0	0
9:10 AM	0	18	1	2	33	0	0	0	2	0	0	2	58	0	0	0	0
9:15 AM	0	31	0	1	14	0	0	0	0	0	0	1	47	0	0	0	0
9:20 AM	0	16	0	2	26	1	0	0	0	0	0	2	47	0	0	0	0
9:25 AM	2	37	0	2	17	0	0	0	0	1	0	2	61	0	0	0	0

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
TOTAL VOLUMES :	54	952	10	29	712	12	2	0	50	13	0	71	1905	1	0	1	0
APPROACH %'s :	5.31%	93.70%	0.98%	3.85%	94.56%	1.59%	3.85%	0.00%	96.15%	15.48%	0.00%	84.52%					

AM Peak Hr Begins at: 730 AM

PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	32	614	3	10	360	6	2	0	24	7	0	31	1089
PEAK HR FACTOR :		0.731			0.580			0.433			0.633		0.848

CONTROL : 0

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 23-070004-003

Day: Wednesday

City: Sacramento

TOTALS

PM

Date: 1/18/2023

NS/EW Streets:	Martin Luther King Jr Blvd			Martin Luther King Jr Blvd			22nd Ave			22nd Ave							
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND				UTURNS			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
LANES:	0	0	0	0	0	0	0	0	0	0	0	0					
2:00 PM	4	20	1	0	25	0	1	0	1	1	0	1	54	0	0	0	0
2:05 PM	0	32	1	0	31	2	0	1	1	0	0	1	69	0	0	0	0
2:10 PM	3	21	1	0	40	0	0	0	0	0	0	1	66	0	0	0	0
2:15 PM	3	21	0	3	33	0	0	0	1	2	0	3	66	0	0	0	0
2:20 PM	0	30	0	1	32	0	0	0	0	0	0	0	63	0	0	0	0
2:25 PM	4	38	0	1	43	0	0	0	1	0	0	1	88	0	0	0	0
2:30 PM	2	26	1	2	32	2	0	0	0	0	0	4	69	0	0	0	0
2:35 PM	2	30	2	3	47	0	0	0	2	0	0	1	87	1	0	0	0
2:40 PM	3	20	1	1	24	1	0	0	1	1	0	1	53	0	0	0	0
2:45 PM	4	27	1	2	32	2	0	0	3	0	0	1	72	0	0	0	0
2:50 PM	2	17	0	3	31	0	0	0	2	0	0	2	57	0	0	0	0
2:55 PM	4	34	1	2	25	2	0	0	0	0	0	4	72	0	0	0	0
3:00 PM	2	29	1	0	28	3	0	0	5	1	0	1	70	0	0	0	0
3:05 PM	5	33	0	0	26	2	0	0	1	0	0	0	67	0	0	0	0
3:10 PM	6	19	2	2	34	1	0	0	0	0	0	1	65	1	0	0	0
3:15 PM	7	13	4	2	34	1	0	0	5	0	0	1	67	1	0	0	0
3:20 PM	6	38	1	1	55	0	0	0	13	0	0	4	118	0	0	0	0
3:25 PM	3	40	0	1	66	0	0	0	5	1	0	2	118	1	0	0	0
3:30 PM	2	30	0	2	58	1	0	0	3	0	0	3	99	0	0	0	0
3:35 PM	1	35	1	1	59	1	0	0	3	0	0	3	104	0	0	0	0
3:40 PM	2	17	0	3	52	1	0	0	4	1	0	0	80	0	0	0	0
3:45 PM	5	32	0	0	50	1	0	0	1	0	0	3	92	0	0	0	0
3:50 PM	2	28	1	2	42	1	2	0	0	2	0	1	81	0	0	0	0
3:55 PM	4	16	1	6	54	1	0	0	3	0	0	1	86	0	0	0	0

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
TOTAL VOLUMES :	76	646	20	38	953	22	3	1	55	9	0	40	1863	4	0	0	0
APPROACH %'s :	10.24%	87.06%	2.70%	3.75%	94.08%	2.17%	5.08%	1.69%	93.22%	18.37%	0.00%	81.63%					

PM Peak Hr Begins at: 300 PM

PEAK HR START TIME :	300 PM												TOTAL
PEAK HR VOL :	45	330	11	20	558	13	2	0	43	5	0	20	1047
PEAK HR FACTOR :		0.715			0.735			0.288			0.521		0.739

CONTROL : 0

PREPARED BY NATIONAL DATA & SURVEYING SERVICES

PROJECT#: 23-070004-003
N/S Street: Martin Luther King Jr Blvd
E/W Street: 22nd Ave
DATE: 1/18/2023 DAY: Wednesday
CITY: Sacramento

A M

PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
7:30 AM	0	0	0	0	0	0	0	0
7:35 AM	0	0	0	0	0	0	1	1
7:40 AM	0	0	0	0	0	1	0	0
7:45 AM	0	0	0	0	0	0	0	0
7:50 AM	0	0	0	0	0	0	0	0
7:55 AM	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	2	0	0	0
8:05 AM	0	0	0	0	0	0	0	0
8:10 AM	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	1
8:20 AM	0	0	0	0	0	0	5	0
8:25 AM	0	0	0	0	1	0	1	1
8:30 AM	0	0	0	0	2	1	0	0
8:35 AM	0	0	0	0	4	0	1	0
8:40 AM	0	0	1	0	3	0	2	1
8:45 AM	0	0	0	0	1	0	0	0
8:50 AM	0	0	0	0	9	1	2	1
8:55 AM	1	0	0	0	9	4	0	1
9:00 AM	0	0	0	0	0	3	4	0
9:05 AM	0	0	0	0	1	1	0	0
9:10 AM	0	0	0	0	0	0	3	1
9:15 AM	0	0	0	0	0	1	0	0
9:20 AM	0	0	0	0	0	0	0	0
9:25 AM	0	0	0	0	0	0	0	0
TOTALS	**1**	**0**	**1**	**0**	**32**	**12**	**19**	**7**

BIKES

TIME	NB			SB			EB			WB		
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR
7:30 AM	0	1	0	0	0	0	0	0	0	0	0	0
7:35 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:40 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:50 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:55 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:05 AM	0	1	0	0	0	0	0	0	1	0	0	0
8:10 AM	0	0	0	0	1	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:20 AM	1	0	0	0	1	0	0	0	0	0	0	2
8:25 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:35 AM	0	0	0	0	0	1	1	0	0	0	0	0
8:40 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:50 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:55 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:05 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:10 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	1	0	0	0	0	0	0	0	0	0	1
9:20 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:25 AM	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	**1**	**3**	**0**	**0**	**2**	**1**	**1**	**0**	**1**	**0**	**0**	**3**

P M

PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
2:00 PM	1	0	0	0	0	0	0	0
2:05 PM	1	0	1	0	1	0	2	1
2:10 PM	0	0	0	0	0	0	1	0
2:15 PM	0	0	1	0	0	0	0	1
2:20 PM	0	0	0	0	0	0	1	1
2:25 PM	0	0	0	0	0	0	1	1
2:30 PM	0	0	0	0	0	0	2	0
2:35 PM	1	1	0	0	0	0	0	0
2:40 PM	0	0	0	0	0	0	3	3
2:45 PM	0	0	0	0	0	0	1	0
2:50 PM	1	0	0	0	1	3	1	0
2:55 PM	0	0	0	0	2	0	0	2
3:00 PM	0	0	0	0	3	0	1	0
3:05 PM	0	0	0	0	3	0	2	0
3:10 PM	0	0	0	0	3	17	0	6
3:15 PM	0	0	0	0	0	15	1	4
3:20 PM	0	0	0	0	1	6	0	0
3:25 PM	0	0	0	0	0	0	0	1
3:30 PM	0	0	0	0	0	0	1	0
3:35 PM	0	0	0	0	0	1	0	0
3:40 PM	0	0	0	0	0	0	1	1
3:45 PM	0	0	0	0	0	0	2	1
3:50 PM	0	0	0	0	0	0	2	0
3:55 PM	0	0	0	0	0	0	0	2
TOTALS	**4**	**1**	**2**	**0**	**14**	**42**	**22**	**24**

BIKES

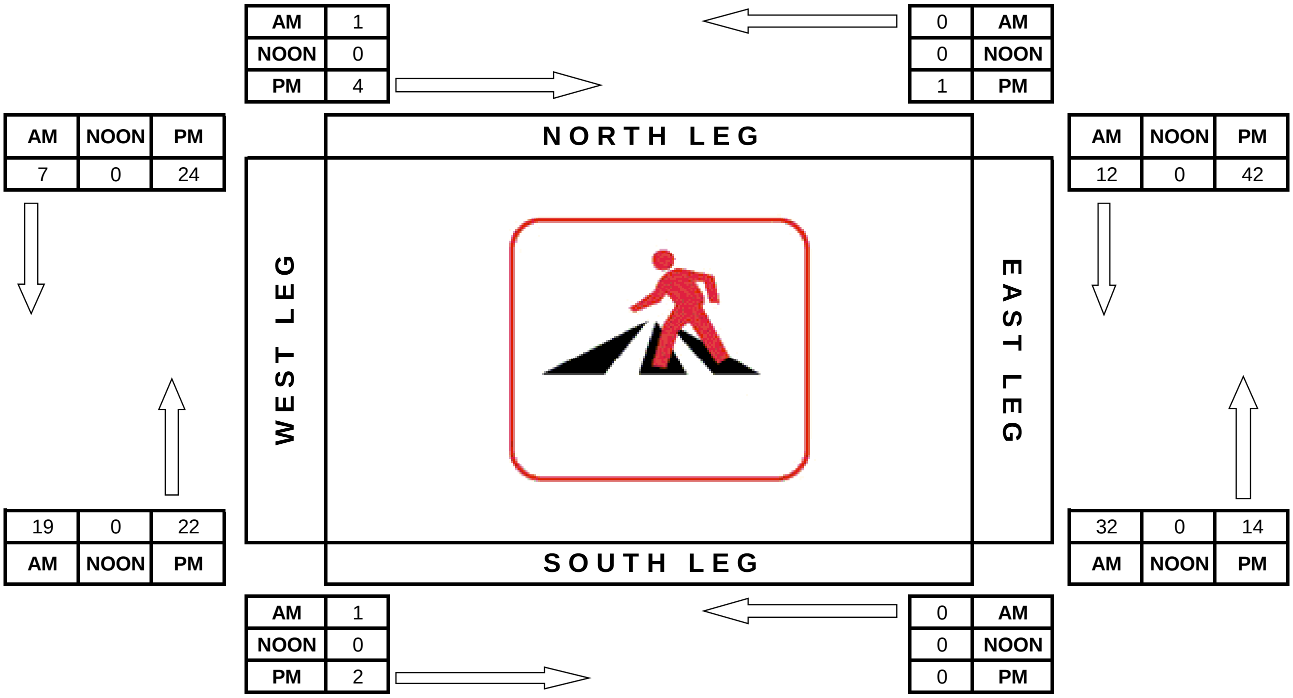
TIME	NB			SB			EB			WB		
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR
2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
2:05 PM	0	0	0	0	0	0	0	0	0	0	0	0
2:10 PM	0	0	0	0	0	0	0	0	0	0	0	0
2:15 PM	0	1	0	0	0	0	0	0	0	0	0	0
2:20 PM	0	0	0	0	0	0	0	0	0	0	0	0
2:25 PM	1	0	0	0	0	0	0	0	1	0	0	0
2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
2:35 PM	0	1	0	0	0	0	0	0	1	0	0	0
2:40 PM	0	0	0	0	1	0	0	0	0	0	0	0
2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
2:50 PM	0	0	0	0	0	0	0	0	0	0	0	0
2:55 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:05 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:10 PM	0	0	0	0	1	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:20 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:25 PM	0	0	0	0	1	0	0	0	0	0	0	0
3:30 PM	0	1	0	0	0	0	0	0	0	0	0	0
3:35 PM	0	1	0	1	0	0	0	0	0	0	0	0
3:40 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:50 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:55 PM	0	1	0	0	0	0	0	0	0	0	0	0
TOTALS	**1**	**5**	**0**	**1**	**3**	**0**	**0**	**0**	**2**	**0**	**0**	**0**

PREPARED BY NATIONAL DATA & SURVEYING SERVICES

Pedestrian Count

PROJECT#: 23-070004-003
N/S Street: Martin Luther King Jr Blvd
E/W Street: 22nd Ave
DATE: 1/18/2023
DAY: Wednesday
CITY: Sacramento

	Start:	End:
AM	7:30	9:30
NOON		
PM	14:00	16:00



AM	1
NOON	0
PM	4

0	**AM**
0	**NOON**
1	**PM**

AM	NOON	PM
7	0	24

AM	NOON	PM
12	0	42

19	0	22
AM	**NOON**	**PM**

32	0	14
AM	**NOON**	**PM**

AM	1
NOON	0
PM	2

0	**AM**
0	**NOON**
0	**PM**

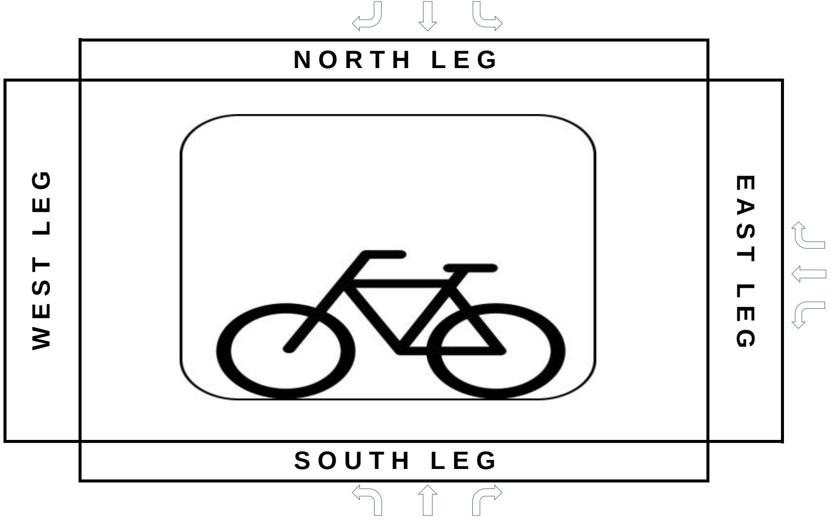
PREPARED BY NATIONAL DATA & SURVEYING SERVICES

Bicycle Count

	Start:	End:
AM	7:30	9:30
NOON		
PM	14:00	16:00

PROJECT#: 23-070004-003
N/S Street: Martin Luther King Jr Blvd
E/W Street: 22nd Ave
DATE: 1/18/2023
DAY: Wednesday
CITY: Sacramento

AM	1	2	0
NOON	0	0	0
PM	0	3	1



AM	**NOON**	**PM**
1	0	0
0	0	0
1	0	2

AM	**NOON**	**PM**
3	0	0
0	0	0
0	0	0

AM	1	3	0
NOON	0	0	0
PM	1	5	0

ITM Peak Hour Summary

Prepared by:

National Data & Surveying Services

Martin Luther King Jr Blvd and 22nd Ave , Sacramento

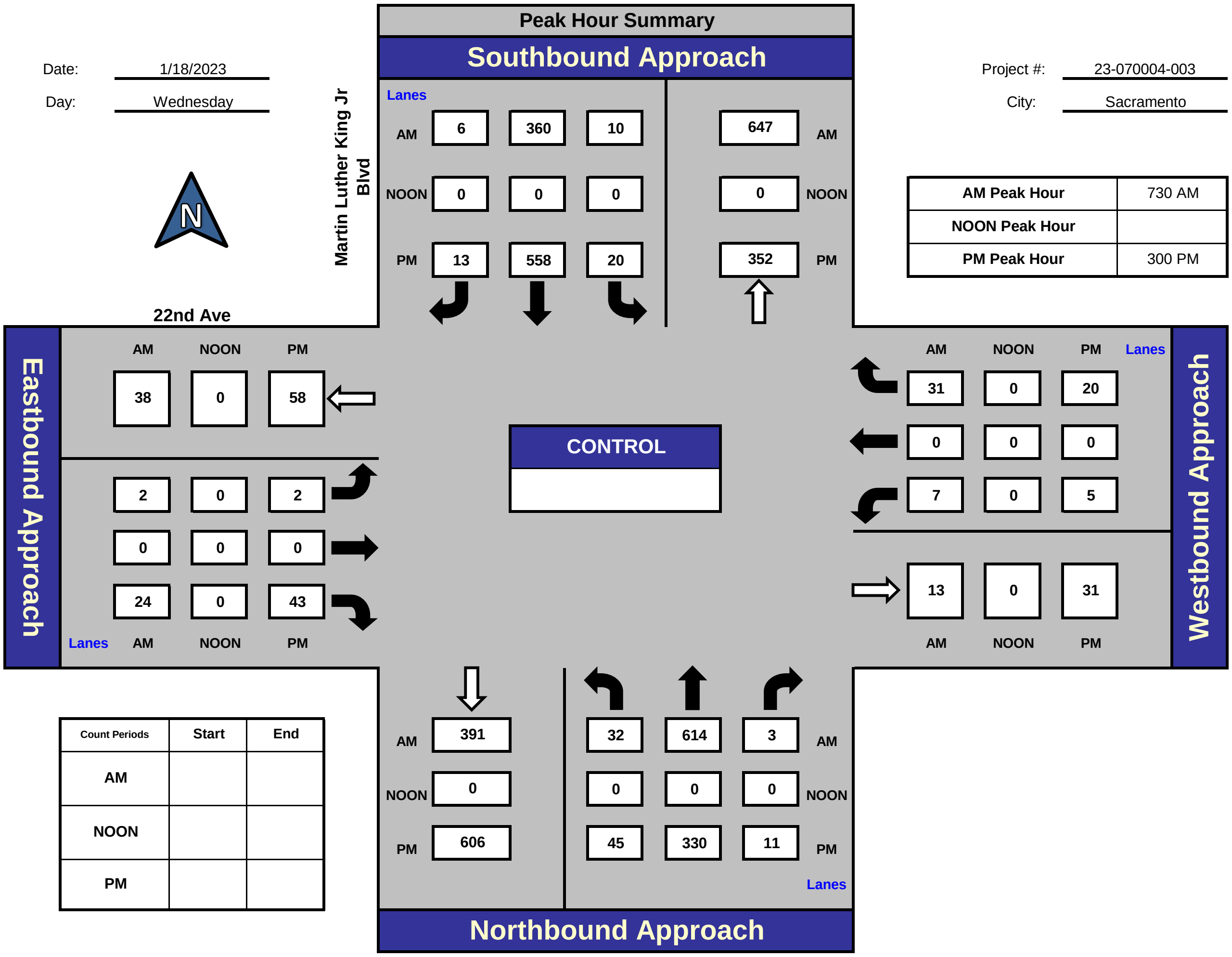
Date: 1/18/2023

Day: Wednesday

Project #: 23-070004-003

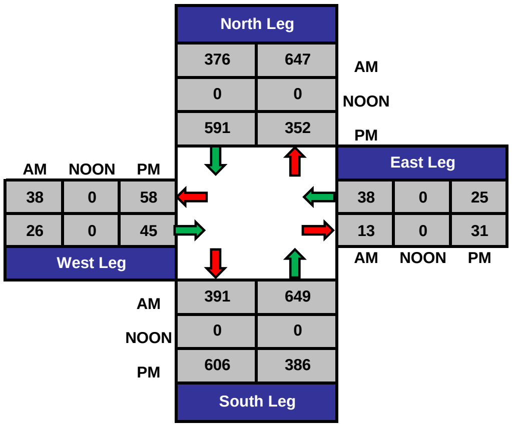
City: Sacramento

AM Peak Hour	730 AM
NOON Peak Hour	
PM Peak Hour	300 PM

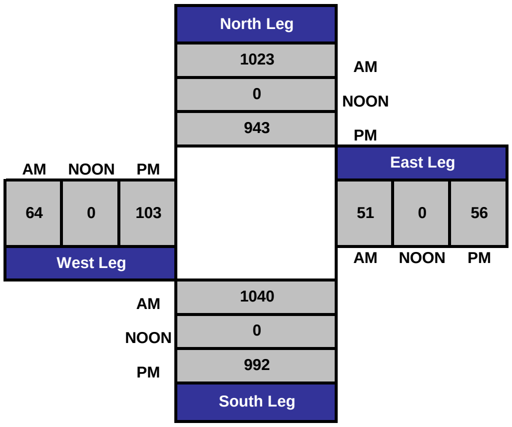


Count Periods	Start	End
AM		
NOON		
PM		

Total Ins & Outs



Total Volume Per Leg



Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 23-070004-001

Day: Wednesday

City: Sacramento

TOTALS

AM

Date: 1/18/2023

NS/EW Streets:	Martin Luther King Jr Blvd			Martin Luther King Jr Blvd			20th Ave/Oak Ridge Elementary School Exit Dwy			20th Ave/Oak Ridge Elementary School Exit Dwy			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	0	0	0	0	0	0	0	0	0	0	0	
7:30 AM	0	58	0	0	21	1	0	0	0	0	0	0	80
7:35 AM	0	49	0	0	25	0	0	0	1	0	0	0	75
7:40 AM	1	79	0	0	23	0	0	0	1	0	0	1	105
7:45 AM	5	65	0	0	33	0	0	0	0	0	0	0	103
7:50 AM	3	39	0	0	25	0	0	0	0	2	0	0	69
7:55 AM	1	51	0	0	33	1	0	0	2	1	0	0	89
8:00 AM	1	50	0	1	30	0	0	0	0	2	0	2	86
8:05 AM	0	47	0	0	50	0	1	0	0	4	0	0	102
8:10 AM	1	53	0	0	26	0	0	0	1	2	1	1	85
8:15 AM	0	66	0	0	31	0	1	0	0	0	0	0	98
8:20 AM	2	75	0	0	22	0	1	0	1	4	0	2	107
8:25 AM	0	89	0	0	24	0	1	0	0	5	0	0	119
8:30 AM	0	76	0	0	17	0	0	0	1	5	0	3	102
8:35 AM	0	50	0	0	26	0	4	0	1	6	1	4	92
8:40 AM	2	55	0	0	35	4	2	0	2	5	4	2	111
8:45 AM	1	33	0	0	34	0	1	0	0	8	2	4	83
8:50 AM	1	17	0	0	17	0	0	0	0	11	2	3	51
8:55 AM	2	16	0	0	21	0	0	0	2	11	5	4	61
9:00 AM	3	29	0	0	25	2	0	0	1	13	2	11	86
9:05 AM	1	23	0	0	23	0	0	0	0	11	1	7	66
9:10 AM	0	18	0	0	36	1	0	0	0	5	0	0	60
9:15 AM	0	28	0	0	10	0	0	0	1	1	0	3	43
9:20 AM	0	21	0	0	23	1	2	0	0	4	0	0	51
9:25 AM	0	36	0	0	18	1	0	0	0	1	0	0	56
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	24	1123	0	1	628	11	13	0	14	101	18	47	1980
APPROACH %'s :	2.09%	97.91%	0.00%	0.16%	98.13%	1.72%	48.15%	0.00%	51.85%	60.84%	10.84%	28.31%	

UTURNS				
	NB	SB	EB	WB
7:30 AM	0	0	0	0
7:35 AM	0	0	0	0
7:40 AM	0	0	0	0
7:45 AM	0	0	0	0
7:50 AM	0	0	1	0
7:55 AM	0	0	0	0
8:00 AM	0	0	0	0
8:05 AM	0	0	0	0
8:10 AM	0	0	0	0
8:15 AM	0	0	0	0
8:20 AM	0	0	0	0
8:25 AM	0	0	0	0
8:30 AM	0	0	0	0
8:35 AM	1	0	0	0
8:40 AM	0	0	0	0
8:45 AM	0	0	0	0
8:50 AM	1	0	0	0
8:55 AM	1	0	0	0
9:00 AM	0	0	0	0
9:05 AM	0	0	0	0
9:10 AM	0	0	0	0
9:15 AM	0	0	0	0
9:20 AM	0	0	0	0
9:25 AM	0	0	0	0
	NB	SB	EB	WB
	3	0	1	0

AM Peak Hr Begins at: 745 AM

PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	15	716	0	1	352	5	10	0	8	36	6	14	1163
PEAK HR FACTOR :		0.684			0.597			0.300			0.424		0.814

CONTROL : 1-Way Stop(EB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 23-070004-001

Day: Wednesday

City: Sacramento

TOTALS

PM

Date: 1/18/2023

NS/EW Streets:	Martin Luther King Jr Blvd			Martin Luther King Jr Blvd			20th Ave/Oak Ridge Elementary School Exit Dwy			20th Ave/Oak Ridge Elementary School Exit Dwy				UTURNS			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND							
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
LANES:	0	0	0	0	0	0	0	0	0	0	0	0					
2:00 PM	0	20	0	0	22	0	0	0	1	1	0	0	44	0	0	0	0
2:05 PM	0	24	0	0	25	1	0	0	1	2	0	1	54	0	0	0	0
2:10 PM	0	19	0	0	32	2	0	0	0	0	0	1	54	0	0	0	0
2:15 PM	1	22	0	0	26	0	0	0	1	2	0	0	52	0	0	0	0
2:20 PM	2	28	0	0	26	0	1	0	0	3	0	0	60	0	0	0	0
2:25 PM	0	35	0	0	45	0	0	0	2	0	1	0	83	0	0	0	0
2:30 PM	0	30	0	0	26	0	1	0	0	2	2	0	61	0	0	0	0
2:35 PM	1	29	0	0	39	0	1	0	1	3	0	0	74	0	0	0	0
2:40 PM	1	25	0	1	24	1	1	0	0	0	0	2	55	1	0	0	0
2:45 PM	1	24	1	0	37	1	1	0	1	0	0	0	66	0	0	0	0
2:50 PM	0	27	1	0	33	1	0	0	0	0	0	0	62	1	0	0	0
2:55 PM	2	36	0	1	30	3	0	0	1	0	0	0	73	1	0	0	0
3:00 PM	1	28	2	0	17	0	0	0	3	0	1	0	52	1	0	0	0
3:05 PM	3	22	0	0	26	2	0	0	3	1	0	1	58	0	0	0	0
3:10 PM	7	25	0	0	27	4	0	0	1	4	0	4	72	0	0	0	0
3:15 PM	7	22	0	0	22	10	0	0	2	1	5	5	74	0	0	0	0
3:20 PM	3	30	0	0	43	5	0	0	4	6	6	0	97	0	0	0	0
3:25 PM	4	43	0	0	55	2	1	0	2	1	3	0	111	0	0	0	0
3:30 PM	1	30	0	0	49	2	0	0	1	4	1	2	90	0	0	0	0
3:35 PM	0	40	0	0	55	0	0	0	3	2	0	2	102	0	0	0	0
3:40 PM	0	20	0	0	50	0	0	0	2	0	0	1	73	0	0	0	0
3:45 PM	0	36	0	0	47	0	1	0	1	0	0	1	86	0	0	0	0
3:50 PM	0	33	0	0	38	1	1	0	0	1	0	1	75	0	0	0	0
3:55 PM	2	20	0	0	50	0	0	0	0	3	0	1	76	0	0	0	0

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
TOTAL VOLUMES :	36	668	4	2	844	35	8	0	30	36	19	22	1704	4	0	0	0
APPROACH %'s :	5.08%	94.35%	0.56%	0.23%	95.80%	3.97%	21.05%	0.00%	78.95%	46.75%	24.68%	28.57%					

PM Peak Hr Begins at: 300 PM

PEAK HR START TIME :	300 PM												TOTAL
PEAK HR VOL :	28	349	2	0	479	26	3	0	22	23	16	18	966
PEAK HR FACTOR :		0.672			0.738			0.521			0.396		0.725

CONTROL : 1-Way Stop(EB)

PREPARED BY NATIONAL DATA & SURVEYING SERVICES

PROJECT#: 23-070004-001
N/S Street: Martin Luther King Jr Blvd
E/W Street: 20th Ave/Oak Ridge Elementary School Exit Dwy
DATE: 1/18/2023
DAY: Wednesday
CITY: Sacramento

A M

PEDESTRIANS

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
7:30 AM	0	0	0	0	0	0	0	0
7:35 AM	0	0	0	0	0	0	0	1
7:40 AM	0	0	0	0	0	1	1	0
7:45 AM	0	0	0	0	0	0	0	0
7:50 AM	0	0	0	0	0	0	0	0
7:55 AM	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0
8:05 AM	0	0	0	0	4	0	1	0
8:10 AM	0	0	0	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	0	1
8:20 AM	0	0	0	0	0	0	0	0
8:25 AM	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0
8:35 AM	0	0	0	0	1	0	0	0
8:40 AM	0	0	0	0	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	0
8:50 AM	0	0	0	0	0	0	0	0
8:55 AM	0	0	0	0	0	0	0	5
9:00 AM	0	0	0	0	0	0	3	0
9:05 AM	0	0	0	0	0	0	0	0
9:10 AM	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0
9:20 AM	0	0	0	0	0	0	0	0
9:25 AM	0	0	0	0	0	0	0	0
TOTALS	**0**	**0**	**0**	**0**	**5**	**1**	**5**	**9**

BIKES

T I M E	NB			SB			EB			WB		
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR
7:30 AM	0	1	0	0	0	0	0	0	0	0	0	0
7:35 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:40 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:50 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:55 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:05 AM	0	1	0	0	0	0	0	0	0	0	0	0
8:10 AM	0	0	0	0	1	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:20 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:25 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:35 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:40 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:50 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:55 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:05 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:10 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	1	0	0	0	0	0	0	0	0	0	0
9:20 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:25 AM	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	**0**	**3**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

P M

PEDESTRIANS

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
2:00 PM	0	0	0	0	0	0	0	0
2:05 PM	0	0	0	0	0	0	0	0
2:10 PM	0	0	0	0	0	0	0	0
2:15 PM	0	0	0	0	0	0	0	0
2:20 PM	0	0	0	0	0	0	0	0
2:25 PM	0	0	0	0	0	0	0	0
2:30 PM	0	0	0	0	0	0	0	0
2:35 PM	0	0	0	0	0	0	0	0
2:40 PM	0	0	0	0	0	0	0	0
2:45 PM	0	0	0	0	0	0	0	0
2:50 PM	0	0	0	0	0	2	0	0
2:55 PM	0	0	0	0	0	0	0	0
3:00 PM	0	0	0	0	0	0	0	0
3:05 PM	0	0	2	0	0	0	1	2
3:10 PM	0	0	1	2	0	1	0	2
3:15 PM	0	0	1	0	3	2	6	3
3:20 PM	0	0	0	1	0	0	1	0
3:25 PM	0	0	0	0	0	0	0	1
3:30 PM	0	0	0	0	0	1	0	0
3:35 PM	0	0	0	0	0	0	0	0
3:40 PM	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0
3:50 PM	0	0	0	0	0	0	1	0
3:55 PM	0	0	0	0	0	0	0	0
TOTALS	**0**	**0**	**4**	**3**	**3**	**6**	**9**	**8**

BIKES

T I M E	NB			SB			EB			WB		
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR
2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
2:05 PM	0	0	0	0	0	0	0	0	0	0	0	0
2:10 PM	0	0	0	0	0	0	0	0	0	0	0	0
2:15 PM	1	0	0	0	0	0	0	0	0	0	0	0
2:20 PM	0	0	0	0	0	0	0	0	0	0	0	0
2:25 PM	0	0	0	0	0	0	0	0	0	0	0	0
2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
2:35 PM	0	0	1	0	0	0	0	0	0	1	0	0
2:40 PM	0	0	0	0	0	0	0	0	0	0	0	0
2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
2:50 PM	0	0	0	0	0	0	0	0	0	0	0	0
2:55 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:05 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:10 PM	0	0	0	0	1	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:20 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:25 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	1	0	0	0	0	0	0	0
3:35 PM	0	1	0	0	0	0	0	0	0	0	0	0
3:40 PM	0	0	0	0	0	0	1	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:50 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:55 PM	0	1	0	0	0	0	0	0	0	0	0	0
TOTALS	**1**	**2**	**1**	**0**	**2**	**0**	**1**	**0**	**0**	**1**	**0**	**0**

PREPARED BY NATIONAL DATA & SURVEYING SERVICES

Pedestrian Count

PROJECT#: 23-070004-001
N/S Street: Martin Luther King Jr Blvd
E/W Street: 20th Ave/Oak Ridge Elementary School Exit Dwy
DATE: 1/18/2023
DAY: Wednesday
CITY: Sacramento

	Start:	End:
AM	7:30	9:30
NOON		
PM	14:00	16:00

AM	0
NOON	0
PM	0

0	AM
0	NOON
0	PM

NORTH LEG

AM	NOON	PM
9	0	8

AM	NOON	PM
1	0	6

WEST LEG

EAST LEG

5	0	9
AM	NOON	PM

5	0	3
AM	NOON	PM

SOUTH LEG

AM	0
NOON	0
PM	4

0	AM
0	NOON
3	PM

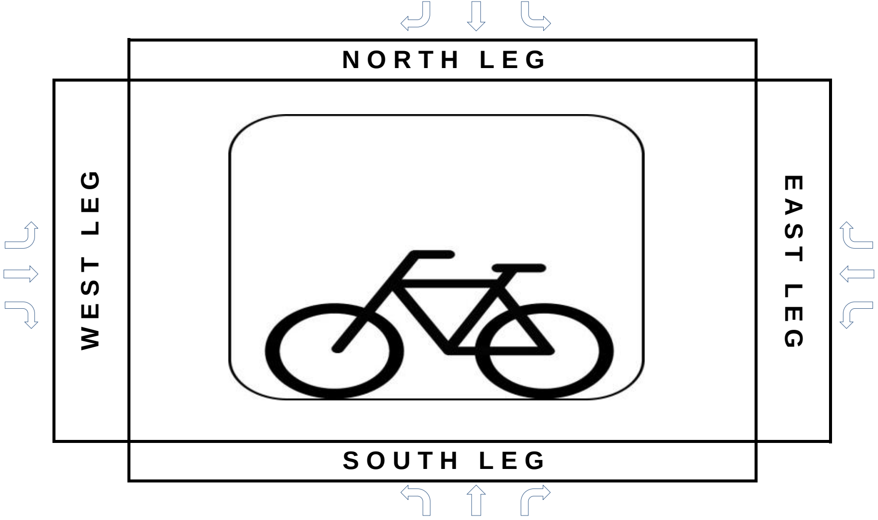
PREPARED BY NATIONAL DATA & SURVEYING SERVICES

Bicycle Count

	Start:	End:
AM	7:30	9:30
NOON		
PM	14:00	16:00

PROJECT#: 23-070004-001
N/S Street: Martin Luther King Jr Blvd
E/W Street: 20th Ave/Oak Ridge Elementary School Exit Dwy
DATE: 1/18/2023 DAY: Wednesday
CITY: Sacramento

AM	0	1	0
NOON	0	0	0
PM	0	2	0



AM	NOON	PM
0	0	1
0	0	0
0	0	0

AM	NOON	PM
0	0	0
0	0	0
0	0	1

AM	0	3	0
NOON	0	0	0
PM	1	2	1

ITM Peak Hour Summary

Prepared by:

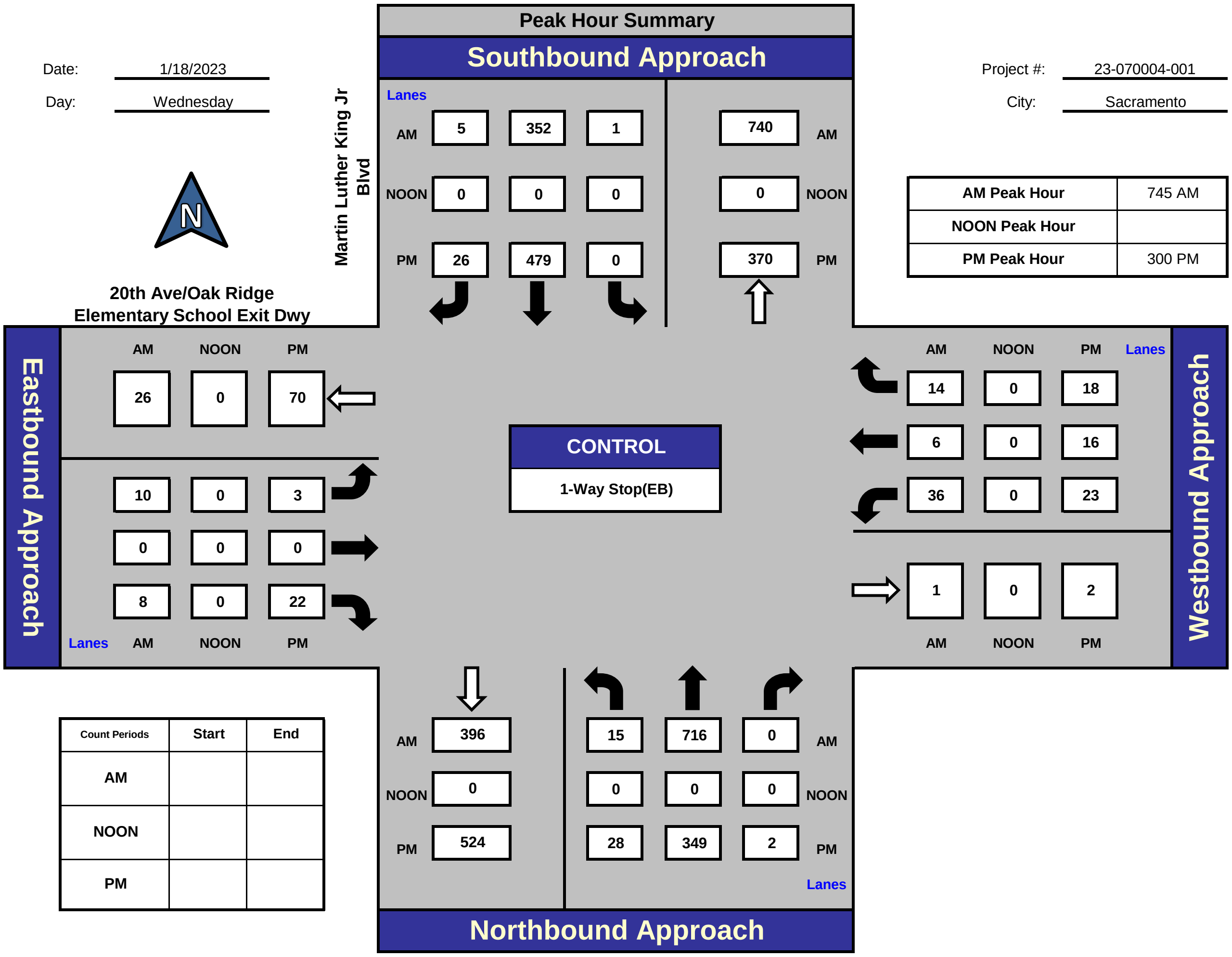
National Data & Surveying Services

Martin Luther King Jr Blvd and 20th Ave/Oak Ridge Elementary School Exit Dwy , Sacramento

Date: 1/18/2023
Day: Wednesday

Project #: 23-070004-001
City: Sacramento

AM Peak Hour	745 AM
NOON Peak Hour	
PM Peak Hour	300 PM



Southbound Approach

	↲	↓	↳	⇧
AM	5	352	1	740
NOON	0	0	0	0
PM	26	479	0	370

Eastbound Approach

	AM	NOON	PM
⇦	26	0	70
↱	10	0	3
→	0	0	0
↴	8	0	22

Westbound Approach

	AM	NOON	PM
↰	14	0	18
←	6	0	16
↙	36	0	23
⇨	1	0	2

Northbound Approach

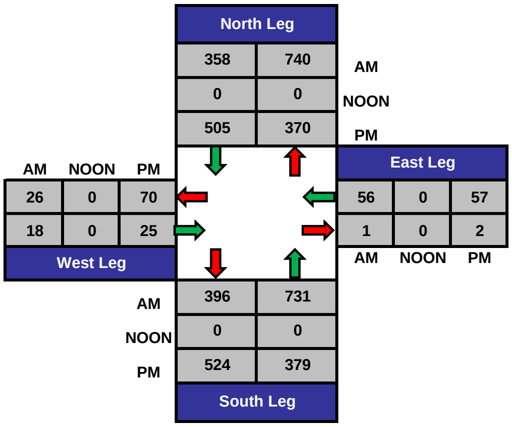
	⇩	↰	↑	↱
AM	396	15	716	0
NOON	0	0	0	0
PM	524	28	349	2

CONTROL

1-Way Stop(EB)

Count Periods	Start	End
AM		
NOON		
PM		

Total Ins & Outs



North Leg

AM	358	740
NOON	0	0
PM	505	370

East Leg

	AM	NOON	PM
	56	0	57
	1	0	2

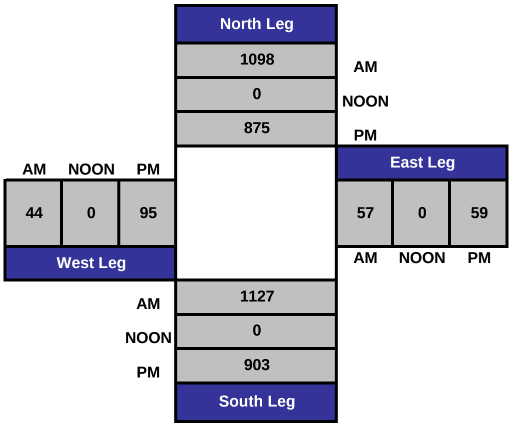
West Leg

	AM	NOON	PM
	26	0	70
	18	0	25

South Leg

AM	396	731
NOON	0	0
PM	524	379

Total Volume Per Leg



	North Leg	South Leg
AM	1098	1127
NOON	0	0
PM	875	903

	AM	NOON	PM
West Leg	44	0	95
East Leg	57	0	59

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰↱			↰↑	↑↱	
Traffic Vol, veh/h	10	8	21	716	352	5
Future Vol, veh/h	10	8	21	716	352	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	30	30	68	68	60	60
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	33	27	31	1053	587	8

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1706	591	595	0	-	0
Stage 1	591	-	-	-	-	-
Stage 2	1115	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	100	507	981	-	-	-
Stage 1	553	-	-	-	-	-
Stage 2	314	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	92	507	981	-	-	-
Mov Cap-2 Maneuver	92	-	-	-	-	-
Stage 1	511	-	-	-	-	-
Stage 2	314	-	-	-	-	-

Approach	EB		NB		SB	
HCM Control Delay, s	46.3		0.3		0	
HCM LOS	E					

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	981	-	145	-	-
HCM Lane V/C Ratio	0.031	-	0.414	-	-
HCM Control Delay (s)	8.8	0	46.3	-	-
HCM Lane LOS	A	A	E	-	-
HCM 95th %tile Q(veh)	0.1	-	1.8	-	-

Intersection	
Int Delay, s/veh	5.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰	↱	↑			↑
Traffic Vol, veh/h	36	20	717	0	0	360
Future Vol, veh/h	36	20	717	0	0	360
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	25	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	42	42	68	68	60	60
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	86	48	1054	0	0	600

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1654	1054	0	-	-	-
Stage 1	1054	-	-	-	-	-
Stage 2	600	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	108	275	-	0	0	-
Stage 1	335	-	-	0	0	-
Stage 2	548	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	108	275	-	-	-	-
Mov Cap-2 Maneuver	108	-	-	-	-	-
Stage 1	335	-	-	-	-	-
Stage 2	548	-	-	-	-	-

Approach	WB		NB		SB
HCM Control Delay, s	78.5		0		0
HCM LOS	F				

Minor Lane/Major Mvmt	NBT	WBLn1	WBLn2	SBT
Capacity (veh/h)	-	108	275	-
HCM Lane V/C Ratio	-	0.794	0.173	-
HCM Control Delay (s)	-	110.5	20.8	-
HCM Lane LOS	-	F	C	-
HCM 95th %tile Q(veh)	-	4.4	0.6	-

3: MLK BLVD & OAK RIDGE ENTRANCE

04/24/2023

Intersection	
Int Delay, s/veh	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↱	↑↱			↰↑
Traffic Vol, veh/h	0	0	730	65	24	369
Future Vol, veh/h	0	0	730	65	24	369
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	64	64	64	64
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	1141	102	38	577

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	1192	0	0	1243	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.22	-	-	4.12	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	0	228	-	-	560	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	228	-	-	560	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	0	0	0.7
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	560	-
HCM Lane V/C Ratio	-	-	-	0.067	-
HCM Control Delay (s)	-	-	0	11.9	0
HCM Lane LOS	-	-	A	B	A
HCM 95th %tile Q(veh)	-	-	-	0.2	-

HCM 6th Signalized Intersection Summary
4: 21ST AVE & MLK BLVD

AM EXISTING
04/24/2023

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰↱			↰	↱	
Traffic Volume (veh/h)	263	67	47	532	326	43
Future Volume (veh/h)	263	67	47	532	326	43
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	0.99	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	496	126	73	831	509	67
Peak Hour Factor	0.53	0.53	0.64	0.64	0.64	0.64
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	498	126	92	743	850	112
Arrive On Green	0.36	0.36	0.53	0.53	0.53	0.53
Sat Flow, veh/h	1379	350	80	1414	1619	213
Grp Volume(v), veh/h	623	0	904	0	0	576
Grp Sat Flow(s),veh/h/ln	1733	0	1494	0	0	1832
Q Serve(g_s), s	28.4	0.0	24.3	0.0	0.0	17.2
Cycle Q Clear(g_c), s	28.4	0.0	41.5	0.0	0.0	17.2
Prop In Lane	0.80	0.20	0.08			0.12
Lane Grp Cap(c), veh/h	625	0	834	0	0	962
V/C Ratio(X)	1.00	0.00	1.08	0.00	0.00	0.60
Avail Cap(c_a), veh/h	625	0	834	0	0	962
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	25.2	0.0	20.6	0.0	0.0	13.0
Incr Delay (d2), s/veh	35.1	0.0	56.4	0.0	0.0	2.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	16.9	0.0	27.7	0.0	0.0	7.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	60.3	0.0	76.9	0.0	0.0	15.7
LnGrp LOS	E	A	F	A	A	B
Approach Vol, veh/h	623			904	576	
Approach Delay, s/veh	60.3			76.9	15.7	
Approach LOS	E			E	B	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		46.0		33.0		46.0
Change Period (Y+Rc), s		4.5		4.5		4.5
Max Green Setting (Gmax), s		41.5		28.5		41.5
Max Q Clear Time (g_c+I1), s		43.5		30.4		19.2
Green Ext Time (p_c), s		0.0		0.0		4.0

Intersection Summary	
HCM 6th Ctrl Delay	55.3
HCM 6th LOS	E

Notes
User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Traffic Vol, veh/h	2	0	24	7	0	31	32	614	3	10	360	6
Future Vol, veh/h	2	0	24	7	0	31	32	614	3	10	360	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	43	43	43	63	63	63	73	73	73	58	58	58
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	0	56	11	0	49	44	841	4	17	621	10

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1616	1593	626	1619	1596	843	631	0	0	845	0	0
Stage 1	660	660	-	931	931	-	-	-	-	-	-	-
Stage 2	956	933	-	688	665	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	83	107	484	83	107	364	951	-	-	792	-	-
Stage 1	452	460	-	320	346	-	-	-	-	-	-	-
Stage 2	310	345	-	436	458	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	65	94	484	67	94	364	951	-	-	792	-	-
Mov Cap-2 Maneuver	65	94	-	67	94	-	-	-	-	-	-	-
Stage 1	413	445	-	292	316	-	-	-	-	-	-	-
Stage 2	245	315	-	373	443	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	18.6	30.6	0.4	0.3
HCM LOS	C	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	951	-	-	324	200	792	-	-
HCM Lane V/C Ratio	0.046	-	-	0.187	0.302	0.022	-	-
HCM Control Delay (s)	9	0	-	18.6	30.6	9.6	0	-
HCM Lane LOS	A	A	-	C	D	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.7	1.2	0.1	-	-

1: MLK BLVD & 20TH AVE Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.3	0.1
Total Del/Veh (s)	55.8	0.3	6.7	3.2

2: OAK RIDGE EXIT & MLK BLVD Performance by approach

Approach	WB	NB	SB	All
Denied Del/Veh (s)	0.9	0.0	0.0	0.0
Total Del/Veh (s)	104.0	0.9	1.4	5.9

3: MLK BLVD & OAK RIDGE ENTRANCE Performance by approach

Approach	NB	SB	All
Denied Del/Veh (s)	0.0	0.1	0.0
Total Del/Veh (s)	0.9	7.0	2.9

4: 21ST AVE & MLK BLVD Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.4	0.0	0.0	0.1
Total Del/Veh (s)	45.7	10.3	3.5	17.4

5: MLK BLVD & 22ND AVE Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.1	0.6	0.0	0.3
Total Del/Veh (s)	207.7	138.7	61.5	1.3	46.6

Total Network Performance

Denied Del/Veh (s)	0.5
Total Del/Veh (s)	59.3

Intersection: 1: MLK BLVD & 20TH AVE

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	93	34	300
Average Queue (ft)	17	6	37
95th Queue (ft)	69	28	179
Link Distance (ft)	2002	34	1823
Upstream Blk Time (%)		1	
Queuing Penalty (veh)		5	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: OAK RIDGE EXIT & MLK BLVD

Movement	WB	WB	NB	SB
Directions Served	L	R	T	T
Maximum Queue (ft)	288	52	96	47
Average Queue (ft)	60	18	10	11
95th Queue (ft)	211	53	50	38
Link Distance (ft)	1501		100	34
Upstream Blk Time (%)			0	6
Queuing Penalty (veh)			1	34
Storage Bay Dist (ft)		25		
Storage Blk Time (%)	28	5		
Queuing Penalty (veh)	10	3		

Intersection: 3: MLK BLVD & OAK RIDGE ENTRANCE

Movement	NB	SB
Directions Served	TR	LT
Maximum Queue (ft)	43	120
Average Queue (ft)	7	68
95th Queue (ft)	29	133
Link Distance (ft)	18	100
Upstream Blk Time (%)	0	8
Queuing Penalty (veh)	3	45
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: 21ST AVE & MLK BLVD

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	599	125	53
Average Queue (ft)	198	107	33
95th Queue (ft)	547	147	47
Link Distance (ft)	1867	111	18
Upstream Blk Time (%)		21	23
Queuing Penalty (veh)		156	94
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: MLK BLVD & 22ND AVE

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	208	172	1462	91
Average Queue (ft)	56	57	392	10
95th Queue (ft)	231	167	1225	51
Link Distance (ft)	1618	778	1985	111
Upstream Blk Time (%)				0
Queuing Penalty (veh)				1
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 353

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			↰	↱	
Traffic Vol, veh/h	3	22	44	349	479	26
Future Vol, veh/h	3	22	44	349	479	26
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	52	52	67	67	74	74
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	42	66	521	647	35

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1318	665	682	0	-	0
Stage 1	665	-	-	-	-	-
Stage 2	653	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	173	460	911	-	-	-
Stage 1	511	-	-	-	-	-
Stage 2	518	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	155	460	911	-	-	-
Mov Cap-2 Maneuver	155	-	-	-	-	-
Stage 1	459	-	-	-	-	-
Stage 2	518	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	16.1	1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	911	-	372	-	-
HCM Lane V/C Ratio	0.072	-	0.129	-	-
HCM Control Delay (s)	9.3	0	16.1	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.2	-	0.4	-	-

Intersection	
Int Delay, s/veh	2.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰	↱	↑			↑
Traffic Vol, veh/h	23	34	359	0	0	501
Future Vol, veh/h	23	34	359	0	0	501
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	25	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	40	40	67	67	74	74
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	58	85	536	0	0	677

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1213	536	0	-	-	-
Stage 1	536	-	-	-	-	-
Stage 2	677	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	201	545	-	0	0	-
Stage 1	587	-	-	0	0	-
Stage 2	505	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	201	545	-	-	-	-
Mov Cap-2 Maneuver	201	-	-	-	-	-
Stage 1	587	-	-	-	-	-
Stage 2	505	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	19.7	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	WBLn1	WBLn2	SBT
Capacity (veh/h)	-	201	545	-
HCM Lane V/C Ratio	-	0.286	0.156	-
HCM Control Delay (s)	-	29.9	12.8	-
HCM Lane LOS	-	D	B	-
HCM 95th %tile Q(veh)	-	1.1	0.5	-

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↱	↑↱			↰↑
Traffic Vol, veh/h	0	0	378	24	3	523
Future Vol, veh/h	0	0	378	24	3	523
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	64	64	69	69
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	591	38	4	758

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	610	0	0	629	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.22	-	-	4.12	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	0	494	-	-	953	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	494	-	-	953	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	0	0	0.1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	953	-
HCM Lane V/C Ratio	-	-	-	0.005	-
HCM Control Delay (s)	-	-	0	8.8	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	-	0	-

HCM 6th Signalized Intersection Summary
4: 21ST AVE & MLK BLVD

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	81	120	30	321	471	52
Future Volume (veh/h)	81	120	30	321	471	52
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	0.81	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	127	188	47	502	683	75
Peak Hour Factor	0.64	0.64	0.64	0.64	0.69	0.69
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	167	248	97	874	971	107
Arrive On Green	0.29	0.29	0.59	0.59	0.59	0.59
Sat Flow, veh/h	583	864	71	1491	1656	182
Grp Volume(v), veh/h	316	0	549	0	0	758
Grp Sat Flow(s),veh/h/ln	1452	0	1562	0	0	1838
Q Serve(g_s), s	14.1	0.0	2.1	0.0	0.0	20.6
Cycle Q Clear(g_c), s	14.1	0.0	22.7	0.0	0.0	20.6
Prop In Lane	0.40	0.59	0.09			0.10
Lane Grp Cap(c), veh/h	416	0	971	0	0	1077
V/C Ratio(X)	0.76	0.00	0.57	0.00	0.00	0.70
Avail Cap(c_a), veh/h	585	0	971	0	0	1077
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	23.0	0.0	8.8	0.0	0.0	10.3
Incr Delay (d2), s/veh	3.7	0.0	2.4	0.0	0.0	3.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.9	0.0	4.7	0.0	0.0	7.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	26.7	0.0	11.1	0.0	0.0	14.2
LnGrp LOS	C	A	B	A	A	B
Approach Vol, veh/h	316			549	758	
Approach Delay, s/veh	26.7			11.1	14.2	
Approach LOS	C			B	B	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		46.0		24.8		46.0
Change Period (Y+Rc), s		4.5		4.5		4.5
Max Green Setting (Gmax), s		41.5		28.5		41.5
Max Q Clear Time (g_c+I1), s		24.7		16.1		22.6
Green Ext Time (p_c), s		3.6		1.0		5.5

Intersection Summary			
HCM 6th Ctrl Delay			15.6
HCM 6th LOS			B

Notes

User approved pedestrian interval to be less than phase max green.

User approved volume balancing among the lanes for turning movement.

Intersection	
Int Delay, s/veh	3.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Traffic Vol, veh/h	2	0	43	5	0	20	45	330	11	20	558	13
Future Vol, veh/h	2	0	43	5	0	20	45	330	11	20	558	13
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	29	29	29	52	52	52	71	71	71	73	73	73
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	0	148	10	0	38	63	465	15	27	764	18

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1445	1433	773	1500	1435	473	782	0	0	480	0	0
Stage 1	827	827	-	599	599	-	-	-	-	-	-	-
Stage 2	618	606	-	901	836	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	110	134	399	100	134	591	836	-	-	1082	-	-
Stage 1	366	386	-	488	490	-	-	-	-	-	-	-
Stage 2	477	487	-	333	382	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	92	115	399	56	115	591	836	-	-	1082	-	-
Mov Cap-2 Maneuver	92	115	-	56	115	-	-	-	-	-	-	-
Stage 1	328	369	-	438	440	-	-	-	-	-	-	-
Stage 2	400	437	-	200	365	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	23.5	28.2	1.1	0.3
HCM LOS	C	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	836	-	-	347	203	1082	-	-
HCM Lane V/C Ratio	0.076	-	-	0.447	0.237	0.025	-	-
HCM Control Delay (s)	9.7	0	-	23.5	28.2	8.4	0	-
HCM Lane LOS	A	A	-	C	D	A	A	-
HCM 95th %tile Q(veh)	0.2	-	-	2.2	0.9	0.1	-	-

1: MLK BLVD & 20TH AVE Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.4	0.2
Total Del/Veh (s)	36.2	0.7	7.9	5.6

2: OAK RIDGE EXIT & MLK BLVD Performance by approach

Approach	WB	NB	SB	All
Denied Del/Veh (s)	2.3	0.0	0.0	0.2
Total Del/Veh (s)	61.2	1.6	1.5	5.3

3: MLK BLVD & OAK RIDGE ENTRANCE Performance by approach

Approach	NB	SB	All
Denied Del/Veh (s)	0.0	0.1	0.1
Total Del/Veh (s)	1.1	7.2	4.6

4: 21ST AVE & MLK BLVD Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.2	0.7	0.0	0.3
Total Del/Veh (s)	16.3	13.6	3.3	9.1

5: MLK BLVD & 22ND AVE Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	0.1	0.3	0.0	0.1
Total Del/Veh (s)	80.2	44.0	25.3	1.5	14.5

Total Network Performance

Denied Del/Veh (s)	0.7
Total Del/Veh (s)	33.2

Intersection: 1: MLK BLVD & 20TH AVE

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	87	42	326
Average Queue (ft)	23	17	52
95th Queue (ft)	70	45	206
Link Distance (ft)	1132	34	2478
Upstream Blk Time (%)		3	
Queuing Penalty (veh)		12	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: OAK RIDGE EXIT & MLK BLVD

Movement	WB	WB	NB	SB
Directions Served	L	R	T	T
Maximum Queue (ft)	242	50	108	57
Average Queue (ft)	43	23	20	19
95th Queue (ft)	165	56	74	50
Link Distance (ft)	636		100	34
Upstream Blk Time (%)			1	8
Queuing Penalty (veh)			3	50
Storage Bay Dist (ft)		25		
Storage Blk Time (%)	18	6		
Queuing Penalty (veh)	12	2		

Intersection: 3: MLK BLVD & OAK RIDGE ENTRANCE

Movement	NB	SB
Directions Served	TR	LT
Maximum Queue (ft)	34	132
Average Queue (ft)	3	90
95th Queue (ft)	18	138
Link Distance (ft)	18	100
Upstream Blk Time (%)	1	11
Queuing Penalty (veh)	3	65
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: 21ST AVE & MLK BLVD

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	190	129	62
Average Queue (ft)	79	90	34
95th Queue (ft)	156	147	51
Link Distance (ft)	933	111	18
Upstream Blk Time (%)		15	28
Queuing Penalty (veh)		64	153
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: MLK BLVD & 22ND AVE

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	217	86	560	96
Average Queue (ft)	42	23	114	14
95th Queue (ft)	165	67	419	60
Link Distance (ft)	964	778	2787	111
Upstream Blk Time (%)				0
Queuing Penalty (veh)				4
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 369

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰↱			↰↑	↑↱	
Traffic Vol, veh/h	3	12	25	716	360	5
Future Vol, veh/h	3	12	25	716	360	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	30	30	68	68	60	60
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	40	37	1053	600	8

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1731	604	608	0	-	0
Stage 1	604	-	-	-	-	-
Stage 2	1127	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	97	498	970	-	-	-
Stage 1	546	-	-	-	-	-
Stage 2	309	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	88	498	970	-	-	-
Mov Cap-2 Maneuver	88	-	-	-	-	-
Stage 1	496	-	-	-	-	-
Stage 2	309	-	-	-	-	-

Approach	EB		NB		SB
HCM Control Delay, s	22.3		0.3		0
HCM LOS	C				

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	970	-	258	-	-
HCM Lane V/C Ratio	0.038	-	0.194	-	-
HCM Control Delay (s)	8.9	0	22.3	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.7	-	-

HCM 6th Signalized Intersection Summary
4: 21ST AVE/SCHOOL DWY & MLK BLVD

AM EX PL PROJ
PERMITTED SIGNAL

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			↰	↱		✣			✣	
Traffic Volume (veh/h)	251	26	60	72	8	31	38	532	110	44	326	43
Future Volume (veh/h)	251	26	60	72	8	31	38	532	110	44	326	43
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	474	28	113	78	9	34	59	831	120	48	509	67
Peak Hour Factor	0.53	0.92	0.53	0.92	0.92	0.92	0.64	0.64	0.92	0.92	0.64	0.64
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	457	22	89	589	63	603	85	746	105	85	664	84
Arrive On Green	0.38	0.38	0.38	0.38	0.38	0.38	0.51	0.51	0.51	0.51	0.51	0.51
Sat Flow, veh/h	981	58	234	1313	166	1585	68	1473	208	67	1310	166
Grp Volume(v), veh/h	615	0	0	87	0	34	1010	0	0	624	0	0
Grp Sat Flow(s),veh/h/ln	1273	0	0	1480	0	1585	1748	0	0	1543	0	0
Q Serve(g_s), s	26.0	0.0	0.0	0.0	0.0	1.0	16.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	28.9	0.0	0.0	2.9	0.0	1.0	38.5	0.0	0.0	22.5	0.0	0.0
Prop In Lane	0.77		0.18	0.90		1.00	0.06		0.12	0.08		0.11
Lane Grp Cap(c), veh/h	568	0	0	653	0	603	936	0	0	832	0	0
V/C Ratio(X)	1.08	0.00	0.00	0.13	0.00	0.06	1.08	0.00	0.00	0.75	0.00	0.00
Avail Cap(c_a), veh/h	568	0	0	653	0	603	936	0	0	832	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	26.9	0.0	0.0	15.5	0.0	14.9	19.5	0.0	0.0	14.2	0.0	0.0
Incr Delay (d2), s/veh	62.1	0.0	0.0	0.0	0.0	0.0	53.2	0.0	0.0	6.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	20.1	0.0	0.0	0.9	0.0	0.4	28.9	0.0	0.0	8.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	89.0	0.0	0.0	15.5	0.0	14.9	72.7	0.0	0.0	20.4	0.0	0.0
LnGrp LOS	F	A	A	B	A	B	F	A	A	C	A	A
Approach Vol, veh/h		615			121			1010			624	
Approach Delay, s/veh		89.0			15.3			72.7			20.4	
Approach LOS		F			B			E			C	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		43.0		33.0		43.0		33.0				
Change Period (Y+Rc), s		4.5		4.1		4.5		4.1				
Max Green Setting (Gmax), s		38.5		28.9		38.5		28.9				
Max Q Clear Time (g_c+I1), s		40.5		30.9		24.5		4.9				
Green Ext Time (p_c), s		0.0		0.0		1.7		0.2				
Intersection Summary												
HCM 6th Ctrl Delay			60.2									
HCM 6th LOS			E									

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Vol, veh/h	5	0	24	7	0	34	32	625	3	12	368	8
Future Vol, veh/h	5	0	24	7	0	34	32	625	3	12	368	8
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	43	43	43	63	63	63	73	73	73	58	58	58
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	12	0	56	11	0	54	44	856	4	21	634	14

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1656	1631	641	1657	1636	858	648	0	0	860	0	0
Stage 1	683	683	-	946	946	-	-	-	-	-	-	-
Stage 2	973	948	-	711	690	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	78	101	475	78	101	357	938	-	-	781	-	-
Stage 1	439	449	-	314	340	-	-	-	-	-	-	-
Stage 2	303	339	-	424	446	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	60	88	475	62	88	357	938	-	-	781	-	-
Mov Cap-2 Maneuver	60	88	-	62	88	-	-	-	-	-	-	-
Stage 1	399	430	-	286	309	-	-	-	-	-	-	-
Stage 2	234	308	-	358	427	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	28.9	32	0.4	0.3
HCM LOS	D	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	938	-	-	217	197	781	-	-
HCM Lane V/C Ratio	0.047	-	-	0.311	0.33	0.026	-	-
HCM Control Delay (s)	9	0	-	28.9	32	9.7	0	-
HCM Lane LOS	A	A	-	D	D	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	1.3	1.4	0.1	-	-

1: MLK BLVD & 20TH AVE Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.2	3.5	22.0	10.5
Total Del/Veh (s)	562.6	1.7	162.2	69.9

4: 21ST AVE/SCHOOL DWY & MLK BLVD Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	7.4	0.2	9.8	19.9	10.9
Total Del/Veh (s)	140.5	99.0	16.3	21.1	56.1

5: MLK BLVD & 22ND AVE Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.1	55.0	0.0	33.8
Total Del/Veh (s)	441.2	396.9	155.8	1.6	120.1

Total Zone Performance

Denied Del/Veh (s)	36.7
Total Del/Veh (s)	833.0

Intersection: 1: MLK BLVD & 20TH AVE

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	184	39	1494
Average Queue (ft)	57	14	396
95th Queue (ft)	211	42	1412
Link Distance (ft)	2002	34	1823
Upstream Blk Time (%)		19	8
Queuing Penalty (veh)		130	0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: 21ST AVE/SCHOOL DWY & MLK BLVD

Movement	EB	WB	WB	NB	SB	B3
Directions Served	LTR	LT	R	LTR	LTR	T
Maximum Queue (ft)	1329	338	159	153	96	176
Average Queue (ft)	373	79	34	109	67	81
95th Queue (ft)	1171	268	117	151	102	206
Link Distance (ft)	1867	1057	1057	104	10	100
Upstream Blk Time (%)	4			36	51	35
Queuing Penalty (veh)	0			256	194	144
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 5: MLK BLVD & 22ND AVE

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	314	390	1959	79
Average Queue (ft)	92	115	684	7
95th Queue (ft)	300	333	2039	42
Link Distance (ft)	1618	778	1985	104
Upstream Blk Time (%)			20	0
Queuing Penalty (veh)			0	2
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Zone Summary

Zone wide Queuing Penalty: 726

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰↱			↰↑	↑↱	
Traffic Vol, veh/h	10	22	44	349	479	26
Future Vol, veh/h	10	22	44	349	479	26
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	52	52	67	67	74	74
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	19	42	66	521	647	35

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1318	665	682	0	-	0
Stage 1	665	-	-	-	-	-
Stage 2	653	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	173	460	911	-	-	-
Stage 1	511	-	-	-	-	-
Stage 2	518	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	155	460	911	-	-	-
Mov Cap-2 Maneuver	155	-	-	-	-	-
Stage 1	459	-	-	-	-	-
Stage 2	518	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	21.1	1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	911	-	285	-	-
HCM Lane V/C Ratio	0.072	-	0.216	-	-
HCM Control Delay (s)	9.3	0	21.1	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.2	-	0.8	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			↰	↱		✥			✥	
Traffic Volume (veh/h)	72	17	95	82	26	36	28	321	83	17	471	52
Future Volume (veh/h)	72	17	95	82	26	36	28	321	83	17	471	52
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	0.99		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	112	17	148	82	26	36	44	502	83	17	683	75
Peak Hour Factor	0.64	1.00	0.64	1.00	1.00	1.00	0.64	0.64	1.00	1.00	0.69	0.69
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	188	47	179	304	84	415	101	868	138	67	983	106
Arrive On Green	0.26	0.26	0.26	0.26	0.26	0.26	0.60	0.60	0.60	0.60	0.60	0.60
Sat Flow, veh/h	417	178	683	784	320	1585	67	1437	229	15	1629	176
Grp Volume(v), veh/h	277	0	0	108	0	36	629	0	0	775	0	0
Grp Sat Flow(s),veh/h/ln	1278	0	0	1103	0	1585	1733	0	0	1820	0	0
Q Serve(g_s), s	8.6	0.0	0.0	0.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	13.6	0.0	0.0	5.0	0.0	1.1	13.3	0.0	0.0	18.4	0.0	0.0
Prop In Lane	0.40		0.53	0.76		1.00	0.07		0.13	0.02		0.10
Lane Grp Cap(c), veh/h	414	0	0	388	0	415	1106	0	0	1156	0	0
V/C Ratio(X)	0.67	0.00	0.00	0.28	0.00	0.09	0.57	0.00	0.00	0.67	0.00	0.00
Avail Cap(c_a), veh/h	696	0	0	641	0	718	1106	0	0	1156	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	22.9	0.0	0.0	19.1	0.0	17.8	7.6	0.0	0.0	8.7	0.0	0.0
Incr Delay (d2), s/veh	0.7	0.0	0.0	0.1	0.0	0.0	2.1	0.0	0.0	3.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	0.0	0.0	1.2	0.0	0.4	4.6	0.0	0.0	6.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.6	0.0	0.0	19.2	0.0	17.8	9.8	0.0	0.0	11.8	0.0	0.0
LnGrp LOS	C	A	A	B	A	B	A	A	A	B	A	A
Approach Vol, veh/h		277			144			629			775	
Approach Delay, s/veh		23.6			18.9			9.8			11.8	
Approach LOS		C			B			A			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		43.0		20.8		43.0		20.8				
Change Period (Y+Rc), s		4.5		4.1		4.5		4.1				
Max Green Setting (Gmax), s		38.5		28.9		38.5		28.9				
Max Q Clear Time (g_c+I1), s		15.3		15.6		20.4		7.0				
Green Ext Time (p_c), s		1.7		0.6		2.0		0.2				

Intersection Summary			
HCM 6th Ctrl Delay			13.4
HCM 6th LOS			B

Notes

User approved pedestrian interval to be less than phase max green.

HCM 6th TWSC
5: MLK BLVD & 22ND AVE

Intersection	
Int Delay, s/veh	6.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Traffic Vol, veh/h	7	0	43	5	0	25	45	370	11	24	570	15
Future Vol, veh/h	7	0	43	5	0	25	45	370	11	24	570	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	29	29	29	52	52	52	71	71	71	73	73	73
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	24	0	148	10	0	48	63	521	15	33	781	21

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1537	1520	792	1587	1523	529	802	0	0	536	0	0
Stage 1	858	858	-	655	655	-	-	-	-	-	-	-
Stage 2	679	662	-	932	868	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	95	119	389	87	118	550	822	-	-	1032	-	-
Stage 1	352	374	-	455	463	-	-	-	-	-	-	-
Stage 2	441	459	-	320	370	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	76	100	389	47	99	550	822	-	-	1032	-	-
Mov Cap-2 Maneuver	76	100	-	47	99	-	-	-	-	-	-	-
Stage 1	314	352	-	405	413	-	-	-	-	-	-	-
Stage 2	359	409	-	187	349	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	47.5	30.5	1	0.3
HCM LOS	E	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	822	-	-	247	198	1032	-	-
HCM Lane V/C Ratio	0.077	-	-	0.698	0.291	0.032	-	-
HCM Control Delay (s)	9.7	0	-	47.5	30.5	8.6	0	-
HCM Lane LOS	A	A	-	E	D	A	A	-
HCM 95th %tile Q(veh)	0.2	-	-	4.6	1.2	0.1	-	-

1: MLK BLVD & 20TH AVE Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.1	0.1	0.4	0.3
Total Del/Veh (s)	31.2	0.9	5.0	4.1

4: 21ST AVE/SCHOOL DWY & MLK BLVD Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	0.1	0.6	0.6	0.5
Total Del/Veh (s)	18.2	19.2	9.4	5.4	10.1

5: MLK BLVD & 22ND AVE Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	0.1	0.4	0.0	0.1
Total Del/Veh (s)	234.3	43.4	15.5	1.8	18.5

Total Zone Performance

Denied Del/Veh (s)	0.7
Total Del/Veh (s)	547.5

Intersection: 1: MLK BLVD & 20TH AVE

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	93	56	273
Average Queue (ft)	24	18	29
95th Queue (ft)	67	50	173
Link Distance (ft)	2002	34	1823
Upstream Blk Time (%)		4	
Queuing Penalty (veh)		18	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: 21ST AVE/SCHOOL DWY & MLK BLVD

Movement	EB	WB	WB	NB	SB	B3
Directions Served	LTR	LT	R	LTR	LTR	T
Maximum Queue (ft)	196	116	64	135	96	183
Average Queue (ft)	78	57	22	85	67	51
95th Queue (ft)	144	101	52	143	103	155
Link Distance (ft)	1867	1057	1057	104	10	100
Upstream Blk Time (%)				12	25	7
Queuing Penalty (veh)				61	137	49
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 5: MLK BLVD & 22ND AVE

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	557	107	481	109
Average Queue (ft)	106	28	91	18
95th Queue (ft)	423	77	319	76
Link Distance (ft)	1618	778	1985	104
Upstream Blk Time (%)				1
Queuing Penalty (veh)				4
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Zone Summary

Zone wide Queuing Penalty: 270

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰↱			↰↑	↑↱	
Traffic Vol, veh/h	10	12	25	716	360	5
Future Vol, veh/h	10	12	25	716	360	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	30	30	68	68	60	60
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	33	40	37	1053	600	8

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1731	604	608	0	-	0
Stage 1	604	-	-	-	-	-
Stage 2	1127	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	97	498	970	-	-	-
Stage 1	546	-	-	-	-	-
Stage 2	309	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	88	498	970	-	-	-
Mov Cap-2 Maneuver	88	-	-	-	-	-
Stage 1	496	-	-	-	-	-
Stage 2	309	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	45.2	0.3	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	970	-	160	-	-
HCM Lane V/C Ratio	0.038	-	0.458	-	-
HCM Control Delay (s)	8.9	0	45.2	-	-
HCM Lane LOS	A	A	E	-	-
HCM 95th %tile Q(veh)	0.1	-	2.1	-	-

HCM 6th Signalized Intersection Summary
4: 21ST AVE/SCHOOL DWY & MLK BLVD

AM EX PL PROJ
PERM SIGNAL WITH N-S PROT

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			↰	↱	↰	↱		↰	↱	
Traffic Volume (veh/h)	251	26	60	72	8	31	38	532	110	44	326	43
Future Volume (veh/h)	251	26	60	72	8	31	38	532	110	44	326	43
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	474	28	66	78	9	7	59	831	120	48	509	67
Peak Hour Factor	0.53	0.92	0.53	0.92	0.92	0.92	0.64	0.64	0.92	0.92	0.64	0.64
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	436	22	53	560	62	561	77	796	115	62	793	104
Arrive On Green	0.35	0.35	0.35	0.35	0.35	0.35	0.04	0.50	0.50	0.03	0.49	0.49
Sat Flow, veh/h	1070	63	149	1416	174	1585	1781	1598	231	1781	1619	213
Grp Volume(v), veh/h	568	0	0	87	0	7	59	0	951	48	0	576
Grp Sat Flow(s),veh/h/ln	1283	0	0	1590	0	1585	1781	0	1829	1781	0	1832
Q Serve(g_s), s	36.6	0.0	0.0	0.0	0.0	0.3	3.8	0.0	57.5	3.1	0.0	27.0
Cycle Q Clear(g_c), s	40.9	0.0	0.0	4.3	0.0	0.3	3.8	0.0	57.5	3.1	0.0	27.0
Prop In Lane	0.83		0.12	0.90		1.00	1.00		0.13	1.00		0.12
Lane Grp Cap(c), veh/h	511	0	0	622	0	561	77	0	910	62	0	897
V/C Ratio(X)	1.11	0.00	0.00	0.14	0.00	0.01	0.77	0.00	1.04	0.78	0.00	0.64
Avail Cap(c_a), veh/h	511	0	0	622	0	561	208	0	910	116	0	897
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	41.5	0.0	0.0	25.5	0.0	24.2	54.7	0.0	29.0	55.3	0.0	21.9
Incr Delay (d2), s/veh	73.7	0.0	0.0	0.0	0.0	0.0	15.0	0.0	42.1	18.5	0.0	3.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	25.4	0.0	0.0	1.6	0.0	0.1	2.0	0.0	34.7	1.7	0.0	12.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	115.2	0.0	0.0	25.5	0.0	24.2	69.7	0.0	71.1	73.8	0.0	25.5
LnGrp LOS	F	A	A	C	A	C	E	A	F	E	A	C
Approach Vol, veh/h		568			94			1010			624	
Approach Delay, s/veh		115.2			25.4			71.1			29.2	
Approach LOS		F			C			E			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.5	62.0		45.0	9.5	61.0		45.0
Change Period (Y+Rc), s	4.5	4.5		4.1	4.5	4.5		4.1
Max Green Setting (Gmax), s	7.5	57.5		40.9	13.5	50.5		40.9
Max Q Clear Time (g_c+I1), s	5.1	59.5		42.9	5.8	29.0		6.3
Green Ext Time (p_c), s	0.0	0.0		0.0	0.1	1.3		0.2

Intersection Summary	
HCM 6th Ctrl Delay	68.7
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Vol, veh/h	5	0	24	7	0	34	32	625	3	12	368	8
Future Vol, veh/h	5	0	24	7	0	34	32	625	3	12	368	8
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	43	43	43	63	63	63	73	73	73	58	58	58
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	12	0	56	11	0	54	44	856	4	21	634	14

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1656	1631	641	1657	1636	858	648	0	0	860	0	0
Stage 1	683	683	-	946	946	-	-	-	-	-	-	-
Stage 2	973	948	-	711	690	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	78	101	475	78	101	357	938	-	-	781	-	-
Stage 1	439	449	-	314	340	-	-	-	-	-	-	-
Stage 2	303	339	-	424	446	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	60	88	475	62	88	357	938	-	-	781	-	-
Mov Cap-2 Maneuver	60	88	-	62	88	-	-	-	-	-	-	-
Stage 1	399	430	-	286	309	-	-	-	-	-	-	-
Stage 2	234	308	-	358	427	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	28.9	32	0.4	0.3
HCM LOS	D	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	938	-	-	217	197	781	-	-
HCM Lane V/C Ratio	0.047	-	-	0.311	0.33	0.026	-	-
HCM Control Delay (s)	9	0	-	28.9	32	9.7	0	-
HCM Lane LOS	A	A	-	D	D	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	1.3	1.4	0.1	-	-

Intersection: 1: MLK BLVD & 20TH AVE

Movement	EB	NB	B2	B3	SB
Directions Served	LR	LT	T	T	TR
Maximum Queue (ft)	303	79	83	85	999
Average Queue (ft)	97	13	9	13	472
95th Queue (ft)	384	63	67	57	1713
Link Distance (ft)	2002	40	94	11	1823
Upstream Blk Time (%)		5	4	1	20
Queuing Penalty (veh)		37	30	6	0
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 4: 21ST AVE/SCHOOL DWY & MLK BLVD

Movement	EB	WB	WB	NB	NB	SB	SB	B3	B2
Directions Served	LTR	LT	R	L	TR	L	TR	T	T
Maximum Queue (ft)	919	175	73	98	147	19	98	169	95
Average Queue (ft)	296	63	22	33	101	5	68	85	25
95th Queue (ft)	801	168	57	81	152	17	101	200	80
Link Distance (ft)	1861	1051	1051		104		11	94	40
Upstream Blk Time (%)	1			0	19	13	54	37	33
Queuing Penalty (veh)	0			0	139	0	213	152	135
Storage Bay Dist (ft)				125		200			
Storage Blk Time (%)				0	19	13	54		
Queuing Penalty (veh)				3	8	44	24		

Intersection: 5: MLK BLVD & 22ND AVE

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	178	237	1079	75
Average Queue (ft)	53	68	263	9
95th Queue (ft)	186	211	974	52
Link Distance (ft)	1612	772	1985	104
Upstream Blk Time (%)			3	1
Queuing Penalty (veh)			0	3
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Zone Summary

Zone wide Queuing Penalty: 795

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖↗			↰	↱	
Traffic Vol, veh/h	3	22	44	349	479	26
Future Vol, veh/h	3	22	44	349	479	26
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	52	52	67	67	74	74
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	42	66	521	647	35

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1318	665	682	0	-	0
Stage 1	665	-	-	-	-	-
Stage 2	653	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	173	460	911	-	-	-
Stage 1	511	-	-	-	-	-
Stage 2	518	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	155	460	911	-	-	-
Mov Cap-2 Maneuver	155	-	-	-	-	-
Stage 1	459	-	-	-	-	-
Stage 2	518	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	16.1	1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	911	-	372	-	-
HCM Lane V/C Ratio	0.072	-	0.129	-	-
HCM Control Delay (s)	9.3	0	16.1	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.2	-	0.4	-	-

Intersection: 1: MLK BLVD & 20TH AVE

Movement	EB	NB	B2	B3	SB
Directions Served	LR	LT	T	T	TR
Maximum Queue (ft)	61	117	104	88	198
Average Queue (ft)	17	30	11	15	15
95th Queue (ft)	48	93	75	61	106
Link Distance (ft)	2002	40	94	11	1823
Upstream Blk Time (%)		4	1	1	
Queuing Penalty (veh)		23	8	5	
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 4: 21ST AVE/SCHOOL DWY & MLK BLVD

Movement	EB	WB	WB	NB	NB	SB	SB	B3	B2
Directions Served	LTR	LT	R	L	TR	L	TR	T	T
Maximum Queue (ft)	281	149	62	86	130	15	104	170	106
Average Queue (ft)	102	68	24	26	83	2	73	65	14
95th Queue (ft)	220	126	52	67	142	11	106	169	68
Link Distance (ft)	1861	1051	1051		104		11	94	40
Upstream Blk Time (%)				0	7	5	30	9	4
Queuing Penalty (veh)				0	32	0	158	53	25
Storage Bay Dist (ft)				125		200			
Storage Blk Time (%)				0	7	5	30		
Queuing Penalty (veh)				0	2	25	5		

Intersection: 5: MLK BLVD & 22ND AVE

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	236	75	313	110
Average Queue (ft)	43	22	56	16
95th Queue (ft)	178	56	190	71
Link Distance (ft)	1612	772	1985	104
Upstream Blk Time (%)				1
Queuing Penalty (veh)				5
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Zone Summary

Zone wide Queuing Penalty: 342

HCM 6th Signalized Intersection Summary
4: 21ST AVE/SCHOOL DWY & MLK BLVD

AFTERNOON EX PL PROJ
PERM SIGNAL W N-S PROT

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			↰	↱	↰	↱		↰	↱	
Traffic Volume (veh/h)	72	17	95	82	26	36	28	321	83	17	471	52
Future Volume (veh/h)	72	17	95	82	26	36	28	321	83	17	471	52
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	112	17	148	82	26	36	44	502	83	17	683	75
Peak Hour Factor	0.64	1.00	0.64	1.00	1.00	1.00	0.64	0.64	1.00	1.00	0.69	0.69
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	157	37	165	254	72	427	63	908	150	34	933	102
Arrive On Green	0.27	0.27	0.27	0.27	0.27	0.27	0.04	0.58	0.58	0.02	0.56	0.56
Sat Flow, veh/h	395	138	612	706	268	1585	1781	1565	259	1781	1656	182
Grp Volume(v), veh/h	277	0	0	108	0	36	44	0	585	17	0	758
Grp Sat Flow(s),veh/h/ln	1145	0	0	974	0	1585	1781	0	1824	1781	0	1838
Q Serve(g_s), s	15.1	0.0	0.0	0.0	0.0	1.7	2.4	0.0	19.7	0.9	0.0	30.4
Cycle Q Clear(g_c), s	24.1	0.0	0.0	9.0	0.0	1.7	2.4	0.0	19.7	0.9	0.0	30.4
Prop In Lane	0.40		0.53	0.76		1.00	1.00		0.14	1.00		0.10
Lane Grp Cap(c), veh/h	359	0	0	326	0	427	63	0	1058	34	0	1035
V/C Ratio(X)	0.77	0.00	0.00	0.33	0.00	0.08	0.70	0.00	0.55	0.51	0.00	0.73
Avail Cap(c_a), veh/h	571	0	0	517	0	654	243	0	1058	135	0	1035
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	37.2	0.0	0.0	29.5	0.0	27.1	47.3	0.0	12.9	48.2	0.0	16.1
Incr Delay (d2), s/veh	1.3	0.0	0.0	0.2	0.0	0.0	13.0	0.0	2.1	11.3	0.0	4.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.6	0.0	0.0	2.1	0.0	0.6	1.3	0.0	8.1	0.5	0.0	13.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.5	0.0	0.0	29.8	0.0	27.1	60.3	0.0	15.0	59.5	0.0	20.7
LnGrp LOS	D	A	A	C	A	C	E	A	B	E	A	C
Approach Vol, veh/h		277			144			629			775	
Approach Delay, s/veh		38.5			29.1			18.1			21.5	
Approach LOS		D			C			B			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.4	62.0		30.8	8.0	60.4		30.8
Change Period (Y+Rc), s	4.5	4.5		4.1	4.5	4.5		4.1
Max Green Setting (Gmax), s	7.5	57.5		40.9	13.5	50.5		40.9
Max Q Clear Time (g_c+I1), s	2.9	21.7		26.1	4.4	32.4		11.0
Green Ext Time (p_c), s	0.0	1.4		0.6	0.0	1.9		0.3

Intersection Summary	
HCM 6th Ctrl Delay	23.5
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	6.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Traffic Vol, veh/h	7	0	43	5	0	25	45	370	11	24	570	15
Future Vol, veh/h	7	0	43	5	0	25	45	370	11	24	570	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	29	29	29	52	52	52	71	71	71	73	73	73
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	24	0	148	10	0	48	63	521	15	33	781	21

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1537	1520	792	1587	1523	529	802	0	0	536	0	0
Stage 1	858	858	-	655	655	-	-	-	-	-	-	-
Stage 2	679	662	-	932	868	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	95	119	389	87	118	550	822	-	-	1032	-	-
Stage 1	352	374	-	455	463	-	-	-	-	-	-	-
Stage 2	441	459	-	320	370	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	76	100	389	47	99	550	822	-	-	1032	-	-
Mov Cap-2 Maneuver	76	100	-	47	99	-	-	-	-	-	-	-
Stage 1	314	352	-	405	413	-	-	-	-	-	-	-
Stage 2	359	409	-	187	349	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	47.5	30.5	1	0.3
HCM LOS	E	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	822	-	-	247	198	1032	-	-
HCM Lane V/C Ratio	0.077	-	-	0.698	0.291	0.032	-	-
HCM Control Delay (s)	9.7	0	-	47.5	30.5	8.6	0	-
HCM Lane LOS	A	A	-	E	D	A	A	-
HCM 95th %tile Q(veh)	0.2	-	-	4.6	1.2	0.1	-	-