September 2022 | Initial Study

# JW NORTH HIGH SCHOOL NEW CLASSROOM BUILDING, GYMNASIUM AND MODERNIZATION PROJECT

Riverside Unified School District

*Prepared for:*

**Riverside Unified School District**
Contact: Rene Castro, Director Planning and Development
Riverside Unified School District
3070 Washington Street
Riverside, California 92504

*Prepared by:*

**PlaceWorks**
Contact: Dwayne Mears, AICP, Principal
3 MacArthur Place, Suite 1100
Santa Ana, California 92707
714.966.9220
info@placeworks.com
www.placeworks.com

PLACEWORKS

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# Abbreviations and Acronyms

| | |
|---|---|
| AAQS | ambient air quality standards |
| AB | Assembly Bill |
| AQMD | air quality management district |
| AQMP | air quality management plan |
| CAL FIRE | California Department of Forestry and Fire Protection |
| CALGreen | California Green Building Standards Code |
| CARB | California Air Resources Board |
| CBC | California Building Code |
| CCR | California Code of Regulations |
| CEQA | California Environmental Quality Act |
| CNEL | community noise equivalent level |
| CO | carbon monoxide |
| $CO_2e$ | carbon dioxide equivalent |
| dB | decibel |
| dBA | A-weighted decibel |
| DPM | diesel particulate matter |
| DSA | Division of the State Architect |
| fc | foot-candle |
| FHSZ | fire hazard severity zone |
| FHWA | Federal Highway Administration |
| FTA | Federal Transit Administration |
| GHG | greenhouse gases |
| GWP | global warming potential |
| $L_{dn}$ | day-night noise level |
| $L_{eq}$ | equivalent continuous noise level |
| LST | localized significance thresholds |
| MRZ | mineral resources zone |
| MT | metric ton |
| $NO_X$ | nitrogen oxides |
| $O_3$ | ozone |
| PM | particulate matter |
| ppm | parts per million |
| PPV | peak particle velocity |

# Abbreviations and Acronyms

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

# Abbreviations and Acronyms

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# 1. Introduction

## 1.1 OVERVIEW

Riverside Unified School District (RUSD or District) is proposing modernization of the John W. North High School campus (JW North HS) located at 1550 3rd Street in the City of Riverside, Riverside County, California. The proposed project is required to undergo an environmental review pursuant to the California Environmental Quality Act (CEQA). This initial study provides an evaluation of the potential environmental consequences associated with this proposed project.

In 2016 Measure O was approved to provide funding to upgrade and improve aging RUSD campuses and classrooms. Measure O will generate $392 million and makes RUSD eligible for an additional $200 million in state funding for school facilities projects (RUSD 2021). The proposed modernization of JW North HS is part of the Measure O projects and is one of four other projects currently in the planning phase (RUSD 2021).

## 1.2 CALIFORNIA ENVIRONMENTAL QUALITY ACT

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

PRC Section 21080(a) states that analysis of a project's environmental impact is required for any "discretionary projects proposed to be carried out or approved by public agencies…." In this case, RUSD has determined that an initial study is required to determine whether there is substantial evidence that implementation of the project would result in environmental impacts. An initial study is a preliminary environmental analysis to determine whether an environmental impact report (EIR), a mitigated negative declaration (MND), or a negative declaration (ND) is required for a project (14 CCR Section 15063).

## 1.3 ENVIRONMENTAL PROCESS

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

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

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

### 1.3.1 Initial Study

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

An initial study must include a project description; a description of the environmental setting; an identification of environmental effects by checklist or other similar form; an explanation of environmental effects; a discussion of mitigation for significant environmental effects; an evaluation of the project's consistency with existing, applicable land use controls; the names of persons who prepared the study; and identification of data sources (14 CCR Section 15063[d]).

### 1.3.2 Mitigated Negative Declaration

The MND includes information necessary for agencies to meet statutory responsibilities related to the proposed project. State and local agencies will use the MND when considering any permit or other approvals necessary to implement the project.

One of the primary objectives of CEQA is to enhance public participation in the planning process, because public involvement is an essential feature of CEQA. Community members are encouraged to participate in the environmental review process, request to be notified, monitor newspapers for formal announcements, and

submit substantive comments at every possible opportunity afforded by the District. The environmental review process provides several opportunities for the public to participate through public notice and public review of CEQA documents and public meetings.

## 1.4 IMPACT TERMINOLOGY

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

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

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

# 1. Introduction

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# 2. Environmental Setting

## 2.1 PROJECT LOCATION

The RUSD property is located at 1550 3rd Street (APNs 250-140-006 and 250-140-007) in the City of Riverside, Riverside County, California. The City of Riverside is in northwest Riverside County and the City of Norco is to the west, the City of Moreno Valley is to the east, unincorporated Riverside County is to the south, and the City of Jurupa Valley is to the north (see Figure 1, *Regional Location*). The campus is approximately 43-acres in size (project site).

Regional access is provided by State Route 91 (SR-91) located approximately 1.2-miles southwest from the project site, and State Route 60 (SR-60) and Interstate Route 215 (I-215), located 1,000 feet northeast from the project site (See Figure 1). JW North HS is bound by Linden Street to the south, Chicago Avenue to the west, 3rd Street to the north, and industrial buildings to the east. See Figure 2, *Local Vicinity* and Figure 3 *Aerial Photograph*. Access to the campus is provided via W Linden Street, to the south, and 3rd Street, to the north. Student drop-off and pick-up occurs in the southern parking lot along W Linden Street.

## 2.2 SURROUNDING LAND USE

The JW. North HS campus is in an area generally characterized by residential, commercial, and industrial uses. The campus itself is zoned for R-3-1500 (multi-family residential) and R-1-7000 (single-family residential). According to the Permitted Uses Table in the City of Riverside Municipal Code Chapter 19.150, school uses are permitted in R-3 zones and permitted with a conditional use permit in R-1 zones. The General Plan land use designation for the campus is PF (Public Facilities/Institutional), which is intended for public facilities including schools.

The property immediately to the east of the campus is zoned industrial Business and Manufacturing Park (BMP). There are more BMP zoned parcels west across Chicago Avenue, north across 3rd Street, and south across Linden Street. Multi-family residential buildings are southwest of the campus, industrial facilities are directly south of the campus across Linden Street. South southeast of the campus is multi-family residential zoning. Adjacent to the east of the campus is business manufacturing complex with industrial and commercial properties. The I-215 passes approximately 1,000 feet northeast of the project site. Patterson Park is approximately 900 feet southwest of the project site.

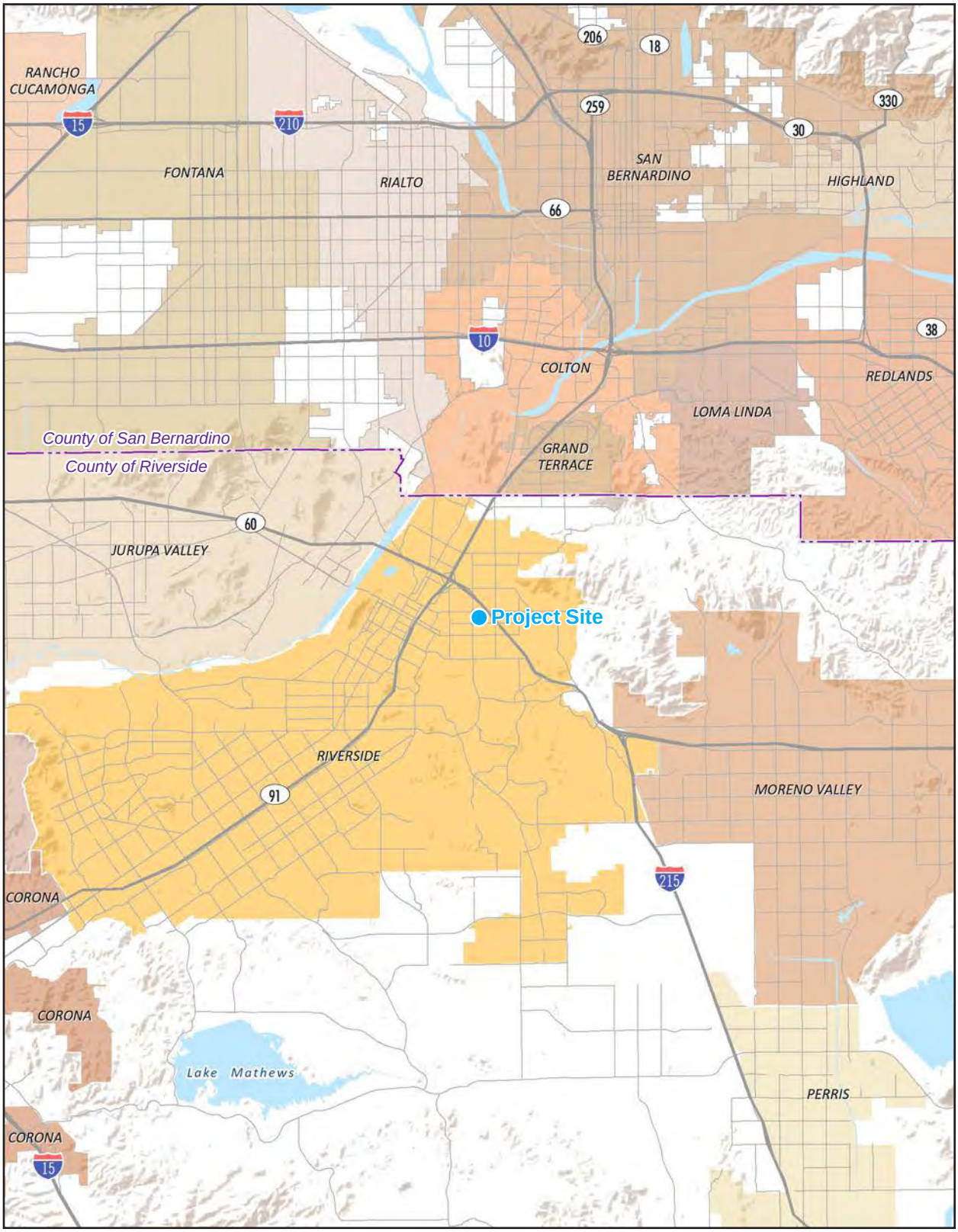
## 2.3 EXISTING CONDITIONS

RUSD has 50 schools: 29 elementary schools, 13 middle schools, 6 high schools, and 2 alternative schools (CDE 2022a). Districtwide enrollment was 40,083 for the 2020-21 school year (CDE 2022a). Enrollment at JW North HS for the 2020-2021 school year was 2,294 (CDE 2022b).

# 2. Environmental Setting

JW North HS is a comprehensive high school serving students in grades 9 through 12. JW High School campus is approximately 43-acres and is developed with nine classroom buildings, an administration building, a library and media center, an existing gymnasium, a cafeteria, thirty-one portables, and various athletic facilities. Athletic facilities include a football field, softball field, baseball field, swimming pool, and 8 tennis courts. There are also two surface parking lots, one is located in the northern portion of the campus along 3rd Street and the second parking lot is in the southern portion of the campus along W Linden Street.

## Figure 1 - Regional Location




County Boundary

Note: Unincorporated county areas are shown in white.
*Source: ESRI, 2022*

0 3
Scale (Miles)

# 2. Environmental Setting

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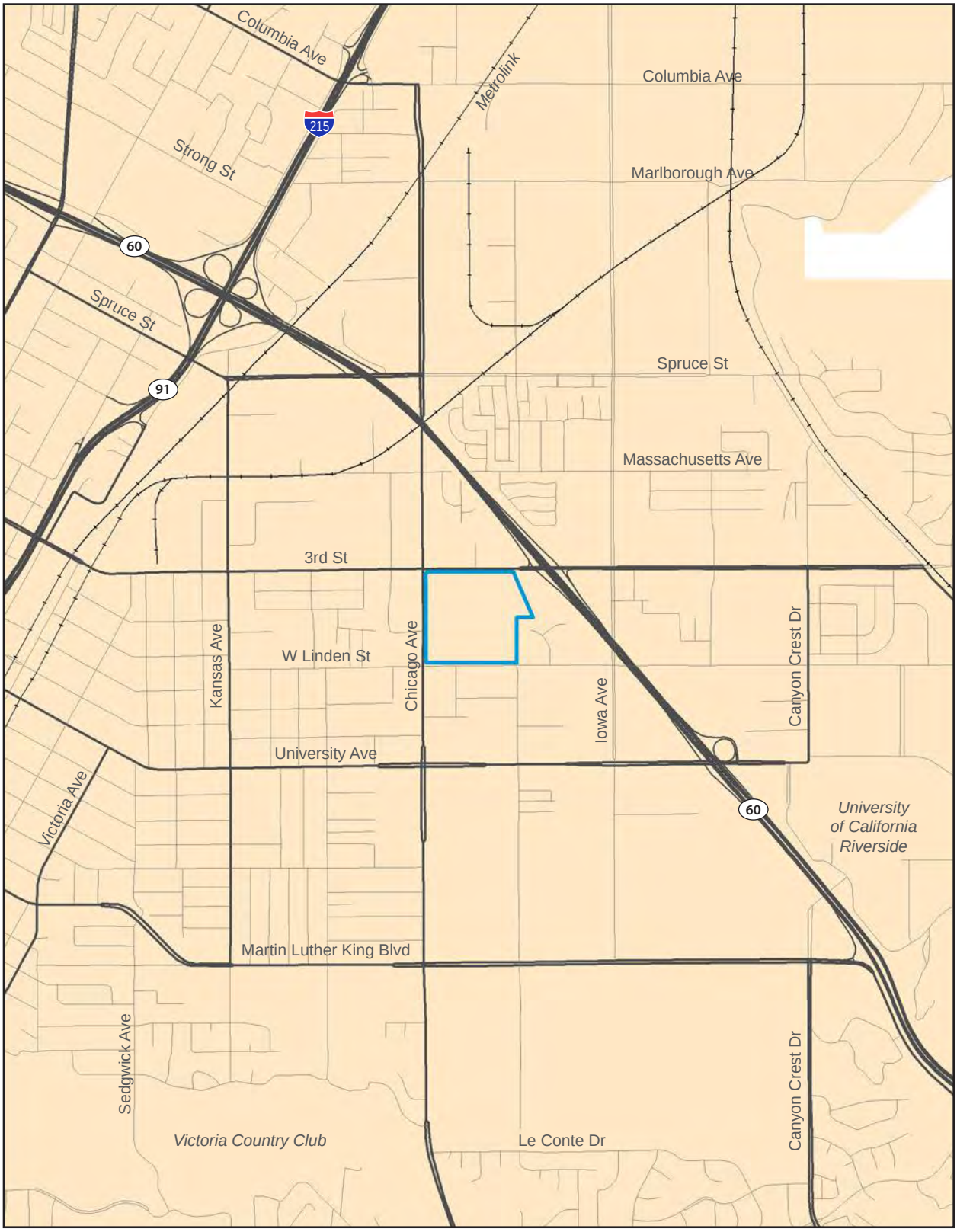
## Figure 2 - Local Vicinity




School Boundary

0 2,000
Scale (Feet)

Note: Unincorporated county areas are shown in white.
*Source: ESRI, 2022*

# 2. Environmental Setting

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## Figure 3 - Aerial Photograph

School Boundary

0 400
Scale (Feet)

*Source: Nearmap, 2022*

# 2. Environmental Setting

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# 3. Project Description

"Project," as defined by the California Environmental Quality Act (CEQA) Guidelines, means:

> ... the whole of an action, which has a potential for resulting in either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment, and that is any of the following: (1)…enactment and amendment of zoning ordinances, and the adoption and amendment of local General Plans or elements thereof pursuant to Government Code Sections 65100–65700. (14 Cal. Code of Reg. Section 15378[a])

## 3.1 PROPOSED PROJECT CHARACTERISTICS

The proposed project would modernize JW North HS, including the limited demolition of existing asphalt, the removal of some existing portable structures, the renovation of other existing structures, and the construction of one new two-story classroom building, one new gymnasium, and outdoor facilities (proposed project).

A total of eight existing portables would be removed (four east of the 300.1 classroom building and four from the west of the 200.2 classroom building). A new 2-story science building would be developed to replace the portables east of the existing administration building, south of 3rd Street, and north of the 300.1 classroom building. The new science building would have 8 classrooms, restrooms, preparation and storage rooms, and support spaced, which would total 14,575 square feet. The plans include an outdoor learning area, space for planting beds, and a new mini amphitheater. A new campus entry canopy structure will be provided along 3rd Street.

A new gymnasium would be developed north of the parking lot along Linden Street, east of the existing gymnasium, south of the kitchen, west of the weight and wrestling room, and will replace the existing hardtop basketball courts. The new gymnasium will be competition size at 12,000 square feet with a 900-seat capacity with an additional 5,419 square feet of support spaces, such as a lobby, Hall of Fame, restrooms, concessions, ticket booth, team rooms, and a training room. The construction of the new gym will also include the relocation of site utilities and re-routing underground as required. The project is expected to have approximately 1.73-acres of ground disturbance in total.

In addition to the construction of the new classroom building and gymnasium, the project includes upgrades to the HVAC and lighting in seven existing buildings within the campus. The library building, the administration building, building 200.1, building 200.2, building 200.3, building 300.1, and building 300.2 will have their HVAC systems and lights upgraded as part of the proposed project (See Figure 5 *HVAC and Lighting Upgrades*).

New landscaping and irrigation would be provided around the two new buildings. The plans also include improvements to shade, seating, and gathering areas near the existing library. Additionally, the proposed plans

will include upgrades for utilities and ADA compliance. The school will have eight (8) portables removed. See Figure 4, *Site Plan*.

### 3.1.1 Site Access, Pedestrian Access, Circulation, and Parking

The project includes making improvements to the existing vehicle entries located along Linden Street and 3rd Street, which are to the south and north of the campus respectively. These improvements include new concrete hardscaping, fencing, realignment of drive aisles and landscaping, new campus signage, and entry canopies.

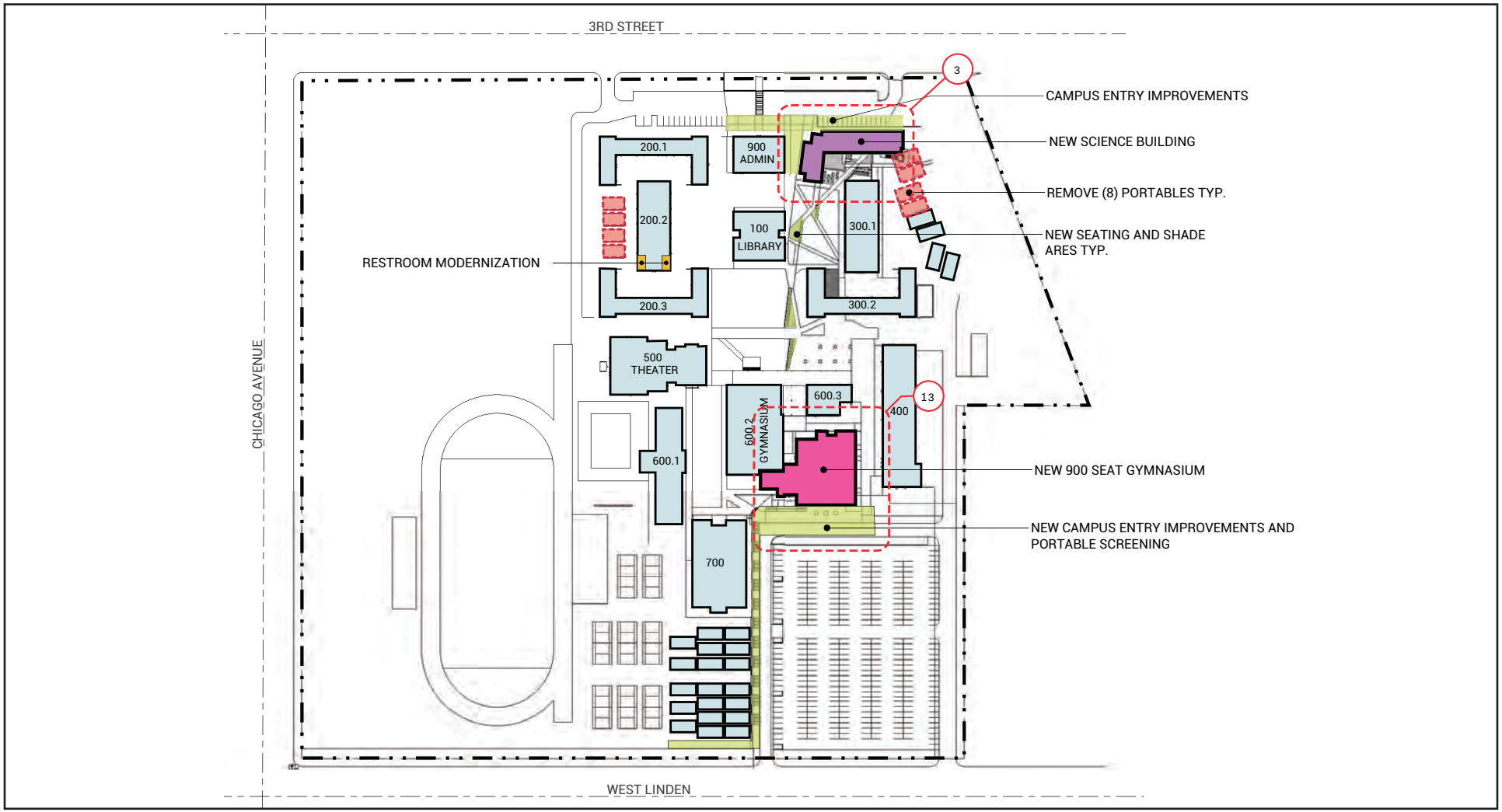
### 3.1.2 Project Construction

It is anticipated that the project would occur in a single phase spanning approximately eighteen months. Construction is slated to begin in May/June 2023 and be completed by November/December, 2024. Development of the project would require the limited demolition of existing hardscape and result in the total of approximately 1.73-acres of ground disturbance in total. Based on the City of Riverside Municipal Code7.35.020. G., construction would occur between the hours of 7:00am to 7:00pm on weekdays and between the hours of 8:00am to 5:00pm on Saturdays. Construction Equipment will include air compressors, cement and mortar mixers, cranes, forklifts, generators, graders, pavers, paving equipment, rollers, rubber-tired dozers, scrapers, tractors, loaders, backhoes, and welders.

## 3.2 DISTRICT ACTION REQUESTED

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

## Figure 4 - Proposed Project Plan

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Source: Go Architects, Inc., 2022

# 3. Project Description

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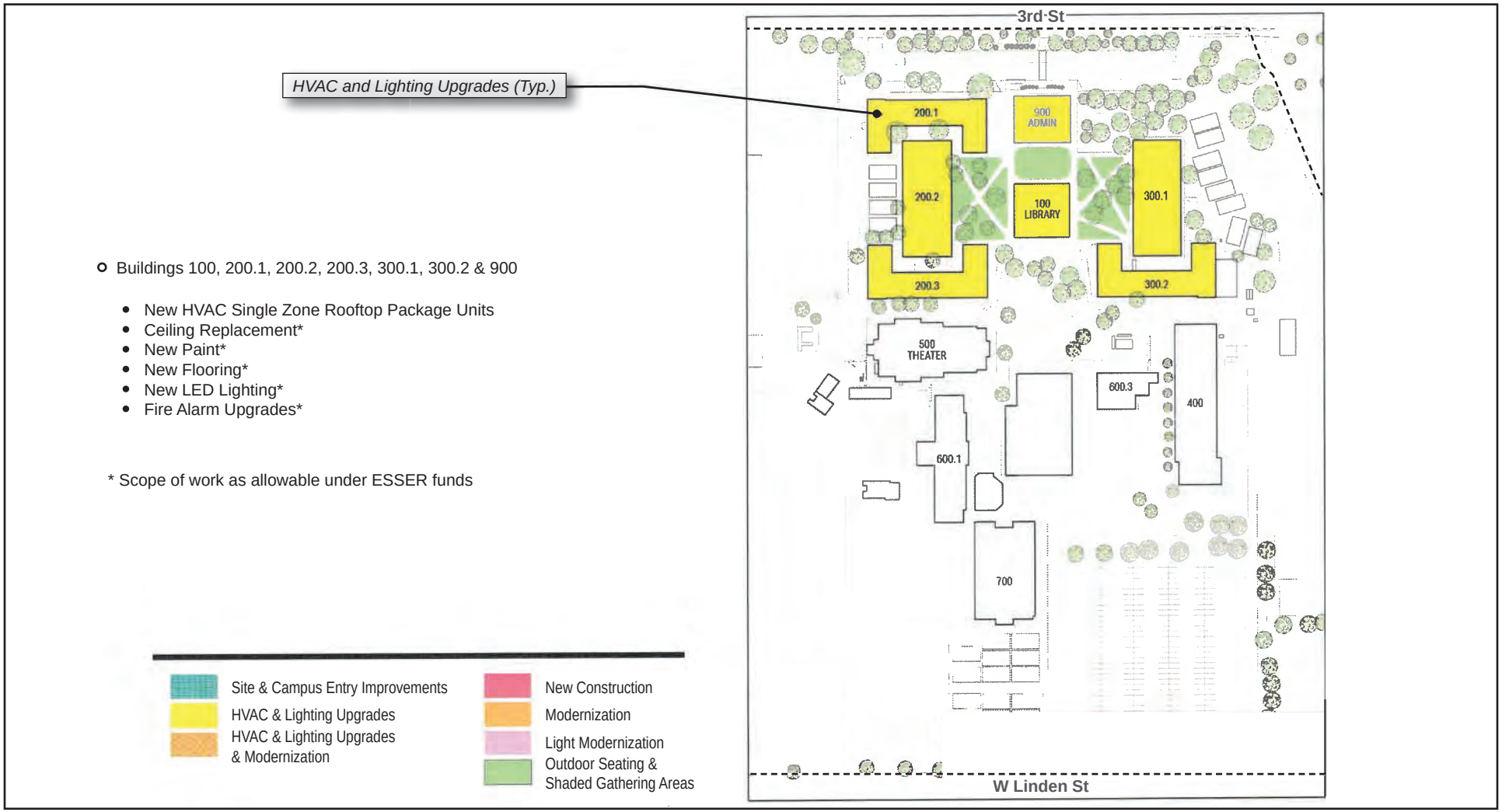
# Figure 5 - HVAC and Lighting Upgrades




*Source: Go Architects, Inc., 2022*

# 3. Project Description

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# 4. Environmental Checklist

## 4.1 PROJECT INFORMATION

1. **Project Title:** JW North HS New Classroom Building, Gymnasium and Modernization Project.

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

   Riverside Unified School District
   3070 Washington Street
   Riverside, CA 92504

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

   Rene Castro, Director, Planning and Development
   (951) 788-7135

4. **Project Location:**

   JW North HS at 1550 3rd Street, Riverside, CA, 92507. The project site consists of all site improvement and construction areas within the existing campus. See Figure 4 *Site Plan*.

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

   Riverside Unified School District
   3070 Washington Street
   Riverside, CA 92504

6. **General Plan Designation:**

   PF (Public Facilities/Institutional).

7. **Zoning:**

   The southern portion of the project site, fronting Linden Street, is zoned R-3-1500, and the remainder of the site is zoned R-1-7000P/SP.

8. **Description of Project:**
   The Riverside Unified School District plans include installation of a new campus entry located within the parking lot north of Linden Street along with improvements to the existing northern campus entry along 3rd Street. The District also proposes to construct a new 2-story science building with an outdoor learning area, space for planting beds, and a new mini amphitheater. The District also plans to construct a new gymnasium that will replace hardtop basketball courts. The new gymnasium will be competition size

at 12,000 square feet with a 900-seat capacity with an additional 5,419 square feet of support spaces. HVAC system and lighting upgrades are planned for the library building, administration building, and five existing classroom buildings. The proposed plan also includes new landscaping and irrigation around the two new buildings; improvements to shade, seating, and gathering areas near the existing library; utility upgrades; ADA upgrades; and the removal of 8 portables.

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

JW North HS is bound by Linden Street to the south, Chicago Avenue to the west, 3rd Street to the north, and industrial buildings to the east. Industrial facilities are directly across Linden Street from the campus. Adjacent to the east of the campus is business manufacturing complex with industrial and commercial properties. The I-215 passes approximately 1,000 feet northeast of the project site. Patterson Park is approximately 900 feet southwest of the site.

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

Division of State Architect -Approval of construction plans

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

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

The District received a request for notification of projects from two tribes: the Gabrieleno Band of Mission Indians - Kizh Nation (Kizh Nation) in a written letter dated July 22, 2015 and the Pechanga Band of Indians in an email dated July 7, 2015. The District sent notification letters for the proposed project on August 24, 2022 by US Mail and electronic mail; however, no response was received from either the Kizh Nation or the Pechanga Band of Indians regarding the proposed project. The District, in good faith, has initiated consultation but the tribe did not engage in the consultation process.

## 4.2 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

## 4.3 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* |
| | |

## 4.4 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.

# 4. Environmental Checklist

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# 5. Environmental Analysis

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

## 5.1 AESTHETICS

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

Would the project:

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

**No Impact.** A scenic vista is a viewpoint that provides expansive views of a highly valued landscape for the benefit of the public. The project site is fully developed and located on the existing JW North HS campus. The surrounding area is developed with residential, commercial, and industrial uses. Scenic resources defined in the City of Riverside General Plan 2025 include the hillsides and ridgelines above the City, which includes the La Sierra/Norco Hills, Sycamore Canyon Wilderness Park, and Box Springs Mountain Regional Park. The peaks of Box Springs Mountain, Mt. Rubidoux, Arlington Mountain, Alessandro Heights and the La Sierra/Norco Hills.

The City of Riverside has also designated special and scenic boulevards in their general plan. The nearest scenic boulevard to the JW North HS campus is University Avenue, which is approximately 0.25-miles south of the project site. The nearest special boulevard to the campus is Marlborough Avenue, which is approximately 1-mile north northeast of the campus, and Watkins Drive, which is approximately 1.6-miles east of the campus.

# 5. Environmental Analysis

Implementation of the proposed project would not obstruct or alter public views of any scenic vistas. No impact would occur, and no mitigation is required.

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

**No Impact.** The project site is not within a state scenic highway. The nearest designated state scenic highway to the project site is a portion of SR-91 about 25 miles west of the project site, as listed on the California Department of Transportation California Scenic Highway Mapping System (Caltrans 2022). The nearest Scenic Boulevard, as designated in the City of Riverside General Plan 2025 Circulation and Community Mobility Element, is University Avenue, approximately one-quarter mile south of the project site. The project would not alter scenic resources along University Avenue due to its distance from the project site. Therefore, the project would not impact scenic resources within a state scenic highway. No impact would occur, and no mitigation is required.

**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 existing JW North HS campus is located within a fully urbanized area with development surrounding the site in all directions. The project site is on an existing high school campus, consistent with its R-3-1500 and R-1-7000 zoning and Public Facilities land use.

The new buildings and improvements would be implemented within the existing campus. The new buildings would be constructed in the center of the campus, away from public views along the surrounding roadways. As no tall buildings or other highly visible structures would be created, and the visual appearance of the project site would be similar to the existing environment. Implementation of the project would not conflict with applicable zoning or other regulations governing scenic quality, and no mitigation is required.

**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. The campus contains two primary sources of light: light emanating from building interiors that passes through windows and light from exterior sources (e.g., street lighting, parking lot lighting, building illumination, security lighting, and landscape lighting). Depending on the location of the light source and its proximity to adjacent light-sensitive use, light introduction can be a nuisance, affecting adjacent areas and further diminishing the view of the clear night sky in an urban setting like the Project site. Surrounding land uses also generate lights from streetlights, vehicle lights, and building lights, typical in urban neighborhoods.

Lighting upgrades are planned for buildings 100, 200.1, 200.2, 200.3, 300.1, 300.2, and 900. Some of the design elements for light control and reduced spill lighting impact include mounting height and steep aiming angles, various lighting modes, visors and shielding, reflective housing around the lamp, number of lamps, and

appropriate light levels. The proposed lighting would be shielded and directed downward and away from the adjacent sensitive uses and public rights-of-way so that glare impacts are minimized. With use of shields and the orientation of lights, site lighting would be designed to have minimal off-site impact and contribution to sky glow. Lighting would be consistent with the existing lighting surrounding the campus. No new field lighting or illuminated marquees are proposed. Impacts related to new sources of light affecting views in the area would be less than significant.

Glare means lighting entering the eye directly from a light fixture or indirectly from reflective surfaces that causes visual discomfort or reduced visibility. Glare can be generated by building-exterior materials, surface-paving materials, vehicles traveling or parked on roads and driveways, and sports lights. Any highly reflective façade material is a concern because buildings can reflect bright sunrays. The proposed new buildings would be constructed with limited high-glare material. See Figure 6 *South Side of Science Building from Library Entry*. Therefore, project-related day and nighttime glare impacts would be less than significant.

## 5.2 AGRICULTURE AND FORESTRY RESOURCES

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

Would the project:

# 5. Environmental Analysis

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

**No Impact.** The proposed project would build a new science building and gym and includes modernization efforts for an existing high school. The project site is designated as Urban and Built-Up Land and is not identified as an area of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (DOC 2022a). There are no agricultural uses within the JW North HS, and the proposed project would not convert any specially designated farmland identified on the state's Farmland Mapping and Monitoring Program. No impact would occur.

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

**No Impact.** Williamson Act contracts restrict the use of privately owned land to agriculture and compatible open-space uses under contract with local governments; in exchange, the land is taxed based on actual use rather than potential market value. The project site does not include land enrolled in a Williamson Act contract (California Department of Conservation 2022a). The existing zoning for the project site is R-3-1500 (multi-family residential) and R-1-7000 (single-family residential). Implementation of the proposed project would not conflict with existing zoning for agricultural use, or a Williamson Act contract. No impact would occur.

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

**No Impact.** The proposed project would occur within the boundaries of an existing high school campus and the project site is not zoned for forest land or timberland. Implementation of the proposed project would not conflict with existing zoning for forest land or timberland. No impact would occur.

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

**No Impact.** The proposed project would occur within the boundaries of an existing high school and no forest land would be converted. No impact would occur.

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

**No Impact.** The proposed project would occur within the boundaries of the existing high school and no farmland or agricultural land would be converted to nonagricultural use or non-forest use. No impact would occur.

## Figure 6 - New Science Building

Science Building from New Seating and Canopy at Quad

*Source: Go Architects, Inc., 2022*

# 5. Environmental Analysis

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## 5.3 AIR QUALITY

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

The analysis in this section is based on the Air Quality and Greenhouse Gas Emissions Assessment for John W North School Modernization Project prepared by ECORP Consulting in June 2022 (Included as Appendix A).

Would the project:

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

**Less Than Significant Impact.** The project site is located within the South Coast Air Basin (SoCAB). South Coast Air Quality Management District (AQMD) adopted the 2016 Air Quality Management Plan (AQMP) on March 3, 2017. The regional emissions inventory for the SoCAB is compiled by South Coast AQMD and Southern California Association of Governments (SCAG). Regional growth projections are used by South Coast AQMD to forecast future emission levels in the SoCAB. For southern California, these regional growth projections are provided by SCAG and are partially based on land use designations included in city/county general plans. These projections form the foundation for the emissions inventory of the AQMP. These demographic trends are incorporated into SCAG's regional transportation plan/sustainable communities strategy to determine priority transportation projects and vehicle miles traveled in the SCAG region. The AQMP strategy is based on projections from local general plans.

A consistency determination with the AQMP plays an important role in local agency project review by linking local planning and individual projects to the AQMP. It fulfills the CEQA goal of informing decision makers of the environmental efforts of the project under consideration early enough to ensure that air quality concerns are fully addressed. It also provides the local agency with ongoing information as to whether they are contributing to the clean air goals in the AQMP.

The project would result in several improvements to the existing campus for the purposes of modernization. The number of new classrooms would be equal to the amount being removed and thus there would be no

increase in student capacity. The project would not result in population and/or employment growth beyond SCAG's growth projections for the City.

The long-term emissions generated by the proposed project would not produce criteria air pollutants that exceed the South Coast AQMD significance thresholds for project operations (see Impact III.a) below). South Coast AQMD's significance thresholds identify whether a project has the potential to cumulatively contribute to the SoCAB's nonattainment designations. Because the project would not exceed the South Coast AQMD's regional significance thresholds and growth is consistent with regional growth projections, the project would not interfere with South Coast AQMD's ability to achieve the long-term air quality goals identified in the AQMP. Therefore, the proposed project would be consistent with the AQMP. Impacts would be less than significant.

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

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

### Regional Short-Term Construction Impacts

Construction activities produce combustion emissions from various sources, such as the on-site heavy-duty construction vehicles (i.e., excavators, trenchers, dump trucks), the creation of fugitive dust during clearing and grading, and the use of asphalt or other oil-based substances during paving activities. Construction activities such as excavation and grading operations, construction vehicle traffic, and wind blowing over exposed soils would generate criteria air pollutants that affect local air quality at various times during construction.

Construction of the proposed project would occur over two years. An estimate of maximum daily construction emissions for the proposed project are shown in Table 5.3-1, *Maximum Daily Regional Construction Emissions*. The construction emissions are quantified using California Emissions Estimator Model, version 2020.4.0 (CalEEMod) and are based on the construction duration and equipment mix for the project provided by the District. As shown in Table 5.3-1, the maximum daily emissions for VOC, $NO_x$, CO, $SO_2$, $PM_{10}$, and $PM_{2.5}$ from construction-related activities would be less than their respective South Coast AQMD regional significance threshold values. Therefore, air quality impacts from project-related construction activities would be less than significant (ECORP Consulting, Inc. 2022).

Table 5.3-1 Maximum Daily Regional Construction Emissions

| Construction Year | Criteria Air Pollutant Emissions (lbs/day)[1,2] | | | | | |
|---|---|---|---|---|---|---|
| | VOC | $NO_X$ | CO | $SO_2$ | $PM_{10}$ | $PM_{2.5}$ |
| Project Emissions[3] | | | | | | |
| Year One | 4.79 | 24.14 | 30.66 | 0.05 | 3.44 | 4.01 |
| Year Two | 4.61 | 22.73 | 29.82 | 0.05 | 3.44 | 1.91 |
| South Coast AQMD Regional Significance Threshold | 75 | 100 | 550 | 150 | 150 | 55 |
| Exceeds Threshold? | No | No | No | No | No | No |

Source: ECORP Consulting, Inc. *Air quality & Greenhouse Gas Emissions Assessment John W North School Modernization Project*

1 Construction phasing and equipment is based on the preliminary information for the project provided by the project architect. Where specific information regarding proposed 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 under South Coast AQMD 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 sweeping with Rule-1186-compliant sweepers.

## Regional Long-Term Operation-Phase Impacts

The project is proposing several improvements to the existing campus for the purposes of modernization. The number of new classrooms is equal to the amount being removed and thus there would be no increase in student capacity. No additional school sports programs would be added, and the new gymnasium is not expected to increase the number of participants or spectators. The operational emissions would solely be generated from the energy consumption associated with the new gymnasium and would have a negligible contribution to existing conditions. Therefore, by its very nature, the project would not generate quantifiable criteria emissions from project operations.

Typical long-term air pollutant emissions are generated by area sources (e.g., landscape fuel use, aerosols, architectural coatings, and asphalt pavement), energy use (natural gas), and mobile sources (i.e., on-road vehicles). AS stated above, the project would replace the portable classroom buildings with a new science building. The new gymnasium would not result in increase in staff or students or introduce new community events. There would be no new trips generated. The operational emissions would solely be generated from the energy consumption associated with the new gymnasium and would have a negligible contribution to existing conditions. Therefore, by its very nature, the project would not generate quantifiable criteria emissions from project operations. According to the SCAQMD localized significance threshold (LST) methodology, LSTs would apply to the operational phase of a proposed project only if the project includes stationary sources (e.g., smokestacks) or attracts heavy-duty trucks that may spend long periods queuing and idling at the site (e.g., warehouse or transfer facilities). The proposed project does not include such uses. Therefore, the operational LST protocol is not applied. Therefore, impacts to the regional air quality associated with operation of the project would be less than significant.

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

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

# 5. Environmental Analysis

Sensitive receptors are defined as facilities or land uses that include members of the population that are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples of these sensitive receptors are residences, schools, hospitals, and daycare centers. CARB has identified the following groups of individuals as the most likely to be affected by air pollution: the elderly over age 65, children under age 14, athletes, and persons with cardiovascular and chronic respiratory diseases such as asthma, emphysema, and bronchitis. The nearest offsite sensitive receptor is a residential neighborhood at the southwest corner of the Chicago Avenue and W. Linden Street intersection, located approximately 750 feet (229 meters) from the proposed campus entry improvements at the southern portion of the campus. When school is in session, the on-site classrooms are sensitive receptors.

## Construction-Generated Air Contaminants

Construction-related activities would result in temporary, short-term proposed project-generated emissions of diesel particulate matter (DPM), reactive organic gases (ROG), NOx, CO, and $PM_{10}$ from the exhaust of off-road, heavy-duty diesel equipment for site preparation (e.g., clearing, grading); soil hauling truck traffic; paving; and other miscellaneous activities. The portion of the SoCAB which encompasses the project site is designated as a nonattainment area for federal ozone or $O_3$ and $PM_{2.5}$ standards and is also a nonattainment area for the state standards for $O_3$, $PM_{2.5}$, and $PM_{10}$ standards (CARB 2019). Thus, existing $O_3$, $PM_{10}$, and $PM_{2.5}$ levels in the SoCAB are at unhealthy levels during certain periods. However, as shown in Table 5.3-2 and Table 5.3-3, project construction would not exceed the SCAQMD regional or localized significance thresholds for emissions.

Table 5.3-2 Construction-Related Emissions (Regional Significance Analysis)

| Construction Year | Pollutant (pounds per day) | | | | | |
|---|---|---|---|---|---|---|
| | ROG | $No_x$ | CO | $SO_2$ | $PM_{10}$ | $PM_{2.5}$ |
| Construction Year One | 4.79 | 24.14 | 30.66 | 0.05 | 3.44 | 4.01 |
| Construction Year Two | 4.61 | 22.73 | 29.82 | 0.05 | 3.44 | 1.91 |
| SCAQMD Regional Significance Threshold | 75 | 100 | 550 | 150 | 150 | 55 |
| Exceed SCAQMD Regional Threshold? | No | No | No | No | No | No |

Source: CalEEMod version 2020.4.0. Refer to Attachment A for Model Data Outputs.
Notes: Emissions taken of the season, summer or winter, with the highest outputs. Emission reduction/credits for construction emissions are applied based on the required implementation of SCAQMD Rule 403. The specific Rule 403 measures applied in CalEEMod include the following: sweeping/cleaning adjacent roadway access areas daily; washing equipment tires before leaving the construction site; water exposed surfaces three times daily; and limit speeds on unpaved roads to 15 miles per hour. Reductions percentages from the SCAQMD CEQA Handbook (Tables XI-A through XI-E) were applied.

Table 5.3-3 Construction-Related Emissions (Localized Significance Analysis)

| Activity | Pollutant (pounds per day) | | | |
|---|---|---|---|---|
| | NOx | CO | $PM_{10}$ | $PM_{2.5}$ |
| Site Preparation | 14.28 | 9.78 | 1.16 | 0.56 |
| Grading | 14.46 | 8.70 | 3.36 | 1.89 |
| Building Construction, Paving, & Painting | 23.52 | 27.70 | 1.11 | 1.05 |
| SCAQMD Localized Significance Threshold (3.0 acre of disturbance) | *203.33* | *1,114.33* | *9.00* | *9.00 5.33* |
| Exceed SCAQMD Localized Threshold? | No | No | No | No |

Source: CalEEMod version 2020.4.0. Refer to Attachment A for Model Data Outputs.
Notes: Emission reduction/credits for construction emissions are applied based on the required implementation of SCAQMD Rule 403. The specific Rule 403 measures applied in CalEEMod include the following: sweeping/cleaning adjacent roadway access areas daily; washing equipment tires before leaving the construction site; water exposed surfaces three times daily; and limit speeds on unpaved roads to 15 miles per hour. Reductions percentages from the SCAQMD CEQA Handbook (Tables XI-A through XI-E) were applied.

The health effects associated with $O_3$ are generally associated with reduced lung function. Because the project would not involve construction activities that would result in O3 precursor emissions (ROG or NOx) in excess of the SCAQMD thresholds, the project is not anticipated to substantially contribute to regional $O_3$ concentrations and the associated health impacts.

CO tends to be a localized impact associated with congested intersections. In terms of adverse health effects, CO competes with oxygen, often replacing it in the blood, reducing the blood's ability to transport oxygen to vital organs. The results of excess CO exposure can include dizziness, fatigue, and impairment of central nervous system functions. The project would not involve construction activities that would result in CO emissions in excess of the SCAQMD thresholds. Thus, the project's CO emissions would not contribute to the health effects associated with this pollutant. Particulate matter ($PM_{10}$ and $PM_{2.5}$) contains microscopic solids or liquid droplets that are so small that they can get deep into the lungs and cause serious health problems. Particulate matter exposure has been linked to a variety of problems, including premature death in people with heart or lung disease, nonfatal heart attacks, irregular heartbeat, aggravated asthma, decreased lung function, and increased respiratory symptoms such as irritation of the airways, coughing, or difficulty breathing. For construction activity, DPM is the primary Toxic Air Contaminants (TACs) of concern. $PM_{10}$ exhaust is considered a surrogate for DPM as all diesel exhaust is considered to be DPM. As with $O_3$ and NOx, the project would not generate emissions of $PM_{10}$ or $PM_{2.5}$ that would exceed the SCAQMD's thresholds. Accordingly, the project's $PM_{10}$ and $PM_{2.5}$ emissions are not expected to cause any increase in related regional health effects from these pollutants.

Project construction would not result in a potentially significant contribution to regional concentrations of nonattainment pollutants and would not result in a significant contribution to the adverse health impacts associated with those pollutants. Impacts would be less than significant.

## Operational Air Contaminants

Operation of the proposed project would not result in the development of any substantial sources of air toxics. There are no stationary sources associated with the operations of the project; nor would the project attract additional mobile sources that spend long periods queuing and idling at the site. Onsite project emissions would

not result in significant concentrations of pollutants at nearby sensitive receptors. The project would not have a high carcinogenic or non-carcinogenic risk during operation.

### Carbon Monoxide Hot Spots

CO exceedances are caused by vehicular emissions, primarily when idling at intersections. Concentrations of CO are a direct function of the number of vehicles, length of delay, and traffic flow conditions. Under certain meteorological conditions, CO concentrations close to congested intersections that experience high levels of traffic and elevated background concentrations may reach unhealthy levels, affecting nearby sensitive receptors. Given the high traffic volume potential, areas of high CO concentrations, or "hot spots," are typically associated with intersections that are projected to operate at unacceptable levels of service during the peak commute hours. CO hotspots are caused by vehicular emissions, primarily when idling at congested intersections. However, transport of this criteria pollutant is extremely limited, and CO disperses rapidly with distance from the source under normal meteorological conditions. Furthermore, vehicle emissions standards have become increasingly more stringent in the last 20 years. Currently, the allowable CO emissions standard in California is a maximum of 3.4 grams/mile for passenger cars (there are requirements for certain vehicles that are more stringent). With the turnover of older vehicles, introduction of cleaner fuels, and implementation of increasingly sophisticated and efficient emissions control technologies, CO concentration in the SoCAB is designated as in attainment. Detailed modeling of project-specific CO "hot spots" is not necessary and thus this potential impact is addressed qualitatively.

A CO "hot spot" would occur if an exceedance of the state one-hour standard of 20 parts per million (ppm) or the eight-hour standard of 9 ppm were to occur. Under existing and future vehicle emission rates, a project would have to increase traffic volumes at a single intersection by more than 44,000 vehicles per hour—or 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited—in order to generate a significant CO impact (BAAQMD 2017). The number of new classrooms proposed by the project is equal to the amount being removed and thus there would be no increase in student capacity. No additional school sports programs would be added, and the new gymnasium is not expected to increase the number of participants or spectators. Thus, the proposed project would not generate traffic volumes at any intersection of more than 100,000 vehicles per day (or 44,000 vehicles per day). Implementation of the project would not have the potential to substantially increase CO hotspots at intersections in the vicinity of the project site.

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

**Less Than Significant Impact.** The proposed project would not result in objectionable odors. The threshold for odor is if a project creates an odor nuisance pursuant to South Coast AQMD Rule 402, Nuisance, which states:

> A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to

business or property. The provisions of this rule shall not apply to odors emanating from agricultural operations necessary for the growing of crops or the raising of fowl or animals.

The type of facilities that are considered to have objectionable odors include wastewater treatments plants, compost facilities, landfills, solid waste transfer stations, fiberglass manufacturing facilities, paint/coating operations (e.g., auto body shops), dairy farms, petroleum refineries, asphalt batch plants, chemical manufacturing, and food manufacturing facilities. The proposed project would not fall within the aforementioned land uses; no operational odors are anticipated.

During the development of the proposed project, emissions from construction equipment, such as diesel exhaust, may generate odors. However, these odors would be low in concentration, temporary, disperse rapidly, and are not expected to affect a substantial number of people. Additionally, odors would be localized and generally confined to the construction area. Therefore, impacts would be less than significant.

## 5.4 BIOLOGICAL RESOURCES

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

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

**Less Than Significant Impact.** The Project Site is located on an active high school campus that contains no native vegetation capable of supporting any special-status plant or wildlife species. The project site is entirely developed and surrounded by development for commercial, industrial, and residential uses. The project site is not within a habitat area or vegetation community according to the Open Space and Conservation Element of the City of Riverside General Plan 2025. Therefore, the project would not have a substantial adverse effect on special-status species. Impacts would be less than significant.

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

**No Impact.** Sensitive natural communities are natural communities that are considered rare in the region by regulatory agencies; that are known to provide habitat for sensitive animal or plant species; or are known to be important wildlife corridors. Riparian habitats are those occurring along the banks of rivers and streams. There are no riparian habitats mapped on the National Wetlands Mapper maintained by the US Fish and Wildlife Service within the boundaries of the high school (USFWS 2022). The project site is entirely developed and does not contain any natural drainages or water courses. Therefore, there would be no impact.

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

**No Impact.** Wetlands are defined under the federal Clean Water Act as land that is flooded or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that normally does support, a prevalence of vegetation adapted to life in saturated soils. Wetlands include areas such as swamps, marshes, and bogs. There are no wetlands mapped on the National Wetlands Mapper maintained by the US Fish and Wildlife Service within the boundaries of the high school (USFWS 2022). There is a 0.85-acre Freshwater Emergent Wetland habitat on the western boundary of the school property line. However, this habitat is not within the boundaries of the proposed project. The project would be entirely within the project site and would not alter the existing boundaries. Implementation of the proposed project would not impact any wetlands.

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

**Less than Significant Impact.** The campus is surrounded by fencing and developed with buildings, hardscape, and maintained landscaped surfaces. The campus does not have any native habitat or wildlife corridors and is not available for overland wildlife movement. However, there are ornamental trees of various species, sizes, and maturity on the campus and near areas of proposed construction, which may provide nesting sites for resident or migratory birds. Tree removal would be part of the project. Additionally, project construction near

trees and structures may result in disturbances to birds during nesting season (February 1 through August 31, and as early as January 1 for some raptors).

Migratory nongame native bird species are protected by the California Fish and Game Code, Sections 3503, 3503.5, and 3513, which prohibit the take of all birds and their active nests. The District would comply with the California Fish and Game Code, which would ensure that if construction occurs during the avian breeding season, appropriate measures would be taken to avoid impacts to nesting birds. Compliance with the Code requires that the District conduct pre-construction surveys prior to demolition if it occurs during nesting season. Impacts to nesting birds would be less than significant.

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

**No Impact.** The school has trees of various species, sizes, and maturity throughout the campus. The City of Riverside Municipal Code Section 13.25.020 prohibits removal, trimming, and trenching around trees and shrubs on public streets without lawful authority. There are no street trees that would be affected by the project. The project would not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. No impacts would occur.

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

**No Impact.** The proposed project is not within and would not conflict with the provisions of a habitat conservation plan or natural community conservation plan. No impact would occur.

## 5.5 CULTURAL RESOURCES

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

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

**Less Than Significant Impact With Mitigation Incorporated.** The CEQA Guidelines Section 15064.5 defines historic resources as resources listed or determined to be eligible for listing by the State Historical

# 5. Environmental Analysis

Resources Commission, a local register of historical resources, or the lead agency. Generally, a resource is considered "historically significant" if it meets one of the following criteria:

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

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

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

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

The proposed project would be implemented at the JW North HS campus, which was constructed in 1965. The campus is not historically significant and does not contain historic structures. The high school is not listed as historical resources in the National Register of Historic Places, California Historical Landmarks and Points of Historical Interest, or State Historic Structures (NPS 2022 and OHP 2022). Therefore, there are no resources on the project site that would be considered "historically significant." Based on a cultural resources assessment at the project site (McKenna et al 2010), three residences were located on the project site in the northeastern portion of the project site prior to site redevelopment for the JW North HS campus. While these structures no longer exist, the project site may contain buried archaeological resources associated with these historic uses. Additionally, the construction within the project site was undertaken before the institution of CEQA, and the project site has never been fully assessed for the presence or absence of archaeological remains. Unknown subsurface resources that qualify as historical resources could exist within the project site. If subsurface archaeological resources are present within the project site, they may qualify as historical resources pursuant to CEQA and could be subject to potential impacts as result of project implementation. Therefore, the project has the potential to cause a substantial change in the significance of a historical resource. Mitigation Measure CUL-1 would require archaeological monitoring during construction in native soils, and appropriate treatment of unearthed historical resources during construction. Potential impacts to unknown historical resources would be mitigated to less than significant through the implementation of Mitigation Measure CUL-1.

## Mitigation Measures

CUL-1 Prior ground-disturbing activities, the Riverside Unified School District (RUSD) shall retain a Qualified Archaeologist, defined as an archaeologist meeting the Secretary of the Interior's Standards for professional archaeology (U.S. Department of the Interior, 2011), to carry out all mitigation measures related to archaeological and historical resources. The Qualified Archaeologist shall be responsible for ensuring employee training provisions are implemented during implementation of the project:

Prior to any ground disturbance, the Qualified Archaeologist, or their qualified designee, shall provide worker environmental awareness protection training to construction personnel for the protection of cultural (prehistoric and historic) resources. As part of this training, construction personnel shall be briefed on proper procedures to follow should unanticipated

cultural resources be made during construction. New construction personnel shall also receive the worker environmental awareness protection training.

In the event that unanticipated cultural resources are encountered during any phase of project construction, all construction work within 50 feet of the find shall cease and the Qualified Archaeologist shall assess the find for importance. Construction activities may continue in other areas. If the discovery is determined to not be significant by the Qualified Archaeologist work will be permitted to continue in the area.

If a find is determined to be important by the Qualified Archaeologist he or she shall immediately notify the RUSD. The County shall consult on a finding of eligibility and implement appropriate treatment measures if the find is determined to be eligible for inclusion in the California Register of Historical Resources (CRHR). Work may not resume within the no-work radius until the lead agency, through consultation as appropriate, determines that the site either: (1) is not eligible for the CRHR; or (2) that the treatment measures have been completed to their satisfaction.

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

**Less Than Significant Impact With Mitigation Incorporated.** 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

Implementation of Mitigation Measure CUL-1 is required.

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

**Less Than Significant Impact.** There is no indication from either the archival research results or the archaeological survey that any particular location within the project area has been used for human burial purposes in the recent or distant past. Construction of the proposed project would require earthwork activities, such as grading, to ensure the proper base the proposed buildings. If human remains are discovered during project construction activities, they could be damaged or disturbed, which would be a significant impact. California Health and Safety Code Section 7050.5, CEQA Section 15064.5, and PRC Section 5097.98 mandate procedures in the event of an accidental discovery of any human remains in a location other than a dedicated cemetery. Specifically, California Health and Safety Code Section 7050.5 requires that if human remains are discovered within the project site, disturbance of the site shall remain halted until the coroner has conducted an investigation into the circumstances, manner, and cause of death, and made recommendations concerning the treatment and disposition of the human remains to the person responsible for the excavation, or to his or her authorized representative, in the manner provided in Section 5097.98 of the PRC. If the coroner determines that the remains are not subject to his or her authority and if the coroner has reason to believe the human

remains to be those of a Native American, he or she shall contact, by telephone within 24 hours, the Native American Heritage Commission. Although soil-disturbing activities associated with the proposed project could result in the discovery of human remains, compliance with existing law would ensure no significant impacts to human remains. Impacts would be less than significant.

# 5.6 ENERGY

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

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

**Less Than Significant Impact.** The proposed project would result in short-term construction and long-term operational energy consumption. The following discusses the potential energy demands from activities associated with the construction and light poles.

## Short-Term Construction

Construction of the proposed project would create temporary increased demands for electricity and vehicle fuels compared to existing conditions and would result in short-term transportation-related energy use. Construction of the project would require energy use to power the construction equipment. Electricity use during construction of the proposed project would vary during different phases of construction. Construction equipment is anticipated to be gasoline- or diesel-powered, and the later construction phases would require electricity-powered equipment for interior construction and architectural coatings. Construction activities would be subject to applicable regulations such as anti-idling measures (SCAQMD), limits on duration of activities (city municipal code), and the use of alternative fuels if possible (SCAQMD), thereby reducing energy consumption.

It is not anticipated that construction equipment used for the proposed project would be powered by natural gas, and no natural gas demand is anticipated during construction. No impact with respect to wasteful natural gas usage would occur.

Transportation energy use depends on the type and number of trips, vehicle miles traveled, fuel efficiency of vehicles, and travel mode. Transportation energy use during construction of the proposed project would come from delivery vehicles, haul trucks, and construction employee vehicles. In addition, transportation energy

demand would come from use of off-road construction equipment. It is anticipated that the majority of off-road construction equipment, such as is used during demolition and site preparation, would be gasoline or diesel powered. The use of energy resources by these vehicles would fluctuate according to the phase of construction.

To limit wasteful and unnecessary energy consumption, the construction contractors are anticipated to minimize nonessential idling of construction equipment during construction, in accordance with 13 California CCR Section 2449. Construction trips would not result in unnecessary use of energy since the school is approximated 175 feet southwest of I-215 which provides a direct route from various areas of the region. Electrical energy would be available for use during construction from existing power lines and connections, precluding the use of less efficient generators. All construction equipment would cease operating upon completion of project construction. Impacts related to transportation energy use during construction would be temporary and would not require expanded energy supplies or the construction of new infrastructure. Impacts would be less than significant.

### Long-Term Impacts During Operation

The project site is already developed as a high school and consumes electrical and natural gas energy. The project would not change the land use of the school.

The school consumes electricity for various purposes, including heating, cooling, and ventilation of buildings; water heating; operation of electrical systems; lighting; use of on-site equipment and appliances, etc. Southern California Edison provides electric service to the City of Riverside. Based on the CalEEMod air quality modeling, the project would increase the electricity consumption by about 355,498 kilowatt hours of per year (see Appendix A). The project would be required to comply with the current Building Energy Efficiency Standards. Energy conservation standards for new residential and nonresidential buildings (including school buildings were adopted by the California Energy Resources Conservation and Development Commission (now the CEC) in June 1977 and most recently revised in 2019 (24 CCR Part 6). Title 24 requires the design of building shells and building components to conserve energy. The standards are updated every three years to allow for consideration and possible incorporation of new energy-efficiency technologies and methods. The 2019 Building Energy-Efficiency Standards, which were adopted on May 9, 2018, went into effect January 1, 2020. The 2022 Title 24 goes into effect on January 1, 2023.

The 2019 standards focus on four key areas: (1) smart residential photovoltaic systems; (2) updated thermal envelope standards (preventing heat transfer from the interior to exterior and vice versa); (3) residential and nonresidential ventilation requirements; and (4) nonresidential lighting requirements (CEC 2018). Under the 2019 standards, nonresidential buildings (which include school buildings) will be 30 percent more energy efficient compared to the 2016 standards. The new buildings would be significantly more energy efficient than the existing buildings, including portable buildings, on campus.

Because the project would not result in an increase in students or staff, it would not result in an increase in motor vehicle transportation energy during operation over what is currently used. There are no aspects of the project that would foreseeably result in the inefficient, wasteful, or unnecessary consumption of energy during construction activities. For example, there are no unusual characteristics that would directly or indirectly cause

construction activities to be any less efficient than would otherwise occur elsewhere (restrictions on equipment, labor, types of activities, etc.). The project would not result in the inefficient, wasteful, or unnecessary consumption of energy during construction activities. Impacts would be less than significant.

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

**Less Than Significant 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). SB 350 (de Leon) was signed into law September 2015 and establishes tiered increases to the RPS—40 percent by 2024, 45 percent by 2027, and 50 percent by 2030. SB 350 also set a new goal to double the energy-efficiency savings in electricity and natural gas through energy efficiency and conservation measures. In 2018, Governor Brown signed SB 100, which supersedes the SB 350 requirements. The RPS for publicly owned facilities and retail sellers now consists of 44 percent renewable energy by 2024, 52 percent by 2027, and 60 percent by 2030. Additionally, SB 100 established a new RPS requirement of 50 percent by 2026. The bill also established a state policy that eligible renewable energy resources and zero-carbon resources supply 100 percent of all retail sales of electricity to California end-use customers and 100 percent of electricity procured to serve all state agencies by December 31, 2045. Under SB 100 the state cannot increase carbon emissions elsewhere in the western grid or allow resource shuffling to achieve the 100 percent carbon-free electricity target.

The statewide RPS goal is not directly applicable to individual development projects, but to utilities and energy providers such as SCE, which is the utility that would provide all of electricity needs for the proposed project. Compliance of SCE in meeting the RPS goals would ensure the State in meeting its objective in transitioning to renewable energy. The proposed project also would be subject to the Building Energy-Efficiency Standards and CALGreen. Because the new buildings associated with the proposed project would comply with the latest energy standards, they would offer an improvement over the existing buildings on-site. Therefore, implementation of the proposed project would not conflict with or obstruct plans for renewable energy and energy efficiency. Impacts would be less than significant.

## 5.7 GEOLOGY AND SOILS

| Issues | Potentially Significant Impact | Less Than Significant With Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| **VII. GEOLOGY AND SOILS.** Would the project: | | | | |
| a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: | | | | |
| i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map, issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42. | | | | X |

| Issues | Potentially Significant Impact | Less Than Significant With Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| 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 wastewater disposal systems where sewers are not available for the disposal of wastewater? | | | | 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.**

**No Impact.** Alquist-Priolo earthquake fault zones are regulatory zones surrounding the surface traces of active faults in California.[1] Wherever an active fault exists, if it has the potential for surface rupture, a structure for human occupancy cannot be placed over the fault and must be a minimum distance from the fault (generally 50 feet). An active fault, for the purposes of the Alquist-Priolo Act, is one that has ruptured in the last 11,000 years (DOC 2022b).

According to the City's General Plan Public Safety Element, there are no Alquist-Priolo Fault Zones within the City or its Sphere of Influence (City of Riverside 2007). Therefore, there would be no impact associated with rupture of a known earthquake fault.

**ii) Strong seismic ground shaking?**

**Less Than Significant Impact.** Southern California is a seismically active region. Impacts from ground shaking could occur many miles from an earthquake epicenter. The potential severity of ground shaking depends on many factors, including the distance from the originating fault, the earthquake magnitude, and the nature of the earth materials beneath a given site. Although there are no active faults running through

[1] A trace is a line on the earth's surface defining a fault.

the project site or known faults in the City or its sphere of influence, all of southern California is a seismically active area and shaking from nearby faults could result in significant damage. According to the City's General Plan, the project site could be affected by the San Jacinto Fault (6 miles to the northeast), Elsinore Fault (16.6 miles to the southwest), and the San Andreas Fault (15.8 miles to the north). The proposed buildings and structures would be required to comply with the geotechnical and seismic design requirements of the most recent version of the California Building Code (CBC) (Title 24), which requires structural design that can accommodate ground accelerations expected from known active faults. Compliance with established standards would reduce the risk of structural collapse or other shaking-related hazards. Therefore, implementation of the proposed project would result in less-than-significant impacts associated with strong seismic ground shaking.

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

**No Impact.** Liquefaction refers to loose, saturated sand or gravel deposits that lose their load-supporting capability when subjected to intense shaking. According to the California Department of Conservation Data Viewer map, the project site is not susceptible to liquefaction. Furthermore, the proposed project would be designed in compliance with seismic requirements of the CBC and the DSA criteria for seismic safety, including from liquefaction impacts. Therefore, no impacts associated with liquefaction would occur.

**iv) Landslides?**

**No Impact.** Landslides are a type of erosion in which masses of earth and rock move downslope as a single unit. Susceptibility of slopes to landslides and lurching (earth movement at right angles to a cliff or steep slope during ground shaking) depend on several factors that are usually present in combination—steep slopes, condition of rock and soil materials, presence of water, formational contacts, geologic shear zones, and seismic activity. The JW North HS campus and adjacent properties are generally flat. The project site is not within a landslide zone (DOC 2022e). The proposed project would not result in significant safety impacts due to landslides. No impact would occur.

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

**Less Than Significant Impact.** Erosion is a normal and inevitable geologic process whereby earthen materials are loosened, worn away, decomposed, or dissolved and removed from one place and transported to another. The project site is developed with buildings and athletic facilities. Project-related construction activities would expose soil through excavation, grading, and trenching, and thus could cause erosion during heavy winds or rainstorms. Construction projects of one acre or more are regulated under the National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order No. 2012-0006-DWQ) issued by the State Water Resources Control Board (SWRCB). The District would obtain coverage by preparing and implementing a Stormwater Pollution Prevention Plan (SWPPP), estimating sediment risk from construction activities to receiving waters, and specifying best management practices (BMPs) that would be incorporated into the construction plan to minimize stormwater pollution. Categories of BMPs used in SWPPPs are described in Table 5.7-1, Construction BMPs. The proposed project would be subject to the Statewide Construction General Permit

(CGP) and implementation of BMPs specified in the SWPPP. Construction-phase soil erosion impacts would be less than significant.

Table 5.7-1 Construction BMPs

| Category | Purpose | Examples |
|---|---|---|
| Erosion Controls and Wind Erosion Controls | Cover and/or bind soil surface, to prevent soil particles from being detached and transported by water or wind. | Mulch, geotextiles, mats, hydroseeding, earth dikes, swales. |
| Sediment Controls | Filter out soil particles that have been detached and transported in water. | Barriers such as straw bales, sandbags, fiber rolls, and gravel bag berms; desilting basin; cleaning measures such as street sweeping. |
| Tracking Controls | Minimize the tracking of soil off-site by vehicles. | Stabilized construction roadways and construction entrances/exits; entrance/outlet tire wash. |
| Non-storm Water Management Controls | Prohibit discharge of materials other than stormwater, such as discharges from the cleaning, maintenance, and fueling of vehicles and equipment. Conduct various construction operations, including paving, grinding, and concrete curing and finishing, in ways that minimize non-stormwater discharges and contamination of any such discharges. | BMPs specifying methods for: paving and grinding operations; cleaning, fueling, and maintenance of vehicles and equipment; concrete curing; concrete finishing. |
| Waste Management and Controls (i.e., good housekeeping practices) | Management of materials and wastes to avoid contamination of stormwater. | Spill prevention and control, stockpile management, and management of solid wastes and hazardous wastes. |

Source: California Stormwater Quality Association (CASQA), California Construction Best Management Practices Handbook, January 2015.

After completion of the project, ground surfaces would be either hardscape or maintained landscaping, and no large areas of exposed soil would be left to erode. The new buildings and other campus improvements would not cause an increase in erosion of soils off-campus. Operational phase soil erosion impacts would be less than significant.

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

**Less Than Significant Impact.** As discussed in Sections 5.7.a.iii and 5.7.a.iv, no impacts are anticipated as a result of liquefaction and landslides.

Lateral spreading is a phenomenon where large blocks of intact, nonliquefied soil move downslope on a large, liquefied substratum. The mass moves toward an unconfined area, such as a descending slope or stream-cut bluff, and has been known to move on slope gradients as little as one degree. The topography of the project site is generally flat.

Subsidence and collapse are generally due to substantial overdraft of groundwater or underground petroleum reserves. Collapsible soils may appear strong and stable in their natural (dry) state, but they rapidly consolidate under wetting, generating large and often unexpected settlements. Seismically induced settlement consists of dynamic settlement of unsaturated soil (above groundwater) and liquefaction-induced settlement (below groundwater). These settlements occur primarily in low-density sandy soil due to the reduction in volume during and shortly after an earthquake. The project site is not mapped within areas of recorded subsidence due to groundwater pumping, peat loss, or oil extraction (USGS 2022). The proposed project would be constructed

in compliance with the applicable CBC and DSA requirements. Impacts related to subsidence and collapsible soil 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.** Highly expansive soils swell when they absorb and shrink as they dry and can cause structural damage to building foundations. Therefore, they are less suitable for development than nonexpansive soils. The soils on campus consist of a mixture of Arlington fine sandy loam, Hanford coarse sandy loam, and Hanford coarse sandy loam (UCDavis 2022). These are well-drained sandy soils with low to very low runoff class rates and low shrink-swell or expansion characteristics. The proposed project would be constructed in compliance with the applicable CBC requirements. Therefore, potential impacts related to subsidence and collapsible soil would be less than significant.

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

**No Impact.** The proposed project would not use any septic tanks or alternative wastewater disposal system. The proposed Project would connect to the existing sanitary sewer system for wastewater disposal. No impact would occur.

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

**Less Than Significant Impact with Mitigation Incorporated.** Data on paleontological resources available from the Los Angeles County Museum of Natural History, which keeps records of paleontological resources throughout southern California, including Riverside County, indicate that shallow deposits in the project area are not likely to yield evidence of fossil specimens. However, deeper deposits of older Quaternary alluvium may contain fossils or other paleontological resources. Ground-disturbing activities in deeper native sediments (older Quaternary deposits) could unearth unique paleontological resources. Therefore, development of the proposed project has the potential to result in a significant impact. Mitigation measures GEO-1 would require appropriate treatment of unearthed paleontological resources during construction. Potential impacts to unknown paleontological resources would be mitigated to less than significant through the implementation of Mitigation Measures GEO-1.

### Mitigation Measures

GEO-1 During grading and site excavation activities, the construction contractor retained by the Riverside Unified School District (District) shall monitor all construction activities. In the event that paleontological resources are discovered, work shall be halted within 50 feet of the discovery, and the construction contractor shall inform the project manager of District, and District shall retain a qualified paleontologist. The qualified paleontologist shall have the ability to redirect construction activities to ensure avoidance of adverse impacts to paleontological resources.

California Public Resources Code Section 5097.5 prohibits unauthorized removal of paleontological remains, and California Penal Code Section 622.5 sets the penalties for damage or removal of paleontological resources. If the qualified paleontologist determines that a resource constitutes a paleontological resource, the qualified paleontologist shall develop a paleontological monitoring and treatment plan and monitor the remainder of the project site. The plan should serve to reduce impacts to the resources and allow construction to proceed.

Any potentially significant fossils observed shall be collected and recorded in conjunction with best management practices and Society of Vertebrate Paleontology professional standards. Any fossils recovered during mitigation shall be offered to an accredited and permanent scientific institution or other educational institutions for the benefit of current and future generations.

## 5.8 GREENHOUSE GAS EMISSIONS

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

Scientists have concluded that human activities are contributing to global climate change by adding large amounts of heat-trapping gases, known as greenhouse gases (GHGs), into the atmosphere. The primary source of these GHG is fossil fuel use. The Intergovernmental Panel on Climate Change has identified four major GHGs—water vapor, carbon dioxide ($CO_2$), 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. The panel identified other GHGs that contribute to global warming to a lesser extent, such as nitrous oxide ($N_2O$), sulfur hexafluoride ($SF_6$), hydrofluorocarbons, perfluorocarbons, and chlorofluorocarbons.[2]

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.[3] Black carbon emissions are not included in

[2] 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.

[3] Life cycle emissions include indirect emissions associated with materials manufacture. However, these indirect emissions involve numerous parties, each of which is responsible for GHG emissions of their particular activity. The California Resources Agency, in adopting the CEQA Guidelines Amendments on GHG emissions found that lifecycle analyses was not warranted for project-specific CEQA analysis in most situations, for a variety of reasons, including lack of control over some sources, and the possibility of double-counting emissions (CNRA 2018). Because the amount of materials consumed during the operation or construction of

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the GHG analysis because the California Air Resources Board (CARB) does not include this short-lived climate pollutant in the state's Senate Bill 32 inventory but treats it separately. The analysis in this section is based on the Air Quality and Greenhouse Gas Emissions Assessment for John W North School Modernization Project prepared by ECORP Consulting dated June 2022 (Included as Appendix A in this ).

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

**Less Than Significant Impact.**

## Construction

The proposed project would generate GHG emissions from construction activities, energy use (directly through fuel consumed for building heating), and area sources (e.g., consumer products, coatings). As discussed in Section 5.3(b), the project would not result in an increase in VMT and mobile source emissions because student capacity would not increase. The project would not result in an increase in water demand, wastewater generation, or solid waste generation because student capacity would not increase. Table 5.8-1, Construction-Related Greenhouse Gas Emissions illustrates the specific construction generated GHG emissions that would result from construction of the project. Once construction is complete, the generation of these GHG emissions would cease.

Table 5.8-1 Construction-Related Greenhouse Gas Emissions

| Emission Source | CO2e (Metric Tons/Year) |
|---|---|
| Construction Year 1 | 456 |
| Construction Year 2 | 665 |
| Total Construction Emissions | 521 |
| *SCAQMD Significance Threshold* | 3,000 |
| Exceed SCAQMD Threshold? | No |

Source: CalEEMod version 2020.4.0 Refer to Attachment B in Appendix A for Model Data Outputs

As shown in Table 5.8-1, project construction would result in the generation of approximately 521 metric tons (MT) of carbon-dioxide-equivalent emissions per year (CO2e/yr) and would not exceed the proposed SCAQMD bright-line threshold of 3,000 MTCO2e/year. Once construction is complete, the generation of these GHG emissions would cease. The proposed project's cumulative contribution to GHG emissions would be less than significant.

## Operational Significance Analysis

The project is proposing several improvements to the existing campus for the purposes of modernization. The number of new classrooms is equal to the amount being removed and thus there would be no increase in

the proposed project is not known, the origin of the raw materials purchased is not known, and manufacturing information for those raw materials are also not known, calculation of life cycle emissions would be speculative. A life-cycle analysis is not warranted (OPR 2008).

student capacity. No additional school sports programs would be added, and the new gymnasium is not expected to increase the number of participants or spectators. The operational emissions would solely be generated from the energy consumption associated with the new gymnasium and would have a negligible contribution to existing conditions. The proposed new classroom building would be constructed to currently building code standards and therefore can be expected to operate more energy efficiently than the mobile classroom units proposed to be removed. Therefore, the project would not generate quantifiable criteria GHG emissions from project operations.

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

**Less than Significant Impact.** Applicable plans adopted for the purpose of reducing GHG emissions include CARB's Scoping Plan and SCAG's Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS). A consistency analysis with these plans is presented below

### CARB Scoping Plan

CARB's Scoping Plan is California's GHG reduction strategy to achieve the state's GHG emissions reduction target established by AB 32, which is to return to 1990 emission levels by year 2020. The CARB Scoping Plan is applicable to state agencies and is not directly applicable to cities/counties and individual projects. Nonetheless, the Scoping Plan has been the primary tool used to develop performance-based and efficiency based CEQA criteria and GHG reduction targets for climate action planning effort.

Since adoption of the 2008 Scoping Plan, state agencies have adopted programs identified in the plan, and the legislature has passed additional legislation to achieve the GHG reduction targets. Statewide strategies to reduce GHG emissions include the Low Carbon Fuel Standard, California Appliance Energy Efficiency regulations, California Renewable Energy Portfolio standard, changes in the Corporate Average Fuel Economy standards, and other early action measures as necessary to ensure the state is on target to achieve the GHG emissions reduction goals of AB 32. The new buildings are required to comply with the Building Energy Efficiency Standards and CALGreen. On December 24, 2017, CARB adopted Final 2017 Climate Change Scoping Plan Update to address the new 2030 target to achieve a 40 percent reduction below 1990 levels by 2030, established by SB 32. While measures in the Scoping Plan apply to state agencies and not the school district, the project's GHG emissions would be reduced from compliance with statewide measures that have been adopted since AB 32 and SB 32 were adopted. The proposed project would be consistent with the CARB Scoping Plan and no impact would occur.

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

In addition to AB 32, the California legislature passed SB 375 to connect regional transportation planning to land use decisions made at a local level. SB 375 requires the metropolitan planning organizations to prepare a Sustainable Communities Strategy in their regional transportation plans to achieve the per capita GHG reduction targets. For the SCAG region, the SCS was adopted in April 2016.61 The SCS does not require that local general plans, specific plans, or zoning be consistent with the SCS, but provides incentives to governments and developers for consistency. The proposed project would allow existing academic and athletic programs to

continue. The proposed project would serve students already on campus, and no new student programs or uses are proposed with the new gym and classroom building, and no increase in participants or attendance are anticipated The proposed project would not interfere with SCAG's ability to implement the regional strategies outlined in the RTP/SCS, and no impact would occur.

Therefore, the project would not conflict with any applicable plan, policy or regulation related to the reduction in the emissions of GHG and thus a less than significant impact will occur directly, indirectly, and cumulatively in this regard.

## 5.9 HAZARDS AND HAZARDOUS MATERIALS

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

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

| 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 |

| Issues | Potentially Significant Impact | Less Than Significant With Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| 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.**

## Construction

Construction of the two new buildings and modernization of portions of the campus would include the use of materials such as fuels, lubricants, and greases in construction equipment and coatings used in construction. However, the materials used would not be in such quantities or stored in such a manner as to pose a significant safety hazard. These activities would also be short term or one time in nature and would cease upon completion of the construction phase. Project construction workers would also be trained in safe handling and hazardous materials use.

## Demolition and Construction Activities

RUSD would be responsible for ensuring the safe removal of potential asbestos containing building materials and lead that may be encountered during any required demolition. RUSD would ensure that all construction related activities are completed in accordance with all applicable federal, state, and local regulations, including, but not limited, to the EPA's "Guidance on Conducting Non-Time-Critical Removal Actions Under Comprehensive Environmental Response, Compensation, and Liability Act; National Oil and Hazardous Substances Pollution Contingency Plan" and all applicable RUSD specifications and standards.

Construction contractors are required to comply with RUSD standard specifications for proper packaging, transportation, and disposal of any discovered hazardous materials before building construction starts. Specifically, construction contractors are required to comply with worker training, health and safety, hazardous material containment, and off-site transport, and disposal of contaminated soil. The project would not subject people or the environment to substantial hazards related to hazardous materials onsite or potentially onsite.

Hazardous materials are regulated by several agencies, including the EPA, the California Department of Toxic Substances Control, California Division of Occupational Safety and Health, the Riverside County Department of Environmental Health (DEH), and Riverside Fire Department. The requirements of these agencies would be incorporated into the design and operation of the project. These requirements would include providing for and maintaining appropriate storage areas for hazardous materials and installing or affixing appropriate warning

signs and labels. Hazards to the public, the students, or the environment through the routine transport, use, or disposal of hazardous materials would be less than significant.

### Operation

Project operation would involve the use of the same chemicals currently used on campus, such as cleansers, pesticides, paints, and those used in laboratory classes as part of the science curriculum and following all applicable laws and regulations regarding use and storage. Use of hazardous materials during project operation would comply with the same regulations that would pertain to use of such materials during project construction. Project construction and operation would not cause significant hazards to the public or the environment through routine use of hazardous materials, and impacts would be less than significant

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

**Less Than Significant Impact.** The use, handling, storage, and disposal of hazardous materials in the course of project construction and operation would not pose a substantial hazard to the public or the environment from reasonably foreseeable accidental release. Compliance with the previously discussed regulations is already standard practice at the school, including training school staff to safely contain and clean up hazardous materials spills; maintaining on-site the spill containment and cleanup supplies for hazardous materials; implementing school evacuation procedures as needed; and contacting the appropriate hazardous materials emergency response agency immediately pursuant to requirements of regulatory agencies. Therefore, the project would not exacerbate or create new safety hazards. Impacts from reasonably foreseeable upset and accident conditions would be less than significant.

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

**Less Than Significant Impact.** The use, handling, storage, and disposal of hazardous materials in the course of project construction and operation would not pose a substantial hazard to the public or the environment from reasonably foreseeable accidental release. Compliance with the previously discussed regulations is already standard practice at the school, including training school staff to safely contain and clean up hazardous materials spills; maintenance of hazardous materials spill containment and cleanup supplies onsite; implementing school evacuation procedures as needed; and contacting Riverside County Department of Environmental Health Emergency Response Team and City fire department immediately pursuant to requirements of regulatory agencies. Impacts from reasonably foreseeable upset and accident conditions would be less than significant.

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

**Less Than Significant Impact.** California Government Code Section 65962.5 requires the California Environmental Protection Agency to compile a list (updated at least annually) of hazardous waste and substances release sites, known as the Cortese List or California Superfund. Section 65962.5 requires compiling

lists of the following types of hazardous materials sites: hazardous waste facilities; hazardous waste discharges for which the State Water Quality Control Board has issued certain types of orders; public drinking water wells containing detectable levels of organic contaminants; underground storage tanks with reported unauthorized releases; and solid waste disposal facilities from which hazardous waste has migrated. Five environmental lists were searched for hazardous materials sites on the project site.

- GeoTracker. State Water Resources Control Board (SWRCB 2022)
- EnviroStor. Department of Toxic Substances Control (DTSC 2022).
- EJScreen. US Environmental Protection Agency (USEPA 2022a).
- EnviroMapper. US Environmental Protection Agency (USEPA 2022b).
- Solid Waste Information System. California Department of Resources Recovery and Recycling (CalRecycle 2022).

The campus is listed the EnviroMapper and EJScreen databases as a RCRA facility. JW North High School is listed as an elementary/secondary school generator of large quantity generator of corrosive waste, lead, and spent halogenated solvents. In 2005 1.3 tons of hazardous waste was removed from the campus and there are no violations listed for the high school. The high school is listed as a RCRA facility for lawful disposal of hazardous waste, which does not pose a threat to the public or the environment. The project would not create a hazard to the public because of a hazardous materials site pursuant to Government Code Section 65962.5. Impacts are expected to be less than significant.

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

**No Impact.** The nearest airport is Flabob Airport, approximately three miles west of the campus. Riverside Municipal Airport is approximately five miles west of the campus. The site is not within any airport compatibility zones designated in the Riverside County Airport Land Use Compatibility Plan. The project would not result in a new use that would interfere with air traffic patterns, increase traffic levels, or change traffic patterns. New buildings on campus would be of similar height as the existing buildings and would not interfere with air traffic patterns or create a safety hazard or excessive noise. No impact would occur.

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

**No Impact.** The emergency response plan in effect in the City of Riverside is the City's Emergency Operations Plan (EOP) approved by the City Council in 2011. The EOP identifies city agencies and other agencies that would be involved in emergency responses; threat summaries and assessments; and procedures for responding agencies as well as City agencies that would be involved in coordinating and managing responses. The EOP is

focused on emergencies beyond the scope of the daily functions of public safety agencies, such as emergencies requiring multiagency and/or multi-jurisdictional responses.

The City of Riverside also implements a local hazard mitigation plan, which was approved by the Federal Emergency Management Agency in 2018, and the County of Riverside Multi-jurisdictional Local Hazard Mitigation Plan. Emergency preparedness and response planning and coordination would be coordinated through RUSD's Risk Management Department. The existing school currently has a school safety plan in compliance with the District's "safe school plans." Project construction would not interfere with any other existing emergency response plans or emergency evacuation plans. No emergency response impact would occur**.**

**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.** JW North High School is not in or near a very high fire hazard severity zone (FHSZ) on the California Department of Forestry and Fire Protection's (CAL FIRE) FHSZs map (CAL FIRE 2022). Construction of two new buildings and modernization at the existing high school campus would not change the existing school boundaries to place the campus or students any closer to wildland fires. Impacts would be less than significant.

## 5.10 HYDROLOGY AND WATER QUALITY

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

| Issues | Potentially Significant Impact | Less Than Significant With Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| 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.** A significant impact would occur if the project discharges water that does not meet the quality standards of agencies that regulate surface water quality and discharges into the stormwater drainage system. During construction, water quality impacts could occur from discharge of soil through erosion, sediments, and other pollutants. The SWRCB's National Pollutants Discharge Elimination System (NPDES) program regulates industrial pollutant discharges, including construction activities for sites larger than one acre. The proposed project includes approximately 1.73-acres of ground disturbance.

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

The project would be constructed in an area that is already developed and already producing nonpoint-source pollutants.[4] The campus improvements would not impact groundwater quality.

## Construction Phase

Construction projects of one acre or more are regulated under the NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order No. 2012-0006-DWQ) issued by the SWRCB. Project applicants obtain coverage by developing and implementing a SWPPP, estimating pollutants from construction activities to receiving waters, and specifying BMPs that would be incorporated into the construction plan to minimize stormwater pollution. Project construction would be subject to the Statewide Construction General Permit and implementation of BMPs specified in the SWPPP. Construction phase impacts would be less than significant.

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

# 5. Environmental Analysis

## Operation Phase

After completion of the project, ground surfaces at the campus would be either hardscape or maintained landscaping, and no large areas of exposed soil would be left to erode off the campus. The campus would not discharge increased stormwater runoff or pollutants. Operational phase impacts would be less than significant.

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

**No Impact.** Groundwater hydrology impacts may occur from extracting groundwater from water supply needs, increasing or decreasing groundwater recharge, intercepting, and removing groundwater from cuts or excavations, or remediation of contaminated groundwater. The campus is part of the Riverside-Arlington Subbasin of the Upper Santa Ana Valley Groundwater Basin. The City of Riverside Public Utilities Department supplies water to the campus and the surrounding community (SGMA 2022). Riverside extracts its water from three groundwater basins: the Bunker Hill Basin in San Bernardino, the Rialto Colton Basin in Colton, and the Riverside Basin (RPU 2022). The project does not include new groundwater wells that would extract groundwater from the aquifer. Construction and operation of the school improvements would not lower the groundwater table or deplete groundwater supplies. Furthermore, the 43-acre school does not provide intentional groundwater recharge. Therefore, the project would not interfere with groundwater recharge. Impacts would be less than significant.

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

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

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

There are no streams or rivers on the project site. The school is fully developed, and the new buildings and other improvements would not significantly increase impermeable surfaces on campus.

During construction, erosion and siltation from the disturbed areas may occur. Construction-related activities that expose soils to rainfall/runoff and wind are primarily responsible for erosion. Construction activities would expose soil through excavation, grading, and trenching. Unless adequate erosion controls are installed and maintained during construction, sediment may enter storm drains. The project

construction would be subject to the Statewide Construction General Permit and implementation of BMPs specified in the SWPPP. These requirements include provisions for erosion and pollution control measures to ensure water quality in stormwater runoff. Additionally, SCAQMD has regulations that require control of windblown soil. Impacts would be less than significant.

Upon project completion, drainage from the campus would continue to be captured on-site or conveyed to the Santa Ana River via the same storm drains as with existing conditions. The entire campus would discharge the same amount of stormwater. No areas of exposed soil would be left to erode following project completion. Thus, project development would not cause substantial erosion. Impacts would be less than significant.

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

**Less Than Significant Impact.** The drainage pattern and the flow and rate of stormwater runoff from the project site after project completion would be the same as existing conditions. Thus, project development would not result in flooding on- or off-campus, and impacts would 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-related changes to the campus would not result in an increase in runoff. The new buildings and other campus improvements would not increase pollutants in stormwater runoff. Impacts would be less than significant.

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

**Less Than Significant Impact.** JW North High School is within Flood Zone X (FEMA Map ID# 06065C0726G) (FEMA 2008). defined as an area outside the 0.2 percent annual chance floodplain. It is outside of 100-year and 500-year flood zones. A small portion of the northeast corner of the campus, outside of the project site, is designated as a "special flood hazard area subject to inundation by the 1% annual chance flood." However, the proposed project would not introduce any new flood hazards or place structures or people within this flood zone. As discussed in 5.10(c)(ii), the proposed project would not substantially increase the overall quantity of impervious areas or runoff speed, and any impacts on flooding would be negligible. The proposed project would not increase the flooding hazard at the school. The project would not impede or redirect flood flows. Impacts would be less than significant.

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

**No Impact.** A seiche is a surface wave created when a body of water is shaken, usually by earthquake activity. Seiches are of concern relative to water storage facilities because inundation from a seiche can occur if the wave overflows a containment wall, such as the wall of a reservoir, water storage tank, dam, or other artificial body of water. JW North High School is not within a dam inundation area (CDWR 2022). Furthermore, the proposed project would serve the existing student population and would not expose more people or structures to potential inundation impacts. As discussed in Section 5.10(c)(ii), the proposed project would not increase the

rate or amount of surface runoff in a manner that would result in flooding on- or off-site. The campus is approximately 40 miles north of the Pacific Ocean and would not increase the risk of exposure to a tsunami. The proposed project would not increase the risk of releasing pollutants due to project inundation. No impact would occur.

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

**No Impact.** The project construction would be subject to the Statewide Construction General Permit and implementation of BMPs specified in the SWPPP. After completion of the project, ground surfaces would be either hardscape or maintained landscape. Additionally, the project would not affect groundwater and would not obstruct implementation of a sustainable groundwater management plan.

## 5.11 LAND USE AND PLANNING

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

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

**No Impact.** The proposed project would occur within the boundaries of an existing high school to serve its existing student population and staff. No community would be physically divided, and no impact would occur.

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

**No Impact.** The proposed project would occur on an existing high school and no land use changes would occur as a result of the proposed project. The JW North HS Campus is zoned for R-3-1500 (multi-family residential) and R-1-7000 (single-family residential). According to the Permitted Uses Table in the City of Riverside Municipal Code Chapter 19.150, school uses are permitted in R-3 zones and permitted with a conditional use permit in R-1 zones. The General Plan land use designation for the campus is PF (Public Facilities/Institutional), which is intended for public facilities including schools. Land use plans, policies, and regulations adopted for the purpose of avoiding or mitigating an environmental effect cover topics such as biological resources, cultural resources, air quality, etc. As discussed in this Initial Study, the project would not significantly impact the environment and therefore would not conflict with regulations adopted for protecting the environment. The project will be DSA approved, and the District's DSA inspector would perform inspections to ensure the project meets state requirements for construction and safety. The campus

improvements do not represent a change in land use and would not conflict with existing plans, policies, or regulations adopted for the purpose of avoiding or mitigating environmental effects. The construction of a new classroom building and gym would not conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.

## 5.12 MINERAL RESOURCES

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

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

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

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

The California Department of Conservation Division of Geological Survey produces Mineral Land Classification studies that identify areas with potentially important mineral resources. The Department of Conservation Mineral Land Classification Map shows that the area where JW North HS is located is mapped within an MRZ-3 (DOC 2022e). Although the high school is in an area where mineral deposits are likely to exists, this site is an existing high school, and no mineral resources are being extracted. Implementation of the proposed project would not result in the loss of availability of a known mineral resource. No impact to known mineral resources would occur.

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

**No Impact.** The project site is currently developed as an active high school and is not a locally important mineral resource recovery site. Implementation of the proposed project would not result in the loss of a locally important mineral resource recovery site. No impact would occur.

## 5.13 NOISE

Noise is defined as unwanted sound and is known to have several adverse effects on people, including hearing loss, speech and sleep interference, physiological responses, and annoyance. Based on these known adverse effects of noise, the federal, state, and city governments have established criteria to protect public health and safety and to prevent the disruption of certain human activities, such as classroom instruction, communication, or sleep. The analysis in this section is based on the Noise Impact Assessment for John W North School Modernization Project prepared by ECORP Consulting in June 2022 (Included as Appendix B).

| 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.** Noise is defined as sound that is loud, unpleasant, unexpected, or otherwise undesirable. Excessive noise is known to have adverse effects on people, including hearing loss, speech and sleep interference, physiological responses, and annoyance. Based on these known adverse effects, the federal government, State, County, and City have established criteria to protect public health and safety and to prevent the disruption of certain human activities

## Applicable Standards

### *City of Riverside*

The City of Riverside's regulations with respect to noise are included in Title 7, Noise Control, of the City Code. Chapter 7.25, Nuisance Exterior Sound Level Limits, presents exterior noise standards for the various land use categories. These standards are presented in Table 5.13-1 and 5.13-2.

Table 5.13-1 City of Riverside Exterior Noise Standards

| Land Use Category | Time Period | Noise Level |
|---|---|---|
| Residential | Nighttime (10:00 p.m.-7:00 a.m.) | 45 dBA |
| | Daytime (7:00 a.m.-10:00 p.m.) | 55 dBA |
| Office/Commercial | Anytime | 65 dBA |
| Industrial | Anytime | 70 dBA |
| Community Support | Anytime | 60 dBA |
| Public Recreation Facility | Anytime | 65 dBA |
| Nonurban | Anytime | 70 dBA |

Source: City of Riverside Municipal Code

Table 5.13-2 City of Riverside Interior Noise Standards

| Land Use Category | Time Period | Noise Level |
|---|---|---|
| Residential | Nighttime (10:00 p.m.-7:00 a.m.) | 45 dBA |
| | Daytime (7:00 a.m.-10:00 p.m.) | 55 dBA |
| School | 7:00 AM to 10:00 PM (While school is in session) | 45 dBA |
| Hospital | Anytime | 45 dBA |

Source: City of Riverside Municipal Code

Additionally, Chapter 7.35 of the Riverside Municipal Code, General Noise Regulations, states that noise sources associated with construction, repair, remodeling, or grading of any real property is exempt; provided a permit has been obtained from the City as required; and provided said activities do not take place between the hours of 7:00 p.m. and 7:00 a.m. on weekdays, between the hours of 5:00 p.m. and 8:00 a.m. on Saturdays, or at any time on Sunday or a federal holiday.

# 5. Environmental Analysis

### *Construction Vibration*

The City of Riverside does not have a specific limits or thresholds for vibration. The Federal Transit Administration (FTA) provides criteria in inches per second peak particle velocity (in/sec PPV) for acceptable levels of ground-borne vibration for various types of buildings. This analysis uses the FTA criteria shown in Table 5.13-3.

**Table 5.13-3 Groundborne Vibration Criteria: Architectural Damage**

| Building Category | | PPV (in/sec) |
|---|---|---|
| I. | Reinforced concrete, steel, or timber (no plaster) | 0.5 |
| II. | Engineered concrete and masonry (no plaster) | 0.3 |
| III. | Non-engineered timber and masonry buildings | 0.2 |
| IV. | Buildings extremely susceptible to vibration damage | 0.12 |

Source: Federal Transit Administration (FTA) 2018.
PPV = peak particle velocity

The project site is developed land surrounded mainly by industrial and commercial land uses. In order to quantify existing ambient noise levels in the project area, ECORP Consulting, Inc. conducted three short term noise measurements on the morning of June 8, 2022. These short-term noise measurements are representative of typical existing noise exposure within and immediately adjacent to the project site during the daytime (see Attachment A). The 15-minute measurements were taken between 10:00 a.m. and 10:53 a.m. The average noise levels of noise measured at each location are listed in Table 513-4.

**Table 5.13-4 Existing (Baseline) Noise Measurements**

| Location Number | Location | $L_{eq}$ dBA | $L_{min}$ dBA | $L_{max}$ dBA | Time |
|---|---|---|---|---|---|
| 1 | Southwest Corner of Linden Street and Chicago Avenue | 68.2 dBA | 49.3 dBA | 83.0 dBA | 10:00 a.m. – 10:15 a.m. |
| 2 | On Sidewalk North of Patterson Park, South of Linden Street | 60.8 dBA | 43.0 dBA | 78.1 dBA | 10:20 a.m. – 10:35 a.m. |
| 3 | Southeast Intersection of 3rd Street and Anderson Avenue | 63.5 dBA | 45.3 dBA | 86.1 dBA | 10:38 a.m. – 10:53 a.m. |

Source: Measurements were taken by ECORP with a Larson Davis SoundExpert LxT precision sound level meter, which satisfies the American National Standards Institute for general environmental noise measurement instrumentation. Prior to the measurements, the SoundExpert LxT sound level meter was calibrated according to manufacturer specifications with a Larson Davis CAL200 Class I Calibrator. See Attachment A for noise measurement outputs.
Notes: Leq is the average acoustic energy content of noise for a stated period of time. Thus, the Leq of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure. Lmin is the minimum noise level during the measurement period and Lmax is the maximum noise level during the measurement period.

As shown, the existing traffic-generated noise level on project-vicinity roadways currently ranges from 60.8 to 68.2 dBA $L_{eq}$. The most common noise in the project vicinity is produced by automotive vehicles (e.g., cars, trucks, buses, motorcycles) on area roadways.

As previously described, noise-sensitive land uses are locations where people reside or where the presence of unwanted sound could adversely affect the use of the land. Residences, schools, hospitals, guest lodging, libraries, and some passive recreation areas would each be considered noise-sensitive and may warrant unique measures for protection from intruding noise. The nearest existing noise-sensitive land uses to the project are existing classrooms on the school's campus when school is in session. The nearest classrooms are located approximately 50 feet south from where construction is planned to occur.

## Existing Noise Environment

### *Sensitive Receptors*

Certain land uses are particularly sensitive to noise and vibration. These uses include residences, schools, hospital facilities, houses of worship, and open space/recreation areas where quiet environments are necessary for the enjoyment, public health, and safety of the community. The nearest existing noise-sensitive land use to the project site include existing classrooms on the school's campus.

### *Ambient Noise Measurements*

The project site is developed land surrounded mainly by industrial and commercial land uses. In order to quantify existing ambient noise levels in the project Area, three short- term noise measurements were taken on the morning of June 8, 2022. These short-term noise measurements are representative of typical existing noise exposure within and immediately adjacent to the project site during the daytime (see Appendix B). The 15-minute measurements were taken between 10:00 a.m. and 10:53 a.m. The average noise levels of noise measured at each location are listed in Table-5.13-5

Table 5.13-5 Existing (Baseline) Noise Measurements

| Location Number | Location | Leq dBA | Lmin dBA | Lmax dBA | Time |
|---|---|---|---|---|---|
| 1 | Southwest Corner of Linden Street and Chicago Avenue | 68.2 dBA | 49.3 dBA | 83.0 dBA | 10:00 AM – 10:15 AM |
| 2 | On Sidewalk North of Patterson Park, South of Linden Street | 60.8 dBA | 43.0 dBA | 78.1 dBA | 10:20 AM- 10:35 AM |
| 3 | Southeast Intersection of 3rd Street and Anderson Avenue | 63.5 dBA | 45.3 dBA | 86.1 dBA | 10:38 AM – 10:53 AM |

Source: Measurements were taken by ECORP with a Larson Davis SoundExpert LxT precision sound level meter, which satisfies the American National Standards Institute for general environmental noise measurement instrumentation. Prior to the measurements, the SoundExpert LxT sound level meter was calibrated according to manufacturer specifications with a Larson Davis CAL200 Class I Calibrator. See Attachment A for noise measurement outputs.

Notes: Leq is the average acoustic energy content of noise for a stated period of time. Thus, the Leq of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure. Lmin is the minimum noise level during the measurement period and Lmax is the maximum noise level during the measurement period.

# 5. Environmental Analysis

As shown, the existing traffic-generated noise level on project-vicinity roadways currently ranges from 60.8 to 68.2 dBA Leq. The most common noise in the project vicinity is produced by automotive vehicles (e.g., cars, trucks, buses, motorcycles) on area roadways.

## Operational Noise

The project is proposing several improvements to the existing campus for the purposes of modernization. The number of new classrooms is equal to the amount being removed and thus there would be no increase in student capacity. No additional school sports programs would be added, and the new gymnasium is not expected to increase the number of participants or spectators. Therefore, the improvements made to the high school will not result in additional operational traffic. Present levels of noise would resume following the completion of construction. Operation of the project would not result in a substantial permanent increase in ambient noise levels in excess of City Standards, therefore, impacts will be less than significant.

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

**Less Than Significant Impact.**

## Construction

Excessive groundborne vibration impacts result from continuously occurring vibration levels. Increases in groundborne vibration levels attributable to the project would be primarily associated with short-term construction-related activities. Construction on the project site would have the potential to result in varying degrees of temporary groundborne vibration, depending on the specific construction equipment used and the operations involved. Ground vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance.

Construction-related ground vibration is normally associated with impact equipment such as pile drivers, jackhammers, and the operation of some heavy-duty construction equipment, such as dozers and trucks. It is noted that pile drivers would not be necessary during project construction. Vibration decreases rapidly with distance, and it is acknowledged that construction activities would occur throughout the project site and would not be concentrated at the point closest to sensitive receptors. Groundborne vibration levels associated with typical construction equipment at 25 feet distant are summarized in Table 5.13-6.

Table 5.13-6 Representative Vibration Source Levels for Construction Equipment

| Equipment Type | Peak Particle Velocity at 25-Feet (inches per second) |
|---|---|
| Larger Bulldozer | 0.089 |
| Pile Driver | 0.170 |
| Loaded Trucks | 0.076 |
| Hoe Ram | 0.089 |
| Jackhammer | 0.035 |
| Small bulldozer/Tractor | 0.003 |
| Vibratory Roller | 0.210 |

Source: FTA 2018; Caltrans 2020b.

The City of Riverside does not regulate vibrations associated with construction. However, a discussion of construction vibration is included for full disclosure purposes. The Caltrans (2020b) recommended standard of 0.2 inch per second PPV with respect to the prevention of structural damage for older residential buildings is used as a threshold. This is also the level at which vibrations may begin to annoy people in buildings. Consistent with FTA recommendations for calculating construction vibration, construction vibration was measured from the center of the project site (FTA 2018). The nearest structure of concern to the construction site, with regard to groundborne vibrations, is the 300.1 building on the school's campus, located approximately 50 feet south from construction activities. Based on the representative vibration levels presented for various construction equipment types in Table 5.13-6 and the construction vibration assessment methodology published by the FTA (2018), it is possible to estimate the potential project construction vibration levels. The FTA provides the following equation:

$$[PPVequip = PPVref \times (25/D)1.5]$$

Table 5.13-7 presents the expected project related vibration levels at a distance of 50 feet.

Table 5.13-7 Construction Vibration Levels at 50 Feet

| Receiver PPV Levels (in/sec)[1] | | | | | | | |
|---|---|---|---|---|---|---|---|
| Large Bulldozer, Caisson Drilling, & Hoe Ram | Loaded Trucks | Jackhammer | Pile Driver | Vibratory Roller | Peak Vibration | Threshold | Exceed Threshold |
| 0.03 | 0.03 | 0.01 | 0.06 | 0.07 | 0.07 | 0.2 | No |

Notes: 1Based on the Vibration Source Levels of Construction Equipment included on Table 5-3 (FTA 2018). Distance to the nearest structure of concern is approximately 850 feet measured from project site boundary

As shown in Table 5.13-7, vibration as a result of construction activities would not exceed 0.2 PPV at the nearest structure. Thus, project construction would not exceed the recommended threshold.

## Operation

The proposed project is proposing several improvements to the existing campus for the purposes of modernization. The number of new classrooms is equal to the amount being removed and thus there would be no increase in student capacity. No additional school sports programs would be added, and the new gymnasium is not expected to increase the number of participants or spectators. Project operations would not include the use of any large-scale stationary equipment that would result in excessive vibration levels. Therefore, the project would not result groundborne vibration impacts during operations.

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

**Less Than Significant Impact.** The project site is located approximately 8 miles west of March Airforce Base and 10 miles southeast of the Riverside Municipal Airport. According to Figures N-8 and N-9 of the City of Riverside General Plan Noise Element (2007), the project site is located outside of the noise contours of both March Airforce Base and the Riverside Municipal Airport. Therefore, implementation of the proposed project would not result in increased exposure of people working at or visiting the project site to aircraft noise.

## 5.14 POPULATION AND HOUSING

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

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

**No Impact.** The proposed project would be served by existing roads and other infrastructure. No new roads, expanded utility lines, or housing would be constructed or required as part of the project. The project includes the removal of 8 portable classrooms that will be replaced by a two-story 8 classroom building. Additionally, the project involved the construction of a new 17,350 square foot gym. The proposed project would serve existing students already living in the area and would not induce population growth, either directly or indirectly. No impacts related to population growth would occur.

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

**No Impact.** No housing exists on the high school campus. The proposed project would not require relocation or construction of replacement housing; therefore, no impact would occur.

## 5.15 PUBLIC SERVICES

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

**a) Fire protection?**

**Less Than Significant Impact.** The City of Riverside Fire Department provides fire protection to the project area. The nearest fire station is Station #4 at 3510 Cranford Avenue in the City of Riverside, immediately southeast of the John W. North High School campus parking area, approximately 750 feet driving-distance from the proposed new gymnasium, and approximately 0.7 miles driving-distance from the proposed science building. Station 4 is equipped with one fire engine. Demand for fire protection services is generally tied to population growth. The project would make improvements to existing facilities. It would not increase enrollment or capacity at the school or the population of the project area. The project would not make any programmatic changes. Therefore, the project would not substantially increase the need for fire protection services.

**b) Police protection?**

**Less Than Significant Impact.** The Riverside Police Department provides police protection to the project site. The Riverside Police Department is responsible for campus safety and creating safe school passages for students, staff, and the school community. The nearest Riverside Police Department facility is at 4102 Orange Street in Riverside, about 1.7 miles north of the site. The project may cause a very slight increase in demands for police services during construction from possible trespass, theft, and/or vandalism. Active construction areas would be fenced, and the entire campus is currently fenced and would remain secured outside of work hours. Any increase in police demands would be temporary and would not require construction of new or expanded police facilities. General campus activities are under the supervision of the school administrators and staff. The demand for police protection services generally corresponds to population. Since the project would not increase the student population or intensify use of the campus, project implementation would not increase

the demand for police services or generate a need for additional law enforcement facilities. The project would not increase student population or demand and would not result in new adverse impacts on existing police service. Impacts would be less than significant.

**c) Schools?**

**No Impact.** The proposed project would improve athletic facilities, create aesthetic improvements, and replace existing portable buildings with a permanent instructional building of similar capacity at an existing high school campus. The project would not result in increased enrollment at John W. North High School or population growth in the area and would therefore not require the expansion or creation of schools. No impacts would occur.

**d) Parks?**

**No Impact.** Increases in demands for park facilities generally result from population increases, which in turn generally result from residential development and development of new job-generating land uses. The part of the proposed project would improve existing recreational facilities at John W. North High School and would not develop new residential or job-generating land uses. The project would not require John W. North High School students to use off-campus recreational facilities. The project would improve existing athletic facilities that are available to the public under the Civic Center Act, improving recreational facilities in the area. No impact to park services would occur.

**e) Other public facilities?**

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

## 5.16 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?**

**No Impact.** The part of the proposed project would make improvements to athletic facilities at John W. North High School. Athletic facilities at the John W. North High School campus would continue to be available for community uses pursuant to the Civic Center Act, so the project would have no impact on community access to recreational facilities. The project would not increase the use of existing off-campus parks and recreational facilities. No impact would occur, and no mitigation is required.

**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?**

**No Impact.** The proposed project would not result in population growth, necessitating the construction of offsite recreational facilities. The project would result in the construction of a new competition gym in the place of the existing hardtop basketball court, and the environmental effects of the construction of these facilities is examined throughout this document. The project would not increase the use of existing neighborhood and regional parks or other recreational facilities. It would not result in an increase in students or staff at the school and would not increase population in the surrounding community. Therefore, it would not cause physical deterioration of neighborhood and regional parks or other recreational facilities. The project would not result in the need for construction of new recreational facilities. No impacts to parks would occur.

## 5.17 TRANSPORTATION

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

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

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

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

At project completion, the proposed project would allow existing academic and athletic programs to continue. The proposed project would serve students already on campus, and no new student programs or uses are proposed with the new gym and classroom building, and no increase in participants or attendance are anticipated. The JW North HS Stadium has a spectator capacity that exceeds the capacity of the existing and new gym combined. The new gym will be managed and scheduled such that multiple events do not coincide, and traffic and parking will not be impact. No roadways, transit system, or bicycle and pedestrian facilities would be impacted by the proposed project. Therefore, the proposed project would not conflict with any programs, plans, ordinances, or policies addressing the circulation system. Impacts would be less than significant.

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

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

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

The proposed project would not increase student enrollment or increase use of the athletic facilities but would serve to replace portables and provide a competition sized gym for the existing student population. The construction and limited modernization would not increase vehicle miles traveled (VMT).

The proposed gymnasium, replacement of eight portable classrooms, and the limited modernization will not increase student capacity of the school. The new gym will have a 900-seat capacity, and worst-case conditions might involve an event that might combine activities at both the new gym and existing 760-seat gymnasium for a combined 1,660-seat capacity. While this might attract larger crowds, the spectator capacity is still well below the capacity of the football stadium. Understanding that school administration schedules major events to avoid exceeding parking capacity, traffic generated by a maximum gym event would be less than what is already handled at the campus and surrounding road network.. Therefore, impacts would be less than significant.

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

**Less Than Significant Impact.** The proposed project would occur within the existing high school boundaries and would not modify the existing on- or off-site circulation systems. The proposed changes to the drop-off area in the southern parking lot would not alter the flow of traffic. The plans are for improvements to the entry area, including new fencing and a gateway. The northern parking lot would have parking spots re-aligned and part of the construction and the changes would not impact traffic circulation on or off campus. No new land uses would be created that could potentially increase or impact any design features of the existing high school

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

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

**No Impact.** The proposed project would not result in inadequate emergency access. The proposed project would accommodate existing student population and sports programs at the existing high school and would not increase attendance by participants or spectators from existing conditions. The proposed project would not result in any modification to layout or configuration of emergency access and no impact would occur.

Community access to the gym facilities outside of school hours and on weekends would be through Linden Street. Community use of these facilities is controlled by District policy under the Civic Center Act. Impacts would be less than significant.

## 5.18 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 |

# 5. Environmental Analysis

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

The proposed project would occur within the existing campus of the JW North HS. No known tribal cultural resources are within the project site. The area to be disturbed by the proposed project is not in the listings or eligible for listing on the California Register of Historical Resources, or in a local register of historical resources. Therefore, implementation of the proposed project would not impact tribal cultural resources pursuant to Public Resources Code Section 21074(a)(1). No impact to historical resource would occur.

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

**No Impact.** Pursuant to Public Resources Code Section 21080.3.1, the District received a request for notification of projects from two tribes: the Gabrieleno Band of Mission Indians - Kizh Nation (Kizh Nation) in a written letter dated July 22, 2015 and the Pechanga Band of Indians in an email dated July 7, 2015. The District sent notification letters for the proposed project on August 24, 2022 by US Mail and electronic mail; however, no response was received from either the Kizh Nation or the Pechanga Band of Indians regarding the proposed project.

## 5.19 UTILITIES AND SERVICE SYSTEMS

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

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

**No Impact.** The school is in the City of Riverside, and water, electricity, and wastewater treatment are provided by the City of Riverside Public Utilities. The campus is completely developed, currently using utilities, and surrounded by development. The school modernization and expansion would serve existing and future students living in the region and would not increase the student population. The project would not require the relocation or construction of new water, wastewater treatment, stormwater drainage, electric power, natural gas, or telecommunications facilities, and no impact would occur.

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

**No Impact.** Water would be used on-site during construction for dust suppression and other activities. The small amount of water that would be used for the project construction would not result in the need for new or expanded water entitlements. The school currently serves students living in the region, and the project would not increase the student population or long-term water demands. No impact would occur. .

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

**No Impact.** The school would continue to serve students currently living in the region and would not generate an increase in the regional student population or the amount of wastewater treatment required. The project would not affect wastewater treatment capacity. No impact would occur.

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

**Less Than Significant Impact.** Demolition and construction waste would be generated and disposed of at local landfills. The excavated soil would be segregated and managed as nonhazardous, non-Resource Conservation and Recovery Act (RCRA) hazardous, or RCRA hazardous waste. The project may require haul and disposal of contaminated soil and material (see Section 3.9, Hazards and Hazardous Materials). Contaminated materials would result in an incremental and intermittent increase in solid waste disposal at licensed landfills and other waste disposal facilities within Riverside County.

The project would not increase the student population and thus would not increase solid waste generation. Therefore, the project improvements would not significantly impact landfills. Impacts would be less than significant.

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

**No Impact.** The District currently complies with or incorporates federal, state, and local statutes and regulations related to solid waste, and would continue this practice. Section 5.408 (Construction Waste Reduction, Disposal, and Recycling) of CALGreen (24 CCR Part 11) requires that at least 65 percent of the nonhazardous construction and demolition waste from nonresidential construction operations be recycled and/or salvaged for reuse. Construction of the project would adhere to these established standards. No impact would occur.

## 5.20 WILDFIRE

| Issues | Potentially Significant Impact | Less Than Significant With Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| XX. WILDFIRE. If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project: | | | | |
| a) Substantially impair an adopted emergency response plan or emergency evacuation plan? | | | X | |
| b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire? | | | X | |

| Issues | Potentially Significant Impact | Less Than Significant With Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| 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.** JW North High School is not in a very high fire hazard severity zone (VHFHSZ) based on a review of CAL FIRE FHSZs map (CAL FIRE 2022). The project site is 0.77-mile southwest of the closest VHFHSZ as mapped by Cal Fire. The project would include construction and modernization at an existing high school campus. The project would not impair an adopted emergency response plan or emergency evacuation plan. The project would not exacerbate existing conditions at the high school. 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.** JW North HS campus is in a primarily urban area, and there is no wildland susceptible to wildfire on or near the school campus. CAL FIRE does not classify adjacent areas as a VHFHSZ. The school has been in its current location since 1964, and the project would not place people or structures at risk from wildfire. No impact would occur.

**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.** JW North High School is not in a VH FHSZ (CAL FIRE 2022). Additionally, the project site is an existing high school served by existing infrastructure. The proposed project and necessary utility lines would not exacerbate fire risk or result in temporary or ongoing impacts to the environment. Impacts would be less than significant.

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

**Less Than Significant Impact.** The campus is surrounded by development with flat topography. There are no vegetated slopes susceptible to wildfire in the surrounding area. The project would not result in runoff, postfire slope instability, or drainage changes. No impact would occur.

# 5.21 MANDATORY FINDINGS OF SIGNIFICANCE

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

**a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to 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 with Mitigation Incorporated.** As discussed under Section 5.4, *Biological Resources*, the proposed project would not degrade the quality of the environment or substantially reduce the habitat of a fish or wildlife species. The project site does not contain a sensitive plant or animal community. As discussed under Section 5.5, *Cultural Resources*, and Section 5.7, *Geology and Soils*, the project site has been disturbed previously, and adverse impacts to buried archaeological resources and/or fossils are not anticipated. However, a customary caution and a halt-work during earth-disturbing activities measure has been incorporated as a mitigation measure to further ensure that impacts are less than significant (see Mitigation Measure CUL-1 and Mitigation Measure GEO-1). The project would not eliminate important examples of major periods of California history or prehistory.

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

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

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

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

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

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

# 5. Environmental Analysis

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# 7. List of Preparers

## RIVERSIDE UNIFIED SCHOOL DISTRICT (LEAD AGENCY)

Rene Castro, Director, Planning and Development

## PLACEWORKS

Dwayne Mears, AICP, Principal

Arabesque Said-Abdelwahed, Senior Associate II

Danielle Clendening, Project Planner

Cary Nakama, Graphic Artist

Laura Munoz, Document Specialist

# 7. List of Preparers

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# Appendix A Air Quality and Greenhouse Gas Emissions Assessment

# Air Quality & Greenhouse Gas Emissions Assessment
# John W North School Modernization Project

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## Riverside, California

**Prepared For:**

PlaceWorks
3 MacArthur Place, Suite 1100
Santa Ana, CA 92707

**Prepared By:**

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

**June 2022**

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Attachment A – CalEEMod Output File for Air Quality Emissions
Attachment B – CalEEMod Output File for Greenhouse Gas Emissions

## LIST OF ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| °F | Degrees Fahrenheit |
| µg/m3 | Micrograms per cubic meter; ppm = parts per million |
| 1992 CO Plan | 1992 Federal Attainment Plan for Carbon Monoxide |
| AB | Assembly Bill |
| AQMD | Air Quality Management District |
| CAA | Clean Air Act |
| CAAQS | California Ambient Air Quality Standards |
| CalEEMod | California Emissions Estimator Model |
| Caltrans | California Department of Transportation |
| CAP | Climate Action Plan |
| CAPCOA | California Air Pollution Control Officers Association |
| CARB | California Air Resources Board |
| CCAA | California Clean Air Act |
| CCR | California Code of Regulations |
| CEQA | California Environmental Quality Act |
| $CH_4$ | Methane |
| City | City of Riverside |
| $CO_2$ | Carbon dioxide |
| $CO_2e$ | Carbon dioxide equivalent |
| County | Riverside County |
| DPM | Diesel particulate matter |
| EO | Executive Order |
| GHG | Greenhouse gas |

## LIST OF ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| GWP | Global warming potential |
| IPCC | Intergovernmental Panel on Climate Change |
| LOS | Level of service |
| LSTs | Localized significance threshold |
| $N_2O$ | Nitrous oxide |
| NAAQS | National Ambient Air Quality Standards |
| $NO_2$ | Nitrogen dioxide |
| $NO_x$ | Nitric oxides |
| $O_3$ | Ozone |
| PM | Particulate matter |
| $PM_{10}$ | Coarse particulate matter |
| $PM_{2.5}$ | Fine particulate matter |
| ppb | Parts per billion |
| Project | John W North High School Project |
| RCPG | Regional Comprehensive Plan and Guide |
| ROGs | Reactive organic gases |
| RTP/SCS | Regional Transportation Plan/Sustainable Communities Strategy |
| SB | Senate Bill |
| SCAG | Southern California Association of Governments |
| SCE | Southern California Edison |
| SCAQMD | South Coast Air Quality Management District |
| SIP | State Implementation Plan |
| $SO_2$ | Sulfur dioxide |
| $SO_x$ | Sulfur oxides |
| SR | State Route |
| SRA | Source receptor area |
| SoCAB | South Coast Air Basin |
| TACs | Toxic air contaminants |
| USEPA | U.S. Environmental Protection Agency |
| VOCs | Volatile organic compounds |
| VMT | Vehicle Miles Traveled |

# 1.0 INTRODUCTION

This report documents the results of an Air Quality and Greenhouse Gas (GHG) Emissions Assessment completed for the John W North High School Modernization Project (Project), which includes the modernization of seven buildings on campus, construction of a new 2-story classroom building and a 900- seat gym. This assessment was prepared using methodologies and assumptions recommended in the rules and regulations of the South Coast Air Quality Management District (SCAQMD). Regional and local existing conditions are presented, along with pertinent emissions standards and regulations. The purpose of this assessment is to estimate Project-generated criteria air pollutants and GHG emissions attributable to the Project and to determine the level of impact the Project would have on the environment.

## 1.1 Project Location and Description

The existing John W North High School campus is located at 1550 3rd Street in the City of Riverside, California. Nestled between Chicago Avenue to the west, 3rd Street to the north, and W. Linden Street to the south, the school is predominately surrounded by commercial business parks and offices, though there is residential neighborhood to the southwest. Interstate 215 traverses the area approximately 900 feet to the east.

Riverside Unified School District proposes several improvements to the existing campus for the purposes of modernization (see Figure 1). Specially, site improvements in the form of new sidewalks and landscaping are proposed both at the north and south entries of the campus. Additionally, four existing restrooms in two separate classroom buildings would be upgraded and modernized. Five existing classroom buildings would receive lighting and HVAC upgrades as would the campus library and administration building. An eight-room science classroom building would be constructed at the northeast corner of the campus, and a new, 900-seat gymnasium would be constructed near the middle of the campus, adjacent to the existing gymnasium and just north of the main parking area. Lastly, eight existing portable classroom buildings would be removed. The number of new classrooms is equal to the amount being removed and thus there would be no increase in student capacity.

# Option D

New Campus Entry & Site Improvements

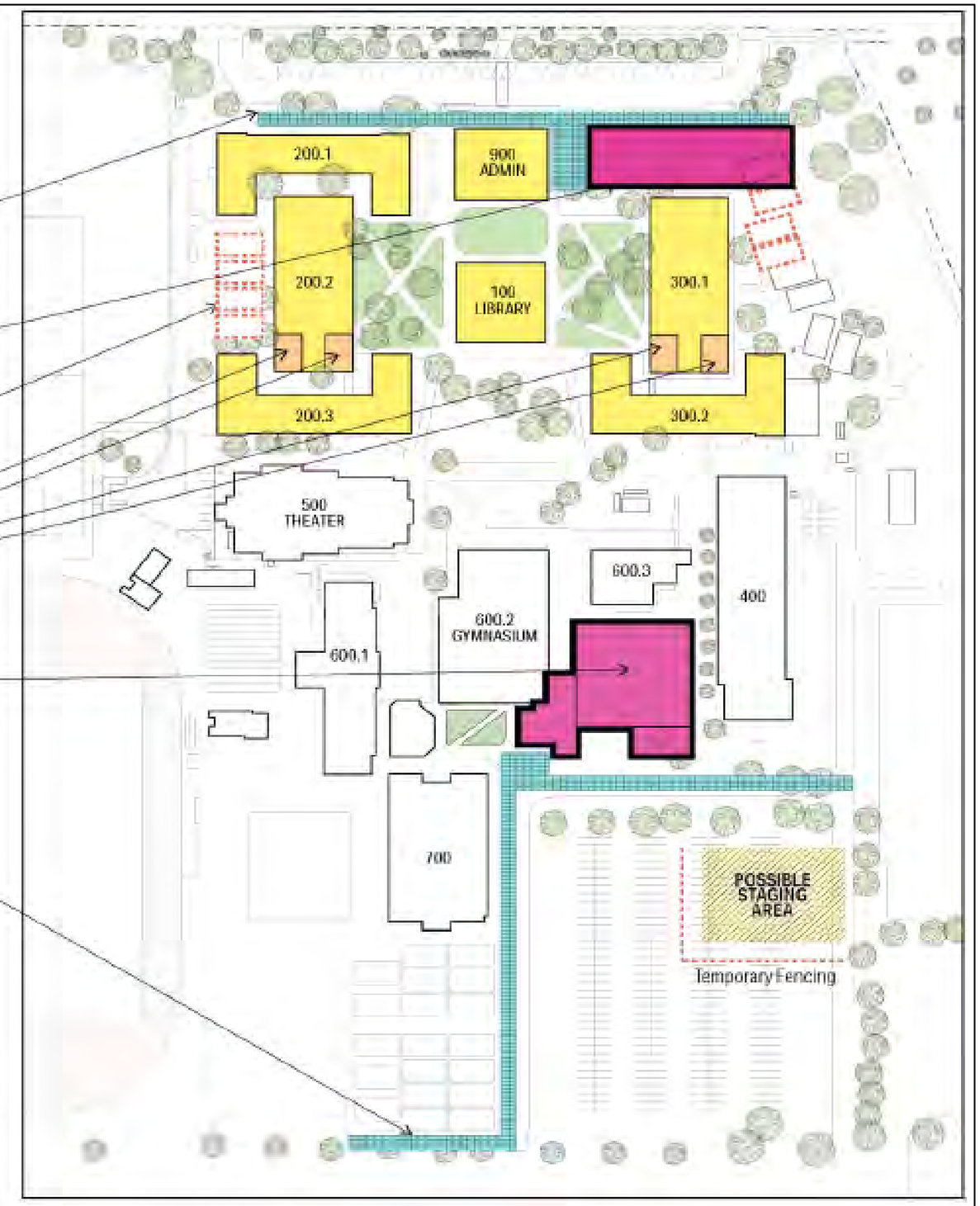
New 8 Science Classroom Building (2 Story)

Portables Removal (8) Typ.

Modernization of (4) Restrooms

New Gymnasium Lobby, Hall of Fame, Restrooms, Concessions, Ticket Booth, Team Rooms, Check-in Kiosk (900 Seats)

New Campus Entry & Site Improvements




Site & Campus Entry Improvements
HVAC & Lighting Upgrades
HVAC & Lighting Upgrades & Modernization
New Construction
Modernization
Light Modernization
Outdoor Seating & Shaded Gathering Areas

*Map Date: 5/27/2022*
*Photo (or Base) Source: Riverside Unified School District*

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

**Figure 1. Site Plan**

*2022-120*

# 2.0 AIR QUALITY

## 2.1 Air Quality Setting

Air quality in a region is determined by its topography, meteorology, and existing air pollutant sources. These factors are discussed below, along with the current regulatory structure that applies to the South Coast Air Basin (SoCAB), which encompasses the Project Site, pursuant to the regulatory authority of the SCAQMD.

Ambient air quality is commonly characterized by climate conditions, the meteorological influences on air quality, and the quantity and type of pollutants released. The air basin is subject to a combination of topographical and climatic factors that reduce the potential for high levels of regional and local air pollutants. The following section describes the pertinent characteristics of the air basin and provides an overview of the physical conditions affecting pollutant dispersion in the Project Area.

### 2.1.1 South Coast Air Basin

The California Air Resources Board CARB divides the State into air basins that share similar meteorological and topographical features. The Project site lies in the SoCAB, which includes the non-desert portions of Los Angeles, Riverside, and San Bernardino counties and all of Orange County. The air basin is on a coastal plain with connecting broad valleys and low hills and is bounded by the Pacific Ocean on the southwest, with high mountains forming the remainder of the perimeter (SCAQMD 1993).

#### *2.1.1.1 Temperature and Precipitation*

The air basin is part of a semi-permanent high-pressure zone in the eastern Pacific. As a result, the climate is mild, tempered by cool sea breezes. This usually mild weather pattern is interrupted infrequently by periods of extremely hot weather, winter storms, and Santa Ana winds. The annual average temperature varies little throughout the 6,645-square-mile SoCAB, ranging from the low 60s to the high 80s, measured in degrees Fahrenheit (°F). With a more pronounced oceanic influence, coastal areas show less variability in annual minimum and maximum temperatures than inland areas (SCAQMD 1993).

In contrast to a very steady pattern of temperature, rainfall is seasonally and annually highly variable. Almost all annual rains fall between November and April. Summer rainfall is normally restricted to widely scattered thundershowers near the coast, with slightly heavier shower activity in the east and over the mountains.

#### *2.1.1.2 Humidity*

Although the SoCAB has a semiarid climate, the air near the earth's surface is typically moist because of the presence of a shallow marine layer. Except for infrequent periods when dry, continental air is brought into the SoCAB by offshore winds, the "ocean effect" is dominant. Periods of heavy fog, especially along the coast, are frequent, and low clouds, often referred to as high fog, are a characteristic climatic feature.

Annual average humidity is 70 percent at the coast and 57 percent in the eastern portions of the SoCAB (SCAQMD 1993).

#### *2.1.1.3 Wind*

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

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

The mountain ranges to the east affect the diffusion of pollutants by inhibiting the eastward transport of pollutants. Air quality in the SoCAB generally ranges from fair to poor and is similar to air quality in most of coastal Southern California. The entire region experiences heavy concentrations of air pollutants during prolonged periods of stable atmospheric conditions (SCAQMD 1993).

#### *2.1.1.4 Inversion*

In conjunction with the two characteristic wind patterns that affect the rate and orientation of horizontal pollutant transport, two similarly distinct types of temperature inversions control the vertical depth through which pollutants are mixed. These inversions are the marine/subsidence inversion and the radiation inversion. The height of the base of the inversion at any given time is known as the "mixing height." The combination of winds and inversions is a critical determinant leading to highly degraded air quality in the summer and generally good air quality in the winter in Orange County (SCAQMD 1993).

### 2.1.2 Criteria Air Pollutants

Criteria air pollutants are defined as those pollutants for which the federal and state governments have established air quality standards for outdoor or ambient concentrations to protect public health with a determined margin of safety. Ozone ($O_3$), coarse particulate matter ($PM_{10}$), and fine particulate matter ($PM_{2.5}$) are generally considered to be regional pollutants because they or their precursors affect air quality on a regional scale. Pollutants such as carbon monoxide (CO), nitrogen dioxide ($NO_2$), and sulfur dioxide ($SO_2$) are considered to be local pollutants because they tend to accumulate in the air locally. PM is also considered a local pollutant. Health effects commonly associated with criteria pollutants are summarized in Table 2-1.

**Table 2-1. Criteria Air Pollutants- Summary of Common Sources and Effects**

| Pollutant | Major Manmade Sources | Human Health & Welfare Effects |
|---|---|---|
| CO | An odorless, colorless gas formed when carbon in fuel is not burned completely; a component of motor vehicle exhaust. | Reduces the ability of blood to deliver oxygen to vital tissues, effecting the cardiovascular and nervous system. Impairs vision, causes dizziness, and can lead to unconsciousness or death. |
| $NO_2$ | A reddish-brown gas formed during fuel combustion for motor vehicles, energy utilities and industrial sources. | Respiratory irritant; aggravates lung and heart problems. Precursor to ozone and acid rain. Causes brown discoloration of the atmosphere. |
| $O_3$ | Formed by a chemical reaction between reactive organic gases (ROGs) and nitrous oxides ($N_2O$) in the presence of sunlight. Common sources of these precursor pollutants include motor vehicle exhaust, industrial emissions, solvents, paints and landfills. | Irritates and causes inflammation of the mucous membranes and lung airways; causes wheezing, coughing and pain when inhaling deeply; decreases lung capacity; aggravates lung and heart problems. Damages plants; reduces crop yield. |
| $PM_{10}$ & $PM_{2.5}$ | Power plants, steel mills, chemical plants, unpaved roads and parking lots, wood-burning stoves and fireplaces, automobiles and others. | Increased respiratory symptoms, such as irritation of the airways, coughing, or difficulty breathing; aggravated asthma; development of chronic bronchitis; irregular heartbeat; nonfatal heart attacks; and premature death in people with heart or lung disease. Impairs visibility (haze). |
| $SO_2$ | A colorless, nonflammable gas formed when fuel containing sulfur is burned. Examples are refineries, cement manufacturing, and locomotives. | Respiratory irritant. Aggravates lung and heart problems. Can damage crops and natural vegetation. Impairs visibility. |

Source: California Air Pollution Control Officers Association (CAPCOA 2013)

#### *2.1.2.1 Carbon Monoxide*

CO in the urban environment is associated primarily with the incomplete combustion of fossil fuels in motor vehicles. CO combines with hemoglobin in the bloodstream and reduces the amount of oxygen that can be circulated through the body. High CO concentrations can cause headaches, aggravate cardiovascular disease and impair central nervous system functions. CO concentrations can vary greatly over comparatively short distances. Relatively high concentrations of CO are typically found near crowded intersections and along heavy roadways with slow moving traffic. Even under the most severe meteorological and traffic conditions, high concentrations of CO are limited to locations within relatively short distances of the source. Overall CO emissions are decreasing as a result of the Federal Motor Vehicle Control Program, which has mandated increasingly lower emission levels for vehicles manufactured since 1973. CO levels in the SoCAB are in compliance with the state and federal one- and eight-hour standards.

#### *2.1.2.2 Nitrogen Oxides*

Nitrogen gas comprises about 80 percent of the air and is naturally occurring. At high temperatures and under certain conditions, nitrogen can combine with oxygen to form several different gaseous compounds collectively called nitric oxides ($NO_x$). Motor vehicle emissions are the main source of $NO_x$ in urban areas. $NO_x$ is very toxic to animals and humans because of its ability to form nitric acid with water in the eyes, lungs, mucus membrane, and skin. In animals, long-term exposure to $NO_x$ increases susceptibility to respiratory infections, and lowering resistance to such diseases as pneumonia and influenza. Laboratory studies show that susceptible humans, such as asthmatics, who are exposed to high concentrations can suffer from lung irritation or possible lung damage. Precursors of $NO_x$, such as NO and $NO_2$, attribute to the formation of $O_3$ and $PM_{2.5}$. Epidemiological studies have also shown associations between $NO_2$ concentrations and daily mortality from respiratory and cardiovascular causes and with hospital admissions for respiratory conditions.

#### *2.1.2.3 Ozone*

$O_3$ is a secondary pollutant, meaning it is not directly emitted. It is formed when volatile organic compounds (VOCs) or ROGs and $NO_x$ undergo photochemical reactions that occur only in the presence of sunlight. The primary source of ROG emissions is unburned hydrocarbons in motor vehicle and other internal combustion engine exhaust. $NO_x$ forms as a result of the combustion process, most notably due to the operation of motor vehicles. Sunlight and hot weather cause ground-level $O_3$ to form. Ground-level $O_3$ is the primary constituent of smog. Because $O_3$ formation occurs over extended periods of time, both $O_3$ and its precursors are transported by wind and high $O_3$ concentrations can occur in areas well away from sources of its constituent pollutants.

People with lung disease, children, older adults, and people who are active can be affected when $O_3$ levels exceed ambient air quality standards. Numerous scientific studies have linked ground-level $O_3$ exposure to a variety of problems including lung irritation, difficult breathing, permanent lung damage to those with repeated exposure, and respiratory illnesses.

#### *2.1.2.4 Particulate Matter*

PM includes both aerosols and solid particulates of a wide range of sizes and composition. Of concern are those particles smaller than or equal to 10 microns in diameter size ($PM_{10}$) and small than or equal to 2.5 microns in diameter ($PM_{2.5}$). Smaller particulates are of greater concern because they can penetrate deeper into the lungs than larger particles. $PM_{10}$ is generally emitted directly as a result of mechanical processes that crush or grind larger particles or form the resuspension of dust, typically through construction activities and vehicular travel. $PM_{10}$ generally settles out of the atmosphere rapidly and is not readily transported over large distances. $PM_{2.5}$ is directly emitted in combustion exhaust and is formed in atmospheric reactions between various gaseous pollutants, including $NO_x$, sulfur oxides ($SO_x$) and VOCs. $PM_{2.5}$ can remain suspended in the atmosphere for days and/or weeks and can be transported long distances.

The principal health effects of airborne PM are on the respiratory system. Short-term exposure of high $PM_{2.5}$ and $PM_{10}$ levels are associated with premature mortality and increased hospital admissions and

emergency room visits. Long-term exposure is associated with premature mortality and chronic respiratory disease. According to the U.S. Environmental Protection Agency (USEPA), some people are much more sensitive than others to breathing $PM_{10}$ and $PM_{2.5}$. People with influenza, chronic respiratory and cardiovascular diseases, and the elderly may suffer worse illnesses; people with bronchitis can expect aggravated symptoms; and children may experience decline in lung function due to breathing in $PM_{10}$ and $PM_{2.5}$. Other groups considered sensitive include smokers and people who cannot breathe well through their noses. Exercising athletes are also considered sensitive because many breathe through their mouths.

### 2.1.3 Toxic Air Contaminants

In addition to the criteria pollutants discussed above, toxic air contaminants (TACs) are another group of pollutants of concern. TACs are considered either carcinogenic or noncarcinogenic based on the nature of the health effects associated with exposure to the pollutant. For regulatory purposes, carcinogenic TACs are assumed to have no safe threshold below which health impacts would not occur, and cancer risk is expressed as excess cancer cases per one million exposed individuals. Noncarcinogenic TACs differ in that there is generally assumed to be a safe level of exposure below which no negative health impact is believed to occur. These levels are determined on a pollutant-by-pollutant basis.

There are many different types of TACs, with varying degrees of toxicity. Sources of TACs include industrial processes such as petroleum refining and chrome plating operations, commercial operations such as gasoline stations and dry cleaners, and motor vehicle exhaust. Public exposure to TACs can result from emissions from normal operations, as well as from accidental releases of hazardous materials during upset conditions. The health effects of TACs include cancer, birth defects, neurological damage, and death.

Most recently, CARB identified DPM as a TAC. DPM differs from other TACs in that it is not a single substance but rather a complex mixture of hundreds of substances. Diesel exhaust is a complex mixture of particles and gases produced when an engine burns diesel fuel. DPM is a concern because it causes lung cancer; many compounds found in diesel exhaust are carcinogenic. DPM includes the particle-phase constituents in diesel exhaust. The chemical composition and particle sizes of DPM vary between different engine types (heavy-duty, light-duty), engine operating conditions (idle, accelerate, decelerate), fuel formulations (high/low sulfur fuel), and the year of the engine (USEPA 2002). Some short-term (acute) effects of diesel exhaust include eye, nose, throat, and lung irritation, and diesel exhaust can cause coughs, headaches, light-headedness, and nausea. DPM poses the greatest health risk among the TACs; due to their extremely small size, these particles can be inhaled and eventually trapped in the bronchial and alveolar regions of the lung.

### 2.1.4 Ambient Air Quality

Ambient air quality at the Project Site can be inferred from ambient air quality measurements conducted at nearby air quality monitoring stations. CARB maintains more than 60 monitoring stations throughout California. $O_3$, $PM_{10}$ and $PM_{2.5}$ are the pollutant species most potently affecting the Project region. As described in detail below, the region is designated as a nonattainment area for the federal $O_3$ and $PM_{2.5}$ standards and is also a nonattainment area for the state standards for $O_3$, $PM_{2.5}$ and $PM_{10}$ (CARB 2019).

The Rubidoux-Mission Boulevard air quality monitoring station (5888 Mission Boulevard, Riverside), located approximately four miles northwest of the Project Site, monitors ambient concentrations of $O_3$, $PM_{10}$, and $PM_{2.5}$. Ambient emission concentrations will vary due to localized variations in emission sources and climate and should be considered "generally" representative of ambient concentrations in the Project Area.

Table 2-2 summarizes the published data concerning $O_3$, $PM_{2.5}$ and $PM_{10}$from the Rubidoux-Mission Boulevard monitoring station. $O_3$, $PM_{10}$ and $PM_{2.5}$ are the pollutant species most potently affecting the Project region.

**Table 2-2. Summary of Ambient Air Quality Data**

| Pollutant Standards | 2018 | 2019 | 2020 |
|---|---|---|---|
| **$O_3$ - Rubidoux-Mission Boulevard Monitoring Station** | | | |
| Max 1-hour concentration (ppm) | 0.123 | .0123 | 0.143 |
| Max 8-hour concentration (ppm) (state/federal) | 0.101 / 0.101 | 0.96 / 0.096 | 0.115 / 0.115 |
| Number of days above 1-hour standard (state/federal) | 22 / 0 | 24 / 0 | 46 / 6 |
| Number of days above 8-hour standard (state/federal) | 57 / 53 | 63 / 59 | 86 / 82 |
| **$PM_{10}$ - Rubidoux-Mission Boulevard Monitoring Station** | | | |
| Max 24-hour concentration (µg/m$^3$) (state/federal) | 126.0 / 86.5 | 182.4 / 132.5 | 137.7 / 142.1 |
| Number of days above 24-hour standard (state/federal) | 133.6 / 0 | 116.4 / 0 | * / * |
| **$PM_{2.5}$ - Rubidoux-Mission Boulevard Monitoring Station** | | | |
| Max 24-hour concentration (µg/m$^3$) (state/federal) | 68.3 / 66.3 | 57.6 / 55.7 | 61.9 / 59.9 |
| Number of days above federal 24-hour standard | 3.0 | 5.0 | 12.0 |

Source: CARB 2021a
µg/m$^3$ = micrograms per cubic meter; ppm = parts per million
* = Insufficient data available

The USEPA and CARB designate air basins or portions of air basins and counties as being in "attainment" or "nonattainment" for each of the criteria pollutants. Areas that do not meet the standards are classified as nonattainment areas. The National Ambient Air Quality Standards (NAAQS) (other than $O_3$, $PM_{10}$ and $PM_{2.5}$ and those based on annual averages or arithmetic mean) are not to be exceeded more than once per year. The NAAQS for $O_3$, $PM_{10}$, and $PM_{2.5}$ are based on statistical calculations over one- to three-year periods, depending on the pollutant. The California Ambient Air Quality Standards (CAAQS) are not to be

exceeded during a three-year period. The attainment status for the Riverside County portion of the SoCAB, which encompasses the Project Site, is included in Table 2-3.

**Table 2-3. Attainment Status of Criteria Pollutants in the Riverside County Portion of the SoCAB**

| Pollutant | State Designation | Federal Designation |
|---|---|---|
| $O_3$ | Nonattainment | Nonattainment |
| $PM_{10}$ | Nonattainment | Attainment |
| $PM_{2.5}$ | Nonattainment | Nonattainment |
| CO | Attainment | Unclassified/Attainment |
| $NO_2$ | Attainment | Unclassified/Attainment |
| $SO_2$ | Attainment | Unclassified/Attainment |

Source: CARB 2019

The determination of whether an area meets the state and federal standards is based on air quality monitoring data. Some areas are unclassified, which means there is insufficient monitoring data for determining attainment or nonattainment. Unclassified areas are typically treated as being in attainment. Because the attainment/nonattainment designation is pollutant-specific, an area may be classified as nonattainment for one pollutant and attainment for another. Similarly, because the state and federal standards differ, an area could be classified as attainment for the federal standards of a pollutant and as nonattainment for the state standards of the same pollutant. The region is designated as a nonattainment area for the federal $O_3$ and $PM_{2.5}$ standards and is also a nonattainment area for the state standards for $O_3$, $PM_{2.5}$ and $PM_{10}$ (CARB 2019).

### *2.1.5 Sensitive Receptors*

Sensitive receptors are defined as facilities or land uses that include members of the population who are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples of these sensitive receptors are residences, schools, hospitals, and daycare centers. CARB has identified the following groups of individuals as the most likely to be affected by air pollution: the elderly over 65, children under 14, athletes, and persons with cardiovascular and chronic respiratory diseases such as asthma, emphysema, and bronchitis. The nearest offsite sensitive receptor to the school improvements is a residential neighborhood at the southwest corner of the Chicago Avenue / W. Linden Street intersection, located approximately 750 feet (229 meters) from the proposed campus entry improvements at the southern portion of the campus. However, when in session John W. North High School classrooms are sensitive receptors.

## 2.2 Regulatory Framework

### 2.2.1 Federal

#### *2.2.1.1 Clean Air Act*

The Clean Air Act (CAA) of 1970 and the CAA Amendments of 1971 required the USEPA to establish the NAAQS, with states retaining the option to adopt more stringent standards or to include other specific pollutants. On April 2, 2007, the Supreme Court found that carbon dioxide ($CO_2$) is an air pollutant covered by the CAA; however, no NAAQS have been established for $CO_2$.

These standards are the levels of air quality considered safe, with an adequate margin of safety, to protect 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.

The USEPA has classified air basins (or portions thereof) as being in attainment, nonattainment, or unclassified for each criteria air pollutant, based on whether or not the NAAQS have been achieved. If an area is designated unclassified, it is because inadequate air quality data were available as a basis for a nonattainment or attainment designation. Table 2-3 lists the federal attainment status of the SoCAB for the criteria pollutants.

### 2.2.2 State

#### *2.2.2.1 California Clean Air Act*

The California Clean Air Act (CCAA) allows the State to adopt ambient air quality standards and other regulations provided that they are at least as stringent as federal standards. CARB, a part of the California Environmental Protection Agency, is responsible for the coordination and administration of both federal and state air pollution control programs within California, including setting the CAAQS. CARB also conducts research, compiles emission inventories, develops suggested control measures, and provides oversight of local programs. CARB establishes emissions standards for motor vehicles sold in California, consumer products (such as hairspray, aerosol paints, and barbecue lighter fluid), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions. CARB also has primary responsibility for the development of California's State Implementation Plan (SIP), for which it works closely with the federal government and the local air districts.

#### *2.2.2.2 California State Implementation Plan*

The federal CAA (and its subsequent amendments) requires each state to prepare an air quality control plan referred to as the SIP. The SIP is a living document that is periodically modified to reflect the latest emissions inventories, plans, and rules and regulations of air basins as reported by the agencies with

jurisdiction over them. The CAA Amendments dictate that states containing areas violating the NAAQS revise their SIPs to include extra control measures to reduce air pollution. The SIP includes strategies and control measures to attain the NAAQS by deadlines established by the CAA. The USEPA has the responsibility to review all SIPs to determine if they conform to the requirements of the CAA.

State law makes CARB the lead agency for all purposes related to the SIP. Local air districts and other agencies prepare SIP elements and submit them to CARB for review and approval. CARB then forwards SIP revisions to the USEPA for approval and publication in the Federal Register. The *2016 Air Quality Management Plan* (2016 AQMP) is the SIP for the SoCAB. The 2016 AQMP is a regional blueprint for achieving air quality standards and healthful air in the SoCAB and those portions of the Salton Sea Air Basin that are under SCAQMD's jurisdiction. The 2016 AQMP represents a new approach, focusing on available, proven, and cost-effective alternatives to traditional strategies, while seeking to achieve multiple goals in partnership with other entities promoting reductions in GHGs and toxic risk, as well as efficiencies in energy use, transportation, and goods movement. The most effective way to reduce air pollution impacts is to reduce emissions from mobile sources. The AQMP relies on a regional and multi-level partnership of governmental agencies at the federal, state, regional, and local level. These agencies (USEPA, CARB, local governments, Southern California Association of Governments [SCAG] and the SCAQMD) are the primary agencies that implement the AQMP programs. The 2016 AQMP incorporates the latest scientific and technical information and planning assumptions, including SCAG's latest Regional Transportation Plan/Sustainable Communities Strategy, updated emission inventory methodologies for various source categories, and SCAG's latest growth forecasts. The 2016 AQMP includes integrated strategies and measures to meet the NAAQS. The current status of the SIPs for the SoCAB's nonattainment pollutants are shown below:

- On November 28, 2007, CARB submitted a SIP revision to the USEPA for $O_3$, $PM_{2.5}$ (1997 Standard), CO, and $NO_2$ in the SoCAB. This revision is identified as the "2007 South Coast SIP". The 2007 South Coast SIP demonstrates attainment of the federal $PM_{2.5}$ standard in the SoCAB by 2014 and attainment of the federal eight-hour $O_3$ standard by 2023. This SIP also includes a request to reclassify the $O_3$ attainment designation from "severe" to "extreme". The USEPA approved the redesignation effective June 4, 2010. The "extreme" designation requires the attainment of the eight-hour $O_3$ standard in the SoCAB by June 2024. CARB approved $PM_{2.5}$ SIP revisions in April 2011 and the $O_3$ SIP revisions in July 2011. The USEPA approved the $PM_{2.5}$ SIP in 2013 and has approved 46 of the 61, 1997 eight-hour $O_3$ SIP requirements (. In 2014, the USEPA proposed a finding that the SoCAB has attained the 1997 $PM_{2.5}$ standards. In 2016, the USEPA determined that the SoCAB had attained the 1997 $PM_{2.5}$ standards; however, the SoCAB was not redesignated as an attainment area because the USEPA had not approved a maintenance plan and additional requirements under the CAA had not been met.
- In 2012, the SCAQMD adopted the 2012 AQMP, which was a regional and multiagency effort (the SCAQMD, CARB, SCAG, and the USEPA). The primary purposes of the 2012 AQMP were to demonstrate attainment of the federal 24-hour $PM_{2.5}$ standard by 2014 and to update the USEPA-approved eight-hour Ozone Control Plan. In 2012, the 2012 AQMP was submitted to CARB and

the USEPA for concurrent review and approval for inclusion in the SIP. The 2012 AQMP was approved by CARB on January 25, 2013.

- In 2017, the SCAQMD adopted the 2016 AQMP. The 2016 AQMP includes strategies and measures to meet the following NAAQS:
  - 2008 eight-hour $O_3$ (75 parts per billion [ppb]) by 2013
  - 2012 Annual $PM_{2.5}$ (12 µg/m$^3$) by 2025
  - 1997 eight-hour $O_3$ (80 ppb) by 2023
  - 1979 one-hour $O_3$ (120 ppb) by 2022
  - 2006 24-hour $PM_{2.5}$ (35 µg/m$^3$) by 2019

#### *2.2.2.3 Tanner Air Toxics Act & Air Toxics "Hot Spots" Information and Assessment Act*

CARB's statewide comprehensive air toxics program was established in 1983 with Assembly Bill (AB) 1807, the Toxic Air Contaminant Identification and Control Act (Tanner Air Toxics Act of 1983). AB 1807 created California's program to reduce exposure to air toxics and sets forth a formal procedure for CARB to designate substances as TACs. Once a TAC is identified, CARB adopts an airborne toxics control measure (ATCM) for sources that emit designated TACs. If there is a safe threshold for a substance at which there is no toxic effect, the control measure must reduce exposure to below that threshold. If there is no safe threshold, the measure must incorporate toxics best available control technology to minimize emissions.

CARB also administers the State's mobile source emissions control program and oversees air quality programs established by state statute, such as AB 2588, the Air Toxics "Hot Spots" Information and Assessment Act of 1987. Under AB 2588, TAC emissions from individual facilities are quantified and prioritized by the air quality management district or air pollution control district. High priority facilities are required to perform a health risk assessment (HRA) and, if specific thresholds are exceeded, required to communicate the results to the public in the form of notices and public meetings. In September 1992, the "Hot Spots" Act was amended by SB 1731, which required facilities that pose a significant health risk to the community to reduce their risk through a risk management plan.

### 2.2.3 Local

#### *2.2.3.1 South Coast Air Quality Management District*

The SCAQMD is the air pollution control agency for Orange County and the urban portions of Los Angeles, Riverside, and San Bernardino counties, including the Project Site. The agency's primary responsibility is ensuring that the NAAQS and CAAQS are attained and maintained in the SoCAB. The SCAQMD is also responsible for adopting and enforcing rules and regulations concerning air pollutant sources, issuing permits for stationary sources of air pollutants, inspecting stationary sources of air pollutants, responding to citizen complaints, monitoring ambient air quality and meteorological conditions, awarding grants to reduce motor vehicle emissions, and conducting public education

campaigns, as well as many other activities. All projects are subject to SCAQMD rules and regulations in effect at the time of construction.

The following is a list of noteworthy SCAQMD rules that are required of construction activities associated with the Proposed Project:

- **Rule 201 & Rule 203 (Permit to Construct & Permit to Operate)** – Rule 201 requires a "Permit to Construct" prior to the installation of any equipment "the use of which may cause the issuance of air contaminants . . ." and Regulation II provides the requirements for the application for a Permit to Construct. Rule 203 similarly requires a Permit to Operate.
- **Rule 212 (Standards for Approving Permits and Issuing Public Notice)**- This rule requires the applicant to show that the equipment used of which may cause the issuance of air contaminants or the use of which may eliminate, reduce, or control the issuance of air contaminants, is so designed, controlled, or equipped with such air pollution control equipment that it may be expected to operate without emitting air contaminates in violation of Section 41700, 4170 or 44300 of the Health and Safety Code or of these rules.
- **Rule 402 (Nuisance)** – This rule prohibits the discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property. This rule does not apply to odors emanating from agricultural operations necessary for the growing of crops or the raising of fowl or animals.
- **Rule 403 (Fugitive Dust)** – This rule requires fugitive dust sources to implement best available control measures for all sources, and all forms of visible PM are prohibited from crossing any property line. This rule is intended to reduce $PM_{10}$ emissions from any transportation, handling, construction, or storage activity that has the potential to generate fugitive dust. $PM_{10}$ suppression techniques are summarized below.

    a) Portions of a construction site to remain inactive longer than a period of three months will be seeded and watered until grass cover is grown or otherwise stabilized.
    b) All onsite roads will be paved as soon as feasible or watered periodically or chemically stabilized.
    c) All material transported offsite will be either sufficiently watered or securely covered to prevent excessive amounts of dust.
    d) The area disturbed by clearing, grading, earthmoving, or excavation operations will be minimized at all times.
    e) Where vehicles leave a construction site and enter adjacent public streets, the streets will be swept daily or washed down at the end of the workday to remove soil tracked onto the paved surface.

- **Rule 1113 (Architectural Coatings)** – This rule requires manufacturers, distributors, and end-users of architectural and industrial maintenance coatings to reduce ROG emissions from the use of these coatings, primarily by placing limits on the ROG content of various coating categories.
- **Rule 1401 (New Source Review of Toxic Air Contaminants)** – This rule requires new source review of any new, relocated, or modified permit units that emit TACs. The rule establishes allowable risks for permit units requiring permits pursuant to Rules 201 and 203 discussed above.

#### *2.2.3.2 Southern California Association of Governments*

On September 3, 2020, the SCAG Regional Council adopted the *2020-2045 Regional Transportation Plan/ Sustainable Communities Strategy* (2020 RTP/SCS). The 2020 RTP/SCS charts a course for closely integrating land use and transportation – so that the region can grow smartly and sustainably. It was prepared through a collaborative, continuous, and comprehensive process with input from local governments, county transportation commissions, tribal governments, non-profit organizations, businesses and local stakeholders within the counties of Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura. The 2020 RTP/SCS is a long-range visioning plan that balances future mobility and housing needs with economic, environmental and public health goals. The SCAG region strives toward sustainability through integrated land use and transportation planning. The SCAG region must achieve specific federal air quality standards and is required by state law to lower regional GHG emissions. Specifically, the region has been tasked by CARB to achieve a 19 percent per capita reduction by the end of 2035.

## 2.3 Air Quality Emissions Impact Assessment

### 2.3.1 Thresholds of Significance

The impact analysis provided below is based on the following California Environmental Quality Act (CEQA) Guidelines Appendix G thresholds of significance. The Project would result in a significant impact to air quality if it would do any of the following:

1) Conflict with or obstruct implementation of any applicable air quality plan.

2) 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 (including releasing emissions which exceed quantitative thresholds for ozone precursors).

3) Expose sensitive receptors to substantial pollutant concentrations.

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

#### *2.3.1.1 South Coast Air Quality Management District Regional Thresholds*

The significance criteria established by the applicable air quality management or air pollution control district (SCAQMD) may be relied upon to make the above determinations. According to the SCAQMD, an air quality impact is considered significant if the Proposed Project would violate any ambient air quality standard, contribute substantially to an existing or projected air quality violation, or expose sensitive receptors to substantial pollutant concentrations. The SCAQMD has established thresholds of significance for air quality for construction and operational activities of land use development projects such as that proposed, as shown in Table 2-4.

**Table 2-4. SCAQMD Regional Significance Thresholds – Pounds per Day**

| Air Pollutant | Construction Activities | Operations |
|---|---|---|
| Reactive Organic Gas | 75 | 55 |
| Carbon Monoxide | 550 | 550 |
| Nitrogen Oxide | 100 | 55 |
| Sulfur Oxide | 150 | 150 |
| Coarse Particulate Matter | 150 | 150 |
| Fine Particulate Matter | 55 | 55 |

Source: SCAQMD 1993 ($PM_{2.5}$ threshold adopted June 1, 2007)

By its very nature, air pollution is largely a cumulative impact. No single project is sufficient in size, by itself, to result in nonattainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. If a project's individual emissions exceed its identified significance thresholds, the project would be cumulatively considerable. Projects that do not exceed significance thresholds would not be considered cumulative considerable.

#### *2.3.1.2 South Coast Air Quality Management District Localized Significance Thresholds*

In addition to regional significance thresholds, the SCAQMD developed localized significance thresholds (LSTs) for emissions of $NO_2$, CO, $PM_{10}$, and $PM_{2.5}$ generated at new development sites (offsite mobile source emissions are not included in the LST analysis protocol). LSTs represent the maximum emissions that can be generated at a Project Site without expecting to cause or substantially contribute to an exceedance of the most stringent national or state ambient air quality standards. LSTs are based on the ambient concentrations of that pollutant within the Project source receptor area (SRA), as demarcated by the SCAQMD, and the distance to the nearest sensitive receptor. LST analysis is applicable for all projects that disturb five acres or less on a single day. The SCAQMD has prepared mass rate LST look-up tables for projects disturbing one acre, two acres, and five acres. While the school campus spans approximately 34 acres, the proposed improvements would only involve the disturbance of 2.5 to 3.0 acres. The campus is located within SCAQMD SRA 23 (Metropolitan Riverside County). Table 2-5 shows the extrapolated LSTs for a three-acre project site in SRA 23, as derived from the SCAQMD mass rate LST look-up tables, with

sensitive receptors located within 25 meters (as previously described, the nearest sensitive receptors to an area of Project construction is located approximately 750 feet (229 meters) from the proposed campus entry improvements at the southern portion of the campus. However, when in session John W. North High School classrooms (<25 meters) are sensitive receptors.

**Table 2-5. Local Significance Thresholds at 25 Meters of a Sensitive Receptor**

| Project Size | Pollutant (pounds per day) | | | |
|---|---|---|---|---|
| | $NO_2$ | CO | $PM_{10}$ | $PM_{2.5}$ |
| **Construction Threshold** | | | | |
| 3 Acre | 203.33 | 1,114.33 | 9.00 | 5.33 |
| **Operational Threshold** | | | | |
| 3 Acre | 203.33 | 1,114.33 | 2.67 | 1.33 |

Source: SCAQMD 2009

### 2.3.2 Methodology

Air quality impacts were assessed in accordance with methodologies recommended by the SCAQMD. Where criteria air pollutant quantification was required, emissions were modeled using the California Emissions Estimator Model (CalEEMod), version 2020.4.0. CalEEMod is a statewide land use emissions computer model designed to quantify potential criteria pollutant emissions associated with both construction and operations from a variety of land use projects. Project construction-generated air pollutant emissions were calculated using CalEEMod model defaults for Riverside County. Operational air pollutant emissions are discussed qualitatively based on information from the Project proponent.

### *2.3.3 Impact Analysis Impact Analysis*

#### *2.3.3.1 Project Construction-Generated Criteria Air Quality Emissions*

*Regional Construction Significance Analysis*

Construction-generated emissions are temporary and short-term but have the potential to represent a significant air quality impact. Three basic sources of short-term emissions will be generated through construction of the Proposed Project: operation of the construction vehicles (i.e., excavators, trenchers, dump trucks), the creation of fugitive dust during clearing and grading, and the use of asphalt or other oil-based substances during paving activities. Construction activities such as excavation and grading operations, construction vehicle traffic, and wind blowing over exposed soils would generate exhaust emissions and fugitive PM emissions that affect local air quality at various times during construction. Effects would be variable depending on the weather, soil conditions, the amount of activity taking place, and the nature of dust control efforts. The dry climate of the area during the summer months creates a

high potential for dust generation. Construction activities would be subject to SCAQMD Rule 403, which requires taking reasonable precautions to prevent the emissions of fugitive dust, such as using water or chemicals, where possible, for control of dust during the clearing of land and other construction activities.

Construction-generated emissions associated the Proposed Project were calculated using the CARB-approved CalEEMod computer program, which is designed to model emissions for land use development projects, based on typical construction requirements. See Attachment A for more information regarding the construction assumptions, including construction equipment and duration, used in this analysis.

Predicted maximum daily construction-generated emissions for the Proposed Project are summarized in Table 2-6. Construction-generated emissions are short-term and of temporary duration, lasting only as long as construction activities occur, but would be considered a significant air quality impact if the volume of pollutants generated exceeds the SCAQMD's thresholds of significance.

**Table 2-6. Construction-Related Emissions (Regional Significance Analysis)**

| Construction Year | Pollutant (pounds per day) | | | | | |
|---|---|---|---|---|---|---|
| | **ROG** | **$NO_X$** | **CO** | **$SO_2$** | **$PM_{10}$** | **$PM_{2.5}$** |
| Construction Year One | 4.79 | 24.14 | 30.66 | 0.05 | 3.44 | 4.01 |
| Construction Year Two | 4.61 | 22.73 | 29.82 | 0.05 | 3.44 | 1.91 |
| *SCAQMD Regional Significance Threshold* | *75* | *100* | *550* | *150* | *150* | *55* |
| **Exceed SCAQMD Regional Threshold?** | **No** | **No** | **No** | **No** | **No** | **No** |

Source: CalEEMod version 2020.4.0. Refer to Attachment A for Model Data Outputs.
Notes: Emissions taken of the season, summer or winter, with the highest outputs. Emission reduction/credits for construction emissions are applied based on the required implementation of SCAQMD Rule 403. The specific Rule 403 measures applied in CalEEMod include the following: sweeping/cleaning adjacent roadway access areas daily; washing equipment tires before leaving the construction site; water exposed surfaces three times daily; and limit speeds on unpaved roads to 15 miles per hour. Reductions percentages from the SCAQMD CEQA Handbook (Tables XI-A through XI-E) were applied.

As shown in Table 2-6, emissions generated during Project construction would not exceed the SCAQMD's regional thresholds of significance. Therefore, criteria pollutant emissions generated during Project construction would not 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, and no health effects from Project criteria pollutants would occur.

*Localized Construction Significance Analysis*

The nearest offsite sensitive receptor to the school improvements is a residential neighborhood at the southwest corner of the Chicago Avenue / W. Linden Street intersection, located approximately 750 feet from the proposed campus entry improvements at the southern portion of the campus. However, when in session John W. North High School is a sensitive receptor itself. In order to identify localized, air toxic-related impacts to sensitive receptors, the SCAQMD recommends addressing LSTs for construction. LSTs

were developed in response to SCAQMD Governing Boards' Environmental Justice Enhancement Initiative (I-4). The SCAQMD provided the *Final Localized Significance Threshold Methodology* (dated June 2003 [revised 2008]) for guidance. The LST methodology assists lead agencies in analyzing localized impacts associated with Project-specific level proposed projects.

For this Project, the appropriate SRA for the localized significance thresholds is the Metropolitan Riverside County, SRA 23. LSTs apply to CO, $NO_2$, $PM_{10}$, and $PM_{2.5}$. As previously described, the SCAQMD has produced lookup tables for projects that disturb one, two and five acres. The Proposed Project would disturb approximately three acres during construction. Thus, the extrapolated LST threshold value for a three-acre project site in SRA 23, as derived from the SCAQMD mass rate LST look-up tables, was employed from the LST lookup tables. LST thresholds are provided for distances to sensitive receptors of 25, 50, 100, 200, and 500 meters. The nearest sensitive receptors to construction activity as a result of the Project are residences located approximately 750 feet (230 meters) from the proposed campus entry improvements at the southern portion of the campus. However, when in session John W. North High School is a sensitive receptor itself (<25 meters). Notwithstanding, the SCAQMD Methodology explicitly states: "It is possible that a project may have receptors closer than 25 meters. Projects with boundaries located closer than 25 meters to the nearest receptor should use the LSTs for receptors located at 25 meters." Therefore, LSTs for receptors located at 25 meters were utilized in this analysis, in the case that school is in session when the proposed improvements are constructed. The SCAQMD's methodology clearly states that "offsite mobile emissions from a project should not be included in the emissions compared to LSTs." Therefore, for purposes of the construction LST analysis, only emissions included in the CalEEMod "onsite" emissions outputs were considered. Table 2-7 presents the results of localized emissions. The LSTs reflect a maximum disturbance of the entire site.

**Table 2-7. Construction-Related Emissions (Localized Significance Analysis)**

| Activity | Pollutant (pounds per day) | | | |
|---|---|---|---|---|
| | **$NO_X$** | **CO** | **$PM_{10}$** | **$PM_{2.5}$** |
| Site Preparation | 14.28 | 9.78 | 1.16 | 0.56 |
| Grading | 14.46 | 8.70 | 3.36 | 1.89 |
| Building Construction, Paving & Painting | 23.52 | 27.70 | 1.11 | 1.05 |
| *SCAQMD Localized Significance Threshold (3.0 acre of disturbance)* | *203.33* | *1,114.33* | *9.00* | *5.33* |
| **Exceed SCAQMD Localized Threshold?** | **No** | **No** | **No** | **No** |

Source: CalEEMod version 2020.4.0. Refer to Attachment A for Model Data Outputs.

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

Table 2-7 shows that the emissions of these pollutants on the peak day of construction would not result in significant concentrations of pollutants at nearby sensitive receptors. Therefore, significant impacts would not occur concerning LSTs during construction activities. LSTs were developed in response to SCAQMD Governing Boards' Environmental Justice Enhancement Initiative. The SCAQMD Environmental Justice Enhancement Initiative program seeks to ensure that everyone has the right to equal protection from air pollution. The Environmental Justice Program is divided into three categories, with the LST protocol promulgated under Category I: *Further-Reduced Health Risk*. Thus, the fact that onsite Project construction emissions would be generated at rates below the LSTs for $NO_x$, CO, $PM_{10}$, and $PM_{2.5}$ demonstrates that the Project would likely not adversely impact the neighboring receptors in the vicinity of the Project.

#### *2.3.3.2 Project Operations Criteria Air Quality Emissions*

*Regional Operational Significance Analysis*

The Project is proposing several improvements to the existing campus for the purposes of modernization. The number of new classrooms is equal to the amount being removed and thus there would be no increase in student capacity. No additional school sports programs would be added, and the new gymnasium is not expected to increase the number of participants or spectators. The operational emissions would solely be generated from the energy consumption associated with the new gymnasium and would have a negligible contribution to existing conditions. Therefore, by its very nature, the Project would not generate quantifiable criteria emissions from Project operations.

*Localized Operational Significance Analysis*

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

#### *2.3.3.3 Conflict with the 2016 Air Quality Management Plan*

As part of its enforcement responsibilities, the USEPA requires each state with nonattainment areas to prepare and submit a SIP that demonstrates the means to attain the federal standards. The SIP must integrate federal, state, and local plan components and regulations to identify specific measures to reduce pollution in nonattainment areas, using a combination of performance standards and market-based programs. Similarly, under state law, the CCAA requires an air quality attainment plan to be prepared for areas designated as nonattainment with regard to the NAAQS and CAAQS. Air quality attainment plans outline emissions limits and control measures to achieve and maintain these standards by the earliest practical date.

As previously mentioned, the Project Site is located within the SoCAB, which is under the jurisdiction of the SCAQMD. The SCAQMD is required, pursuant to the federal CAA, to reduce emissions of criteria pollutants for which the SoCAB is in nonattainment. In order to reduce such emissions, the SCAQMD drafted the 2016 AQMP. The 2016 AQMP establishes a program of rules and regulations directed at

reducing air pollutant emissions and achieving state (California) and national air quality standards. The 2016 AQMP is a regional and multi-agency effort including the SCAQMD, CARB, SCAG, and the USEPA. The plan's pollutant control strategies are based on the latest scientific and technical information and planning assumptions, including SCAG's latest RTP/SCS, updated emission inventory methodologies for various source categories, and SCAG's latest growth forecasts. (SCAG's latest growth forecasts were defined in consultation with local governments and with reference to local general plans.) The Project is subject to the SCAQMD's AQMP.

According to the SCAQMD, in order to determine consistency with SCAQMD's air quality planning two main criteria must be addressed.

*Criterion 1:*

With respect to the first criterion, SCAQMD methodologies require that an air quality analysis for a project include forecasts of project emissions in relation to contributing to air quality violations and delay of attainment.

*a) Would the project result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new air quality violations?*

As shown in Table 2-6 and 2-7 above, the Proposed Project would result in emissions that would be below the SCAQMD regional and localized thresholds during construction and would have a negligible contribution during operations. Therefore, the Proposed Project would not result in an increase in the frequency or severity of existing air quality violations and would not have the potential to cause or affect a violation of the ambient air quality standards.

*b) Would the project delay timely attainment of air quality standards or the interim emissions reductions specified in the AQMP?*

As shown in Table 2-6 above, the Proposed Project would be below the SCAQMD regional thresholds for construction. Furthermore, operations would have a negligible contribution. Because the Project would result in less than significant regional emission impacts, it would not delay the timely attainment of air quality standards or AQMP emissions reductions.

*Criterion 2:*

With respect to the second criterion for determining consistency with SCAQMD and SCAG air quality policies, it is important to recognize that air quality planning within the SoCAB focuses on attainment of ambient air quality standards at the earliest feasible date. Projections for achieving air quality goals are based on assumptions regarding population, housing, and growth trends. Thus, the SCAQMD's second criterion for determining Project consistency focuses on whether or not the Proposed Project exceeds the assumptions utilized in preparing the forecasts presented its air quality planning documents. Determining whether or not a project exceeds the assumptions reflected in the 2016 AQMP involves the evaluation of the three criteria outlined below. The following discussion provides an analysis of each of these criteria.

*a) Would the project be consistent with the population, housing, and employment growth projections utilized in the preparation of the 2016 AQMP?*

A project is consistent with regional air quality planning efforts in part if it is consistent with the population, housing, and employment assumptions that were used in the development of the SCAQMD air quality plans. Generally, three sources of data form the basis for the projections of air pollutant emissions in Riverside. Specifically, SCAG's Growth Management Chapter of the Regional Comprehensive Plan and Guide (RCPG) provides regional population forecasts for the region and SCAG's RTP/SCS provides socioeconomic forecast projections of regional population growth. The City of Riverside General Plan is referenced by SCAG in order to assist forecasting future growth in the city.

The Project is proposing several improvements to the existing campus for the purposes of modernization. The number of new classrooms is equal to the amount being removed and thus there would be no increase in student capacity. No additional school sports programs would be added, and the new gymnasium is not expected to increase the number of participants or spectators. The Project does not involve the development of new housing or employment centers. As such, the Project would not be contributing to an increase in population, housing or employment growth. Therefore, the Proposed Project would be considered consistent with the population, housing, and employment growth projections utilized in the preparation of SCAQMD's air quality plans.

*b) Would the project implement all feasible air quality mitigation measures?*

In order to further reduce emissions, the Project would be required to comply with emission reduction measures promulgated by the SCAQMD, such as SCAQMD Rules 201, 402, 403, and 1113. SCAQMD Rule 402 prohibits the discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property. SCAQMD Rule 403 requires fugitive dust sources to implement Best Available Control Measures for all sources, and all forms of visible particulate matter are prohibited from crossing any property line. SCAQMD Rule 403 is intended to reduce $PM_{10}$ emissions from any transportation, handling, construction, or storage activity that has the potential to generate fugitive dust. SCAQMD 1113 requires manufacturers, distributors, and end-users of architectural and industrial maintenance coatings to reduce ROG emissions from the use of these coatings, primarily by placing limits on the ROG content of various coating categories. As such, the Proposed Project meets this consistency criterion.

*c) Would the project be consistent with the land use planning strategies set forth by SCAQMD air quality planning efforts?*

The determination of AQMP consistency is primarily concerned with the long-term influence of a project on air quality. The AQMP contains air pollutant reduction strategies based on SCAG's latest growth forecasts, and SCAG's growth forecasts were defined in consultation with local governments and with reference to local general plans. As shown in Table 2-6, the Proposed Project would not exceed applicable SCAQMD thresholds of significance during implementation and would have a negligible contribution to operational related emissions beyond existing conditions. The Project would not result in a long-term impact on the region's ability to meet state and federal air quality standards. The Project's long-term

influence would also be consistent with the goals, objectives, and strategies of the SCAQMD's 2016 AQMP.

The Project would be consistent with the emission-reduction goals of the 2016 AQMP.

#### *2.3.3.4 Exposure of Sensitive Receptors to Toxic Air Contaminants*

As previously described, sensitive receptors are defined as facilities or land uses that include members of the population that are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples of these sensitive receptors are residences, schools, hospitals, and daycare centers. CARB has identified the following groups of individuals as the most likely to be affected by air pollution: the elderly over age 65, children under age 14, athletes, and persons with cardiovascular and chronic respiratory diseases such as asthma, emphysema, and bronchitis. The nearest offsite sensitive receptor is a residential neighborhood at the southwest corner of the Chicago Avenue / W. Linden Street intersection, located approximately 750 feet (229 meters) from the proposed campus entry improvements at the southern portion of the campus. However, when in session John W. North High School classrooms are sensitive receptors.

*Construction-Generated Air Contaminants*

Construction-related activities would result in temporary, short-term Proposed Project-generated emissions of diesel particulate matter (DPM), ROG, NOx, CO, and $PM_{10}$ from the exhaust of off-road, heavy-duty diesel equipment for site preparation (e.g., clearing, grading); soil hauling truck traffic; paving; and other miscellaneous activities. The portion of the SoCAB which encompasses the Project Area is designated as a nonattainment area for federal $O_3$ and $PM_{2.5}$ standards and is also a nonattainment area for the state standards for $O_3$, $PM_{2.5}$, and $PM_{10}$ standards (CARB 2019). Thus, existing $O_3$, $PM_{10}$, and $PM_{2.5}$ levels in the SoCAB are at unhealthy levels during certain periods. However, as shown in Table 2-6 and Table 2-7, Project construction would not exceed the SCAQMD regional or localized significance thresholds for emissions.

The health effects associated with $O_3$ are generally associated with reduced lung function. Because the Project would not involve construction activities that would result in $O_3$ precursor emissions (ROG or NOx) in excess of the SCAQMD thresholds, the Project is not anticipated to substantially contribute to regional $O_3$ concentrations and the associated health impacts.

CO tends to be a localized impact associated with congested intersections. In terms of adverse health effects, CO competes with oxygen, often replacing it in the blood, reducing the blood's ability to transport oxygen to vital organs. The results of excess CO exposure can include dizziness, fatigue, and impairment of central nervous system functions. The Project would not involve construction activities that would result in CO emissions in excess of the SCAQMD thresholds. Thus, the Project's CO emissions would not contribute to the health effects associated with this pollutant.

Particulate matter ($PM_{10}$ and $PM_{2.5}$) contains microscopic solids or liquid droplets that are so small that they can get deep into the lungs and cause serious health problems. Particulate matter exposure has been linked to a variety of problems, including premature death in people with heart or lung disease, nonfatal

heart attacks, irregular heartbeat, aggravated asthma, decreased lung function, and increased respiratory symptoms such as irritation of the airways, coughing, or difficulty breathing. For construction activity, DPM is the primary TAC of concern. $PM_{10}$ exhaust is considered a surrogate for DPM as all diesel exhaust is considered to be DPM. As with $O_3$ and NOx, the Project would not generate emissions of $PM_{10}$ or $PM_{2.5}$ that would exceed the SCAQMD's thresholds. Accordingly, the Project's $PM_{10}$ and $PM_{2.5}$ emissions are not expected to cause any increase in related regional health effects for these pollutants.

In summary, Project construction would not result in a potentially significant contribution to regional concentrations of nonattainment pollutants and would not result in a significant contribution to the adverse health impacts associated with those pollutants.

*Operational Air Contaminants*

Operation of the Proposed Project would not result in the development of any substantial sources of air toxics. There are no stationary sources associated with the operations of the Project; nor would the Project attract additional mobile sources that spend long periods queuing and idling at the site. Onsite Project emissions would not result in significant concentrations of pollutants at nearby sensitive receptors. The Project would not have a high carcinogenic or non-carcinogenic risk during operation.

*Carbon Monoxide Hot Spots*

It has long been recognized that CO exceedances are caused by vehicular emissions, primarily when idling at intersections. Concentrations of CO are a direct function of the number of vehicles, length of delay, and traffic flow conditions. Under certain meteorological conditions, CO concentrations close to congested intersections that experience high levels of traffic and elevated background concentrations may reach unhealthy levels, affecting nearby sensitive receptors. Given the high traffic volume potential, areas of high CO concentrations, or "hot spots," are typically associated with intersections that are projected to operate at unacceptable levels of service during the peak commute hours. It has long been recognized that CO hotspots are caused by vehicular emissions, primarily when idling at congested intersections. However, transport of this criteria pollutant is extremely limited, and CO disperses rapidly with distance from the source under normal meteorological conditions. Furthermore, vehicle emissions standards have become increasingly more stringent in the last 20 years. Currently, the allowable CO emissions standard in California is a maximum of 3.4 grams/mile for passenger cars (there are requirements for certain vehicles that are more stringent). With the turnover of older vehicles, introduction of cleaner fuels, and implementation of increasingly sophisticated and efficient emissions control technologies, CO concentration in the SoCAB is designated as in attainment. Detailed modeling of Project-specific CO "hot spots" is not necessary and thus this potential impact is addressed qualitatively.

A CO "hot spot" would occur if an exceedance of the state one-hour standard of 20 parts per million (ppm) or the eight-hour standard of 9 ppm were to occur. The analysis prepared for CO attainment in the South Coast Air Quality Management District's (SCAQMD's) *1992 Federal Attainment Plan for Carbon Monoxide* in Los Angeles County and a Modeling and Attainment Demonstration prepared by the SCAQMD as part of the 2003 AQMP can be used to demonstrate the potential for CO exceedances of these standards. The SCAQMD is the air pollution control officer for much of southern California. The SCAQMD conducted a CO hot spot analysis as part of the 1992 CO Federal Attainment Plan at four busy

intersections in Los Angeles County during the peak morning and afternoon time periods. The intersections evaluated included Long Beach Boulevard and Imperial Highway (Lynwood), Wilshire Boulevard and Veteran Avenue (Westwood), Sunset Boulevard and Highland Avenue (Hollywood), and La Cienega Boulevard and Century Boulevard (Inglewood). The busiest intersection evaluated was at Wilshire Boulevard and Veteran Avenue, which has a traffic volume of approximately 100,000 vehicles per day. Despite this level of traffic, the CO analysis concluded that there was no violation of CO standards (SCAQMD 1992). In order to establish a more accurate record of baseline CO concentrations affecting the Los Angeles, a CO "hot spot" analysis was conducted in 2003 at the same four busy intersections in Los Angeles at the peak morning and afternoon time periods. This "hot spot" analysis did not predict any violation of CO standards. The highest one-hour concentration was measured at 4.6 ppm at Wilshire Boulevard and Veteran Avenue and the highest eight-hour concentration was measured at 8.4 ppm at Long Beach Boulevard and Imperial Highway. Thus, there was no violation of CO standards.

Similar considerations are also employed by other Air Districts when evaluating potential CO concentration impacts. More specifically, the Bay Area Air Quality Management District (BAAQMD), the air pollution control officer for the San Francisco Bay Area, concludes that under existing and future vehicle emission rates, a given project would have to increase traffic volumes at a single intersection by more than 44,000 vehicles per hour or 24,000 vehicles per hour where vertical and/or horizontal air does not mix—in order to generate a significant CO impact.

The number of new classrooms proposed by the Project is equal to the amount being removed and thus there would be no increase in student capacity. No additional school sports programs would be added, and the new gymnasium is not expected to increase the number of participants or spectators. Thus, the Proposed Project would not generate traffic volumes at any intersection of more than 100,000 vehicles per day (or 44,000 vehicles per day) and there is no likelihood of the Project traffic exceeding CO values.

#### *2.3.3.5 Odors*

Typically, odors are regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache).

With respect to odors, the human nose is the sole sensing device. The ability to detect odors varies considerably among the population and overall is quite subjective. Some individuals have the ability to smell minute quantities of specific substances; others may not have the same sensitivity but may have sensitivities to odors of other substances. In addition, people may have different reactions to the same odor; in fact, an odor that is offensive to one person (e.g., from a fast-food restaurant) may be perfectly acceptable to another. It is also important to note that an unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. This is because of the phenomenon known as odor fatigue, in which a person can become desensitized to almost any odor and recognition only occurs with an alteration in the intensity.

Quality and intensity are two properties present in any odor. The quality of an odor indicates the nature of the smell experience. For instance, if a person describes an odor as flowery or sweet, then the person is

describing the quality of the odor. Intensity refers to the strength of the odor. For example, a person may use the word "strong" to describe the intensity of an odor. Odor intensity depends on the odorant concentration in the air. When an odorous sample is progressively diluted, the odorant concentration decreases. As this occurs, the odor intensity weakens and eventually becomes so low that the detection or recognition of the odor is quite difficult. At some point during dilution, the concentration of the odorant reaches a detection threshold. An odorant concentration below the detection threshold means that the concentration in the air is not detectable by the average human.

During construction, the Proposed Project presents the potential for generation of objectionable odors in the form of diesel exhaust in the immediate vicinity of the site. However, these emissions are short-term in nature and will rapidly dissipate and be diluted by the atmosphere downwind of the emission sources. Additionally, odors would be localized and generally confined to the construction area. Therefore, construction odors would not adversely affect a substantial number of people to odor emissions.

According to the SCAQMD, land uses commonly considered to be potential sources of obnoxious odorous emissions include agriculture (farming and livestock), wastewater treatment plants, food processing plants, chemical plants, composting facilities, refineries, landfills, dairies, and fiberglass molding. The Proposed Project does not include any uses identified by the SCAQMD as being associated with odors.

# 3.0 GREENHOUSE GAS EMISSIONS

## 3.1 Greenhouse Gas Setting

Certain gases in the earth's atmosphere, classified as GHGs, play a critical role in determining the earth's surface temperature. Solar radiation enters the earth's atmosphere from space. A portion of the radiation is absorbed by the earth's surface and a smaller portion of this radiation is reflected back toward space. This absorbed radiation is then emitted from the earth as low-frequency infrared radiation. The frequencies at which bodies emit radiation are proportional to temperature. Because the earth has a much lower temperature than the sun, it emits lower-frequency radiation. Most solar radiation passes through GHGs; however, infrared radiation is absorbed by these gases. As a result, radiation that otherwise would have escaped back into space is instead trapped, resulting in a warming of the atmosphere. This phenomenon, known as the greenhouse effect, is responsible for maintaining a habitable climate on earth. Without the greenhouse effect, the earth would not be able to support life as we know it.

Prominent GHGs contributing to the greenhouse effect are $CO_2$, methane ($CH_4$), and $N_2O$. Fluorinated gases also make up a small fraction of the GHGs that contribute to climate change. Fluorinated gases include chlorofluorocarbons, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, and nitrogen trifluoride; however, it is noted that these gases are not associated with typical land use development. Human-caused emissions of these GHGs in excess of natural ambient concentrations are believed to be responsible for intensifying the greenhouse effect and leading to a trend of unnatural warming of the earth's climate, known as global climate change or global warming. It is "extremely likely" that more than half of the observed increase in global average surface temperature from 1951 to 2010 was caused by the anthropogenic increase in GHG concentrations and other anthropogenic factors together (Intergovernmental Panel on Climate Change [IPCC] 2014).

Table 3-1 describes the primary GHGs attributed to global climate change, including their physical properties, primary sources, and contributions to the greenhouse effect.

Each GHG differs in its ability to absorb heat in the atmosphere based on the lifetime, or persistence, of the gas molecule in the atmosphere. $CH_4$ traps over 25 times more heat per molecule than $CO_2$, and $N_2O$ absorbs 298 times more heat per molecule than $CO_2$ (IPCC 2014). Often, estimates of GHG emissions are presented in carbon dioxide equivalents ($CO_2e$), which weight each gas by its global warming potential. Expressing GHG emissions in $CO_2e$ takes the contribution of all GHG emissions to the greenhouse effect and converts them to a single unit equivalent to the effect that would occur if only $CO_2$ were being emitted.

Climate change is a global problem. GHGs are global pollutants, unlike criteria air pollutants and TACs, which are pollutants of regional and local concern. Whereas pollutants with localized air quality effects have relatively short atmospheric lifetimes (about one day), GHGs have long atmospheric lifetimes (one to several thousand years). GHGs persist in the atmosphere for long enough time periods to be dispersed around the globe. Although the exact lifetime of any particular GHG molecule is dependent on multiple variables and cannot be pinpointed, it is understood that more $CO_2$ is emitted into the atmosphere than is sequestered by ocean uptake, vegetation, or other forms. Of the total annual human-caused $CO_2$

emissions, approximately 55 percent is sequestered through ocean and land uptakes every year, averaged over the last 50 years, whereas the remaining 45 percent of human-caused $CO_2$ emissions remains stored in the atmosphere (IPCC 2013).

**Table 3-1. Greenhouse Gases**

| Greenhouse Gas | Description |
|---|---|
| $CO_2$ | Carbon dioxide is a colorless, odorless gas. $CO_2$ is emitted in a number of ways, both naturally and through human activities. The largest source of $CO_2$ emissions globally is the combustion of fossil fuels such as coal, oil, and gas in power plants, automobiles, industrial facilities, and other sources. A number of specialized industrial production processes and product uses such as mineral production, metal production, and the use of petroleum-based products can also lead to $CO_2$ emissions. The atmospheric lifetime of $CO_2$ is variable because it is so readily exchanged in the atmosphere.[1] |
| $CH_4$ | Methane is a colorless, odorless gas and is the major component of natural gas, about 87 percent by volume. It is also formed and released to the atmosphere by biological processes occurring in anaerobic environments. Methane is emitted from a variety of both human-related and natural sources. Human-related sources include fossil fuel production, animal husbandry (intestinal fermentation in livestock and manure management), rice cultivation, biomass burning, and waste management. These activities release significant quantities of $CH_4$ to the atmosphere. Natural sources of $CH_4$ include wetlands, gas hydrates, permafrost, termites, oceans, freshwater bodies, non-wetland soils, and other sources such as wildfires. The atmospheric lifetime of $CH_4$ is about12 years.[2] |
| $N_2O$ | Nitrous oxide is a clear, colorless gas with a slightly sweet odor. Nitrous oxide is produced by both natural and human-related sources. Primary human-related sources of $N_2O$ are agricultural soil management, animal manure management, sewage treatment, mobile and stationary combustion of fossil fuels, adipic acid production, and nitric acid production. $N_2O$ is also produced naturally from a wide variety of biological sources in soil and water, particularly microbial action in wet tropical forests. The atmospheric lifetime of $N_2O$ is approximately 120 years.[3] |

Sources: [1]USEPA 2016a, [2] USEPA 2016b, [3] USEPA 2016c

The quantity of GHGs that it takes to ultimately result in climate change is not precisely known; it is sufficient to say the quantity is enormous, and no single project alone would measurably contribute to a noticeable incremental change in the global average temperature or to global, local, or microclimates. From the standpoint of CEQA, GHG impacts to global climate change are inherently cumulative.

### *3.1.1 Sources of Greenhouse Gas Emissions*

In 2021, CARB released the 2021 edition of the California GHG inventory covering calendar year 2019 emissions. In 2019, California emitted 418.2 million gross metric tons of $CO_2e$ including from imported electricity. Combustion of fossil fuel in the transportation sector was the single largest source of California's GHG emissions in 2019, accounting for approximately 40 percent of total GHG emissions in

the State. When emissions from extracting, refining and moving transportation fuels in California are included, transportation is responsible for over 50 percent of statewide emissions in 2019. Continuing the downward trend from 2018, transportation emissions decreased 3.5 million metric tons of $CO_2e$ in 2019, only being outpaced by electricity, which reduced emissions by 4.3 million metric tons of $CO_2e$ in 2019. Emissions from the electricity sector account for 14 percent of the inventory and have shown a substantial decrease in 2019 due to increases in renewables. California's industrial sector accounts for the second largest source of the State's GHG emissions in 2019, accounting for 21 percent (CARB 2021b).

## 3.2 Regulatory Framework

### *3.2.1 State*

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

Executive Order (EO) S-3-05, signed by Governor Arnold Schwarzenegger in 2005, proclaims that California is vulnerable to the impacts of climate change. It declares that increased temperatures could reduce the Sierra Nevada snowpack, further exacerbate California's air quality problems, and potentially cause a rise in sea levels. To combat those concerns, the EO established total GHG emission targets for the state. Specifically, emissions are to be reduced to the 2000 level by 2010, the 1990 level by 2020, and to 80 percent below the 1990 level by 2050.

#### *3.2.1.2 Assembly Bill 32 Climate Change Scoping Plan and Updates*

In 2006, the California legislature passed Assembly Bill (AB) 32 (Health and Safety Code § 38500 et seq., or AB 32), also known as the Global Warming Solutions Act. AB 32 required CARB to design and implement feasible and cost-effective emission limits, regulations, and other measures, such that statewide GHG emissions are reduced to 1990 levels by 2020 (representing a 25 percent reduction in emissions). Pursuant to AB 32, CARB adopted a Scoping Plan in December 2008, which outlined measures to meet the 2020 GHG reduction goals. California exceeded the target of reducing GHG emissions to 1990 levels by the year 2017.

The Scoping Plan is required by AB 32 to be updated at least every five years. The latest update, the 2017 Scoping Plan Update, addresses the 2030 target established by Senate Bill (SB) 32 as discussed below and establishes a proposed framework of action for California to meet a 40 percent reduction in GHG emissions by 2030 compared to 1990 levels. The key programs that the Scoping Plan Update builds on include increasing the use of renewable energy in the State, the Cap-and-Trade Regulation, the Low Carbon Fuel Standard, and reduction of methane emissions from agricultural and other wastes.

#### *3.2.1.3 Senate Bill 32 and Assembly Bill 197 of 2016*

In August 2016, Governor Brown signed SB 32 and AB 197, which serve to extend California's GHG reduction programs beyond 2020. SB 32 amended the Health and Safety Code to include § 38566, which contains language to authorize CARB to achieve a statewide GHG emission reduction of at least 40 percent below 1990 levels by no later than December 31, 2030.

#### *3.2.1.4 Senate Bill X1-2 of 2011, Senate Bill 350 of 2015, and Senate Bill 100 of 2018*

In 2018, SB 100 was signed codifying a goal of 60 percent renewable procurement by 2030 and 100 percent by 2045 Renewables Portfolio Standard.

#### *3.2.1.5 2019 Building Energy Efficiency Standards for Residential and Nonresidential Buildings*

The Building and Efficiency Standards (Energy Standards) were first adopted and put into effect in 1978 and have been updated periodically in the intervening years. These standards are a unique California asset that have placed the State on the forefront of energy efficiency, sustainability, energy independence and climate change issues. The 2019 Building Energy Efficiency Standards improve upon the 2016 Energy Standards for new construction of, and additions and alterations to, residential and nonresidential buildings. The 2019 update to the Building Energy Efficiency Standards focuses on several key areas to improve the energy efficiency of newly constructed buildings and additions and alterations to existing buildings. The 2019 standards are a major step toward meeting Zero Net Energy. The most significant efficiency improvement to the residential Standards includes the introduction of photovoltaic into the perspective package, improvements for attics, walls, water heating and lighting. Buildings permitted on or after January 1, 2020, must comply with the 2019 Standards.

In 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (Part 11 of Title 24) is commonly referred to as CalGreen Building Standard (CalGreen) and establishes voluntary and mandatory standards pertaining to the planning and design of sustainable site development, energy efficiency, water conservation, material conservation, and interior air quality. Like Part 6 of Title 24, the CalGreen standards are periodically updated, with increasing energy savings and efficiencies associated with each code update. CalGreen contains voluntary "Tier 1" and "Tier 2" standards that are not mandatory statewide but could be required by a City or County. These are 'reach' standards that can be adopted by local jurisdictions and may be incorporated as mandatory standards in future code cycles.

### *3.2.2 Local*

#### *3.2.2.1 South Coast Air Quality Management District*

To provide guidance to local lead agencies on determining significance for GHG emissions in CEQA documents, SCAQMD staff is convening an ongoing GHG CEQA Significance Threshold Working Group. Members of the working group include government agencies implementing CEQA and representatives from various stakeholder groups that provide input to SCAQMD staff on developing the significance thresholds. On October 8, 2008, the SCAQMD released the Draft AQMD Staff CEQA GHG Significance Thresholds. These thresholds have not been finalized and continue to be developed through the working group.

On September 28, 2010, SCAQMD Working Group Meeting #15 provided further guidance, including an interim screening level numeric "bright-line" threshold of 3,000 metric tons of $CO_2e$ annually and an

efficiency-based threshold of 4.8 metric tons of $CO_2e$ per service population (defined as the people that work and/or congregate on the Project site) per year in 2020 and 3.0 metric tons of $CO_2e$ per service population per year in 2035. The SCAQMD has not announced when staff is expecting to present a finalized version of these thresholds to the governing board.

#### *3.2.2.2 Southern California Association of Governments*

On September 3, 2020, the SCAG Regional Council adopted the *2020-2045 Regional Transportation Plan/ Sustainable Communities Strategy* (2020 RTP/SCS). The 2020 RTP/SCS charts a course for closely integrating land use and transportation – so that the region can grow smartly and sustainably. The 2020 RTP/SCS identifies that land use strategies that focus on new housing and job growth in areas with a variety of destinations and mobility options would support and complement the proposed transportation network. The overarching strategy in 2020 RTP/SCS is to provide for a plan that allows the southern California region to grow in more compact communities in transit priority areas and priority growth areas; provide neighborhoods with efficient and plentiful public transit; establish abundant and safe opportunities to walk, bike, and pursue other forms of active transportation; and preserve more of the region's remaining natural lands and farmlands. The 2020 RTP/SCS contains transportation projects to help more efficiently distribute population, housing, and employment growth as well as projected development that promotes active transport and reduces GHG emissions.

The 2020 RTP/SCS was prepared through a collaborative, continuous, and comprehensive process with input from local governments, county transportation commissions, tribal governments, non-profit organizations, businesses and local stakeholders within the counties of Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura. The 2020 RTP/SCS is a long-range visioning plan that balances future mobility and housing needs with economic, environmental and public health goals. The SCAG region must achieve specific federal air quality standards and is required by state law to lower regional GHG emissions. Specifically, the region has been tasked by CARB to achieve a 19 percent per capita reduction by the end of 2035.

## 3.3 Greenhouse Gas Emissions Impact Assessment

### *3.3.1 Thresholds of Significance*

The impact analysis provided below is based on the following CEQA Guidelines Appendix G thresholds of significance. The Project would result in a significant impact to greenhouse gas emissions if it would:

1) Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.

2) Conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases or

The Appendix G thresholds for GHG emissions do not prescribe specific methodologies for performing an assessment, do not establish specific thresholds of significance, and do not mandate specific mitigation

measures. Rather, the CEQA Guidelines emphasize the lead agency's discretion to determine the appropriate methodologies and thresholds of significance consistent with the manner in which other impact areas are handled in CEQA. With respect to GHG emissions, the CEQA Guidelines Section 15064.4(a) states that lead agencies "shall make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate" GHG emissions resulting from a project. The CEQA Guidelines note that an agency has the discretion to either quantify a project's GHG emissions or rely on a "qualitative analysis or other performance-based standards." (14 CCR 15064.4(b)). A lead agency may use a "model or methodology" to estimate GHG emissions and has the discretion to select the model or methodology it considers "most appropriate to enable decision makers to intelligently take into account the project's incremental contribution to climate change." (14 CCR 15064.4(c)). Section 15064.4(b) provides that the lead agency should consider the following when determining the significance of impacts from GHG emissions on the environment:

1. The extent a project may increase or reduce GHG emissions as compared to the existing environmental setting.
2. Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.
3. The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions (14 CCR 15064.4(b)).

In addition, Section 15064.7(c) of the CEQA Guidelines specifies that "[w]hen adopting or using thresholds of significance, a lead agency may consider thresholds of significance previously adopted or recommended by other public agencies, or recommended by experts, provided the decision of the lead agency to adopt such thresholds is supported by substantial evidence" (14 CCR 15064.7(c)). The CEQA Guidelines also clarify that the effects of GHG emissions are cumulative and should be analyzed in the context of CEQA's requirements for cumulative impact analysis (see CEQA Guidelines Section 15130). As a note, the CEQA Guidelines were amended in response to Senate Bill 97. In particular, the CEQA Guidelines were amended to specify that compliance with a GHG emissions reduction plan renders a cumulative impact insignificant.

Per CEQA Guidelines Section 15064(h)(3), a project's incremental contribution to a cumulative impact can be found not cumulatively considerable if the project would comply with an approved plan or mitigation program that provides specific requirements that would avoid or substantially lessen the cumulative problem within the geographic area of the project. To qualify, such plans or programs must be specified in law or adopted by the public agency with jurisdiction over the affected resources through a public review process to implement, interpret, or make specific the law enforced or administered by the public agency. Examples of such programs include a "water quality control plan, air quality attainment or maintenance plan, integrated waste management plan, habitat conservation plan, natural community conservation plans [and] plans or regulations for the reduction of greenhouse gas emissions." Put another way, CEQA Guidelines Section 15064(h)(3) allows a lead agency to make a finding of less than significant

for GHG emissions if a project complies with adopted programs, plans, policies and/or other regulatory strategies to reduce GHG emissions.

The local air quality agency regulating the SoCAB is the SCAQMD, the regional air pollution control officer for the basin. As previously stated, to provide guidance to local lead agencies on determining significance for GHG emissions in CEQA documents, SCAQMD staff convened a GHG CEQA Significance Threshold Working Group. The Working Group was formed to assist the SCAQMD's efforts to develop a GHG significance threshold and is composed of a wide variety of stakeholders including the State Office of Planning and Research (OPR), CARB, the Attorney General's Office, a variety of city and county planning departments in the Basin, various utilities such as sanitation and power companies throughout the Basin, industry groups, and environmental and professional organizations. The numeric bright line and efficiency-based thresholds described above were developed to be consistent with CEQA requirements for developing significance thresholds, are supported by substantial evidence, and provide guidance to CEQA practitioners and lead agencies with regard to determining whether GHG emissions from a proposed project are significant.

In *Center for Biological Diversity v. Department of Fish and Wildlife* (2015) 62 Cal. 4th 2014, 213, 221, 227, following its review of various potential GHG thresholds proposed in an academic study [Crockett, *Addressing the Significance of Greenhouse Gas Emissions: California's Search for Regulatory Certainty in an Uncertain World* (July 2011), 4 Golden Gate U. Envtl. L. J. 203], the California Supreme Court identified the use of numeric bright-line thresholds as a potential pathway for compliance with CEQA GHG requirements. The study found numeric bright line thresholds designed to determine when small projects were so small as to not cause a cumulatively considerable impact on global climate change was consistent with CEQA. Specifically, Public Resources Code section 21003(f) provides it is a policy of the State that "[a]ll persons and public agencies involved in the environmental review process be responsible for carrying out the process in the most efficient, expeditious manner in order to conserve the available financial, governmental, physical and social resources with the objective that those resources may be better applied toward the mitigation of actual significant effects on the environment." The Supreme Court-reviewed study noted, "[s]ubjecting the smallest projects to the full panoply of CEQA requirements, even though the public benefit would be minimal, would not be consistent with implementing the statute in the most efficient, expeditious manner. Nor would it be consistent with applying lead agencies' scarce resources toward mitigating actual significant climate change impacts." (Crockett, *Addressing the Significance of Greenhouse Gas Emissions: California's Search for Regulatory Certainty in an Uncertain World* (July 2011), 4 Golden Gate U. Envtl. L. J. 203, 221, 227.)

The significance of the Project's GHG emissions is evaluated consistent with CEQA Guidelines Section 15064.4(b)(2) by considering whether the Project complies with applicable plans, policies, regulations and requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions. The City of Riverside and/or Riverside Unified School District may set a project-specific threshold based on the context of each particular project, including using the SCAQMD Working Group expert recommendation. This standard is appropriate for this Project because it is in the same air quality basin that the experts analyzed. For the Proposed Project, the SCAQMD's 3,000 metric tons of $CO_2e$ per year threshold is used as the significance threshold in addition to the qualitative thresholds of significance

set forth below from Section VII of CEQA Guidelines Appendix G. The 3,000 metric tons of $CO_2e$ per year threshold represents a 90 percent capture rate (i.e., this threshold captures projects that represent approximately 90 percent of GHG emissions from new sources). The 3,000 metric tons of $CO_2e$ per year value is typically used in defining small projects within this air basin that are considered less than significant because it represents less than one percent of future 2050 statewide GHG emissions target and the lead agency can provide more efficient implementation of CEQA by focusing its scarce resources on the top 90 percent. This threshold is correlated to the 90 percent capture rate for industrial projects within the air basin. Land use projects above the 3,000 metric tons of $CO_2e$ per year level would fall within the percentage of largest projects that are worth mitigating without wasting scarce financial, governmental, physical and social resources. (Crockett 2011). As noted in the academic study, the fact that small projects below a numeric bright line threshold are not subject to CEQA-based mitigation, does not mean such small projects do not help the state achieve its climate change goals because even small projects participate in or comply with non-CEQA-based GHG reduction programs, such constructing development in accordance with statewide GHG-reducing energy efficiency building standards, called Cal Green or Title 24 energy-efficiency building standards (Crockett 2011).

In addition to comparing Project emissions to the SCAQMD's 3,000 metric tons of $CO_2e$ per year threshold, the Project is evaluated for consistency with the City of Riverside CAP.

### *3.3.2 Methodology*

GHG emissions-related impacts were assessed in accordance with methodologies recommended by the SCAQMD. Where GHG emission quantification was required, emissions were modeled using CalEEMod, version 2020.4.0. CalEEMod is a statewide land use emissions computer model designed to quantify potential GHG emissions associated with both construction and operations from a variety of land use projects. Project construction-generated GHG emissions were calculated using CalEEMod model defaults for Riverside County. Operational GHG emissions are discussed qualitatively based on information from the Project proponent.

### *3.3.3 Impact Analysis*

#### *3.3.3.1 Generation of GHG Emissions*

*Construction*

Construction-related activities that would generate GHG emissions include worker commute trips, haul trucks carrying supplies and materials to and from the Project site, and off-road construction equipment (e.g., dozers, loaders, excavators). Table 3-2 illustrates the specific construction generated GHG emissions that would result from construction of the Project. Once construction is complete, the generation of these GHG emissions would cease.

**Table 3-2. Construction-Related Greenhouse Gas Emissions**

| Emissions Source | $CO_2e$ (Metric Tons/ Year) |
|---|---|
| Construction Year One | 456 |
| Construction Year Two | 665 |
| **Total Construction Emissions** | **521** |
| *SCAQMD Significance Threshold* | *3,000* |
| **Exceed SCAQMD Threshold?** | **No** |

Source: CalEEMod version 2020.4.0. Refer to Attachment B for Model Data Outputs.

As shown in Table 3-2, Project construction would result in the generation of approximately 521 metric tons of $CO_2e$ over the course of construction. Once construction is complete, the generation of these GHG emissions would cease.

*Operational Significance Analysis*

The Project is proposing several improvements to the existing campus for the purposes of modernization. The number of new classrooms is equal to the amount being removed and thus there would be no increase in student capacity. No additional school sports programs would be added, and the new gymnasium is not expected to increase the number of participants or spectators. The operational emissions would solely be generated from the energy consumption associated with the new gymnasium and would have a negligible contribution to existing conditions. The proposed new classroom building would be constructed to currently building code standards and therefore can be expected to operate more energy efficiently than the mobile classroom units proposed to be removed. Therefore, by its very nature, the Project would not generate quantifiable criteria GHG emissions from Project operations.

#### *3.3.3.2 Conflict with any Applicable Plan, Policy, or Regulation of an Agency Adopted for the Purpose of Reducing the Emissions of Greenhouse Gases*

The SCAQMD supports state, federal, and international policies to reduce levels of GHG emissions through its policies and rules, and the Proposed Project would comply with the SCAQMD's GHG threshold. The Proposed Project would comply with the State Building Code provisions designed to reduce GHG emissions. In addition, the Proposed Project would comply with all SCAQMD applicable rules and regulations during construction of the operational phase. As indicated above, Project emissions would not exceed the 3,000 metric tons of $CO_2e$ annually threshold, and therefore it would not interfere with the state's goals of reducing GHG emission to 1990 levels by the year 2020 as stated in AB 32 and an 80 percent reduction in GHG emissions below 1990 levels by 2050 as stated in Executive Order S-3-05. Therefore, the Project would not conflict with any applicable plan, policy or regulation related to the reduction in the emissions of GHG and thus a less than significant impact will occur directly, indirectly and cumulatively in this regard.

# 4.0 REFERENCES

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## LIST OF ATTACHMENTS

Attachment A – CalEEMod Output File for Air Quality Emissions

Attachment B – CalEEMod Output File for Greenhouse Gas Emissions

# ATTACHMENT A

CalEEMod Output Files – Criteria Air Pollutants

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

# John W North High School Modernization Project

**Riverside-South Coast County, Summer**

## 1.0 Project Characteristics

### 1.1 Land Usage

| Land Uses | Size | Metric | Lot Acreage | Floor Surface Area | Population |
|---|---|---|---|---|---|
| Health Club | 24.00 | 1000sqft | 1.05 | 24,000.00 | 0 |
| High School | 16.75 | 1000sqft | 0.88 | 16,750.00 | 0 |
| Other Non-Asphalt Surfaces | 0.68 | Acre | 0.68 | 29,620.80 | 0 |
| Other Non-Asphalt Surfaces | 0.38 | Acre | 0.38 | 16,552.80 | 0 |

### 1.2 Other Project Characteristics

| | | | | | |
|---|---|---|---|---|---|
| **Urbanization** | Urban | **Wind Speed (m/s)** | 2.4 | **Precipitation Freq (Days)** | 28 |
| **Climate Zone** | 10 | | | **Operational Year** | 2024 |
| **Utility Company** | Southern California Edison | | | | |
| **CO2 Intensity (lb/MWhr)** | 390.98 | **CH4 Intensity (lb/MWhr)** | 0.033 | **N2O Intensity (lb/MWhr)** | 0.004 |

### 1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Accounts for .38 acre of new hardscape, .68 acre of ground disturbance associated with portable classroom removal, gym, and classroom building

Construction Phase - Building construction, paving, and painting assumed to occur simultaneously

Trips and VMT - Assume 16 haul truck round trips to remove portable classrooms

Vehicle Trips - No increase in student capacity. No increase of traffic trips over existing conditions

Construction Off-road Equipment Mitigation - SCAQMD Rule 403

| Table Name | Column Name | Default Value | New Value |
|---|---|---|---|
| tblConstDustMitigation | CleanPavedRoadPercentReduction | 0 | 40 |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

| | | | |
|---|---|---|---|
| tblConstDustMitigation | WaterUnpavedRoadVehicleSpeed | 0 | 15 |
| tblConstructionPhase | NumDays | 10.00 | 220.00 |
| tblConstructionPhase | NumDays | 10.00 | 220.00 |
| tblConstructionPhase | PhaseEndDate | 6/7/2023 | 2/7/2024 |
| tblConstructionPhase | PhaseEndDate | 5/10/2023 | 2/7/2024 |
| tblConstructionPhase | PhaseEndDate | 7/6/2022 | 4/5/2023 |
| tblConstructionPhase | PhaseEndDate | 5/24/2023 | 2/7/2024 |
| tblConstructionPhase | PhaseEndDate | 6/28/2022 | 3/28/2023 |
| tblConstructionPhase | PhaseStartDate | 5/25/2023 | 4/6/2023 |
| tblConstructionPhase | PhaseStartDate | 7/7/2022 | 4/6/2023 |
| tblConstructionPhase | PhaseStartDate | 6/29/2022 | 3/29/2023 |
| tblConstructionPhase | PhaseStartDate | 5/11/2023 | 4/6/2023 |
| tblConstructionPhase | PhaseStartDate | 6/24/2022 | 3/24/2023 |
| tblLandUse | LotAcreage | 0.55 | 1.05 |
| tblLandUse | LotAcreage | 0.38 | 0.88 |
| tblTripsAndVMT | HaulingTripNumber | 0.00 | 32.00 |
| tblVehicleTrips | ST_TR | 20.87 | 0.00 |
| tblVehicleTrips | ST_TR | 3.98 | 0.00 |
| tblVehicleTrips | SU_TR | 26.73 | 0.00 |
| tblVehicleTrips | SU_TR | 1.71 | 0.00 |
| tblVehicleTrips | WD_TR | 32.93 | 0.00 |
| tblVehicleTrips | WD_TR | 14.07 | 0.00 |

## 2.0 Emissions Summary

John W North High School Modernization Project - Riverside-South Coast County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 2.1 Overall Construction (Maximum Daily Emission)

**Unmitigated Construction**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | lb/day | | | | | | | | | | lb/day | | | | | |
| 2023 | 4.7925 | 24.1417 | 30.0606 | 0.0542 | 7.1944 | 1.1255 | 7.7992 | 3.4544 | 1.0659 | 4.0109 | 0.0000 | 5,135.1853 | 5,135.1853 | 1.0081 | 0.0535 | 5,176.3351 |
| 2024 | 4.6124 | 22.7359 | 29.8253 | 0.0540 | 0.7517 | 1.0018 | 1.7535 | 0.2014 | 0.9480 | 1.1494 | 0.0000 | 5,112.7251 | 5,112.7251 | 0.9995 | 0.0519 | 5,153.1670 |
| **Maximum** | **4.7925** | **24.1417** | **30.0606** | **0.0542** | **7.1944** | **1.1255** | **7.7992** | **3.4544** | **1.0659** | **4.0109** | **0.0000** | **5,135.1853** | **5,135.1853** | **1.0081** | **0.0535** | **5,176.3351** |

**Mitigated Construction**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | lb/day | | | | | | | | | | lb/day | | | | | |
| 2023 | 4.7925 | 24.1417 | 30.0606 | 0.0542 | 2.8351 | 1.1255 | 3.4400 | 1.3558 | 1.0659 | 1.9122 | 0.0000 | 5,135.1853 | 5,135.1853 | 1.0081 | 0.0535 | 5,176.3351 |
| 2024 | 4.6124 | 22.7359 | 29.8253 | 0.0540 | 0.4961 | 1.0018 | 1.4978 | 0.1387 | 0.9480 | 1.0867 | 0.0000 | 5,112.7251 | 5,112.7251 | 0.9995 | 0.0519 | 5,153.1670 |
| **Maximum** | **4.7925** | **24.1417** | **30.0606** | **0.0542** | **2.8351** | **1.1255** | **3.4400** | **1.3558** | **1.0659** | **1.9122** | **0.0000** | **5,135.1853** | **5,135.1853** | **1.0081** | **0.0535** | **5,176.3351** |

John W North High School Modernization Project - Riverside-South Coast County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N20 | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Percent Reduction** | **0.00** | **0.00** | **0.00** | **0.00** | **58.08** | **0.00** | **48.31** | **59.12** | **0.00** | **41.88** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 2.2 Overall Operational

### Unmitigated Operational

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Area | 0.9306 | 4.0000e-005 | 4.2600e-003 | 0.0000 | | 2.0000e-005 | 2.0000e-005 | | 2.0000e-005 | 2.0000e-005 | | 9.1500e-003 | 9.1500e-003 | 2.0000e-005 | | 9.7500e-003 |
| Energy | 0.0272 | 0.2475 | 0.2079 | 1.4900e-003 | | 0.0188 | 0.0188 | | 0.0188 | 0.0188 | | 297.0113 | 297.0113 | 5.6900e-003 | 5.4500e-003 | 298.7763 |
| Mobile | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **0.9578** | **0.2476** | **0.2122** | **1.4900e-003** | **0.0000** | **0.0188** | **0.0188** | **0.0000** | **0.0188** | **0.0188** | | **297.0204** | **297.0204** | **5.7100e-003** | **5.4500e-003** | **298.7860** |

### Mitigated Operational

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Area | 0.9306 | 4.0000e-005 | 4.2600e-003 | 0.0000 | | 2.0000e-005 | 2.0000e-005 | | 2.0000e-005 | 2.0000e-005 | | 9.1500e-003 | 9.1500e-003 | 2.0000e-005 | | 9.7500e-003 |
| Energy | 0.0272 | 0.2475 | 0.2079 | 1.4900e-003 | | 0.0188 | 0.0188 | | 0.0188 | 0.0188 | | 297.0113 | 297.0113 | 5.6900e-003 | 5.4500e-003 | 298.7763 |
| Mobile | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **0.9578** | **0.2476** | **0.2122** | **1.4900e-003** | **0.0000** | **0.0188** | **0.0188** | **0.0000** | **0.0188** | **0.0188** | | **297.0204** | **297.0204** | **5.7100e-003** | **5.4500e-003** | **298.7860** |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N20 | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Percent Reduction** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** |

## 3.0 Construction Detail

**Construction Phase**

| Phase Number | Phase Name | Phase Type | Start Date | End Date | Num Days Week | Num Days | Phase Description |
|---|---|---|---|---|---|---|---|
| 1 | Site Preparation | Site Preparation | 3/24/2023 | 3/28/2023 | 5 | 3 | |
| 2 | Grading | Grading | 3/29/2023 | 4/5/2023 | 5 | 6 | |
| 3 | Building Construction | Building Construction | 4/6/2023 | 2/7/2024 | 5 | 220 | |
| 4 | Paving | Paving | 4/6/2023 | 2/7/2024 | 5 | 220 | |
| 5 | Architectural Coating | Architectural Coating | 4/6/2023 | 2/7/2024 | 5 | 220 | |

**Acres of Grading (Site Preparation Phase): 4.5**

**Acres of Grading (Grading Phase): 6**

**Acres of Paving: 1.06**

**Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 61,125; Non-Residential Outdoor: 20,375; Striped Parking Area: 2,770 (Architectural Coating – sqft)**

**OffRoad Equipment**

| Phase Name | Offroad Equipment Type | Amount | Usage Hours | Horse Power | Load Factor |
|---|---|---|---|---|---|
| Architectural Coating | Air Compressors | 1 | 6.00 | 78 | 0.48 |
| Paving | Cement and Mortar Mixers | 1 | 8.00 | 9 | 0.56 |
| Building Construction | Cranes | 1 | 8.00 | 231 | 0.29 |
| Building Construction | Forklifts | 2 | 7.00 | 89 | 0.20 |
| Building Construction | Generator Sets | 1 | 8.00 | 84 | 0.74 |
| Grading | Graders | 1 | 8.00 | 187 | 0.41 |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

| | | | | | |
|---|---|---|---|---|---|
| Site Preparation | Graders | 1 | 8.00 | 187 | 0.41 |
| Paving | Pavers | 1 | 8.00 | 130 | 0.42 |
| Paving | Paving Equipment | 1 | 8.00 | 132 | 0.36 |
| Paving | Rollers | 2 | 8.00 | 80 | 0.38 |
| Grading | Rubber Tired Dozers | 1 | 8.00 | 247 | 0.40 |
| Site Preparation | Scrapers | 1 | 8.00 | 367 | 0.48 |
| Building Construction | Tractors/Loaders/Backhoes | 1 | 6.00 | 97 | 0.37 |
| Grading | Tractors/Loaders/Backhoes | 2 | 7.00 | 97 | 0.37 |
| Paving | Tractors/Loaders/Backhoes | 1 | 8.00 | 97 | 0.37 |
| Site Preparation | Tractors/Loaders/Backhoes | 1 | 7.00 | 97 | 0.37 |
| Building Construction | Welders | 3 | 8.00 | 46 | 0.45 |

**Trips and VMT**

| Phase Name | Offroad Equipment Count | Worker Trip Number | Vendor Trip Number | Hauling Trip Number | Worker Trip Length | Vendor Trip Length | Hauling Trip Length | Worker Vehicle Class | Vendor Vehicle Class | Hauling Vehicle Class |
|---|---|---|---|---|---|---|---|---|---|---|
| Site Preparation | 3 | 8.00 | 0.00 | 0.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Grading | 4 | 10.00 | 0.00 | 0.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Building Construction | 8 | 37.00 | 14.00 | 32.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Paving | 6 | 15.00 | 0.00 | 0.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Architectural Coating | 1 | 7.00 | 0.00 | 0.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |

## 3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 3.2 Site Preparation - 2023

### Unmitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Fugitive Dust | | | | | 1.5908 | 0.0000 | 1.5908 | 0.1718 | 0.0000 | 0.1718 | | | 0.0000 | | | 0.0000 |
| Off-Road | 1.3027 | 14.2802 | 9.7820 | 0.0245 | | 0.5419 | 0.5419 | | 0.4985 | 0.4985 | | 2,374.8634 | 2,374.8634 | 0.7681 | | 2,394.0654 |
| **Total** | **1.3027** | **14.2802** | **9.7820** | **0.0245** | **1.5908** | **0.5419** | **2.1326** | **0.1718** | **0.4985** | **0.6703** | | **2,374.8634** | **2,374.8634** | **0.7681** | | **2,394.0654** |

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 0.0292 | 0.0181 | 0.2927 | 7.9000e-004 | 0.0894 | 4.2000e-004 | 0.0898 | 0.0237 | 3.8000e-004 | 0.0241 | | 79.4992 | 79.4992 | 1.8400e-003 | 1.8800e-003 | 80.1045 |
| **Total** | **0.0292** | **0.0181** | **0.2927** | **7.9000e-004** | **0.0894** | **4.2000e-004** | **0.0898** | **0.0237** | **3.8000e-004** | **0.0241** | | **79.4992** | **79.4992** | **1.8400e-003** | **1.8800e-003** | **80.1045** |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 3.2 Site Preparation - 2023

### Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Fugitive Dust | | | | | 0.6204 | 0.0000 | 0.6204 | 0.0670 | 0.0000 | 0.0670 | | | 0.0000 | | | 0.0000 |
| Off-Road | 1.3027 | 14.2802 | 9.7820 | 0.0245 | | 0.5419 | 0.5419 | | 0.4985 | 0.4985 | 0.0000 | 2,374.8634 | 2,374.8634 | 0.7681 | | 2,394.0654 |
| **Total** | **1.3027** | **14.2802** | **9.7820** | **0.0245** | **0.6204** | **0.5419** | **1.1623** | **0.0670** | **0.4985** | **0.5655** | **0.0000** | **2,374.8634** | **2,374.8634** | **0.7681** | | **2,394.0654** |

### Mitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 0.0292 | 0.0181 | 0.2927 | 7.9000e-004 | 0.0583 | 4.2000e-004 | 0.0587 | 0.0161 | 3.8000e-004 | 0.0165 | | 79.4992 | 79.4992 | 1.8400e-003 | 1.8800e-003 | 80.1045 |
| **Total** | **0.0292** | **0.0181** | **0.2927** | **7.9000e-004** | **0.0583** | **4.2000e-004** | **0.0587** | **0.0161** | **3.8000e-004** | **0.0165** | | **79.4992** | **79.4992** | **1.8400e-003** | **1.8800e-003** | **80.1045** |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 3.3 Grading - 2023

### Unmitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Fugitive Dust | | | | | 7.0826 | 0.0000 | 7.0826 | 3.4247 | 0.0000 | 3.4247 | | | 0.0000 | | | 0.0000 |
| Off-Road | 1.3330 | 14.4676 | 8.7038 | 0.0206 | | 0.6044 | 0.6044 | | 0.5560 | 0.5560 | | 1,995.6147 | 1,995.6147 | 0.6454 | | 2,011.7503 |
| **Total** | **1.3330** | **14.4676** | **8.7038** | **0.0206** | **7.0826** | **0.6044** | **7.6869** | **3.4247** | **0.5560** | **3.9807** | | **1,995.6147** | **1,995.6147** | **0.6454** | | **2,011.7503** |

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 0.0365 | 0.0226 | 0.3659 | 9.8000e-004 | 0.1118 | 5.2000e-004 | 0.1123 | 0.0296 | 4.8000e-004 | 0.0301 | | 99.3740 | 99.3740 | 2.3000e-003 | 2.3500e-003 | 100.1306 |
| **Total** | **0.0365** | **0.0226** | **0.3659** | **9.8000e-004** | **0.1118** | **5.2000e-004** | **0.1123** | **0.0296** | **4.8000e-004** | **0.0301** | | **99.3740** | **99.3740** | **2.3000e-003** | **2.3500e-003** | **100.1306** |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 3.3 Grading - 2023

### Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Fugitive Dust | | | | | 2.7622 | 0.0000 | 2.7622 | 1.3357 | 0.0000 | 1.3357 | | | 0.0000 | | | 0.0000 |
| Off-Road | 1.3330 | 14.4676 | 8.7038 | 0.0206 | | 0.6044 | 0.6044 | | 0.5560 | 0.5560 | 0.0000 | 1,995.6147 | 1,995.6147 | 0.6454 | | 2,011.7503 |
| **Total** | **1.3330** | **14.4676** | **8.7038** | **0.0206** | **2.7622** | **0.6044** | **3.3666** | **1.3357** | **0.5560** | **1.8917** | **0.0000** | **1,995.6147** | **1,995.6147** | **0.6454** | | **2,011.7503** |

### Mitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 0.0365 | 0.0226 | 0.3659 | 9.8000e-004 | 0.0729 | 5.2000e-004 | 0.0734 | 0.0201 | 4.8000e-004 | 0.0206 | | 99.3740 | 99.3740 | 2.3000e-003 | 2.3500e-003 | 100.1306 |
| **Total** | **0.0365** | **0.0226** | **0.3659** | **9.8000e-004** | **0.0729** | **5.2000e-004** | **0.0734** | **0.0201** | **4.8000e-004** | **0.0206** | | **99.3740** | **99.3740** | **2.3000e-003** | **2.3500e-003** | **100.1306** |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 3.4 Building Construction - 2023

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Off-Road | 1.7136 | 13.6239 | 14.2145 | 0.0250 | | 0.6136 | 0.6136 | | 0.5880 | 0.5880 | | 2,289.5233 | 2,289.5233 | 0.4330 | | 2,300.3479 |
| **Total** | **1.7136** | **13.6239** | **14.2145** | **0.0250** | | **0.6136** | **0.6136** | | **0.5880** | **0.5880** | | **2,289.5233** | **2,289.5233** | **0.4330** | | **2,300.3479** |

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 3.2000e-004 | 0.0145 | 3.9900e-003 | 8.0000e-005 | 2.5500e-003 | 1.8000e-004 | 2.7200e-003 | 7.0000e-004 | 1.7000e-004 | 8.7000e-004 | | 8.5352 | 8.5352 | 1.2000e-004 | 1.3400e-003 | 8.9390 |
| Vendor | 0.0158 | 0.4574 | 0.1883 | 2.4500e-003 | 0.0897 | 3.9800e-003 | 0.0937 | 0.0258 | 3.8100e-003 | 0.0296 | | 259.3794 | 259.3794 | 2.6400e-003 | 0.0383 | 270.8674 |
| Worker | 0.1351 | 0.0835 | 1.3537 | 3.6400e-003 | 0.4136 | 1.9300e-003 | 0.4155 | 0.1097 | 1.7800e-003 | 0.1115 | | 367.6839 | 367.6839 | 8.5000e-003 | 8.6800e-003 | 370.4831 |
| **Total** | **0.1512** | **0.5554** | **1.5460** | **6.1700e-003** | **0.5058** | **6.0900e-003** | **0.5119** | **0.1362** | **5.7600e-003** | **0.1420** | | **635.5985** | **635.5985** | **0.0113** | **0.0484** | **650.2896** |

John W North High School Modernization Project - Riverside-South Coast County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 3.4 Building Construction - 2023

### Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Off-Road | 1.7136 | 13.6239 | 14.2145 | 0.0250 | | 0.6136 | 0.6136 | | 0.5880 | 0.5880 | 0.0000 | 2,289.5233 | 2,289.5233 | 0.4330 | | 2,300.3479 |
| **Total** | **1.7136** | **13.6239** | **14.2145** | **0.0250** | | **0.6136** | **0.6136** | | **0.5880** | **0.5880** | **0.0000** | **2,289.5233** | **2,289.5233** | **0.4330** | | **2,300.3479** |

### Mitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 3.2000e-004 | 0.0145 | 3.9900e-003 | 8.0000e-005 | 1.7800e-003 | 1.8000e-004 | 1.9500e-003 | 5.1000e-004 | 1.7000e-004 | 6.8000e-004 | | 8.5352 | 8.5352 | 1.2000e-004 | 1.3400e-003 | 8.9390 |
| Vendor | 0.0158 | 0.4574 | 0.1883 | 2.4500e-003 | 0.0641 | 3.9800e-003 | 0.0681 | 0.0196 | 3.8100e-003 | 0.0234 | | 259.3794 | 259.3794 | 2.6400e-003 | 0.0383 | 270.8674 |
| Worker | 0.1351 | 0.0835 | 1.3537 | 3.6400e-003 | 0.2698 | 1.9300e-003 | 0.2717 | 0.0744 | 1.7800e-003 | 0.0762 | | 367.6839 | 367.6839 | 8.5000e-003 | 8.6800e-003 | 370.4831 |
| **Total** | **0.1512** | **0.5554** | **1.5460** | **6.1700e-003** | **0.3357** | **6.0900e-003** | **0.3418** | **0.0944** | **5.7600e-003** | **0.1002** | | **635.5985** | **635.5985** | **0.0113** | **0.0484** | **650.2896** |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 3.4 Building Construction - 2024

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Off-Road | 1.5971 | 12.8235 | 14.1002 | 0.0250 | | 0.5381 | 0.5381 | | 0.5153 | 0.5153 | | 2,289.6541 | 2,289.6541 | 0.4265 | | 2,300.3154 |
| **Total** | **1.5971** | **12.8235** | **14.1002** | **0.0250** | | **0.5381** | **0.5381** | | **0.5153** | **0.5153** | | **2,289.6541** | **2,289.6541** | **0.4265** | | **2,300.3154** |

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 3.2000e-004 | 0.0146 | 4.0400e-003 | 8.0000e-005 | 2.5500e-003 | 1.7000e-004 | 2.7200e-003 | 7.0000e-004 | 1.7000e-004 | 8.6000e-004 | | 8.3958 | 8.3958 | 1.3000e-004 | 1.3200e-003 | 8.7933 |
| Vendor | 0.0155 | 0.4574 | 0.1862 | 2.4100e-003 | 0.0897 | 3.9600e-003 | 0.0936 | 0.0258 | 3.7900e-003 | 0.0296 | | 255.3818 | 255.3818 | 2.7400e-003 | 0.0377 | 266.6792 |
| Worker | 0.1259 | 0.0744 | 1.2654 | 3.5200e-003 | 0.4136 | 1.8400e-003 | 0.4154 | 0.1097 | 1.7000e-003 | 0.1114 | | 355.9795 | 355.9795 | 7.7000e-003 | 8.0600e-003 | 358.5752 |
| **Total** | **0.1418** | **0.5464** | **1.4556** | **6.0100e-003** | **0.5058** | **5.9700e-003** | **0.5118** | **0.1362** | **5.6600e-003** | **0.1418** | | **619.7571** | **619.7571** | **0.0106** | **0.0471** | **634.0477** |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 3.4 Building Construction - 2024

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Off-Road | 1.5971 | 12.8235 | 14.1002 | 0.0250 | | 0.5381 | 0.5381 | | 0.5153 | 0.5153 | 0.0000 | 2,289.6541 | 2,289.6541 | 0.4265 | | 2,300.3154 |
| **Total** | **1.5971** | **12.8235** | **14.1002** | **0.0250** | | **0.5381** | **0.5381** | | **0.5153** | **0.5153** | **0.0000** | **2,289.6541** | **2,289.6541** | **0.4265** | | **2,300.3154** |

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 3.2000e-004 | 0.0146 | 4.0400e-003 | 8.0000e-005 | 1.7800e-003 | 1.7000e-004 | 1.9500e-003 | 5.1000e-004 | 1.7000e-004 | 6.8000e-004 | | 8.3958 | 8.3958 | 1.3000e-004 | 1.3200e-003 | 8.7933 |
| Vendor | 0.0155 | 0.4574 | 0.1862 | 2.4100e-003 | 0.0641 | 3.9600e-003 | 0.0681 | 0.0196 | 3.7900e-003 | 0.0233 | | 255.3818 | 255.3818 | 2.7400e-003 | 0.0377 | 266.6792 |
| Worker | 0.1259 | 0.0744 | 1.2654 | 3.5200e-003 | 0.2698 | 1.8400e-003 | 0.2716 | 0.0744 | 1.7000e-003 | 0.0761 | | 355.9795 | 355.9795 | 7.7000e-003 | 8.0600e-003 | 358.5752 |
| **Total** | **0.1418** | **0.5464** | **1.4556** | **6.0100e-003** | **0.3357** | **5.9700e-003** | **0.3416** | **0.0944** | **5.6600e-003** | **0.1001** | | **619.7571** | **619.7571** | **0.0106** | **0.0471** | **634.0477** |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 3.5 Paving - 2023

### Unmitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Off-Road | 0.8802 | 8.6098 | 11.6840 | 0.0179 | | 0.4338 | 0.4338 | | 0.4003 | 0.4003 | | 1,709.9926 | 1,709.9926 | 0.5420 | | 1,723.5414 |
| Paving | 0.0000 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| **Total** | **0.8802** | **8.6098** | **11.6840** | **0.0179** | | **0.4338** | **0.4338** | | **0.4003** | **0.4003** | | **1,709.9926** | **1,709.9926** | **0.5420** | | **1,723.5414** |

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 0.0548 | 0.0338 | 0.5488 | 1.4700e-003 | 0.1677 | 7.8000e-004 | 0.1685 | 0.0445 | 7.2000e-004 | 0.0452 | | 149.0611 | 149.0611 | 3.4500e-003 | 3.5200e-003 | 150.1959 |
| **Total** | **0.0548** | **0.0338** | **0.5488** | **1.4700e-003** | **0.1677** | **7.8000e-004** | **0.1685** | **0.0445** | **7.2000e-004** | **0.0452** | | **149.0611** | **149.0611** | **3.4500e-003** | **3.5200e-003** | **150.1959** |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 3.5 Paving - 2023

### Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Off-Road | 0.8802 | 8.6098 | 11.6840 | 0.0179 | | 0.4338 | 0.4338 | | 0.4003 | 0.4003 | 0.0000 | 1,709.9926 | 1,709.9926 | 0.5420 | | 1,723.5414 |
| Paving | 0.0000 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| **Total** | **0.8802** | **8.6098** | **11.6840** | **0.0179** | | **0.4338** | **0.4338** | | **0.4003** | **0.4003** | **0.0000** | **1,709.9926** | **1,709.9926** | **0.5420** | | **1,723.5414** |

### Mitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 0.0548 | 0.0338 | 0.5488 | 1.4700e-003 | 0.1094 | 7.8000e-004 | 0.1101 | 0.0302 | 7.2000e-004 | 0.0309 | | 149.0611 | 149.0611 | 3.4500e-003 | 3.5200e-003 | 150.1959 |
| **Total** | **0.0548** | **0.0338** | **0.5488** | **1.4700e-003** | **0.1094** | **7.8000e-004** | **0.1101** | **0.0302** | **7.2000e-004** | **0.0309** | | **149.0611** | **149.0611** | **3.4500e-003** | **3.5200e-003** | **150.1959** |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 3.5 Paving - 2024

### Unmitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Off-Road | 0.8425 | 8.1030 | 11.7069 | 0.0179 | | 0.3957 | 0.3957 | | 0.3652 | 0.3652 | | 1,710.2024 | 1,710.2024 | 0.5420 | | 1,723.7529 |
| Paving | 0.0000 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| **Total** | **0.8425** | **8.1030** | **11.7069** | **0.0179** | | **0.3957** | **0.3957** | | **0.3652** | **0.3652** | | **1,710.2024** | **1,710.2024** | **0.5420** | | **1,723.7529** |

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 0.0510 | 0.0301 | 0.5130 | 1.4300e-003 | 0.1677 | 7.5000e-004 | 0.1684 | 0.0445 | 6.9000e-004 | 0.0452 | | 144.3160 | 144.3160 | 3.1200e-003 | 3.2700e-003 | 145.3683 |
| **Total** | **0.0510** | **0.0301** | **0.5130** | **1.4300e-003** | **0.1677** | **7.5000e-004** | **0.1684** | **0.0445** | **6.9000e-004** | **0.0452** | | **144.3160** | **144.3160** | **3.1200e-003** | **3.2700e-003** | **145.3683** |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 3.5 Paving - 2024

### Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Off-Road | 0.8425 | 8.1030 | 11.7069 | 0.0179 | | 0.3957 | 0.3957 | | 0.3652 | 0.3652 | 0.0000 | 1,710.2024 | 1,710.2024 | 0.5420 | | 1,723.7529 |
| Paving | 0.0000 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| **Total** | **0.8425** | **8.1030** | **11.7069** | **0.0179** | | **0.3957** | **0.3957** | | **0.3652** | **0.3652** | **0.0000** | **1,710.2024** | **1,710.2024** | **0.5420** | | **1,723.7529** |

### Mitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 0.0510 | 0.0301 | 0.5130 | 1.4300e-003 | 0.1094 | 7.5000e-004 | 0.1101 | 0.0302 | 6.9000e-004 | 0.0308 | | 144.3160 | 144.3160 | 3.1200e-003 | 3.2700e-003 | 145.3683 |
| **Total** | **0.0510** | **0.0301** | **0.5130** | **1.4300e-003** | **0.1094** | **7.5000e-004** | **0.1101** | **0.0302** | **6.9000e-004** | **0.0308** | | **144.3160** | **144.3160** | **3.1200e-003** | **3.2700e-003** | **145.3683** |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 3.6 Architectural Coating - 2023

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Archit. Coating | 1.7754 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Off-Road | 0.1917 | 1.3030 | 1.8111 | 2.9700e-003 | | 0.0708 | 0.0708 | | 0.0708 | 0.0708 | | 281.4481 | 281.4481 | 0.0168 | | 281.8690 |
| **Total** | **1.9671** | **1.3030** | **1.8111** | **2.9700e-003** | | **0.0708** | **0.0708** | | **0.0708** | **0.0708** | | **281.4481** | **281.4481** | **0.0168** | | **281.8690** |

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 0.0256 | 0.0158 | 0.2561 | 6.9000e-004 | 0.0782 | 3.7000e-004 | 0.0786 | 0.0208 | 3.4000e-004 | 0.0211 | | 69.5618 | 69.5618 | 1.6100e-003 | 1.6400e-003 | 70.0914 |
| **Total** | **0.0256** | **0.0158** | **0.2561** | **6.9000e-004** | **0.0782** | **3.7000e-004** | **0.0786** | **0.0208** | **3.4000e-004** | **0.0211** | | **69.5618** | **69.5618** | **1.6100e-003** | **1.6400e-003** | **70.0914** |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 3.6 Architectural Coating - 2023

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Archit. Coating | 1.7754 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Off-Road | 0.1917 | 1.3030 | 1.8111 | 2.9700e-003 | | 0.0708 | 0.0708 | | 0.0708 | 0.0708 | 0.0000 | 281.4481 | 281.4481 | 0.0168 | | 281.8690 |
| **Total** | **1.9671** | **1.3030** | **1.8111** | **2.9700e-003** | | **0.0708** | **0.0708** | | **0.0708** | **0.0708** | **0.0000** | **281.4481** | **281.4481** | **0.0168** | | **281.8690** |

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 0.0256 | 0.0158 | 0.2561 | 6.9000e-004 | 0.0510 | 3.7000e-004 | 0.0514 | 0.0141 | 3.4000e-004 | 0.0144 | | 69.5618 | 69.5618 | 1.6100e-003 | 1.6400e-003 | 70.0914 |
| **Total** | **0.0256** | **0.0158** | **0.2561** | **6.9000e-004** | **0.0510** | **3.7000e-004** | **0.0514** | **0.0141** | **3.4000e-004** | **0.0144** | | **69.5618** | **69.5618** | **1.6100e-003** | **1.6400e-003** | **70.0914** |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 3.6 Architectural Coating - 2024

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Archit. Coating | 1.7754 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Off-Road | 0.1808 | 1.2188 | 1.8101 | 2.9700e-003 | | 0.0609 | 0.0609 | | 0.0609 | 0.0609 | | 281.4481 | 281.4481 | 0.0159 | | 281.8443 |
| **Total** | **1.9562** | **1.2188** | **1.8101** | **2.9700e-003** | | **0.0609** | **0.0609** | | **0.0609** | **0.0609** | | **281.4481** | **281.4481** | **0.0159** | | **281.8443** |

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 0.0238 | 0.0141 | 0.2394 | 6.7000e-004 | 0.0782 | 3.5000e-004 | 0.0786 | 0.0208 | 3.2000e-004 | 0.0211 | | 67.3475 | 67.3475 | 1.4600e-003 | 1.5300e-003 | 67.8386 |
| **Total** | **0.0238** | **0.0141** | **0.2394** | **6.7000e-004** | **0.0782** | **3.5000e-004** | **0.0786** | **0.0208** | **3.2000e-004** | **0.0211** | | **67.3475** | **67.3475** | **1.4600e-003** | **1.5300e-003** | **67.8386** |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 3.6 Architectural Coating - 2024

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Archit. Coating | 1.7754 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Off-Road | 0.1808 | 1.2188 | 1.8101 | 2.9700e-003 | | 0.0609 | 0.0609 | | 0.0609 | 0.0609 | 0.0000 | 281.4481 | 281.4481 | 0.0159 | | 281.8443 |
| **Total** | **1.9562** | **1.2188** | **1.8101** | **2.9700e-003** | | **0.0609** | **0.0609** | | **0.0609** | **0.0609** | **0.0000** | **281.4481** | **281.4481** | **0.0159** | | **281.8443** |

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 0.0238 | 0.0141 | 0.2394 | 6.7000e-004 | 0.0510 | 3.5000e-004 | 0.0514 | 0.0141 | 3.2000e-004 | 0.0144 | | 67.3475 | 67.3475 | 1.4600e-003 | 1.5300e-003 | 67.8386 |
| **Total** | **0.0238** | **0.0141** | **0.2394** | **6.7000e-004** | **0.0510** | **3.5000e-004** | **0.0514** | **0.0141** | **3.2000e-004** | **0.0144** | | **67.3475** | **67.3475** | **1.4600e-003** | **1.5300e-003** | **67.8386** |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

# 4.0 Operational Detail - Mobile

## 4.1 Mitigation Measures Mobile

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Mitigated | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Unmitigated | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

## 4.2 Trip Summary Information

| | Average Daily Trip Rate | | | Unmitigated | Mitigated |
|---|---|---|---|---|---|
| Land Use | Weekday | Saturday | Sunday | Annual VMT | Annual VMT |
| Health Club | 0.00 | 0.00 | 0.00 | | |
| High School | 0.00 | 0.00 | 0.00 | | |
| Other Non-Asphalt Surfaces | 0.00 | 0.00 | 0.00 | | |
| Other Non-Asphalt Surfaces | 0.00 | 0.00 | 0.00 | | |
| Total | 0.00 | 0.00 | 0.00 | | |

## 4.3 Trip Type Information

| | Miles | | | Trip % | | | Trip Purpose % | | |
|---|---|---|---|---|---|---|---|---|---|
| Land Use | H-W or C-W | H-S or C-C | H-O or C-NW | H-W or C-W | H-S or C-C | H-O or C-NW | Primary | Diverted | Pass-by |
| Health Club | 16.60 | 8.40 | 6.90 | 16.90 | 64.10 | 19.00 | 52 | 39 | 9 |
| High School | 16.60 | 8.40 | 6.90 | 77.80 | 17.20 | 5.00 | 75 | 19 | 6 |
| Other Non-Asphalt Surfaces | 16.60 | 8.40 | 6.90 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

| | Miles | | | Trip % | | | Trip Purpose % | | |
|---|---|---|---|---|---|---|---|---|---|
| Land Use | H-W or C-W | H-S or C-C | H-O or C-NW | H-W or C-W | H-S or C-C | H-O or C-NW | Primary | Diverted | Pass-by |
| Other Non-Asphalt Surfaces | 16.60 | 8.40 | 6.90 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 |

## 4.4 Fleet Mix

| Land Use | LDA | LDT1 | LDT2 | MDV | LHD1 | LHD2 | MHD | HHD | OBUS | UBUS | MCY | SBUS | MH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Health Club | 0.537845 | 0.056225 | 0.173186 | 0.138405 | 0.025906 | 0.007191 | 0.011447 | 0.018769 | 0.000611 | 0.000309 | 0.023821 | 0.001097 | 0.005189 |
| High School | 0.537845 | 0.056225 | 0.173186 | 0.138405 | 0.025906 | 0.007191 | 0.011447 | 0.018769 | 0.000611 | 0.000309 | 0.023821 | 0.001097 | 0.005189 |
| Other Non-Asphalt Surfaces | 0.537845 | 0.056225 | 0.173186 | 0.138405 | 0.025906 | 0.007191 | 0.011447 | 0.018769 | 0.000611 | 0.000309 | 0.023821 | 0.001097 | 0.005189 |

# 5.0 Energy Detail

Historical Energy Use: N

## 5.1 Mitigation Measures Energy

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| NaturalGas Mitigated | 0.0272 | 0.2475 | 0.2079 | 1.4900e-003 | | 0.0188 | 0.0188 | | 0.0188 | 0.0188 | | 297.0113 | 297.0113 | 5.6900e-003 | 5.4500e-003 | 298.7763 |
| NaturalGas Unmitigated | 0.0272 | 0.2475 | 0.2079 | 1.4900e-003 | | 0.0188 | 0.0188 | | 0.0188 | 0.0188 | | 297.0113 | 297.0113 | 5.6900e-003 | 5.4500e-003 | 298.7763 |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 5.2 Energy by Land Use - NaturalGas

**Unmitigated**

| | NaturalGas Use | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Land Use | kBTU/yr | lb/day | | | | | | | | | | lb/day | | | | | |
| Health Club | 2125.81 | 0.0229 | 0.2084 | 0.1751 | 1.2500e-003 | | 0.0158 | 0.0158 | | 0.0158 | 0.0158 | | 250.0951 | 250.0951 | 4.7900e-003 | 4.5900e-003 | 251.5813 |
| High School | 398.788 | 4.3000e-003 | 0.0391 | 0.0328 | 2.3000e-004 | | 2.9700e-003 | 2.9700e-003 | | 2.9700e-003 | 2.9700e-003 | | 46.9162 | 46.9162 | 9.0000e-004 | 8.6000e-004 | 47.1950 |
| Other Non-Asphalt Surfaces | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | | **0.0272** | **0.2475** | **0.2079** | **1.4800e-003** | | **0.0188** | **0.0188** | | **0.0188** | **0.0188** | | **297.0113** | **297.0113** | **5.6900e-003** | **5.4500e-003** | **298.7763** |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 5.2 Energy by Land Use - NaturalGas

**Mitigated**

| | NaturalGas Use | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Land Use | kBTU/yr | lb/day | | | | | | | | | | lb/day | | | | | |
| Health Club | 2.12581 | 0.0229 | 0.2084 | 0.1751 | 1.2500e-003 | | 0.0158 | 0.0158 | | 0.0158 | 0.0158 | | 250.0951 | 250.0951 | 4.7900e-003 | 4.5900e-003 | 251.5813 |
| High School | 0.398788 | 4.3000e-003 | 0.0391 | 0.0328 | 2.3000e-004 | | 2.9700e-003 | 2.9700e-003 | | 2.9700e-003 | 2.9700e-003 | | 46.9162 | 46.9162 | 9.0000e-004 | 8.6000e-004 | 47.1950 |
| Other Non-Asphalt Surfaces | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | | **0.0272** | **0.2475** | **0.2079** | **1.4800e-003** | | **0.0188** | **0.0188** | | **0.0188** | **0.0188** | | **297.0113** | **297.0113** | **5.6900e-003** | **5.4500e-003** | **298.7763** |

# 6.0 Area Detail

## 6.1 Mitigation Measures Area

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Mitigated | 0.9306 | 4.0000e-005 | 4.2600e-003 | 0.0000 | | 2.0000e-005 | 2.0000e-005 | | 2.0000e-005 | 2.0000e-005 | | 9.1500e-003 | 9.1500e-003 | 2.0000e-005 | | 9.7500e-003 |
| Unmitigated | 0.9306 | 4.0000e-005 | 4.2600e-003 | 0.0000 | | 2.0000e-005 | 2.0000e-005 | | 2.0000e-005 | 2.0000e-005 | | 9.1500e-003 | 9.1500e-003 | 2.0000e-005 | | 9.7500e-003 |

## 6.2 Area by SubCategory

**Unmitigated**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SubCategory | lb/day | | | | | | | | | | lb/day | | | | | |
| Architectural Coating | 0.1070 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Consumer Products | 0.8232 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Landscaping | 3.9000e-004 | 4.0000e-005 | 4.2600e-003 | 0.0000 | | 2.0000e-005 | 2.0000e-005 | | 2.0000e-005 | 2.0000e-005 | | 9.1500e-003 | 9.1500e-003 | 2.0000e-005 | | 9.7500e-003 |
| **Total** | **0.9306** | **4.0000e-005** | **4.2600e-003** | **0.0000** | | **2.0000e-005** | **2.0000e-005** | | **2.0000e-005** | **2.0000e-005** | | **9.1500e-003** | **9.1500e-003** | **2.0000e-005** | | **9.7500e-003** |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 6.2 Area by SubCategory

**Mitigated**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SubCategory | lb/day | | | | | | | | | | lb/day | | | | | |
| Architectural Coating | 0.1070 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Consumer Products | 0.8232 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Landscaping | 3.9000e-004 | 4.0000e-005 | 4.2600e-003 | 0.0000 | | 2.0000e-005 | 2.0000e-005 | | 2.0000e-005 | 2.0000e-005 | | 9.1500e-003 | 9.1500e-003 | 2.0000e-005 | | 9.7500e-003 |
| **Total** | **0.9306** | **4.0000e-005** | **4.2600e-003** | **0.0000** | | **2.0000e-005** | **2.0000e-005** | | **2.0000e-005** | **2.0000e-005** | | **9.1500e-003** | **9.1500e-003** | **2.0000e-005** | | **9.7500e-003** |

# 7.0 Water Detail

## 7.1 Mitigation Measures Water

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 8.0 Waste Detail

### 8.1 Mitigation Measures Waste

## 9.0 Operational Offroad

| Equipment Type | Number | Hours/Day | Days/Year | Horse Power | Load Factor | Fuel Type |
|---|---|---|---|---|---|---|

## 10.0 Stationary Equipment

**Fire Pumps and Emergency Generators**

| Equipment Type | Number | Hours/Day | Hours/Year | Horse Power | Load Factor | Fuel Type |
|---|---|---|---|---|---|---|

**Boilers**

| Equipment Type | Number | Heat Input/Day | Heat Input/Year | Boiler Rating | Fuel Type |
|---|---|---|---|---|---|

**User Defined Equipment**

| Equipment Type | Number |
|---|---|

## 11.0 Vegetation

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

# John W North High School Modernization Project

**Riverside-South Coast County, Winter**

## 1.0 Project Characteristics

### 1.1 Land Usage

| Land Uses | Size | Metric | Lot Acreage | Floor Surface Area | Population |
|---|---|---|---|---|---|
| Health Club | 24.00 | 1000sqft | 1.05 | 24,000.00 | 0 |
| High School | 16.75 | 1000sqft | 0.88 | 16,750.00 | 0 |
| Other Non-Asphalt Surfaces | 0.68 | Acre | 0.68 | 29,620.80 | 0 |
| Other Non-Asphalt Surfaces | 0.38 | Acre | 0.38 | 16,552.80 | 0 |

### 1.2 Other Project Characteristics

| | | | | | |
|---|---|---|---|---|---|
| **Urbanization** | Urban | **Wind Speed (m/s)** | 2.4 | **Precipitation Freq (Days)** | 28 |
| **Climate Zone** | 10 | | | **Operational Year** | 2024 |
| **Utility Company** | Southern California Edison | | | | |
| **CO2 Intensity (lb/MWhr)** | 390.98 | **CH4 Intensity (lb/MWhr)** | 0.033 | **N2O Intensity (lb/MWhr)** | 0.004 |

### 1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Accounts for .38 acre of new hardscape, .68 acre of ground disturbance associated with portable classroom removal, gym, and classroom building

Construction Phase - Building construction, paving, and painting assumed to occur simultaneously

Trips and VMT - Assume 16 haul truck round trips to remove portable classrooms

Vehicle Trips - No increase in student capacity. No increase of traffic trips over existing conditions

Construction Off-road Equipment Mitigation - SCAQMD Rule 403

| Table Name | Column Name | Default Value | New Value |
|---|---|---|---|
| tblConstDustMitigation | CleanPavedRoadPercentReduction | 0 | 40 |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

| | | | |
|---|---|---|---|
| tblConstDustMitigation | WaterUnpavedRoadVehicleSpeed | 0 | 15 |
| tblConstructionPhase | NumDays | 10.00 | 220.00 |
| tblConstructionPhase | NumDays | 10.00 | 220.00 |
| tblConstructionPhase | PhaseEndDate | 6/7/2023 | 2/7/2024 |
| tblConstructionPhase | PhaseEndDate | 5/10/2023 | 2/7/2024 |
| tblConstructionPhase | PhaseEndDate | 7/6/2022 | 4/5/2023 |
| tblConstructionPhase | PhaseEndDate | 5/24/2023 | 2/7/2024 |
| tblConstructionPhase | PhaseEndDate | 6/28/2022 | 3/28/2023 |
| tblConstructionPhase | PhaseStartDate | 5/25/2023 | 4/6/2023 |
| tblConstructionPhase | PhaseStartDate | 7/7/2022 | 4/6/2023 |
| tblConstructionPhase | PhaseStartDate | 6/29/2022 | 3/29/2023 |
| tblConstructionPhase | PhaseStartDate | 5/11/2023 | 4/6/2023 |
| tblConstructionPhase | PhaseStartDate | 6/24/2022 | 3/24/2023 |
| tblLandUse | LotAcreage | 0.55 | 1.05 |
| tblLandUse | LotAcreage | 0.38 | 0.88 |
| tblTripsAndVMT | HaulingTripNumber | 0.00 | 32.00 |
| tblVehicleTrips | ST_TR | 20.87 | 0.00 |
| tblVehicleTrips | ST_TR | 3.98 | 0.00 |
| tblVehicleTrips | SU_TR | 26.73 | 0.00 |
| tblVehicleTrips | SU_TR | 1.71 | 0.00 |
| tblVehicleTrips | WD_TR | 32.93 | 0.00 |
| tblVehicleTrips | WD_TR | 14.07 | 0.00 |

## 2.0 Emissions Summary

John W North High School Modernization Project - Riverside-South Coast County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 2.1 Overall Construction (Maximum Daily Emission)

**Unmitigated Construction**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | lb/day | | | | | | | | | | lb/day | | | | | |
| 2023 | 4.7777 | 24.1753 | 29.6612 | 0.0536 | 7.1944 | 1.1255 | 7.7992 | 3.4544 | 1.0659 | 4.0109 | 0.0000 | 5,080.7854 | 5,080.7854 | 1.0080 | 0.0540 | 5,122.0681 |
| 2024 | 4.5992 | 22.7688 | 29.4531 | 0.0534 | 0.7517 | 1.0018 | 1.7535 | 0.2014 | 0.9480 | 1.1495 | 0.0000 | 5,060.1702 | 5,060.1702 | 0.9994 | 0.0523 | 5,100.7369 |
| **Maximum** | **4.7777** | **24.1753** | **29.6612** | **0.0536** | **7.1944** | **1.1255** | **7.7992** | **3.4544** | **1.0659** | **4.0109** | **0.0000** | **5,080.7854** | **5,080.7854** | **1.0080** | **0.0540** | **5,122.0681** |

**Mitigated Construction**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | lb/day | | | | | | | | | | lb/day | | | | | |
| 2023 | 4.7777 | 24.1753 | 29.6612 | 0.0536 | 2.8351 | 1.1255 | 3.4400 | 1.3558 | 1.0659 | 1.9122 | 0.0000 | 5,080.7854 | 5,080.7854 | 1.0080 | 0.0540 | 5,122.0681 |
| 2024 | 4.5992 | 22.7688 | 29.4531 | 0.0534 | 0.4961 | 1.0018 | 1.4978 | 0.1387 | 0.9480 | 1.0867 | 0.0000 | 5,060.1702 | 5,060.1702 | 0.9994 | 0.0523 | 5,100.7369 |
| **Maximum** | **4.7777** | **24.1753** | **29.6612** | **0.0536** | **2.8351** | **1.1255** | **3.4400** | **1.3558** | **1.0659** | **1.9122** | **0.0000** | **5,080.7854** | **5,080.7854** | **1.0080** | **0.0540** | **5,122.0681** |

John W North High School Modernization Project - Riverside-South Coast County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N20 | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Percent Reduction** | **0.00** | **0.00** | **0.00** | **0.00** | **58.08** | **0.00** | **48.31** | **59.12** | **0.00** | **41.88** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** |

John W North High School Modernization Project - Riverside-South Coast County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 2.2 Overall Operational

### Unmitigated Operational

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Area | 0.9306 | 4.0000e-005 | 4.2600e-003 | 0.0000 | | 2.0000e-005 | 2.0000e-005 | | 2.0000e-005 | 2.0000e-005 | | 9.1500e-003 | 9.1500e-003 | 2.0000e-005 | | 9.7500e-003 |
| Energy | 0.0272 | 0.2475 | 0.2079 | 1.4900e-003 | | 0.0188 | 0.0188 | | 0.0188 | 0.0188 | | 297.0113 | 297.0113 | 5.6900e-003 | 5.4500e-003 | 298.7763 |
| Mobile | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **0.9578** | **0.2476** | **0.2122** | **1.4900e-003** | **0.0000** | **0.0188** | **0.0188** | **0.0000** | **0.0188** | **0.0188** | | **297.0204** | **297.0204** | **5.7100e-003** | **5.4500e-003** | **298.7860** |

### Mitigated Operational

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Area | 0.9306 | 4.0000e-005 | 4.2600e-003 | 0.0000 | | 2.0000e-005 | 2.0000e-005 | | 2.0000e-005 | 2.0000e-005 | | 9.1500e-003 | 9.1500e-003 | 2.0000e-005 | | 9.7500e-003 |
| Energy | 0.0272 | 0.2475 | 0.2079 | 1.4900e-003 | | 0.0188 | 0.0188 | | 0.0188 | 0.0188 | | 297.0113 | 297.0113 | 5.6900e-003 | 5.4500e-003 | 298.7763 |
| Mobile | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **0.9578** | **0.2476** | **0.2122** | **1.4900e-003** | **0.0000** | **0.0188** | **0.0188** | **0.0000** | **0.0188** | **0.0188** | | **297.0204** | **297.0204** | **5.7100e-003** | **5.4500e-003** | **298.7860** |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N20 | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Percent Reduction** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** |

## 3.0 Construction Detail

**Construction Phase**

| Phase Number | Phase Name | Phase Type | Start Date | End Date | Num Days Week | Num Days | Phase Description |
|---|---|---|---|---|---|---|---|
| 1 | Site Preparation | Site Preparation | 3/24/2023 | 3/28/2023 | 5 | 3 | |
| 2 | Grading | Grading | 3/29/2023 | 4/5/2023 | 5 | 6 | |
| 3 | Building Construction | Building Construction | 4/6/2023 | 2/7/2024 | 5 | 220 | |
| 4 | Paving | Paving | 4/6/2023 | 2/7/2024 | 5 | 220 | |
| 5 | Architectural Coating | Architectural Coating | 4/6/2023 | 2/7/2024 | 5 | 220 | |

**Acres of Grading (Site Preparation Phase): 4.5**

**Acres of Grading (Grading Phase): 6**

**Acres of Paving: 1.06**

**Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 61,125; Non-Residential Outdoor: 20,375; Striped Parking Area: 2,770 (Architectural Coating – sqft)**

**OffRoad Equipment**

| Phase Name | Offroad Equipment Type | Amount | Usage Hours | Horse Power | Load Factor |
|---|---|---|---|---|---|
| Architectural Coating | Air Compressors | 1 | 6.00 | 78 | 0.48 |
| Paving | Cement and Mortar Mixers | 1 | 8.00 | 9 | 0.56 |
| Building Construction | Cranes | 1 | 8.00 | 231 | 0.29 |
| Building Construction | Forklifts | 2 | 7.00 | 89 | 0.20 |
| Building Construction | Generator Sets | 1 | 8.00 | 84 | 0.74 |
| Grading | Graders | 1 | 8.00 | 187 | 0.41 |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

| | | | | | |
|---|---|---|---|---|---|
| Site Preparation | Graders | 1 | 8.00 | 187 | 0.41 |
| Paving | Pavers | 1 | 8.00 | 130 | 0.42 |
| Paving | Paving Equipment | 1 | 8.00 | 132 | 0.36 |
| Paving | Rollers | 2 | 8.00 | 80 | 0.38 |
| Grading | Rubber Tired Dozers | 1 | 8.00 | 247 | 0.40 |
| Site Preparation | Scrapers | 1 | 8.00 | 367 | 0.48 |
| Building Construction | Tractors/Loaders/Backhoes | 1 | 6.00 | 97 | 0.37 |
| Grading | Tractors/Loaders/Backhoes | 2 | 7.00 | 97 | 0.37 |
| Paving | Tractors/Loaders/Backhoes | 1 | 8.00 | 97 | 0.37 |
| Site Preparation | Tractors/Loaders/Backhoes | 1 | 7.00 | 97 | 0.37 |
| Building Construction | Welders | 3 | 8.00 | 46 | 0.45 |

**Trips and VMT**

| Phase Name | Offroad Equipment Count | Worker Trip Number | Vendor Trip Number | Hauling Trip Number | Worker Trip Length | Vendor Trip Length | Hauling Trip Length | Worker Vehicle Class | Vendor Vehicle Class | Hauling Vehicle Class |
|---|---|---|---|---|---|---|---|---|---|---|
| Site Preparation | 3 | 8.00 | 0.00 | 0.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Grading | 4 | 10.00 | 0.00 | 0.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Building Construction | 8 | 37.00 | 14.00 | 32.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Paving | 6 | 15.00 | 0.00 | 0.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Architectural Coating | 1 | 7.00 | 0.00 | 0.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |

## 3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 3.2 Site Preparation - 2023

### Unmitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Fugitive Dust | | | | | 1.5908 | 0.0000 | 1.5908 | 0.1718 | 0.0000 | 0.1718 | | | 0.0000 | | | 0.0000 |
| Off-Road | 1.3027 | 14.2802 | 9.7820 | 0.0245 | | 0.5419 | 0.5419 | | 0.4985 | 0.4985 | | 2,374.8634 | 2,374.8634 | 0.7681 | | 2,394.0654 |
| **Total** | **1.3027** | **14.2802** | **9.7820** | **0.0245** | **1.5908** | **0.5419** | **2.1326** | **0.1718** | **0.4985** | **0.6703** | | **2,374.8634** | **2,374.8634** | **0.7681** | | **2,394.0654** |

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 0.0274 | 0.0187 | 0.2377 | 7.1000e-004 | 0.0894 | 4.2000e-004 | 0.0898 | 0.0237 | 3.8000e-004 | 0.0241 | | 72.0339 | 72.0339 | 1.8300e-003 | 1.9200e-003 | 72.6521 |
| **Total** | **0.0274** | **0.0187** | **0.2377** | **7.1000e-004** | **0.0894** | **4.2000e-004** | **0.0898** | **0.0237** | **3.8000e-004** | **0.0241** | | **72.0339** | **72.0339** | **1.8300e-003** | **1.9200e-003** | **72.6521** |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 3.2 Site Preparation - 2023

### Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Fugitive Dust | | | | | 0.6204 | 0.0000 | 0.6204 | 0.0670 | 0.0000 | 0.0670 | | | 0.0000 | | | 0.0000 |
| Off-Road | 1.3027 | 14.2802 | 9.7820 | 0.0245 | | 0.5419 | 0.5419 | | 0.4985 | 0.4985 | 0.0000 | 2,374.8634 | 2,374.8634 | 0.7681 | | 2,394.0654 |
| **Total** | **1.3027** | **14.2802** | **9.7820** | **0.0245** | **0.6204** | **0.5419** | **1.1623** | **0.0670** | **0.4985** | **0.5655** | **0.0000** | **2,374.8634** | **2,374.8634** | **0.7681** | | **2,394.0654** |

### Mitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 0.0274 | 0.0187 | 0.2377 | 7.1000e-004 | 0.0583 | 4.2000e-004 | 0.0587 | 0.0161 | 3.8000e-004 | 0.0165 | | 72.0339 | 72.0339 | 1.8300e-003 | 1.9200e-003 | 72.6521 |
| **Total** | **0.0274** | **0.0187** | **0.2377** | **7.1000e-004** | **0.0583** | **4.2000e-004** | **0.0587** | **0.0161** | **3.8000e-004** | **0.0165** | | **72.0339** | **72.0339** | **1.8300e-003** | **1.9200e-003** | **72.6521** |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 3.3 Grading - 2023

### Unmitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Fugitive Dust | | | | | 7.0826 | 0.0000 | 7.0826 | 3.4247 | 0.0000 | 3.4247 | | | 0.0000 | | | 0.0000 |
| Off-Road | 1.3330 | 14.4676 | 8.7038 | 0.0206 | | 0.6044 | 0.6044 | | 0.5560 | 0.5560 | | 1,995.6147 | 1,995.6147 | 0.6454 | | 2,011.7503 |
| **Total** | **1.3330** | **14.4676** | **8.7038** | **0.0206** | **7.0826** | **0.6044** | **7.6869** | **3.4247** | **0.5560** | **3.9807** | | **1,995.6147** | **1,995.6147** | **0.6454** | | **2,011.7503** |

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 0.0342 | 0.0234 | 0.2971 | 8.9000e-004 | 0.1118 | 5.2000e-004 | 0.1123 | 0.0296 | 4.8000e-004 | 0.0301 | | 90.0423 | 90.0423 | 2.2900e-003 | 2.4000e-003 | 90.8151 |
| **Total** | **0.0342** | **0.0234** | **0.2971** | **8.9000e-004** | **0.1118** | **5.2000e-004** | **0.1123** | **0.0296** | **4.8000e-004** | **0.0301** | | **90.0423** | **90.0423** | **2.2900e-003** | **2.4000e-003** | **90.8151** |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 3.3 Grading - 2023

### Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Fugitive Dust | | | | | 2.7622 | 0.0000 | 2.7622 | 1.3357 | 0.0000 | 1.3357 | | | 0.0000 | | | 0.0000 |
| Off-Road | 1.3330 | 14.4676 | 8.7038 | 0.0206 | | 0.6044 | 0.6044 | | 0.5560 | 0.5560 | 0.0000 | 1,995.6147 | 1,995.6147 | 0.6454 | | 2,011.7503 |
| **Total** | **1.3330** | **14.4676** | **8.7038** | **0.0206** | **2.7622** | **0.6044** | **3.3666** | **1.3357** | **0.5560** | **1.8917** | **0.0000** | **1,995.6147** | **1,995.6147** | **0.6454** | | **2,011.7503** |

### Mitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 0.0342 | 0.0234 | 0.2971 | 8.9000e-004 | 0.0729 | 5.2000e-004 | 0.0734 | 0.0201 | 4.8000e-004 | 0.0206 | | 90.0423 | 90.0423 | 2.2900e-003 | 2.4000e-003 | 90.8151 |
| **Total** | **0.0342** | **0.0234** | **0.2971** | **8.9000e-004** | **0.0729** | **5.2000e-004** | **0.0734** | **0.0201** | **4.8000e-004** | **0.0206** | | **90.0423** | **90.0423** | **2.2900e-003** | **2.4000e-003** | **90.8151** |

John W North High School Modernization Project - Riverside-South Coast County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 3.4 Building Construction - 2023

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Off-Road | 1.7136 | 13.6239 | 14.2145 | 0.0250 | | 0.6136 | 0.6136 | | 0.5880 | 0.5880 | | 2,289.5233 | 2,289.5233 | 0.4330 | | 2,300.3479 |
| **Total** | **1.7136** | **13.6239** | **14.2145** | **0.0250** | | **0.6136** | **0.6136** | | **0.5880** | **0.5880** | | **2,289.5233** | **2,289.5233** | **0.4330** | | **2,300.3479** |

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 2.9000e-004 | 0.0154 | 4.0800e-003 | 8.0000e-005 | 2.5500e-003 | 1.8000e-004 | 2.7200e-003 | 7.0000e-004 | 1.7000e-004 | 8.7000e-004 | | 8.5486 | 8.5486 | 1.2000e-004 | 1.3500e-003 | 8.9530 |
| Vendor | 0.0146 | 0.4851 | 0.1947 | 2.4500e-003 | 0.0897 | 4.0000e-003 | 0.0937 | 0.0258 | 3.8200e-003 | 0.0296 | | 260.0231 | 260.0231 | 2.5900e-003 | 0.0385 | 271.5479 |
| Worker | 0.1266 | 0.0866 | 1.0993 | 3.3000e-003 | 0.4136 | 1.9300e-003 | 0.4155 | 0.1097 | 1.7800e-003 | 0.1115 | | 333.1567 | 333.1567 | 8.4700e-003 | 8.8800e-003 | 336.0158 |
| **Total** | **0.1415** | **0.5871** | **1.2980** | **5.8300e-003** | **0.5058** | **6.1100e-003** | **0.5119** | **0.1362** | **5.7700e-003** | **0.1420** | | **601.7284** | **601.7284** | **0.0112** | **0.0487** | **616.5167** |

John W North High School Modernization Project - Riverside-South Coast County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 3.4 Building Construction - 2023

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Off-Road | 1.7136 | 13.6239 | 14.2145 | 0.0250 | | 0.6136 | 0.6136 | | 0.5880 | 0.5880 | 0.0000 | 2,289.5233 | 2,289.5233 | 0.4330 | | 2,300.3479 |
| **Total** | **1.7136** | **13.6239** | **14.2145** | **0.0250** | | **0.6136** | **0.6136** | | **0.5880** | **0.5880** | **0.0000** | **2,289.5233** | **2,289.5233** | **0.4330** | | **2,300.3479** |

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 2.9000e-004 | 0.0154 | 4.0800e-003 | 8.0000e-005 | 1.7800e-003 | 1.8000e-004 | 1.9500e-003 | 5.1000e-004 | 1.7000e-004 | 6.8000e-004 | | 8.5486 | 8.5486 | 1.2000e-004 | 1.3500e-003 | 8.9530 |
| Vendor | 0.0146 | 0.4851 | 0.1947 | 2.4500e-003 | 0.0641 | 4.0000e-003 | 0.0681 | 0.0196 | 3.8200e-003 | 0.0234 | | 260.0231 | 260.0231 | 2.5900e-003 | 0.0385 | 271.5479 |
| Worker | 0.1266 | 0.0866 | 1.0993 | 3.3000e-003 | 0.2698 | 1.9300e-003 | 0.2717 | 0.0744 | 1.7800e-003 | 0.0762 | | 333.1567 | 333.1567 | 8.4700e-003 | 8.8800e-003 | 336.0158 |
| **Total** | **0.1415** | **0.5871** | **1.2980** | **5.8300e-003** | **0.3357** | **6.1100e-003** | **0.3418** | **0.0944** | **5.7700e-003** | **0.1002** | | **601.7284** | **601.7284** | **0.0112** | **0.0487** | **616.5167** |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 3.4 Building Construction - 2024

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Off-Road | 1.5971 | 12.8235 | 14.1002 | 0.0250 | | 0.5381 | 0.5381 | | 0.5153 | 0.5153 | | 2,289.6541 | 2,289.6541 | 0.4265 | | 2,300.3154 |
| **Total** | **1.5971** | **12.8235** | **14.1002** | **0.0250** | | **0.5381** | **0.5381** | | **0.5153** | **0.5153** | | **2,289.6541** | **2,289.6541** | **0.4265** | | **2,300.3154** |

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 2.9000e-004 | 0.0154 | 4.1200e-003 | 8.0000e-005 | 2.5500e-003 | 1.7000e-004 | 2.7200e-003 | 7.0000e-004 | 1.7000e-004 | 8.6000e-004 | | 8.4090 | 8.4090 | 1.3000e-004 | 1.3300e-003 | 8.8071 |
| Vendor | 0.0144 | 0.4851 | 0.1925 | 2.4100e-003 | 0.0897 | 3.9700e-003 | 0.0936 | 0.0258 | 3.8000e-003 | 0.0296 | | 256.0200 | 256.0200 | 2.6900e-003 | 0.0378 | 267.3533 |
| Worker | 0.1184 | 0.0771 | 1.0280 | 3.1900e-003 | 0.4136 | 1.8400e-003 | 0.4154 | 0.1097 | 1.7000e-003 | 0.1114 | | 322.6128 | 322.6128 | 7.6900e-003 | 8.2500e-003 | 325.2639 |
| **Total** | **0.1330** | **0.5777** | **1.2247** | **5.6800e-003** | **0.5058** | **5.9800e-003** | **0.5118** | **0.1362** | **5.6700e-003** | **0.1419** | | **587.0418** | **587.0418** | **0.0105** | **0.0474** | **601.4242** |

John W North High School Modernization Project - Riverside-South Coast County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 3.4 Building Construction - 2024

### Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Off-Road | 1.5971 | 12.8235 | 14.1002 | 0.0250 | | 0.5381 | 0.5381 | | 0.5153 | 0.5153 | 0.0000 | 2,289.6541 | 2,289.6541 | 0.4265 | | 2,300.3154 |
| **Total** | **1.5971** | **12.8235** | **14.1002** | **0.0250** | | **0.5381** | **0.5381** | | **0.5153** | **0.5153** | **0.0000** | **2,289.6541** | **2,289.6541** | **0.4265** | | **2,300.3154** |

### Mitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 2.9000e-004 | 0.0154 | 4.1200e-003 | 8.0000e-005 | 1.7800e-003 | 1.7000e-004 | 1.9500e-003 | 5.1000e-004 | 1.7000e-004 | 6.8000e-004 | | 8.4090 | 8.4090 | 1.3000e-004 | 1.3300e-003 | 8.8071 |
| Vendor | 0.0144 | 0.4851 | 0.1925 | 2.4100e-003 | 0.0641 | 3.9700e-003 | 0.0681 | 0.0196 | 3.8000e-003 | 0.0234 | | 256.0200 | 256.0200 | 2.6900e-003 | 0.0378 | 267.3533 |
| Worker | 0.1184 | 0.0771 | 1.0280 | 3.1900e-003 | 0.2698 | 1.8400e-003 | 0.2716 | 0.0744 | 1.7000e-003 | 0.0761 | | 322.6128 | 322.6128 | 7.6900e-003 | 8.2500e-003 | 325.2639 |
| **Total** | **0.1330** | **0.5777** | **1.2247** | **5.6800e-003** | **0.3357** | **5.9800e-003** | **0.3417** | **0.0944** | **5.6700e-003** | **0.1001** | | **587.0418** | **587.0418** | **0.0105** | **0.0474** | **601.4242** |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 3.5 Paving - 2023

### Unmitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Off-Road | 0.8802 | 8.6098 | 11.6840 | 0.0179 | | 0.4338 | 0.4338 | | 0.4003 | 0.4003 | | 1,709.9926 | 1,709.9926 | 0.5420 | | 1,723.5414 |
| Paving | 0.0000 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| **Total** | **0.8802** | **8.6098** | **11.6840** | **0.0179** | | **0.4338** | **0.4338** | | **0.4003** | **0.4003** | | **1,709.9926** | **1,709.9926** | **0.5420** | | **1,723.5414** |

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 0.0513 | 0.0351 | 0.4456 | 1.3400e-003 | 0.1677 | 7.8000e-004 | 0.1685 | 0.0445 | 7.2000e-004 | 0.0452 | | 135.0635 | 135.0635 | 3.4300e-003 | 3.6000e-003 | 136.2226 |
| **Total** | **0.0513** | **0.0351** | **0.4456** | **1.3400e-003** | **0.1677** | **7.8000e-004** | **0.1685** | **0.0445** | **7.2000e-004** | **0.0452** | | **135.0635** | **135.0635** | **3.4300e-003** | **3.6000e-003** | **136.2226** |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 3.5 Paving - 2023

### Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Off-Road | 0.8802 | 8.6098 | 11.6840 | 0.0179 | | 0.4338 | 0.4338 | | 0.4003 | 0.4003 | 0.0000 | 1,709.9926 | 1,709.9926 | 0.5420 | | 1,723.5414 |
| Paving | 0.0000 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| **Total** | **0.8802** | **8.6098** | **11.6840** | **0.0179** | | **0.4338** | **0.4338** | | **0.4003** | **0.4003** | **0.0000** | **1,709.9926** | **1,709.9926** | **0.5420** | | **1,723.5414** |

### Mitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 0.0513 | 0.0351 | 0.4456 | 1.3400e-003 | 0.1094 | 7.8000e-004 | 0.1101 | 0.0302 | 7.2000e-004 | 0.0309 | | 135.0635 | 135.0635 | 3.4300e-003 | 3.6000e-003 | 136.2226 |
| **Total** | **0.0513** | **0.0351** | **0.4456** | **1.3400e-003** | **0.1094** | **7.8000e-004** | **0.1101** | **0.0302** | **7.2000e-004** | **0.0309** | | **135.0635** | **135.0635** | **3.4300e-003** | **3.6000e-003** | **136.2226** |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 3.5 Paving - 2024

### Unmitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Off-Road | 0.8425 | 8.1030 | 11.7069 | 0.0179 | | 0.3957 | 0.3957 | | 0.3652 | 0.3652 | | 1,710.2024 | 1,710.2024 | 0.5420 | | 1,723.7529 |
| Paving | 0.0000 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| **Total** | **0.8425** | **8.1030** | **11.7069** | **0.0179** | | **0.3957** | **0.3957** | | **0.3652** | **0.3652** | | **1,710.2024** | **1,710.2024** | **0.5420** | | **1,723.7529** |

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 0.0480 | 0.0313 | 0.4168 | 1.2900e-003 | 0.1677 | 7.5000e-004 | 0.1684 | 0.0445 | 6.9000e-004 | 0.0452 | | 130.7890 | 130.7890 | 3.1200e-003 | 3.3500e-003 | 131.8638 |
| **Total** | **0.0480** | **0.0313** | **0.4168** | **1.2900e-003** | **0.1677** | **7.5000e-004** | **0.1684** | **0.0445** | **6.9000e-004** | **0.0452** | | **130.7890** | **130.7890** | **3.1200e-003** | **3.3500e-003** | **131.8638** |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 3.5 Paving - 2024

### Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Off-Road | 0.8425 | 8.1030 | 11.7069 | 0.0179 | | 0.3957 | 0.3957 | | 0.3652 | 0.3652 | 0.0000 | 1,710.2024 | 1,710.2024 | 0.5420 | | 1,723.7529 |
| Paving | 0.0000 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| **Total** | **0.8425** | **8.1030** | **11.7069** | **0.0179** | | **0.3957** | **0.3957** | | **0.3652** | **0.3652** | **0.0000** | **1,710.2024** | **1,710.2024** | **0.5420** | | **1,723.7529** |

### Mitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 0.0480 | 0.0313 | 0.4168 | 1.2900e-003 | 0.1094 | 7.5000e-004 | 0.1101 | 0.0302 | 6.9000e-004 | 0.0308 | | 130.7890 | 130.7890 | 3.1200e-003 | 3.3500e-003 | 131.8638 |
| **Total** | **0.0480** | **0.0313** | **0.4168** | **1.2900e-003** | **0.1094** | **7.5000e-004** | **0.1101** | **0.0302** | **6.9000e-004** | **0.0308** | | **130.7890** | **130.7890** | **3.1200e-003** | **3.3500e-003** | **131.8638** |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 3.6 Architectural Coating - 2023

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Archit. Coating | 1.7754 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Off-Road | 0.1917 | 1.3030 | 1.8111 | 2.9700e-003 | | 0.0708 | 0.0708 | | 0.0708 | 0.0708 | | 281.4481 | 281.4481 | 0.0168 | | 281.8690 |
| **Total** | **1.9671** | **1.3030** | **1.8111** | **2.9700e-003** | | **0.0708** | **0.0708** | | **0.0708** | **0.0708** | | **281.4481** | **281.4481** | **0.0168** | | **281.8690** |

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 0.0240 | 0.0164 | 0.2080 | 6.2000e-004 | 0.0782 | 3.7000e-004 | 0.0786 | 0.0208 | 3.4000e-004 | 0.0211 | | 63.0296 | 63.0296 | 1.6000e-003 | 1.6800e-003 | 63.5706 |
| **Total** | **0.0240** | **0.0164** | **0.2080** | **6.2000e-004** | **0.0782** | **3.7000e-004** | **0.0786** | **0.0208** | **3.4000e-004** | **0.0211** | | **63.0296** | **63.0296** | **1.6000e-003** | **1.6800e-003** | **63.5706** |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 3.6 Architectural Coating - 2023

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Archit. Coating | 1.7754 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Off-Road | 0.1917 | 1.3030 | 1.8111 | 2.9700e-003 | | 0.0708 | 0.0708 | | 0.0708 | 0.0708 | 0.0000 | 281.4481 | 281.4481 | 0.0168 | | 281.8690 |
| **Total** | **1.9671** | **1.3030** | **1.8111** | **2.9700e-003** | | **0.0708** | **0.0708** | | **0.0708** | **0.0708** | **0.0000** | **281.4481** | **281.4481** | **0.0168** | | **281.8690** |

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 0.0240 | 0.0164 | 0.2080 | 6.2000e-004 | 0.0510 | 3.7000e-004 | 0.0514 | 0.0141 | 3.4000e-004 | 0.0144 | | 63.0296 | 63.0296 | 1.6000e-003 | 1.6800e-003 | 63.5706 |
| **Total** | **0.0240** | **0.0164** | **0.2080** | **6.2000e-004** | **0.0510** | **3.7000e-004** | **0.0514** | **0.0141** | **3.4000e-004** | **0.0144** | | **63.0296** | **63.0296** | **1.6000e-003** | **1.6800e-003** | **63.5706** |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 3.6 Architectural Coating - 2024

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Archit. Coating | 1.7754 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Off-Road | 0.1808 | 1.2188 | 1.8101 | 2.9700e-003 | | 0.0609 | 0.0609 | | 0.0609 | 0.0609 | | 281.4481 | 281.4481 | 0.0159 | | 281.8443 |
| **Total** | **1.9562** | **1.2188** | **1.8101** | **2.9700e-003** | | **0.0609** | **0.0609** | | **0.0609** | **0.0609** | | **281.4481** | **281.4481** | **0.0159** | | **281.8443** |

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 0.0224 | 0.0146 | 0.1945 | 6.0000e-004 | 0.0782 | 3.5000e-004 | 0.0786 | 0.0208 | 3.2000e-004 | 0.0211 | | 61.0349 | 61.0349 | 1.4500e-003 | 1.5600e-003 | 61.5364 |
| **Total** | **0.0224** | **0.0146** | **0.1945** | **6.0000e-004** | **0.0782** | **3.5000e-004** | **0.0786** | **0.0208** | **3.2000e-004** | **0.0211** | | **61.0349** | **61.0349** | **1.4500e-003** | **1.5600e-003** | **61.5364** |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 3.6 Architectural Coating - 2024

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Archit. Coating | 1.7754 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Off-Road | 0.1808 | 1.2188 | 1.8101 | 2.9700e-003 | | 0.0609 | 0.0609 | | 0.0609 | 0.0609 | 0.0000 | 281.4481 | 281.4481 | 0.0159 | | 281.8443 |
| **Total** | **1.9562** | **1.2188** | **1.8101** | **2.9700e-003** | | **0.0609** | **0.0609** | | **0.0609** | **0.0609** | **0.0000** | **281.4481** | **281.4481** | **0.0159** | | **281.8443** |

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 0.0224 | 0.0146 | 0.1945 | 6.0000e-004 | 0.0510 | 3.5000e-004 | 0.0514 | 0.0141 | 3.2000e-004 | 0.0144 | | 61.0349 | 61.0349 | 1.4500e-003 | 1.5600e-003 | 61.5364 |
| **Total** | **0.0224** | **0.0146** | **0.1945** | **6.0000e-004** | **0.0510** | **3.5000e-004** | **0.0514** | **0.0141** | **3.2000e-004** | **0.0144** | | **61.0349** | **61.0349** | **1.4500e-003** | **1.5600e-003** | **61.5364** |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

# 4.0 Operational Detail - Mobile

## 4.1 Mitigation Measures Mobile

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Mitigated | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Unmitigated | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

## 4.2 Trip Summary Information

| | Average Daily Trip Rate | | | Unmitigated | Mitigated |
|---|---|---|---|---|---|
| Land Use | Weekday | Saturday | Sunday | Annual VMT | Annual VMT |
| Health Club | 0.00 | 0.00 | 0.00 | | |
| High School | 0.00 | 0.00 | 0.00 | | |
| Other Non-Asphalt Surfaces | 0.00 | 0.00 | 0.00 | | |
| Other Non-Asphalt Surfaces | 0.00 | 0.00 | 0.00 | | |
| Total | 0.00 | 0.00 | 0.00 | | |

## 4.3 Trip Type Information

| | Miles | | | Trip % | | | Trip Purpose % | | |
|---|---|---|---|---|---|---|---|---|---|
| Land Use | H-W or C-W | H-S or C-C | H-O or C-NW | H-W or C-W | H-S or C-C | H-O or C-NW | Primary | Diverted | Pass-by |
| Health Club | 16.60 | 8.40 | 6.90 | 16.90 | 64.10 | 19.00 | 52 | 39 | 9 |
| High School | 16.60 | 8.40 | 6.90 | 77.80 | 17.20 | 5.00 | 75 | 19 | 6 |
| Other Non-Asphalt Surfaces | 16.60 | 8.40 | 6.90 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

| | Miles | | | Trip % | | | Trip Purpose % | | |
|---|---|---|---|---|---|---|---|---|---|
| Land Use | H-W or C-W | H-S or C-C | H-O or C-NW | H-W or C-W | H-S or C-C | H-O or C-NW | Primary | Diverted | Pass-by |
| Other Non-Asphalt Surfaces | 16.60 | 8.40 | 6.90 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 |

## 4.4 Fleet Mix

| Land Use | LDA | LDT1 | LDT2 | MDV | LHD1 | LHD2 | MHD | HHD | OBUS | UBUS | MCY | SBUS | MH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Health Club | 0.537845 | 0.056225 | 0.173186 | 0.138405 | 0.025906 | 0.007191 | 0.011447 | 0.018769 | 0.000611 | 0.000309 | 0.023821 | 0.001097 | 0.005189 |
| High School | 0.537845 | 0.056225 | 0.173186 | 0.138405 | 0.025906 | 0.007191 | 0.011447 | 0.018769 | 0.000611 | 0.000309 | 0.023821 | 0.001097 | 0.005189 |
| Other Non-Asphalt Surfaces | 0.537845 | 0.056225 | 0.173186 | 0.138405 | 0.025906 | 0.007191 | 0.011447 | 0.018769 | 0.000611 | 0.000309 | 0.023821 | 0.001097 | 0.005189 |

# 5.0 Energy Detail

Historical Energy Use: N

## 5.1 Mitigation Measures Energy

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| NaturalGas Mitigated | 0.0272 | 0.2475 | 0.2079 | 1.4900e-003 | | 0.0188 | 0.0188 | | 0.0188 | 0.0188 | | 297.0113 | 297.0113 | 5.6900e-003 | 5.4500e-003 | 298.7763 |
| NaturalGas Unmitigated | 0.0272 | 0.2475 | 0.2079 | 1.4900e-003 | | 0.0188 | 0.0188 | | 0.0188 | 0.0188 | | 297.0113 | 297.0113 | 5.6900e-003 | 5.4500e-003 | 298.7763 |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 5.2 Energy by Land Use - NaturalGas

**Unmitigated**

| | NaturalGas Use | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Land Use | kBTU/yr | lb/day | | | | | | | | | | lb/day | | | | | |
| Health Club | 2125.81 | 0.0229 | 0.2084 | 0.1751 | 1.2500e-003 | | 0.0158 | 0.0158 | | 0.0158 | 0.0158 | | 250.0951 | 250.0951 | 4.7900e-003 | 4.5900e-003 | 251.5813 |
| High School | 398.788 | 4.3000e-003 | 0.0391 | 0.0328 | 2.3000e-004 | | 2.9700e-003 | 2.9700e-003 | | 2.9700e-003 | 2.9700e-003 | | 46.9162 | 46.9162 | 9.0000e-004 | 8.6000e-004 | 47.1950 |
| Other Non-Asphalt Surfaces | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | | **0.0272** | **0.2475** | **0.2079** | **1.4800e-003** | | **0.0188** | **0.0188** | | **0.0188** | **0.0188** | | **297.0113** | **297.0113** | **5.6900e-003** | **5.4500e-003** | **298.7763** |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 5.2 Energy by Land Use - NaturalGas

**Mitigated**

| | NaturalGas Use | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Land Use | kBTU/yr | lb/day | | | | | | | | | | lb/day | | | | | |
| Health Club | 2.12581 | 0.0229 | 0.2084 | 0.1751 | 1.2500e-003 | | 0.0158 | 0.0158 | | 0.0158 | 0.0158 | | 250.0951 | 250.0951 | 4.7900e-003 | 4.5900e-003 | 251.5813 |
| High School | 0.398788 | 4.3000e-003 | 0.0391 | 0.0328 | 2.3000e-004 | | 2.9700e-003 | 2.9700e-003 | | 2.9700e-003 | 2.9700e-003 | | 46.9162 | 46.9162 | 9.0000e-004 | 8.6000e-004 | 47.1950 |
| Other Non-Asphalt Surfaces | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | | **0.0272** | **0.2475** | **0.2079** | **1.4800e-003** | | **0.0188** | **0.0188** | | **0.0188** | **0.0188** | | **297.0113** | **297.0113** | **5.6900e-003** | **5.4500e-003** | **298.7763** |

# 6.0 Area Detail

## 6.1 Mitigation Measures Area

John W North High School Modernization Project - Riverside-South Coast County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Mitigated | 0.9306 | 4.0000e-005 | 4.2600e-003 | 0.0000 | | 2.0000e-005 | 2.0000e-005 | | 2.0000e-005 | 2.0000e-005 | | 9.1500e-003 | 9.1500e-003 | 2.0000e-005 | | 9.7500e-003 |
| Unmitigated | 0.9306 | 4.0000e-005 | 4.2600e-003 | 0.0000 | | 2.0000e-005 | 2.0000e-005 | | 2.0000e-005 | 2.0000e-005 | | 9.1500e-003 | 9.1500e-003 | 2.0000e-005 | | 9.7500e-003 |

## 6.2 Area by SubCategory

**Unmitigated**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SubCategory | lb/day | | | | | | | | | | lb/day | | | | | |
| Architectural Coating | 0.1070 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Consumer Products | 0.8232 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Landscaping | 3.9000e-004 | 4.0000e-005 | 4.2600e-003 | 0.0000 | | 2.0000e-005 | 2.0000e-005 | | 2.0000e-005 | 2.0000e-005 | | 9.1500e-003 | 9.1500e-003 | 2.0000e-005 | | 9.7500e-003 |
| **Total** | **0.9306** | **4.0000e-005** | **4.2600e-003** | **0.0000** | | **2.0000e-005** | **2.0000e-005** | | **2.0000e-005** | **2.0000e-005** | | **9.1500e-003** | **9.1500e-003** | **2.0000e-005** | | **9.7500e-003** |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 6.2 Area by SubCategory

**Mitigated**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SubCategory | lb/day | | | | | | | | | | lb/day | | | | | |
| Architectural Coating | 0.1070 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Consumer Products | 0.8232 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Landscaping | 3.9000e-004 | 4.0000e-005 | 4.2600e-003 | 0.0000 | | 2.0000e-005 | 2.0000e-005 | | 2.0000e-005 | 2.0000e-005 | | 9.1500e-003 | 9.1500e-003 | 2.0000e-005 | | 9.7500e-003 |
| **Total** | **0.9306** | **4.0000e-005** | **4.2600e-003** | **0.0000** | | **2.0000e-005** | **2.0000e-005** | | **2.0000e-005** | **2.0000e-005** | | **9.1500e-003** | **9.1500e-003** | **2.0000e-005** | | **9.7500e-003** |

# 7.0 Water Detail

## 7.1 Mitigation Measures Water

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 8.0 Waste Detail

### 8.1 Mitigation Measures Waste

## 9.0 Operational Offroad

| Equipment Type | Number | Hours/Day | Days/Year | Horse Power | Load Factor | Fuel Type |
|---|---|---|---|---|---|---|

## 10.0 Stationary Equipment

**Fire Pumps and Emergency Generators**

| Equipment Type | Number | Hours/Day | Hours/Year | Horse Power | Load Factor | Fuel Type |
|---|---|---|---|---|---|---|

**Boilers**

| Equipment Type | Number | Heat Input/Day | Heat Input/Year | Boiler Rating | Fuel Type |
|---|---|---|---|---|---|

**User Defined Equipment**

| Equipment Type | Number |
|---|---|

## 11.0 Vegetation

# ATTACHMENT B

CalEEMod Output Files – Greenhouse Gas Emissions

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

# John W North High School Modernization Project

**Riverside-South Coast County, Annual**

## 1.0 Project Characteristics

### 1.1 Land Usage

| Land Uses | Size | Metric | Lot Acreage | Floor Surface Area | Population |
|---|---|---|---|---|---|
| Health Club | 24.00 | 1000sqft | 1.05 | 24,000.00 | 0 |
| High School | 16.75 | 1000sqft | 0.88 | 16,750.00 | 0 |
| Other Non-Asphalt Surfaces | 0.68 | Acre | 0.68 | 29,620.80 | 0 |
| Other Non-Asphalt Surfaces | 0.38 | Acre | 0.38 | 16,552.80 | 0 |

### 1.2 Other Project Characteristics

| | | | | | |
|---|---|---|---|---|---|
| **Urbanization** | Urban | **Wind Speed (m/s)** | 2.4 | **Precipitation Freq (Days)** | 28 |
| **Climate Zone** | 10 | | | **Operational Year** | 2024 |
| **Utility Company** | Southern California Edison | | | | |
| **CO2 Intensity (lb/MWhr)** | 390.98 | **CH4 Intensity (lb/MWhr)** | 0.033 | **N2O Intensity (lb/MWhr)** | 0.004 |

### 1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Accounts for .38 acre of new hardscape, .68 acre of ground disturbance associated with portable classroom removal, gym, and classroom building

Construction Phase - Building construction, paving, and painting assumed to occur simultaneously

Trips and VMT - Assume 16 haul truck round trips to remove portable classrooms

Vehicle Trips - No increase in student capacity. No increase of traffic trips over existing conditions

Construction Off-road Equipment Mitigation - SCAQMD Rule 403

| Table Name | Column Name | Default Value | New Value |
|---|---|---|---|
| tblConstDustMitigation | CleanPavedRoadPercentReduction | 0 | 40 |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

| | | | |
|---|---|---|---|
| tblConstDustMitigation | WaterUnpavedRoadVehicleSpeed | 0 | 15 |
| tblConstructionPhase | NumDays | 10.00 | 220.00 |
| tblConstructionPhase | NumDays | 10.00 | 220.00 |
| tblConstructionPhase | PhaseEndDate | 6/7/2023 | 2/7/2024 |
| tblConstructionPhase | PhaseEndDate | 5/10/2023 | 2/7/2024 |
| tblConstructionPhase | PhaseEndDate | 7/6/2022 | 4/5/2023 |
| tblConstructionPhase | PhaseEndDate | 5/24/2023 | 2/7/2024 |
| tblConstructionPhase | PhaseEndDate | 6/28/2022 | 3/28/2023 |
| tblConstructionPhase | PhaseStartDate | 5/25/2023 | 4/6/2023 |
| tblConstructionPhase | PhaseStartDate | 7/7/2022 | 4/6/2023 |
| tblConstructionPhase | PhaseStartDate | 6/29/2022 | 3/29/2023 |
| tblConstructionPhase | PhaseStartDate | 5/11/2023 | 4/6/2023 |
| tblConstructionPhase | PhaseStartDate | 6/24/2022 | 3/24/2023 |
| tblLandUse | LotAcreage | 0.55 | 1.05 |
| tblLandUse | LotAcreage | 0.38 | 0.88 |
| tblTripsAndVMT | HaulingTripNumber | 0.00 | 32.00 |
| tblVehicleTrips | ST_TR | 20.87 | 0.00 |
| tblVehicleTrips | ST_TR | 3.98 | 0.00 |
| tblVehicleTrips | SU_TR | 26.73 | 0.00 |
| tblVehicleTrips | SU_TR | 1.71 | 0.00 |
| tblVehicleTrips | WD_TR | 32.93 | 0.00 |
| tblVehicleTrips | WD_TR | 14.07 | 0.00 |

## 2.0 Emissions Summary

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 2.1 Overall Construction

### Unmitigated Construction

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | tons/yr | | | | | | | | | | MT/yr | | | | | |
| 2023 | 0.4638 | 2.3856 | 2.8983 | 5.2600e-003 | 0.0951 | 0.1107 | 0.2058 | 0.0297 | 0.1048 | 0.1345 | 0.0000 | 452.5413 | 452.5413 | 0.0906 | 4.7300e-003 | 456.2151 |
| 2024 | 0.0643 | 0.3187 | 0.4135 | 7.5000e-004 | 0.0104 | 0.0140 | 0.0244 | 2.7800e-003 | 0.0133 | 0.0161 | 0.0000 | 64.4142 | 64.4142 | 0.0127 | 6.7000e-004 | 64.9302 |
| **Maximum** | **0.4638** | **2.3856** | **2.8983** | **5.2600e-003** | **0.0951** | **0.1107** | **0.2058** | **0.0297** | **0.1048** | **0.1345** | **0.0000** | **452.5413** | **452.5413** | **0.0906** | **4.7300e-003** | **456.2151** |

### Mitigated Construction

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | tons/yr | | | | | | | | | | MT/yr | | | | | |
| 2023 | 0.4638 | 2.3856 | 2.8983 | 5.2600e-003 | 0.0564 | 0.1107 | 0.1671 | 0.0173 | 0.1048 | 0.1221 | 0.0000 | 452.5408 | 452.5408 | 0.0906 | 4.7300e-003 | 456.2147 |
| 2024 | 0.0643 | 0.3187 | 0.4135 | 7.5000e-004 | 6.8400e-003 | 0.0140 | 0.0209 | 1.9200e-003 | 0.0133 | 0.0152 | 0.0000 | 64.4142 | 64.4142 | 0.0127 | 6.7000e-004 | 64.9301 |
| **Maximum** | **0.4638** | **2.3856** | **2.8983** | **5.2600e-003** | **0.0564** | **0.1107** | **0.1671** | **0.0173** | **0.1048** | **0.1221** | **0.0000** | **452.5408** | **452.5408** | **0.0906** | **4.7300e-003** | **456.2147** |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N20 | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Percent Reduction** | **0.00** | **0.00** | **0.00** | **0.00** | **39.99** | **0.00** | **18.32** | **40.73** | **0.00** | **8.79** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** |

| Quarter | Start Date | End Date | Maximum Unmitigated ROG + NOX (tons/quarter) | Maximum Mitigated ROG + NOX (tons/quarter) |
|---|---|---|---|---|
| **4** | **2-27-2023** | **5-26-2023** | 0.6002 | 0.6002 |
| **5** | **5-27-2023** | **8-26-2023** | 0.9507 | 0.9507 |
| **6** | **8-27-2023** | **11-26-2023** | 0.9511 | 0.9511 |
| **7** | **11-27-2023** | **2-26-2024** | 0.7333 | 0.7333 |
| | | **Highest** | 0.9511 | 0.9511 |

## 2.2 Overall Operational

**Unmitigated Operational**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Area | 0.1698 | 0.0000 | 5.3000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 1.0400e-003 | 1.0400e-003 | 0.0000 | 0.0000 | 1.1100e-003 |
| Energy | 4.9700e-003 | 0.0452 | 0.0379 | 2.7000e-004 | | 3.4300e-003 | 3.4300e-003 | | 3.4300e-003 | 3.4300e-003 | 0.0000 | 112.2195 | 112.2195 | 6.2600e-003 | 1.5500e-003 | 112.8369 |
| Mobile | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Waste | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 32.1903 | 0.0000 | 32.1903 | 1.9024 | 0.0000 | 79.7501 |
| Water | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.6268 | 9.0941 | 9.7209 | 0.0651 | 1.6100e-003 | 11.8302 |
| **Total** | **0.1748** | **0.0452** | **0.0385** | **2.7000e-004** | **0.0000** | **3.4300e-003** | **3.4300e-003** | **0.0000** | **3.4300e-003** | **3.4300e-003** | **32.8171** | **121.3146** | **154.1317** | **1.9738** | **3.1600e-003** | **204.4183** |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 2.2 Overall Operational

**Mitigated Operational**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Area | 0.1698 | 0.0000 | 5.3000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 1.0400e-003 | 1.0400e-003 | 0.0000 | 0.0000 | 1.1100e-003 |
| Energy | 4.9700e-003 | 0.0452 | 0.0379 | 2.7000e-004 | | 3.4300e-003 | 3.4300e-003 | | 3.4300e-003 | 3.4300e-003 | 0.0000 | 112.2195 | 112.2195 | 6.2600e-003 | 1.5500e-003 | 112.8369 |
| Mobile | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Waste | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 32.1903 | 0.0000 | 32.1903 | 1.9024 | 0.0000 | 79.7501 |
| Water | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.6268 | 9.0941 | 9.7209 | 0.0651 | 1.6100e-003 | 11.8302 |
| **Total** | **0.1748** | **0.0452** | **0.0385** | **2.7000e-004** | **0.0000** | **3.4300e-003** | **3.4300e-003** | **0.0000** | **3.4300e-003** | **3.4300e-003** | **32.8171** | **121.3146** | **154.1317** | **1.9738** | **3.1600e-003** | **204.4183** |

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N20 | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Percent Reduction** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** |

## 3.0 Construction Detail

**Construction Phase**

| Phase Number | Phase Name | Phase Type | Start Date | End Date | Num Days Week | Num Days | Phase Description |
|---|---|---|---|---|---|---|---|
| 1 | Site Preparation | Site Preparation | 3/24/2023 | 3/28/2023 | 5 | 3 | |
| 2 | Grading | Grading | 3/29/2023 | 4/5/2023 | 5 | 6 | |
| 3 | Building Construction | Building Construction | 4/6/2023 | 2/7/2024 | 5 | 220 | |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 4 | Paving | Paving | 4/6/2023 | 2/7/2024 | 5 | 220 | |
| 5 | Architectural Coating | Architectural Coating | 4/6/2023 | 2/7/2024 | 5 | 220 | |

**Acres of Grading (Site Preparation Phase): 4.5**

**Acres of Grading (Grading Phase): 6**

**Acres of Paving: 1.06**

**Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 61,125; Non-Residential Outdoor: 20,375; Striped Parking Area: 2,770 (Architectural Coating – sqft)**

**OffRoad Equipment**

| Phase Name | Offroad Equipment Type | Amount | Usage Hours | Horse Power | Load Factor |
|---|---|---|---|---|---|
| Architectural Coating | Air Compressors | 1 | 6.00 | 78 | 0.48 |
| Paving | Cement and Mortar Mixers | 1 | 8.00 | 9 | 0.56 |
| Building Construction | Cranes | 1 | 8.00 | 231 | 0.29 |
| Building Construction | Forklifts | 2 | 7.00 | 89 | 0.20 |
| Building Construction | Generator Sets | 1 | 8.00 | 84 | 0.74 |
| Grading | Graders | 1 | 8.00 | 187 | 0.41 |
| Site Preparation | Graders | 1 | 8.00 | 187 | 0.41 |
| Paving | Pavers | 1 | 8.00 | 130 | 0.42 |
| Paving | Paving Equipment | 1 | 8.00 | 132 | 0.36 |
| Paving | Rollers | 2 | 8.00 | 80 | 0.38 |
| Grading | Rubber Tired Dozers | 1 | 8.00 | 247 | 0.40 |
| Site Preparation | Scrapers | 1 | 8.00 | 367 | 0.48 |
| Building Construction | Tractors/Loaders/Backhoes | 1 | 6.00 | 97 | 0.37 |
| Grading | Tractors/Loaders/Backhoes | 2 | 7.00 | 97 | 0.37 |
| Paving | Tractors/Loaders/Backhoes | 1 | 8.00 | 97 | 0.37 |
| Site Preparation | Tractors/Loaders/Backhoes | 1 | 7.00 | 97 | 0.37 |
| Building Construction | Welders | 3 | 8.00 | 46 | 0.45 |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**Trips and VMT**

| Phase Name | Offroad Equipment Count | Worker Trip Number | Vendor Trip Number | Hauling Trip Number | Worker Trip Length | Vendor Trip Length | Hauling Trip Length | Worker Vehicle Class | Vendor Vehicle Class | Hauling Vehicle Class |
|---|---|---|---|---|---|---|---|---|---|---|
| Site Preparation | 3 | 8.00 | 0.00 | 0.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Grading | 4 | 10.00 | 0.00 | 0.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Building Construction | 8 | 37.00 | 14.00 | 32.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Paving | 6 | 15.00 | 0.00 | 0.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Architectural Coating | 1 | 7.00 | 0.00 | 0.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |

## 3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

## 3.2 Site Preparation - 2023

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 2.3900e-003 | 0.0000 | 2.3900e-003 | 2.6000e-004 | 0.0000 | 2.6000e-004 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 1.9500e-003 | 0.0214 | 0.0147 | 4.0000e-005 | | 8.1000e-004 | 8.1000e-004 | | 7.5000e-004 | 7.5000e-004 | 0.0000 | 3.2317 | 3.2317 | 1.0500e-003 | 0.0000 | 3.2578 |
| **Total** | **1.9500e-003** | **0.0214** | **0.0147** | **4.0000e-005** | **2.3900e-003** | **8.1000e-004** | **3.2000e-003** | **2.6000e-004** | **7.5000e-004** | **1.0100e-003** | **0.0000** | **3.2317** | **3.2317** | **1.0500e-003** | **0.0000** | **3.2578** |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 3.2 Site Preparation - 2023

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 4.0000e-005 | 3.0000e-005 | 3.8000e-004 | 0.0000 | 1.3000e-004 | 0.0000 | 1.3000e-004 | 4.0000e-005 | 0.0000 | 4.0000e-005 | 0.0000 | 0.1003 | 0.1003 | 0.0000 | 0.0000 | 0.1012 |
| **Total** | **4.0000e-005** | **3.0000e-005** | **3.8000e-004** | **0.0000** | **1.3000e-004** | **0.0000** | **1.3000e-004** | **4.0000e-005** | **0.0000** | **4.0000e-005** | **0.0000** | **0.1003** | **0.1003** | **0.0000** | **0.0000** | **0.1012** |

### Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 9.3000e-004 | 0.0000 | 9.3000e-004 | 1.0000e-004 | 0.0000 | 1.0000e-004 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 1.9500e-003 | 0.0214 | 0.0147 | 4.0000e-005 | | 8.1000e-004 | 8.1000e-004 | | 7.5000e-004 | 7.5000e-004 | 0.0000 | 3.2317 | 3.2317 | 1.0500e-003 | 0.0000 | 3.2578 |
| **Total** | **1.9500e-003** | **0.0214** | **0.0147** | **4.0000e-005** | **9.3000e-004** | **8.1000e-004** | **1.7400e-003** | **1.0000e-004** | **7.5000e-004** | **8.5000e-004** | **0.0000** | **3.2317** | **3.2317** | **1.0500e-003** | **0.0000** | **3.2578** |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 3.2 Site Preparation - 2023

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 4.0000e-005 | 3.0000e-005 | 3.8000e-004 | 0.0000 | 9.0000e-005 | 0.0000 | 9.0000e-005 | 2.0000e-005 | 0.0000 | 2.0000e-005 | 0.0000 | 0.1003 | 0.1003 | 0.0000 | 0.0000 | 0.1012 |
| **Total** | **4.0000e-005** | **3.0000e-005** | **3.8000e-004** | **0.0000** | **9.0000e-005** | **0.0000** | **9.0000e-005** | **2.0000e-005** | **0.0000** | **2.0000e-005** | **0.0000** | **0.1003** | **0.1003** | **0.0000** | **0.0000** | **0.1012** |

## 3.3 Grading - 2023

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 0.0213 | 0.0000 | 0.0213 | 0.0103 | 0.0000 | 0.0103 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 4.0000e-003 | 0.0434 | 0.0261 | 6.0000e-005 | | 1.8100e-003 | 1.8100e-003 | | 1.6700e-003 | 1.6700e-003 | 0.0000 | 5.4312 | 5.4312 | 1.7600e-003 | 0.0000 | 5.4751 |
| **Total** | **4.0000e-003** | **0.0434** | **0.0261** | **6.0000e-005** | **0.0213** | **1.8100e-003** | **0.0231** | **0.0103** | **1.6700e-003** | **0.0119** | **0.0000** | **5.4312** | **5.4312** | **1.7600e-003** | **0.0000** | **5.4751** |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 3.3 Grading - 2023

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 1.0000e-004 | 7.0000e-005 | 9.4000e-004 | 0.0000 | 3.3000e-004 | 0.0000 | 3.3000e-004 | 9.0000e-005 | 0.0000 | 9.0000e-005 | 0.0000 | 0.2508 | 0.2508 | 1.0000e-005 | 1.0000e-005 | 0.2529 |
| **Total** | **1.0000e-004** | **7.0000e-005** | **9.4000e-004** | **0.0000** | **3.3000e-004** | **0.0000** | **3.3000e-004** | **9.0000e-005** | **0.0000** | **9.0000e-005** | **0.0000** | **0.2508** | **0.2508** | **1.0000e-005** | **1.0000e-005** | **0.2529** |

### Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 8.2900e-003 | 0.0000 | 8.2900e-003 | 4.0100e-003 | 0.0000 | 4.0100e-003 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 4.0000e-003 | 0.0434 | 0.0261 | 6.0000e-005 | | 1.8100e-003 | 1.8100e-003 | | 1.6700e-003 | 1.6700e-003 | 0.0000 | 5.4312 | 5.4312 | 1.7600e-003 | 0.0000 | 5.4751 |
| **Total** | **4.0000e-003** | **0.0434** | **0.0261** | **6.0000e-005** | **8.2900e-003** | **1.8100e-003** | **0.0101** | **4.0100e-003** | **1.6700e-003** | **5.6800e-003** | **0.0000** | **5.4312** | **5.4312** | **1.7600e-003** | **0.0000** | **5.4751** |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 3.3 Grading - 2023

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 1.0000e-004 | 7.0000e-005 | 9.4000e-004 | 0.0000 | 2.2000e-004 | 0.0000 | 2.2000e-004 | 6.0000e-005 | 0.0000 | 6.0000e-005 | 0.0000 | 0.2508 | 0.2508 | 1.0000e-005 | 1.0000e-005 | 0.2529 |
| **Total** | **1.0000e-004** | **7.0000e-005** | **9.4000e-004** | **0.0000** | **2.2000e-004** | **0.0000** | **2.2000e-004** | **6.0000e-005** | **0.0000** | **6.0000e-005** | **0.0000** | **0.2508** | **0.2508** | **1.0000e-005** | **1.0000e-005** | **0.2529** |

## 3.4 Building Construction - 2023

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 0.1645 | 1.3079 | 1.3646 | 2.4000e-003 | | 0.0589 | 0.0589 | | 0.0565 | 0.0565 | 0.0000 | 199.3940 | 199.3940 | 0.0377 | 0.0000 | 200.3367 |
| **Total** | **0.1645** | **1.3079** | **1.3646** | **2.4000e-003** | | **0.0589** | **0.0589** | | **0.0565** | **0.0565** | **0.0000** | **199.3940** | **199.3940** | **0.0377** | **0.0000** | **200.3367** |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 3.4 Building Construction - 2023

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 3.0000e-005 | 1.4700e-003 | 3.9000e-004 | 1.0000e-005 | 2.4000e-004 | 2.0000e-005 | 2.6000e-004 | 7.0000e-005 | 2.0000e-005 | 8.0000e-005 | 0.0000 | 0.7438 | 0.7438 | 1.0000e-005 | 1.2000e-004 | 0.7790 |
| Vendor | 1.4600e-003 | 0.0461 | 0.0184 | 2.4000e-004 | 8.4900e-003 | 3.8000e-004 | 8.8700e-003 | 2.4500e-003 | 3.7000e-004 | 2.8200e-003 | 0.0000 | 22.6129 | 22.6129 | 2.3000e-004 | 3.3400e-003 | 23.6150 |
| Worker | 0.0115 | 8.5400e-003 | 0.1112 | 3.2000e-004 | 0.0390 | 1.9000e-004 | 0.0392 | 0.0104 | 1.7000e-004 | 0.0105 | 0.0000 | 29.6895 | 29.6895 | 7.4000e-004 | 7.9000e-004 | 29.9430 |
| **Total** | **0.0130** | **0.0561** | **0.1300** | **5.7000e-004** | **0.0478** | **5.9000e-004** | **0.0484** | **0.0129** | **5.6000e-004** | **0.0134** | **0.0000** | **53.0462** | **53.0462** | **9.8000e-004** | **4.2500e-003** | **54.3370** |

### Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 0.1645 | 1.3079 | 1.3646 | 2.4000e-003 | | 0.0589 | 0.0589 | | 0.0565 | 0.0565 | 0.0000 | 199.3937 | 199.3937 | 0.0377 | 0.0000 | 200.3365 |
| **Total** | **0.1645** | **1.3079** | **1.3646** | **2.4000e-003** | | **0.0589** | **0.0589** | | **0.0565** | **0.0565** | **0.0000** | **199.3937** | **199.3937** | **0.0377** | **0.0000** | **200.3365** |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 3.4 Building Construction - 2023

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 3.0000e-005 | 1.4700e-003 | 3.9000e-004 | 1.0000e-005 | 1.7000e-004 | 2.0000e-005 | 1.9000e-004 | 5.0000e-005 | 2.0000e-005 | 6.0000e-005 | 0.0000 | 0.7438 | 0.7438 | 1.0000e-005 | 1.2000e-004 | 0.7790 |
| Vendor | 1.4600e-003 | 0.0461 | 0.0184 | 2.4000e-004 | 6.0900e-003 | 3.8000e-004 | 6.4700e-003 | 1.8600e-003 | 3.7000e-004 | 2.2300e-003 | 0.0000 | 22.6129 | 22.6129 | 2.3000e-004 | 3.3400e-003 | 23.6150 |
| Worker | 0.0115 | 8.5400e-003 | 0.1112 | 3.2000e-004 | 0.0255 | 1.9000e-004 | 0.0257 | 7.0400e-003 | 1.7000e-004 | 7.2100e-003 | 0.0000 | 29.6895 | 29.6895 | 7.4000e-004 | 7.9000e-004 | 29.9430 |
| **Total** | **0.0130** | **0.0561** | **0.1300** | **5.7000e-004** | **0.0318** | **5.9000e-004** | **0.0323** | **8.9500e-003** | **5.6000e-004** | **9.5000e-003** | **0.0000** | **53.0462** | **53.0462** | **9.8000e-004** | **4.2500e-003** | **54.3370** |

## 3.4 Building Construction - 2024

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 0.0224 | 0.1795 | 0.1974 | 3.5000e-004 | | 7.5300e-003 | 7.5300e-003 | | 7.2100e-003 | 7.2100e-003 | 0.0000 | 29.0800 | 29.0800 | 5.4200e-003 | 0.0000 | 29.2154 |
| **Total** | **0.0224** | **0.1795** | **0.1974** | **3.5000e-004** | | **7.5300e-003** | **7.5300e-003** | | **7.2100e-003** | **7.2100e-003** | **0.0000** | **29.0800** | **29.0800** | **5.4200e-003** | **0.0000** | **29.2154** |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 3.4 Building Construction - 2024

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 2.2000e-004 | 6.0000e-005 | 0.0000 | 4.0000e-005 | 0.0000 | 4.0000e-005 | 1.0000e-005 | 0.0000 | 1.0000e-005 | 0.0000 | 0.1067 | 0.1067 | 0.0000 | 2.0000e-005 | 0.1118 |
| Vendor | 2.1000e-004 | 6.7200e-003 | 2.6500e-003 | 3.0000e-005 | 1.2400e-003 | 6.0000e-005 | 1.2900e-003 | 3.6000e-004 | 5.0000e-005 | 4.1000e-004 | 0.0000 | 3.2469 | 3.2469 | 3.0000e-005 | 4.8000e-004 | 3.3906 |
| Worker | 1.5700e-003 | 1.1100e-003 | 0.0152 | 5.0000e-005 | 5.6900e-003 | 3.0000e-005 | 5.7200e-003 | 1.5100e-003 | 2.0000e-005 | 1.5400e-003 | 0.0000 | 4.1926 | 4.1926 | 1.0000e-004 | 1.1000e-004 | 4.2269 |
| **Total** | **1.7800e-003** | **8.0500e-003** | **0.0179** | **8.0000e-005** | **6.9700e-003** | **9.0000e-005** | **7.0500e-003** | **1.8800e-003** | **7.0000e-005** | **1.9600e-003** | **0.0000** | **7.5462** | **7.5462** | **1.3000e-004** | **6.1000e-004** | **7.7293** |

### Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 0.0224 | 0.1795 | 0.1974 | 3.5000e-004 | | 7.5300e-003 | 7.5300e-003 | | 7.2100e-003 | 7.2100e-003 | 0.0000 | 29.0799 | 29.0799 | 5.4200e-003 | 0.0000 | 29.2153 |
| **Total** | **0.0224** | **0.1795** | **0.1974** | **3.5000e-004** | | **7.5300e-003** | **7.5300e-003** | | **7.2100e-003** | **7.2100e-003** | **0.0000** | **29.0799** | **29.0799** | **5.4200e-003** | **0.0000** | **29.2153** |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 3.4 Building Construction - 2024

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 2.2000e-004 | 6.0000e-005 | 0.0000 | 2.0000e-005 | 0.0000 | 3.0000e-005 | 1.0000e-005 | 0.0000 | 1.0000e-005 | 0.0000 | 0.1067 | 0.1067 | 0.0000 | 2.0000e-005 | 0.1118 |
| Vendor | 2.1000e-004 | 6.7200e-003 | 2.6500e-003 | 3.0000e-005 | 8.9000e-004 | 6.0000e-005 | 9.4000e-004 | 2.7000e-004 | 5.0000e-005 | 3.2000e-004 | 0.0000 | 3.2469 | 3.2469 | 3.0000e-005 | 4.8000e-004 | 3.3906 |
| Worker | 1.5700e-003 | 1.1100e-003 | 0.0152 | 5.0000e-005 | 3.7200e-003 | 3.0000e-005 | 3.7400e-003 | 1.0300e-003 | 2.0000e-005 | 1.0500e-003 | 0.0000 | 4.1926 | 4.1926 | 1.0000e-004 | 1.1000e-004 | 4.2269 |
| **Total** | **1.7800e-003** | **8.0500e-003** | **0.0179** | **8.0000e-005** | **4.6300e-003** | **9.0000e-005** | **4.7100e-003** | **1.3100e-003** | **7.0000e-005** | **1.3800e-003** | **0.0000** | **7.5462** | **7.5462** | **1.3000e-004** | **6.1000e-004** | **7.7293** |

## 3.5 Paving - 2023

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 0.0845 | 0.8265 | 1.1217 | 1.7100e-003 | | 0.0417 | 0.0417 | | 0.0384 | 0.0384 | 0.0000 | 148.9228 | 148.9228 | 0.0472 | 0.0000 | 150.1028 |
| Paving | 0.0000 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **0.0845** | **0.8265** | **1.1217** | **1.7100e-003** | | **0.0417** | **0.0417** | | **0.0384** | **0.0384** | **0.0000** | **148.9228** | **148.9228** | **0.0472** | **0.0000** | **150.1028** |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 3.5 Paving - 2023

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 4.6700e-003 | 3.4600e-003 | 0.0451 | 1.3000e-004 | 0.0158 | 8.0000e-005 | 0.0159 | 4.2000e-003 | 7.0000e-005 | 4.2700e-003 | 0.0000 | 12.0363 | 12.0363 | 3.0000e-004 | 3.2000e-004 | 12.1390 |
| **Total** | **4.6700e-003** | **3.4600e-003** | **0.0451** | **1.3000e-004** | **0.0158** | **8.0000e-005** | **0.0159** | **4.2000e-003** | **7.0000e-005** | **4.2700e-003** | **0.0000** | **12.0363** | **12.0363** | **3.0000e-004** | **3.2000e-004** | **12.1390** |

### Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 0.0845 | 0.8265 | 1.1217 | 1.7100e-003 | | 0.0417 | 0.0417 | | 0.0384 | 0.0384 | 0.0000 | 148.9226 | 148.9226 | 0.0472 | 0.0000 | 150.1026 |
| Paving | 0.0000 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **0.0845** | **0.8265** | **1.1217** | **1.7100e-003** | | **0.0417** | **0.0417** | | **0.0384** | **0.0384** | **0.0000** | **148.9226** | **148.9226** | **0.0472** | **0.0000** | **150.1026** |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 3.5 Paving - 2023

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 4.6700e-003 | 3.4600e-003 | 0.0451 | 1.3000e-004 | 0.0103 | 8.0000e-005 | 0.0104 | 2.8600e-003 | 7.0000e-005 | 2.9200e-003 | 0.0000 | 12.0363 | 12.0363 | 3.0000e-004 | 3.2000e-004 | 12.1390 |
| **Total** | **4.6700e-003** | **3.4600e-003** | **0.0451** | **1.3000e-004** | **0.0103** | **8.0000e-005** | **0.0104** | **2.8600e-003** | **7.0000e-005** | **2.9200e-003** | **0.0000** | **12.0363** | **12.0363** | **3.0000e-004** | **3.2000e-004** | **12.1390** |

## 3.5 Paving - 2024

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 0.0118 | 0.1134 | 0.1639 | 2.5000e-004 | | 5.5400e-003 | 5.5400e-003 | | 5.1100e-003 | 5.1100e-003 | 0.0000 | 21.7206 | 21.7206 | 6.8800e-003 | 0.0000 | 21.8927 |
| Paving | 0.0000 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **0.0118** | **0.1134** | **0.1639** | **2.5000e-004** | | **5.5400e-003** | **5.5400e-003** | | **5.1100e-003** | **5.1100e-003** | **0.0000** | **21.7206** | **21.7206** | **6.8800e-003** | **0.0000** | **21.8927** |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 3.5 Paving - 2024

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 6.4000e-004 | 4.5000e-004 | 6.1500e-003 | 2.0000e-005 | 2.3100e-003 | 1.0000e-005 | 2.3200e-003 | 6.1000e-004 | 1.0000e-005 | 6.2000e-004 | 0.0000 | 1.6997 | 1.6997 | 4.0000e-005 | 4.0000e-005 | 1.7136 |
| **Total** | **6.4000e-004** | **4.5000e-004** | **6.1500e-003** | **2.0000e-005** | **2.3100e-003** | **1.0000e-005** | **2.3200e-003** | **6.1000e-004** | **1.0000e-005** | **6.2000e-004** | **0.0000** | **1.6997** | **1.6997** | **4.0000e-005** | **4.0000e-005** | **1.7136** |

### Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 0.0118 | 0.1134 | 0.1639 | 2.5000e-004 | | 5.5400e-003 | 5.5400e-003 | | 5.1100e-003 | 5.1100e-003 | 0.0000 | 21.7206 | 21.7206 | 6.8800e-003 | 0.0000 | 21.8927 |
| Paving | 0.0000 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **0.0118** | **0.1134** | **0.1639** | **2.5000e-004** | | **5.5400e-003** | **5.5400e-003** | | **5.1100e-003** | **5.1100e-003** | **0.0000** | **21.7206** | **21.7206** | **6.8800e-003** | **0.0000** | **21.8927** |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 3.5 Paving - 2024

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 6.4000e-004 | 4.5000e-004 | 6.1500e-003 | 2.0000e-005 | 1.5100e-003 | 1.0000e-005 | 1.5200e-003 | 4.2000e-004 | 1.0000e-005 | 4.3000e-004 | 0.0000 | 1.6997 | 1.6997 | 4.0000e-005 | 4.0000e-005 | 1.7136 |
| **Total** | **6.4000e-004** | **4.5000e-004** | **6.1500e-003** | **2.0000e-005** | **1.5100e-003** | **1.0000e-005** | **1.5200e-003** | **4.2000e-004** | **1.0000e-005** | **4.3000e-004** | **0.0000** | **1.6997** | **1.6997** | **4.0000e-005** | **4.0000e-005** | **1.7136** |

## 3.6 Architectural Coating - 2023

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Archit. Coating | 0.1704 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.0184 | 0.1251 | 0.1739 | 2.9000e-004 | | 6.8000e-003 | 6.8000e-003 | | 6.8000e-003 | 6.8000e-003 | 0.0000 | 24.5112 | 24.5112 | 1.4700e-003 | 0.0000 | 24.5479 |
| **Total** | **0.1888** | **0.1251** | **0.1739** | **2.9000e-004** | | **6.8000e-003** | **6.8000e-003** | | **6.8000e-003** | **6.8000e-003** | **0.0000** | **24.5112** | **24.5112** | **1.4700e-003** | **0.0000** | **24.5479** |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 3.6 Architectural Coating - 2023

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 2.1800e-003 | 1.6100e-003 | 0.0210 | 6.0000e-005 | 7.3900e-003 | 4.0000e-005 | 7.4200e-003 | 1.9600e-003 | 3.0000e-005 | 1.9900e-003 | 0.0000 | 5.6169 | 5.6169 | 1.4000e-004 | 1.5000e-004 | 5.6649 |
| **Total** | **2.1800e-003** | **1.6100e-003** | **0.0210** | **6.0000e-005** | **7.3900e-003** | **4.0000e-005** | **7.4200e-003** | **1.9600e-003** | **3.0000e-005** | **1.9900e-003** | **0.0000** | **5.6169** | **5.6169** | **1.4000e-004** | **1.5000e-004** | **5.6649** |

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Archit. Coating | 0.1704 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.0184 | 0.1251 | 0.1739 | 2.9000e-004 | | 6.8000e-003 | 6.8000e-003 | | 6.8000e-003 | 6.8000e-003 | 0.0000 | 24.5112 | 24.5112 | 1.4700e-003 | 0.0000 | 24.5479 |
| **Total** | **0.1888** | **0.1251** | **0.1739** | **2.9000e-004** | | **6.8000e-003** | **6.8000e-003** | | **6.8000e-003** | **6.8000e-003** | **0.0000** | **24.5112** | **24.5112** | **1.4700e-003** | **0.0000** | **24.5479** |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 3.6 Architectural Coating - 2023

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 2.1800e-003 | 1.6100e-003 | 0.0210 | 6.0000e-005 | 4.8200e-003 | 4.0000e-005 | 4.8600e-003 | 1.3300e-003 | 3.0000e-005 | 1.3600e-003 | 0.0000 | 5.6169 | 5.6169 | 1.4000e-004 | 1.5000e-004 | 5.6649 |
| **Total** | **2.1800e-003** | **1.6100e-003** | **0.0210** | **6.0000e-005** | **4.8200e-003** | **4.0000e-005** | **4.8600e-003** | **1.3300e-003** | **3.0000e-005** | **1.3600e-003** | **0.0000** | **5.6169** | **5.6169** | **1.4000e-004** | **1.5000e-004** | **5.6649** |

## 3.6 Architectural Coating - 2024

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Archit. Coating | 0.0249 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 2.5300e-003 | 0.0171 | 0.0253 | 4.0000e-005 | | 8.5000e-004 | 8.5000e-004 | | 8.5000e-004 | 8.5000e-004 | 0.0000 | 3.5746 | 3.5746 | 2.0000e-004 | 0.0000 | 3.5796 |
| **Total** | **0.0274** | **0.0171** | **0.0253** | **4.0000e-005** | | **8.5000e-004** | **8.5000e-004** | | **8.5000e-004** | **8.5000e-004** | **0.0000** | **3.5746** | **3.5746** | **2.0000e-004** | **0.0000** | **3.5796** |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 3.6 Architectural Coating - 2024

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 3.0000e-004 | 2.1000e-004 | 2.8700e-003 | 1.0000e-005 | 1.0800e-003 | 0.0000 | 1.0800e-003 | 2.9000e-004 | 0.0000 | 2.9000e-004 | 0.0000 | 0.7932 | 0.7932 | 2.0000e-005 | 2.0000e-005 | 0.7997 |
| **Total** | **3.0000e-004** | **2.1000e-004** | **2.8700e-003** | **1.0000e-005** | **1.0800e-003** | **0.0000** | **1.0800e-003** | **2.9000e-004** | **0.0000** | **2.9000e-004** | **0.0000** | **0.7932** | **0.7932** | **2.0000e-005** | **2.0000e-005** | **0.7997** |

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Archit. Coating | 0.0249 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 2.5300e-003 | 0.0171 | 0.0253 | 4.0000e-005 | | 8.5000e-004 | 8.5000e-004 | | 8.5000e-004 | 8.5000e-004 | 0.0000 | 3.5746 | 3.5746 | 2.0000e-004 | 0.0000 | 3.5796 |
| **Total** | **0.0274** | **0.0171** | **0.0253** | **4.0000e-005** | | **8.5000e-004** | **8.5000e-004** | | **8.5000e-004** | **8.5000e-004** | **0.0000** | **3.5746** | **3.5746** | **2.0000e-004** | **0.0000** | **3.5796** |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 3.6 Architectural Coating - 2024

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 3.0000e-004 | 2.1000e-004 | 2.8700e-003 | 1.0000e-005 | 7.0000e-004 | 0.0000 | 7.1000e-004 | 1.9000e-004 | 0.0000 | 2.0000e-004 | 0.0000 | 0.7932 | 0.7932 | 2.0000e-005 | 2.0000e-005 | 0.7997 |
| **Total** | **3.0000e-004** | **2.1000e-004** | **2.8700e-003** | **1.0000e-005** | **7.0000e-004** | **0.0000** | **7.1000e-004** | **1.9000e-004** | **0.0000** | **2.0000e-004** | **0.0000** | **0.7932** | **0.7932** | **2.0000e-005** | **2.0000e-005** | **0.7997** |

# 4.0 Operational Detail - Mobile

## 4.1 Mitigation Measures Mobile

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Mitigated | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Unmitigated | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

## 4.2 Trip Summary Information

| | Average Daily Trip Rate | | | Unmitigated | Mitigated |
|---|---|---|---|---|---|
| Land Use | Weekday | Saturday | Sunday | Annual VMT | Annual VMT |
| Health Club | 0.00 | 0.00 | 0.00 | | |
| High School | 0.00 | 0.00 | 0.00 | | |
| Other Non-Asphalt Surfaces | 0.00 | 0.00 | 0.00 | | |
| Other Non-Asphalt Surfaces | 0.00 | 0.00 | 0.00 | | |
| Total | 0.00 | 0.00 | 0.00 | | |

## 4.3 Trip Type Information

| | Miles | | | Trip % | | | Trip Purpose % | | |
|---|---|---|---|---|---|---|---|---|---|
| Land Use | H-W or C-W | H-S or C-C | H-O or C-NW | H-W or C-W | H-S or C-C | H-O or C-NW | Primary | Diverted | Pass-by |
| Health Club | 16.60 | 8.40 | 6.90 | 16.90 | 64.10 | 19.00 | 52 | 39 | 9 |
| High School | 16.60 | 8.40 | 6.90 | 77.80 | 17.20 | 5.00 | 75 | 19 | 6 |
| Other Non-Asphalt Surfaces | 16.60 | 8.40 | 6.90 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 |
| Other Non-Asphalt Surfaces | 16.60 | 8.40 | 6.90 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 |

## 4.4 Fleet Mix

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

| Land Use | LDA | LDT1 | LDT2 | MDV | LHD1 | LHD2 | MHD | HHD | OBUS | UBUS | MCY | SBUS | MH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Health Club | 0.537845 | 0.056225 | 0.173186 | 0.138405 | 0.025906 | 0.007191 | 0.011447 | 0.018769 | 0.000611 | 0.000309 | 0.023821 | 0.001097 | 0.005189 |
| High School | 0.537845 | 0.056225 | 0.173186 | 0.138405 | 0.025906 | 0.007191 | 0.011447 | 0.018769 | 0.000611 | 0.000309 | 0.023821 | 0.001097 | 0.005189 |
| Other Non-Asphalt Surfaces | 0.537845 | 0.056225 | 0.173186 | 0.138405 | 0.025906 | 0.007191 | 0.011447 | 0.018769 | 0.000611 | 0.000309 | 0.023821 | 0.001097 | 0.005189 |

## 5.0 Energy Detail

Historical Energy Use: N

### 5.1 Mitigation Measures Energy

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Electricity Mitigated | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 63.0459 | 63.0459 | 5.3200e-003 | 6.5000e-004 | 63.3711 |
| Electricity Unmitigated | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 63.0459 | 63.0459 | 5.3200e-003 | 6.5000e-004 | 63.3711 |
| NaturalGas Mitigated | 4.9700e-003 | 0.0452 | 0.0379 | 2.7000e-004 | | 3.4300e-003 | 3.4300e-003 | | 3.4300e-003 | 3.4300e-003 | 0.0000 | 49.1736 | 49.1736 | 9.4000e-004 | 9.0000e-004 | 49.4658 |
| NaturalGas Unmitigated | 4.9700e-003 | 0.0452 | 0.0379 | 2.7000e-004 | | 3.4300e-003 | 3.4300e-003 | | 3.4300e-003 | 3.4300e-003 | 0.0000 | 49.1736 | 49.1736 | 9.4000e-004 | 9.0000e-004 | 49.4658 |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 5.2 Energy by Land Use - NaturalGas

**Unmitigated**

| | NaturalGas Use | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Land Use | kBTU/yr | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Health Club | 775920 | 4.1800e-003 | 0.0380 | 0.0320 | 2.3000e-004 | | 2.8900e-003 | 2.8900e-003 | | 2.8900e-003 | 2.8900e-003 | 0.0000 | 41.4061 | 41.4061 | 7.9000e-004 | 7.6000e-004 | 41.6521 |
| High School | 145558 | 7.8000e-004 | 7.1400e-003 | 5.9900e-003 | 4.0000e-005 | | 5.4000e-004 | 5.4000e-004 | | 5.4000e-004 | 5.4000e-004 | 0.0000 | 7.7675 | 7.7675 | 1.5000e-004 | 1.4000e-004 | 7.8137 |
| Other Non-Asphalt Surfaces | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | | **4.9600e-003** | **0.0452** | **0.0379** | **2.7000e-004** | | **3.4300e-003** | **3.4300e-003** | | **3.4300e-003** | **3.4300e-003** | **0.0000** | **49.1736** | **49.1736** | **9.4000e-004** | **9.0000e-004** | **49.4658** |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 5.2 Energy by Land Use - NaturalGas

**Mitigated**

| | NaturalGas Use | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Land Use | kBTU/yr | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Health Club | 775920 | 4.1800e-003 | 0.0380 | 0.0320 | 2.3000e-004 | | 2.8900e-003 | 2.8900e-003 | | 2.8900e-003 | 2.8900e-003 | 0.0000 | 41.4061 | 41.4061 | 7.9000e-004 | 7.6000e-004 | 41.6521 |
| High School | 145558 | 7.8000e-004 | 7.1400e-003 | 5.9900e-003 | 4.0000e-005 | | 5.4000e-004 | 5.4000e-004 | | 5.4000e-004 | 5.4000e-004 | 0.0000 | 7.7675 | 7.7675 | 1.5000e-004 | 1.4000e-004 | 7.8137 |
| Other Non-Asphalt Surfaces | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | | **4.9600e-003** | **0.0452** | **0.0379** | **2.7000e-004** | | **3.4300e-003** | **3.4300e-003** | | **3.4300e-003** | **3.4300e-003** | **0.0000** | **49.1736** | **49.1736** | **9.4000e-004** | **9.0000e-004** | **49.4658** |

## 5.3 Energy by Land Use - Electricity

**Unmitigated**

| | Electricity Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | kWh/yr | MT/yr | | | |
| Health Club | 238080 | 42.2224 | 3.5600e-003 | 4.3000e-004 | 42.4403 |
| High School | 117418 | 20.8235 | 1.7600e-003 | 2.1000e-004 | 20.9309 |
| Other Non-Asphalt Surfaces | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | | **63.0459** | **5.3200e-003** | **6.4000e-004** | **63.3712** |

## 5.3 Energy by Land Use - Electricity

**Mitigated**

| | Electricity Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | kWh/yr | MT/yr | | | |
| Health Club | 238080 | 42.2224 | 3.5600e-003 | 4.3000e-004 | 42.4403 |
| High School | 117418 | 20.8235 | 1.7600e-003 | 2.1000e-004 | 20.9309 |
| Other Non-Asphalt Surfaces | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | | **63.0459** | **5.3200e-003** | **6.4000e-004** | **63.3712** |

# 6.0 Area Detail

## 6.1 Mitigation Measures Area

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Mitigated | 0.1698 | 0.0000 | 5.3000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 1.0400e-003 | 1.0400e-003 | 0.0000 | 0.0000 | 1.1100e-003 |
| Unmitigated | 0.1698 | 0.0000 | 5.3000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 1.0400e-003 | 1.0400e-003 | 0.0000 | 0.0000 | 1.1100e-003 |

## 6.2 Area by SubCategory

**Unmitigated**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SubCategory | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Architectural Coating | 0.0195 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Consumer Products | 0.1502 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Landscaping | 5.0000e-005 | 0.0000 | 5.3000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 1.0400e-003 | 1.0400e-003 | 0.0000 | 0.0000 | 1.1100e-003 |
| **Total** | **0.1698** | **0.0000** | **5.3000e-004** | **0.0000** | | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | **0.0000** | **1.0400e-003** | **1.0400e-003** | **0.0000** | **0.0000** | **1.1100e-003** |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 6.2 Area by SubCategory

**Mitigated**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SubCategory | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Architectural Coating | 0.0195 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Consumer Products | 0.1502 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Landscaping | 5.0000e-005 | 0.0000 | 5.3000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 1.0400e-003 | 1.0400e-003 | 0.0000 | 0.0000 | 1.1100e-003 |
| **Total** | **0.1698** | **0.0000** | **5.3000e-004** | **0.0000** | | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | **0.0000** | **1.0400e-003** | **1.0400e-003** | **0.0000** | **0.0000** | **1.1100e-003** |

# 7.0 Water Detail

## 7.1 Mitigation Measures Water

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

| | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|
| Category | MT/yr | | | |
| Mitigated | 9.7209 | 0.0651 | 1.6100e-003 | 11.8302 |
| Unmitigated | 9.7209 | 0.0651 | 1.6100e-003 | 11.8302 |

## 7.2 Water by Land Use

**Unmitigated**

| | Indoor/Outdoor Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | Mgal | MT/yr | | | |
| Health Club | 1.41944 / 0.869977 | 5.4422 | 0.0467 | 1.1400e-003 | 6.9497 |
| High School | 0.556178 / 1.43017 | 4.2787 | 0.0185 | 4.7000e-004 | 4.8804 |
| Other Non-Asphalt Surfaces | 0 / 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | | **9.7209** | **0.0651** | **1.6100e-003** | **11.8302** |

## 7.2 Water by Land Use

**Mitigated**

| | Indoor/Outdoor Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | Mgal | MT/yr | | | |
| Health Club | 1.41944 / 0.869977 | 5.4422 | 0.0467 | 1.1400e-003 | 6.9497 |
| High School | 0.556178 / 1.43017 | 4.2787 | 0.0185 | 4.7000e-004 | 4.8804 |
| Other Non-Asphalt Surfaces | 0 / 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | | **9.7209** | **0.0651** | **1.6100e-003** | **11.8302** |

# 8.0 Waste Detail

## 8.1 Mitigation Measures Waste

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**Category/Year**

| | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|
| | MT/yr | | | |
| Mitigated | 32.1903 | 1.9024 | 0.0000 | 79.7501 |
| Unmitigated | 32.1903 | 1.9024 | 0.0000 | 79.7501 |

## 8.2 Waste by Land Use

**Unmitigated**

| | Waste Disposed | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | tons | MT/yr | | | |
| Health Club | 136.8 | 27.7692 | 1.6411 | 0.0000 | 68.7969 |
| High School | 21.78 | 4.4211 | 0.2613 | 0.0000 | 10.9532 |
| Other Non-Asphalt Surfaces | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | | **32.1903** | **1.9024** | **0.0000** | **79.7501** |

## 8.2 Waste by Land Use

**Mitigated**

| | Waste Disposed | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | tons | MT/yr | | | |
| Health Club | 136.8 | 27.7692 | 1.6411 | 0.0000 | 68.7969 |
| High School | 21.78 | 4.4211 | 0.2613 | 0.0000 | 10.9532 |
| Other Non-Asphalt Surfaces | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | | **32.1903** | **1.9024** | **0.0000** | **79.7501** |

## 9.0 Operational Offroad

| Equipment Type | Number | Hours/Day | Days/Year | Horse Power | Load Factor | Fuel Type |
|---|---|---|---|---|---|---|

## 10.0 Stationary Equipment

**Fire Pumps and Emergency Generators**

| Equipment Type | Number | Hours/Day | Hours/Year | Horse Power | Load Factor | Fuel Type |
|---|---|---|---|---|---|---|

**Boilers**

| Equipment Type | Number | Heat Input/Day | Heat Input/Year | Boiler Rating | Fuel Type |
|---|---|---|---|---|---|

**User Defined Equipment**

| Equipment Type | Number |
|---|---|

## 11.0 Vegetation

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

# John W North High School Modernization Project

**Riverside-South Coast County, Annual**

## 1.0 Project Characteristics

### 1.1 Land Usage

| Land Uses | Size | Metric | Lot Acreage | Floor Surface Area | Population |
|---|---|---|---|---|---|
| Health Club | 24.00 | 1000sqft | 1.05 | 24,000.00 | 0 |
| High School | 16.75 | 1000sqft | 0.88 | 16,750.00 | 0 |
| Other Non-Asphalt Surfaces | 0.68 | Acre | 0.68 | 29,620.80 | 0 |
| Other Non-Asphalt Surfaces | 0.38 | Acre | 0.38 | 16,552.80 | 0 |

### 1.2 Other Project Characteristics

| | | | | | |
|---|---|---|---|---|---|
| **Urbanization** | Urban | **Wind Speed (m/s)** | 2.4 | **Precipitation Freq (Days)** | 28 |
| **Climate Zone** | 10 | | | **Operational Year** | 2024 |
| **Utility Company** | Southern California Edison | | | | |
| **CO2 Intensity (lb/MWhr)** | 390.98 | **CH4 Intensity (lb/MWhr)** | 0.033 | **N2O Intensity (lb/MWhr)** | 0.004 |

### 1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Accounts for .38 acre of new hardscape, .68 acre of ground disturbance associated with portable classroom removal, gym, and classroom building

Construction Phase - Building construction, paving, and painting assumed to occur simultaneously

Trips and VMT - Assume 16 haul truck round trips to remove portable classrooms

Vehicle Trips - No increase in student capacity. No increase of traffic trips over existing conditions

Construction Off-road Equipment Mitigation - SCAQMD Rule 403

| Table Name | Column Name | Default Value | New Value |
|---|---|---|---|
| tblConstDustMitigation | CleanPavedRoadPercentReduction | 0 | 40 |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

| | | | |
|---|---|---|---|
| tblConstDustMitigation | WaterUnpavedRoadVehicleSpeed | 0 | 15 |
| tblConstructionPhase | NumDays | 10.00 | 220.00 |
| tblConstructionPhase | NumDays | 10.00 | 220.00 |
| tblConstructionPhase | PhaseEndDate | 6/7/2023 | 2/7/2024 |
| tblConstructionPhase | PhaseEndDate | 5/10/2023 | 2/7/2024 |
| tblConstructionPhase | PhaseEndDate | 7/6/2022 | 4/5/2023 |
| tblConstructionPhase | PhaseEndDate | 5/24/2023 | 2/7/2024 |
| tblConstructionPhase | PhaseEndDate | 6/28/2022 | 3/28/2023 |
| tblConstructionPhase | PhaseStartDate | 5/25/2023 | 4/6/2023 |
| tblConstructionPhase | PhaseStartDate | 7/7/2022 | 4/6/2023 |
| tblConstructionPhase | PhaseStartDate | 6/29/2022 | 3/29/2023 |
| tblConstructionPhase | PhaseStartDate | 5/11/2023 | 4/6/2023 |
| tblConstructionPhase | PhaseStartDate | 6/24/2022 | 3/24/2023 |
| tblLandUse | LotAcreage | 0.55 | 1.05 |
| tblLandUse | LotAcreage | 0.38 | 0.88 |
| tblTripsAndVMT | HaulingTripNumber | 0.00 | 32.00 |
| tblVehicleTrips | ST_TR | 20.87 | 0.00 |
| tblVehicleTrips | ST_TR | 3.98 | 0.00 |
| tblVehicleTrips | SU_TR | 26.73 | 0.00 |
| tblVehicleTrips | SU_TR | 1.71 | 0.00 |
| tblVehicleTrips | WD_TR | 32.93 | 0.00 |
| tblVehicleTrips | WD_TR | 14.07 | 0.00 |

## 2.0 Emissions Summary

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 2.1 Overall Construction

### Unmitigated Construction

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | tons/yr | | | | | | | | | | MT/yr | | | | | |
| 2023 | 0.4638 | 2.3856 | 2.8983 | 5.2600e-003 | 0.0951 | 0.1107 | 0.2058 | 0.0297 | 0.1048 | 0.1345 | 0.0000 | 452.5413 | 452.5413 | 0.0906 | 4.7300e-003 | 456.2151 |
| 2024 | 0.0643 | 0.3187 | 0.4135 | 7.5000e-004 | 0.0104 | 0.0140 | 0.0244 | 2.7800e-003 | 0.0133 | 0.0161 | 0.0000 | 64.4142 | 64.4142 | 0.0127 | 6.7000e-004 | 64.9302 |
| **Maximum** | **0.4638** | **2.3856** | **2.8983** | **5.2600e-003** | **0.0951** | **0.1107** | **0.2058** | **0.0297** | **0.1048** | **0.1345** | **0.0000** | **452.5413** | **452.5413** | **0.0906** | **4.7300e-003** | **456.2151** |

### Mitigated Construction

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | tons/yr | | | | | | | | | | MT/yr | | | | | |
| 2023 | 0.4638 | 2.3856 | 2.8983 | 5.2600e-003 | 0.0564 | 0.1107 | 0.1671 | 0.0173 | 0.1048 | 0.1221 | 0.0000 | 452.5408 | 452.5408 | 0.0906 | 4.7300e-003 | 456.2147 |
| 2024 | 0.0643 | 0.3187 | 0.4135 | 7.5000e-004 | 6.8400e-003 | 0.0140 | 0.0209 | 1.9200e-003 | 0.0133 | 0.0152 | 0.0000 | 64.4142 | 64.4142 | 0.0127 | 6.7000e-004 | 64.9301 |
| **Maximum** | **0.4638** | **2.3856** | **2.8983** | **5.2600e-003** | **0.0564** | **0.1107** | **0.1671** | **0.0173** | **0.1048** | **0.1221** | **0.0000** | **452.5408** | **452.5408** | **0.0906** | **4.7300e-003** | **456.2147** |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N20 | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Percent Reduction** | **0.00** | **0.00** | **0.00** | **0.00** | **39.99** | **0.00** | **18.32** | **40.73** | **0.00** | **8.79** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** |

| Quarter | Start Date | End Date | Maximum Unmitigated ROG + NOX (tons/quarter) | Maximum Mitigated ROG + NOX (tons/quarter) |
|---|---|---|---|---|
| **4** | **2-27-2023** | **5-26-2023** | 0.6002 | 0.6002 |
| **5** | **5-27-2023** | **8-26-2023** | 0.9507 | 0.9507 |
| **6** | **8-27-2023** | **11-26-2023** | 0.9511 | 0.9511 |
| **7** | **11-27-2023** | **2-26-2024** | 0.7333 | 0.7333 |
| | | **Highest** | 0.9511 | 0.9511 |

## 2.2 Overall Operational

**Unmitigated Operational**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Area | 0.1698 | 0.0000 | 5.3000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 1.0400e-003 | 1.0400e-003 | 0.0000 | 0.0000 | 1.1100e-003 |
| Energy | 4.9700e-003 | 0.0452 | 0.0379 | 2.7000e-004 | | 3.4300e-003 | 3.4300e-003 | | 3.4300e-003 | 3.4300e-003 | 0.0000 | 112.2195 | 112.2195 | 6.2600e-003 | 1.5500e-003 | 112.8369 |
| Mobile | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Waste | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 32.1903 | 0.0000 | 32.1903 | 1.9024 | 0.0000 | 79.7501 |
| Water | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.6268 | 9.0941 | 9.7209 | 0.0651 | 1.6100e-003 | 11.8302 |
| **Total** | **0.1748** | **0.0452** | **0.0385** | **2.7000e-004** | **0.0000** | **3.4300e-003** | **3.4300e-003** | **0.0000** | **3.4300e-003** | **3.4300e-003** | **32.8171** | **121.3146** | **154.1317** | **1.9738** | **3.1600e-003** | **204.4183** |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 2.2 Overall Operational

**Mitigated Operational**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Area | 0.1698 | 0.0000 | 5.3000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 1.0400e-003 | 1.0400e-003 | 0.0000 | 0.0000 | 1.1100e-003 |
| Energy | 4.9700e-003 | 0.0452 | 0.0379 | 2.7000e-004 | | 3.4300e-003 | 3.4300e-003 | | 3.4300e-003 | 3.4300e-003 | 0.0000 | 112.2195 | 112.2195 | 6.2600e-003 | 1.5500e-003 | 112.8369 |
| Mobile | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Waste | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 32.1903 | 0.0000 | 32.1903 | 1.9024 | 0.0000 | 79.7501 |
| Water | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.6268 | 9.0941 | 9.7209 | 0.0651 | 1.6100e-003 | 11.8302 |
| **Total** | **0.1748** | **0.0452** | **0.0385** | **2.7000e-004** | **0.0000** | **3.4300e-003** | **3.4300e-003** | **0.0000** | **3.4300e-003** | **3.4300e-003** | **32.8171** | **121.3146** | **154.1317** | **1.9738** | **3.1600e-003** | **204.4183** |

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N20 | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Percent Reduction** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** |

## 3.0 Construction Detail

**Construction Phase**

| Phase Number | Phase Name | Phase Type | Start Date | End Date | Num Days Week | Num Days | Phase Description |
|---|---|---|---|---|---|---|---|
| 1 | Site Preparation | Site Preparation | 3/24/2023 | 3/28/2023 | 5 | 3 | |
| 2 | Grading | Grading | 3/29/2023 | 4/5/2023 | 5 | 6 | |
| 3 | Building Construction | Building Construction | 4/6/2023 | 2/7/2024 | 5 | 220 | |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 4 | Paving | Paving | 4/6/2023 | 2/7/2024 | 5 | 220 | |
| 5 | Architectural Coating | Architectural Coating | 4/6/2023 | 2/7/2024 | 5 | 220 | |

**Acres of Grading (Site Preparation Phase): 4.5**

**Acres of Grading (Grading Phase): 6**

**Acres of Paving: 1.06**

**Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 61,125; Non-Residential Outdoor: 20,375; Striped Parking Area: 2,770 (Architectural Coating – sqft)**

**OffRoad Equipment**

| Phase Name | Offroad Equipment Type | Amount | Usage Hours | Horse Power | Load Factor |
|---|---|---|---|---|---|
| Architectural Coating | Air Compressors | 1 | 6.00 | 78 | 0.48 |
| Paving | Cement and Mortar Mixers | 1 | 8.00 | 9 | 0.56 |
| Building Construction | Cranes | 1 | 8.00 | 231 | 0.29 |
| Building Construction | Forklifts | 2 | 7.00 | 89 | 0.20 |
| Building Construction | Generator Sets | 1 | 8.00 | 84 | 0.74 |
| Grading | Graders | 1 | 8.00 | 187 | 0.41 |
| Site Preparation | Graders | 1 | 8.00 | 187 | 0.41 |
| Paving | Pavers | 1 | 8.00 | 130 | 0.42 |
| Paving | Paving Equipment | 1 | 8.00 | 132 | 0.36 |
| Paving | Rollers | 2 | 8.00 | 80 | 0.38 |
| Grading | Rubber Tired Dozers | 1 | 8.00 | 247 | 0.40 |
| Site Preparation | Scrapers | 1 | 8.00 | 367 | 0.48 |
| Building Construction | Tractors/Loaders/Backhoes | 1 | 6.00 | 97 | 0.37 |
| Grading | Tractors/Loaders/Backhoes | 2 | 7.00 | 97 | 0.37 |
| Paving | Tractors/Loaders/Backhoes | 1 | 8.00 | 97 | 0.37 |
| Site Preparation | Tractors/Loaders/Backhoes | 1 | 7.00 | 97 | 0.37 |
| Building Construction | Welders | 3 | 8.00 | 46 | 0.45 |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**Trips and VMT**

| Phase Name | Offroad Equipment Count | Worker Trip Number | Vendor Trip Number | Hauling Trip Number | Worker Trip Length | Vendor Trip Length | Hauling Trip Length | Worker Vehicle Class | Vendor Vehicle Class | Hauling Vehicle Class |
|---|---|---|---|---|---|---|---|---|---|---|
| Site Preparation | 3 | 8.00 | 0.00 | 0.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Grading | 4 | 10.00 | 0.00 | 0.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Building Construction | 8 | 37.00 | 14.00 | 32.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Paving | 6 | 15.00 | 0.00 | 0.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Architectural Coating | 1 | 7.00 | 0.00 | 0.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |

## 3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

## 3.2 Site Preparation - 2023

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 2.3900e-003 | 0.0000 | 2.3900e-003 | 2.6000e-004 | 0.0000 | 2.6000e-004 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 1.9500e-003 | 0.0214 | 0.0147 | 4.0000e-005 | | 8.1000e-004 | 8.1000e-004 | | 7.5000e-004 | 7.5000e-004 | 0.0000 | 3.2317 | 3.2317 | 1.0500e-003 | 0.0000 | 3.2578 |
| **Total** | **1.9500e-003** | **0.0214** | **0.0147** | **4.0000e-005** | **2.3900e-003** | **8.1000e-004** | **3.2000e-003** | **2.6000e-004** | **7.5000e-004** | **1.0100e-003** | **0.0000** | **3.2317** | **3.2317** | **1.0500e-003** | **0.0000** | **3.2578** |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 3.2 Site Preparation - 2023

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 4.0000e-005 | 3.0000e-005 | 3.8000e-004 | 0.0000 | 1.3000e-004 | 0.0000 | 1.3000e-004 | 4.0000e-005 | 0.0000 | 4.0000e-005 | 0.0000 | 0.1003 | 0.1003 | 0.0000 | 0.0000 | 0.1012 |
| **Total** | **4.0000e-005** | **3.0000e-005** | **3.8000e-004** | **0.0000** | **1.3000e-004** | **0.0000** | **1.3000e-004** | **4.0000e-005** | **0.0000** | **4.0000e-005** | **0.0000** | **0.1003** | **0.1003** | **0.0000** | **0.0000** | **0.1012** |

### Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 9.3000e-004 | 0.0000 | 9.3000e-004 | 1.0000e-004 | 0.0000 | 1.0000e-004 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 1.9500e-003 | 0.0214 | 0.0147 | 4.0000e-005 | | 8.1000e-004 | 8.1000e-004 | | 7.5000e-004 | 7.5000e-004 | 0.0000 | 3.2317 | 3.2317 | 1.0500e-003 | 0.0000 | 3.2578 |
| **Total** | **1.9500e-003** | **0.0214** | **0.0147** | **4.0000e-005** | **9.3000e-004** | **8.1000e-004** | **1.7400e-003** | **1.0000e-004** | **7.5000e-004** | **8.5000e-004** | **0.0000** | **3.2317** | **3.2317** | **1.0500e-003** | **0.0000** | **3.2578** |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 3.2 Site Preparation - 2023

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 4.0000e-005 | 3.0000e-005 | 3.8000e-004 | 0.0000 | 9.0000e-005 | 0.0000 | 9.0000e-005 | 2.0000e-005 | 0.0000 | 2.0000e-005 | 0.0000 | 0.1003 | 0.1003 | 0.0000 | 0.0000 | 0.1012 |
| **Total** | **4.0000e-005** | **3.0000e-005** | **3.8000e-004** | **0.0000** | **9.0000e-005** | **0.0000** | **9.0000e-005** | **2.0000e-005** | **0.0000** | **2.0000e-005** | **0.0000** | **0.1003** | **0.1003** | **0.0000** | **0.0000** | **0.1012** |

## 3.3 Grading - 2023

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 0.0213 | 0.0000 | 0.0213 | 0.0103 | 0.0000 | 0.0103 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 4.0000e-003 | 0.0434 | 0.0261 | 6.0000e-005 | | 1.8100e-003 | 1.8100e-003 | | 1.6700e-003 | 1.6700e-003 | 0.0000 | 5.4312 | 5.4312 | 1.7600e-003 | 0.0000 | 5.4751 |
| **Total** | **4.0000e-003** | **0.0434** | **0.0261** | **6.0000e-005** | **0.0213** | **1.8100e-003** | **0.0231** | **0.0103** | **1.6700e-003** | **0.0119** | **0.0000** | **5.4312** | **5.4312** | **1.7600e-003** | **0.0000** | **5.4751** |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 3.3 Grading - 2023

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 1.0000e-004 | 7.0000e-005 | 9.4000e-004 | 0.0000 | 3.3000e-004 | 0.0000 | 3.3000e-004 | 9.0000e-005 | 0.0000 | 9.0000e-005 | 0.0000 | 0.2508 | 0.2508 | 1.0000e-005 | 1.0000e-005 | 0.2529 |
| **Total** | **1.0000e-004** | **7.0000e-005** | **9.4000e-004** | **0.0000** | **3.3000e-004** | **0.0000** | **3.3000e-004** | **9.0000e-005** | **0.0000** | **9.0000e-005** | **0.0000** | **0.2508** | **0.2508** | **1.0000e-005** | **1.0000e-005** | **0.2529** |

### Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 8.2900e-003 | 0.0000 | 8.2900e-003 | 4.0100e-003 | 0.0000 | 4.0100e-003 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 4.0000e-003 | 0.0434 | 0.0261 | 6.0000e-005 | | 1.8100e-003 | 1.8100e-003 | | 1.6700e-003 | 1.6700e-003 | 0.0000 | 5.4312 | 5.4312 | 1.7600e-003 | 0.0000 | 5.4751 |
| **Total** | **4.0000e-003** | **0.0434** | **0.0261** | **6.0000e-005** | **8.2900e-003** | **1.8100e-003** | **0.0101** | **4.0100e-003** | **1.6700e-003** | **5.6800e-003** | **0.0000** | **5.4312** | **5.4312** | **1.7600e-003** | **0.0000** | **5.4751** |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 3.3 Grading - 2023

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 1.0000e-004 | 7.0000e-005 | 9.4000e-004 | 0.0000 | 2.2000e-004 | 0.0000 | 2.2000e-004 | 6.0000e-005 | 0.0000 | 6.0000e-005 | 0.0000 | 0.2508 | 0.2508 | 1.0000e-005 | 1.0000e-005 | 0.2529 |
| **Total** | **1.0000e-004** | **7.0000e-005** | **9.4000e-004** | **0.0000** | **2.2000e-004** | **0.0000** | **2.2000e-004** | **6.0000e-005** | **0.0000** | **6.0000e-005** | **0.0000** | **0.2508** | **0.2508** | **1.0000e-005** | **1.0000e-005** | **0.2529** |

## 3.4 Building Construction - 2023

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 0.1645 | 1.3079 | 1.3646 | 2.4000e-003 | | 0.0589 | 0.0589 | | 0.0565 | 0.0565 | 0.0000 | 199.3940 | 199.3940 | 0.0377 | 0.0000 | 200.3367 |
| **Total** | **0.1645** | **1.3079** | **1.3646** | **2.4000e-003** | | **0.0589** | **0.0589** | | **0.0565** | **0.0565** | **0.0000** | **199.3940** | **199.3940** | **0.0377** | **0.0000** | **200.3367** |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 3.4 Building Construction - 2023

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 3.0000e-005 | 1.4700e-003 | 3.9000e-004 | 1.0000e-005 | 2.4000e-004 | 2.0000e-005 | 2.6000e-004 | 7.0000e-005 | 2.0000e-005 | 8.0000e-005 | 0.0000 | 0.7438 | 0.7438 | 1.0000e-005 | 1.2000e-004 | 0.7790 |
| Vendor | 1.4600e-003 | 0.0461 | 0.0184 | 2.4000e-004 | 8.4900e-003 | 3.8000e-004 | 8.8700e-003 | 2.4500e-003 | 3.7000e-004 | 2.8200e-003 | 0.0000 | 22.6129 | 22.6129 | 2.3000e-004 | 3.3400e-003 | 23.6150 |
| Worker | 0.0115 | 8.5400e-003 | 0.1112 | 3.2000e-004 | 0.0390 | 1.9000e-004 | 0.0392 | 0.0104 | 1.7000e-004 | 0.0105 | 0.0000 | 29.6895 | 29.6895 | 7.4000e-004 | 7.9000e-004 | 29.9430 |
| **Total** | **0.0130** | **0.0561** | **0.1300** | **5.7000e-004** | **0.0478** | **5.9000e-004** | **0.0484** | **0.0129** | **5.6000e-004** | **0.0134** | **0.0000** | **53.0462** | **53.0462** | **9.8000e-004** | **4.2500e-003** | **54.3370** |

### Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 0.1645 | 1.3079 | 1.3646 | 2.4000e-003 | | 0.0589 | 0.0589 | | 0.0565 | 0.0565 | 0.0000 | 199.3937 | 199.3937 | 0.0377 | 0.0000 | 200.3365 |
| **Total** | **0.1645** | **1.3079** | **1.3646** | **2.4000e-003** | | **0.0589** | **0.0589** | | **0.0565** | **0.0565** | **0.0000** | **199.3937** | **199.3937** | **0.0377** | **0.0000** | **200.3365** |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 3.4 Building Construction - 2023

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 3.0000e-005 | 1.4700e-003 | 3.9000e-004 | 1.0000e-005 | 1.7000e-004 | 2.0000e-005 | 1.9000e-004 | 5.0000e-005 | 2.0000e-005 | 6.0000e-005 | 0.0000 | 0.7438 | 0.7438 | 1.0000e-005 | 1.2000e-004 | 0.7790 |
| Vendor | 1.4600e-003 | 0.0461 | 0.0184 | 2.4000e-004 | 6.0900e-003 | 3.8000e-004 | 6.4700e-003 | 1.8600e-003 | 3.7000e-004 | 2.2300e-003 | 0.0000 | 22.6129 | 22.6129 | 2.3000e-004 | 3.3400e-003 | 23.6150 |
| Worker | 0.0115 | 8.5400e-003 | 0.1112 | 3.2000e-004 | 0.0255 | 1.9000e-004 | 0.0257 | 7.0400e-003 | 1.7000e-004 | 7.2100e-003 | 0.0000 | 29.6895 | 29.6895 | 7.4000e-004 | 7.9000e-004 | 29.9430 |
| **Total** | **0.0130** | **0.0561** | **0.1300** | **5.7000e-004** | **0.0318** | **5.9000e-004** | **0.0323** | **8.9500e-003** | **5.6000e-004** | **9.5000e-003** | **0.0000** | **53.0462** | **53.0462** | **9.8000e-004** | **4.2500e-003** | **54.3370** |

## 3.4 Building Construction - 2024

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 0.0224 | 0.1795 | 0.1974 | 3.5000e-004 | | 7.5300e-003 | 7.5300e-003 | | 7.2100e-003 | 7.2100e-003 | 0.0000 | 29.0800 | 29.0800 | 5.4200e-003 | 0.0000 | 29.2154 |
| **Total** | **0.0224** | **0.1795** | **0.1974** | **3.5000e-004** | | **7.5300e-003** | **7.5300e-003** | | **7.2100e-003** | **7.2100e-003** | **0.0000** | **29.0800** | **29.0800** | **5.4200e-003** | **0.0000** | **29.2154** |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 3.4 Building Construction - 2024

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 2.2000e-004 | 6.0000e-005 | 0.0000 | 4.0000e-005 | 0.0000 | 4.0000e-005 | 1.0000e-005 | 0.0000 | 1.0000e-005 | 0.0000 | 0.1067 | 0.1067 | 0.0000 | 2.0000e-005 | 0.1118 |
| Vendor | 2.1000e-004 | 6.7200e-003 | 2.6500e-003 | 3.0000e-005 | 1.2400e-003 | 6.0000e-005 | 1.2900e-003 | 3.6000e-004 | 5.0000e-005 | 4.1000e-004 | 0.0000 | 3.2469 | 3.2469 | 3.0000e-005 | 4.8000e-004 | 3.3906 |
| Worker | 1.5700e-003 | 1.1100e-003 | 0.0152 | 5.0000e-005 | 5.6900e-003 | 3.0000e-005 | 5.7200e-003 | 1.5100e-003 | 2.0000e-005 | 1.5400e-003 | 0.0000 | 4.1926 | 4.1926 | 1.0000e-004 | 1.1000e-004 | 4.2269 |
| **Total** | **1.7800e-003** | **8.0500e-003** | **0.0179** | **8.0000e-005** | **6.9700e-003** | **9.0000e-005** | **7.0500e-003** | **1.8800e-003** | **7.0000e-005** | **1.9600e-003** | **0.0000** | **7.5462** | **7.5462** | **1.3000e-004** | **6.1000e-004** | **7.7293** |

### Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 0.0224 | 0.1795 | 0.1974 | 3.5000e-004 | | 7.5300e-003 | 7.5300e-003 | | 7.2100e-003 | 7.2100e-003 | 0.0000 | 29.0799 | 29.0799 | 5.4200e-003 | 0.0000 | 29.2153 |
| **Total** | **0.0224** | **0.1795** | **0.1974** | **3.5000e-004** | | **7.5300e-003** | **7.5300e-003** | | **7.2100e-003** | **7.2100e-003** | **0.0000** | **29.0799** | **29.0799** | **5.4200e-003** | **0.0000** | **29.2153** |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 3.4 Building Construction - 2024

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 2.2000e-004 | 6.0000e-005 | 0.0000 | 2.0000e-005 | 0.0000 | 3.0000e-005 | 1.0000e-005 | 0.0000 | 1.0000e-005 | 0.0000 | 0.1067 | 0.1067 | 0.0000 | 2.0000e-005 | 0.1118 |
| Vendor | 2.1000e-004 | 6.7200e-003 | 2.6500e-003 | 3.0000e-005 | 8.9000e-004 | 6.0000e-005 | 9.4000e-004 | 2.7000e-004 | 5.0000e-005 | 3.2000e-004 | 0.0000 | 3.2469 | 3.2469 | 3.0000e-005 | 4.8000e-004 | 3.3906 |
| Worker | 1.5700e-003 | 1.1100e-003 | 0.0152 | 5.0000e-005 | 3.7200e-003 | 3.0000e-005 | 3.7400e-003 | 1.0300e-003 | 2.0000e-005 | 1.0500e-003 | 0.0000 | 4.1926 | 4.1926 | 1.0000e-004 | 1.1000e-004 | 4.2269 |
| **Total** | **1.7800e-003** | **8.0500e-003** | **0.0179** | **8.0000e-005** | **4.6300e-003** | **9.0000e-005** | **4.7100e-003** | **1.3100e-003** | **7.0000e-005** | **1.3800e-003** | **0.0000** | **7.5462** | **7.5462** | **1.3000e-004** | **6.1000e-004** | **7.7293** |

## 3.5 Paving - 2023

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 0.0845 | 0.8265 | 1.1217 | 1.7100e-003 | | 0.0417 | 0.0417 | | 0.0384 | 0.0384 | 0.0000 | 148.9228 | 148.9228 | 0.0472 | 0.0000 | 150.1028 |
| Paving | 0.0000 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **0.0845** | **0.8265** | **1.1217** | **1.7100e-003** | | **0.0417** | **0.0417** | | **0.0384** | **0.0384** | **0.0000** | **148.9228** | **148.9228** | **0.0472** | **0.0000** | **150.1028** |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 3.5 Paving - 2023

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 4.6700e-003 | 3.4600e-003 | 0.0451 | 1.3000e-004 | 0.0158 | 8.0000e-005 | 0.0159 | 4.2000e-003 | 7.0000e-005 | 4.2700e-003 | 0.0000 | 12.0363 | 12.0363 | 3.0000e-004 | 3.2000e-004 | 12.1390 |
| **Total** | **4.6700e-003** | **3.4600e-003** | **0.0451** | **1.3000e-004** | **0.0158** | **8.0000e-005** | **0.0159** | **4.2000e-003** | **7.0000e-005** | **4.2700e-003** | **0.0000** | **12.0363** | **12.0363** | **3.0000e-004** | **3.2000e-004** | **12.1390** |

### Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 0.0845 | 0.8265 | 1.1217 | 1.7100e-003 | | 0.0417 | 0.0417 | | 0.0384 | 0.0384 | 0.0000 | 148.9226 | 148.9226 | 0.0472 | 0.0000 | 150.1026 |
| Paving | 0.0000 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **0.0845** | **0.8265** | **1.1217** | **1.7100e-003** | | **0.0417** | **0.0417** | | **0.0384** | **0.0384** | **0.0000** | **148.9226** | **148.9226** | **0.0472** | **0.0000** | **150.1026** |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 3.5 Paving - 2023

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 4.6700e-003 | 3.4600e-003 | 0.0451 | 1.3000e-004 | 0.0103 | 8.0000e-005 | 0.0104 | 2.8600e-003 | 7.0000e-005 | 2.9200e-003 | 0.0000 | 12.0363 | 12.0363 | 3.0000e-004 | 3.2000e-004 | 12.1390 |
| **Total** | **4.6700e-003** | **3.4600e-003** | **0.0451** | **1.3000e-004** | **0.0103** | **8.0000e-005** | **0.0104** | **2.8600e-003** | **7.0000e-005** | **2.9200e-003** | **0.0000** | **12.0363** | **12.0363** | **3.0000e-004** | **3.2000e-004** | **12.1390** |

## 3.5 Paving - 2024

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 0.0118 | 0.1134 | 0.1639 | 2.5000e-004 | | 5.5400e-003 | 5.5400e-003 | | 5.1100e-003 | 5.1100e-003 | 0.0000 | 21.7206 | 21.7206 | 6.8800e-003 | 0.0000 | 21.8927 |
| Paving | 0.0000 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **0.0118** | **0.1134** | **0.1639** | **2.5000e-004** | | **5.5400e-003** | **5.5400e-003** | | **5.1100e-003** | **5.1100e-003** | **0.0000** | **21.7206** | **21.7206** | **6.8800e-003** | **0.0000** | **21.8927** |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 3.5 Paving - 2024

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 6.4000e-004 | 4.5000e-004 | 6.1500e-003 | 2.0000e-005 | 2.3100e-003 | 1.0000e-005 | 2.3200e-003 | 6.1000e-004 | 1.0000e-005 | 6.2000e-004 | 0.0000 | 1.6997 | 1.6997 | 4.0000e-005 | 4.0000e-005 | 1.7136 |
| **Total** | **6.4000e-004** | **4.5000e-004** | **6.1500e-003** | **2.0000e-005** | **2.3100e-003** | **1.0000e-005** | **2.3200e-003** | **6.1000e-004** | **1.0000e-005** | **6.2000e-004** | **0.0000** | **1.6997** | **1.6997** | **4.0000e-005** | **4.0000e-005** | **1.7136** |

### Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 0.0118 | 0.1134 | 0.1639 | 2.5000e-004 | | 5.5400e-003 | 5.5400e-003 | | 5.1100e-003 | 5.1100e-003 | 0.0000 | 21.7206 | 21.7206 | 6.8800e-003 | 0.0000 | 21.8927 |
| Paving | 0.0000 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **0.0118** | **0.1134** | **0.1639** | **2.5000e-004** | | **5.5400e-003** | **5.5400e-003** | | **5.1100e-003** | **5.1100e-003** | **0.0000** | **21.7206** | **21.7206** | **6.8800e-003** | **0.0000** | **21.8927** |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 3.5 Paving - 2024

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 6.4000e-004 | 4.5000e-004 | 6.1500e-003 | 2.0000e-005 | 1.5100e-003 | 1.0000e-005 | 1.5200e-003 | 4.2000e-004 | 1.0000e-005 | 4.3000e-004 | 0.0000 | 1.6997 | 1.6997 | 4.0000e-005 | 4.0000e-005 | 1.7136 |
| **Total** | **6.4000e-004** | **4.5000e-004** | **6.1500e-003** | **2.0000e-005** | **1.5100e-003** | **1.0000e-005** | **1.5200e-003** | **4.2000e-004** | **1.0000e-005** | **4.3000e-004** | **0.0000** | **1.6997** | **1.6997** | **4.0000e-005** | **4.0000e-005** | **1.7136** |

## 3.6 Architectural Coating - 2023

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Archit. Coating | 0.1704 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.0184 | 0.1251 | 0.1739 | 2.9000e-004 | | 6.8000e-003 | 6.8000e-003 | | 6.8000e-003 | 6.8000e-003 | 0.0000 | 24.5112 | 24.5112 | 1.4700e-003 | 0.0000 | 24.5479 |
| **Total** | **0.1888** | **0.1251** | **0.1739** | **2.9000e-004** | | **6.8000e-003** | **6.8000e-003** | | **6.8000e-003** | **6.8000e-003** | **0.0000** | **24.5112** | **24.5112** | **1.4700e-003** | **0.0000** | **24.5479** |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 3.6 Architectural Coating - 2023

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 2.1800e-003 | 1.6100e-003 | 0.0210 | 6.0000e-005 | 7.3900e-003 | 4.0000e-005 | 7.4200e-003 | 1.9600e-003 | 3.0000e-005 | 1.9900e-003 | 0.0000 | 5.6169 | 5.6169 | 1.4000e-004 | 1.5000e-004 | 5.6649 |
| **Total** | **2.1800e-003** | **1.6100e-003** | **0.0210** | **6.0000e-005** | **7.3900e-003** | **4.0000e-005** | **7.4200e-003** | **1.9600e-003** | **3.0000e-005** | **1.9900e-003** | **0.0000** | **5.6169** | **5.6169** | **1.4000e-004** | **1.5000e-004** | **5.6649** |

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Archit. Coating | 0.1704 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.0184 | 0.1251 | 0.1739 | 2.9000e-004 | | 6.8000e-003 | 6.8000e-003 | | 6.8000e-003 | 6.8000e-003 | 0.0000 | 24.5112 | 24.5112 | 1.4700e-003 | 0.0000 | 24.5479 |
| **Total** | **0.1888** | **0.1251** | **0.1739** | **2.9000e-004** | | **6.8000e-003** | **6.8000e-003** | | **6.8000e-003** | **6.8000e-003** | **0.0000** | **24.5112** | **24.5112** | **1.4700e-003** | **0.0000** | **24.5479** |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 3.6 Architectural Coating - 2023

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 2.1800e-003 | 1.6100e-003 | 0.0210 | 6.0000e-005 | 4.8200e-003 | 4.0000e-005 | 4.8600e-003 | 1.3300e-003 | 3.0000e-005 | 1.3600e-003 | 0.0000 | 5.6169 | 5.6169 | 1.4000e-004 | 1.5000e-004 | 5.6649 |
| **Total** | **2.1800e-003** | **1.6100e-003** | **0.0210** | **6.0000e-005** | **4.8200e-003** | **4.0000e-005** | **4.8600e-003** | **1.3300e-003** | **3.0000e-005** | **1.3600e-003** | **0.0000** | **5.6169** | **5.6169** | **1.4000e-004** | **1.5000e-004** | **5.6649** |

## 3.6 Architectural Coating - 2024

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Archit. Coating | 0.0249 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 2.5300e-003 | 0.0171 | 0.0253 | 4.0000e-005 | | 8.5000e-004 | 8.5000e-004 | | 8.5000e-004 | 8.5000e-004 | 0.0000 | 3.5746 | 3.5746 | 2.0000e-004 | 0.0000 | 3.5796 |
| **Total** | **0.0274** | **0.0171** | **0.0253** | **4.0000e-005** | | **8.5000e-004** | **8.5000e-004** | | **8.5000e-004** | **8.5000e-004** | **0.0000** | **3.5746** | **3.5746** | **2.0000e-004** | **0.0000** | **3.5796** |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 3.6 Architectural Coating - 2024

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 3.0000e-004 | 2.1000e-004 | 2.8700e-003 | 1.0000e-005 | 1.0800e-003 | 0.0000 | 1.0800e-003 | 2.9000e-004 | 0.0000 | 2.9000e-004 | 0.0000 | 0.7932 | 0.7932 | 2.0000e-005 | 2.0000e-005 | 0.7997 |
| **Total** | **3.0000e-004** | **2.1000e-004** | **2.8700e-003** | **1.0000e-005** | **1.0800e-003** | **0.0000** | **1.0800e-003** | **2.9000e-004** | **0.0000** | **2.9000e-004** | **0.0000** | **0.7932** | **0.7932** | **2.0000e-005** | **2.0000e-005** | **0.7997** |

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Archit. Coating | 0.0249 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 2.5300e-003 | 0.0171 | 0.0253 | 4.0000e-005 | | 8.5000e-004 | 8.5000e-004 | | 8.5000e-004 | 8.5000e-004 | 0.0000 | 3.5746 | 3.5746 | 2.0000e-004 | 0.0000 | 3.5796 |
| **Total** | **0.0274** | **0.0171** | **0.0253** | **4.0000e-005** | | **8.5000e-004** | **8.5000e-004** | | **8.5000e-004** | **8.5000e-004** | **0.0000** | **3.5746** | **3.5746** | **2.0000e-004** | **0.0000** | **3.5796** |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 3.6 Architectural Coating - 2024

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 3.0000e-004 | 2.1000e-004 | 2.8700e-003 | 1.0000e-005 | 7.0000e-004 | 0.0000 | 7.1000e-004 | 1.9000e-004 | 0.0000 | 2.0000e-004 | 0.0000 | 0.7932 | 0.7932 | 2.0000e-005 | 2.0000e-005 | 0.7997 |
| **Total** | **3.0000e-004** | **2.1000e-004** | **2.8700e-003** | **1.0000e-005** | **7.0000e-004** | **0.0000** | **7.1000e-004** | **1.9000e-004** | **0.0000** | **2.0000e-004** | **0.0000** | **0.7932** | **0.7932** | **2.0000e-005** | **2.0000e-005** | **0.7997** |

# 4.0 Operational Detail - Mobile

## 4.1 Mitigation Measures Mobile

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Mitigated | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Unmitigated | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

## 4.2 Trip Summary Information

| | Average Daily Trip Rate | | | Unmitigated | Mitigated |
|---|---|---|---|---|---|
| Land Use | Weekday | Saturday | Sunday | Annual VMT | Annual VMT |
| Health Club | 0.00 | 0.00 | 0.00 | | |
| High School | 0.00 | 0.00 | 0.00 | | |
| Other Non-Asphalt Surfaces | 0.00 | 0.00 | 0.00 | | |
| Other Non-Asphalt Surfaces | 0.00 | 0.00 | 0.00 | | |
| Total | 0.00 | 0.00 | 0.00 | | |

## 4.3 Trip Type Information

| | Miles | | | Trip % | | | Trip Purpose % | | |
|---|---|---|---|---|---|---|---|---|---|
| Land Use | H-W or C-W | H-S or C-C | H-O or C-NW | H-W or C-W | H-S or C-C | H-O or C-NW | Primary | Diverted | Pass-by |
| Health Club | 16.60 | 8.40 | 6.90 | 16.90 | 64.10 | 19.00 | 52 | 39 | 9 |
| High School | 16.60 | 8.40 | 6.90 | 77.80 | 17.20 | 5.00 | 75 | 19 | 6 |
| Other Non-Asphalt Surfaces | 16.60 | 8.40 | 6.90 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 |
| Other Non-Asphalt Surfaces | 16.60 | 8.40 | 6.90 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 |

## 4.4 Fleet Mix

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

| Land Use | LDA | LDT1 | LDT2 | MDV | LHD1 | LHD2 | MHD | HHD | OBUS | UBUS | MCY | SBUS | MH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Health Club | 0.537845 | 0.056225 | 0.173186 | 0.138405 | 0.025906 | 0.007191 | 0.011447 | 0.018769 | 0.000611 | 0.000309 | 0.023821 | 0.001097 | 0.005189 |
| High School | 0.537845 | 0.056225 | 0.173186 | 0.138405 | 0.025906 | 0.007191 | 0.011447 | 0.018769 | 0.000611 | 0.000309 | 0.023821 | 0.001097 | 0.005189 |
| Other Non-Asphalt Surfaces | 0.537845 | 0.056225 | 0.173186 | 0.138405 | 0.025906 | 0.007191 | 0.011447 | 0.018769 | 0.000611 | 0.000309 | 0.023821 | 0.001097 | 0.005189 |

## 5.0 Energy Detail

Historical Energy Use: N

### 5.1 Mitigation Measures Energy

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Electricity Mitigated | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 63.0459 | 63.0459 | 5.3200e-003 | 6.5000e-004 | 63.3711 |
| Electricity Unmitigated | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 63.0459 | 63.0459 | 5.3200e-003 | 6.5000e-004 | 63.3711 |
| NaturalGas Mitigated | 4.9700e-003 | 0.0452 | 0.0379 | 2.7000e-004 | | 3.4300e-003 | 3.4300e-003 | | 3.4300e-003 | 3.4300e-003 | 0.0000 | 49.1736 | 49.1736 | 9.4000e-004 | 9.0000e-004 | 49.4658 |
| NaturalGas Unmitigated | 4.9700e-003 | 0.0452 | 0.0379 | 2.7000e-004 | | 3.4300e-003 | 3.4300e-003 | | 3.4300e-003 | 3.4300e-003 | 0.0000 | 49.1736 | 49.1736 | 9.4000e-004 | 9.0000e-004 | 49.4658 |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 5.2 Energy by Land Use - NaturalGas

**Unmitigated**

| | NaturalGas Use | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Land Use | kBTU/yr | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Health Club | 775920 | 4.1800e-003 | 0.0380 | 0.0320 | 2.3000e-004 | | 2.8900e-003 | 2.8900e-003 | | 2.8900e-003 | 2.8900e-003 | 0.0000 | 41.4061 | 41.4061 | 7.9000e-004 | 7.6000e-004 | 41.6521 |
| High School | 145558 | 7.8000e-004 | 7.1400e-003 | 5.9900e-003 | 4.0000e-005 | | 5.4000e-004 | 5.4000e-004 | | 5.4000e-004 | 5.4000e-004 | 0.0000 | 7.7675 | 7.7675 | 1.5000e-004 | 1.4000e-004 | 7.8137 |
| Other Non-Asphalt Surfaces | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | | **4.9600e-003** | **0.0452** | **0.0379** | **2.7000e-004** | | **3.4300e-003** | **3.4300e-003** | | **3.4300e-003** | **3.4300e-003** | **0.0000** | **49.1736** | **49.1736** | **9.4000e-004** | **9.0000e-004** | **49.4658** |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 5.2 Energy by Land Use - NaturalGas

**Mitigated**

| | NaturalGas Use | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Land Use | kBTU/yr | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Health Club | 775920 | 4.1800e-003 | 0.0380 | 0.0320 | 2.3000e-004 | | 2.8900e-003 | 2.8900e-003 | | 2.8900e-003 | 2.8900e-003 | 0.0000 | 41.4061 | 41.4061 | 7.9000e-004 | 7.6000e-004 | 41.6521 |
| High School | 145558 | 7.8000e-004 | 7.1400e-003 | 5.9900e-003 | 4.0000e-005 | | 5.4000e-004 | 5.4000e-004 | | 5.4000e-004 | 5.4000e-004 | 0.0000 | 7.7675 | 7.7675 | 1.5000e-004 | 1.4000e-004 | 7.8137 |
| Other Non-Asphalt Surfaces | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | | **4.9600e-003** | **0.0452** | **0.0379** | **2.7000e-004** | | **3.4300e-003** | **3.4300e-003** | | **3.4300e-003** | **3.4300e-003** | **0.0000** | **49.1736** | **49.1736** | **9.4000e-004** | **9.0000e-004** | **49.4658** |

## 5.3 Energy by Land Use - Electricity

**Unmitigated**

| | Electricity Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | kWh/yr | MT/yr | | | |
| Health Club | 238080 | 42.2224 | 3.5600e-003 | 4.3000e-004 | 42.4403 |
| High School | 117418 | 20.8235 | 1.7600e-003 | 2.1000e-004 | 20.9309 |
| Other Non-Asphalt Surfaces | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | | **63.0459** | **5.3200e-003** | **6.4000e-004** | **63.3712** |

## 5.3 Energy by Land Use - Electricity

**Mitigated**

| | Electricity Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | kWh/yr | MT/yr | | | |
| Health Club | 238080 | 42.2224 | 3.5600e-003 | 4.3000e-004 | 42.4403 |
| High School | 117418 | 20.8235 | 1.7600e-003 | 2.1000e-004 | 20.9309 |
| Other Non-Asphalt Surfaces | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | | **63.0459** | **5.3200e-003** | **6.4000e-004** | **63.3712** |

# 6.0 Area Detail

## 6.1 Mitigation Measures Area

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Mitigated | 0.1698 | 0.0000 | 5.3000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 1.0400e-003 | 1.0400e-003 | 0.0000 | 0.0000 | 1.1100e-003 |
| Unmitigated | 0.1698 | 0.0000 | 5.3000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 1.0400e-003 | 1.0400e-003 | 0.0000 | 0.0000 | 1.1100e-003 |

## 6.2 Area by SubCategory

**Unmitigated**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SubCategory | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Architectural Coating | 0.0195 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Consumer Products | 0.1502 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Landscaping | 5.0000e-005 | 0.0000 | 5.3000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 1.0400e-003 | 1.0400e-003 | 0.0000 | 0.0000 | 1.1100e-003 |
| **Total** | **0.1698** | **0.0000** | **5.3000e-004** | **0.0000** | | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | **0.0000** | **1.0400e-003** | **1.0400e-003** | **0.0000** | **0.0000** | **1.1100e-003** |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

## 6.2 Area by SubCategory

**Mitigated**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SubCategory | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Architectural Coating | 0.0195 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Consumer Products | 0.1502 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Landscaping | 5.0000e-005 | 0.0000 | 5.3000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 1.0400e-003 | 1.0400e-003 | 0.0000 | 0.0000 | 1.1100e-003 |
| **Total** | **0.1698** | **0.0000** | **5.3000e-004** | **0.0000** | | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | **0.0000** | **1.0400e-003** | **1.0400e-003** | **0.0000** | **0.0000** | **1.1100e-003** |

# 7.0 Water Detail

## 7.1 Mitigation Measures Water

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

| | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|
| Category | MT/yr | | | |
| Mitigated | 9.7209 | 0.0651 | 1.6100e-003 | 11.8302 |
| Unmitigated | 9.7209 | 0.0651 | 1.6100e-003 | 11.8302 |

## 7.2 Water by Land Use

**Unmitigated**

| | Indoor/Outdoor Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | Mgal | MT/yr | | | |
| Health Club | 1.41944 / 0.869977 | 5.4422 | 0.0467 | 1.1400e-003 | 6.9497 |
| High School | 0.556178 / 1.43017 | 4.2787 | 0.0185 | 4.7000e-004 | 4.8804 |
| Other Non-Asphalt Surfaces | 0 / 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | | **9.7209** | **0.0651** | **1.6100e-003** | **11.8302** |

## 7.2 Water by Land Use

**Mitigated**

| | Indoor/Outdoor Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | Mgal | MT/yr | | | |
| Health Club | 1.41944 / 0.869977 | 5.4422 | 0.0467 | 1.1400e-003 | 6.9497 |
| High School | 0.556178 / 1.43017 | 4.2787 | 0.0185 | 4.7000e-004 | 4.8804 |
| Other Non-Asphalt Surfaces | 0 / 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | | **9.7209** | **0.0651** | **1.6100e-003** | **11.8302** |

# 8.0 Waste Detail

## 8.1 Mitigation Measures Waste

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**Category/Year**

| | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|
| | MT/yr | | | |
| Mitigated | 32.1903 | 1.9024 | 0.0000 | 79.7501 |
| Unmitigated | 32.1903 | 1.9024 | 0.0000 | 79.7501 |

## 8.2 Waste by Land Use

**Unmitigated**

| | Waste Disposed | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | tons | MT/yr | | | |
| Health Club | 136.8 | 27.7692 | 1.6411 | 0.0000 | 68.7969 |
| High School | 21.78 | 4.4211 | 0.2613 | 0.0000 | 10.9532 |
| Other Non-Asphalt Surfaces | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | | **32.1903** | **1.9024** | **0.0000** | **79.7501** |

## 8.2 Waste by Land Use

**Mitigated**

| | Waste Disposed | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | tons | MT/yr | | | |
| Health Club | 136.8 | 27.7692 | 1.6411 | 0.0000 | 68.7969 |
| High School | 21.78 | 4.4211 | 0.2613 | 0.0000 | 10.9532 |
| Other Non-Asphalt Surfaces | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | | **32.1903** | **1.9024** | **0.0000** | **79.7501** |

## 9.0 Operational Offroad

| Equipment Type | Number | Hours/Day | Days/Year | Horse Power | Load Factor | Fuel Type |
|---|---|---|---|---|---|---|

## 10.0 Stationary Equipment

**Fire Pumps and Emergency Generators**

| Equipment Type | Number | Hours/Day | Hours/Year | Horse Power | Load Factor | Fuel Type |
|---|---|---|---|---|---|---|

**Boilers**

| Equipment Type | Number | Heat Input/Day | Heat Input/Year | Boiler Rating | Fuel Type |
|---|---|---|---|---|---|

**User Defined Equipment**

| Equipment Type | Number |
|---|---|

## 11.0 Vegetation

# Appendices

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# Appendix B Noise Impact Assessment

# Noise Impact Assessment
# for the
# John W North School Modernization Project

## City of Riverside, California

**Prepared For:**

Placeworks
3 MacArthur Place, Suite 1100
Santa Ana, CA 92707

**Prepared By:**

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

**June 2022**

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**ATTACHMENTS**

Attachment A - Baseline (Existing) Noise Measurements – Project Site and Vicinity

Attachment B – Federal Highway Administration Roadway Construction Noise Outputs

## LIST OF ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| ANSI | American National Standards Institute |
| Caltrans | California Department of Transportation |
| CNEL | Community Noise Equivalent Level |
| dB | Decibel |
| dBA | Decibel is A-weighted |
| FHWA | Federal Highway Administration |
| FTA | Federal Transit Administration |
| Hz | Hertz |
| $L_{dn}$ | Day-night average sound level |
| $L_{eq}$ | Measure of ambient noise |
| $L_{max}$ | The maximum A-weighted noise level during the measurement period. |
| $L_{min}$ | The minimum A-weighted noise level during the measurement period. |
| NIOSH | National Institute for Occupational Safety and Health |
| OPR | Office of Planning and Research |
| OSHA | Federal Occupational Safety and Health Administration |
| PPV | Peak particle velocity |
| Project | John W North High School Modernization Project |
| RCNM | Roadway Construction Noise Model |
| RMS | Root mean square |
| STC | Sound Transmission Class |
| VdB | Vibration Velocity Level |
| WEAL | Western Electro-Acoustic Laboratory, Inc. |

# 1.0 INTRODUCTION

This report documents the results of a Noise Impact Assessment completed for the John W North High School Modernization Project (Project), which includes the modernization of seven buildings on campus, construction of a new 2-story classroom building and a 900-seat gym. This report was prepared as a comparison of predicted Project noise levels to noise standards promulgated by the City of Riverside General Plan Noise Element and Municipal Code. The purpose of this report is to estimate Project-generated noise and to determine the level of impact the Project would have on the environment.

## 1.1 Project Location

The existing John W North High School campus is located at 1550 3rd Street in the City of Riverside, California. Nestled between Chicago Avenue to the west, 3rd Street to the north, and W. Linden Street to the south, the school is predominately surrounded by commercial business parks and offices, though there is a residential neighborhood to the southwest. Interstate 215 traverses the area approximately 900 feet to the east.

## 1.2 Project Description

Riverside Unified School District proposes several improvements to the existing campus for the purposes of modernization (see Figure 1-1). Specifically, site improvements in the form of new sidewalks and landscaping are proposed both at the north and south entries of the campus. Additionally, four existing restrooms in two separate classroom buildings would be upgraded and modernized. Five existing classroom buildings would receive lighting and HVAC upgrades as would the campus library and administration building. An eight-room science classroom building would be constructed at the northeast corner of the campus, and a new, 900-seat gymnasium would be constructed near the middle of the campus, adjacent to the existing gymnasium and just north of the main parking area. Lastly, eight existing portable classroom buildings would be removed. The number of new classrooms is equal to the amount being removed and thus there would be no increase in student capacity.

# Option D

New Campus Entry & Site Improvements

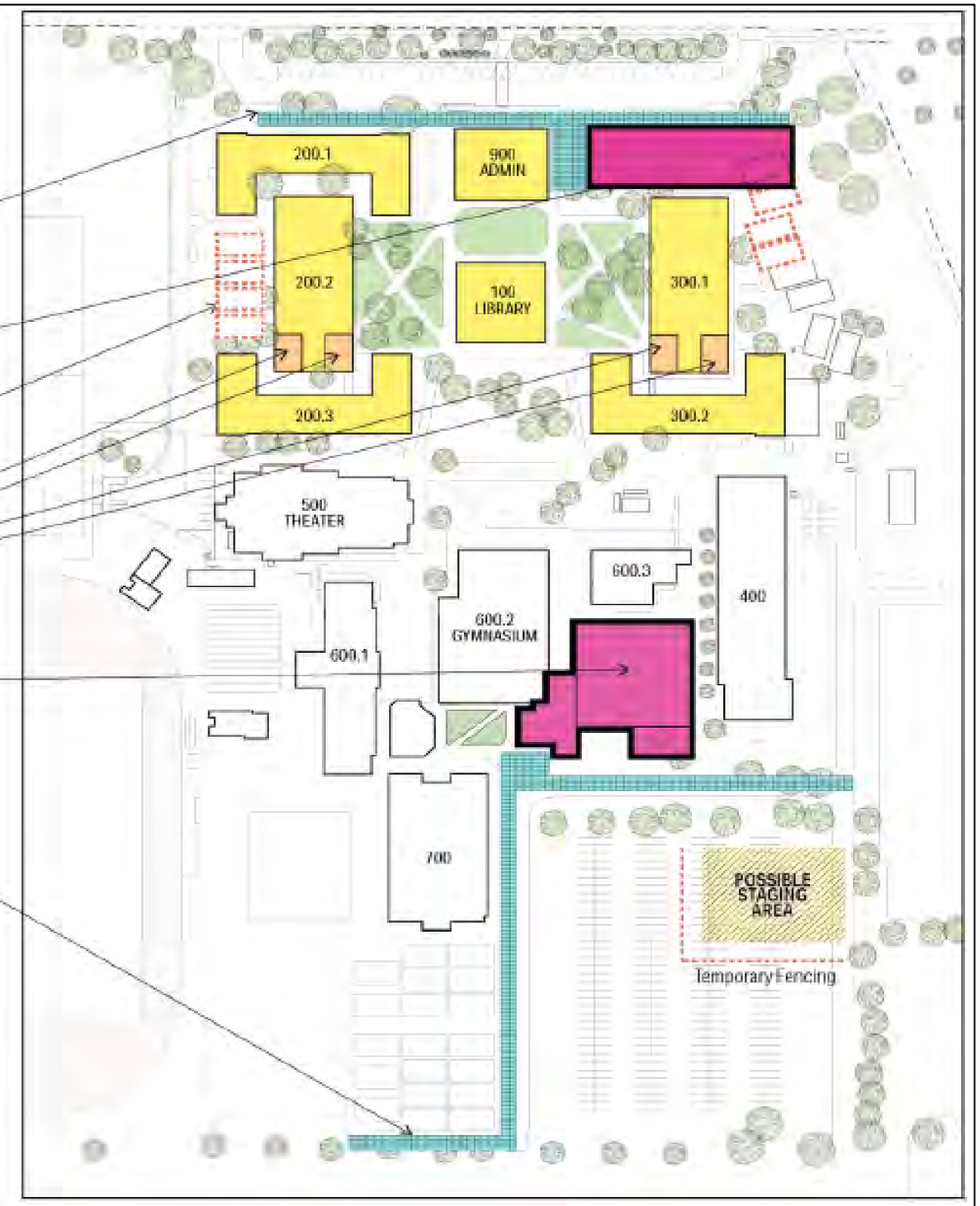
New 8 Science Classroom Building (2 Story)

Portables Removal (8) Typ.

Modernization of (4) Restrooms

New Gymnasium Lobby, Hall of Fame, Restrooms, Concessions, Ticket Booth, Team Rooms, Check-in Kiosk (900 Seats)

New Campus Entry & Site Improvements




Site & Campus Entry Improvements
HVAC & Lighting Upgrades
HVAC & Lighting Upgrades & Modernization
New Construction
Modernization
Light Modernization
Outdoor Seating & Shaded Gathering Areas

*Map Date: 5/27/2022*
*Photo (or Base) Source: Riverside Unified School District*

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**Figure 1-1. Site Plan**

*2022-120*

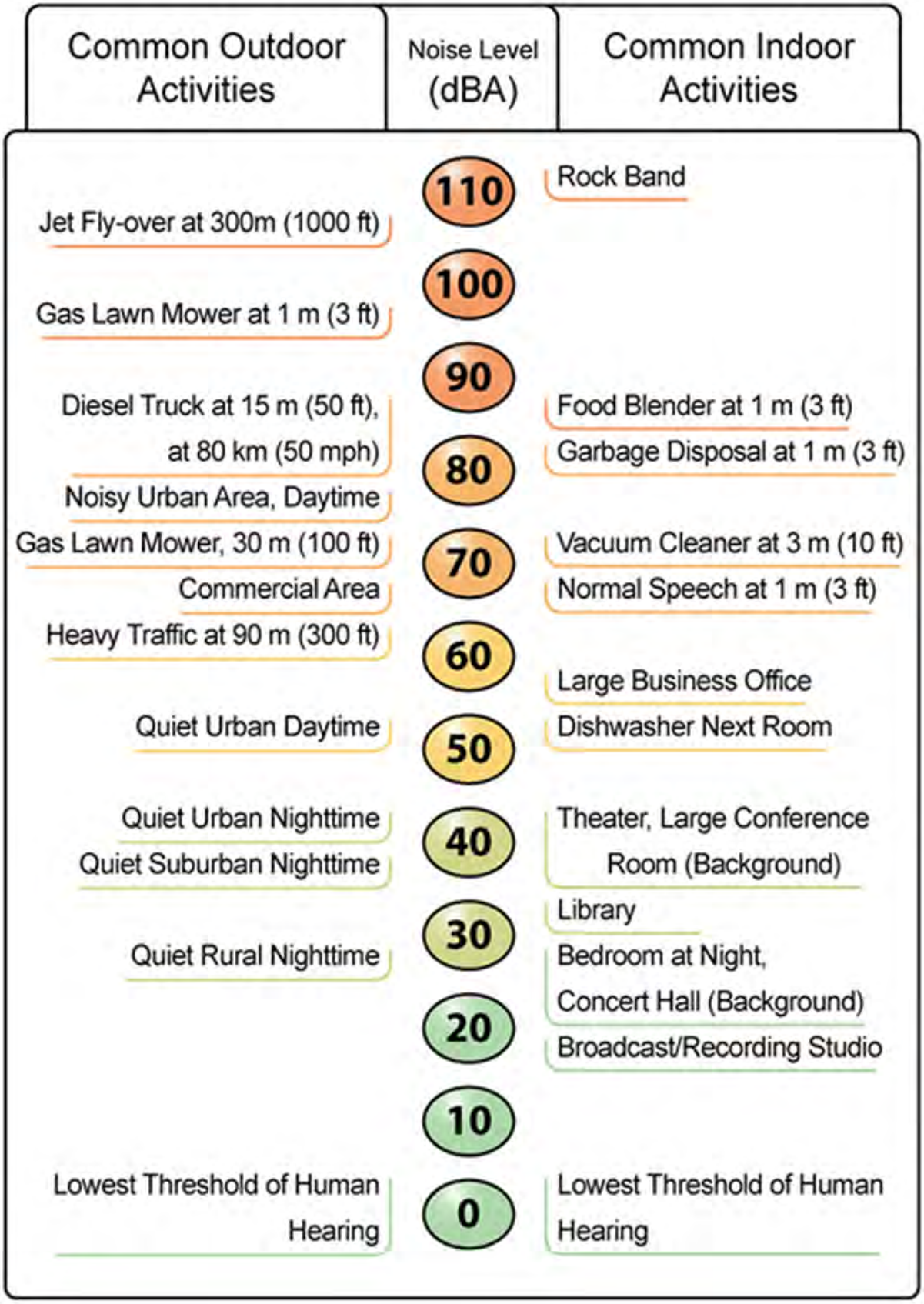
# 2.0 ENVIRONMENTAL NOISE AND GROUNDBORNE VIBRATION ANALYSIS

## 2.1 Fundamentals of Noise and Environmental Sound

### *2.1.1 Addition of Decibels*

The decibel (dB) scale is logarithmic, not linear, and therefore sound levels cannot be added or subtracted through ordinary arithmetic. Two sound levels 10 dB apart differ in acoustic energy by a factor of 10. When the standard logarithmic decibel is A-weighted (dBA), an increase of 10 dBA is generally perceived as a doubling in loudness. For example, a 70-dBA sound is half as loud as an 80-dBA sound and twice as loud as a 60-dBA sound. When two identical sources are each producing sound of the same loudness, the resulting sound level at a given distance would be three dB higher than one source under the same conditions (Federal Transit Administration [FTA] 2018). For example, a 65-dB source of sound, such as a truck, when joined by another 65 dB source results in a sound amplitude of 68 dB, not 130 dB (i.e., doubling the source strength increases the sound pressure by three dB). Under the decibel scale, three sources of equal loudness together would produce an increase of five dB.

Typical noise levels associated with common noise sources are depicted in Figure 2-1.




**Source: California Department of Transportation (Caltrans) 2020a**

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**Figure 2-1. Common Noise Levels**

John W North High School Modernization Project

### *2.1.2 Sound Propagation and Attenuation*

Noise can be generated by a number of sources, including mobile sources such as automobiles, trucks and airplanes, and stationary sources such as construction sites, machinery, and industrial operations. Sound spreads (propagates) uniformly outward in a spherical pattern, and the sound level decreases (attenuates) at a rate of approximately 6 dB (dBA) for each doubling of distance from a stationary or point source (FHWA 2017). Sound from a line source, such as a highway, propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of approximately 3 dBA for each doubling of distance from a line source, such as a roadway, depending on ground surface characteristics (Federal Highway Administration [FHWA] 2017). No excess attenuation is assumed for hard surfaces like a parking lot or a body of water. Soft surfaces, such as soft dirt or grass, can absorb sound, so an excess ground-attenuation value of 1.5 dBA per doubling of distance is normally assumed. For line sources, an overall attenuation rate of three dB per doubling of distance is assumed (FHWA 2011).

Noise levels may also be reduced by intervening structures; generally, a single row of detached buildings between the receptor and the noise source reduces the noise level by about five dBA (FHWA 2006), while a solid wall or berm generally reduces noise levels by 10 to 20 dBA (FHWA 2011). However, noise barriers or enclosures specifically designed to reduce site-specific construction noise can provide a sound reduction 35 dBA or greater (Western Electro-Acoustic Laboratory, Inc. [WEAL] 2000). To achieve the most potent noise-reducing effect, a noise enclosure/barrier must physically fit in the available space, must completely break the “line of sight” between the noise source and the receptors, must be free of degrading holes or gaps, and must not be flanked by nearby reflective surfaces. Noise barriers must be sizable enough to cover the entire noise source and extend lengthwise and vertically as far as feasibly possible to be most effective. The limiting factor for a noise barrier is not the component of noise transmitted through the material, but rather the amount of noise flanking around and over the barrier. In general, barriers contribute to decreasing noise levels only when the structure breaks the "line of sight" between the source and the receiver.

The manner in which older homes in California were constructed generally provides a reduction of exterior-to-interior noise levels of about 20 to 25 dBA with closed windows (Caltrans 2002). The exterior-to-interior reduction of newer residential units is generally 30 dBA or more (Harris Miller, Miller & Hanson Inc. [HMMH] 2006). Generally, in exterior noise environments ranging from 60 dBA Community Noise Equivalent Level (CNEL) to 65 dBA CNEL, interior noise levels can typically be maintained below 45 dBA, a typical residential interior noise standard, with the incorporation of an adequate forced air mechanical ventilation system in each residential building, and standard thermal-pane residential windows/doors with a minimum rating of Sound Transmission Class (STC) 28. (STC is an integer rating of how well a building partition attenuates airborne sound. In the U.S., it is widely used to rate interior partitions, ceilings, floors, doors, windows, and exterior wall configurations). In exterior noise environments of 65 dBA CNEL or greater, a combination of forced-air mechanical ventilation and sound-rated construction methods is often required to meet the interior noise level limit. Attaining the necessary noise reduction from exterior to interior spaces is readily achievable in noise environments less than 75 dBA CNEL with proper wall construction techniques following California Building Code methods, the selections of proper windows and doors, and the incorporation of forced-air mechanical ventilation systems.

### *2.1.3 Noise Descriptors*

The decibel scale alone does not adequately characterize how humans perceive noise. The dominant frequencies of a sound have a substantial effect on the human response to that sound. Several rating scales have been developed to analyze the adverse effect of community noise on people. Because environmental noise fluctuates over time, these scales consider that the effect of noise on people is largely dependent on the total acoustical energy content of the noise, as well as the time of day when the noise occurs. The noise descriptors most often encountered when dealing with traffic, community, and environmental noise include the average hourly noise level (in $L_{eq}$) and the average daily noise levels/community noise equivalent level (in $L_{dn}$/CNEL). The $L_{eq}$ is a measure of ambient noise, while the $L_{dn}$ and CNEL are measures of community noise. Each is applicable to this analysis and defined as follows:

- **Equivalent Noise Level ($L_{eq}$)** is the average acoustic energy content of noise for a stated period of time. Thus, the $L_{eq}$ of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure. For evaluating community impacts, this rating scale does not vary, regardless of whether the noise occurs during the day or the night.
- **Day-Night Average ($L_{dn}$)** is a 24-hour average $L_{eq}$ with a 10-dBA "weighting" added to noise during the hours of 10:00 pm to 7:00 am to account for noise sensitivity in the nighttime. The logarithmic effect of these additions is that a 60 dBA 24-hour $L_{eq}$ would result in a measurement of 66.4 dBA $L_{dn}$.
- **Community Noise Equivalent Level (CNEL)** is a 24-hour average $L_{eq}$ with a 5-dBA weighting during the hours of 7:00 pm to 10:00 pm and a 10-dBA weighting added to noise during the hours of 10:00 pm to 7:00 am to account for noise sensitivity in the evening and nighttime, respectively.

Table 2-1 provides a list of other common acoustical descriptors.

**Table 2-1. Common Acoustical Descriptors**

| Descriptor | Definition |
|---|---|
| Decibel, dB | A unit describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure. The reference pressure for air is 20. |
| Sound Pressure Level | Sound pressure is the sound force per unit area, usually expressed in micropascals (or 20 micronewtons per square meter), where 1 pascal is the pressure resulting from a force of 1 newton exerted over an area of 1 square meter. The sound pressure level is expressed in decibels as 20 times the logarithm to the base 10 of the ratio between the pressures exerted by the sound to a reference sound pressure (e.g., 20 micropascals). Sound pressure level is the quantity that is directly measured by a sound level meter. |
| Frequency, Hertz (Hz) | The number of complete pressure fluctuations per second above and below atmospheric pressure. Normal human hearing is between 20 Hz and 20,000 Hz. Infrasonic sounds are below 20 Hz and ultrasonic sounds are above 20,000 Hz. |
| A-Weighted Sound Level, dBA | The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high-frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise. |
| Equivalent Noise Level, $L_{eq}$ | The average acoustic energy content of noise for a stated period of time. Thus, the $L_{eq}$ of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure. For evaluating community impacts, this rating scale does not vary, regardless of whether the noise occurs during the day or the night. |
| $L_{max}$, $L_{min}$ | The maximum and minimum A-weighted noise level during the measurement period. |
| $L_{01}$, $L_{10}$, $L_{50}$, $L_{90}$ | The A-weighted noise levels that are exceeded 1%, 10%, 50%, and 90% of the time during the measurement period. |
| Day/Night Noise Level, $L_{dn}$ or DNL | A 24-hour average $L_{eq}$ with a 10 dBA "weighting" added to noise during the hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity in the nighttime. The logarithmic effect of these additions is that a 60 dBA 24-hour $L_{eq}$ would result in a measurement of 66.4 dBA $L_{dn}$. |
| Community Noise Equivalent Level, CNEL | A 24-hour average $L_{eq}$ with a 5 dBA "weighting" during the hours of 7:00 p.m. to 10:00 p.m. and a 10 dBA "weighting" added to noise during the hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity in the evening and nighttime, respectively. The logarithmic effect of these additions is that a 60 dBA 24-hour $L_{eq}$ would result in a measurement of 66.7 dBA CNEL. |
| Ambient Noise Level | The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location. |
| Intrusive | That noise which intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends on its amplitude, duration, frequency, and time of occurrence and tonal or informational content, as well as the prevailing ambient noise level. |
| Decibel, dB | A unit describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure. The reference pressure for air is 20. |

The A-weighted decibel sound level scale gives greater weight to the frequencies of sound to which the human ear is most sensitive. Because sound levels can vary markedly over a short period of time, a method for describing either the average character of the sound or the statistical behavior of the variations must be utilized. Most commonly, environmental sounds are described in terms of an average level that has the same acoustical energy as the summation of all the time-varying events.

The scientific instrument used to measure noise is the sound level meter. Sound level meters can accurately measure environmental noise levels to within about ±1 dBA. Various computer models are used to predict environmental noise levels from sources, such as roadways and airports. The accuracy of the predicted models depends on the distance between the receptor and the noise source. Close to the noise source, the models are accurate to within about ±1 to 2 dBA.

### *2.1.4 Human Response to Noise*

The human response to environmental noise is subjective and varies considerably from individual to individual. Noise in the community has often been cited as a health problem, not in terms of actual physiological damage, such as hearing impairment, but in terms of inhibiting general well-being and contributing to undue stress and annoyance. The health effects of noise in the community arise from interference with human activities, including sleep, speech, recreation, and tasks that demand concentration or coordination. Hearing loss can occur at the highest noise intensity levels.

Noise environments and consequences of human activities are usually well represented by median noise levels during the day or night or over a 24-hour period. Environmental noise levels are generally considered low when the CNEL or $L_{dn}$ is below 60 dBA, moderate in the 60 to 70 dBA range, and high above 70 dBA. Examples of low daytime levels are isolated, natural settings with noise levels as low as 20 dBA and quiet, suburban, residential streets with noise levels around 40 dBA. Noise levels above 45 dBA at night can disrupt sleep. Examples of moderate-level noise environments are urban residential or semi-commercial areas (typically 55 to 60 dBA) and commercial locations (typically 60 dBA). People may consider louder environments adverse, but most will accept the higher levels associated with noisier urban residential or residential-commercial areas (60 to 75 dBA) or dense urban or industrial areas (65 to 80 dBA). Regarding increases in A-weighted noise levels (dBA), the following relationships should be noted in understanding this analysis:

- Except in carefully controlled laboratory experiments, a change of 1 dBA cannot be perceived by humans.
- Outside of the laboratory, a 3-dBA change is considered a just-perceivable difference.
- A change in level of at least 5 dBA is required before any noticeable change in community response would be expected. An increase of 5 dBA is typically considered substantial.
- A 10-dBA change is subjectively heard as an approximate doubling in loudness and would almost certainly cause an adverse change in community response.

### *2.1.5 Effects of Noise on People*

#### *2.1.5.1 Hearing Loss*

While physical damage to the ear from an intense noise impulse is rare, a degradation of auditory acuity can occur even within a community noise environment. Hearing loss occurs mainly due to chronic exposure to excessive noise but may be due to a single event such as an explosion. Natural hearing loss associated with aging may also be accelerated from chronic exposure to loud noise.

The Occupational Safety and Health Administration (OSHA) has a noise exposure standard that is set at the noise threshold where hearing loss may occur from long-term exposures. The maximum allowable level is 90 dBA averaged over eight hours. If the noise is above 90 dBA, the allowable exposure time is correspondingly shorter.

#### *2.1.5.2 Annoyance*

Attitude surveys are used for measuring the annoyance felt in a community for noises intruding into homes or affecting outdoor activity areas. In these surveys, it was determined that causes for annoyance include interference with speech, radio and television, house vibrations, and interference with sleep and rest. The $L_{dn}$ as a measure of noise has been found to provide a valid correlation of noise level and the percentage of people annoyed. People have been asked to judge the annoyance caused by aircraft noise and ground transportation noise. There continues to be disagreement about the relative annoyance of these different sources.

## 2.2 Fundamentals of Environmental Groundborne Vibration

### *2.2.1 Vibration Sources and Characteristics*

Sources of earthborne vibrations include natural phenomena (e.g., earthquakes, volcanic eruptions, sea waves, landslides) or manmade causes (explosions, machinery, traffic, trains, construction equipment, etc.). Vibration sources may be continuous (e.g., factory machinery) or transient (e.g., explosions).

Ground vibration consists of rapidly fluctuating motions or waves with an average motion of zero. Several different methods are typically used to quantify vibration amplitude. One is the peak particle velocity (PPV); another is the root mean square (RMS) velocity. The PPV is defined as the maximum instantaneous positive or negative peak of the vibration wave. The RMS velocity is defined as the average of the squared amplitude of the signal. The PPV and RMS vibration velocity amplitudes are used to evaluate human response to vibration.

PPV is generally accepted as the most appropriate descriptor for evaluating the potential for building damage. For human response, however, an average vibration amplitude is more appropriate because it takes time for the human body to respond to the excitation (the human body responds to an average vibration amplitude, not a peak amplitude). Because the average particle velocity over time is zero, the RMS amplitude is typically used to assess human response. The RMS value is the average of the amplitude squared over time, typically a 1- sec. period (FTA 2018).

Table 2-2 displays the reactions of people and the effects on buildings produced by continuous vibration levels. The annoyance levels shown in the table should be interpreted with care since vibration may be found to be annoying at much lower levels than those listed, depending on the level of activity or the sensitivity of the individual. To sensitive individuals, vibrations approaching the threshold of perception can be annoying. Low-level vibrations frequently cause irritating secondary vibration, such as a slight rattling of windows, doors, or stacked dishes. The rattling sound can give rise to exaggerated vibration complaints, even though there is very little risk of actual structural damage. In high-noise environments, which are more prevalent where groundborne vibration approaches perceptible levels, this rattling phenomenon may also be produced by loud airborne environmental noise causing induced vibration in exterior doors and windows.

Ground vibration can be a concern in instances where buildings shake, and substantial rumblings occur. However, it is unusual for vibration from typical urban sources such as buses and heavy trucks to be perceptible. For instance, heavy-duty trucks generally generate groundborne vibration velocity levels of 0.006 PPV at 50 feet under typical circumstances, which as identified in Table 2-2 is considered very unlikely to cause damage to buildings of any type. Common sources for groundborne vibration are planes, trains, and construction activities such as earth-moving which requires the use of heavy-duty earth moving equipment.

**Table 2-2. Human Reaction and Damage to Buildings for Continuous or Frequent Intermittent Vibration Levels**

| Peak Particle Velocity (inches/second) | Approximate Vibration Velocity Level (VdB) | Human Reaction | Effect on Buildings |
|---|---|---|---|
| 0.006–0.019 | 64–74 | Range of threshold of perception | Vibrations unlikely to cause damage of any type |
| 0.08 | 87 | Vibrations readily perceptible | Recommended upper level to which ruins and ancient monuments should be subjected |
| 0.1 | 92 | Level at which continuous vibrations may begin to annoy people, particularly those involved in vibration sensitive activities | Virtually no risk of architectural damage to normal buildings |
| 0.2 | 94 | Vibrations may begin to annoy people in buildings | Threshold at which there is a risk of architectural damage to normal dwellings |
| 0.4–0.6 | 98–104 | Vibrations considered unpleasant by people subjected to continuous vibrations and unacceptable to some people walking on bridges | Architectural damage and possibly minor structural damage |

Source: Caltrans 2020b

# 3.0 EXISTING ENVIRONMENTAL NOISE SETTING

## 3.1 Noise Sensitive Land Uses

Noise-sensitive land uses are generally considered to include those uses where noise exposure could result in health-related risks to individuals, as well as places where quiet is an essential element of their intended purpose. Residential dwellings are of primary concern because of the potential for increased and prolonged exposure of individuals to both interior and exterior noise levels. Additional land uses such as hospitals, historic sites, cemeteries, and certain recreation areas are considered sensitive to increases in exterior noise levels. Schools, churches, hotels, libraries, and other places where low interior noise levels are essential are also considered noise-sensitive land uses. The nearest existing noise-sensitive land use to the Project include existing classrooms on the school's campus (see Figure 1-1).

## 3.2 Existing Ambient Noise Environment

The American National Standards Institute (ANSI) Standard 12.9-2013/Part 3 "Quantities and Procedures for Description and Measurement of Environmental Sound – Part 3: Short-Term Measurements with an Observer Present" provides a table of approximate background sound levels in $L_{dn}$, daytime $L_{eq}$, and nighttime $L_{eq}$, based on land use and population density. The ANSI standard estimation divides land uses into six distinct categories. Descriptions of these land use categories, along with the typical daytime and nighttime levels, are provided in Table 3-1. At times, one could reasonably expect the occurrence of periods that are both louder and quieter than the levels listed in the table. ANSI notes, "*95% prediction interval [confidence interval] is on the order of +/- 10 dB*." The majority of the Project Limits would be considered ambient noise Category 2 or 3, due to the intermittent traffic conditions currently experienced.

**Table 3-1. ANSI Standard 12.9-2013/Part 3 A-weighted Sound Levels Corresponding to Land Use and Population Density**

| Category | Land Use | Description | People per Square Mile | Typical $L_{dn}$ | Daytime $L_{eq}$ | Nighttime $L_{eq}$ |
|---|---|---|---|---|---|---|
| 1 | Noisy Commercial & Industrial Areas and Very Noisy Residential Areas | Very heavy traffic conditions, such as in busy, downtown commercial areas; at intersections for mass transportation or other vehicles, including elevated trains, heavy motor trucks, and other heavy traffic; and at street corners where many motor buses and heavy trucks accelerate. | 63,840 | 67 dBA | 66 dBA | 58 dBA |
| 2 | Moderate Commercial & Industrial Areas and Noisy Residential Areas | Heavy traffic areas with conditions similar to Category 1, but with somewhat less traffic; routes of relatively heavy or fast automobile traffic, but where heavy truck traffic is not extremely dense. | 20,000 | 62 dBA | 61 dBA | 54 dBA |
| 3 | Quiet Commercial, Industrial Areas and Normal Urban & Noisy Suburban Residential Areas | Light traffic conditions where no mass-transportation vehicles and relatively few automobiles and trucks pass, and where these vehicles generally travel at moderate speeds; residential areas and commercial streets, and intersections, with little traffic, compose this category. | 6,384 | 57 dBA | 55 dBA | 49 dBA |
| 4 | Quiet Urban & Normal Suburban Residential Areas | These areas are similar to Category 3, but for this group, the background is either distant traffic or is unidentifiable; typically, the population density is one-third the density of Category 3. | 2,000 | 52 dBA | 50 dBA | 44 dBA |
| 5 | Quiet Residential Areas | These areas are isolated, far from significant sources of sound, and may be situated in shielded areas, such as a small wooded valley. | 638 | 47 dBA | 45 dBA | 39 dBA |
| 6 | Very Quiet Sparse Suburban or rural Residential Areas | These areas are similar to Category 4 but are usually in sparse suburban or rural areas; and, for this group, there are few if any nearby sources of sound. | 200 | 42 dBA | 40 dBA | 34 dBA |

Source: The American National Standards Institute (ANSI) 2013

### *3.2.1 Existing Ambient Noise Measurements*

The Project Site is developed land surrounded mainly by industrial and commercial land uses. In order to quantify existing ambient noise levels in the Project Area, ECORP Consulting, Inc. conducted three short-term noise measurements on the morning of June 8, 2022. These short-term noise measurements are representative of typical existing noise exposure within and immediately adjacent to the Project Site during the daytime (see Attachment A). The 15-minute measurements were taken between 10:00 a.m. and 10:53 a.m. The average noise levels of noise measured at each location are listed in Table 3-2.

**Table 3-2. Existing (Baseline) Noise Measurements**

| Location Number | Location | $L_{eq}$ dBA | $L_{min}$ dBA | $L_{max}$ dBA | Time |
|---|---|---|---|---|---|
| 1 | Southwest Corner of Linden Street and Chicago Avenue | **68.2 dBA** | 49.3 dBA | 83.0 dBA | 10:00 a.m. – 10:15 a.m. |
| 2 | On Sidewalk North of Patterson Park, South of Linden Street | **60.8 dBA** | 43.0 dBA | 78.1 dBA | 10:20 a.m. – 10:35 a.m. |
| 3 | Southeast Intersection of 3rd Street and Anderson Avenue | **63.5 dBA** | 45.3 dBA | 86.1 dBA | 10:38 a.m. – 10:53 a.m. |

Source: Measurements were taken by ECORP with a Larson Davis SoundExpert LxT precision sound level meter, which satisfies the American National Standards Institute for general environmental noise measurement instrumentation. Prior to the measurements, the SoundExpert LxT sound level meter was calibrated according to manufacturer specifications with a Larson Davis CAL200 Class I Calibrator. See Attachment A for noise measurement outputs.

Notes: $L_{eq}$ is the average acoustic energy content of noise for a stated period of time. Thus, the $L_{eq}$ of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure. $L_{min}$ is the minimum noise level during the measurement period and $L_{max}$ is the maximum noise level during the measurement period.

As shown, the existing traffic-generated noise level on Project-vicinity roadways currently ranges from 60.8 to 68.2 dBA $L_{eq}$. The most common noise in the Project vicinity is produced by automotive vehicles (e.g., cars, trucks, buses, motorcycles) on area roadways.

# 4.0 REGULATORY FRAMEWORK

## 4.1 Federal

### *4.1.1 Occupational Safety and Health Act of 1970*

OSHA regulates onsite noise levels and protects workers from occupational noise exposure. To protect hearing, worker noise exposure is limited to 90 decibels with A-weighting (dBA) over an eight-hour work shift (29 Code of Regulations 1910.95). Employers are required to develop a hearing conservation program when employees are exposed to noise levels exceeding 85 dBA. These programs include provision of hearing protection devices and testing employees for hearing loss on a periodic basis.

### *4.1.2 National Institute of Occupational Safety and Health*

A division of the US Department of Health and Human Services, the National Institute for Occupational Safety and Health (NIOSH) has established a construction-related noise level threshold as identified in the Criteria for a Recommended Standard: Occupational Noise Exposure prepared in 1998. NIOSH identifies a noise level threshold based on the duration of exposure to the source. The NIOSH construction-related noise level threshold starts at 85 dBA for more than 8 hours per day; for every 3-dBA increase, the exposure time is cut in half. This reduction results in noise level thresholds of 88 dBA for more than 4 hours per day, 92 dBA for more than 1 hour per day, 96 dBA for more than 30 minutes per day, and up to 100 dBA for more than 15 minutes per day. The intention of these thresholds is to protect people from hearing losses resulting from occupational noise exposure.

## 4.2 State

### *4.2.1 State of California General Plan Guidelines*

The State of California regulates vehicular and freeway noise affecting classrooms, sets standards for sound transmission and occupational noise control, and identifies noise insulation standards and airport noise/land-use compatibility criteria. The State of California General Plan Guidelines (State of California 2003), published by the Governor's Office of Planning and Research (OPR), also provides guidance for the acceptability of projects within specific CNEL/$L_{dn}$ contours. The guidelines also present adjustment factors that may be used in order to arrive at noise acceptability standards that reflect the noise control goals of the community, the particular community's sensitivity to noise, and the community's assessment of the relative importance of noise pollution.

### *4.2.2 State Office of Planning and Research Noise Element Guidelines*

The State OPR *Noise Element Guidelines* include recommended exterior and interior noise level standards for local jurisdictions to identify and prevent the creation of incompatible land uses due to noise. The Noise Element Guidelines contain a Land Use Compatibility table that describes the compatibility of various land uses with a range of environmental noise levels in terms of the CNEL.

### *4.2.3 California Department of Transportation*

In 2020, the California Department of Transportation (Caltrans) published the Transportation and Construction Vibration Manual (Caltrans 2020b). The manual provides general guidance on vibration issues associated with the construction and operation of projects concerning human perception and structural damage. Table 2-2 above presents recommendations for levels of vibration that could result in damage to structures exposed to continuous vibration.

## 4.3 Local

### *4.3.1 City of Riverside Municipal Code*

The City of Riverside's regulations with respect to noise are included in Title 7, *Noise Control*, of the City Code. Chapter 7.25, *Nuisance Exterior Sound Level Limits*, presents exterior noise standards for the various land use categories. These standards are presented in Table 4-1.

**Table 4-1. City of Riverside Exterior Noise Standards**

| Land Use Category | Time Period | Noise Level |
|---|---|---|
| Residential | Nighttime (10:00 p.m.-7:00 a.m.) | 45 dBA |
| | Daytime (7:00 a.m.-10:00 p.m.) | 55 dBA |
| Office/Commercial | Anytime | 65 dBA |
| Industrial | Anytime | 70 dBA |
| Community Support | Anytime | 60 dBA |
| Public Recreation Facility | Anytime | 65 dBA |
| Nonurban | Anytime | 70 dBA |

Source: City of Riverside Municipal Code

Chapter 7.30, *Nuisance Interiors Sound Level Limits,* presents interior noise standards for the various land use categories. These standards are presented in Table 4-2 below.

**Table 4-2. City of Riverside Interior Noise Standards**

| Land Use Category | Time Period | Noise Level |
|---|---|---|
| Residential | Nighttime (10:00 p.m.-7:00 a.m.) | 45 dBA |
| | Daytime (7:00 a.m.-10:00 p.m.) | 55 dBA |
| School | 7:00 a.m. to 10:00 p.m. (while school is in session) | 45 dBA |
| Hospital | Anytime | 45 dBA |

Source: City of Riverside Municipal Code.

Additionally, Chapter 7.35 of the Riverside Municipal Code, *General Noise Regulations*, states that noise sources associated with construction, repair, remodeling, or grading of any real property is exempt; provided a permit has been obtained from the City as required; and provided said activities do not take place between the hours of 7:00 p.m. and 7:00 a.m. on weekdays, between the hours of 5:00 p.m. and 8:00 a.m. on Saturdays, or at any time on Sunday or a federal holiday.

# 5.0 Impact Assessment

## 5.1 Thresholds of Significance

The impact analysis provided below is based on the following California Environmental Quality Act Guidelines Appendix G thresholds of significance. The Project would result in a significant noise-related impact if it would result in the:

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

2) Generation of excessive groundborne vibration or groundborne noise levels.

3) 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.

For purposes of this analysis, the City noise standards were used for evaluation of Project-related noise impacts. As previously stated, Chapter 7.35 Chapter 7.35 of the Riverside Municipal Code, *General Noise Regulations*, states that noise sources associated with construction, repair, remodeling, or grading of any real property is exempt; provided a permit has been obtained from the City as required; and provided said activities do not take place between the hours of 7:00 p.m. and 7:00 a.m. on weekdays, between the hours of 5:00 p.m. and 8:00 a.m. on Saturdays, or at any time on Sunday or a federal holiday. In order to evaluate the potential health-related effects (physical damage to the ear and mental damage from lack of sleep or focus) from construction noise, construction equipment noise levels are calculated and compared against the construction-related noise level threshold established in the Criteria for a Recommended Standard: Occupational Noise Exposure prepared in 1998 by NIOSH, described above.

## 5.2 Methodology

This analysis of the existing and future noise environments is based on empirical observations. Predicted construction noise levels were calculated utilizing the FHWA's Roadway Construction Noise Model (2006). Groundborne vibration levels associated with construction-related activities for the Project have been evaluated utilizing typical groundborne vibration levels associated with construction equipment. Potential groundborne vibration impacts related to structural damage and human annoyance were evaluated, taking into account the distance from construction activities to nearby structures and typically applied criteria for structural damage and human annoyance.

## 5.3 Impact Analysis

### *5.3.1 Would the Project Result in Short-Term Construction-Generated Noise in Excess of City Standards?*

*Onsite Construction Noise*

Construction noise associated with the Proposed Project would be temporary and would vary depending on the specific nature of the activities being performed. Noise generated would primarily be associated with the operation of off-road equipment for onsite construction activities as well as construction vehicle traffic on area roadways. Construction noise typically occurs intermittently and varies depending on the nature or phase of construction (e.g., site preparation, excavation, paving). Noise generated by construction equipment, including earth movers, pile drivers, and portable generators, can reach high levels. Typical operating cycles for these types of construction equipment may involve one or two minutes of full power operation followed by three to four minutes at lower power settings. Other primary sources of acoustical disturbance would be random incidents, which would last less than one minute (such as dropping large pieces of equipment or the hydraulic movement of machinery lifts). During construction, exterior noise levels could negatively affect sensitive land uses in the vicinity of the construction site.

The nearest existing noise-sensitive land uses to the Project Site include existing classrooms on the John W. North High School campus, specifically the 300.1 building, located approximately 50 feet south from where construction would occur. As previously stated, Chapter 7.35 of the Riverside Municipal Code, *General Noise Regulations*, states that noise sources associated with construction, repair, remodeling, or grading of any real property is exempt; provided a permit has been obtained from the City as required; and provided said activities do not take place between the hours of 7:00 p.m. and 7:00 a.m. on weekdays, between the hours of 5:00 p.m. and 8:00 a.m. on Saturdays, or at any time on Sunday or a federal holiday.

To estimate the worst-case onsite construction noise levels that may occur at the nearest noise-sensitive receptors and in order to evaluate the potential health-related effects (physical damage to the ear) from construction noise, the construction equipment noise levels were calculated using the Roadway Noise Construction Model and compared against the construction-related noise level threshold established in the Criteria for a Recommended Standard: Occupational Noise Exposure prepared in 1998 by NIOSH. A division of the US Department of Health and Human Services, NIOSH identifies a noise level threshold based on the duration of exposure to the source. The NIOSH construction-related noise level threshold starts at 85 dBA for more than 8 hours per day; for every 3-dBA increase, the exposure time is cut in half. This reduction results in noise level thresholds of 88 dBA for more than 4 hours per day, 92 dBA for more than 1 hour per day, 96 dBA for more than 30 minutes per day, and up to 100 dBA for more than 15 minutes per day. For the purposes of this analysis, the lowest, more conservative threshold of 85 dBA $L_{eq}$ is used as an acceptable threshold for construction noise at the nearby sensitive receptors.

It is acknowledged that the majority of construction equipment is not situated at any one location during construction activities, but rather spread throughout the linear Project Limits and at various distances from sensitive receptors. Therefore, this analysis employs the FTA guidance for calculating construction noise, which recommends measuring construction noise produced by all construction equipment from the center

of the Project Site (FTA 2018), which in this case is approximately 50 feet from the nearest sensitive receptor, the 300.1 building on the school's campus, when school is in session. The anticipated short-term construction noise levels generated for the necessary equipment is presented in Table 5-1.

**Table 5-1. Construction Average (dBA) Noise Levels at Nearest Receptors**

| Equipment | Estimated Exterior Construction Noise Level @ Closest Noise Sensitive Receptor | Construction Noise Standard (dBA $L_{eq}$) | Exceeds Standards? |
|---|---|---|---|
| **Site Preparation** | | | |
| Combined Site Preparation Equipment | 85.0 dBA | *85* | **Yes** |
| **Grading** | | | |
| Combined Grading Equipment | 85.9 dBA | *85* | **Yes** |
| **Building Construction, Paving, and Architectural Coating** | | | |
| Combined Building Construction, Paving, and Architectural Coating Equipment | 88.9 dBA | *85* | **Yes** |

Source: Construction noise levels were calculated by ECORP Consulting using the FHWA Roadway Noise Construction Model (FHWA 2006). Refer to Attachment B for Model Data Outputs.

Notes: Construction equipment used during construction derived from CalEEMod 2020.4.0. CalEEMod is designed to calculate air pollutant emissions from construction activity and contains default construction equipment and usage parameters for typical construction projects based on several construction surveys conducted in order to identify such parameters. Consistent with FTA recommendations for calculating construction noise, construction noise was measured from the center of the Project Site (FTA 2018), which is 50 feet from the nearest receptor. Construction, paving and painting are assumed to occur simultaneously.

$L_{eq}$ = The equivalent energy noise level, is the average acoustic energy content of noise for a stated period of time. Thus, the $L_{eq}$ of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure. For evaluating community impacts, this rating scale does not vary, regardless of whether the noise occurs during the day or the night.

As shown in Table 5-1, Project construction has the potential to exceed the construction noise standard of 85 dBA construction noise standard during the site preparation, grading and building construction activities. Mitigation is required to reduce construction noise to levels below this threshold. Noise barriers or enclosures can provide a sound reduction of 35 dBA or greater (WEAL 2000). To be effective, a noise enclosure/barrier must physically fit in the available space, must completely break the line of sight between the noise source and the receptors, must be free of degrading holes or gaps, and must not be flanked by nearby reflective surfaces. Noise barriers must be sizable enough to cover the entire noise source and extend lengthwise and vertically as far as feasibly possible to be most effective. The limiting factor for a noise barrier is not the component of noise transmitted through the material, but rather the amount of noise flanking around and over the barrier. In the case of Project construction, an enclosure/barrier would only be necessary at the area of the construction site where noise producing activities are being performed.

As such, the following mitigation is recommended.

**NOI-1**: In order to reduce construction noise during site preparation, grading, and building construction activities, a temporary noise barrier or enclosure shall be positioned between the construction activity and any neighboring classroom buildings within 50 feet in a manner that breaks the line of sight between the construction equipment and these buildings, when school is in session. Temporary noise barriers are not required when school is out of session. The temporary noise barrier shall have a sound transmission class (STC) of 10 or greater in accordance with American Society for Testing and Materials Test Method E90, or at least 2 pounds per square foot to ensure adequate transmission loss characteristics. The temporary noise barrier can consist of a solid plywood fence at least 7/16-inch in thickness and/or flexible sound curtains, such as an 18-ounce tarp or a 2-inch-thick fiberglass blanket, attached to chain link fencing. The length, height, and location of the temporary noise barrier shall be adequate to assure proper acoustical performance. Specifically, the barrier must completely break the line of sight between the construction site and the school building, must be free of degrading holes or gaps, and must not be flanked by nearby reflective surfaces. All noise control barrier walls shall be designed to preclude structural failure due to such factors as winds, shear, shallow soil failure, earthquakes, and erosion.

Implementation of mitigation measure **NOI-1** would substantially reduce construction-generated noise levels. As previously described, noise barriers or enclosures such as that recommended in mitigation measure **NOI-1** can provide a sound reduction 35 dBA or greater (WEAL 2000), which would be a reduction robust enough to maintain construction noise levels less than 85 dBA. Temporary noise barriers can consist of a solid plywood fence and/or flexible sound curtains, such as an 18-ounce tarp or a 2-inch-thick fiberglass blanket attached to chain link fencing. Project construction activities would not expose persons to and generate noise levels in excess of NIOSH standards with implementation of **NOI-1**.

### *5.3.2 Would the Project Result in a Substantial Permanent Increase in Ambient Noise Levels in Excess of City Standards During Operations?*

As previously described, noise-sensitive land uses are locations where people reside or where the presence of unwanted sound could adversely affect the use of the land. Residences, schools, hospitals, guest lodging, libraries, and some passive recreation areas would each be considered noise-sensitive and may warrant unique measures for protection from intruding noise. The nearest existing noise-sensitive land uses to the Project are existing classrooms on the school's campus when school is in session. The nearest classrooms are located approximately 50 feet south from where construction is planned to occur.

*Operational Noise*

The Project is proposing several improvements to the existing campus for the purposes of modernization. The number of new classrooms is equal to the amount being removed and thus there would be no increase in student capacity. No additional school sports programs would be added, and the new gymnasium is not expected to increase the number of participants or spectators. Therefore, the improvements made to the high school will not result in additional operational traffic. Present levels of noise would resume following

the completion of construction. Operation of the Project would not result in a substantial permanent increase in ambient noise levels in excess of City Standards.

### *5.3.3 Would the Project Expose Structures to Substantial Groundborne Vibration During Construction?*

Excessive groundborne vibration impacts result from continuously occurring vibration levels. Increases in groundborne vibration levels attributable to the Project would be primarily associated with short-term construction-related activities. Construction on the Project Site would have the potential to result in varying degrees of temporary groundborne vibration, depending on the specific construction equipment used and the operations involved. Ground vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance.

Construction-related ground vibration is normally associated with impact equipment such as pile drivers, jackhammers, and the operation of some heavy-duty construction equipment, such as dozers and trucks. It is noted that pile drivers would not be necessary during Project construction. Vibration decreases rapidly with distance, and it is acknowledged that construction activities would occur throughout the Project Site and would not be concentrated at the point closest to sensitive receptors. Groundborne vibration levels associated with typical construction equipment at 25 feet distant are summarized in Table 5-3.

| Table 5-3. Representative Vibration Source Levels for Construction Equipment | |
|---|---|
| **Equipment Type** | **Peak Particle Velocity at 25 Feet (inches per second)** |
| Large Bulldozer | 0.089 |
| Pile Driver | 0.170 |
| Loaded Trucks | 0.076 |
| Hoe Ram | 0.089 |
| Jackhammer | 0.035 |
| Small Bulldozer/Tractor | 0.003 |
| Vibratory Roller | 0.210 |

Source: FTA 2018; Caltrans 2020b

The City of Riverside does not regulate vibrations associated with construction. However, a discussion of construction vibration is included for full disclosure purposes. The Caltrans (2020b) recommended standard of 0.2 inch per second PPV with respect to the prevention of structural damage for older residential buildings is used as a threshold. This is also the level at which vibrations may begin to annoy people in buildings. Consistent with FTA recommendations for calculating construction vibration, construction vibration was measured from the center of the Project Site (FTA 2018). The nearest structure of concern to the construction site, with regard to groundborne vibrations, is the 300.1 building on the school's campus, located approximately 50 feet south from construction activities.

Based on the representative vibration levels presented for various construction equipment types in Table 5-3 and the construction vibration assessment methodology published by the FTA (2018), it is possible to estimate the potential project construction vibration levels. The FTA provides the following equation:

$$[PPVequip = PPVref \times (25/D)^{1.5}]$$

Table 5-4 presents the expected Project related vibration levels at a distance of 50 feet.

**Table 5-4. Construction Vibration Levels at 50 Feet**

| Receiver PPV Levels (in/sec)[1] | | | | | Peak Vibration | Threshold | Exceed Threshold |
|---|---|---|---|---|---|---|---|
| Large Bulldozer, Caisson Drilling, & Hoe Ram | Loaded Trucks | Jackhammer | Pile Driver | Vibratory Roller | | | |
| 0.03 | 0.03 | 0.01 | 0.06 | 0.07 | **0.07** | *0.2* | **No** |

Notes: [1]Based on the Vibration Source Levels of Construction Equipment included on Table 5-3 (FTA 2018). Distance to the nearest structure of concern is approximately 850 feet measured from Project Site boundary.

As shown in Table 5-4, vibration as a result of construction activities would not exceed 0.2 PPV at the nearest structure. Thus, Project construction would not exceed the recommended threshold.

### *5.3.4 Would the Project Expose Structures to Substantial Groundborne Vibration During Operations?*

The Project is proposing several improvements to the existing campus for the purposes of modernization. The number of new classrooms is equal to the amount being removed and thus there would be no increase in student capacity. No additional school sports programs would be added, and the new gymnasium is not expected to increase the number of participants or spectators. Project operations would not include the use of any large-scale stationary equipment that would result in excessive vibration levels. Therefore, the Project would not result groundborne vibration impacts during operations.

### *5.3.5 Would the Project Expose People Residing or Working in the Project area to Excessive Airport Noise?*

The Project Site is located approximately 8 miles west of March Airforce Base and 10 miles southeast of the Riverside Municipal Airport. According to Figures N-8 and N-9 of the City of Riverside General Plan Noise Element (2007), the Project Site is located outside of the noise contours of both March Airforce Base and the Riverside Municipal Airport. Therefore, implementation of the Proposed Project would not result in increased exposure of people working at or visiting the Project Site to aircraft noise.

# 6.0 REFERENCES

Caltrans. 2021. Traffic Census Program. https://dot.ca.gov/programs/traffic-operations/census

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FHWA. FHWA. 2017. Construction Noise Handbook. https://www.fhwa.dot.gov/Environment/noise/construction_noise/handbook/handbook02.cfm.

_____. 2006. Roadway Construction Noise Model.

FTA (Federal Transit Administration). 2018. Transit Noise and Vibration Impact Assessment.

HMMH. 2006. Transit Noise and Vibration Impact Assessment, Final Report.

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____. 2007. City of Riverside General Plan Noise Element.

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## LIST OF ATTACHMENTS

Attachment A - Baseline (Existing) Noise Measurements – Project Site and Vicinity

Attachment B – Federal Highway Administration Roadway Construction Noise Outputs

# ATTACHMENT A

Baseline (Existing) Noise Measurements – Project Site and Vicinity

| | | | |
|---|---|---|---|
| Site Number: #1 | | | |
| Recorded By: Lindsay Liegler | | | |
| Job Number: 2022-120 | | | |
| Date: 06/08/2022 | | | |
| Time: 10:00 – 10:15 | | | |
| Location: Southwest corner of Linden Street and Chicago Avenue | | | |
| Source of Peak Noise: Vehicles | | | |
| Noise Data | | | |
| Leq (dB) | Lmin (dB) | Lmax (dB) | Peak (dB) |
| 68.2 | 49.3 | 83.0 | 106.1 |

| Equipment | | | | | | |
|---|---|---|---|---|---|---|
| Category | Type | Vendor | Model | Serial No. | Cert. Date | Note |
| Sound | Sound Level Meter | Larson Davis | LxT SE | 0005120 | 11/29/2021 | |
| | Microphone | Larson Davis | 377B02 | 334361 | 11/30/2021 | |
| | Preamp | Larson Davis | PRMLxT1L | 042852 | 11/30/2021 | |
| | Calibrator | Larson Davis | CAL200 | 14105 | 11/10/2021 | |

| Weather Data | | | |
|---|---|---|---|
| Est. | Duration: 15 minutes | Sky: Clear | |
| | Note: dBA Offset = 0.1 | Sensor Height (ft): 4 feet | |
| | Wind Ave Speed (mph) | Temperature (degrees Fahrenheit) | Barometer Pressure (hPa) |
| | 3 mph | 72° | 29.82 |

## Photo of Measurement Location

# Measurement Report

## Report Summary

| | | | |
|---|---|---|---|
| Meter's File Name | LxT_Data.422.s | Computer's File Name | LxTse_-20220608 100019-LxT_Data.422.ldbin |
| Meter | LxT SE 0005120 | Firmware | 2.404 |
| User | | Location | |
| Job Description | | | |
| Note | | | |

| | | | | | |
|---|---|---|---|---|---|
| Start Time | 2022-06-08 10:00:19 | Duration | 0:15:00.0 | | |
| End Time | 2022-06-08 10:15:19 | Run Time | 0:15:00.0 | Pause Time | 0:00:00.0 |
| Pre-Calibration | 2022-06-08 09:59:45 | Post-Calibration | None | Calibration Deviation | --- |

## Results

### Overall Metrics

| | | | |
|---|---|---|---|
| $LA_{eq}$ | 68.2 dB | | |
| LAE | 97.7 dB | SEA | --- dB |
| EA | 660.7 µPa²h | | |
| $LZ_{peak}$ | 106.1 dB | 2022-06-08 10:12:47 | |
| $LAS_{max}$ | 83.0 dB | 2022-06-08 10:07:55 | |
| $LAS_{min}$ | 49.3 dB | 2022-06-08 10:02:38 | |
| $LA_{eq}$ | 68.2 dB | | |
| $LC_{eq}$ | 77.9 dB | $LC_{eq}$ - $LA_{eq}$ | 9.7 dB |
| $LAI_{eq}$ | 70.4 dB | $LAI_{eq}$ - $LA_{eq}$ | 2.2 dB |

| Exceedances | Count | Duration |
|---|---|---|
| LAS > 85.0 dB | 0 | 0:00:00.0 |
| LAS > 115.0 dB | 0 | 0:00:00.0 |
| LZpeak > 135.0 dB | 0 | 0:00:00.0 |
| LZpeak > 137.0 dB | 0 | 0:00:00.0 |
| LZpeak > 140.0 dB | 0 | 0:00:00.0 |

| Community Noise | LDN | LDay | LNight |
|---|---|---|---|
| | 68.2 dB | 68.2 dB | 0.0 dB |

| | LDEN | LDay | LEve | LNight |
|---|---|---|---|---|
| | 68.2 dB | 68.2 dB | --- dB | --- dB |

| Any Data | A | | C | | Z | |
|---|---|---|---|---|---|---|
| | Level | Time Stamp | Level | Time Stamp | Level | Time Stamp |
| $L_{eq}$ | 68.2 dB | | 77.9 dB | | --- dB | |
| $Ls_{(max)}$ | 83.0 dB | 2022-06-08 10:07:55 | --- dB | None | --- dB | None |
| $LS_{(min)}$ | 49.3 dB | 2022-06-08 10:02:38 | --- dB | None | --- dB | None |
| $L_{Peak(max)}$ | --- dB | None | --- dB | None | 106.1 dB | 2022-06-08 10:12:47 |

| Overloads | Count | Duration | OBA Count | OBA Duration |
|---|---|---|---|---|
| | 0 | 0:00:00.0 | 0 | 0:00:00.0 |

### Statistics

| | |
|---|---|
| LAS 5.0 | 73.8 dB |
| LAS 10.0 | 72.4 dB |
| LAS 33.3 | 67.8 dB |
| LAS 50.0 | 64.8 dB |
| LAS 66.6 | 60.4 dB |
| LAS 90.0 | 54.9 dB |

| | | | |
|---|---|---|---|
| Site Number: #2 | | | |
| Recorded By: Lindsay Liegler | | | |
| Job Number: 2022-120 | | | |
| Date: 06/08/2022 | | | |
| Time: 10:20 – 10:35 | | | |
| Location: On the sidewalk north of Patterson Park, south of Linden Street | | | |
| Source of Peak Noise: Vehicles | | | |
| Noise Data | | | |
| Leq (dB) | Lmin (dB) | Lmax (dB) | Peak (dB) |
| 60.8 | 43.0 | 78.1 | 99.4 |

| Equipment | | | | | | |
|---|---|---|---|---|---|---|
| Category | Type | Vendor | Model | Serial No. | Cert. Date | Note |
| Sound | Sound Level Meter | Larson Davis | LxT SE | 0005120 | 11/29/2021 | |
| | Microphone | Larson Davis | 377B02 | 334361 | 11/30/2021 | |
| | Preamp | Larson Davis | PRMLxT1L | 042852 | 11/30/2021 | |
| | Calibrator | Larson Davis | CAL200 | 14105 | 11/10/2021 | |

| Weather Data | | | |
|---|---|---|---|
| Est. | Duration: 15 minutes | Sky: Clear | |
| | Note: dBA Offset = 0.1 | Sensor Height (ft): 4 feet | |
| | Wind Ave Speed (mph) | Temperature (degrees Fahrenheit) | Barometer Pressure (hPa) |
| | 3 mph | 73° | 29.81 |

## Photo of Measurement Location

# Measurement Report

## Report Summary

| | | | |
|---|---|---|---|
| Meter's File Name | LxT_Data.423.s | Computer's File Name | LxTse_-20220608 102045-LxT_Data.423.ldbin |
| Meter | LxT SE 0005120 | Firmware | 2.404 |
| User | | Location | |
| Job Description | | | |
| Note | | | |

| | | | | | |
|---|---|---|---|---|---|
| Start Time | 2022-06-08 10:20:45 | Duration | 0:15:00.0 | | |
| End Time | 2022-06-08 10:35:45 | Run Time | 0:15:00.0 | Pause Time | 0:00:00.0 |
| Pre-Calibration | 2022-06-08 09:59:45 | Post-Calibration | None | Calibration Deviation | --- |

## Results

### Overall Metrics

| | | | |
|---|---|---|---|
| $LA_{eq}$ | 60.8 dB | | |
| LAE | 90.3 dB | SEA | --- dB |
| EA | 120.2 µPa²h | | |
| $LZ_{peak}$ | 99.4 dB | 2022-06-08 10:31:31 | |
| $LAS_{max}$ | 78.1 dB | 2022-06-08 10:35:41 | |
| $LAS_{min}$ | 43.0 dB | 2022-06-08 10:21:23 | |
| $LA_{eq}$ | 60.8 dB | | |
| $LC_{eq}$ | 69.5 dB | $LC_{eq}$ - $LA_{eq}$ | 8.7 dB |
| $LAI_{eq}$ | 63.5 dB | $LAI_{eq}$ - $LA_{eq}$ | 2.7 dB |

| Exceedances | Count | Duration |
|---|---|---|
| LAS > 85.0 dB | 0 | 0:00:00.0 |
| LAS > 115.0 dB | 0 | 0:00:00.0 |
| LZpeak > 135.0 dB | 0 | 0:00:00.0 |
| LZpeak > 137.0 dB | 0 | 0:00:00.0 |
| LZpeak > 140.0 dB | 0 | 0:00:00.0 |

| Community Noise | LDN | LDay | LNight |
|---|---|---|---|
| | 60.8 dB | 60.8 dB | 0.0 dB |

| | LDEN | LDay | LEve | LNight |
|---|---|---|---|---|
| | 60.8 dB | 60.8 dB | --- dB | --- dB |

| Any Data | A | | C | | Z | |
|---|---|---|---|---|---|---|
| | Level | Time Stamp | Level | Time Stamp | Level | Time Stamp |
| $L_{eq}$ | 60.8 dB | | 69.5 dB | | --- dB | |
| $Ls_{(max)}$ | 78.1 dB | 2022-06-08 10:35:41 | --- dB | None | --- dB | None |
| $LS_{(min)}$ | 43.0 dB | 2022-06-08 10:21:23 | --- dB | None | --- dB | None |
| $L_{Peak(max)}$ | --- dB | None | --- dB | None | 99.4 dB | 2022-06-08 10:31:31 |

| Overloads | Count | Duration | OBA Count | OBA Duration |
|---|---|---|---|---|
| | 0 | 0:00:00.0 | 0 | 0:00:00.0 |

### Statistics

| | |
|---|---|
| LAS 5.0 | 67.7 dB |
| LAS 10.0 | 65.7 dB |
| LAS 33.3 | 54.6 dB |
| LAS 50.0 | 49.0 dB |
| LAS 66.6 | 46.3 dB |
| LAS 90.0 | 44.2 dB |

| | | | |
|---|---|---|---|
| Site Number: #3 | | | |
| Recorded By: Lindsay Liegler | | | |
| Job Number: 2022-120 | | | |
| Date: 06/08/2022 | | | |
| Time: 10:38 – 10:53 | | | |
| Location: Southeast intersection of 3rd Street and Anderson Avenue | | | |
| Source of Peak Noise: Vehicles | | | |
| Noise Data | | | |
| Leq (dB) | Lmin (dB) | Lmax (dB) | Peak (dB) |
| 63.5 | 45.3 | 86.1 | 108.1 |

| Equipment | | | | | | |
|---|---|---|---|---|---|---|
| Category | Type | Vendor | Model | Serial No. | Cert. Date | Note |
| Sound | Sound Level Meter | Larson Davis | LxT SE | 0005120 | 11/29/2021 | |
| | Microphone | Larson Davis | 377B02 | 334361 | 11/30/2021 | |
| | Preamp | Larson Davis | PRMLxT1L | 042852 | 11/30/2021 | |
| | Calibrator | Larson Davis | CAL200 | 14105 | 11/10/2021 | |

| Weather Data | | | |
|---|---|---|---|
| Est. | Duration: 15 minutes | Sky: Clear | |
| | Note: dBA Offset = 0.1 | Sensor Height (ft): 4 feet | |
| | Wind Ave Speed (mph) | Temperature (degrees Fahrenheit) | Barometer Pressure (hPa) |
| | 4 mph | 73° | 29.81 |

## Photo of Measurement Location

# Measurement Report

## Report Summary

| | | | |
|---|---|---|---|
| Meter's File Name | LxT_Data.424.s | Computer's File Name | LxTse_-20220608 103856-LxT_Data.424.ldbin |
| Meter | LxT SE 0005120 | Firmware | 2.404 |
| User | | Location | |
| Job Description | | | |
| Note | | | |

| | | | | | |
|---|---|---|---|---|---|
| Start Time | 2022-06-08 10:38:56 | Duration | 0:15:00.0 | | |
| End Time | 2022-06-08 10:53:56 | Run Time | 0:15:00.0 | Pause Time | 0:00:00.0 |
| Pre-Calibration | 2022-06-08 09:59:45 | Post-Calibration | None | Calibration Deviation | --- |

## Results

### Overall Metrics

| | | | |
|---|---|---|---|
| $LA_{eq}$ | 63.5 dB | | |
| LAE | 93.0 dB | SEA | --- dB |
| EA | 223.9 µPa²h | | |
| $LZ_{peak}$ | 108.1 dB | 2022-06-08 10:41:38 | |
| $LAS_{max}$ | 86.1 dB | 2022-06-08 10:41:38 | |
| $LAS_{min}$ | 45.3 dB | 2022-06-08 10:49:38 | |
| $LA_{eq}$ | 63.5 dB | | |
| $LC_{eq}$ | 71.7 dB | $LC_{eq}$ - $LA_{eq}$ | 8.2 dB |
| $LAI_{eq}$ | 72.2 dB | $LAI_{eq}$ - $LA_{eq}$ | 8.7 dB |

| Exceedances | Count | Duration |
|---|---|---|
| LAS > 85.0 dB | 1 | 0:00:00.9 |
| LAS > 115.0 dB | 0 | 0:00:00.0 |
| LZpeak > 135.0 dB | 0 | 0:00:00.0 |
| LZpeak > 137.0 dB | 0 | 0:00:00.0 |
| LZpeak > 140.0 dB | 0 | 0:00:00.0 |

| Community Noise | LDN | LDay | LNight | |
|---|---|---|---|---|
| | 63.5 dB | 63.5 dB | 0.0 dB | |
| | LDEN | LDay | LEve | LNight |
| | 63.5 dB | 63.5 dB | --- dB | --- dB |

| Any Data | A | | C | | Z | |
|---|---|---|---|---|---|---|
| | Level | Time Stamp | Level | Time Stamp | Level | Time Stamp |
| $L_{eq}$ | 63.5 dB | | 71.7 dB | | --- dB | |
| $Ls_{(max)}$ | 86.1 dB | 2022-06-08 10:41:38 | --- dB | None | --- dB | None |
| $LS_{(min)}$ | 45.3 dB | 2022-06-08 10:49:38 | --- dB | None | --- dB | None |
| $L_{Peak(max)}$ | --- dB | None | --- dB | None | 108.1 dB | 2022-06-08 10:41:38 |

| Overloads | Count | Duration | OBA Count | OBA Duration |
|---|---|---|---|---|
| | 0 | 0:00:00.0 | 0 | 0:00:00.0 |

### Statistics

| | |
|---|---|
| LAS 5.0 | 67.6 dB |
| LAS 10.0 | 66.0 dB |
| LAS 33.3 | 62.2 dB |
| LAS 50.0 | 59.1 dB |
| LAS 66.6 | 55.6 dB |
| LAS 90.0 | 50.9 dB |

# ATTACHMENT B

Federal Highway Administration Roadway Construction Noise Outputs

# Roadway Construction Noise Model (RCNM),Version 1.1

**Report date:** 6/27/2022
**Case Description:** John W North High School Improvement Project

| **Description** | **Land Use** |
|---|---|
| Site Prep | Commercial |

| **Description** | **Impact Device** | **Usage(%)** | **Equipment Spec Lmax (dBA)** | **Actual Lmax (dBA)** | **Receptor Distance (feet)** |
|---|---|---|---|---|---|
| Grader | No | 40 | 85 | | 50 |
| Scraper | No | 40 | | 83.6 | 50 |
| Tractor | No | 40 | 84 | | 50 |

**Calculated (dBA)**

| **Equipment** | | ***Lmax** | **Leq** |
|---|---|---|---|
| Grader | | 85 | 81 |
| Scraper | | 83.6 | 79.6 |
| Tractor | | 84 | 80 |
| | **Total** | **85** | **85** |

*Calculated Lmax is the Loudest value.

# Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 6/27/2022
Case Description: John W North High School Improvement Project

| Description | Land Use |
|---|---|
| Grading | Commercial |

| Description | Impact Device | Usage(%) | Equipment Spec Lmax (dBA) | Actual Lmax (dBA) | Receptor Distance (feet) |
|---|---|---|---|---|---|
| Grader | No | 40 | 85 | | 50 |
| Dozer | No | 40 | | 81.7 | 50 |
| Tractor | No | 40 | 84 | | 50 |
| Tractor | No | 40 | 84 | | 50 |

Calculated (dBA)

| Equipment | *Lmax | Leq |
|---|---|---|
| Grader | 85 | 81 |
| Dozer | 81.7 | 77.7 |
| Tractor | 84 | 80 |
| Tractor | 84 | 80 |
| **Total** | **85** | **85.9** |

*Calculated Lmax is the Loudest value.

# Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 6/27/2022
Case Description: John W North High School Improvement Project

| Description | Land Use |
|---|---|
| Building Construction | Commercial |
| Paving | |
| Architectural Coating | |

| Description | Impact Device | Usage(%) | Equipment Spec Lmax (dBA) | Actual Lmax (dBA) | Receptor Distance (feet) |
|---|---|---|---|---|---|
| Crane | No | 16 | | 80.6 | 50 |
| Gradall | No | 40 | | 83.4 | 50 |
| Gradall | No | 40 | | 83.4 | 50 |
| Generator | No | 50 | | 80.6 | 50 |
| Tractor | No | 40 | 84 | | 50 |
| Welder / Torch | No | 40 | | 74 | 50 |
| Welder / Torch | No | 40 | | 74 | 50 |
| Welder / Torch | No | 40 | | 74 | 50 |
| Concrete Mixer Truck | No | 40 | | 78.8 | 50 |
| Paver | No | 50 | | 77.2 | 50 |
| Pavement Scarafier | No | 20 | | 89.5 | 50 |
| Roller | No | 20 | | 80 | 50 |
| Roller | No | 20 | | 80 | 50 |
| Tractor | No | 40 | 84 | | 50 |
| Compressor (air) | No | 40 | | 77.7 | 50 |

Calculated (dBA)

| Equipment | *Lmax | Leq |
|---|---|---|
| Crane | 80.6 | 72.6 |
| Gradall | 83.4 | 79.4 |
| Gradall | 83.4 | 79.4 |
| Generator | 80.6 | 77.6 |
| Tractor | 84 | 80 |
| Welder / Torch | 74 | 70 |
| Welder / Torch | 74 | 70 |
| Welder / Torch | 74 | 70 |
| Concrete Mixer Truck | 78.8 | 74.8 |
| Paver | 77.2 | 74.2 |
| Pavement Scarafier | 89.5 | 82.5 |
| Roller | 80 | 73 |

| | | | |
|---|---|---|---|
| Roller | | 80 | 73 |
| Tractor | | 84 | 80 |
| Compressor (air) | | 77.7 | 73.7 |
| | **Total** | **89.5** | **88.9** |

*Calculated Lmax is the Loudest value.

# Appendix

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