Final Environmental Impact Report

The Hub, Sacramento State Research Park Project

Prepared for:

California State University, Sacramento

May 2022

SACRAMENTO STATE

Final Environmental Impact Report

The Hub, Sacramento State Research Park Project

SCH Number 2021030485

Prepared for:

SACRAMENTO STATE

California State University, Sacramento, Planning, Design, & Construction
6000 J Street
Sacramento, CA 95819
6000 J Street
Sacramento, CA 95819-6032

Contact:

Tania Nunez
Project Manager
916.278.3404

Prepared by:

ASCENT ENVIRONMENTAL

Ascent Environmental
455 Capitol Mall, Suite 300
Sacramento, CA 95814

Contact:

Suzanne Enslow
Project Manager
916.661.7935

May 13, 2022

19010021.02

PREFACE TO THE FINAL EIR

In compliance with California Environmental Quality Act (CEQA) Guidelines Section 15132, this document serves as the Final Environmental Impact Report (Final EIR) for the California State University, Sacramento (Sacramento State or the University) The Hub, Sacramento State Research Park Project (The Hub or the project) (State Clearinghouse [SCH] No. 2021030485). This Final EIR has been prepared under the direction of California State University (CSU) Board of Trustees (Trustees), acting as lead agency, in accordance with the requirements of CEQA (Public Resources Code [PRC] Section 21000 et seq.) and the State CEQA Guidelines (California Code of Regulations, Title 14, Chapter 3, Section 15000, et seq.). In accordance with Sections 15087 and 15105 of the State CEQA Guidelines, the Draft EIR was circulated for public review and comment for a period of 45 days, from January 14, 2022 through February 28, 2022.

State CEQA Guidelines Section 15132 requires that the Final EIR consist of the following components:

1. The Draft EIR or a revision of the draft;
2. Comments and recommendations received on the Draft EIR either verbatim or in summary;
3. A list of persons, organization, and public agencies commenting on the Draft EIR;
4. The responses of the lead agency to significant environmental points raised in the review and consultation process; and
5. Any other information added by the lead agency.

This Final EIR contains the public comments received on the Draft EIR for The Hub, as well as all written responses to those comments. A list of the person, organizations, and public agencies who commented on the Draft EIR is provided in the "Responses to Comments" chapter of this document. In addition, this document also contains revisions to the Draft EIR with additions shown in <u>underline</u> and deletions shown in ~~strikethrough~~.

INTRODUCTION

This preface, which serves as an introduction to the Final EIR, provides a summary of the public review process; an overview of the Final EIR contents; and a summary of the changes made to the Draft EIR text in response to comments and community input received during the public comment period.

Public Review Process

The Trustees, acting as lead agency, prepared the Draft EIR to inform decisionmakers and the public of the potential significant environmental effects associated with the proposed The Hub. The Draft EIR was circulated for public review and comment for at least 45 days, from January 14, 2022, through February 28, 2022. A Public Notice of Availability of the Draft EIR was published in a newspaper of general circulation and mailed to all organizations and individuals previously requesting notice. The University provided copies of the complete Draft EIR with appendices to the State Clearinghouse, which, in turn, distributed the Draft EIR to all interested state agencies for review and comment. The Draft EIR, Final EIR, and associated appendices were made available for review online at: https://www.csus.edu/administration-business-affairs/facilities-management/news-archive.html.

Interested persons and organizations had the opportunity to submit their written comments on the DEIR during the public review period. Comment letters received on the Draft EIR, reproduced in their entirety, and responses to those comments are provided in the "Responses to Comments" chapter following this preface.

Section 15088(c) of the State CEQA Guidelines specifies that the focus of the responses to comments shall be on the disposition of significant environmental issues. Responses are not required for comments regarding the merits of The Hub or on issues not related to potential physical environmental impacts and/or the Draft EIRs analysis of such impacts. Comments on the merits of The Hub or other comments that do not raise environmental issues are nevertheless included within the record for consideration as part of The Hub approval process. The responses address environmental issues and indicate where issues raised do not pertain to environmental impacts, analysis, or address the merits of the project. In the latter instance, no further response is provided.

Although some of the comments have resulted in changes to the text of the Draft EIR (see Chapter 4, "Corrections and Revisions to the Draft EIR"), none of the changes constitute "significant new information," which would require its recirculation. "Significant new information" is defined in Section 15088.5(a) of the State CEQA Guidelines as follows:

> (1) A new significant environmental impact would result from the project or from a new mitigation measure proposed to be implemented.
>
> (2) A substantial increase in the severity of an environmental impact would result unless mitigation measures are adopted that reduce the impact to a level of insignificance.
>
> (3) A feasible project alternative or mitigation measure considerably different from others previously analyzed would clearly lessen the environmental impacts of the project, but the project's proponents decline to adopt it.
>
> (4) The Draft EIR was so fundamentally and basically inadequate and conclusory in nature that meaningful public review and comment were precluded.

None of these circumstances has arisen from comments on the Draft EIR; therefore, recirculation is not required.

As required by CEQA Section 21092.5 and State CEQA Guidelines Section 15088(b), at least 10 days before consideration of the Final EIR for certification, Sacramento State provided a written proposed response (hard or electronic copy) to each public agency that submitted written comments on the Draft EIR.

Overview of the Final EIR

The Final EIR consists of the Draft EIR (January 2022) with additions shown in underline and deletions shown in ~~strikethrough~~. In addition, after the Executive Summary, a new chapter is included in the Final EIR: "Comments and Responses to Comments," which includes following components:

1. List of persons, organizations, and public agencies commenting on the Draft EIR;
2. Comments received on the Draft EIR, verbatim; and
3. Responses from the lead agency to significant environmental points raised.

REVISIONS TO THE DRAFT EIR

The following list summarizes the substantive changes made to the EIR since public review. All changes are reflected with additions shown in underline and deletions shown in ~~strikethrough~~. Supporting materials that supplement these revisions have been included in updated appendices, as noted below.

Executive Summary

- Correction to the order of mitigation measures for Air Quality in Table ES-1, Summary of Impacts and Mitigation Measures.

Chapter 2, Project Description

- The official black-and-white master plan map of The Hub, Sacramento State Research Park Project was added as Figure 2-6. This plan identifies the buildings on the project site in alignment with the overall Sacramento State Master Plan.
- The table of Sacramento State Master Plan buildings names and numbers, with the addition of the buildings proposed for The Hub, was added as Figure 2-7.

- Figure 2-6, The Hub, Sacramento State Research Park - Utility Plan, was renumbered to be Figure 2-8.

Section 3.2, Air Quality

- Revision to address the future health risk assessment for emergency generators.

Section 3.6, Greenhouse Gas Emissions and Climate Change

- Revisions to provide clarification on compliance with regulatory requirements, and Climate Action Plans.
- Clarification in Mitigation Measure 3.6-1b regarding the source of the GHG mitigation potential of TDM strategies.

Appendix B, Air Quality, Greenhouse Gas, and Energy Modeling

- A table has been added to Appendix B to show the reduction in construction emissions from electric vehicle supply equipment (EVSE).

PROJECT DECISION PROCESS

This Final EIR will be considered by the Trustees prior to a decision on whether to approve The Hub. If The Trustees decide to approve the project, The Trustees, as required by State CEQA Guidelines Section 15090, must first certify that the Final EIR was completed in compliance with CEQA's requirements, was reviewed and considered by the Trustees, and reflects its independent judgment and analysis. The Trustees would then be required to adopt findings of fact on the disposition of each significant environmental impact, as required by State CEQA Guidelines Section 15091. If significant and unavoidable impacts (those that cannot feasibly be mitigated to less-than-significant levels) would result from implementing The Hub, the project can still be approved, but the Trustees must issue a "statement of overriding considerations" explaining in writing the specific economic, social, or other considerations that it believes, based on substantial evidence, make those significant effects acceptable (PRC Section 21002; State CEQA Guidelines Section 15093). A mitigation monitoring and reporting program, which is required by State CEQA Guidelines Section 15091(d) would be considered and adopted by the Trustees in conjunction with any project approval.

This page intentionally left blank.

TABLE OF CONTENTS

Section Page

Appendices

Figures

Tables

LIST OF ABBREVIATIONS

°C	degrees Celsius
°F	degrees Fahrenheit
AB	Assembly Bill
AFV	alternative fuel vehicle
afy	acre-feet per year
AQAP	air quality attainment plan
BMP	best management practice
CAA	federal Clean Air Act
CAAQS	California ambient air quality standards
CA DOJ	California Department of Justice
CAFE	Corporate Average Fuel Economy
Cal/OSHA	California Occupational Safety and Health Administration
CalEEMod	California Emissions Estimator Model
CalEPA	California Environmental Protection Agency
CALGreen	California State Building Energy Efficiency Standards
California Energy Code	California State Title 24, Part 6, Building Energy Efficiency Standards
CalRecycle	California Department of Resources Recycling and Recovery
Caltrans	California Department of Transportation
CAP	climate action plan
CAP	criteria air pollutant
CARB	California Air Resources Board
CCAA	California Clean Air Act
CCR	Code of Regulations
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations

cfs	cubic feet per second
CHRIS	California Historical Resources Information System
City	City of Sacramento
CIWMA	California Integrated Waste Management Act
CMC	California Mobility Center
CNDDB	California Natural Diversity Database
CNEL	community noise equivalent level
CO	carbon monoxide
CO_2	carbon dioxide
County	Sacramento County
CRHR	California Register of Historical Resources
CRPR	California Rare Plant Rank
CSU	California State University
CUPA	Certified Unified Program Agency
CWA	Clean Water Act
CWC	California Water Code
CYA	California Youth Authority
dB	decibels
dBA	A-weighted decibels
dbh	diameter at breast height
Delta	Sacramento River–San Joaquin River Delta
diesel PM	particulate matter exhaust from diesel engines
DOT	U.S. Department of Transportation
Draft EIR	draft environmental impact report
DTSC	California Department of Toxic Substances Control
DWR	California Department of Water Resources
EGU	electric generating units
EO	Executive Order
EOP	City of Sacramento Emergency Operations Plan
EPA	U.S. Environmental Protection Agency
EPAct	Energy Policy Act of 1992

EPCRA	Emergency Planning and Community Right-to-Know Act of 1986
ESA	federal Endangered Species Act
EUI	Energy Use Index
EV	electric vehicles
Final EIR	final environmental impact report
FR	Federal Register
FTA	Federal Transit Administration
FWTP	Fairbairn Water Treatment Plant
GHG	greenhouse gas
GSF	gross square feet
HAP	hazardous air pollutant
HazMat	City of Sacramento Hazardous Materials Program
HCP	habitat conservation plan
HMD	Sacramento County Hazardous Materials Division
HVAC	heating, ventilation, and air conditioning
Hz	hertz
kV	kilovolt
kW	kilowatt
lb/day	pounds per day
LCFS	Low Carbon Fuel Standard
L_{dn}	day-night level
LEED	Leadership in Energy and Environmental Design
L_{eq}	equivalent continuous sound level
L_{max}	maximum sound level
LRT	light rail transit
MBTA	Migratory Bird Treaty Act
MCL	Maximum Contaminant Level

mgd	million gallons per day
$MMTCO_2e$	million metric tons of carbon dioxide equivalent
MOU	Memorandum of Understanding
mPa	micro-Pascals
MPO	metropolitan planning organizations
MSA	Sacramento-Roseville-Arden Arcade Metropolitan Statistical Area
$MTCO_2e$/year	metric tons of carbon dioxide equivalent per year
MTP/SCS	Metropolitan Transportation Plan/Sustainable Communities Strategy
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NCCP	natural community conservation plan
NCIC	North Central Information Center
NIC	Natural Investigations Company
NO	nitric oxide
NO_2	nitrogen dioxide
NOP	Notice of Preparation
NPDES	National Pollution Discharge Elimination System
NPPA	Native Plant Protection Act
NRHP	National Register of Historic Places
NYRC	Northern California Youth Reception Center
OPR	California Governor's Office of Planning and Research
OSHA	federal Occupational Safety and Health Administration
PG&E	Pacific Gas and Electric Company
PM	particulate matter
PM_{10}	respirable particulate matter with aerodynamic diameter of 10 micrometers or less
$PM_{2.5}$	fine particulate matter with aerodynamic diameter of 2.5 micrometers or less
PPV	peak particle velocity
project site	25-acre Ramona Property
project	The Hub, Sacramento State Research Park Project
psi	pounds per square inch

PRC	Public Resources Code
ROG	reactive organic gases
RPS	Renewables Portfolio Standard
RWQCB	regional water quality control board
SACOG	Sacramento Area Council of Governments
Sacramento State	California State University, Sacramento
SacRT	Sacramento Regional Transit District
SARA Title III	Superfund Amendments and Reauthorization Act of 1986
SASD	Sacramento Area Sewer District
SB	Senate Bill
SCI	Sacramento Center for Innovation
SCS	Sustainable Communities Strategy
SCUSD	Sacramento City Unified School District
sf	square feet
SFD	Sacramento Fire Department
SHS	State Highway System
SIP	State implementation plan
SMAQMD	Sacramento Metropolitan Air Quality Management District
SMUD	Sacramento Municipal Utility District
SO_2	sulfur dioxide
SOV	single-occupant vehicle
SPCC	Spill Prevention, Control, and Countermeasure
SPL	sound pressure level
SR	State Route
SRCSD	Sacramento Regional County Sanitation District
SRWTP	Sacramento River Water Treatment Plant
SSS	separated sewer system
STARS	Sustainability Tracking, Assessment, and Rating System
SVAB	Sacramento Valley Air Basin
SWPPP	stormwater pollution prevention plan
SWRCB	State Water Resources Control Board

SWRCB-DDW	State Water Resources Control Board Division of Drinking Water
TAC	toxic air contaminant
TAZ	traffic analysis zone
TDM	transportation demand management
The Hub	The Hub, Sacramento State Research Park Project
TISG	*Vehicle Miles Traveled-Focused Transportation Impact Study Guide*
TISM	California State University *Transportation Impact Study Manual*
tpy	tons per years
Trustees	Board of Trustees
UAIC	United Auburn Indian Community of the Auburn Rancheria
University	California State University, Sacramento
UPRR	Union Pacific Railroad
US 50	U.S. Highway 50
USC	U.S. Code
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UST	underground storage tank
VdB	vibration decibel
VMT	vehicle miles traveled
WWTP	wastewater treatment plant
ZEV	zero-emission vehicles
ZNE	zero-net energy

COMMENTS AND RESPONSES TO COMMENTS

This chapter of the final environmental impact report (Final EIR) contains the comment letters received during the public review period for the Draft EIR, which concluded on February 28, 2022. In conformance with Section 15088(a) of the State CEQA Guidelines, written responses were prepared to address comments on significant environmental issues received from reviewers of the Draft EIR.

COMMENTERS ON THE DRAFT EIR

Table 1 lists the comment letters received, and the alpha-numerical designation, author, and date of each letter. Comment letters are numbered in the order in which they were received by Sacramento State.

Table 1 List of Commenters

Letter Number	Agency/Organization	Commenter	Date
State			
S1	California Department of Transportation, District 3	Alex Padilla, Branch Chief	February 28, 2022
Local/Regional			
L1	Sacramento Metropolitan Air Quality Management District	Molly Wright, AICP, Air Quality Planner/Analyst	February 28, 2022

COMMENTS AND RESPONSES ON THE DRAFT EIR

The written comments received on the Draft EIR and the responses to those comments are presented below. Each comment is reproduced in its entirety and is followed by the response. Comment letters in their original form are included in Appendix F; individual comments are bracketed and numbered, and correspond to the comments presented in this section.

State

Letter S1 California Department of Transportation, District 3

Alex Padilla, Branch Chief
February 28, 2022

Comment S1-1

Thank you for including the California Department of Transportation (Caltrans) in the review process for the project referenced above. We reviewed this local development for impacts to the State Highway System (SHS) in keeping with our mission, vision, and goals, some of which include addressing equity, climate change, and safety, as outlined in our statewide plans such as the California Transportation Plan 2050, Caltrans Strategic Plan, and Climate Action Plan for Transportation Infrastructure.

The California State University, Sacramento (CSUS) has released the Draft Environmental Impact Report (DEIR) for The Hub, Sacramento State Research Park Project Master Plan. The Master Plan area is an infill redevelopment site located within the City of Sacramento, south of CSUS and east of Tahoe Park. The development is located in a heavily industrialized neighborhood wherein surrounding development, including nearby rail lines, limit access to the development parcel. The project will include up to 750,000 square feet of office, laboratory, testing, manufacturing, and mixed-use development space for public and quasi-public clients the California Mobility Center and the California Department of Justice, as well as CSUS. Tenant activities will integrate with CSUS instructional programs, providing learning opportunities to students. Phase I of the project will be constructed with approximately 500 parking spaces, some of which may be removed as phase II buildings are added to surface parking lots in the future. While the project is only approximately 1,400 feet from the SHS, access to the SHS requires an almost one-mile drive to the Howe Avenue / United States Highway 50 ramps, and a 1.7-mile drive to an unrelinquished portion of State Route 16. The project is likely to create the following significant and unavoidable environmental impacts: generation of increased greenhouse gas emissions (GHG) and increased Vehicle Miles Traveled (VMT). The applicant has proposed mitigations for these impacts in the DEIR. Required entitlements for this project include the adoption of a Final Environmental Impact Report for the project master plan. Based on the materials provided, Caltrans provides the following comments.

Forecasting and Modeling / Planning / Traffic Operations

- CSUS determined their project would generate total VMT per service population at a rate that exceeds the threshold of 15 percent below the existing City or regional average and that the VMT impact will be significant and unavoidable. Caltrans appreciates CSUS' stance of clearly representing this project's VMT impact, and for identifying mitigation measures to reduce the total VMT impact.
- The mitigation concepts on page 3.9-5 and the Mitigation Measures on page 3.9-24 all appear to be viable measures. Caltrans understands that diverting travelers to transit and sustainable modes can often require complex partnerships with other agencies. Some of the listed mitigation measures may need to be implemented with local and state agency partners such as the City of Sacramento, Sacramento Regional Transit, Caltrans, and other agencies.
    - How will CSUS coordinate with external partners to build these improvements?

<u>Response S1-1</u>

The first paragraph in the comment letter states Caltrans's mission, vision, and goals as they relate to the agency's review of the Draft EIR. The second paragraph accurately summarizes the Project Description provided in the Draft EIR.

With respect to implementation of mitigation measures that require collaboration with external partners, Sacramento State prepared The Hub Master Plan in close collaboration with a multitude of external partners, including a Mobility and Transportation Working Group that included representatives from the City of Sacramento and the Sacramento Regional Transit District (SacRT). This working group provided input regarding the on- and off-site transportation improvements identified in The Hub Master Plan and ensured that these transportation improvements considered previously identified planned transportation improvements included in the City of Sacramento 65th Street Station Area Study and the Sacramento Center for Innovation Specific Plan. Sacramento State remains committed to continuing its close coordination with external partners/agencies, including those mentioned in this comment, throughout the planning, design, and implementation of the project.

As described in Mitigation Measures 3.9-1a through 3.9-1d of the Draft EIR, for mitigation measures that would entail improvements to transportation facilities owned and operated by the City of Sacramento, Sacramento State would coordinate with the City of Sacramento to implement the construction of the improvements. This coordination process would include determining which agency would be responsible for constructing the improvements and how fair-share cost would be determined if the City is determined to be the appropriate agency to build the improvements. Because the improvements would include modifications to City of Sacramento rights-of-way, they would be subject to review and approval by the City of Sacramento. This coordination process would occur during the final planning and design of The Hub and while Sacramento State works with the City of Sacramento on any formal approval processes such as those required for necessary permits. The improvements would need to be constructed prior to occupancy of Phase I of the project for Mitigation Measures 3.9-1a through 3.9-1c and prior to the occupancy of Phase II of the project for Mitigation Measure 3.9-1d.

As necessary, similar coordination would occur with other external partners such as SacRT and Caltrans to implement the transportation mitigation measures identified in the EIR. For example, Mitigation Measure 3.9-2 identifies the expansion of public transit service to/from the project site as a potential transportation demand management (TDM) strategy to reduce project-generated vehicle miles traveled (VMT). If Sacramento State were to pursue this strategy, it could decide to engage SacRT to explore potential SacRT service expansion to/from the project site, including potential agreements addressing the funding and implementation of such service expansion.

Comment S1-2

- Please expand the discussion to include how partnerships would work to implement the following Transportation Demand Management (TDM) measures:
  - Adding bike and ped amenities to roadway segments outside of the property.
  - Improving transit access for pedestrians.
  - Enhancing service to 65th Street Light Rail Station.

Response S1-2

Refer to Response S1-1 for a description of how Sacramento State would coordinate with external partners to implement the transportation mitigation measures identified in the Draft EIR.

The implementation of off-site bicycle and pedestrian facility improvements and transit access improvements would require that such coordination occurs between Sacramento State and the owner/operator of the property or transportation facility that would be affected by each improvement. Coordination with the City of Sacramento would be necessary for the implementation of improvements on surrounding off-site roadways such as Power Inn Road and Cucamonga Avenue. Coordination with SacRT would be necessary for the implementation of improvements within the light rail track right-of-way or on property owned by SacRT at and near the Power Inn Light Rail Station.

The implementation of enhanced service to the University/65th Street Light Rail Station would require coordination between Sacramento State and potential transit service operators. These transit service operators would include, but not be limited to, SacRT and Sacramento State (which operates the Hornet Shuttle).

Comment S1-3

- Has CSUS considered the potential for a light rail station between Power Inn and 65th Street as a VMT mitigation measure for this project?

Response S1-3

As described in The Hub Master Plan and the Draft EIR, the City of Sacramento and SacRT have pre-planned a potential future light rail station located directly north of the project between the Power Inn and University/65th Light Rail Stations. While the project evaluated in the Draft EIR would not include the construction of this station, it would support this potential future station by virtue of its proposed land uses and identified multi-modal transportation improvements.

As described in the Draft EIR, the project would have access to light rail transit via the nearby existing Power Inn Light Rail Station and several transportation mitigation measures would improve pedestrian, bike, and transit access between the project site and this existing station. While a potential new light rail station between the Power Inn and University/65th Light Rail Stations would further improve light rail transit access to and from the project site, it would not be required to lessen the project's significant impact related to VMT. Moreover, the construction of a new light rail station would be beyond the control of Sacramento State as it would be subject to the review and approval by SacRT. Finally, in addition to being outside the jurisdiction of Sacramento State, there are other outstanding uncertainties regarding the feasibility of a potential new light rail station at this location related to funding, design (e.g., ability to accommodate adjacent freight line within available right-of-way, ability to provide sufficient stopping distance for eastbound trains between the Ramona Avenue flyover and the station, etc.), and operations (e.g., would a new station at this location be consistent with SacRT's performance expectations related to access, on-time performance, and passenger travel times).

Comment S1-4

Please provide our office with copies of any further actions regarding the project. We would appreciate the opportunity to review and comment on any changes related to this development.

If you have questions regarding these comments or require additional information, please contact Alex Kenefick, City of Sacramento Intergovernmental Review Coordinator, by phone at (530) 565-3972 or via email at Alex.Kenefick@dot.ca.gov.

Response S1-4

Sacramento State appreciates Caltrans' review and input. Sacramento State will inform Caltrans and the City of Sacramento of project updates and future actions related to the CEQA process, and will continue to coordinate with agency partners on transportation improvements.

Local

Letter L1 Sacramento Metropolitan Air Quality Management District

Molly Wright, AICP, Air Quality Planner/Analyst
February 28, 2022

Comment L1-1

The Sacramento Metropolitan Air Quality Management District (Sac Metro Air District) thanks California State University Sacramento (CSUS) for the opportunity to review the Draft Environmental Impact Report (EIR) for The Hub Research Park Project (The Hub) under the California Environmental Quality Act (CEQA). This project is a proposal to develop 25 acres in the City of Sacramento with academic, research, and office space that support CSUS academic programming. Please accept the following recommendations on project implementation and modifications to the Draft EIR, to benefit air quality and public health, to reduce greenhouse gas (GHG) emissions, and to ensure full public disclosure of project air quality and climate impacts.

Operations: Criteria Pollutant Emissions

The Draft EIR analysis of Criteria Pollutants, pollutants regulated by the Clean Air Act, identifies environmental impacts resulting from project operations as less than significant because they do not exceed Sac Metro Air District thresholds of significance. Please note that the non-zero thresholds of significance for Particulate Matter (PM) require implementation of Best Management Practices for land development projects (Operational BMPs), as identified in Sac Metro Air District's guidance on reviewing projects under CEQA, The Guide to Air Quality Assessment in Sacramento County (CEQA Guide), available on our website.

- Sac Metro Air District recommends that the EIR describe how the project will comply with the Operational BMPs, to ensure appropriate use of the non-zero PM thresholds.

Response L1-1

The comment asks for clarification regarding how the project would comply with operational BMPs and the use of Sacramento Metropolitan Air District's (SMAQMD's) non-zero PM threshold. The project will comply with Operational BMPs to ensure appropriate use of the non-zero PM threshold through reginal and state requirements. The project is subject to the required rules and regulations adopted by SMAQMD that address wood burning devices (Rule 417), boilers (Rule 414), water heaters (Rule 414), generators (Rule 202) and other PM control rules that may apply to equipment located at the project. California State Health & Safety Code 18934.5 requires CSU to follow the provisions of the California Building Standards Code, California Code of Regulations (CCR) Title 24 as adopted by Building Standards Commission Thus, the project would meet Title 24, Part 6 and Part 11 building standards. Furthermore, the project is subject to the CARB regulation for limiting idling time to 5 minutes. Because the project is subject to the mentioned regulatory requirements, the project will comply with implementing operational BMPs and use of a non-zero PM threshold.

The third paragraph on page 3.2-17 of the Draft EIR is revised as follows:

> In order to reduce operational PM emissions for land use development projects, SMAQMD recommends projects to implement operational BMPs, which also allows for projects to apply a non-zero threshold of significance. The project would comply with SMAQMD's BMPs for PM reduction through implementation of state regulatory requirements under California Building Energy Efficiency Standards, Title 24, Part 6 and Part 11~~the California Energy Efficiency Standards and Green Building Code~~, compliance with SMAQMD Rules and Regulations, and CARB anti-idling regulations. As part of the project design, these measures have been included and would be considered to be in place for the purpose of this analysis as they would be required through the building permit and inspection process.

Comment L1-2

Sac Metro Air District commends the Draft EIR's use of our Guidance to Address the Friant Ranch Ruling for CEQA Projects in the Sac Metro Air District (Friant Guidance) to analyze health effects pursuant to the Friant Ranch California Supreme Court decision, where the Court held that CEQA air quality analysis should include a reasonable effort to connect a project's air quality impacts to likely health consequences or explain in meaningful detail why it is not feasible to do so. Draft EIR analysis utilized the Friant Guidance's Minor Project Health Effects tool.

- For full public disclosure of ozone-related public health risk, please consider including the Minor Project Health Effects tool model run in the final text.

Response L1-2

The commenter requests disclosure of ozone-related public health risk using the Minor Project Health Effects tool. The Draft EIR evaluates the impacts to ozone-related public health risk on page 3.2-18, and the analysis presented therein is considered appropriate and valid. The commenter has not raised substantive issues with the analysis provided in the Draft EIR; therefore, no revisions have been made to the Draft EIR in response to this comment.

Comment L1-3

Operations: Greenhouse Gas Emissions

The Draft EIR analysis of GHG emissions finds that the environmental impacts of GHG emissions from project operations are significant and unavoidable after mitigation. Under Sac Metro Air District's GHG CEQA thresholds, if a project is consistent with a qualified Climate Action Plan (CAP), it is less than significant for GHG emissions impacts. The Draft EIR indicates that the CSUS CAP has a carbon neutral by 2040 goal, and that the proposed project is consistent with the CAP because it "would implement sustainable design features" that would put the university on track toward meeting that goal.

- Sac Metro Air District recommends that the EIR describe the CSUS CAP, whether that CAP is qualified (consistent with CEQA Section 15183.5), and document how the project is consistent with that CAP.
- Consistent with CEQA Appendix G Question VII b), on applicable plans for reducing GHG emissions, we also recommend that the EIR address whether the project would conflict with the City of Sacramento Climate Action Plan.

Response L1-3

The comment requests that the EIR discuss whether the CSUS CAP is qualified and if the project is consistent with the provisions of the CSUS CAP. The 2018 CSUS CAP was discussed in Section 3.6 under the "Regulatory Setting" and Impact 3.6-3. However, since release of the public draft, CSUS has adopted an updated 2021 CAP. Both the CSUS 2018 and 2021 CAP are not considered "qualified" under CEQA Section 15183.5 and cannot be used for streamlining of cumulative impacts analyses under CEQA. In addition, The Hub property is not a covered land use that was considered in either CAP, thus the CSUS CAP cannot be used as a threshold for this project. Finally, because the potential lessees of the site under Phase I of development are not university entities, they are not subject to the goals and policies of the CSUS CAP. Therefore, the project is not required to be consistent with the goals and policies of the CSUS CAPs. Additional discussion has been added to the "Regulatory Setting" and Impact 3.6-3 to discuss the 2021 CAP and the project's consistency with both CAPs.

In response to this comment and to reflect the recently prepared 2021 CAP for Sacramento State, the following additional paragraph has been added under the heading "Climate Action Plan" that begins on page 3.6-6 as follows:

> Sacramento State adopted an updated CAP in 2021 to align with the latest GHG reduction targets of the CSU system. The update CAP includes a 50 percent reduction target and zero waste campus by 2030, an 80 percent reduction target by 2035, and a carbon-neutrality reduction target by 2040. To achieve these goals the 2021 focuses on a 2019 Strategic Energy Plan to reach a net zero energy goal for existing and future buildings. Additional efforts to help achieve the campus reduction targets include adopting Green Office Certification, sustainable focused curriculum, using alternative transportation, reduced campus waste, involvement in environmental student organizations, as well as everyday student behavior changes that reduce environmental impact.

In addition, the last paragraph on page 3.6-18 of the Draft EIR is revised as follows:

> The 2021 Sacramento State CAP aims to exceed the CSU Sustainability Policy by setting a carbon neutral goal by 2040. For the same reasons that the project would be consistent with Climate Leadership Commitment, the project would implement sustainable design features that would put the university on track toward meeting emission reduction goals. These features include limited natural gas use, onsite solar energy generation, and EVSE parking spaces. Thus, the project would be consistent with the 2021 CAP.

The comment also requests that the EIR discuss the project's consistency with the City of Sacramento's CAP. As noted on page 3.6-7 of the Draft EIR, Sacramento State is an entity of the CSU, which is a statutorily and legislatively created and constitutionally authorized State agency. State agencies are not subject to local government planning and land use plans, policies, or regulations. Therefore, the City of Sacramento Climate Action Plan cannot be used as a threshold to be used for this analysis. However, for information purposes, the following paragraph has been added to identify the project's relative consistency with the City of Sacramento's CAP. An additional paragraph under Impact 3.6-3 on page 3.6-18 is as follows:

> **Consistency with the City of Sacramento Climate Action Plan**
> Although not required for CSU (refer to statements regarding CSU sovereignty on page 3.6-7, above), the project would not conflict with the goals and policies of the City's CAP (listed under Regulatory Setting) to achieve carbon neutrality by 2035 through limited natural gas use, onsite solar energy generation, and EVSE parking spaces. Thus, the project would be considered consistent with the CAP.

Comment L1-4

The Draft EIR further indicates that "Potential additional mitigation included the purchase of [carbon] offsets, however, due to uncertainties surrounding the availability, feasibility (e.g., due to per-credit cost variability), and verifiability of carbon credits, this is not considered feasible mitigation for the purposes of this project."

- Sac Metro Air District recommends that the EIR explain specifically why carbon offsets are not considered feasible, for example what uncertainties exist surrounding the availability and verifiability of carbon credits, and fully explain other feasibility concerns such as the per-credit cost variability.

Providing an explanation about offset feasibility, so that is fully clear to the reader, will help ensure that the EIR's claim of significant and unavoidable GHG emissions impacts is adequately defended.

Response L1-4

The comment requests additional explanation regarding why GHG offsets are not considered feasible mitigation. Although GHG offsets have been recommended in various CEQA documents in recent years throughout the State, certain unique fundamental characteristics of the proposed project in combination with the nature of how GHG offsets are created and purchased may result in potential complications related to the enforceability of such a mitigation measure. Specifically, the proposed project is a master plan that anticipates future occupants leasing land/buildings from CSU, as would be the case with the CMC and DOJ facilities. CSU, as the landowner and lead agency under CEQA, would be responsible for demonstrating that GHG offsets that are relied on for mitigation would fully mitigate corresponding impacts and satisfy CEQA's requirements that mitigation be feasible and enforceable. However, because CSU would lease the land to tenants sometime in the future, CSU would not be directly involved in the offset procurement process and would not have direct control over whether those tenants purchase sufficient offsets to satisfy the mitigation requirements.

CARB recommends that to the degree that mitigation measures are required, lead agencies should prioritize on-site design features that reduce emissions especially from VMT.[1] These design features are designated to invest in GHG reduction directly related to co-benefits of the region related to air quality, health, and economic benefits. As presented in the EIR, CSUS has included onsite project elements that offset GHG emissions, including onsite solar energy generation and a minimum of 10 percent of the project's 710 parking spaces fully equipped with EVSE, exceeding the CalGreen Tier 2 and SMAQMD standards of installing 10 percent of all parking spaces as EV-ready. The installation of EV chargers would reduce project related emissions from VMT and would provide the co-benefits of increased air quality and reduced GHG emissions locally, due to the reduction of vehicle tailpipe emissions.

Further, the local air districts, including SMAQMD, and relevant CEQA case law (e.g., Golden Door Properties v. County of San Diego (2018) __ Cal.App.5th __ and Golden Door Properties, LLC v. County of San Diego (2020) 50 Cal. App. 5th 467) suggest that there should be a local geographical hierarchy preference (i.e., project location, State, U.S.A., then International) when choosing the origin of GHG offsets used for mitigation in California. However, because GHG offset programs are developed throughout the world based on market-driven demand, the availability of a particular GHG offset originating from a certain geographical location cannot be controlled by the offset purchaser (i.e., CSU). Similarly, because GHG offsets are traded on a free market, similar to stocks and other commodities, the price to offset one metric ton of GHG emissions changes over time and is driven by demand, availability, and offset type (e.g., methane capture offset, forest sequestration offset). As a result, the price of mitigation using GHG offsets remains uncertain and funding could not be guaranteed.

Finally, because offsets are traded on a free market, there remains some uncertainty that all offsets are created equally and held to the same standards necessary to meet the requirements of offsets for the purpose of CEQA mitigation which must be real, verifiable, enforceable, additional, and permanent. Different GHG accounting protocols exist in different countries and for different offset types, that use different methods for calculating GHG offset potentials and duration of the offset (e.g., permanent can be defined differently among different protocols). Thus, one would need to look closely into the details of each GHG offset protocol to determine that offsets to be purchased comply with all CEQA mitigation requirements. Given the uncertainty of available offsets that meet all CEQA requirements, unknown cost to mitigate, complexity of the offset markets, and the fact that CSU would not have direct control over the offset purchasing, it cannot be guaranteed that all GHG offsets purchased for the purpose of mitigation under CEQA would be available, not cost-prohibitive, and meet all the mitigation requirements at the time mitigation is needed. For these reasons, the use of GHG offsets was deemed infeasible for this project.

Comment L1-5

The Draft EIR includes mitigation to reduce project vehicle miles traveled (VMT). Mitigation measure (MM) 3.6-1b consists of measures to reduce VMT, with emissions reduction quantification.

- Sac Metro Air District recommends that the EIR provide clear information on how the MM 3.6-1b emissions reduction quantifications were determined. This information should include a clear description of how measures within MM 3.6-1b will be implemented. For example, what emissions reduction can be expected from each of the bicycle and pedestrian connections proposed? What expanded transit service is provided, and what reductions can be expected from components of the expanded service?

[1] California Air Resources Board. 2017. *California's Climate Change Scoping Plan*. Available: https://ww2.arb.ca.gov/sites/default/files/classic/cc/scopingplan/scoping_plan_2017.pdf. Accessed April 27, 2022.

- To ensure that the project includes all feasible mitigation for operational GHG emissions impacts, Sac Metro Air District recommends adding the following measures into that mitigation:
  - o Provide future project employees and students with Sacramento Regional Transit passes.
  - o Provide an employee commute shuttle from the nearby Sacramento Regional Transit Power Inn light rail station.
  - o Implement a paid parking program for all project employment uses, whereby the employees receive a commute subsidy for transit, pedestrian, and bicycle commute, and are required to pay for single occupancy motor vehicle parking spaces.
  - o Utilize technology such as hydrogen fuel cells, and additional solar panels and/or battery storage, to reduce the number of diesel generators needed. Please contact Sac Metro Air District staff member Raef Porter at 916-588-0175 or rporter@airquality.org. for information on funding opportunities for this technology.

<u>Response L1-5</u>

The comment requests additional information related to the reduction potential of the strategies provided in MM 3.6-1b. The reduction potentials stated in Mitigation Measure 3.6-1b were excerpted from the California Air Pollution Control Officers Association (2021), *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity*. As stated on page 3.6-16 of the Draft EIR, the effectiveness of the TDM strategies cannot be precisely predicted due to a variety of factors specific to the project site and project operations, including the context of the surrounding built environment (e.g., urban versus suburban), the aggregate effect of multiple TDM strategies deployed together, and the degree of implementation and/or adoption by private entities (e.g., elective use of carpool program by office building tenants). Therefore, a range of reduction potential is provided based on the effectiveness and specified strategy parameters (e.g., location and applicable population) of the implemented TDM strategies. The range of effectiveness, as cited in CAPCOA 2021, has been established for each individual reduction measure and for groups of measures that have co-benefits when combined, based on a collection of studies and documentation relating to their effectiveness. Thus, presenting the potential range of benefits from each measure provides a ballpark figure, based on substantial evidence, for the potential of VMT and associated GHG reductions that could be achieved. The source (i.e., CAPCOA 2021) for these potential GHG reductions have been added to MM3.6-1b.

The commenter also recommends additional measures for inclusion in Mitigation Measure 3.6-1b. Sacramento State will implement all feasible mitigation for operational GHG emissions impacts caused by The Hub. However, because The Hub is a public-private partnership for the purpose of creating a research and innovation park, Sacramento State would lease to site tenants, primarily CMC and CA DOJ. This framework limits the feasibility of SMAQMD's additional recommended measures for the reasons discussed below.

With respect to the potential provision of transit passes, The Hub would align with the University's current campus practice of offering transit passes at a reduced cost: https://www.csus.edu/parking-transportation/alternative-transportation/commuter-sleeve.html. This would be available to Sacramento State students and employees, but not necessarily to the lessees/project partners (CMC and CA DOJ) that would use the site. Regardless, Sacramento State would encourage the lessees (CMC and CA DOJ) to offer a subsidized or free transit pass to their employees. Because Sacramento State cannot commit the lessees to offering transit passes and therefore cannot guarantee this would be implemented, the EIR impact analysis does not quantify VMT reductions from this measure.

As it pertains to employee commute shuttles, Sacramento State anticipates that one or more of its current shuttle routes would expand to include stops at one or both light rail stations (Power Inn/65th Street) in addition to The Hub. The expansion of a Hornet shuttle line to serve the project site was assumed as part of the project, as described on pages 2-6 and 2-9 in Section 2.4.5, "Bicycle, Pedestrian, Transit, and Electric Vehicle Charging," of the Draft EIR. Mitigation Measure 3.6-1b already accounts for GHG reductions due to expanding public transit service.

With respect to the potential implementation of a paid parking program, it is expected that valid parking permits in alignment with the current Sacramento State fee structure will be required at The Hub, similar to non-CSU users that currently have operations on the main campus. In the case of CA DOJ, which needs to have secured parking, it is anticipated that their parking fees would be collected via the lease agreement.

This measure is not materially different than the measure that states, "Implement a fair value commuting program or other pricing of vehicle travel and parking," which is already contained in Mitigation Measure 3.6-1b. Therefore, the GHG reductions related to VMT reductions due to parking fees have already been included in the EIR. Because CAPCOA requires consideration of related TDM strategies to prevent taking too much credit for separate strategies within the same family, asserting additional VMT reduction for this measure is not considered feasible.

With respect to the use of fuel cells or similar technology, Sacramento State cannot require these technologies of the site tenants (CMC and CA DOJ), but will encourage their use of hydrogen fuel cells and/or additional solar panels in lieu of diesel generators, or to reduce the need for diesel generators. Because Sacramento State cannot be sure that these technologies would be implemented, this is not considered feasible mitigation quantification and GHG reductions due to these technologies are not quantified in the EIR.

Implementation of Mitigation Measure 3.6-1b and the additional recommended measures, to the degree feasible for Sacramento State and its site tenants through the lease agreements, would result in reductions in VMT and GHG emissions caused by The Hub. Although it is possible that project-generated VMT per service population could be reduced to levels below 15 percent of the regional average (without mitigation it is approximately 10 percent below), it is unlikely that project-generated VMT per service population could be reduced to levels below 15 percent of the City of Sacramento average (without mitigation it is approximately 5 percent below). Therefore, the impact due to project-related increases in VMT would remain significant and unavoidable despite implementation of all feasible mitigation measures.

Mitigation Measure 3.6-1b on page 3.6-17 of the Draft EIR is revised as follows:

Mitigation Measure 3.6-1b: Implement Transportation Demand Management Strategies to Reduce Project-Generated VMT

The University shall implement transportation demand management (TDM) strategies to reduce vehicle trips and, in turn, VMT that would be generated by the project. The implementation of TDM strategies shall reduce total VMT per service population to levels that are 15 percent or more below the existing City of Sacramento and SACOG Region total VMT per service population averages.

Potential TDM strategies and their GHG mitigation potential include, but are not limited to, the following:

- Promote walking and bicycling for employee and student trips to and from the project site, including improved bicycle and pedestrian connections between the project site and Power Inn Station as described in Mitigation Measure 3.9-1d. This measure would result in a GHG mitigation potential of up to 4 percent of mobile emissions.
- Expand public transit service, including additional service connecting the project site with employee and student residential areas, as well as additional service connecting the project site with the Sacramento State main campus. This measure would result in a GHG mitigation potential of up to 4.6 percent of mobile emissions.
- Implement a fair value commuting program or other pricing of vehicle travel and parking. This measure would result in a GHG mitigation potential of up to 8 percent of mobile emissions.
- Provide carpool and/or vanpool incentive programs. This measure would result in a GHG mitigation potential of up to 8 percent of mobile emissions.
- Offer remote and/or hybrid working options. This measure's GHG mitigation potential is supportive of the measures provided above.

The GHG mitigation potential of the TDM strategies list were provided from the California Air Pollution Control Officers Association (2021), *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity.*

> The TDM strategies implemented will be consistent with existing and planned TDM programs on the Sacramento State main campus. If these TDM strategies are not sufficient to reduce total VMT per service population as described above, additional TDM measures or adjustments above shall be implemented as needed to reduce total VMT per service population, consistent with the criteria described above.

The following reference is to be included in Section 7, "References", under heading "3.6 Greenhouse Gas Emissions and Climate Change":

> California Air Pollution Control Officers Association. 2021. *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity*. Available: https://www.caleemod.com/documents/handbook/full_handbook.pdf. Accessed March 17, 2022.

Comment L1-6

The Draft EIR indicates that the project's electric vehicle (EV) infrastructure would offset project GHG emissions with a reduction of 240 metric tons of carbon dioxide equivalent (MTCO2e) (Draft EIR page 3.6-15). It indicates that modeling inputs and assumptions used to estimate GHG offsets are detailed in Appendix B, although it is not clear in Appendix B how the modeling yielded the 240 MTCO2e. For example, the table entitled "GHG Emissions Inventory" shows a reduction of 285 MTCO2e yearly from EV infrastructure, whereas the Draft EIR text indicates that 240 MTCO2e is achieved from EV infrastructure reductions over a 20-year period. The Draft EIR text indicates that "The project commitment to EVSE would both achieve and exceed the reduction needed to offset the project's construction mass emissions of 164 MTCO2e (Table 3.6-3) and would more than offset the energy-related emissions from natural gas."

- Sac Metro Air District recommends that the EIR include a summary table in its Appendix B that demonstrates how the 240 MTCO2e number was determined, and how it relates to the 285 MTCO2e number identified in the "GHG Emissions Inventory" table. This summary table should also identify how the 240 MTCO2e offsets the project's natural gas emissions, which are identified as 83 MTCO2e yearly in Table 3.6-4.

Further, the Draft EIR indicates that Sacramento Municipal Utility District (SMUD) intensity factors are adjusted for the Renewable Portfolio Standard (RPS) in project modeling inputs, with an intensity factor of 93.04.

- Sac Metro Air District recommends that the EIR Appendix B include documentation for this RPS adjustment.

Response L1-6

The Draft EIR identified that construction emissions would exceed SMAQMD's construction threshold of 1,100 MTCO$_2$e for years 2024 and 2025. However, the project will equip 71 parking spaces with electric vehicle supply equipment (EVSE) would more than offset the 164 MTCO$_2$e exceedance of SMAQMD's construction emissions threshold. Each EVSE parking space was estimated to reduce emissions by 4 MTCO$_2$e per year. Thus, the implementation of just three parking spaces with EVSE over a 20-year charging station lifespan would fully offset the exceedance of SMAQMD's construction emissions threshold (three spaces multiplied by 4 MTCO$_2$e per year multiplied by 20 years equates to 240 MTCO$_2$e).

A table has been added to Appendix B of the EIR that quantifies the reduction in construction emissions from EVSE.

The last paragraph on page 3.6-15 of the Draft EIR is also revised as follows:

> Of the 71 parking spaces that would be equipped with EVSE during project operations, three parking spaces with EVSE, operating~~on~~ over a 20-year charging station lifespan, would achieve a reduction of 240 MTCO$_2$e (3 spaces multiplied by 4 MTCO$_2$e/year multiplied by 20 years equates to 24~~0~~1 MTCO$_2$e).

As described on page 3.6-12 of the Draft EIR, the project would include a total of 71 parking spaces (equivalent to 10 percent of the total spaces) with EVSE, which exceeds SMAQMD and CalGreen Tier 2 standards of implementing only EV-capable and EV-ready spaces. As described in the Draft EIR on page, 3.6-15, 71 parking spaces with EVSE would result in an emissions reduction of 285 MTCO2e per year (71 spaces multiplied by 4 MTCO$_2$e per year), which would more than offset the natural gas-related emissions of 83 MTCO$_2$e per year and contribute to the reductions needed under the construction activities.

The comment also requests that further documentation be provided to show how the RPS adjustment to SMUD's GHG intensity factor was made. As described on page 3.6-12 of the Draft EIR, electricity consumption was estimated by adjusting GHG emissions factors for SMUD based on its RPS achievement. The project's RPS was adjusted according to SMUD's current 2019 RPS and projected for the build-out year of 2028 based on SMUD's goal of carbon neutrality by 2030. To provide further clarification, at the commenter's suggestion, additional documentation of the RPS adjustment has been included in Appendix B.

Comment L1-7

Permitting Requirements

The Draft EIR indicates that for the Hub project "Each building would be equipped with an emergency generator, which were assessed [in the Draft EIR] qualitatively," and that "Stationary source emissions from the back-up emergency generator would result in long-term operational emissions, however, the project is subject to the permitting requirements set forth by SMAQMD and would ensure that all emissions standards are met."

The project's generators will require an Authority to Construct and Permit to Operate from the Sac Metro Air District. Please contact the Sac Metro Air District at 800-880-9025 or permitting@airquality.org with comments or questions on permit or registration requirements. For permit application forms and instructions, please visit the following page on the Sac Metro Air District website: http://www.airquality.org/Businesses/Permits-Registration-Programs.

Please note that the Sac Metro Air District will conduct a health risk assessment (HRA) that will evaluate the impact to sensitive receptors from all stationary emission sources combined that are a part of this project, which could help provide further public disclosure on possible operational health risk.

- Sac Metro Air District recommends that the EIR reference the forthcoming Sac Metro Air District HRA. We recommend that the EIR include a link to Sac Metro Air District's website, for public access to the HRA when it is complete.

For information on Sac Metro Air District HRA timing and public website access, please contact Steve Mosunic, Program Supervisor with the Sac Metro Air District Permitting Section, at 279-207-1137 or smosunic@airquality.org.

Response L1-7

Section 3.2, "Air Quality" has been updated to address the future HRA for the emergency generators.

The second paragraph on page 3.2-17 of the Draft EIR is revised as follows:

> Stationary source emissions from the back-up emergency generator would result in long-term operational emissions, however, the project is subject to ~~the~~ an Authority to Construct and Permit to Operate from the SMAQMD ~~permitting requirements set forth by SMAQMD and would~~ to ensure that all emissions standards are met. In addition, SMAQMD will conduct a health risk assessment (HRA) that will evaluate the impact to sensitive receptors from all stationary emission sources that are a part of this project, which could help provide further public disclosure on possible operational health risk.[1] Furthermore, because the generators would be used for emergency events, their operational emissions would be short-term and not result in a significant concentration of emissions.

A footnote is to be included on page 3.2-17 of the Draft EIR:

> For information on SMAQMD HRA timing and public website access, please contact Steve Mosunic, Program Supervisor with the Sac Metro Air District Permitting Section, at 279-207-1137 or smosunic@airquality.org.

Comment L1-8

Urban Heat Island Effect

The Sac Metro Air District participated in the 2020 Capital Region Transportation Sector Urban Heat Island Mitigation Project (UHI Project), producing a report on urban heat island effect impacts on the Sacramento region, and mitigation strategies for these impacts. The urban heat island effect already presents a serious challenge for our region, according to the report. Developed areas in Sacramento range 3 to 9 degrees Fahrenheit warmer than surrounding areas, which results in decreased air quality and associated public health impacts. The urban heat island results from the conversion of undeveloped land to developed land.

The Draft EIR references City of Sacramento 2035 General Plan Policy ER 3.1.6 on the Urban Heat Island Effect as relevant to its analysis of Biological Resources. Please note that City General Plan Policy LU 2.6.8, which stipulates that "The City shall reduce the 'heat island effect' by promoting and requiring, where appropriate, such features as reflective roofing, green roofs, light-colored pavement, and urban shade trees and by reducing the unshaded extent of parking lots," is relevant to its air quality and climate analyses. Consistent with these policies, and mitigation strategies identified in the UHI Project report, Sac Metro Air District recommends the following project measures:

- Utilize "cool pavement" for new outdoor pavement, with the highest albedo possible, but no less than 0.25. For guidance on cool pavement strategies, please visit Sac Metro Air District's Recommended Cool Pavement Strategies.
- Utilize certified cool roofs for all project structures. The 2019 California Building Energy Efficiency Standards suggests an aged solar reflectance of at least 0.63 for low-sloped roofs and at least 0.20 for steep-sloped roofs, and minimum thermal emittance of 0.75. The Cool Roof Rating Council provides a product directory of roofs.
- Landscaping incorporates new trees to shade new and existing pavements and structures to the full extent feasible, so that parking lots have at least 50% tree shade coverage, and shade trees line pedestrian paths to provide continuous shade coverage there. Specifically, we recommend planting air-quality supportive tree species, with approximately 35-foot wide canopies, planted no more than 40 feet apart, along all project pedestrian routes to provide continuous shading there to the full extent feasible.

For air-quality supportive tree species, please reference the Sacramento Tree Foundation's Shady Eighty guide. The Shady Eighty guide provides a directory of air-quality supportive trees with information for each species on shade canopy, necessary distance between plantings, and more. Finally, Sac Metro Air District commends MM 3.3-2 which stipulates consistence with the City of Sacramento's Tree Preservation Ordinance.

<u>Response L1-8</u>

The comment recommends that the EIR include additional mitigation that would reduce impacts from the Urban Heat Island Effect, consistent with City of Sacramento General Plan Policy. However, Sacramento State is an entity of the CSU, which is a statutorily and legislatively created and constitutionally authorized State agency, and the Ramona Property (the project site) is owned by the CSU. As stated previously, State agencies are not subject to local government planning and land use plans, policies, or regulations; however, the City's General Plan policies are acknowledged as part of the Draft EIR.

With respect to changes associated with the project, the project site is currently paved with limited vegetation. Sacramento State, through implementation of The Hub, is committed to fostering CSUS's designation as a "Tree Campus USA" by incorporate landscaping throughout the site with shade trees and various vegetation. The project is required to comply with the latest California Building Energy Efficiency Standards including the requirements for cool roofs. In addition, Sacramento State is committed to stormwater management through low impact development and the incorporation of permeable pavement and the installation of solar canopies over parking lots. The design features that would be integrated into the project would reduce the project's impacts to the Urban Heat Island Effect and would be consistent with the additional mitigation recommended for the project. Thus, no additional mitigation is considered necessary.

<u>Comment L1-9</u>

Construction

Finally, as a reminder, all projects are subject to Sac Metro Air District rules and regulations at the time of construction. Please visit our website to find a list of the most common rules that apply at the construction phase of projects.

<u>Response L1-9</u>

The comment does not raise issues related to the adequacy of the EIR's analysis. No further response is necessary.

Comment L1-10

Conclusion

Thank you for your attention to our comments. If you have questions about them, please contact me at mwright@airquality.org or 279-207-1157.

Response L1-10

Sacramento State appreciates SMAQMD's review and input. Sacramento State will inform SMAQMD of future actions related to the CEQA process, and will coordinate with SMAQMD on any necessary permits.

This page intentionally left blank.

EXECUTIVE SUMMARY

ES.1 INTRODUCTION

This Executive Summary is provided in accordance with the California Environmental Quality Act (CEQA) Guidelines Section 15123. It contains an overview of the analysis of The Hub - Sacramento State Research Park project (The Hub or project). As stated in the State CEQA Guidelines Section 15123(a), "[a]n EIR shall contain a brief summary of the proposed actions and its consequences. The language of the summary should be as clear and simple as reasonably practical." State CEQA Guidelines Section 15123(b) states, "[t]he summary shall identify: 1) each significant effect with proposed mitigation measures and alternatives that would reduce or avoid that effect; 2) areas of controversy known to the Lead Agency, including issues raised by agencies and the public; and 3) issues to be resolved including the choice among alternatives and whether or how to mitigate the significant effects." Accordingly, this summary includes a brief synopsis of the project and project alternatives, environmental impacts and mitigation, areas of known controversy, and issues to be resolved during environmental review. Table ES-1 (at the end of this section) presents the summary of potential environmental impacts, their level of significance without mitigation measures, the mitigation measures, and the levels of significance following the implementation of mitigation measures.

ES.2 SUMMARY DESCRIPTION OF THE PROJECT

ES.2.1 Project Location

The project site, entirely owned by the University, is located at 3001 Ramona Avenue in the city of Sacramento, California. The 25-acre project site is less than one mile south of the University's main campus within a highly urbanized and industrial portion of Sacramento, roughly bounded by Brighton Avenue to the north, Power Inn Road to the east, Cucamonga Avenue to the south, and Ramona Avenue to the west. U.S. Highway 50 (US 50) is located less than 0.5 mile north of the site.

ES.2.2 Background and Need for the Project

California State University, Sacramento (Sacramento State or University) purchased the project site, known formerly as the Ramona property, from the State of California in 2005. The property was formerly used by the California Youth Authority as a correctional facility. The University originally intended to build student and faculty housing on the project site in the early 2000s. That plan was permanently put on hold in 2010 due to the 2008-09 recession. The project site was most recently used for remote parking until the University's Parking Structure 5 was completed and opened in 2018. The project site is currently vacant and all former California Youth Authority buildings and structures have been removed.

The project site is located within the City of Sacramento's 240-acre Sacramento Center for Innovation (SCI) Specific Plan area, which is envisioned as a hub for innovative business and clean technology industries. Sacramento's 2035 General Plan identifies the general area as an employment growth and economic development center (City of Sacramento 2017). The project site is also identified as an Employment Center within the Fruitridge-Broadway Community Plan of the 2035 General Plan (City of Sacramento 2015). The City of Sacramento and University share a vision to create a major research, education, and employment center with nearby and complementary office, research and development, and other employment uses.

ES.2.3 Project Objectives

The Hub - Sacramento State Research Park is a public-private partnership to create a research and innovation park focused on technology, forensic science, and academics that will incubate new mobility, promote scientific discoveries, spur economic growth, support education and new jobs for the local community, and become the anchor for the broader innovation district envisioned in the City of Sacramento SCI Specific Plan. The project is intended to be a showcase facility for the University and a model for integrating higher education, research, and industry in California and beyond. The University is partnering with:

- **California Mobility Center** (CMC), which provides future mobility innovators and industry incumbents with access to programs and resources that accelerate the pace of commercialization in California and worldwide, would develop offices, event space, a prototyping factory, and a mobility test track; and
- **California Department of Justice** (CA DOJ), which would consolidate a variety of State-wide programs related to research, science, law enforcement, and training on the site, with a focus on creating the nations' leading criminalists institute.

The objectives of The Hub are to:

- optimize an underutilized infill location, within the City of Sacramento, and proximate to the Sacramento State main campus and public transportation;
- provide public and private partnerships in research and innovation that support the academic curriculum at Sacramento State and provide student internships and other hands-on learning opportunities;
- working jointly with CMC partners, develop a facility that supports CMC research and development and provides opportunities for direct student involvement in autonomous electric vehicle manufacturing and testing;
- provide for direct student involvement in criminal justice and forensics investigations and consolidate CA DOJ programs and research;
- enhance opportunities for collaboration between the University and startup businesses, which would accommodate high-skilled technology-related jobs, reduce loss of intellectual capital and revenue to enhance sustainability within the Sacramento region and beyond, and allow a greater number of residents to live and work in the community;
- provide energy-efficient building design, low-water use, and high-quality construction, consistent with CSU sustainable design practices; and
- promote flexibility in project design and implementation to respond to market demand, through phasing of construction.

ES.2.4 Characteristics of the Project

The University is preparing a Master Plan is to establish a unifying framework for The Hub that optimizes uses/users, articulates quality, establishes an iconic image, and creates a sense of place that is consistent with the Sacramento State main campus. The Hub is envisioned to foster the development of innovative technologies, products, and processes while also supporting University and regional academic, research, and economic development goals. The Master Plan for The Hub includes the following elements, which would be developed in two phases (hereafter referred to as Phases I and II):

- CMC – Approximately 166,000 gross square feet (GSF) of development for a testing and manufacturing facility for mobility technologies and a showcase building;
- CA DOJ facility – An approximately 250,000-GSF, 5-story facility that would provide administrative/office and forensic laboratory space; and

- Up to 436,000 GSF of mixed-use development, which would allow for an expansion of administrative/support space for Sacramento State, CA DOJ, and/or future tenants.

PHASE I

Phase I would incorporate the major elements of the space program requirements for both CMC and CA DOJ and would establish the infrastructure for both Phase I and the future development of Phase II. For CMC, this phase would include development of an approximately 118,000 gross square foot (GSF) testing and manufacturing facility, an approximately 32,400 GSF showcase building, and an approximately 3-acre test track. For CA DOJ, this phase would include an approximately 250,000 GSF building providing offices, forensic laboratories, and classrooms, supporting administrative functions, enforcement, and training programs. Phase I would include areas for visitor parking, fleet and staff parking, open spaces, and the backbone circulation and utility infrastructure. Both CMC and CA DOJ would provide opportunities for integration with University instruction: classes, hands-on learning, internships, etc.

PHASE II

Phase II would intensify use of the project site by replacing the Phase I surface parking in the eastern portion of the site with two mixed-use buildings. As currently envisioned, the Phase II buildings would provide academic, administrative, and/or research office space with ground-level retail and parking, as well as additional space for CMC expansion, adjacent to the testing and manufacturing facility. Phase II includes additional buildings, open spaces, transportation linkages, infrastructure, and renewable energy production. This phase represents the full buildout of The Hub project as envisioned under this Master Plan.

Under Phase II, the CMC testing and manufacturing facility would be expanded to the west by approximately 15,600 GSF. The northern mixed-use building is anticipated to include retail, parking, and office/classroom building sized at approximately 384,000 GSF, with a maximum height of 75 feet. The southern building is envisioned to be an approximately 52,000 GSF two-story building, either an extension of the CA DOJ facility or a separate future user space for office or research uses.

ES.3 ENVIRONMENTAL IMPACTS AND RECOMMENDED MITIGATION MEASURES

This EIR has been prepared pursuant to the CEQA (Public Resources Code [PRC] Section 21000 et seq.) and the State CEQA Guidelines (California Code of Regulations, Title 14, Chapter 3, Section 1500, et seq.) to evaluate the physical environmental effects of The Hub. The California State University (CSU) Board of Trustees (Trustees) is the lead agency for the project. The Trustees have the principal responsibility for approving and carrying out the project and for ensuring that the requirements of CEQA have been met. After the Final EIR is prepared and the EIR public-review process is complete, the Trustees is the party responsible for certifying that the EIR adequately evaluates the impacts of the project.

Table ES-1, presented at the end of this chapter, provides a summary of the environmental impacts for The Hub. The table provides the level of significance of the impact before mitigation, recommended mitigation measures, and the level of significance of the impact after implementation of the mitigation measures.

ES.3.1 Significant-and-Unavoidable Impacts and Cumulative Impacts

Section 21100(b)(2)(A) of the State CEQA Guidelines provides that an EIR shall include a detailed statement setting forth “in a separate section: any significant effect on the environment that cannot be avoided if the project is implemented.” Accordingly, this section provides a summary of significant environmental impacts of the project that cannot be mitigated to a less-than-significant level.

Chapter 3, "Existing Environmental Setting, Impacts, and Mitigation," provides a description of the potential environmental impacts arising from the implementation of The Hub and recommends various mitigation measures to reduce impacts, to the extent feasible. Chapter 4, "Cumulative Impacts," determines whether the incremental effects of this plan are significant when viewed in connection with the effects of past projects, other current projects, and probable future projects. After implementation of the recommended mitigation measures, the project impacts would be reduced to a less-than-significant level except impacts related to greenhouse gas (GHG) emissions and climate change, and transportation.

Project construction and operation would result in GHG emissions from vehicle trips, area sources, electricity and natural gas consumption, water use and waste generation. The project includes installation of onsite solar according to 2022 Building Efficiency Standards and the installation of EVSE parking spaces. However, as noted in Section 3.6, "Greenhouse Gas Emissions and Climate Change," Impact 3.6-1, the effectiveness of the construction BMPs and TDM strategies is not known, and subsequent vehicle trip reduction effects cannot be guaranteed. Due to uncertainties regarding the ability for Mitigation Measures 3.6-1a and 3.6-1b to quantifiably reduce both construction-related GHG emissions and operational, VMT-related emissions, applicable thresholds (e.g., a 15 percent reduction in operational VMT and associated GHG emissions) may still be exceeded. Therefore, the project would not meet SMAQMD's VMT reduction threshold due to the aforementioned uncertainties and would conflict with applicable plans for the reduction of GHG emissions. The project would result in a considerable contribution to climate change, and the project's GHG impacts (Impacts 3.6-1 and 3.6-2) would be significant and unavoidable.

The project would conflict with CSU and Sacramento State policies that promote the use of bicycling, walking, and transit for travel to and from campus. The project would change the volume of vehicle traffic on City of Sacramento facilities in a manner that would conflict with City of Sacramento bicycle facility design guidance. In addition, gaps in the bicycle and pedestrian network could pose a barrier to bicycle and pedestrian travel and increase the potential for bicycle-vehicle or pedestrian-vehicle conflicts. Implementation of Mitigation Measures 3.9-1a through 3.9-1d (and Mitigation Measures 3.9-3a through 3.9-3d) would reduce impacts to a less-than-significant level by reducing the potential for conflicts involving bicyclists or pedestrians in a manner consistent with CSU and Sacramento State policies the promote the use of walking, bicycling, and transit to and from campus. Moreover, implementation of these mitigation measures would modify City of Sacramento facilities to accommodate project-related changes to vehicle traffic in a manner that would bring the facilities into compliance with City of Sacramento bicycle facility design guidance. However, the City of Sacramento holds jurisdictional control of the public roadway right-of-way surrounding the project site, including the roadway segments/right-of-way identified for improvements in Mitigation Measures 3.9-1a through 3.9-1d. Therefore, because Sacramento State does not have jurisdictional control of the right-of-way and thus, does not have the ability to construct these improvements, it cannot be ensured that Mitigation Measures 3.9-1a through 3.9-1d (and Mitigation Measures 3.9-3a through 3.9-3d) would be implemented. Therefore, impacts related to conflict with City of Sacramento bicycle facility design guidance and hazards to bicyclists and pedestrians would be significant and unavoidable.

The project would generate total VMT per service population at a rate that exceeds the threshold of 15 percent below the existing City or regional average. Implementation of Mitigation Measure 3.9-2 would reduce project-generated VMT per service population by instituting a TDM program to reduce external vehicle trips generated by the project. However, the effectiveness of the TDM strategies is not known and subsequent vehicle trip reduction effects cannot be guaranteed. Existing evidence indicates that the effectiveness of TDM strategies with regards to vehicle trip reduction can vary based on a variety of factors, including the context of the surrounding built environment (e.g., urban versus suburban) and the aggregate effect of multiple TDM strategies deployed together. Moreover, many TDM strategies are not just site specific, but also rely on implementation and/or adoption by private entities (e.g., elective use of carpool program by office building tenants). Due to uncertainties regarding the ability for the mitigation measure to quantifiably reduce VMT impacts to less-than-significant levels, this impact would be significant and unavoidable.

ES.4 ALTERNATIVES TO THE PROPOSED PROJECT

State CEQA Guidelines Section 15126.6, as amended, mandates that all EIRs include a comparative evaluation of the proposed plan with alternatives to the plan that are capable of attaining most of the plan's basic objectives but would avoid or substantially lessen any of the significant effects of the plan. CEQA requires an evaluation of a "range of reasonable" alternatives, including the "no project" alternative. The following provides brief descriptions of the alternatives evaluated in this ~~Draft~~ EIR. Table ES-2 presents a comparison of the environmental impacts between the alternatives and the proposed project.

- Alternative 1: No Project–No Development Alternative assumes no alternation of the project site. No development would occur and the project site would remain in its current condition, undeveloped and unused.
- Alternative 2: Reduced Density Alternative assumes buildout of the project site at a reduced density. This would involve construction and operation of buildings and facilities proposed for Phase I of the project, including CMC and CA DOJ facilities. However, the increased site development proposed during Phase II of the project, including future mixed-use buildings, expansion of CMC, and expansion of CA DOJ would not occur.

The State CEQA Guidelines section 15126.6 states that an EIR should identify the "environmentally superior" alternative. "If the environmentally superior alternative is the 'no project' alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives." Consistent with State CEQA Guidelines (CCR Section 15126.6 [e][2]), because the environmentally superior alternative was identified as the No Project – No Development Alternative, another environmentally superior alternative shall be identified. Based on the environmental analysis contained in this ~~Draft~~ EIR, the Reduced Density Alternative would reduce the severity of impacts compared to the project. However, Alternative 2 would not avoid the significant and unavoidable impacts related to GHG emissions, VMT, and bicycle and pedestrian facilities that would occur under The Hub, Sacramento State Research Park and mitigation similar to the project would be required for the Reduced Density Alternative. Nonetheless, the Reduced Density Alternative is the environmentally superior alternative.

ES.5 AREAS OF CONTROVERSY AND ISSUES TO BE RESOLVED

A notice of preparation (NOP) was distributed for the project on March 22, 2021 (SCH Number 2021030485) to responsible agencies, trustee agencies, interested parties, and organizations, as well as private organizations and individuals that may have an interest in the project. A public scoping meeting was held on April 7, 2021. The purpose of the NOP and the scoping meeting was to provide notification that an EIR for was being prepared for the project and to solicit input on the scope and content of the environmental document. The NOP and responses to the NOP are included in Appendix A of this ~~Draft~~ EIR. Key concerns and issues that were expressed during the scoping process included the following:

- Energy demand
- Utility infrastructure
- Vehicle miles traveled (VMT)
- Transit and the proposed Regional Transit station next to the project site
- Air emissions, greenhouse gas emissions, and climate change
- Hazardous materials
- Wastewater

All of the substantive environmental issues raised in the NOP comments have been addressed or otherwise considered during preparation of this ~~Draft~~ EIR.

Table ES-1 Summary of Impacts and Mitigation Measures

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
Aesthetics			
Impact 3.1-1: Substantially Degrade the Visual Character or Quality of Public Views of the Site and its Surroundings Project implementation would involve temporary (i.e., construction-related) and permanent (i.e., development of new structures) visual changes to the project site, within an urban setting in Sacramento. The vacant site would be visually altered by the development of four buildings, an autonomous vehicle test track, and supporting facilities such as parking, landscaping, and pedestrian pathways. However, the project vicinity is characterized by industrial urban development lacking any notable visual character, and the Master Plan for The Hub, Sacramento State Research Park includes design guidelines that would replicate the built environment and landscape character of the Sacramento State main campus on the project site. The project impact on the visual character of the site and public views in the project area would be less than significant.	LTS	No mitigation is required for this impact.	LTS
Impact 3.1-2: Create a New Source of Substantial Light or Glare That Adversely Affects Day or Nighttime Views The project would result in new sources of operational light and glare associated with development of new buildings, landscaping, parking areas, and pedestrian pathways. Project-related light sources would be similar to existing lighting conditions in the project area in terms of amount and intensity of light. Onsite lighting would be designed to meet current building standards, including the 2019 (or as updated) Building Energy Efficiency Standards and LEED v4 Silver certification, which would reduce both the generation of exterior light and the potential for light trespass to affect off-site areas. Therefore, this impact would be less than significant.	LTS	No mitigation is required for this impact.	LTS
Air Quality			
Impact 3.2-1: Conflict with or Obstruct Implementation of an Applicable Air Quality Plan Implementation of the project would not increase projected growth beyond the City's 2035 General Plan, which considered the expected growth of the SCI Specific Plan in which the project is located. Because the 2035 General Plan was used to inform the projected growth in the air quality attainment plans (AQAPs), the project would be consistent with the AQAPs. The project is consistent with the AQAP and this impact would be less than significant.	LTS	No mitigation is required for this impact.	LTS

NI = No impact LTS = Less than significant PS = Potentially significant S = Significant SU = Significant and unavoidable

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
Impact 3.2-2: Cause Construction-Generated Criteria Air Pollutant or Precursor Emissions to Exceed SMAQMD-Recommended Thresholds Construction of the project would result in emissions of ROG, NO_X, PM_{10}, and $PM_{2.5}$. Construction activities would result in maximum daily emissions of PM_{10} and $PM_{2.5}$ that would exceed SMAQMD's thresholds of significance without BMPs. This impact would be significant.	S	**Mitigation Measure 3.2-2: Implement SMAQMD's Basic Construction Emission Control Practices** For all project-related development, construction contractors shall implement SMAQMD's Basic Construction Emission Control Practices, including the following: ▶ water all exposed surfaces two times daily. Exposed surfaces include, but are not limited to soil piles, graded areas, unpaved parking areas, staging areas, and access roads; ▶ cover or maintain at least two feet or free board space on haul trucks transporting soil, sand, or other loose material on the site. Any haul trucks that would be traveling along freeways or major roadways should be covered; ▶ use wet power vacuum street sweepers to remove any visible trackout mud or dirt onto adjacent public roads at least once a day. Use of dry power sweeping is prohibited; ▶ limit vehicle speeds on unpaved roads to 15 miles per hour (mph); ▶ complete construction of all roadways, driveways, sidewalks, parking lots as soon as possible. In addition, building pads should be laid as soon as possible after grading unless seeding or soil binders are used; ▶ minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes [required by California Code of Regulations, Title 13, sections 2449(d)(3) and 2485]. Provide clear signage that posts this requirement for workers at the entrances to the site; and ▶ maintain all construction equipment is in proper working condition according to manufacturer's specifications. The equipment must be checked by a certified mechanic and determined to be running in proper condition before it is operated.	LTS
<u>**Impact 3.2-3: Result in a Net Increase in Long-Term Operational Criteria Air Pollutant and Precursor Emissions That Exceed SMAQMD-Recommended Thresholds**</u> <u>Implementation of the project would result in long-term operational emissions that are not expected to exceed the SMAQMD's thresholds of significance. Thus, operation-generated emissions would not contribute substantially to the nonattainment statuses of SVAB. Additionally, examination of the project using SMAQMD's Minor Project Health Effects Tool indicates that the project would not result in sizeable health effects and may result in no health effects. This impact would be less than significant.</u>	<u>LTS</u>	<u>No mitigation is required for this impact.</u>	<u>LTS</u>

NI = No impact LTS = Less than significant PS = Potentially significant S = Significant SU = Significant and unavoidable

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
Impact 3.2-4: Expose Sensitive Receptors to Substantial Pollutant Concentrations Construction-related emissions of TACs associated with proposed project would be spread over the project area, not affecting any one receptor for extended periods of time, and therefore, would not result in exposure of existing receptors to substantial TAC concentrations. The project would not result in exposure of sensitive receptors to excessive TAC emissions from operational emissions. This impact would be less than significant.	LTS	No mitigation is required for this impact.	LTS
Impact 3.2-5: Create Objectionable Odors Affecting a Substantial Number of People The project would introduce construction-related odor sources into the area (e.g., temporary diesel exhaust emissions during construction). However, these odor sources would be temporary, intermittent, and dissipate rapidly from the source. The project would not introduce new odor sources identified by SMAQMD and therefore would not result in an odor impact. As a result, potential exposure of sensitive receptors to objectionable odors would be less than significant.	LTS	No mitigation is required for this impact.	LTS
Biological Resources			
Impact 3.3-1: Result in Disturbance to or Loss of Special-Status Wildlife Species and Habitat Project implementation would include construction activities including ground disturbance, vegetation clearing, and tree removal, which could result in disturbance, injury, or mortality of several special-status wildlife species if present. This would be a potentially significant impact.	PS	**Mitigation 3.3-1a: Conduct Take Avoidance Survey for Burrowing Owl, Implement Avoidance Measures, and Compensate for Loss of Occupied Burrows** The following measures shall be implemented prior to and during project construction activities: ▸ A qualified biologist will conduct a focused survey for burrowing owls in areas of habitat suitable for the species (e.g., ruderal grassland, artificial burrow habitat) on and within accessible areas 1,640 feet (500 meters) 1,500 feet of the project site no less than 14 days prior to initiating ground disturbance activities using survey methods described in Appendix D of the CDFW Staff Report (CDFW 2012). ▸ If no occupied burrows are found, the qualified biologist will submit a report documenting the survey methods and results to the University, and no further mitigation will be required. ▸ If an active burrow is found within 1,640 feet of pending construction activities that would occur during the nonbreeding season (September 1 through January 31), the University shall establish and maintain a minimum protection buffer of 164 feet (50 meters) around the occupied burrow throughout construction. The actual buffer size will be determined by the qualified biologist based on the time of year and level of disturbance in accordance with guidance provided in the CDFW Staff Report on Burrowing Owl	LTS

NI = No impact LTS = Less than significant PS = Potentially significant S = Significant SU = Significant and unavoidable

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		Mitigation (CDFW 2012). The protection buffer may be adjusted if, in consultation with CDFW, a qualified biologist determines that an alternative buffer will not disturb burrowing owl use of the burrow because of particular site features or other buffering measures. If occupied burrows are present that cannot be avoided or adequately protected with a no-disturbance buffer, a burrowing owl exclusion plan will be developed, as described in Appendix E of the CDFW Staff Report (CDFW 2012). Burrowing owls will not be excluded from occupied burrows until the project burrowing owl exclusion plan is approved by CDFW. The exclusion plan will include a compensatory habitat mitigation plan (see below). ▸ If an active burrow is found during the breeding season (February 1 through August 31), occupied burrows will not be disturbed and will be provided with a protective buffer at a minimum of 164 feet unless a qualified biologist verifies through noninvasive means that either: (1) the birds have not begun egg laying, or (2) juveniles from the occupied burrows are foraging independently and are capable of independent survival. The size of the buffer may be adjusted depending on the time of year and level of disturbance as outlined in the CDFW Staff Report (CDFW 2012). The size of the buffer may be reduced if a broad-scale, long-term, monitoring program acceptable to CDFW is implemented so that burrowing owls are not adversely affected. Once the fledglings are capable of independent survival, the owls can be evicted, and the burrow can be destroyed per the terms of a CDFW-approved burrowing owl exclusion plan developed in accordance with Appendix E of CDFW Staff Report (CDFW 2012). ▸ If burrowing owls are evicted from burrows and the burrows are destroyed by implementation of project construction activities, the University will mitigate the loss of occupied habitat in accordance with guidance provided in the CDFW Staff Report, which states that permanent impacts on nesting, occupied and satellite burrows, and burrowing owl habitat (i.e., grassland habitat with suitable burrows) will be mitigated such that habitat acreage and number of burrows are replaced through permanent conservation of comparable or better habitat with similar vegetation communities and burrowing mammals (e.g., ground squirrels) present to provide for nesting, foraging, wintering, and dispersal (CDFW 2012). The University will retain a qualified biologist to develop a burrowing owl mitigation and management plan that incorporates the following goals and standards:	

NI = No impact LTS = Less than significant PS = Potentially significant S = Significant SU = Significant and unavoidable

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		■ Mitigation lands will be selected based on comparison of the habitat lost to the compensatory habitat, including type and structure of habitat, disturbance levels, potential for conflicts with humans, pets, and other wildlife, density of burrowing owls, and relative importance of the habitat to the species throughout its range. ■ If feasible, mitigation lands will be provided adjacent or proximate to the project site so that displaced owls can relocate with reduced risk of injury or mortality. Feasibility of providing mitigation adjacent or proximate to the project site depends on availability of sufficient habitat to support displaced owls that may be preserved in perpetuity. ■ If habitat suitable for burrowing owl is not available for conservation adjacent or proximate to the project site, mitigation lands can be secured off-site and will aim to consolidate and enlarge conservation areas outside of planned development areas and within foraging distance of other conservation lands. Mitigation may be also accomplished through purchase of mitigation credits at a CDFW-approved mitigation bank, if available. Alternative mitigation sites and acreages may also be determined in consultation with CDFW. ■ If burrowing owl habitat mitigation is completed through permittee-responsible conservation lands, the mitigation plan will include mitigation objectives, site selection factors, site management roles and responsibilities, vegetation management goals, financial assurances and funding mechanisms, performance standards and success criteria, monitoring and reporting protocols, and adaptive management measures. Success will be based on the number of adult burrowing owls and pairs using the site and if the numbers are maintained over time. Measures of success, as suggested in the CDFW Staff Report, will include site tenacity, number of adult owls present and reproducing, colonization by burrowing owls from elsewhere, changes in distribution, and trends in stressors (CDFW 2012). **Mitigation 3.3-1b: Conduct Focused Surveys for Special-Status Birds, Nesting Raptors, and Other Native Nesting Birds and Implement Protective Buffers** The following measures shall be implemented prior to and during project construction activities: ▶ To minimize the potential for loss of special-status bird species, raptors, and other native birds, project construction activities (e.g., tree removal, vegetation clearing, ground disturbance, staging) will be conducted during the nonbreeding season (approximately September 1-January 31, as determined	

NI = No impact LTS = Less than significant PS = Potentially significant S = Significant SU = Significant and unavoidable

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		by a qualified biologist), if feasible. If project construction activities are conducted during the nonbreeding season, no further mitigation will be required. ▸ Within 14 days before the onset of project construction activities during the breeding season (approximately February 1 through August 31, as determined by a qualified biologist), a qualified biologist familiar with birds of California and with experience conducting nesting bird surveys will conduct focused surveys for special-status birds, other nesting raptors, and other native birds. Surveys will be conducted within 0.25 mile of the project site for Swainson's hawk within 500 feet of the project site for white-tailed kite and other common raptors, and within 50 feet of the project site for non-raptor common native bird nests. ▸ Impacts on nesting birds will be avoided by establishing appropriate buffers around active nest sites identified during focused surveys to prevent disturbance to the nest. Project construction activity will not commence within the buffer areas until a qualified biologist has determined that the young have fledged, the nest is no longer active, or reducing the buffer will not likely result in nest abandonment. An avoidance buffer of a minimum of 0.25 mile will be implemented for Swainson's hawk in consultation with CDFW. For other species, a qualified biologist will determine the size of the buffer for non-raptor nests after a site- and nest-specific analysis. Buffers typically will be 500 feet for white-tailed kite and other raptors (other than Swainson's hawk). Buffer size for non-raptor bird species will be determined by a qualified biologist. Factors to be considered for determining buffer size will include presence of natural buffers provided by vegetation or topography, nest height above ground, baseline levels of noise and human activity, species sensitivity, and proposed project construction activities. Generally, buffer size for these species will be at least 20 feet. The size of the buffer may be adjusted if a qualified biologist, determines that such an adjustment would not be likely to adversely affect the nest. Any buffer reduction for a special-status species will require consultation with CDFW. Periodic monitoring of the nest by a qualified biologist during project construction activities will be required if the activity has potential to adversely affect the nest, the buffer has been reduced, or if birds within active nests are showing behavioral signs of agitation (e.g., standing up from a brooding position, flying off the nest) during project construction activities, as determined by the qualified biologist.	

NI = No impact LTS = Less than significant PS = Potentially significant S = Significant SU = Significant and unavoidable

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		Mitigation 3.3-1c: Conduct Focused Bat Surveys and Implement Avoidance Measures The following measures shall be implemented prior to and during project construction activities: ▸ Prior to the start of project construction activities a qualified biologist with familiarity with bats and bat ecology, and experienced in conducting bat surveys will conduct surveys for bat roosts in large trees on the project site. ▸ If no evidence of bat roosts is found, the qualified biologist will submit a report summarizing the results of the survey to the University, and no further study will be required. ▸ If evidence of bat roosts is observed, the species and number of bats using the roost will be determined. Bat detectors shall be used if deemed necessary to supplement survey efforts by the qualified biologist. ▸ A no-disturbance buffer of 250 feet will be established around active pallid bat or western red bat roosts, and project construction activities will not occur within this buffer until after the roosts are unoccupied as determined by a qualified biologist. ▸ If roosts of pallid bat or western red bat are determined to be present and must be removed, the bats will be excluded from the roosting site before the tree is removed. A program addressing compensation, exclusion methods, and roost removal procedures will be developed in consultation with CDFW before implementation. Exclusion efforts may be restricted during periods of sensitive activity (e.g., during hibernation or while females in maternity colonies are nursing young). The loss of each roost (if any) will be replaced in consultation with CDFW and may require construction and installation of bat boxes suitable to the bat species and colony size excluded from the original roosting site. If determined necessary during consultation with CDFW, replacement roosts will be implemented before bats are excluded from the original roost sites. Once the replacement roosts are constructed and it is confirmed that bats are not present in the original roost site by a qualified biologist, the roost tree may be removed.	
Impact 3.3-2: Conflict with Local Policies and Ordinances The City of Sacramento 2035 General Plan and City of Sacramento Tree Preservation Ordinance contain policies and requirements that protect biological resources. The University is not subject to local government regulations. However, implementation of the project could result in the direct loss or temporary	PS	**Mitigation Measure 3.3-2: Remove and Replace City Street Trees Consistent with the City of Sacramento Tree Preservation Ordinance** Before construction begins, the University will complete a survey of City street trees at the project site and prepare and submit a detailed tree removal, protection, replanting, and replacement plan to the City arborist. The tree removal plan will be	LTS

NI = No impact LTS = Less than significant PS = Potentially significant S = Significant SU = Significant and unavoidable

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
disturbance of City street trees located within the City right-of-way, or "City street trees", that are protected under the City of Sacramento Tree Preservation Ordinance. This impact would be potentially significant.		developed by a certified arborist. Separate plans may be prepared for different phases of project construction; however, each construction phase cannot be initiated until a completed plan addressing that construction phase is provided to the City of Sacramento. The plan shall include the following elements: ▸ The number, location, species, health, and sizes of all City street trees to be removed, relocated, or replaced will be identified. This information will also be provided on a map/design drawing to be included in the project plans. ▸ Planting techniques, the necessary maintenance regime, success criteria, and a monitoring program for all City street trees planted on or, disturbed but retained on the project site, will be described.	
~~**Impact 3.2-3: Result in a Net Increase in Long-Term Operational Criteria Air Pollutant and Precursor Emissions That Exceed SMAQMD-Recommended Thresholds**~~ ~~Implementation of the project would result in long-term operational emissions that are not expected to exceed the SMAQMD's thresholds of significance. Thus, operation-generated emissions would not contribute substantially to the nonattainment statuses of SVAB. Additionally, examination of the project using SMAQMD's Minor Project Health Effects Tool indicates that the project would not result in sizeable health effects and may result in no health effects. This impact would be less than significant.~~	~~LTS~~	~~No mitigation is required for this impact.~~	~~LTS~~
~~**Impact 3.2-4: Expose Sensitive Receptors to Substantial Pollutant Concentrations**~~ ~~Construction-related emissions of TACs associated with proposed project would be spread over the project area, not affecting any one receptor for extended periods of time, and therefore, would not result in exposure of existing receptors to substantial TAC concentrations. The project would not result in exposure of sensitive receptors to excessive TAC emissions from operational emissions. This impact would be less than significant.~~	~~LTS~~	~~No mitigation is required for this impact.~~	~~LTS~~
~~**Impact 3.2-5: Create Objectionable Odors Affecting a Substantial Number of People**~~ ~~The project would introduce construction-related odor sources into the area (e.g., temporary diesel exhaust emissions during construction). However, these odor sources would be temporary, intermittent, and dissipate rapidly from the source. The project would not introduce new odor sources identified by SMAQMD and therefore would not result in an odor impact. As a result, potential exposure of sensitive receptors to objectionable odors would be less than significant.~~	~~LTS~~	~~No mitigation is required for this impact.~~	~~LTS~~

NI = No impact LTS = Less than significant PS = Potentially significant S = Significant SU = Significant and unavoidable

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
Archaeological, Historical, and Tribal Cultural Resources			
Impact 3.4-1: Cause a Substantial Adverse Change in the Significance of an Archaeological Resource Based on the records search and pedestrian survey, there are no archaeological resources located within the project site, or within the 0.25-mile radius. Additionally, the geoarchaeological sensitivity analysis found that the project site has low sensitivity for buried archaeological deposits. Therefore, implementation of the project would have a less-than-significant impact on archaeological resources.	LTS	No mitigation is required for this impact.	LTS
Impact 3.4-2: Disturb Human Remains Based on documentary research, there is no evidence that human interments are present within or in the immediate vicinity of the project site. However, project-related ground-disturbing activities could uncover previously unknown Native American or other human remains. Compliance with California Health and Safety Code Section 7050.5 and California Public Resources Code Section 5097 would make this impact less than significant.	LTS	No mitigation is required for this impact.	LTS
Impact 3.4-3: Cause a Substantial Adverse Change in the Significance of a Tribal Cultural Resource No tribal cultural resources have been identified as being present at the project site. However, earthmoving activities associated with project construction could disturb or destroy previously undiscovered significant subsurface tribal cultural resources. This impact would be potentially significant.	PS	Mitigation Measure 3.4-3 Tribal Cultural Resources Unanticipated Discovery ▸ A cultural resources respect training program will be provided to all construction personnel active on the project site prior to implementation of earth moving activities. The program will include relevant information regarding sensitive tribal cultural resources, including protocols for resource avoidance, applicable laws regulations, and the consequences of violating them. The program will also underscore the requirement for confidentiality and culturally-appropriate treatment of any find of significance to Native Americans and protocols, consistent, to the extent feasible, with Native American tribal values. ▸ If any suspected tribal cultural resources are discovered during ground disturbing construction activities, including midden soil, stone tools, chipped stone, or unusual amounts of baked clay, shell, or bone, all grading and excavation work shall cease within 100 feet of the find. ▪ The applicant shall retain a qualified archaeologist and immediately notify and retain a tribal representative from a California Native American tribe that is traditionally and culturally affiliated with the geographic area. Together, the archaeologist and tribal representative shall determine if the find is a tribal cultural resource (pursuant to PRC Section 21074). If the find does not qualify as a tribal cultural resource, work may resume.	LTS

NI = No impact LTS = Less than significant PS = Potentially significant S = Significant SU = Significant and unavoidable

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		▪ If the find is determined to be a tribal cultural resource, the tribal representative shall make recommendations for the appropriate treatment, as necessary. Preservation in place is the preferred alternative under CEQA and tribal protocols, and every effort must be made to preserve the resources in place, including through project redesign. ▪ Culturally appropriate treatment may be, but is not limited to, processing materials for reburial, minimizing handling of cultural objects, leaving objects in place within the landscape, or returning objects to a location within the project vicinity where they will not be subject to future impacts. Materials shall not be permanently curated unless approved by the tribe. Treatment that preserves or restores the cultural character and integrity of a tribal cultural resource may include culturally appropriate recovery of cultural objects and reburial of cultural objects or cultural soil. The University shall work with the contractor and tribal representative to facilitate the appropriate tribal treatment of any finds, as necessary. ▪ Work at the discovery location cannot resume until all necessary investigation and evaluation of the discovery, has been completed.	
Energy			
Impact 3.5-1: Result in the Wasteful, Inefficient, or Unnecessary Consumption of Energy or Wasteful Use of Energy Resources Construction and operation of buildings and facilities associated with the project would result in consumption of fuel (gasoline and diesel), electricity, and natural gas. Energy consumption associated with construction would be temporary and would not require additional capacity or increased peak or base period demands for electricity or other forms of energy. Through adherence to and exceedance of current building code requirements, energy consumption associated with operation of the buildings and facilities would not result in wasteful, inefficient, or unnecessary consumption of energy. This impact would be less than significant.	LTS	No mitigation is required for this impact.	LTS
Impact 3.5-2: Conflict with or Obstruct a State or Local Plan for Renewable Energy or Energy Efficiency Onsite renewable energy generation from the implementation of project, would result in an increase in renewable energy use, which would directly support the goals and strategies in the State's Energy Efficiency Action Plan and the CSU Sustainability Policy. Construction and operating project buildings in compliance with the 2019 (or as updated) California Energy Code would improve energy	NI	No mitigation is required for this impact.	LTS

NI = No impact LTS = Less than significant PS = Potentially significant S = Significant SU = Significant and unavoidable

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
efficiency compared to buildings built to earlier iterations of the code. Therefore, construction and operation of the project would not conflict with or obstruct a State or local plan for renewable energy or energy efficiency. No impact would occur.			
Greenhouse Gas Emissions and Climate Change			
Impact 3.6-1: Generate Greenhouse Gas Emissions, Either Directly or Indirectly, That May Have a Significant Impact on the Environment The project would result in GHG emissions from construction activities and operational activities including vehicle trips, area sources, electricity and natural gas consumption, water use and waste generation. The project includes installation of onsite solar according to 2022 Building Efficiency Standards and the installation of 71 EVSE-equipped parking spaces, which would offset the project's construction mass emissions. However, the project may not achieve a 15 percent reduction in regional VMT; therefore, the project would not be consistent with SMAQMD's VMT reduction threshold of significance and the project's GHG emissions would be significant.	S	**Mitigation Measure 3.6-1a: Reduce Project-Related Construction Greenhouse Gas Emissions** During construction activities, the University shall require its contractors to implement the following best management practices, as recommended by SMAQMD: ▸ Improve fuel efficiency from construction equipment: ▪ Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to no more than 3 minutes (5-minute limit is required by the state airborne toxics control measure [Title 13, sections 2449(d)(3) and 2485 of the California Code of Regulations]). Provide clear signage that posts this requirement for workers at the entrances to the site. ▪ Maintain all construction equipment in proper working condition according to manufacturer's specifications. The equipment must be checked by a certified mechanic and determined to be running in proper condition before it is operated. ▸ Perform on-site material hauling with trucks equipped with on-road engines ▸ Use alternative fuels for generators at construction sites such as propane or solar, or use electrical power. ▸ Require workers to use carpools, shuttle vans, transit passes and/or secure bicycle parking for construction worker commutes. ▸ Reduce electricity use in the construction office by using compact fluorescent bulbs, powering off computers every day, and replacing heating and cooling units with more efficient ones. ▸ Recycle or salvage 75 percent of non-hazardous construction and demolition debris by weight. ▸ Use 20 percent of locally sourced or recycled materials for construction materials. Wood products utilized are to be certified and verified through a sustainable forestry program. ▸ Utilize a low carbon concrete option.	SU

NI = No impact LTS = Less than significant PS = Potentially significant S = Significant SU = Significant and unavoidable

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		▶ Use SmartWay certified trucks for deliveries and equipment transport. In addition, prior to the start of any construction activities, the University shall require its construction contractors to use renewable diesel (RD) fuel for all diesel-powered construction equipment. Any RD product that is considered for use by the construction contractors shall comply with California's Low Carbon Fuel Standards and be certified by the CARB Executive Officer. RD fuel must also meet the following criteria: ▶ be hydrogenation-derived (reaction with hydrogen at high temperatures) from 100 percent biomass material (i.e., nonpetroleum sources), such as animal fats and vegetables, ▶ contain no fatty acids or functionalized fatty acid esters, and ▶ have a chemical structure that is identical to petroleum-based diesel which ensures RD will be compatible with all existing diesel engines; it must comply with American Society for Testing and Materials (ASTM) D975 requirements for diesel fuels. **Mitigation Measure 3.6-1b: Implement Transportation Demand Management Strategies to Reduce Project-Generated VMT** The University shall implement transportation demand management (TDM) strategies to reduce vehicle trips and, in turn, VMT that would be generated by the project. The implementation of TDM strategies shall reduce total VMT per service population to levels that are 15 percent or more below the existing City of Sacramento and SACOG Region total VMT per service population averages. Potential TDM strategies and their GHG mitigation potential include, but are not limited to, the following: ▶ Promote walking and bicycling for employee and student trips to and from the project site, including improved bicycle and pedestrian connections between the project site and Power Inn Station as described in Mitigation Measure 3.9-1d. This measure would result in a GHG mitigation potential of up to 4 percent of mobile emissions. ▶ Expand public transit service, including additional service connecting the project site with employee and student residential areas, as well as additional service connecting the project site with the Sacramento State main campus. This measure would result in a GHG mitigation potential of up to 4.6 percent of mobile emissions.	

NI = No impact LTS = Less than significant PS = Potentially significant S = Significant SU = Significant and unavoidable

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		▸ Implement a fair value commuting program or other pricing of vehicle travel and parking. This measure would result in a GHG mitigation potential of up to 8 percent of mobile emissions. ▸ Provide carpool and/or vanpool incentive programs. This measure would result in a GHG mitigation potential of up to 8 percent of mobile emissions. ▸ Offer remote and/or hybrid working options. This measure's GHG mitigation potential is supportive of the measures provided above. The GHG mitigation potential of the TDM strategies list were provided from the California Air Pollution Control Officers Association (2021), *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity*. The TDM strategies implemented will be consistent with existing and planned TDM programs on the Sacramento State main campus. If these TDM strategies are not sufficient to reduce total VMT per service population as described above, additional TDM measures or adjustments to the measures above shall be implemented as needed to reduce total VMT per service population consistent with the criteria described above.	
Impact 3.6-2: Conflict with an Applicable Plan, Policy or Regulation Adopted for the Purpose of Reducing the Emissions of Greenhouse Gases The project would include GHG efficiency measures consistent with CSU policies and plans adopted for the purpose of reducing GHG emissions and enabling the achievement of reduction targets. However, the project would not be consistent with the BMPs required by SMAQMD to align with the goals of the 2017 Scoping Plan. Therefore, this impact would be significant.	S	**Mitigation Measure 3.6-2:** Implement Mitigation Measure 3.6-2: Implement Mitigation Measure 3.6-1a: Reduce Project-Related Construction Greenhouse Gas Emissions and Mitigation Measure 3.6-1b, Implement Transportation Demand Management Strategies to Reduce Project-Generated VMT.	SU
Hazards and Hazardous Materials			
Impact 3.7-1: Hazard to the Public or the Environment Through the Storage, Use, or Transport of Hazardous Materials Project construction activities and operation of future buildings would involve the storage, use, and transport of hazardous materials at the project site. However, use of hazardous materials would be in compliance with local, State, and federal regulations. Therefore, adverse impacts related to the creation of significant hazards to the public through routine transport, storage, use, disposal, and risk of upset would not occur. This impact would be less than significant.	LTS	No mitigation is required for this impact.	LTS

NI = No impact LTS = Less than significant PS = Potentially significant S = Significant SU = Significant and unavoidable

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
Impact 3.7-2: Hazards to the Public or Environment Through Reasonably Foreseeable Upset and/or Accident Conditions Involving the Release of Hazardous Materials into the Environment Because no post-fire hazardous material surveys have occurred within the project site, there is the potential for unidentified hazardous conditions (i.e., toxic soil) to be present. Construction activities resulting project implementation could result in disturbance or accidental release of unidentified hazard materials within the project site. This impact would be potentially significant.	PS	**Mitigation Measure 3.7-2: Identification and Treatment of Potential Hazardous Materials and Conditions** To reduce health hazards associated with potential exposure to hazardous substances, Sacramento State and/or its construction contractors shall implement the following measures before initiation of construction activities within the project site: ▶ Sacramento State shall retain a qualified environmental professional to conduct a hazardous materials survey (i.e., Phase I Environmental Site Assessment) to characterize potential contamination and to identify any required remediation that shall be conducted consistent with applicable regulations. The environmental professional shall prepare a report that includes but is not limited to activities performed for the assessment, a summary of anticipated contaminants and contaminant concentrations at the project site, and recommendations for appropriate handling of any contaminated materials during construction. Any contaminated areas shall be remediated in accordance with recommendations made by the Sacramento County Environmental Management Department, Central Valley RWQCB, DTSC, or other appropriate federal, state, or local regulatory agencies. ▶ If hazardous materials or conditions are identified, completion of all recommended site remediation and cleanup activities shall occur prior to project construction. ▶ If Sacramento State acquires the parcel (APN 079-0260-006) south of the project site for a roadway connection between the project site and Cucamonga Avenue, Sacramento State shall comply with regulations contained in Section 21190(g) of Title 27 of the California Code of Regulations governing post-closure land use and this area. Additionally, construction and operation of this optional parcel shall comply with requirements listed in SCI Policy LU 3.5.4.	LTS
Noise ~~and Vibration~~			
Impact 3.8-1: Generate Substantial Temporary (Construction) Noise Construction activity would result in increased noise levels in the vicinity of the activity. However, noise-generating construction activity would be performed during daytime hours when construction noise is exempt from noise standards established in the City of Sacramento Noise Control Ordinance. Further, the closest sensitive receptors are located approximately 970 feet from the project site, with other sensitive receptors located even farther distant. At this distance, project-generated noise levels attenuate to or below existing background noise levels. Since construction would not result in a substantial temporary increase in noise, this impact would be less than significant.	LTS	No mitigation is required for this impact.	LTS

NI = No impact LTS = Less than significant PS = Potentially significant S = Significant SU = Significant and unavoidable

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
Impact 3.8-2: Generate Substantial Temporary (Construction) Vibration Levels Operation of construction equipment, possibly including a drill rig, would generate vibration during project construction. However, the resultant vibration level would not have the potential to cause structural damage to nearby structures or human annoyance at nearby residences. This impact would be less than significant.	LTS	No mitigation is required for this impact.	LTS
Impact 3.8-3: Generate Substantial Long-Term Increase in Stationary Noise The new buildings and facilities constructed as part of the project would result in increased noise levels as a result of new stationary noise sources/activities, such as the CMC mobility test track, outdoor gathering spaces, loading docks, HVAC equipment, and parking lots. Noise levels associated with these new noise sources would not result in the exceedance of applicable City noise standards at existing noise-sensitive land uses. Therefore, this impact would be less than significant.	LTS	No mitigation is required for this impact.	LTS
Impact 3.8-4: Generate Substantial Increase in Long-Term (Traffic) Noise Levels The construction of new buildings and facilities as part of the project would result in long-term increase in traffic volumes on nearby roads, subsequently resulting in traffic noise increases. Noise levels increase associated with the increased traffic volumes would not result in the exceedance of applicable City noise standards at existing noise-sensitive land uses. Therefore, this impact would be less than significant.	LTS	No mitigation is required for this impact.	LTS
Transportation			
Impact 3.9-1: Conflict with a Program, Plan, Ordinance, or Policy Addressing Roadway, Transit, Bicycle, and Pedestrian Facilities The project would not interfere with the implementation of a planned facility, including transit, roadway, bicycle, and pedestrian facilities. However, the project would conflict with CSU and Sacramento State policies that promote the use of bicycling, walking, and transit for travel to and from campus. Additionally, the project would change the volume of vehicle traffic on City of Sacramento facilities in a manner that would conflict with City of Sacramento bicycle facility design guidance. Therefore, this impact would be significant.	S	**Mitigation Measure 3.9-1a: Construct bicycle facility improvements on Ramona Avenue** Sacramento State shall coordinate with the City of Sacramento to implement the construction of Class II bicycle lanes on Ramona Avenue between Brighton Avenue and Cucamonga Avenue, or an improvement of equal effectiveness. This modification has been identified as a planned improvement in multiple City of Sacramento planning documents, including the Bicycle Master Plan. Additionally, to further improve bicycle safety along this roadways segment, Sacramento State shall coordinate with City of Sacramento to ensure the construction of bike lane conflict markings (e.g., at driveways and intersection approaches), reductions to crossing distances (i.e., to reduce bicyclist exposure to conflicting vehicles), intersection crossing markings, and crosswalk at all driveways and intersections providing ingress/egress to the project site. Improvements shall be constructed prior to occupancy of Phase I of the project. As part of this coordination effort, Sacramento State and City of Sacramento shall	SU

NI = No impact LTS = Less than significant PS = Potentially significant S = Significant SU = Significant and unavoidable

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		determine which agency will be responsible for constructing these improvements and how fair-share cost will be determined if the City is determined to be the appropriate agency to build the improvements. **Mitigation Measure 3.9-1b: Construct bicycle facility improvements on Cucamonga Avenue** Sacramento State shall coordinate with the City of Sacramento to implement the construction of bicycle facility improvements on Cucamonga Avenue between Ramona Avenue and Power Inn Road, or an improvement of equal effectiveness. Potential bicycle facility improvement alternatives include the following: ▸ Construction of Class II bicycle lanes. This improvement would require the removal of existing on-street parking or the widening of the roadway. ▸ Construction of a Class III bicycle route. This improvement would require that the speed of vehicle traffic be managed such that a considerable speed differential would not exist between bicyclists and vehicles occupying the same physical space. This modification has been identified as a planned improvement in the City of Sacramento Bicycle Master Plan. Additionally, to further improve bicycle safety along this roadways segment, Sacramento State shall coordinate with City of Sacramento to ensure the construction of bike lane conflict markings (e.g., at driveways and intersection approaches), reductions to crossing distances (i.e., to reduce bicyclist exposure to conflicting vehicles), intersection crossing markings, and crosswalks at all driveways and intersections providing ingress/egress to the project site. Improvements shall be constructed prior to occupancy of Phase I of the project. As part of this coordination effort, Sacramento State and City of Sacramento shall determine which agency will be responsible for constructing these improvements and how fair-share cost will be determined if the City is determined to be the appropriate agency to build the improvements. **Mitigation Measure 3.9-1c: Construct bicycle and pedestrian facility improvements on Brighton Avenue** Sacramento State shall coordinate with the City of Sacramento to implement the construction of bicycle facility improvements on Brighton Avenue between Ramona Avenue and the eastern Brighton Avenue terminus, or identify an improvement of equal effectiveness. Potential bicycle facility improvement alternatives include the following:	

NI = No impact LTS = Less than significant PS = Potentially significant S = Significant SU = Significant and unavoidable

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		▶ Construction of a Class I shared-use path on the north side of Brighton Avenue and new sidewalks on the south side of Brighton Avenue. This modification has been identified as a planned improvement in multiple City of Sacramento planning documents. ▶ Construction of Class II bicycle lanes and new sidewalks on both sides of Brighton Avenue. Additionally, to further improve bicycle and pedestrian safety along this roadways segment, Sacramento State shall coordinate with City of Sacramento to ensure the construction of bike lane conflict markings (e.g., at driveways and intersection approaches), reductions to crossing distances (i.e., to reduce bicyclist and pedestrian exposure to conflicting vehicles), intersection crossing markings, and crosswalks at all driveways and intersections providing ingress/egress to the project site. Improvements shall be constructed prior to occupancy of Phase I of the project. As part of this coordination effort, Sacramento State and City of Sacramento shall determine which agency will be responsible for constructing these improvements and how fair-share cost will be determined if the City is determined to be the appropriate agency to build the improvements. **Mitigation Measure 3.9-1d: Construct bicycle and pedestrian access improvements between the project site and Power Inn Station** Sacramento State shall coordinate with the City of Sacramento to ensure construction of bicycle and pedestrian access improvements between the project site and Power Inn Station, or an improvement of equal effectiveness. Potential bicycle and pedestrian facility improvement alternatives include the following: ▶ If selected, the extension of the new north-south road to Cucamonga Avenue shall provide designated bicycle and pedestrian facilities. Construct a north leg marked crosswalk and install associated pedestrian crossing signal equipment at the Power Inn Road/Cucamonga Avenue intersection. ▶ Extend the new east-west road to Power Inn Road and provide designated bicycle and pedestrian facilities. Construct a north or south leg marked crosswalk and install associated pedestrian crossing signal equipment at the Power Inn Road/east-west road/Power Inn Station Driveway intersection. ▶ Construct a Class I shared-use path between the eastern terminus of the new east-west road and Power Inn Road. Construct a north or south leg marked crosswalk and install associated pedestrian crossing signal equipment at the Power Inn Road/east-west road/Power Inn Station Driveway intersection.	

NI = No impact LTS = Less than significant PS = Potentially significant S = Significant SU = Significant and unavoidable

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		▶ Construct a grade-separated bicycle and pedestrian crossing over Power Inn Road between the eastern terminus of Brighton Avenue and Power Inn Station. Improvements shall be constructed prior to occupancy of Phase II of the project. As part of this coordination effort, Sacramento State and City of Sacramento shall determine which agency will be responsible for constructing these improvements and how fair-share cost will be determined if the City is determined to be the appropriate agency to build the improvements.	
Impact 3.9-2: Conflict or Be Inconsistent with CEQA Guidelines Section 15064.3, Subdivision (b) Related to Vehicle Miles Traveled The project would generate total VMT per service population at a rate that exceeds the threshold of 15 percent below the existing City or regional average. Therefore, this impact would be significant.	S	**Mitigation Measure 3.9-2: Implement transportation demand management strategies to reduce project-generated VMT** Sacramento State shall implement transportation demand management (TDM) strategies to reduce vehicle trips and, in turn, VMT that would be generated by the project. The implementation of TDM strategies shall reduce total VMT per service population to levels that are 15 percent or more below the existing City of Sacramento and SACOG Region total VMT per service population averages. Potential TDM strategies include, but are not limited to, the following: ▶ Promote walking and bicycling for employee and student trips to and from the project site, including improved bicycle and pedestrian connections between the project site and Power Inn Station as described in Mitigation Measure 3.9-1d. ▶ Expand public transit service, including additional service connecting the project site with employee and student residential areas, as well as additional service connecting the project site with the Sacramento State main campus. ▶ Implement a fair value commuting program or other pricing of vehicle travel and parking. ▶ Provide carpool and/or vanpool incentive programs. ▶ Offer remote and/or hybrid working options. The TDM strategies implemented will be consistent with existing and planned TDM programs on the Sacramento State main campus. If these TDM strategies are not sufficient to reduce total VMT per service population as described above, additional TDM measures or adjustments to the measures above shall be implemented as needed to reduce total VMT per service population consistent with the criteria described above.	SU

NI = No impact LTS = Less than significant PS = Potentially significant S = Significant SU = Significant and unavoidable

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
Impact 3.9-3: Hazards Due to a Geometric Design Feature or Incompatible Uses All new roadway, bicycle, and pedestrian infrastructure improvements constructed as part of the project would be subject to, and designed in accordance with all applicable CSU and City of Sacramento design and safety standards to avoid creating a geometric design hazard. However, gaps in the bicycle and pedestrian network could pose a barrier to bicycle and pedestrian travel and increase the potential for bicycle-vehicle or pedestrian-vehicle conflicts. Therefore, implementation of the project could potentially result in hazards to bicyclists and pedestrians. This impact would be significant.	S	**Mitigation Measure 3.9-3a: Construct Bicycle Facility Improvements on Ramona Avenue** Implement Mitigation Measure 3.9-1a. **Mitigation Measure 3.9-3b: Construct Bicycle Facility Improvements on Cucamonga Avenue** Implement Mitigation Measure 3.9-1b. **Mitigation Measure 3.9-3c: Construct Bicycle and Pedestrian Facility Improvements on Brighton Avenue** Implement Mitigation Measure 3.9-1c. **Mitigation Measure 3.9-3d: Construct Bicycle and Pedestrian Access Improvements between the Project Site and Power Inn Station** Implement Mitigation Measure 3.9-1d.	SU
Utilities and Service Systems			
Impact 3.10-1: Require or Result in the Relocation or Construction of New or Expanded Utility Infrastructure The project would include connections to existing infrastructure and onsite infrastructure, including electrical, water, and wastewater infrastructure. Trenching for pipeline connections between the proposed buildings and the existing utility mains would occur in compliance with Best Management Practices (BMPs) set forth in the Stormwater Quality Design Manual for the Sacramento Region. No additional new or expanded infrastructure beyond those proposed as part of the project and for the project site would be required. This impact would be less than significant.	LTS	No mitigation is required for this impact.	LTS
Impact 3.10-2: Have Insufficient Water Supplies Available to Serve the Project The estimated water demand for the project is 230 afy (0.21 mgd), which would represent an approximate increase of 0.23 percent on City's current water demand. Once project construction activities are complete in 2028, the estimated water demand would represent 0.11 percent of the City's projected surplus water supply through 2045. The City would have adequate water supply to serve the project. Further, the project would also reduce its water demand through project design and implementation of water conservation measures that would aim to meet or exceed CALGreen Water Efficiency measures and as required for Leadership in Energy and Environmental Design version 4 (LEED v4) Certification. This impact would be less than significant.	LTS	No mitigation is required for this impact.	LTS

NI = No impact LTS = Less than significant PS = Potentially significant S = Significant SU = Significant and unavoidable

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
Impact 3.10-3: Result in Inadequate Wastewater Treatment Capacity While project implementation would result in an increase in wastewater generation within the City of Sacramento, the Regional San WWTP has adequate capacity to serve the estimated 0.3 percent increase in permitted wastewater flows. Therefore, impacts would be less than significant.	LTS	No mitigation is required for this impact.	LTS
Impact 3.10-4: 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 or Requirements Construction of the project is estimated to generate approximately 25,555 cubic yards of debris. In accordance with Section 5.408 of the CALGreen Code, the project would implement a Construction Waste Management Plan for recycling and/or salvaging for reuse of a minimum of 65 percent of debris generated during construction. Operation of the project site is estimated to generate 456 tons (608 cubic yards) of waste annually. Operation of new site buildings would be required to recycle a minimum of 50 percent of the waste, as required for State operations by AB 75 and AB 939 (which would result in 228 tons or 304 cubic yards of annual waste) . Furthermore, there is adequate capacity at landfills in the region for disposal of solid waste generated by the project. Therefore, the project would comply with federal, state, and local management and reduction statutes and regulations related to solid waste and this impact would be less than significant.	LTS	No mitigation is required for this impact.	LTS

NI = No impact LTS = Less than significant PS = Potentially significant S = Significant SU = Significant and unavoidable

Table ES-2 Summary Environmental Impacts of the Alternatives Relative to The Hub, Sacramento State Research Park Project

Environmental Topic	Proposed Project	Alternative 1: No Project – No Development Alternative	Alternative 2: Reduced Density Alternative
Aesthetics	LTS	Less	Similar
Air Quality	LTS/M	Less	Less
Archaeological, Historical, and Tribal Cultural Resources	LTS/M	Less	Similar
Biological Resources	LTS/M	Less	Similar
Energy	LTS	Less	Less
Greenhouse Gas Emissions and Climate Change	SU	Less (avoids SU)	Less (SU remains)
Hazards and Hazardous Materials	LTS/M	Less	Similar
Noise	LTS	Less	Less
Transportation	SU	Less (avoids SU)	Less (SU remains)
Utilities and Service Systems	LTS	Less	Less

Impact Status:

LTS = less-than-significant impact

LTS/M = LTS with mitigation

SU = Significant and Unavoidable

Similar = Impacts would be similar to those of the project.

Less = Impacts would be less than those of the project.

Greater = Impacts would be greater than those of the project.

Source: Data compiled by Ascent Environmental in 2021

1 INTRODUCTION

This ~~draft~~ environmental impact report (~~Draft~~ EIR) evaluates the environmental impacts of The Hub, Sacramento State Research Park Project (The Hub or project). California State University (CSU) Board of Trustees (Trustees) in accordance with the requirements of the California Environmental Quality Act (CEQA) (Public Resources Code [PRC] Section 21000 et seq.) and the State CEQA Guidelines. This chapter of the ~~Draft~~ EIR provides information on the following:

- project requiring environmental analysis (synopsis);
- type, purpose, and intended uses of the ~~Draft~~ EIR;
- scope of the ~~Draft~~ EIR;
- agency roles and responsibilities; and
- standard terminology.

1.1 PROJECT REQUIRING ENVIRONMENTAL ANALYSIS

The following is a synopsis of the project characteristics. For further information on the project, see Chapter 2, "Project Description."

California State University, Sacramento (Sacramento State or University) is preparing a Master Plan to develop the 25-acre Ramona Property (project site), which is entirely owned and operated by the University. The project site, located at 3001 Ramona Avenue in the City of Sacramento, California would be developed in two phases with academic, research, and office space that support the academic programming of the University. The project would include construction and operation of the Sacramento Municipal Utility District (SMUD)-affiliated nonprofit California Mobility Center (CMC) testing and manufacturing facility (ramp-up facility) and a new office building/forensic crime laboratory for the California Department of Justice (CA DOJ). The proposed CMC would consist of a research facility for mobility technologies such as electric vehicles, autonomous transportation, battery storage, and transit; a showcase building; and an approximately 3-acre test track for CMC autonomous vehicles and surface parking, occupying approximately 11 acres within the northern half of the site. The CA DOJ facility would occupy approximately nine acres in the southern half of the site for a building and secure parking. Both the CMC and CA DOJ facilities would provide opportunities for integration with University instruction: classes, hands-on learning, internships, etc. The remaining five acres of the project site would accommodate a central plaza/green space, landscaping and stormwater detention areas, bicycle and pedestrian pathways, and internal access roads. The eastern portion of the site would be developed with mixed-use buildings with a mix of academic, administrative, and/or research office space with ground-level retail and parking. Under Phase I, the CMC ramp-up facility and CA DOJ facilities would be constructed along with on-site circulation and surface parking. Under Phase II, the CMC would be expanded and two mixed-use facilities would be constructed on the eastern portion of the site.

1.2 PURPOSE AND INTENDED USES OF THIS ~~DRAFT~~ EIR

As noted above, this ~~Draft~~ EIR has been prepared under the Trustees' direction in accordance with the requirements of CEQA (PRC Sections 21000-21177) and the State CEQA Guidelines (CCR Title 14, Division 6, Chapter 3, Sections 15000-15387). The Trustees serve as the lead agency under CEQA for consideration of certification of this EIR and potential project approval; CCR Section 151367 defines the lead agency as the agency with principal responsibility for carrying out and approving a project. Sacramento State is part of the CSU, a statutorily and legislatively created, constitutionally-authorized entity of the State of California with the power to consider and provides authority for all land use decisions on property owned or controlled by the CSU that are in furtherance of the CSU's education purposes.

According to CEQA, preparation of an EIR is required whenever it can be fairly argued, based on substantial evidence, that a proposed project may result in a significant environmental impact. An EIR is an informational document used to inform public-agency decision makers and the general public of the significant environmental impacts of a project, identify possible ways to minimize the significant impacts, and describe reasonable alternatives to the project that could feasibly attain most of the basic objectives of the project while substantially lessening or avoiding any of the significant environmental impacts. Public agencies are required to consider the information presented in the EIR when determining whether to approve a project. This ~~Draft~~ EIR has been prepared to meet the requirements of a program EIR as defined by Section 15168 of the State CEQA Guidelines. As described in CEQA Guidelines Section 15168(a), a program EIR may be prepared for a series of action that can be characterized as one large project and are related either:

1) geographically;
2) as logical parts in the chain of contemplated actions;
3) in connection with the issuance of rules, regulations, plans, or other general criteria to govern the conduct of a continuing program; or
4) as individual activities carried out under the same authorizing statutory or regulatory authority and having generally similar environmental impacts which can be mitigated in similar ways."

A program EIR can be used as the basic, general environmental assessment for an overall program of projects developed over a multi-year planning horizon, and therefore is an appropriate review document for The Hub, Sacramento State Research Park Master Plan. A program EIR has several advantages. For example, it provides a basic reference document to avoid unnecessary repetition of facts or analysis in subsequent project-specific assessments. It also allows the lead agency to consider the broad, regional impacts of a program of actions before its adoption and eliminates redundant or contradictory approaches to the consideration of regional and cumulative impacts.

As noted in Chapter 2, "Project Description," this ~~Draft~~ EIR evaluates the entire plan and identifies the anticipated development that would occur in Phase 1 and Phase 2. This ~~Draft~~ EIR also identifies alternatives to the project that would reduce or avoid potential adverse environmental effects. Mitigation measures are identified in this EIR which, if adopted, would be implemented to reduce and minimize physical environmental effects of the Master Plan components, where feasible. Implementation of mitigation measures will be monitored to ensure implementation as The Hub moves forward in a manner consistent with the Final EIR.

As the property owner and lead public agency, the CSU Board of Trustees would review and approve all development on the project site based on the Master Plan and this environmental impact report. CMC, CA DOJ, and other future users, whether a public agency or a private company, would be required to demonstrate design and programming consistency with the Master Plan and obtain project approvals by the CSU Board of Trustees.

1.3 SCOPE OF THIS ~~DRAFT~~ EIR

As described in further detail in the Notice of Preparation (Appendix A), this ~~Draft~~ EIR evaluates the potential direct and indirect environmental impacts of the project. This ~~Draft~~ EIR includes an evaluation of the following environmental issue areas, as well as other CEQA-mandated issues (e.g., cumulative impacts, growth-inducing impacts, significant unavoidable impacts, alternatives):

- Aesthetics;
- Air Quality;
- Archaeological, Historical, and Tribal Cultural Resources;
- Biological Resources;
- Energy;
- Greenhouse Gas Emissions;
- Hazards and Hazardous Materials,
- Noise;
- Transportation; and
- Utilities and Service Systems.

The remaining issue areas identified in Appendix G of the CEQA Guidelines were evaluated as part of the scoping process, and it was determined that potentially significant impacts would not occur as a result of project implementation, as discussed in Section 3.1 of this EIR. Under the CEQA statutes and the State CEQA Guidelines, a lead agency may limit an EIR's discussion of environmental effects when such effects are not considered potentially significant (PRC Section 21002.1[e]; State CEQA Guidelines Sections 15128, 15143). The determination of which impacts would be potentially significant and therefore evaluated in detail in this EIR was made for this project based on review of applicable planning documents, field work, feedback from public and agency consultation, comments received on the Notice of Preparation (NOP) (see Appendix A of this ~~Draft~~ EIR), research, and analysis of relevant project data.

1.4 RESPONSIBLE AND TRUSTEE AGENCIES

Under CEQA, responsible agencies are state and local public agencies other than the lead agency that have the authority to carry out or approve a project or that are required to approve a portion of the project for which a lead agency is preparing or has prepared an EIR. Trustee agencies are state agencies with legal jurisdiction over natural resources affected by a project that are held in trust for the people of the State of California.

The agencies listed in Table 1-1 may have responsibility for or jurisdiction over implementation of elements of the project. Table 1-1 also identifies potential permits and other approval actions that may be required before implementation of certain project elements. The list is not intended to imply that specific permits or actions would occur; rather, it lists agencies that *may* have responsibilities over project components and the potential associated reasons. Chapter 3 of this EIR provides detailed analysis that explores further the potential for the need for responsible agency action.

This EIR and any environmental analysis relying on this EIR are expected to be used to satisfy CEQA requirements of the listed responsible and trustee agencies.

Table 1-1 Responsible Agencies and Anticipated Permits and Approvals for The Hub, Sacramento State Research Park Project

Agency	Permit/Approval
Lead Agency	
California State University, Board of Trustees	▸ EIR Certification ▸ Approval and adoption of the Master Plan ▸ Approval of conceptual plans, development agreements, and schematic plans for public-private partnerships ▸ Approval of schematic plans for future facilities and improvements
Other Agencies	
California Department of General Services	▸ Responsible agency under CEQA for the CA DOJ project elements
Division of State Architect	▸ Review for accessibility compliance
State Fire Marshal	▸ Future facility fire safety review and approval
Central Valley Regional Water Quality Control Board	▸ National Pollutant Discharge Elimination System construction stormwater permit (Notice of Intent to proceed under General Construction Permit) ▸ General Order for dewatering ▸ Recycled water permit
California Department of Transportation	▸ Permits for movement of oversized or excessive loads on State highways
City of Sacramento	▸ Sidewalk and roadway encroachment permits ▸ Utility connection permits ▸ Utility easements ▸ City street tree removal permits

1.5 EIR PROCESS

The Notice of Preparation (NOP) was distributed on March 22, 2021, to responsible agencies, interested parties and organizations, and private organizations and individuals that could have interest in the project. The NOP was also available online at https://www.csus.edu/administration-business-affairs/facilities-management/news-archive.html and was posted with the State Clearinghouse (SCH Number 2021030485).

The purpose of the NOP was to provide notification that an EIR for The Hub was being prepared and to solicit input on the scope and content of the document. The NOP and responses to the NOP are included in Appendix A of this ~~Draft~~ EIR.

The~~is~~ Draft EIR ~~is being~~ was circulated for public review and comment for a period of 45 days, from January 14 to February 28, 2022. During this period, comments from the general public as well as organizations and agencies on environmental issues ~~may~~ could be submitted to the lead agency.

A public meeting ~~will be~~ was held on the Draft EIR via webinar on February 3, 2022, at 4:00 p.m. Upon completion of the public review and comment period, ~~a~~this Final EIR (Final EIR) ~~will be~~ was prepared that ~~will~~ includes both written and oral comments on the Draft EIR received during the public-review period, responses to those comments, and any revisions to the Draft EIR made in response to public comments. The Draft EIR and Final EIR will comprise the EIR for the project.

Before adopting the Master Plan, the lead agency (CSU Trustees) is required to certify that the EIR has been completed in compliance with CEQA, that the decision-making body reviewed and considered the information in the EIR, and that the EIR reflects the independent judgment of the lead agency.

1.6 ~~DRAFT~~ FINAL EIR ORGANIZATION

The~~is~~ ~~Draft~~ Final EIR is organized into chapters, as identified and briefly described below. Chapters are further divided into sections (e.g., Chapter 3, "Environmental Impacts and Mitigation Measures" and Section 3.6, "Energy"):

The **"Executive Summary":** This chapter introduces The Hub, Sacramento State Research Park Master Plan; provides a summary of the environmental review process, effects found not to be significant, and key environmental issues; and lists significant impacts and mitigation measures to reduce significant impacts to less-than-significant levels.

After the Executive Summary, a new chapter is included in the Final EIR: "**Comments and Responses to Comments,**" which includes a list of persons, organizations, and public agencies commenting on the Draft EIR; comments received on the Draft EIR, verbatim; and responses from the lead agency to significant environmental points raised.

Chapter 1, "Introduction": This chapter provides a description of the lead and responsible agencies, the legal authority and purpose for the document, and the public review process.

Chapter 2, "Project Description": This chapter describes the location, background, and goals and objectives for The Hub, and describes the project elements in detail.

Chapter 3, "Environmental Impacts and Mitigation Measures": The sections within this chapter evaluate the expected environmental impacts generated by The Hub, arranged by subject area (e.g., Land Use, Hydrology and Water Quality). Within each subsection of Chapter 3, the regulatory background, existing conditions, analysis methodology, and thresholds of significance are described. The anticipated changes to the existing conditions after development of the project are then evaluated for each subject area. For any significant or potentially significant impact that would result from project implementation, mitigation measures are presented and the level of impact significance after mitigation is identified. Environmental impacts are numbered sequentially within each section (e.g., Impact 3.2-1, Impact 3.2-2, etc.). Any required mitigation measures are numbered to correspond to the impact numbering; therefore, the mitigation measure for Impact 3.2-2 would be Mitigation Measure 3.2-2.

Chapter 4, "Cumulative Impacts": This chapter provides information required by CEQA regarding cumulative impacts that would result from implementation of The Hub together with other past, present, and probable future projects.

Chapter 5, "Other CEQA Sections": This chapter evaluates growth-inducing impacts and irreversible and irretrievable commitment of resources, and discloses any significant and unavoidable adverse impacts.

Chapter 6, "Alternatives": This chapter evaluates alternatives to The Hub, including alternatives considered but eliminated from further consideration, the No Project Alternative, and an alternative development option. The environmentally superior alternative is identified.

Chapter 7, "References": This chapter identifies the organizations and persons consulted during preparation of the~~is~~ Draft EIR and the documents and individuals used as sources for the analysis.

Chapter 8, "Report Preparers": This chapter identifies the preparers of the document.

1.7 STANDARD TERMINOLOGY

This ~~Draft~~ EIR uses the following standard terminology:

"No impact" means no change from existing conditions (no mitigation is needed).

"Less-than-significant impact" means no substantial adverse change in the physical environment (no mitigation is needed).

"Potentially significant impact" means an impact that might cause a substantial adverse change in the environment (mitigation is recommended because potentially significant impacts are treated as significant).

"Significant impact" means an impact that would cause a substantial adverse change in the physical environment (mitigation is recommended).

"Significant and unavoidable impact" means an impact that would cause a substantial adverse change in the physical environment and that cannot be avoided, even with the implementation of all feasible mitigation.

This page intentionally left blank.

2 PROJECT DESCRIPTION

2.1 INTRODUCTION

The California State University, Sacramento (Sacramento State or University) is one of 23 campuses in the California State University (CSU) system. Established in 1947 as Sacramento State College, Sacramento State is the primary higher education institution serving the Sacramento region. The main 300-acre University campus is located north of U.S. Highway 50 (US 50). The University is proposing development of The Hub, Sacramento State Research Park Project (The Hub) on the Ramona property (project site) south of US 50, which would include a mix of academic, research, and office space. The Hub is described in detail in this chapter, including the project location, setting, goals and objectives, and elements, as well as the permits and approvals that may be necessary during plan implementation.

2.2 PROJECT LOCATION AND EXISTING CONDITIONS

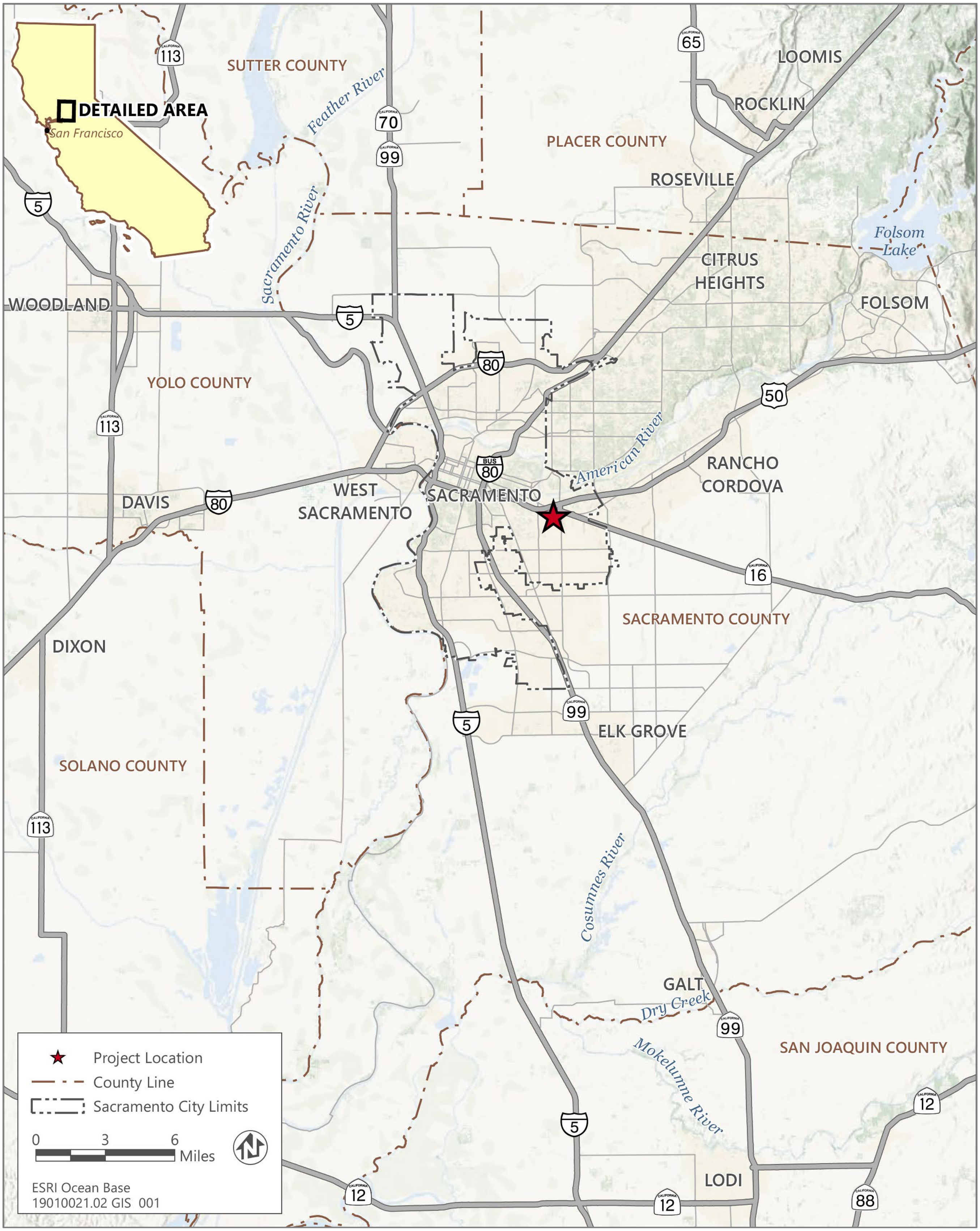
The project site, entirely owned by the University, is located at 3001 Ramona Avenue in the City of Sacramento, California. The 25-acre project site is less than a mile south of the Sacramento State main campus (Figures 2-1, 2-2, and 2-3) within a highly urbanized and industrial portion of Sacramento, roughly bounded by Brighton Avenue to the north, Power Inn Road to the east, Cucamonga Avenue to the south, and Ramona Avenue to the west. US 50 is located less than 0.5 mile north of the site. The project site is currently vacant with ruderal vegetation and pavement.

As explained in greater detail below and shown on Figures 2-2 and 2-3, an additional 0.5-acre parcel (APN 079-0260-006) located at 7825 Cucamonga Avenue is being considered for acquisition by the University. The site is currently occupied by a towing company and used for temporary car storage (surface parking). Within the context of this EIR, acquisition and use of this parcel by the University for a roadway connection between the project site and Cucamonga Avenue is considered an optional additional action.

2.3 PROJECT BACKGROUND

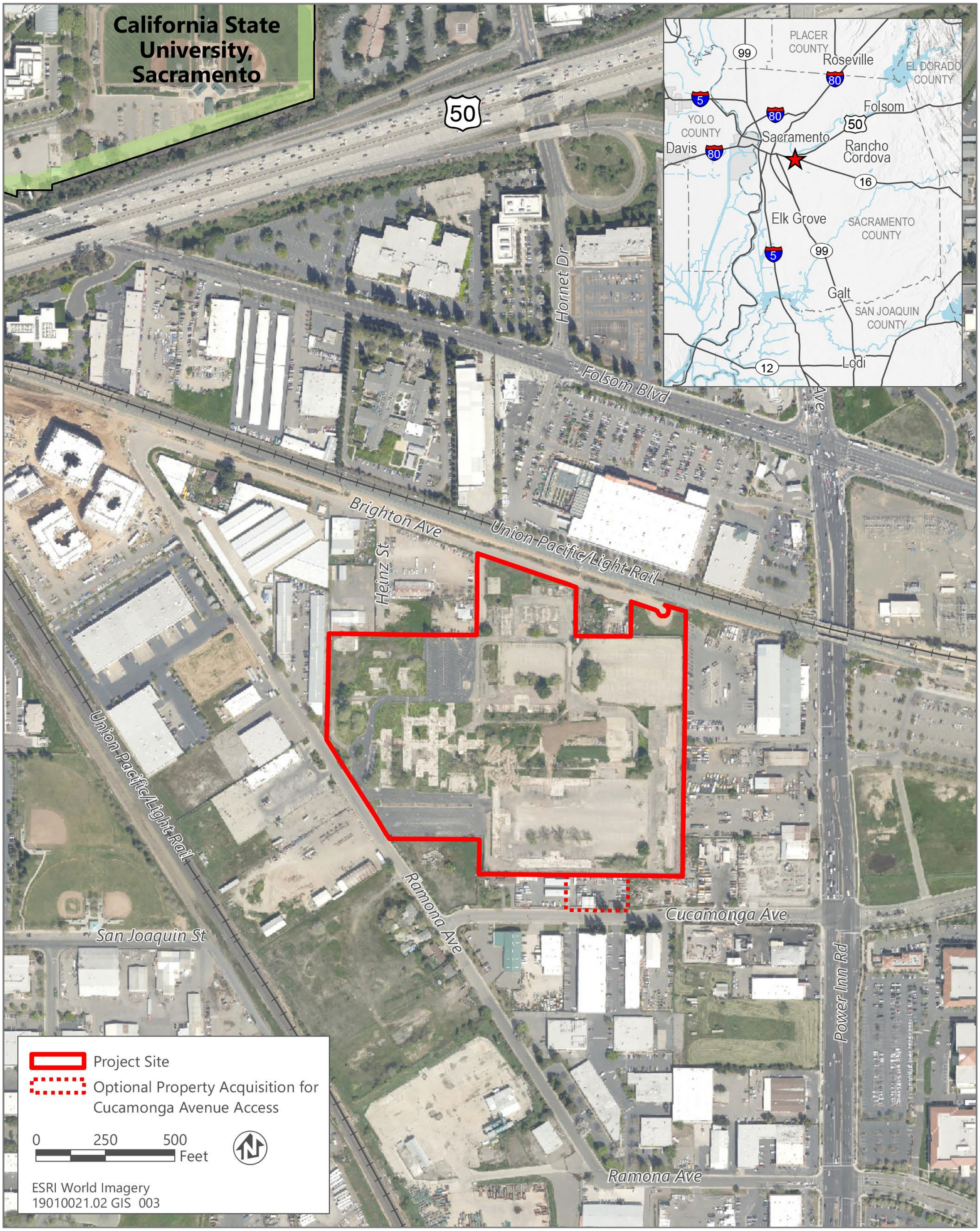
In 2005, the University purchased the project site, known as the Ramona property, from the California Department of General Services. The property was formerly used by the California Youth Authority as a correctional facility. The California Youth Authority Northern California Youth Reception Center was opened in 1954 and operated until 2004. The University originally intended to develop student and faculty housing on the project site until the 2008-09 recession put those plans on hold. The vacant former California Youth Authority commissary, kitchen, dining area, and warehouse buildings at the site caught fire and were gutted in June of 2010 (Writer 2010). All of the buildings were demolished and removed later that year, leaving only their foundations on site (NETR 2021). The project site was most recently used for remote parking until the University's Parking Structure 5 was completed and opened in 2018. The project site has been vacant since then.

Although, as a State entity, the University is not subject to the City's rules and regulations, the project site is located within the City of Sacramento's 240-acre Sacramento Center for Innovation (SCI) Specific Plan area, which is envisioned as a hub for innovative business and clean technology industries (City of Sacramento 2018). Sacramento's 2035 General Plan identifies the general area as an employment growth and economic development center (City of Sacramento 2017). The project site is also identified as an Employment Center within the Fruitridge-Broadway Community Plan of the 2035 General Plan (City of Sacramento 2015). The University and the City of Sacramento share a vision to create a major research, education, and employment center on the project site with nearby complementary office, research and development, and other employment uses.



Source: adapted by Ascent Environmental in 2019

Figure 2-1 Regional Location



Source: adapted by Ascent Environmental in 2019

Figure 2-2 Project Location

Source: adapted by Ascent Environmental in 2021

Figure 2-3 Project Site

2.4 PROJECT ELEMENTS

The University has prepared a Master Plan to establish a unifying framework for The Hub that optimizes uses/users, establishes an iconic image, and creates a sense of place that is consistent with the Sacramento State main campus. The Hub is envisioned to foster the development of innovative technologies, products, and processes while also supporting University academic goals and regional research and economic development goals. The Master Plan for The Hub includes the following elements that would be developed in two phases (hereafter referred to as Phases I and II):

- **California Mobility Center** (CMC) – Approximately 166,000 gross square feet (GSF) of development for a testing and manufacturing facility for mobility technologies and a showcase building, to be ground leased by the University to CMC as a tenant;
- **California Department of Justice** (CA DOJ) facility – An approximately 250,000-GSF, 5-story facility that would provide administrative/office and forensic laboratory space, to be ground leased by the University to the CA DOJ as a tenant; and
- Up to 436,000 GSF of mixed-use development, which would allow for an expansion of administrative/support space for Sacramento State, CA DOJ, and/or future tenants.

2.4.1 California Mobility Center

The University and Sacramento Municipal Utility District (SMUD) are founding members of the CMC, a nonprofit, public-private business acceleration hub that aspires to become a leading global innovation and commercialization center and to set the pace in electric mobility. CMC aims to incubate sustainable transportation research and prototyping, and students from Sacramento State, Los Rios Community College District, University of California, Davis, and local high schools could have a chance to work directly in manufacturing, in a facility where they would create protypes of new technology.

As shown on Figure 2-4, the Phase I CMC facility would consist of a one-story (approximately 35-feet high) approximately 118,800-GSF testing and manufacturing facility (ramp-up facility) for mobility technologies such as electric vehicles, autonomous transportation, battery storage, and transit; a two-story (approximately 35-feet high) approximately 32,400 GSF showcase building (approximate building footprint of 21,600 square feet [sf]); an approximately 3-acre test track; and surface parking (approximately 180 spaces), occupying approximately 11 acres within the northern half of the project site. The CMC facility would provide opportunities for integration with University instruction: classes, hands-on learning, internships, etc. The CMC showcase building would include a green roof, and photovoltaic solar panels may be considered on the roof of the ramp-up facility.

As shown in Figure 2-5, under Phase II, the CMC testing and manufacturing facility would be expanded to the west by approximately 15,600 GSF. This expansion would be designed consistent with the Phase I facility design and building height of 35 feet. The official black-and-white master plan map of The Hub, Sacramento State Research Park Project is provided in Figure 2-6. This plan identifies the buildings on the project site in alignment with the overall Sacramento State Master Plan. The table of the Master Plan buildings names and numbers, with the addition of the Hub, is provided in Figure 2-7.

2.4.2 California Department of Justice

The CA DOJ Bureau of Forensic Services is the scientific arm of the Attorney General's Office whose mission is to serve the people of California on behalf of the Attorney General's Office. Their forensic scientists collect, analyze, and compare physical evidence from suspected crimes. They provide analysis of evidence in toxicology, including alcohol, controlled substances and clandestine drug labs, biology and DNA, firearms, impression evidence such as shoeprints, tire marks or fingerprints, trace evidence including hair, fibers, and paint, and crime-scene analysis of blood splatter patterns and evidence collection, and they testify in State and Federal court cases about their analyses in criminal trials.

Source: adapted by Ascent Environmental in 2019

Figure 2-4 The Hub, Sacramento State Research Park - Site Plan Phase I

Source: adapted by Ascent Environmental in 2021

Figure 2-5 The Hub, Sacramento State Research Park - Site Plan Phase II

As shown on Figure 2-4, Phase I would include construction of the CA DOJ facility, which would occupy approximately 8 acres in the southern half of the project site. The CA DOJ facility would consist of one 5-story approximately 250,000 GSF building (footprint of 50,000 sf). The maximum height of the building would be 75 feet. The facility would provide offices, forensic laboratories, and classrooms, supporting administrative functions, enforcement, and training programs. Secure parking would be established for approximately 270 vehicles and there would be approximately 50 visitor parking spaces as well as overflow parking. As with CMC, CA DOJ would provide opportunities for integration with University instruction: classes, hands-on learning, internships, etc. Also similar to CMC, solar panels may be considered on the roof of the CA DOJ building.

2.4.3 Mixed-Use Development

Phase II would include development of two mixed-use buildings to provide academic, administrative, and/or research office space with ground-level retail and parking. The northern building is envisioned to be a mixed-use retail, parking, and office/classroom building sized at approximately 384,000 GSF, with a maximum height of 75 feet. This building would replace the northern surface parking lot from Phase I on a footprint of approximately 64,000 square feet (Figure 2-5). It would incorporate parking within the first three floors of the building to replace lost Phase I surface parking and provide an adequate additional parking to meet additional staff demand.

The southern building is envisioned to be either an extension of the CA DOJ facility or a separate future building for office or research uses. The approximately 52,000-GSF two-story (approximately 35 feet in height) building would replace the shared surface parking lot south of the east-west road (a footprint of approximately 26,000 square feet). The parking located on this surface lot would be incorporated into the northern building; this southern building would not include structured parking.

2.4.4 Vehicular Circulation

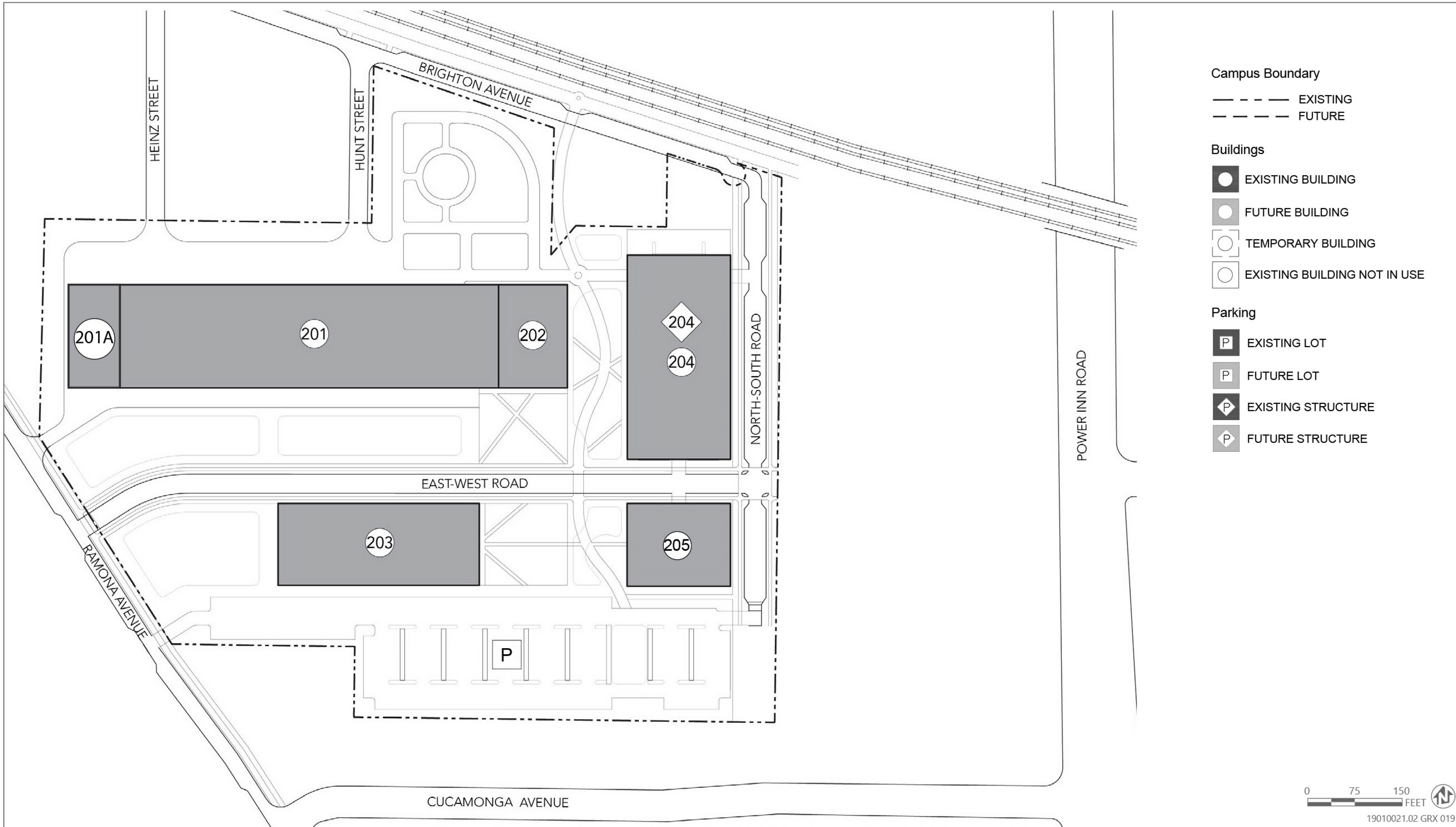
An internal street network constructed as part of Phase I (see Figure 2-4) would act as the primary multi-modal corridor. Vehicular ingress/egress would bisect the project site from Ramona Avenue on the west to the eastern boundary of the site, where a north-south road would connect to Brighton Avenue on the north. In coordination with the City of Sacramento, both onsite road alignments would be aligned to allow for potential roadway connections to Power Inn Road to the east and/or Cucamonga Avenue (and ultimately 14th Street) to the south, as shown in the Phase II site plan in Figure 2-5.

Optional Property Acquisition for Cucamonga Avenue Access

With respect to potential project site access to/from Cucamonga Avenue, Sacramento State is considering acquisition of a 0.5-acre parcel (APN 079-0260-006) located at 7825 Cucamonga Avenue (Figures 2-2 and 2-3). If acquired, the University may utilize a portion of this parcel to construct a direct road connection between the project site and Cucamonga Avenue, shown as an option in Phase II on Figure 2-5. No additional development is currently anticipated for this parcel. Therefore, within the context of this EIR, the University's property acquisition and partial use of the parcel for a roadway connection is considered an option.

2.4.5 Bicycle, Pedestrian, Transit, and Electric Vehicle Charging

Protected bicycle lanes would be constructed on streets within the project site and would be aligned to connect to the surrounding city street grid to support connection to City of Sacramento protected bicycle lanes where possible. All new roadway, bicycle, and pedestrian infrastructure improvements constructed as part of the project would be subject to, and designed in accordance with all applicable CSU and City of Sacramento design and safety standards to avoid creating a geometric design hazard. Shuttle stops would be established onsite to serve University shuttles to and from the Sacramento State main campus. Sacramento Regional Transit light rail (Gold Line) is located north of the project site (north of and parallel with Brighton Avenue). The nearest light rail stop is approximately 0.25 mile away at Power Inn Station (Gold Line) (east of Power Inn Road). Local bus service runs north/south on 65th Street to the west of the project site.



Source: adapted by Ascent Environmental in 2021

Figure 2-6 Sacramento State Master Plan – Proposed Revision for The Hub, Sacramento State Research Park Project

California State University, **Sacramento**

Master Plan Enrollment: 25,000 FTE

Master Plan approved by the Board of Trustees: June 1964

Master Plan Revision approved by the Board of Trustees: October 1965, January 1967, October 1967, January 1970, May 1970, February 1971, February 1974, September 1980, May 1983, July 1983, July 1985, September 1986, July 1987, March 1988, September 1990, September 1991, January 1995, September 1999, May 2003, January 2004, July 2015, January 2019, October 2020

Proposed Revision: May 2022

1. Sacramento Hall
2. Riverfront Center
3. *Administration Building*
4. Douglass Hall
7. Kadema Hall
9. Shasta Hall
10. Calaveras Hall
11. Alpine Hall
12. Brighton Hall
13. Humboldt Hall
14. Santa Clara Hall
15. Yosemite Building
16. Draper Hall
17. Jenkins Hall
19. Recreational Facility
20. Handball Courts
21. Riverview Hall
22. Facilities Management
23. Custodial Warehouse
24. Non-Destructive Laboratory
25. American River Courtyard
26. Lassen Hall
27. Outdoor Theater
28. Greenhouses
29. Environmental Health and Safety
30. *Performing Arts Center*
32. Central Heating and Cooling Plant
33. Athletics Center
34. Tahoe Hall
35. Capistrano Hall
36. Sequoia Hall
37. Del Norte Hall
38. Eureka Hall
39. Amador Hall Center
42. Solano Hall/Solano Annex
43. Mendocino Hall
44. Sierra Hall
45. Sutter Hall
46. Dining Commons
47. University Union

47A. University Union Expansion, Phase 1

47B. University Union Expansion, Phase 2

48. Riverside Hall
49. Food Service Outpost
52. SAC City UFD School District
53. Office of Education
54. Eli & Edy the Broad Field House
55. Ernest E. Tschannen Science Complex
56. Placer Hall
57. Storage Building
58. Public Safety
59. Education Building
60. Hornet Stadium

60A. Stadium Press Box

61. Child Development Center
62. Benicia Hall
63. Baseball Complex
64. Softball Complex

64A. Softball/Soccer Restrooms

65. Folsom Hall
66. Parking Structure IV
67. *Student Housing*
68. *Student Housing*
69. *Student Housing*
70. *Student Housing*
71. *Student Housing*
72. *Student Housing*
73. *Parking Structure VI*
75. Receiving Warehouse
76. Geology Well Building
77. Arboretum House
81. Modoc Hall
82. Art Sculpture Laboratory
87. Round House
88. Napa Hall
89. Parking Structure I
90. Desmond Hall
91. Hornet Bookstore
92. Mariposa Hall
94. Parking Structure II
95. Academic Information Resource Center
96. *Faculty/Grad Housing*
97. *Faculty/Grad Housing*
98. *Parking Structure VII*
99. Parking Structure III
100. *Faculty/Grad Housing*
101. City Fire Station
102. Baseball Storage Facility
103. *Faculty/Grad Housing*
104. Alumni Center
105. *Engineering and Classroom Building*
106. *Parking Structure VIII*
107. *Parking Structure IX*
108. Capital Public Radio

108A. *Capital Public Radio Expansion*

109. The WELL

109A. *The WELL Expansion*

110. *Faculty/Grad Housing*
111. *Event Center*
112. Facilities Management Annex
113. *Faculty/Grad Housing*
114. *Classroom IV*
116. Parking Structure V
117. *Welcome Center/UTAPS*
118. *Faculty/Grad Housing*

119A-G. Hornet Commons

120. Nine Ten Place

THE HUB, SACRAMENTO STATE RESEARCH PARK

201. CA Mobility Center I

201A. CA Mobility Center II

202. CA Mobility Center Administration

203. CA DOJ Facility

204. Academic Building/Mixed Use Facility

205. CA DOJ Facility/Office/Research

LEGEND:
Existing Facility / *Proposed Facility*

NOTE: Existing building numbers correspond with building numbers in the Space and Facilities Data Base (SFDB)

19010021.02 GRX 020

Source: adapted by Ascent Environmental in 2021

Figure 2-7 Sacramento State Master Plan Legend – Proposed Revision for The Hub, Sacramento State Research Park Project

The Hub would include Electric Vehicle Supply Equipment (EVSE) for 10 percent of the project's 710 parking spaces (i.e., 71 spaces), which exceeds the California Green Building Standards (CALGreen) Code Tier 2 standard, consistent with the CSU Sustainability Policy, and in consideration of the Sacramento Municipal Code (Title 15.38.030). In addition, The Hub would include micro-transit (i.e., electric bicycles and scooters) charging stations, bicycle parking (approximately 410 spaces) and storage, and would prioritize active transportation (walking, bicycle, scooters, skateboards, rollerblades, etc.) infrastructure to minimize vehicle use.

2.4.6 Landscaping and Outdoor Spaces

Phase I would establish landscaping throughout the project site, including a central green, greenway corridor, courtyards, and plazas. The central green would provide a community gathering and collaboration space in the center of the project site. It would be designed for both active and passive uses (e.g., opportunities for outdoor classrooms and scheduled events). The greenway corridor would serve as the primary active transportation and open space spine through The Hub (similar to the Green Hornet Trail on the main Sacramento State campus). The greenway corridor would provide multi-modal connections through the project site. The central green and greenway corridor would include bioswales to collect, convey, filter, and infiltrate stormwater. Finally, plazas and outdoor courtyards would be established throughout the project site to provide interactive gathering areas, dining terraces, outdoor classroom opportunities, work areas, and quiet spaces such as reading gardens. Landscaping would be drought-tolerant and would include accent planting such as flowering trees, ground cover, and shrubs.

2.4.7 Utilities

The existing utility infrastructure within the project site includes underground utility connections for electrical, gas, fiber, sanitary sewer, storm drain, and domestic water. However, site infrastructure has not been used since approximately 2003 and is outdated. New utility infrastructure would be required to provide reliable and sustainable utility services to The Hub. The proposed utility infrastructure, as shown in Figure 2-~~6~~8, to support site buildout (including Phase II) would be constructed during Phase I of the project.

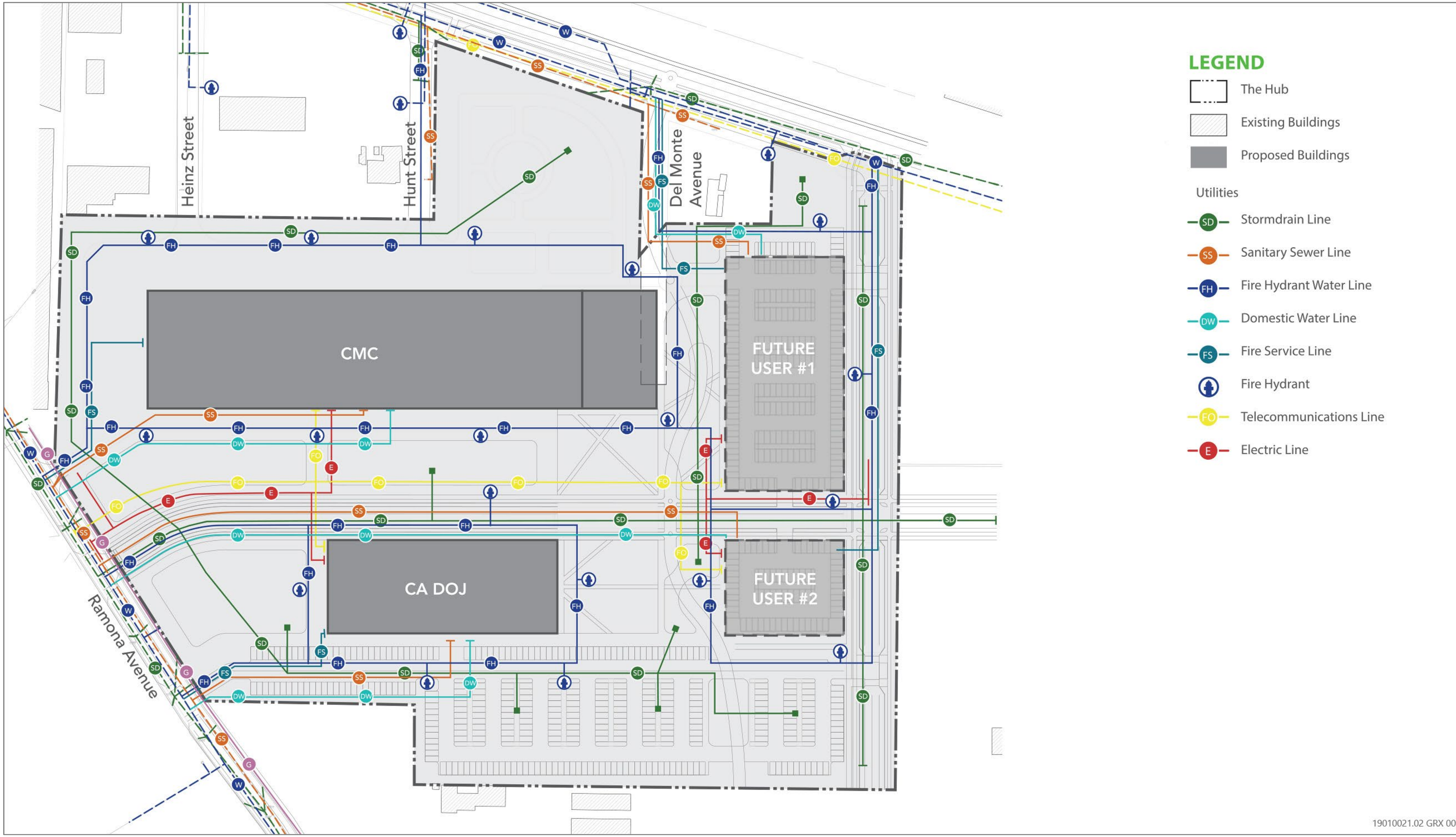
WATER

The project site is served by the City of Sacramento Department of Utilities, Water Services Division. The existing water system in the vicinity of the project site includes two metered connections to the City of Sacramento's 12-inch water main in Ramona Avenue, the 8-inch water main in Brighton Avenue, and the 8-inch water main line in El Monte Avenue, which all connect to a 48-inch transmission water main in Brighton Avenue.

A new water loop system for domestic water, irrigation, and fire service that connects to the existing water mains would be constructed within the project site. Three (3) separate connection points would be established for each building site: one fire sprinkler connection, one connection for the domestic water line, and one connection for the irrigation line excluding the fire hydrant service line. At full build-out of the project site, there would be a total of 12 water connections to the City of Sacramento's existing water system for these services.

Responsible conservation strategies for reduced potable water consumption in the buildings would be applied whenever practical. Ultra-low flow fixtures, automatic sensor controls, and reduced flow aerators would be utilized to meet or exceed current CALGreen Water Efficiency measures and as required for Leadership in Energy and Environmental Design (LEED) Certification. In addition, the landscaping irrigation system would be designed to utilize rainwater captured onsite and would comply with the State's Model Water Efficient Landscape Ordinance.

In accordance with the California Fire Code, which contains regulations consistent with nationally recognized and accepted practices for safeguarding life and property, fire hydrants would be installed on site to serve new buildings. Adequate spacing of proposed fire hydrants would make it possible to share hydrants for more than one building, which would reduce pressure losses in the system and provide better fire protection coverage.



Source: adapted by Ascent Environmental in 2019

Figure 2-68 The Hub, Sacramento State Research Park - Utility Plan

WASTEWATER

The project site is currently served by the Sacramento Area Sewer District. There is a 10-inch sewer line to the west in Ramona Avenue, an 8-inch sewer line in Brighton Avenue to the north, 12-inch line to the south in Cucamonga Avenue, and an 8-inch line to the east in Power Inn Road. The project would install three sewer lines from Ramona Avenue to the CMC building, the CA DOJ building, and the southern mixed-use building pad reserved for future uses. The northern mixed-use building pad would be served off Brighton Avenue with a separate service lateral from the sewer main. Sewer cleanouts would be installed at the point of service. Wastewater from the project area is transported to Sacramento Regional County Sanitation District's wastewater treatment plant for treatment before discharge to the Sacramento River.

STORMWATER

The project would connect to the City's storm drainage system at an existing 30-inch storm drain line within Ramona Avenue. The project includes low impact development to reduce, if not eliminate, stormwater runoff from the project site. As identified under "Landscaping and Outdoor Spaces," above, the project would include bioswales to collect, convey, filter, and infiltrate stormwater to meet the requirements of the Regional Water Quality Control Board and the Sacramento region Stormwater Quality Design Manual.

Multiple strategies are proposed to support onsite stormwater retention and infiltration:

- Materials and designs for hardscape areas are proposed to prioritize natural materials such as decomposed granite and permeable paving to allow infiltration in-place.
- Permeable paving is proposed to be used for surface parking lots. If impervious materials would be utilized for parking areas, bioswales would be located adjacent to those areas to capture all stormwater flows.
- Street intersections are also proposed to be made of permeable paving. This would allow stormwater to infiltrate in place, as well as be directed to adjacent bioswales.
- Rain gardens (bioretention facilities) are proposed throughout the site to capture stormwater flows from impervious surfaces, including buildings. Rain gardens are designed landscape areas that reduce the flow rate, total quantity, and pollutant load of runoff from impervious urban areas like roofs, driveways, walkways, and parking lots. Rain gardens rely on plants and natural or engineered soil medium to retain stormwater and increase the lag time of infiltration, while remediating and filtering pollutants carried by urban runoff.
- Impervious surfaces and hardscape areas, such as sidewalks, the test track, streets, and/or parking areas would be graded to flow to adjacent bioswales and rain gardens.

Water not conveyed to onsite retention areas would either drain naturally through on-site landscaping or be directed and discharged to the storm drain line within Ramona Avenue.

ENERGY

The Hub is envisioned to be a Net-Zero Energy project through focusing on electric energy and minimizing building energy use. The project would be designed to meet current building standards, including the 2019 (or as updated) Building Energy Efficiency Standards and LEED v4 Silver certification. Energy Star office equipment, energy efficient computer monitors, and LED (light-emitting diode) lighting and lighting controls would be used throughout the buildings to achieve the energy goals. In addition, the Master Plan encourages onsite solar energy production through installation of photovoltaic solar panels on rooftops and facilities that provide shade for parking, pedestrian paths, and/or gathering areas. Specifically, the project would include onsite photovoltaic solar energy generation according to 2022 Building Efficiency Standards included in Title 24 of the California Building Code. To estimate the total onsite solar required by the 2022 Building Efficiency Standards, the total conditioned square footage was multiplied by a CEC climate zone photovoltaic capacity factor of 3.13 watts/sf, which results in the planned installation of approximately 119,651 square feet or 2,647 MWh/year of onsite solar (CEC 2021) (see Appendix B for further details).

Electrical service to the project site is and would continue to be provided by SMUD, which has the exclusive charter to provide electricity within Sacramento County. The project area is currently served by two 12-kilovolt (kV) primary feeders that run north/south along the railroad tracks and Power Inn Road and additional smaller 12KV lines throughout the area serve individual businesses. There is also a 69kV line running north/south along Power Inn Road and to the north near the Sacramento State main campus (City of Sacramento 2018). Buildings constructed within the project site would directly connect to electrical infrastructure off of Ramona Avenue or Brighton Avenue.

The project buildings would be constructed with individual 277/480-volt electrical service. A SMUD-owned, pad-mount utility transformer would be located outside of each building, serving a main electrical switchboard where the utility meter would be located. Each new building would include with its own electric heating and cooling system. Emergency diesel generators would be installed at each building. Each building would include an emergency generator, with capacities of 400 kilowatts (kW) for CMC, 500 kW for CADOJ, 400 kW for the larger mixed-use building and 100 kW for the smaller mixed use building.

Natural gas service in the project area is provided by Pacific Gas and Electric. The existing facilities in the area consist of 4.5-inch to 16-inch pipelines delivering service to all customers that are not served by private propane tanks (City of Sacramento 2018). While all buildings would be electric, a small amount of natural gas would be required for laboratory equipment within the CA DOJ building.

TELECOMMUNICATIONS

Telecommunications would be provided to the new buildings with incoming fiber lines terminating in a main distribution facility on the first floor. A separate telecom room would be required to serve Sacramento State University classrooms in the buildings to separate the tenant and University networks.

SOLID WASTE

Operation of the project is estimated to generate approximately 456 tons (608 cubic yards) of solid waste annually. The buildings would be required to recycle a minimum of 50 percent of the waste, as required for State operations by AB 75 and AB 939. Recycling requirements would result in the net generation of approximately 228 tons per year (or 304 cubic yards per year) of solid waste. Individual businesses, including State buildings and facilities, are required to contract their own solid waste collection service.

2.4.8 Phasing

Development of The Hub is proposed in two phases, each with academic, research, and office space that supports the academic programming of the University and its partners, as follows.

PHASE I

Phase I of The Hub, as shown in Figure 2-4, would include the following:

- Backbone infrastructure, including utilities, roadways, bicycle and pedestrian paths, stormwater retention and infiltration, and landscaping
- CMC on the northern half of the site
  - one-story (approximately 35-feet high) approximately 118,800 GSF testing and manufacturing facility (ramp-up facility)
  - two-story (approximately 35-feet high) approximately 32,400 GSF showcase building (approximate building footprint of 21,600 sf)

  - 3-acre test track
  - surface parking (approximately 180 spaces)
- CA DOJ on the southern half of the site
  - one 5-story approximately 250,000 GSF building (footprint of 50,000 sf, maximum height of 75 feet)
  - secure parking for approximately 270 vehicles
  - visitor parking for approximately 50 vehicles
  - overflow parking

PHASE II

Phase II of The Hub, as shown in Figure 2-5, would include the following:

CMC Expansion

- CMC testing and manufacturing facility expanded to the west by approximately 15,600 GSF (approximately 35 feet high)

Mixed-Use Development

- northern building with mixed-use retail, parking, and office/classroom building
  - approximately 64,000 sf footprint
  - approximately 384,000 GSF
  - maximum height of 75 feet
  - replacing the northern surface parking lot from Phase I
- southern building as either an extension of the CA DOJ facility or a separate future building for office and/or research uses
  - approximately 26,000 sf footprint
  - approximately 52,000-GSF
  - two-story (approximately 35 feet in height)
  - replacing the shared surface parking lot south of the east-west road from Phase I

2.4.9 Onsite Employees

At full buildout of The Hub, the estimated total number of onsite employees would be 2,034, which would be composed of the following:

- The CMC facility (including the ramp-up facility and office space) would support approximately 319 employees.
- The CA DOJ facility would support approximately 1,203 employees.
- The northern mixed-use building would support approximately 225 employees. The southern mixed-use building would support approximately 287 employees.

2.4.10 Construction

Construction of The Hub is anticipated to occur over a period of five years or more, as market demand dictates. Phase I construction is projected to begin in summer 2023. Construction of the CMC and CA DOJ facilities would likely overlap. Construction of CMC is anticipated to occur over a period of 1.5 years, with an estimated completion in spring 2025. Construction of CA DOJ may take approximately 2 to 2.5 years, with estimated completion in spring 2026, with tenant occupancy anticipated in summer 2026.

Phase I construction would include the following, with the construction contractor(s) determining the most efficient sequencing of work:

- utility upgrades;
- development of internal access and roadways;
- development of bicycle and pedestrian pathways;
- development of open space areas, plazas, and bioretention facilities;
- building construction; and
- new tenant occupancy.

Construction of Phase II is projected to begin after 2026. Construction efforts would take approximately 2 years, with tenant occupancy anticipated no earlier than 2028. Phase II would include the following, with the construction contractor(s) determining the most efficient sequencing of work:

- removal of two surface parking lots;
- building construction; and
- new tenant occupancy.

The following construction equipment is anticipated to be used during construction of both phases of The Hub:

- concrete/industrial saw
- rubber-tired or track dozer
- tractors/loaders/backhoe
- excavators
- bobcat
- drill rig
- off-highway trucks
- grader
- scraper
- crane
- tower crane
- man-lift
- boom lift
- construction elevator
- scissor lift
- forklift
- concrete trucks
- concrete pump trucks
- roller/compactor
- generator set
- welding machine
- compressor
- haul trucks
- painting equipment

Where feasible and available, diesel construction equipment would be powered by Tier 3 or Tier 4 engines as designated by the California Air Resources Board (CARB) and U.S. Environmental Protection Agency. In addition, if available for on-site delivery, diesel construction equipment would be powered with renewable diesel fuel that is compliant with California's Low Carbon Fuel Standards and certified as renewable by the CARB executive officer.

Before construction activities begin on any project component, temporary fencing would be installed around the construction area and other security measures such as lighting would be installed to prevent unauthorized access and promote site safety. Construction staging would occur on site.

The project is estimated to generate approximately 25,555 cubic yards of debris during construction and site clearing activities. In accordance with Section 5.408 of the CALGreen Code, the project would implement a Construction Waste Management Plan for recycling and/or salvaging for reuse of a minimum of 65 percent of nonhazardous construction/demolition debris. Additionally, the project would also be required to meet LEED v4 requirements for waste reduction during construction. As a state entity, the University is not subject to the Sacramento City Code. However, the University will prepare a construction traffic control plan that is consistent with Section 12.20.20 of the Sacramento City Code, and that illustrates the location of the proposed work area; identifies the location of areas where the public right-of-way would be closed or obstructed, and the placement of traffic control devices necessary to perform the work; shows the proposed phases of traffic control; and identifies the time periods when the traffic control would be in effect and, although not expected, the time periods when work would prohibit access to private property from a public right-of-way. The traffic control plan would also provide information on access for emergency vehicles to prevent interference with emergency response. Solid waste generated by the project would be off-hauled to either the L and D Landfill (via Power Inn Road and Fruitridge Road) or Kiefer Landfill (via SR 16 [Jackson Road] and Grant Line Road), located in Sacramento County.

Tree removal would be necessary to allow for site preparation and construction. Consistent with University practice at the main campus, any tree that is removed would be replaced at a minimum 1:1 ratio by planting trees elsewhere on the project site. In addition, the University would consider use of wood from trees removed from the project site for furnishings or interior accents, and would work with area partners (i.e., Sacramento Tree Foundation) to recycle material.

HOURS OF CONSTRUCTION

Construction activities would be limited to the less noise-sensitive hours (e.g., daytime) between 7:00 a.m. and 6:00 p.m. Monday through Saturday and 9:00 a.m. and 6:00 p.m. on Sunday. Although, as a State entity, the University is not subject to the City's rules and regulations, it will ensure consistency with the limitations of the City's Noise Control Ordinance. Section 8.68.080, "Exemptions," of the City of Sacramento Municipal Code, exempts construction related noise, provided that all construction activities are performed between 7:00 a.m. and 6:00 p.m., Monday through Saturday, and between 9:00 a.m. and 6:00 p.m. on Sunday. Indoor construction activities such as installing wiring, drywall, and carpet, which would occur after walls and windows are in place, would be permitted during nighttime hours.

2.5 PROJECT GOAL AND OBJECTIVES

The underlying purpose of the Hub, Sacramento State Research Park Project is the creation of a research and innovation center that provides hands-on learning opportunities for Sacramento State students in technology and forensic science and fosters the incubation of new mobility technologies, the promotion of scientific discoveries, and jobs creation for the local community. The project is intended to be a showcase facility for the University and a model for integrating higher education, research, and industry in California and beyond. As noted above, the objectives of The Hub are to:

1. provide public and private partnerships in research and innovation that support the academic curriculum at Sacramento State and provide student internships and other hands-on learning opportunities;
2. work jointly with CMC partners, develop a facility that supports CMC research and development and provides opportunities for direct student involvement in autonomous electric vehicle manufacturing and testing;
3. provide for direct student involvement in criminal justice and forensics investigations and consolidate CA DOJ programs and research;
4. enhance opportunities for collaboration between the University, the CA DOJ, and startup businesses that would accommodate high-skilled technology-related jobs, reduce loss of intellectual capital and revenue to enhance sustainability within the Sacramento region and beyond, and allow a greater number of residents to live and work in the community;
5. provide opportunities for public and private research partnerships and internships at a location close to and accessible from the Sacramento State main campus;

6. provide energy-efficient building design, low-water use, and high-quality construction, consistent with CSU sustainable design practices; and
7. promote flexibility in project design and implementation to respond to market demand, through phasing of construction.

2.6 ANTICIPATED PERMITS AND APPROVALS

The CSU Board of Trustees is the lead agency for this EIR and has sole authority to consider and approve the project, certify the EIR, and adopt the Mitigation Monitoring and Reporting, Program, Findings of Fact, and Statement of Overriding Considerations. Table 2-1 lists agencies that may be required to issue permits or approve certain aspects of the project. This EIR is expected to be used to satisfy CEQA requirements of the listed responsible and/or trustee agencies.

Table 2-1 Responsible Agencies and Anticipated Permits and Approvals for The Hub, Sacramento State Research Park Project

Agency	Permit/Approval
Lead Agency	
California State University, Board of Trustees	▸ EIR Certification ▸ Approval and adoption of the Master Plan ▸ Approval of conceptual plans, development agreements, and schematic plans for public-private partnerships ▸ Approval of schematic plans for future facilities and improvements
Other Agencies	
California Department of General Services	▸ Responsible agency under CEQA for the CA DOJ project elements
Division of State Architect	▸ Review for accessibility compliance
State Fire Marshal	▸ Future facility fire safety review and approval
Central Valley Regional Water Quality Control Board	▸ National Pollutant Discharge Elimination System construction stormwater permit (Notice of Intent to proceed under General Construction Permit) ▸ General Order for dewatering ▸ Recycled water permit
California Department of Transportation	▸ Permits for movement of oversized or excessive loads on State highways
City of Sacramento	▸ Sidewalk and roadway encroachment permits ▸ Utility connection permits ▸ Utility easements ▸ City street tree removal permits

3 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

APPROACH TO THE ENVIRONMENTAL ANALYSIS

This ~~Draft~~ EIR evaluates and discloses the environmental impacts associated with The Hub, Sacramento State Research Park Project, in accordance with the CEQA (PRC Section 21000, et seq.) and the State CEQA Guidelines (California Code of Regulations, Title 14, Chapter 3, Section 15000, et seq.).

It has been determined that buildout of the California State University (CSU) owned Ramona Property would not significantly affect a number of environmental resource topics. Under the CEQA statute and the State CEQA Guidelines, a lead agency may limit an EIR's discussion of environmental effects when such effects are not considered potentially significant (PRC Section 21002.1[e]; State CEQA Guidelines Sections 15128, 15143). Information used to determine which impacts would be potentially significant was derived from review of the proposed project; review of applicable planning documents and CEQA documentation; field work; feedback from public and agency consultation; and comments received on the Notice of Preparation (NOP) (see Appendix A of this ~~Draft~~ EIR). Summary discussions of the project effects found not to be significant are presented, below, in Section 3.2.

Sections 3.1 through 3.10 present a detailed discussion of regulatory background, existing conditions, environmental impacts associated with construction and operation of the project, mitigation measures to reduce the level of impact, and residual level of significance (i.e., after application of mitigation, including any impacts that would remain significant and unavoidable after application of all feasible mitigation measures). Issues evaluated in these sections consist of the environmental topics identified for review in the NOP (see Appendix A of this ~~Draft~~ EIR). Chapter 4 of this ~~Draft~~ EIR, "Cumulative Impacts," presents an analysis of the project's impacts considered together with other past, present, and probable future projects producing related impacts, as required by Section 15130 of the State CEQA Guidelines. Chapter 5, "Other CEQA-Mandated Sections," includes an analysis of the project's growth inducing impacts, as required by Section 21100(b)(5) of CEQA. Chapter 6, "Alternatives," presents a reasonable range of alternatives and evaluates the environmental effects of those alternatives relative to the proposed project, as required by Section 15126.6 of the State CEQA Guidelines.

Sections 3.1 through 3.10 of this ~~Draft~~ EIR each include the following components:

Regulatory Background: This subsection presents information on the laws, regulations, plans, and policies that relate to the issue area being discussed. Regulations originating from the federal, state, and local levels are each discussed as appropriate.

Existing Conditions: This subsection presents the existing environmental conditions on the project site and in the surrounding area as appropriate, in accordance with State CEQA Guidelines Section 15125. The discussions of the environmental setting focus on information relevant to the issue under evaluation. The extent of the environmental setting area evaluated (the project study area) differs among resources, depending on the locations where impacts would be expected. For example, transportation and circulation impacts resulting from the proposed project are assessed for the local roadway network, whereas impacts to archaeological resources are assessed for the footprint of project disturbance.

Environmental Impacts and Mitigation Measures: This subsection presents thresholds of significance and discusses potentially significant effects of the project on the existing environment, including the environment beyond the project boundaries, in accordance with State CEQA Guidelines Section 15126.2. The methodology for impact analysis is described, including technical studies upon which the analyses rely. The thresholds of significance are defined and environmental topics for which the project would have no impact are disclosed and dismissed from further evaluation. Project impacts and mitigation measures are numbered sequentially in each subsection (Impact 3.3-1, Impact 3.3-2, Impact 3.3-3, etc.). A summary impact statement precedes a more detailed discussion of the environmental impact. The discussion includes the analysis, rationale, and substantial evidence upon which conclusions are drawn. The determination of level of significance of the impact is defined in bold text. A "less-than-significant" impact is one that would not result in a substantial adverse change in the physical environment. A "potentially significant" impact or "significant" impact is one that would result in a substantial adverse change in the physical environment; both are treated the same under CEQA in terms of procedural requirements and the need to identify feasible mitigation. Mitigation measures are identified, as feasible, to avoid, minimize, rectify, reduce, or compensate for significant or potentially significant impacts, in accordance with the State CEQA Guidelines Section 15126.4. Unless otherwise noted, the mitigation measures presented are recommended in the EIR for consideration by the State to adopt as conditions of approval. Any required mitigation measures are numbered to correspond to the impact numbering; therefore, the mitigation measure for Impact 3.3-2 would be Mitigation Measure 3.3-2.

Where an existing law, regulation, or permit specifies mandatory and prescriptive actions about how to fulfill the regulatory requirement as part of the project definition, leaving little discretion in its implementation, and would avoid an impact or maintain it at a less-than-significant level, the environmental protection afforded by the regulation is considered before determining impact significance. Where existing laws or regulations specify a mandatory permit process for future projects, performance standards without prescriptive actions to accomplish them, or other requirements that allow substantial discretion in how they are accomplished, or have a substantial compensatory component, the level of significance is determined before applying the influence of the regulatory requirements. In this circumstance, the impact would be potentially significant or significant, and the regulatory requirements would be included as a mitigation measure.

This subsection also describes whether mitigation measures would reduce project impacts to less- than-significant levels. Significant-and-unavoidable impacts are identified as appropriate in accordance with State CEQA Guidelines Section 15126.2(b). Significant-and-unavoidable impacts are also summarized in Chapter 5, "Other CEQA Sections."

References: The full references associated with the parenthetical references found throughout Sections 3.1 through 3.10 can be found in Chapter 7, "References," organized by section number.

CALIFORNIA STATE UNIVERSITY AUTONOMY

Sacramento State is an entity of the CSU system, which is a statutorily- and legislatively created, constitutionally authorized entity of the State of California and is therefore not subject to local government planning and land use plans, policies, or regulations. Although there is no formal mechanism for joint planning or the exchange of ideas, Sacramento State may consider, for coordination purposes, aspects of local plans and policies for the communities surrounding the campus when it is appropriate. The proposed project would be subject to state and federal agency planning documents described herein but would not be bound by local or regional planning regulations or documents such as the City's or County's General Plan or municipal code.

Sacramento State seeks to maintain an ongoing exchange of ideas and information and to pursue mutually acceptable solutions for issues that confront both the campus and its surrounding community. To foster this process, Sacramento State participates in, and communicates with, City of Sacramento (City), Sacramento County (County) and community organizations and sponsors various meetings and briefings to keep local organizations, associations, and elected representatives apprised of ongoing planning effort and consider community input.

EFFECTS FOUND NOT TO BE SIGNIFICANT

Agricultural and Forestry Resources

The project site is located in an urban and industrial area of Sacramento, was previously developed, and is now vacant. Surrounding land uses include retail, industrial, manufacturing, and public roadways. As identified on the Sacramento County Important Farmland map, the project site is identified as "Urban and Built-up Land" (California Department of Conservation 2017). No forestry resources or lands designated for forestry purposes are located within the project area. Development of the project site with new academic, research, and state office space and associated internal roadways, parking, and landscaping would occur within the boundaries of the project site, as identified in

Figure 2-1 of Chapter 2, "Project Description." The project would have no impact on agricultural or forestry resources, and this topic is not discussed further in this EIR.

Geology and Soils

The project site is not located within an Alquist-Priolo Earthquake Fault Zone, and no mapped active or potentially active fault traces are known to traverse or project toward the site (California Department of Conservation 2021). Although the Sacramento area is located between three seismically active fault regions, the project site is not located on any known faults or traces of active faults. Surface fault rupture, therefore, is extremely unlikely. Construction and operation of new buildings and infrastructure would meet current building standards, including the 2019 (or as updated) Building Energy Efficiency Standards and LEED v4 Silver certification and would not exacerbate earthquake potential in the project vicinity. Additionally, as a construction project that would disturb at least 1 acre of land, the project would require coverage under the General Construction Permit: State Water Resources Control Board (SWRCB) Water Quality Order No. 2009-0009-DWQ, National Pollution Discharge Elimination System (NPDES) General Permit No. CAS000002. Compliance with the NPDES General Construction Permit requires applicants to submit a notice of intent to the SWRCB and to prepare a stormwater pollution prevention plan (SWPPP). The SWPPP identifies best management practices (BMPs) that must be implemented to reduce construction effects on receiving water quality. The BMPs identified are directed at implementing both sediment and erosion control measures and other measures to control potential chemical contaminants. The permit also requires dischargers to consider the use of post-construction permanent BMPs that remain in service to protect water quality throughout the life of the project. All NPDES permits also have inspection, monitoring, and reporting requirements. Therefore, impacts to geology and soils would be less than significant and are not discussed further in this EIR.

Hydrology and Water Quality

The existing project site is vacant and consists of paved parking lots, building foundations, and some mature trees. The project would include impervious surfaces similar to those currently at the site and would include new drainage features and infrastructure. There are no natural drainage features on the site; stormwater is captured, directed to existing wastewater infrastructure within Ramona Avenue, Brighton Avenue, and Cucamonga Avenue, and conveyed to the Sacramento Regional County Sanitation District where it is treated and then discharged to the Sacramento River.

As stated above under Geology and Soils, as a construction project that would disturb at least 1 acre of land, the project would require coverage under the General Construction Permit: SWRCB Water Quality Order No. 2009-0009-DWQ, NPDES General Permit No. CAS000002. Compliance with the NPDES General Construction Permit requires applicants to submit a notice of intent to the SWRCB and to prepare a SWPPP. The SWPPP identifies BMPs that must be implemented to reduce construction effects on receiving water quality. The BMPs identified are directed at implementing both sediment and erosion control measures and other measures to control potential chemical contaminants. The permit also requires dischargers to consider the use of post-construction permanent BMPs that remain in service to protect water quality throughout the life of the project. All NPDES permits also have inspection, monitoring, and reporting requirements.

After construction is complete, there would be no adverse increase in stormwater runoff rates. As described in Section 3.10, "Utilities and Service Systems," Sacramento State serves as their own nontraditional municipal separate storm sewer system (MS4) Small Permittee. The General Permit for the Discharge of Storm Water from Small Municipal Separate Storm Sewer Systems Water Quality Order No. 2003-0005-DWQ (Small MS4 General Permit), requires that dischargers develop and implement a Storm Water Management Program (SWMP) that describes the BMPs, measurable goals, and time schedules of implementation as well as assigns responsibility of each task. The Sacramento State main campus has a SWMP. Upon approval, the SWMP would be amended to include The Hub site and any development within The Hub would comply with the conditions of the Sacramento State Small Permittee MS4 permit and requirements outlined in the University's 2006 SWMP. As described in The Hub, Sacramento State Master Plan, open space areas of the project site would provide stormwater capture areas as well as onsite bioretention areas and bioswales. Stormwater runoff from all impervious surfaces would be directed towards onsite bio-retention areas and bioswales where water would naturally infiltrate. Further, other areas within the project site would include permeable paving or permeable landscape areas. These areas would enable water infiltration in place rather than directing water flows to bio-retention areas (Sacramento State 2021). Because onsite stormwater systems would be incorporated as part of project design and would capture and naturally filter stormwater flows generated at the project site, the quantity of stormwater infiltration to groundwater at the site would increase, and the project would not increase runoff to the City stormwater system. Therefore, the project would have a less-than-significant impact on hydrology and water quality, and these issues are not further discussed in this EIR. (Refer to Section 3.10, "Utilities and Service Systems," for a discussion of potential impacts related to relocation or reconstruction of new or expanded utility infrastructure.)

The Federal Emergency Management Agency designates the project site as being located within Zone X, an area with reduced flood risk due to levees (FEMA 2021). As a result, implementation of the project would not place new structures, including housing, in a flood hazard area nor impede or redirect flood flows. Therefore, the project would have no impact related to flood hazards and this issue is not discussed further in this EIR.

The city of Sacramento, including the project site, is not within an area subject to seiche, tsunami, or mudflows (City of Sacramento 2014); therefore, these issues are not discussed further in this EIR.

Land Use and Planning

As noted previously, the project site, less than one mile south of the Sacramento State main campus, is within a highly urbanized and industrial portion of the City of Sacramento, bounded by Brighton Avenue to the north, Power Inn Road to the east, Cucamonga Avenue to the south, and Ramona Avenue to the west. The project site was formerly the California Youth Authority site; the site is currently vacant.

The project site is located within the City of Sacramento's 240-acre Sacramento Center for Innovation (SCI) Specific Plan, which is envisioned as a hub for innovative business and clean technology industries (Figure 3-1). Sacramento's 2035 General Plan identifies the area as an employment growth and economic development center (Employment Center Mid Rise District; Density: 18-60 / FAR: 0.25 – 2.0) (City of Sacramento 2017). While the University, as an entity within the CSU system, is not subject to local government and planning regulations, the City and University share a vision to create a destination campus with nearby office, research and development, and other employment uses. The proposed project would result in the development of CMC, CA DOJ, academic facilities, buildings for future users, as well as site infrastructure and landscaping. The project would be consistent with the City's General Plan designation of the site and the SCI Specific Plan as an employment growth and economic development center. No land use impacts would occur, and this issue is not discussed further in this EIR.

Population, Employment, and Housing

The project would not include construction of new housing or removal of housing. The project site was previously developed, is surrounded by development, and is served by utilities. Development of the project site would not extend roads or other infrastructure to new areas that would induce growth in new locations.

The construction labor force would fluctuate depending on the phase of work. Construction efforts would be relatively modest and short term (occurring over a 5-year period) and are not expected to result in employees relocating to the area. According to the latest labor data available from the California Employment Development Department (EDD 2021), 71,800 residents in Sacramento-Roseville-Arden Arcade Metropolitan Statistical Area (MSA) are employed in the construction industry (EDD 2021). Based on applying the most recent unemployment rate of 6.7 percent for Sacramento-Roseville-Arden Arcade Metropolitan Statistical Area MSA to the construction sector, approximately 4,810 construction employees could be available in the region to work on the proposed project.

Source: Data provided by Sacramento County in 2015

Figure 3-1 Sacramento Center for Innovation Land Uses

As described in the SCI Specific Plan, the City's General Plan identifies the SCI area as an employment growth and development center. As such, increased population and employment growth in the area, including the project site, has been previously contemplated. As described in Chapter 2, "Project Description," project implementation would result in 2,247 site occupants/employees. Several CA DOJ department and employees would be relocated to the project site from existing offices in Sacramento. Therefore, the majority of CA DOJ building occupants would be relocated from within the Sacramento area. However, new jobs would be created through employment with the CMC and within the mixed-use buildings. Though the project would introduce new employment opportunities, there is availability in the labor market and current unemployment rates (6.7 percent as described above) which would allow for opportunities to fill new positions with local hires (EDD 2021). While new employment opportunities would be created through project implementation, as previously described, the site has been identified for future growth in local plans (i.e., the SCI and City General Plan), and as such, would not require development of housing or other facilities that is not identified in these plans. Thus, the project would have a less-than-significant impact on population and housing and this issue is not discussed further in this EIR. The potential for growth-inducing effects is considered, as required by CEQA, in Chapter 5, "Other CEQA Sections."

Public Services and Recreation

The Sacramento Fire Department (SFD) provides fire prevention and protection services to the entire city, including the project site. Fire stations closest to the project site include:

- Sacramento Fire Station 9 at 3101 Stockton Boulevard,
- Sacramento Fire Station 10 at 66th Street, and
- Sacrament City Fire Station 99 at 5801 Florin Perkins Road

Police protection within project area is provided by the City of Sacramento, as well as Sacramento County. The nearest police station is located at 5303 Franklin Boulevard, while the Sacramento County Sheriff Center is located at 7000 65th Street. Additionally, a public safety/University police station is located within the Sacramento State main campus, less than one mile north of the project site.

As described in Chapter 2, "Project Description," fire hydrants would be installed onsite to serve new buildings. Adequate spacing of proposed fire hydrants would make it possible to share hydrants for more than one building, which would reduce pressure losses in the system and provide better fire protection coverage. Additionally, the project would include construction of a new water loop system to support fire service within the site.

The Sacramento City Unified School District (SCUSD) provides educational services to residents of the City of Sacramento. SCUSD serves over 43,000 students in 77 schools. Schools that serve the project vicinity include Tahoe Elementary School, Hiram W. Johnson High School, and Cristo Rey High School.

Recreational facilities in the vicinity of the project area include the Granite Regional Park, Little League Park, Granite Skateboard Park, and additional parks more distant from the project site.

As discussed above in "Population, Employment, and Housing," the potential increase in employees at the project site is consistent with the City's General Plan and the SCI Specific Plan. As such, increased employment in the area has been previously contemplated by the City, and public service and recreation facilities are sufficient to handle the employment increase at the site. The site is within the developed area of the City of Sacramento, and as described above, is served by existing fire stations; University police, City of Sacramento police, and County Sheriff; local parks, and local SCUSD schools. The employment increase from the project would not increase the local population such that there would be an increase in demand for police and fire protection services, schools, or recreational facilities that requires new or expanded facilities, which then cause physical environmental impacts. The project would result in less-than-significant public service impacts and these issues are not discussed further in this EIR.

Mineral Resources

Historic mineral production in the Sacramento region has included construction aggregate, kaolin clay, common clay, pumice, and gold. However, according to the Mineral Land Classification Map of Sacramento County, the project area is designated as MRZ-1, or areas that indicate no significant mineral deposits are present (California Geological Survey 1999). Renovation of the existing office building would not result in the loss of any known mineral resources and no impact would occur. This issue is not discussed further in this EIR.

Wildfire

The project site and surrounding land uses are not designated as a high fire hazard severity zone and are not located within a state responsibility area (CAL FIRE 2007). Rather, they are in the local responsibility area. Due to the site's location within a highly urbanized setting that is served by the SFD (see "Public Services," above), the risk of wildfire is low and this issue not discussed further in this EIR.

This page intentionally left blank.

3.1 AESTHETICS

This section provides a description of existing visual conditions, meaning the physical features and characteristics that make up the visible landscape near the project site, and an assessment of changes to those conditions that would occur from project implementation. Visual resources may include manmade and natural features. The effects of the project on the visual environment are generally defined in terms of the project's physical characteristics and potential visibility, the extent to which the project's presence would change the perceived visual character and quality of the environment, and the expected level of sensitivity that the viewing public may have where the project would alter existing views. The "Methodology" discussion below provides further detail on the approach used in this evaluation.

No comments regarding aesthetics were received in response to the Notice of Preparation.

3.1.1 Regulatory Setting

FEDERAL

No plans, policies, regulations, or laws related to aesthetics, light, and glare are applicable to the project.

STATE

California Scenic Highway Program

California's Scenic Highway Program was created by the California Legislature in 1963 and is managed by the California Department of Transportation. The goal of this program is to preserve and protect scenic highway corridors from changes that would affect the aesthetic value of the land adjacent to highways. A highway may be designated "scenic" depending on how much of the natural landscape travelers can see, the scenic quality of the landscape, and the extent to which development intrudes on travelers' enjoyment of the view. The program includes a list of highways eligible to become, or designated as, official scenic highways; and includes a process for the designation of official State or County Scenic Highways. The closest highway that is designated scenic is a portion of State Route (SR) 160. SR 160 parallels the Sacramento River and is designated scenic between the Contra Costa/Sacramento County line and the south city-limit line for the City of Sacramento. The nearest segment of SR 160 that has been designated as scenic is located approximately 7 miles from the project site, and the site is not visible from the scenic highway. No other state-designated scenic highways are near the project site (Caltrans 2017).

CALIFORNIA STATE UNIVERSITY

California State University Sacramento Master Plan

The purpose of the California State University, Sacramento *Master Plan Design Guidelines* (Sacramento State 2015, Chapter 7) is to unify the campus visual environment. The Design Guidelines address the visual aspects of the building exteriors and the connections between structures, including landscape, pedestrian, and circulation systems. Further, these guidelines are intended to guide the development of new Sacramento State architecture and to provide guidance or existing buildings being remodeled. Design Guidelines, provided in the Chapter 7, "Design Guidelines" of the CSU Sacramento Master Plan, are based upon the following goals:

- Enhance and continue the use of consistent design themes to further unify the visual campus environment;
- Use landscaping as a major unifying element in and of the environment;
- Orient buildings to major pedestrian pathways, campus views and visual axes; and
- Provide building features that visually and functionally connect with the pedestrian environment.

LOCAL

Sacramento State is part of the CSU, which is a statutorily- and legislatively-created and constitutionally authorized entity of the State of California, and the Ramona Property (the project site) is owned by the CSU. As explained in Section 3.0, "California State University Autonomy," of this ~~Draft~~ EIR, State agencies are not subject to local government planning and land use plans, policies, or regulations. Nevertheless, in the exercise of its discretion, CSU does reference, describe, and address local plans, policies, and regulations where appropriate and for informational purposes. This evaluation is also intended to be used by local agencies for determining, as part of their permit processes, the project's consistency with local plans, policies, and regulations.

City of Sacramento 2035 General Plan

The following goals and policies from the *City of Sacramento 2035 General Plan* are relevant to visual resources within the entire project site:

Land Use and Urban Design Element

GOAL LU 6.1: Corridors. Support the development of major circulation corridors that balance their vehicular function with a vibrant mix of uses that contribute to meeting local and citywide needs for retail, services, and housing and provide pedestrian-friendly environments that serve as gathering places for adjacent neighborhoods.

- **Policy LU 6.1.12:** Compatibility with Adjoining Uses. The City shall ensure that the introduction of higher-density mixed-use development along major arterial corridors is compatible with adjacent land uses, particularly residential uses, by requiring such features as:
  - buildings setback from rear or side yard property lines adjoining single-family residential uses;
  - building heights stepped back from sensitive adjoining uses to maintain appropriate transitions in scale and to protect privacy and solar access;
  - landscaped off-street parking areas, loading areas, and service areas screened from adjacent residential areas, to the degree feasible; and
  - lighting shielded and directed downward to minimize impacts on adjacent residential uses. (City of Sacramento 2015; 2-94)

GOAL LU 9.1: Open Space, Parks, and Recreation. Protect open space for its recreational, agricultural, safety, and environmental value and provide adequate parks and open space areas throughout the city.

- **Policy LU 9.1.4:** Open Space Buffers. The City shall use traditional, developed parks and employ innovative uses of open space to "soften" the edges between urban areas and the natural environment. (City of Sacramento 2015; 2-125)

Environmental Resources Element

GOAL ER 7.1: Visual Resource Preservation. Maintain and protect significant visual resources and aesthetics that define Sacramento.

- **Policy ER 7.1.1:** Protect Scenic Views. The City shall avoid or reduce substantial adverse effects of new development on views from public places to the Sacramento and American Rivers and adjacent greenways, landmarks, and the State Capitol along Capitol Mall.
- **Policy ER 7.1.2:** Visually Complimentary Development. The City shall require new development be located and designed to visually complement the natural environment/setting when near the Sacramento and American Rivers, and along streams.
- **Policy ER 7.1.3:** Lighting. The City shall minimize obtrusive light by limiting outdoor lighting that is misdirected, excessive, or unnecessary, and requiring light for development to be directed downward to minimize spill-over onto adjacent properties and reduce vertical glare.

- **Policy ER 7.1.4:** Reflective Glass. The City shall prohibit new development from (1) using reflective glass that exceeds 50 percent of any building surface and on the bottom three floors, (2) using mirrored glass, (3) using black glass that exceeds 25 percent of any surface of a building, (4) using metal building materials that exceed 50 percent of any street-facing surface of a primarily residential building, and (5) using exposed concrete that exceeds 50 percent of any building. (City of Sacramento 2015; 2-335)

Sacramento Center for Innovation Specific Plan

The following goals and policies from the Sacramento Center for Innovation (SCI) Specific Plan are relevant to visual resources within the entire project site.

Land Use Chapter

GOAL LU 3.2: Create a SCI area that is safe and inviting.

- **Policy LU 3.2.1:** Revitalize the area by encouraging high-quality design and an attractive environment
- **Policy LU 3.2.1:** Upgrade streetscapes throughout the SCI area to be attractive and functional
- **Policy LU 3.2.3:** Implement "Crime Prevention Through Environmental Design" (CPTED) standards to ensure streetscape and private development are safe and inviting

GOAL LU 3.3: Create a SCI area that is safe and inviting.

- **Policy LU 3.3.1**: Create Ramona Avenue as an attractive visual and physical link between the University and the SCI. (City of Sacramento 2013: 99)

City of Sacramento Tree Preservation Ordinance

The City of Sacramento (City) has adopted an ordinance to protect trees as a significant resource to the community (City Code Title 12, Chapter 12.56, Ordinance 2016-0026 Section 4). It is the City's policy to retain all trees when possible, regardless of their size. This includes "City Trees" and "Private Protected Trees" (which include trees formerly referred to as "Heritage Trees"). When circumstances will not allow for retention, permits are required to remove trees that are within City jurisdiction. Trees on University-owned property are not within City jurisdiction and are not subject to the City's Tree Preservation Ordinance. However, trees within the City's right of way, or "City street trees," are under the jurisdiction of the City. Some of the trees along Ramona and Cucamonga Avenue may qualify as City street trees. Removal of, or construction around, trees that are protected by the tree ordinance are subject to permission and inspection by City arborists. The City's Tree Services Division reviews project plans and works with the City Public Works Department during the construction process to minimize impacts on street trees in Sacramento.

3.1.2 Environmental Setting

VISUAL CHARACTER

The project site is located in a developed urban area within the southeastern portion of the City of Sacramento. The project site is south of U.S. Highway 50 (US 50) and Folsom Boulevard, west of Power Inn Road, and east of Ramona Avenue. The project site includes an abandoned parking lot and other paved areas, signage, utility connections, and ruderal vegetation and trees of small to medium height with no onsite structures or existing operations. The limited trees at the boundary of the project site along Ramona and Cucamonga Avenue may qualify as City street trees. Topography at the project site is flat. Dominant colors include gray tones, browns and tan tones, greens, and other neutral tones typical of industrial land areas and landscaped vegetation. Figure 3.1-1 provides an aerial view of the existing visual character of the project site.

The visual character of the project site's surroundings is dominated by light-industrial and commercial land uses including storage warehouses, outdoor storage, a hardware store, a welding supply store, restaurants, and a landscaping services facility. Development is generally low-rise with buildings 1 to 3 stories in height and there are visible utility lines, roadways, light rail lines, parking lots, and limited trees and streetscape planting or other landscaping. Similar to onsite conditions, topography surrounding the project site is flat.

SCENIC RESOURCES

The designation of scenic roads and highways is intended to promote and enhance the natural scenic beauty occurring along portions of county and state highways. A portion of the American River that is part of the Wild and Scenic Rivers system (USFWS 2021) is located approximately 4,500 feet north of the project site but is not visible from the project site and vice versa. The distance between the project site and the closest part of the river is developed with urban uses, including US 50. There are no other scenic resources within or adjacent to the project site.

VIEWS

Views to and from the project site are limited due to obstruction by surrounding buildings, fencing, trees, and the flat topography. Viewer groups in the project area predominantly consist of motorists, and to a lesser degree bicyclists and pedestrians, traveling along Ramona Avenue, Brighton Avenue, Cucamonga Avenue, and Power Inn Road. The project site is visible from commercial land uses (including a Home Depot) on the south side of Folsom Boulevard, approximately 500 feet north of the project site. There are four residences located approximately 650 feet southwest of the project site along Ramona Avenue and across Cucamonga Avenue and a University-operated student housing complex located at 2920 Ramona Avenue, approximately 1,000 feet northwest of the project site. In general views of and from the project site short- to medium-range in scope and encompass urban light-industrial development in the area, with no panoramic or distant views of notable natural or built scenic resources.

LIGHT AND GLARE CONDITIONS

Night lighting includes streetlights, interior and exterior building lights, and automobile headlights. Glare is caused by light reflections from pavement, vehicles, and building materials, such as reflective glass and polished surfaces. During daylight hours, the amount of glare depends on intensity and direction of sunlight. Dominant sources of night lighting can cause a skyglow effect that can be visible from long-distance viewpoints and can reduce night sky visibility of stars (commonly referred to as dark sky concerns).

As noted above, the project site is currently vacant and there is no lighting present within the project site. Sources of light in the project vicinity include street lighting along Ramona Avenue, Cucamonga Avenue, and Power Inn Road, and lighting for parking and businesses on the parcels south, east, and northwest of the project site. Overall, however, the project vicinity exhibits relatively low levels of ambient lighting at night. The project site’s surroundings, largely characterized by low-rise industrial development, associated equipment and storage yards, and surface parking surrounded by fencing and in some instances vegetation, do not include high-intensity light sources or highly reflective surfaces that influence light levels or create glare in the project vicinity. Conditions typically associated with excessive daytime glare (e.g., reflective surfaces on mid- and high-rise structures) are not present in the project vicinity.

Source: Rendering produced by MIG Inc. in 2021

Figure 3.1-1 Existing Conditions

3.1.3 Environmental Impacts and Mitigation Measures

METHODOLOGY

This impact evaluation is based on an assessment of potential changes in aesthetic conditions compared to visual setting information collected during a reconnaissance-level survey conducted on May 5, 2021 and review of aerial images. The method used for this assessment of impacts on aesthetics, light, and glare is adapted from guidelines prepared by the Federal Highway Administration (2015) for assessing visual impacts associated with transportation projects; these guidelines are easily transferred to other types of projects that could alter existing landscapes. The process of describing and evaluating visual resources near the project site and the surrounding areas involves the following steps:

- identify the visual features or resources that comprise and define the visual character of the viewsheds (A viewshed is a physiographic area composed of land, water, biotic, and cultural elements that may be viewed and mapped from one or more viewpoints and that has inherent scenic qualities and/or aesthetic values as determined by those who view it.);
- assess the quality of the identified visual resources relative to overall regional visual character;
- identify major viewer groups and describe viewer exposure; and
- identify viewer sensitivity, or the relative importance of views to people who are members of the viewing public.

The following concepts are used in evaluating the project's effects on visual resources:

- Visual quality is dependent upon the degree to which landscape features combine to provide striking and distinctive visual patterns; whether or not intrusive elements are dominant in the views; and the visual or compositional harmony of the views.
- A scenic vista is generally considered a view of an area that has "remarkable" or unique scenery or a resource that is unique to the area.
- The viewer's distance from landscape elements plays an important role in the determination of an area's visual quality. Visibility and visual dominance of landscape elements depend on their placement within a viewshed. Viewer sensitivity is also considered in assessing the impacts of visual change and is a function of several factors.
- The sensitivity of the viewer or viewer concern is based on the visibility of resources in the landscape, proximity of the viewers to the visual resource, elevation of the viewers relative to the visual resource, frequency and duration of views, numbers of viewers, and types and expectations of individuals and viewer groups.

THRESHOLDS OF SIGNIFICANCE

An impact on aesthetics, light, and glare is considered significant if implementation of the project would do any of the following:

- have a substantial adverse effect on a scenic vista;
- damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway;
- 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); would conflict with applicable zoning and other regulations governing scenic quality; and/or
- create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

ISSUES NOT DISCUSSED FURTHER

Scenic Vistas

The term *vista* generally implies an expansive view, usually from an elevated point or open area. A *scenic vista* is a view that possesses visual and aesthetic qualities of high value to the community. Scenic vistas can provide views of natural features or significant structures and buildings. The project site is located in a developed, industrial urban setting, is not an elevated point or open area, and does not contain remarkable scenery or views of natural areas or significant structures that would be considered a scenic vista. No scenic vistas are visible from the project site, and the project area is not located within a scenic vista. Thus, implementation of the project would not adversely impact a scenic vista, and this impact is not discussed further.

Damage to Scenic Resources

No designated scenic resources (e.g., historic buildings or natural scenic features, such as trees or outcroppings) are located within or visible from the project site. The project is not visible from a designated scenic highway. A portion of the American River that is part of the Wild and Scenic Rivers system (USFWS 2021) is located approximately 4,500 feet north of the project site. The area located between the project site and the closest point of the river is developed with urban uses, including US 50. As a result, the project site is not visible from the river, and the river is not visible from the project site. Therefore, the project would not impact scenic resources, and this topic is not discussed further.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Impact 3.1-1: Substantially Degrade the Visual Character or Quality of Public Views of the Site and its Surroundings

Project implementation would involve temporary (i.e., construction-related) and permanent (i.e., development of new structures) visual changes to the project site, within an urban setting in Sacramento. The vacant site would be visually altered by the development of four buildings, an autonomous vehicle test track, and supporting facilities such as parking, landscaping, and pedestrian pathways. However, the project vicinity is characterized by industrial urban development lacking any notable visual character, and the Master Plan for The Hub, Sacramento State Research Park includes design guidelines that would replicate the built environment and landscape character of the Sacramento State main campus on the project site. The project impact on the visual character of the site and public views in the project area would be **less than significant**.

As described in Section 3.1.2, "Environmental Setting" above, the project site is located in a developed, urban area of the city. The project site includes abandoned surface parking lots and other pavement, debris, utility connections, signage, and trees with no structures present onsite (Figure 3-1). Unpaved portions of the project site contain grass, weeds, and trees of small to medium height. Due to the industrial setting of the surrounding areas, lack of visual or scenic resources, unmaintained vegetation, and pavement present on the property, the existing visual quality of the project area is considered low.

The project site is visible from adjacent roadways as well as from several viewer groups located northwest and southwest of the site. The nearest viewer group is located approximately 650 feet southwest of the project site, along Ramona Avenue, and consists of approximately four single family residences. The second viewer group is located approximately 1,000 feet northwest of the project area, also along Ramona Avenue, and consists of three, high density student apartment buildings. Views from this vantage point are limited due to the distance from the project site, as well as obstructing buildings and vegetation.

Development associated with the project would alter the visual character of the currently vacant project site; it would result in construction of CMC, CA DOJ and future user buildings, an autonomous vehicle test track associated with the CMC facility, and other site improvements such as landscaping, publicly accessible green spaces, bike and pedestrian pathways, parking, and internal roadways. The proposed CMC building and associated showcase facility would be one and two stories tall respectively, and both approximately 35 feet in height. The expansion of the CMC facility under Phase II would remain consistent with Phase I design and 35-foot height. The CA DOJ facility proposed for Phase I would be 5 stories and have a maximum height of approximately 75 feet. Development under Phase II would include two mixed-use buildings to provide office or academic, retail, and parking spaces. The northern building would have a maximum height of 75 feet. The southern building would be two stories and approximately 35 feet in height. The conceptual massing of The Hub is shown in Figure 3-2.

Source: Rendering produced by MIG Inc. in 2021

Figure 3.1-2 The Hub, Sacramento State Research Park Conceptual Massing Rendering

The Hub, Sacramento State Research Park Master Plan project includes design guidelines for the buildings, the landscaping, and the hardscape features, which would require that onsite structures be aesthetically consistent with campus development within the University main campus, the use of natural toned materials for building exteriors, establishment of a maximum building height of five stories, the use exterior window shading to reduce glare impacts, and incorporation use of natural lighting in building design (CSU Sacramento 2021: 140-158). In addition, the project includes hardscape design guidelines that specify aesthetic requirements for furnishing outdoor seating areas, the visual character of visible utilities, and the inclusion of public art throughout the project site.

Sacramento State is designated as a "Tree Campus USA," and the quality of the main campus landscape is a recognizable part of the University's "brand." Therefore, the site and landscape guidelines for The Hub are intended to extend that character to the project site. Similar to the main campus, The Hub would be designed to unify the appearance of the project and continue the University tradition of maintaining a diverse collection of trees, shrubs, and groundcovers. As described in Chapter 2, "Project Description," Phase I of the project would establish landscaping throughout the project site, including a central green, greenway corridor, courtyards, and plazas. Project features, such as the central green, would offer a community gathering and collaboration space in the center of the project site while the greenway corridor would serve as the primary active transportation and open space spine through The Hub. In addition to these features, plazas and outdoor courtyards would be established throughout the project site to provide interactive gathering areas, dining terraces, outdoor classroom opportunities, work areas, and quiet spaces such as reading gardens. The landscaping design guidelines promote integration of open spaces and outdoor seating areas with the built environment, specify a plant palette for plan area landscaping, establish style guidelines to ensure consistency with the University's main campus, and minimize impacts of visual impacts of automobiles and parking spaces (CSU Sacramento 2021: 92). Furthermore, the limited trees at the boundary of the project site along Ramona and Cucamonga Avenue may qualify as City street trees. Any removal of, or construction around, trees that are protected by the tree ordinance would be subject to permission and inspection by City arborists.

Although the visual conditions of the project site would be altered through project implementation, development of the vacant site may be considered an improvement to the visual quality of the area for new users and for existing viewer groups by removing debris and abandoned materials, and introducing new aesthetic elements through the construction of new buildings, greenspaces, and landscaping. Additionally, the Master Plan design guidelines pertaining to building design, landscaping, and hardscape would establish consistency with the Sacramento State main campus. Therefore, the impact on the visual character of the site and public views would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.1-2: Create a New Source of Substantial Light or Glare That Adversely Affects Day or Nighttime Views

The project would result in new sources of operational light and glare associated with development of new buildings, landscaping, parking areas, and pedestrian pathways. Project-related light sources would be similar to existing lighting conditions in the project area in terms of amount and intensity of light. Onsite lighting would be designed to meet current building standards, including the 2019 (or as updated) Building Energy Efficiency Standards and LEED v4 Silver certification, which would reduce both the generation of exterior light and the potential for light trespass to affect off-site areas. Therefore, this impact would be **less than significant**.

The project would involve new sources of light and potentially reflective materials associated with construction and operation of new buildings and outdoor spaces.

Construction activities would be limited to the daytime, between 7:00 a.m. and 6:00 p.m. Monday through Saturday and 9:00 a.m. and 6:00 p.m. on Sunday. Any temporary security lighting for the construction site would meet current building standards, including the 2019 (or as updated) Building Energy Efficiency Standards and LEED v4 Silver certification and would be shielded and angled downwards (into the construction area) to prevent spillover light.

The Hub would include lighting for entrances, parking areas, pathways, buildings, and the CMC test track. The Hub, Sacramento State Research Park Master Plan includes lighting design guidelines. Lighting for the project would:

- be pedestrian scale; no highway scale lighting;
- maximize energy efficiency such as LED lighting or similar;
- foster an attractive atmosphere; avoid harsh lighting;

- be a model to eliminate light trespass from the project and reduce impact on the night sky;
- direct light downward (e.g., "cut-off" fixtures) to reduce sky glow and light pollution ;
- use a variety of lighting typologies for different outdoor spaces as a wayfinding and placemaking element;
- use lighting to reinforce/highlight buildings, landscape, and program uses; and
- use lighting to contribute to the perception and actuality of a safe project (CSU Sacramento 2021: 118).

Sources of glare within the project site could result from vehicles and potentially reflective materials such as photovoltaic solar panels or glass used in building windows. However, as previously described, the building design guidelines require Sacramento State to maintain aesthetic consistency with University's main campus buildings, to use natural-toned materials for building exteriors (i.e., non-reflective material), to establish a maximum building height of five stories, and to use exterior window shading to reduce glare impacts (CSU Sacramento 2021: 140-158). No large-scale sources of intense glare that could be annoying or disabling to surrounding land uses or motorists on surrounding roadways are proposed as part of the project.

For these reasons, project implementation would not create a new source of substantial light or glare that would adversely affect day or nighttime views in the area. This impact would be **less than significant.**

Mitigation Measures

No mitigation is required for this impact.

This page intentionally left blank.

3.2 AIR QUALITY

This section includes a discussion of existing air quality conditions, a summary of applicable regulations, and an analysis of potential construction and operational air quality impacts caused by proposed development of The Hub (referred to as "project"). Mitigation is developed as necessary to reduce significant air quality impacts to the extent feasible. Detailed calculations, modeling inputs, and results can be found in Appendix B.

Comments were received in response to the Notice of Preparation from the Sacramento Metropolitan Air Quality Management District (SMAQMD) that included recommended guidance for completing air quality analysis under the California Environmental Quality Act (CEQA). This recommended guidance is used throughout this analysis to analyze impacts to air quality.

3.2.1 Regulatory Setting

Air quality in the project area is regulated through the efforts of various federal, State, regional, and local government agencies. These agencies work jointly, as well as individually, to improve air quality through legislation, planning, policy-making, education, and a variety of programs. The agencies responsible for improving the air quality within the air basins are discussed below.

FEDERAL

U.S. Environmental Protection Agency

The U.S. Environmental Protection Agency (EPA) has been charged with implementing national air quality programs. EPA's air quality mandates draw primarily from the federal Clean Air Act (CAA), which was enacted in 1970. The most recent major amendments made by Congress in 1990. EPA's air quality efforts address both criteria air pollutants (CAPs) and hazardous air pollutants (HAPs). EPA regulations concerning CAPs and HAPs are presented in greater detail below.

<u>Criteria Air Pollutants</u>

The CAA required EPA to establish National Ambient Air Quality Standards (NAAQS) for six common air pollutants found all over the U.S. referred to as CAPs. EPA has established primary and secondary NAAQS for the following criteria air pollutants: ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), respirable particulate matter with aerodynamic diameter of 10 micrometers or less (PM_{10}) and fine particulate matter with aerodynamic diameter of 2.5 micrometers or less ($PM_{2.5}$), and lead. The NAAQS are shown in Table 3.2-1. The primary standards protect public health and the secondary standards protect public welfare. The CAA also required each state to prepare a State implementation plan (SIP) for attaining and maintaining the NAAQS. The federal Clean Air Act Amendments of 1990 added requirements for states with nonattainment areas to revise their SIPs to incorporate additional control measures to reduce air pollution. California's SIP is modified periodically to reflect the latest emissions inventories, planning documents, and rules and regulations of the air basins as reported by their jurisdictional agencies. EPA is responsible for reviewing all SIPs to determine whether they conform to the mandates of the CAA and its amendments, and whether implementation will achieve air quality goals. If EPA determines a SIP to be inadequate, EPA may prepare a federal implementation plan that imposes additional control measures. If an approvable SIP is not submitted or implemented within the mandated time frame, sanctions may be applied to transportation funding and stationary air pollution sources in the air basin.

Table 3.2-1 National and California Ambient Air Quality Standards

Pollutant	Averaging Time	California (CAAQS)[a,b]	National (NAAQS)[c] Primary[b,d]	National (NAAQS)[c] Secondary[b,e]
Ozone	1-hour	0.09 ppm (180 μg/m^3)	–[e]	Same as primary standard
	8-hour	0.070 ppm (137 μg/m^3)	0.070 ppm (147 μg/m^3)	Same as primary standard
Carbon monoxide (CO)	1-hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)	Same as primary standard
	8-hour	9 ppm[f] (10 mg/m^3)	9 ppm (10 mg/m^3)	Same as primary standard
Nitrogen dioxide (NO_2)	Annual arithmetic mean	0.030 ppm (57 μg/m^3)	53 ppb (100 μg/m^3)	Same as primary standard
	1-hour	0.18 ppm (339 μg/m^3)	100 ppb (188 μg/m^3)	—
Sulfur dioxide (SO_2)	24-hour	0.04 ppm (105 μg/m^3)	—	—
	3-hour	—	—	0.5 ppm (1300 μg/m^3)
	1-hour	0.25 ppm (655 μg/m^3)	75 ppb (196 μg/m^3)	—
Respirable particulate matter (PM_{10})	Annual arithmetic mean	20 μg/m^3	—	Same as primary standard
	24-hour	50 μg/m^3	150 μg/m^3	Same as primary standard
Fine particulate matter ($PM_{2.5}$)	Annual arithmetic mean	12 μg/m^3	12.0 μg/m^3	15.0 μg/m^3
	24-hour	—	35 μg/m^3	Same as primary standard
Lead [f]	Calendar quarter	—	1.5 μg/m^3	Same as primary standard
	30-Day average	1.5 μg/m^3	—	—
	Rolling 3-Month Average	–	0.15 μg/m^3	Same as primary standard
Hydrogen sulfide	1-hour	0.03 ppm (42 μg/m^3)	No national standards	
Sulfates	24-hour	25 μg/m^3		
Vinyl chloride [f]	24-hour	0.01 ppm (26 μg/m^3)		
Visibility-reducing particulate matter	8-hour	Extinction of 0.23 per km		

Notes: μg/m^3 = micrograms per cubic meter; km = kilometers; ppb = parts per billion; ppm = parts per million.

a California standards for ozone, carbon monoxide, SO_2 (1- and 24-hour), NO_2, particulate matter, and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

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

c National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic means) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration in a year, averaged over three years, is equal to or less than the standard. The PM_{10} 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 μg/m^3 is equal to or less than one. The $PM_{2.5}$ 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. Environmental Protection Agency for further clarification and current federal policies.

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

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

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

Source: CARB 2016.

Hazardous Air Pollutants and Toxic Air Contaminants

Toxic air contaminants (TACs), or in federal parlance, hazardous air pollutants, are a defined set of airborne pollutants that may pose a present or potential hazard to human health. A TAC is defined as an air pollutant that may cause or contribute to an increase in mortality or in serious illness, or that may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air; however, their high toxicity or health risk may pose a threat to public health even at low concentrations.

A wide range of sources, from industrial plants to motor vehicles, emit TACs. The health effects associated with TACs are quite diverse and generally are assessed locally, rather than regionally. TACs can cause long-term health effects such as cancer, birth defects, neurological damage, asthma, bronchitis, or genetic damage; or short-term acute affects such as eye watering, respiratory irritation (a cough), running nose, throat pain, and headaches.

For evaluation purposes, TACs are separated into carcinogens and non-carcinogens based on the nature of the physiological effects associated with exposure to the pollutant. Carcinogens are assumed to have no safe threshold below which health impacts would not occur. This contrasts with criteria air pollutants for which acceptable levels of exposure can be determined and for which the ambient standards have been established (Table 3.2-1). Cancer risk from TACs is expressed as excess cancer cases per one million exposed individuals, typically over a lifetime of exposure.

EPA regulates HAPs through its National Emission Standards for Hazardous Air Pollutants. The standards for a particular source category require the maximum degree of emission reduction that the EPA determines to be achievable, which is known as the Maximum Achievable Control Technology—MACT standards. These standards are authorized by Section 112 of the 1970 Clean Air Act and the regulations are published in 40 CFR Parts 61 and 63.

STATE

The California Air Resources Board (CARB) is the agency responsible for coordination and oversight of State and local air pollution control programs in California and for implementing the California Clean Air Act (CCAA). The CCAA, which was adopted in 1988, required CARB to establish California ambient air quality standards (CAAQS) (Table 3.2-1).

Criteria Air Pollutants

CARB has established CAAQS for sulfates, hydrogen sulfide, vinyl chloride, visibility-reducing particulate matter, and the above-mentioned criteria air pollutants. In most cases the CAAQS are more stringent than the NAAQS. Differences in the standards are generally explained by the health effects studies considered during the standard-setting process and the interpretation of the studies. In addition, the CAAQS incorporate a margin of safety to protect sensitive individuals.

The CCAA requires that all local air districts in the state endeavor to attain and maintain the CAAQS by the earliest date practical. The CCAA specifies that local air districts should focus particular attention on reducing the emissions from transportation and area-wide emission sources. The CCAA also provides air districts with the authority to regulate indirect sources.

Toxic Air Contaminants

TACs in California are regulated primarily through the Tanner Air Toxics Act (Assembly Bill [AB] 1807, Chapter 1047, Statutes of 1983) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588, Chapter 1252, Statutes of 1987). AB 1807 sets forth a formal procedure for CARB to designate substances as TACs. Research, public participation, and scientific peer review are required before CARB can designate a substance as a TAC. To date, CARB has identified more than 21 TACs and adopted EPA's list of HAPs as TACs. Most recently, particulate matter (PM) exhaust from diesel engines (diesel PM) was added to CARB's list of TACs.

After a TAC is identified, CARB then adopts an airborne toxics control measure for sources that emit that particular TAC. If a safe threshold exists for a substance at which there is no toxic effect, the control measure must reduce exposure below that threshold. If no safe threshold exists, the measure must incorporate best available control technology for toxics to minimize emissions.

In addition, CARB has published its *Air Quality and Land Use Handbook* that provides guidance on land use compatibility with TAC sources (CARB 2005). The *Air Quality and Land Use Handbook* offers recommendations for siting sensitive receptors near TAC sources such as high-volume roadways, distribution centers, rail yards, ports, refineries, dry cleaners, gasoline stations, and industrial facilities.

The Hot Spots Act requires that existing facilities that emit toxic substances above a specified level prepare an inventory of toxic emissions, prepare a risk assessment if emissions are significant, notify the public of significant risk levels, and prepare and implement risk reduction measures.

AB 617 of 2017 aims to help protect air quality and public health in communities around industries subject to the state's cap-and-trade program for GHG emissions. AB 617 imposes a new state-mandated local program to address non-vehicular sources (e.g., refineries, manufacturing facilities) of criteria air pollutants and TACs. The bill requires CARB to identify high-pollution areas and directs air districts to focus air quality improvement efforts through adoption of community emission reduction programs within these identified areas. Currently, air districts review individual sources and impose emissions limits on emitters based on best available control technology, pollutant type, and proximity to nearby existing land uses. This bill addresses the cumulative and additive nature of air pollutant health effects by requiring community-wide air quality assessment and emission reduction planning.

CARB has adopted diesel exhaust control measures and more stringent emissions standards for various transportation-related mobile sources of emissions, including transit buses, and off-road diesel equipment (e.g., tractors, generators). Over time, the replacement of older vehicles will result in a vehicle fleet that produces substantially lower levels of TACs than under current conditions. Mobile-source emissions of TACs (e.g., benzene, 1-3-butadiene, diesel PM) have been reduced significantly over the last decade and will be reduced further in California through a progression of regulatory measures (e.g., Low Emission Vehicle/Clean Fuels and Phase II reformulated gasoline regulations) and control technologies. With implementation of CARB's Risk Reduction Plan, it is expected that diesel PM concentrations will be 85 percent less in 2020 in comparison to year 2000 (CARB 2000). Adopted regulations are also expected to continue to reduce formaldehyde emissions emitted by cars and light-duty trucks. As emissions are reduced, it is expected that risks associated with exposure to the emissions will also be reduced.

CALIFORNIA STATE UNIVERSITY

California State University Sustainability Policy

In May 2014, the California State University (CSU) Board of Trustees adopted the first CSU systemwide Sustainability Policy. The policy aims to reduce the environmental impact of construction and operation of buildings and to integrate sustainability into all facets of the CSU, including academics, facilities operations, the built environment, and student life. The CSU Sustainability Policy established the following goals related to air quality:

- Promote use of alternative fuels and transportation programs.
- Procure 33 percent of energy supply from renewable sources by 2020.
- Increase on-site energy generation from 44 to 80 megawatts by 2020.

LOCAL

Sacramento State is an entity of the CSU, which is a statutorily- and legislatively-created, constitutionally authorized State agency, and the Ramona Property (the project site) is owned by the CSU. As explained in Section 3.0, "California State University Autonomy," of this ~~Draft~~ EIR, State agencies are not subject to local government planning and land use plans, policies, or regulations. Nevertheless, in the exercise of its discretion, CSU does reference, describe, and address local plans, policies, and regulations where appropriate and for informational purposes. This evaluation is also intended to be used by local agencies for determining, as part of their permit processes, the project's consistency with local plans, policies, and regulations. However, Sacramento State is subject to the rules and regulations of SMAQMD as it is a special district/local-regional planning agency that is tasked with maintaining or improving air quality and human health within Sacramento County.

Sacramento Metropolitan Air Quality Management District

Criteria Air Pollutants

SMAQMD is the primary agency responsible for planning to meet NAAQS and CAAQS in Sacramento County. SMAQMD works with other local air districts in the Sacramento region to maintain the region's portion of the SIP for ozone. The SIP is a compilation of plans and regulations that govern how the region and State will comply with the CAA requirements to attain and maintain the NAAQS for ozone. The Sacramento region has been designated as a "moderate" 2015 8-hour ozone nonattainment area with an extended attainment deadline of June 15, 2019 (EPA 2019). The 2018 Sacramento Regional 2008 8-Hour Ozone Attainment and Further Reasonable Progress Plan was approved by CARB on November 16, 2017. The previous 2013 Update to the 8-Hour Ozone Attainment and Reasonable Further Progress Plan was approved and promulgated by EPA for the 1997 8-Hour Ozone Standard. EPA has not released a notice of approval and promulgation of the 2017 SIP (CARB 2017).

SMAQMD has developed a set of guidelines for use by lead agencies when preparing environmental documents. The guidelines contain thresholds of significance for criteria pollutants and TACs and make recommendations for conducting air quality analyses. After SMAQMD guidelines have been consulted and the air quality impacts of a project have been assessed, the lead agency's analysis undergoes a review by SMAQMD. SMAQMD submits comments and suggestions to the lead agency for incorporation into the environmental document.

All projects are subject to adopted SMAQMD rules and regulations in effect at the time of construction. Specific rules applicable to the construction of The Hub may include but are not limited to the following:

- Rule 201: General Permit Requirements. Any project that includes the use of equipment capable of releasing emissions to the atmosphere may be required to obtain permit(s) from SMAQMD before equipment operation. The Applicant, developer, or operator of a project that includes an emergency generator, boiler, or heater should contact SMAQMD early to determine whether a permit is required, and to begin the permit application process. Portable construction equipment (e.g., generators, compressors, pile drivers, lighting equipment) with an internal combustion engine greater than 50 horsepower must have a SMAQMD permit or CARB portable equipment registration.
- Rule 202: New Source Review. The purpose of this rule is to provide for the issuance of authorities to construct and permits to operate at new and modified stationary air pollution sources and to provide mechanisms, including emission offsets, by which authorities to construct such sources may be granted without interfering with the attainment or maintenance of ambient air quality standards.
- Rule 207: Federal Operating Permit. The purpose this rule is to establish an operating permitting system consistent with the requirements of Title V of the United States Code and pursuant to 40 FR Part 70. Stationary sources subject to the requirements of this rule are also required to comply with any other applicable federal, state, or SMAQMD orders, rules and regulations, including requirements pertaining to prevention of significant deterioration pursuant to Rule 203, requirements to obtain an authority to construct pursuant to Rule 201, or applicable requirements under SMAQMD's new source review rule in the SIP.
- Rule 402: Nuisance. A person shall not discharge from any source whatsoever such quantities of air contaminants or other materials which cause injury, detriment, nuisance or annoyance to any considerable number of persons or the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause or have natural tendency to cause injury or damage to business or property.
- Rule 403: Fugitive Dust. The developer or contractor is required to control dust emissions from earthmoving activities or any other construction activity to prevent airborne dust from leaving the project site. Fugitive dust controls include the following:
  - Water all exposed surfaces two times daily.
  - Cover or maintain at least two feet of free board on haul trucks transporting soil, sand, or other loose material on the site.

- Use wet power vacuum street sweepers to remove any visible trackout mud or dirt onto adjacent public roads at least once a day.
- Limit vehicle speeds on unpaved roads to 15 miles per hour.
- All roadways, driveways, sidewalks, parking lots to be paved should be completed as soon as possible. In addition, building pads should be laid as soon as possible after grading unless seeding or soil binders are used.
- Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes.
- Maintain all construction equipment in proper working condition according to manufacturer's specifications.

- **Rule 442: Architectural Coatings.** The purpose of this rule is to limit the emissions of volatile organic compounds from the use of architectural coatings supplied, sold, offered for sale, applied, solicited for application, or manufactured for use within Sacramento County.
- **Rule 902**: **Asbestos.** The developer or contractor is required to notify SMAQMD of any regulated renovation or demolition activity. Rule 902 contains specific requirements for surveying, notification, removal, and disposal of material containing asbestos.

In addition, if modeled construction-generated emissions for a project are not reduced to levels below SMAQMD's mass emission threshold (of 85 pounds per day [lb/day] for nitrogen oxide [NO_X], 80 lb/day or 14.6 tons per year [tons/year] for PM_{10}, and 82 lb/day or 15 tons/year for $PM_{2.5}$) after the standard construction mitigation is applied, then SMAQMD requires purchasing an off-site construction mitigation fee to purchase off-site emissions reductions. Such purchases are made through SMAQMD's Heavy Duty Incentive Program, through which select owners of heavy-duty equipment in Sacramento County can repower or retrofit their old engines with cleaner engines or technologies (SMAQMD 2019).

Toxic Air Contaminants

At the local level, air districts may adopt and enforce CARB control measures for TACs. Under SMAQMD Rule 201 ("General Permit Requirements"), Rule 202 ("New Source Review"), and Rule 207 ("Federal Operating Permit"), all sources that possess the potential to emit TACs are required to obtain permits from SMAQMD. Permits may be granted to these operations if they are constructed and operated in accordance with applicable regulations, including New Source Review standards and air toxics control measures. SMAQMD limits emissions and public exposure to TACs through a number of programs. SMAQMD permits TAC-emitting stationary sources based on the quantity and toxicity of the TAC emissions and the proximity of the facilities to sensitive receptors. Sensitive receptors are people or facilities that generally house people (e.g., schools and residences) that may experience adverse effects from unhealthy concentrations of air pollutants.

Odors

Although offensive odors rarely cause any physical harm, they can be unpleasant, leading to considerable stress among the public and often generating citizen complaints to local governments and SMAQMD. SMAQMD's Rule 402 ("Nuisance," discussed above) regulates odorous emissions.

Health Effects

SMAQMD has also issued *Guidance to Address the Friant Ranch Ruling for CEQA Projects in the Sac Metro Air District, Sacramento, California* (SMAQMD 2020), which contains guidance on how to address the California Supreme Court decision in Sierra Club v. County of Fresno, 6 Cal.5th 502 (2018)—a court decision often referred to as the Friant Ranch decision. In that decision, the California Supreme Court held that an EIR should "relate the expected adverse air quality impacts to likely health consequences or explain in meaningful detail why it is not feasible at the time of drafting to provide such an analysis." SMAQMD's guidance recommends using the Minor Project Health Effects Tool to estimate the level of health effects for an emissions source that results in emissions at or below criteria air pollutant and precursor thresholds of significance. The sole input for the Minor Project Health Effects Tool is the project's geographical location, and the output of the Minor Project Health Effects Tool is based on that location and modeled emissions at 82 pounds per day of NO_X, reactive organic gases (ROG), or PM, which are the highest thresholds of significance for each of these pollutants in the SMAQMD and neighboring air districts. Therefore, the Minor Project Health Effects Tool is used for projects with emissions at or below air district thresholds of significance.

City of Sacramento 2035 General Plan

The following policies of the *City of Sacramento 2035 General Plan* (City of Sacramento 2015) are relevant to air quality within the project site:

Land Use

- Policy LU 2.7.5: Development along Freeways. The City shall promote high-quality development character of buildings along freeway corridors and protect the public from the adverse effects of vehicle-generated air emissions, noise, and vibration, using such techniques as:
  - requiring extensive landscaping and trees along the freeway fronting elevation;
  - establish a consistent building line, articulating and modulating building elevations and heights to create visual interest; and
  - include design elements that reduce noise and provide for proper filtering, ventilation, and exhaust of vehicle air emissions.

Environmental Resources

- Policy ER 6.1.1: Maintain Ambient Air Quality Standards. The City shall work with CARB and SMAQMD to meet State and federal ambient air quality standards in order to protect residents, regardless of age, culture, ethnicity, gender, race, socioeconomic status, or geographic location, from the health effects of air pollution.
- Policy ER 6.1.2: New Development. The City shall review proposed development projects to ensure projects incorporate feasible measures that reduce construction and operational emissions for reactive organic gases, nitrogen oxides, and particulate matter (PM_{10} and $PM_{2.5}$) through project design.
- Policy ER 6.1.3: Emissions Reduction. The City shall require development projects that exceed SMAQMD ROG and NO_X operational thresholds to incorporate design or operational features that reduce emissions equal to 15 percent from the level that would be produced by an unmitigated project.
- Policy ER 6.1.4: Sensitive Uses. The City shall coordinate with SMAQMD in evaluating exposure of sensitive receptors to toxic air contaminants, and will impose appropriate conditions on projects to protect public health and safety.
- Policy ER 6.1.14: Zero-Emission and Low-Emission Vehicle Use. The City shall encourage the use of zero-emission vehicles, low-emission vehicles, bicycles and other non-motorized vehicles, and car-sharing programs by requiring sufficient and convenient infrastructure and parking facilities in residential developments and employment centers to accommodate these vehicles.

Sacramento Center for Innovation Specific Plan

The following goals and policies from the Sacramento Center for Innovation (SCI) Specific Plan are relevant to air quality within the entire project site:

Utility Infrastructure

GOAL UI 5.3: Reduce overall energy demand and promote air and water quality improvements.

- Policy UI 5.3.1: Encourage both new and rehabilitation projects to employ green building strategies and LEED or similar criteria that reduce energy consumption, promote air and water quality improvements and reduce heat-island effects. Encourage developers to participate in SMUD energy efficiency and load management programs.
- Policy UI 5.3.2: Support programs and developments that employ strategies to reduce vehicle greenhouse gas emissions and improve air quality.

<u>Mobility/Circulation Studies & Plans</u>

- **Policy M 1.2.1:** Multimodal Choices. The City shall promote development of an integrated, multi-modal transportation system that offers attractive choices among modes including pedestrian ways, public transportation, roadways, bikeways, rail, waterways, and aviation and reduces air pollution and greenhouse gas emissions.

3.2.2 Environmental Setting

The project area is located in the Sacramento Valley Air Basin (SVAB). The SVAB includes all of Butte, Colusa, Glenn, Sacramento, Shasta, Sutter, Tehama, Yolo, and Yuba counties. The ambient concentrations of air pollutant emissions are determined by the amount of emissions released by the sources of air pollutants and the atmosphere's ability to transport and dilute such emissions. Natural factors that affect transport and dilution include terrain, wind, atmospheric stability, and sunlight. Therefore, existing air quality conditions in the area are determined by such natural factors as topography, meteorology, and climate, in addition to the amount of emissions released by existing air pollutant sources, as discussed separately below.

CLIMATE, METEOROLOGY, AND TOPOGRAPHY

The SVAB is a relatively flat area bordered by the north Coast Ranges to the west and the northern Sierra Nevada to the east. Air flows into the SVAB through the Carquinez Strait, the only breach in the western mountain barrier, and moves across the Sacramento River–San Joaquin River Delta (Delta) from the San Francisco Bay area.

The Mediterranean climate type of the SVAB is characterized by hot, dry summers and cool, rainy winters. During the summer, daily temperatures range from 50 degrees Fahrenheit (°F) to more than 100°F. The inland location and surrounding mountains shelter the area from much of the ocean breezes that keep the coastal regions moderate in temperature. Most precipitation in the area results from air masses that move in from the Pacific Ocean, usually from the west or northwest, during the winter months. More than half the total annual precipitation falls during the winter rainy season (November through February); the average winter temperature is a moderate 49°F. Also, characteristic of SVAB winters are periods of dense and persistent low-level fog, which are most prevalent between storms. The prevailing winds are moderate in speed and vary from moisture-laden breezes from the south to dry land flows from the north.

The mountains surrounding the SVAB create a barrier to airflow, which leads to the entrapment of air pollutants when meteorological conditions are unfavorable for transport and dilution. The highest frequency of poor air movement occurs in the fall and winter when high-pressure cells are present over the SVAB. The lack of surface wind during these periods, combined with the reduced vertical flow caused by a decline in surface heating, reduces the influx of air and leads to the concentration of air pollutants under stable metrological conditions. Surface concentrations of air pollutant emissions are highest when these conditions occur in combination with agricultural burning activities or with temperature inversions, which hamper dispersion by creating a ceiling over the area and trapping air pollutants near the ground.

May through October is ozone season in the SVAB. This period is characterized by poor air movement in the mornings with the arrival of the Delta sea breeze from the southwest in the afternoons. In addition, longer daylight hours provide a plentiful amount of sunlight to fuel photochemical reactions between ROG and NO_X, which result in ozone formation. Typically, the Delta breeze transports air pollutants northward out of the SVAB; however, a phenomenon known as the Schultz Eddy prevents this from occurring during approximately half of the time from July to September. The Schultz Eddy phenomenon causes the wind to shift southward and blow air pollutants back into the SVAB. This phenomenon exacerbates the concentration of air pollutant emissions in the area and contributes to the area violating the ambient-air quality standards.

The local meteorology of the project area and surrounding area is represented by measurements recorded at the Western Regional Climate Center Sacramento 5 ESE station. The normal annual precipitation is approximately 18 inches. January temperatures range from a normal minimum of 40°F to a normal maximum of 54°F. July temperatures range from a normal minimum of 59°F to a normal maximum of 92°F (WRCC 2016). The predominant wind direction is from the south (WRCC 2017).

CRITERIA AIR POLLUTANTS

Concentrations of criteria air pollutants are used to indicate the quality of the ambient air. A brief description of key criteria air pollutants in the SVAB is provided below. Emission source types and health effects are summarized in Table 3.2-2. Sacramento County's attainment status for the CAAQS and the NAAQS are shown in Table 3.2-3.

Ozone

Ozone is a photochemical oxidant (a substance whose oxygen combines chemically with another substance in the presence of sunlight) and the primary component of smog. Ozone is not directly emitted into the air but is formed through complex chemical reactions between precursor emissions of ROG and NO_X in the presence of sunlight. ROG are volatile organic compounds that are photochemically reactive. ROG emissions result primarily from incomplete combustion and the evaporation of chemical solvents and fuels. NO_X are a group of gaseous compounds of nitrogen and oxygen that result from the combustion of fuels.

Emissions of the ozone precursors ROG and NO_X have decreased over the past several years because of more stringent motor vehicle standards and cleaner burning fuels. Emissions of ROG and NO_X decreased from 2000 to 2010 and are projected to continue decreasing from 2010 to 2035 (CARB 2013).

Nitrogen Dioxide

NO_2 is a brownish, highly reactive gas that is present in all urban environments. The major human-made sources of NO_2 are combustion devices, such as boilers, gas turbines, and mobile and stationary reciprocating internal combustion engines. Combustion devices emit primarily nitric oxide, which reacts through oxidation in the atmosphere to form NO_2. The combined emissions of NO and NO_2 are referred to as NO_X and are reported as equivalent NO_2. Because NO_2 is formed and depleted by reactions associated with photochemical smog (ozone), the NO_2 concentration in a particular geographical area may not be representative of the local sources of NO_X emissions (EPA 2012).

Particulate Matter

Respirable particulate matter with an aerodynamic diameter of 10 micrometers or less is referred to as PM_{10}. PM_{10} consists of particulate matter emitted directly into the air, such as fugitive dust, soot, and smoke from mobile and stationary sources, construction operations, fires and natural windblown dust, and particulate matter formed in the atmosphere by reaction of gaseous precursors (CARB 2013). Fine particulate matter ($PM_{2.5}$) includes a subgroup of smaller particles that have an aerodynamic diameter of 2.5 micrometers or less. PM_{10} emissions in the SVAB are dominated by emissions from area sources, primarily fugitive dust from vehicle travel on unpaved and paved roads, farming operations, construction and demolition, and particles from residential fuel combustion. Direct emissions of PM_{10} are projected to remain relatively constant through 2035. Direct emissions of $PM_{2.5}$ have steadily declined in the SVAB between 2000 and 2010 and then are projected to increase very slightly through 2035. Emissions of $PM_{2.5}$ in the SVAB are dominated by the same sources as emissions of PM_{10} (CARB 2013).

Table 3.2-2 Sources and Health Effects of Criteria Air Pollutants

Pollutant	Sources	Acute[1] Health Effects	Chronic[2] Health Effects
Ozone	Secondary pollutant resulting from reaction of ROG and NO_X in presence of sunlight. ROG emissions result from incomplete combustion and evaporation of chemical solvents and fuels; NO_X results from the combustion of fuels	increased respiration and pulmonary resistance; cough, pain, shortness of breath, lung inflammation	permeability of respiratory epithelia, possibility of permanent lung impairment
Carbon monoxide (CO)	Incomplete combustion of fuels; motor vehicle exhaust	headache, dizziness, fatigue, nausea, vomiting, death	permanent heart and brain damage
Nitrogen dioxide (NO_2)	combustion devices; e.g., boilers, gas turbines, and mobile and stationary reciprocating internal combustion engines	coughing, difficulty breathing, vomiting, headache, eye irritation, chemical pneumonitis or pulmonary edema; breathing abnormalities, cough, cyanosis, chest pain, rapid heartbeat, death	chronic bronchitis, decreased lung function
Sulfur dioxide (SO_2)	coal and oil combustion, steel mills, refineries, and pulp and paper mills	Irritation of upper respiratory tract, increased asthma symptoms	Insufficient evidence linking SO_2 exposure to chronic health impacts
Respirable particulate matter (PM_{10}), Fine particulate matter ($PM_{2.5}$)	fugitive dust, soot, smoke, mobile and stationary sources, construction, fires and natural windblown dust, and formation in the atmosphere by condensation and/or transformation of SO_2 and ROG	breathing and respiratory symptoms, aggravation of existing respiratory and cardiovascular diseases, premature death	alterations to the immune system, carcinogenesis
Lead	metal processing	reproductive/ developmental effects (fetuses and children)	numerous effects including neurological, endocrine, and cardiovascular effects

Notes: NO_X = oxides of nitrogen; ROG = reactive organic gases.

[1] "Acute" refers to effects of short-term exposures to criteria air pollutants, usually at fairly high concentrations.

[2] "Chronic" refers to effects of long-term exposures to criteria air pollutants, usually at lower, ambient concentrations.

Sources: EPA 2016.

Attainment Status

As shown in Table 3.2-3, Sacramento County is designated as a nonattainment for ozone with respect to both the NAAQS (8-hour standard) and CAAQS (1-hour Classification and 8-hour standard), nonattainment for PM_{10} with respect to the CAAQS, and nonattainment for $PM_{2.5}$ with respect to the NAAQS.

Table 3.2-3 Attainment Status Designations for Sacramento County

Pollutant	National Ambient Air Quality Standard	California Ambient Air Quality Standard
Ozone	Attainment (1-hour)[1]	Nonattainment (1-hour) Classification-Serious[2]
	Nonattainment (8-hour)[3] Classification=Severe	Nonattainment (8-hour)
	Nonattainment (8-hour)[4] Classification=Severe	Nonattainment (8-hour)
Respirable particulate matter (PM_{10})	Attainment (24-hour)	Nonattainment (24-hour)
	Attainment (24-hour)	Nonattainment (Annual)
Fine particulate matter ($PM_{2.5}$)	Nonattainment (24-hour)	(No State Standard for 24-Hour)
	Attainment (Annual)	Attainment (Annual)
Carbon monoxide (CO)	Attainment (1-hour)	Attainment (1-hour)
	Attainment (8-hour)	Attainment (8-hour)
Nitrogen dioxide (NO_2)	Unclassified/Attainment (1-hour)	Attainment (1-hour)
	Unclassified/Attainment (Annual)	Attainment (Annual)

Pollutant	National Ambient Air Quality Standard	California Ambient Air Quality Standard
Sulfur dioxide (SO_2)[5]	(Attainment Pending) (1-Hour)	Attainment (1-hour)
	(Attainment Pending) (1-Hour)	Attainment (24-hour)
Lead (Particulate)	Attainment (3-month rolling avg.)	Attainment (30 day average)
Hydrogen Sulfide	No Federal Standard	Unclassified (1-hour)
Sulfates	No Federal Standard	Attainment (24-hour)
Visibly Reducing Particles	No Federal Standard	Unclassified (8-hour)
Vinyl Chloride	No Federal Standard	Unclassified (24-hour)

Notes:

1 Air Quality meets federal 1-hour Ozone standard (77 FR 64036). EPA revoked this standard, but some associated requirements still apply. SMAQMD attained the standard in 2009. SMAQMD has requested EPA recognize attainment to fulfill the requirements.

2 Per Health and Safety Code (HSC) § 40921.5(c), the classification is based on 1989 – 1991 data, and therefore does not change.

3 1997 Standard.

4 2008 Standard.

5 2010 Standard.

Source: EPA 2019 and CARB 2018.

TOXIC AIR CONTAMINANTS

According to the *California Almanac of Emissions and Air Quality* (CARB 2013), the majority of the estimated health risks from TACs can be attributed to relatively few compounds, the most important being diesel PM. Diesel PM differs from other TACs in that it is not a single substance, but rather a complex mixture of hundreds of substances. Although diesel PM is emitted by diesel-fueled internal combustion engines, the composition of the emissions varies depending on engine type, operating conditions, fuel composition, lubricating oil, and whether an emissions control system is being used. Unlike the other TACs, no ambient monitoring data are available for diesel PM because no routine measurement method currently exists. However, CARB has made preliminary concentration estimates based on a PM exposure method. This method uses the CARB emissions inventory's PM_{10} database, ambient PM_{10} monitoring data, and the results from several studies to estimate concentrations of diesel PM. In addition to diesel PM, the TACs for which data are available that pose the greatest existing ambient risk in California are benzene, 1,3-butadiene, acetaldehyde, carbon tetrachloride, hexavalent chromium, para-dichlorobenzene, formaldehyde, methylene chloride, and perchloroethylene.

Diesel PM poses the greatest health risk among these 10 TACs mentioned. Based on receptor modeling techniques, Overall, levels of most TACs, except para-dichlorobenzene and formaldehyde, have decreased since 1990 (CARB 2013).

ODORS

Odors are generally 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).

The ability to detect odors varies considerably among the population and overall is quite subjective. Some individuals can smell very 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; an odor that is offensive to one person may be perfectly acceptable to another (e.g., fast food restaurant). It is important to also 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. Odor sources of concern include wastewater treatment plants, sanitary landfills, composting facilities, recycling facilities, petroleum refineries, chemical manufacturing plants, painting operations, rendering plants, and food packaging plants (SMAQMD 2016). None of these odorous land uses are within proximity to the project site.

SENSITIVE RECEPTORS

Sensitive receptors are generally considered to include those land uses where exposure to pollutants could result in health-related risks to sensitive individuals, such as children or the elderly. Residential dwellings, schools, hospitals, playgrounds, and similar facilities are of primary concern because of the presence of individuals particularly sensitive to pollutants and/or the potential for increased and prolonged exposure of individuals to pollutants.

Existing sensitive receptors in the project area include the Little League Park approximately 660 feet to the west of the project site, multifamily residences (The Crossings on Ramona Avenue) approximately 970 feet to the northwest of the project site, and the Sutter Center for Psychiatry approximately 410 feet northwest of the project site.

3.2.3 Environmental Impacts and Mitigation Measures

METHODOLOGY

Regional and local criteria air pollutant emissions and associated impacts, as well as impacts from TACs, CO concentrations, and odors were assessed in accordance with SMAQMD-recommended methodologies. The project's emissions are compared to SMAQMD-adopted thresholds.

Construction and operational emissions of criteria air pollutants and precursors were calculated using the California Emissions Estimator Model (CalEEMod) version 2020.4.0 computer program, as recommended by SMAQMD. Modeling was based on project-specific information (e.g., land use type, building square footage) where available; reasonable assumptions based on typical construction activities; and default values in CalEEMod that are based on the project's location and land use type.

Construction

Construction activities would occur in two separate phases over a minimum five-year timeframe. Phase I is projected to begin in 2023 and end in 2026 and would include the construction of the California Mobility Center (CMC) and the California Department of Justice (CA DOJ) buildings along with utility upgrades; development of internal access and roadways; development of bicycle and pedestrian pathways; and development of open space areas, plazas, and bioretention facilities. It was assumed that all construction activities in Phase I would be constructed concurrently to provide a conservative maximum daily and annual emissions amount. Construction of Phase II is projected to begin in 2027 and end in 2028. Phase II is anticipated to include the demolition of the proposed parking lot in Phase I, expansion of the CMC building, and construction of the academic and/or research facilities. Like Phase I, development proposed in Phase II was assumed to be constructed concurrently to provide a conservative maximum daily and annual emissions amount. Construction of the access option within Phase II, as identified in Chapter 2, "Project Description," is considered to be included as part of the overall estimate construction effort. Detailed construction assumptions and inputs can be found in Appendix B.

Operations

Operation-related emissions of criteria air pollutants were estimated for the following sources: area sources (e.g., landscaping-related fuel combustion sources, consumer products, building maintenance), energy use (i.e., natural gas consumption related to the CA DOJ forensic laboratories), and mobile sources. Each building would be equipped with an emergency generator, which were assessed qualitatively. Operation-related mobile-source emissions were modeled based on the estimated level of vehicle miles traveled (VMT) generated by employees. VMT estimates used in the air quality modeling were obtained from the transportation analysis conducted for the project (see Section 3.9, "Transportation"). Mobile-source emissions were calculated using CalEEMod. See Appendix B for details.

Emissions of criteria air pollutants from building energy would be from limited natural gas use associated with the CA DOJ forensic laboratories. Default emissions factors in CalEEMod were used for natural gas according to the research and development land use and non-California Energy Code Title 24 end uses such as appliances, electronics, and other miscellaneous plug-in uses. Note that the project would include 71 parking spaces equipped with Electric

Vehicle Supply Equipment (EVSE), which would imply that a number of EV vehicles would travel to and from the site; however, no reductions in criteria air pollutant or ozone precursors were accounted for in the modeling. Operational area source emissions were estimated using CalEEMod based on model defaults for the applied land uses. Detailed model assumptions and inputs for these calculations are presented in Appendix B.

The level of health risk from exposure to construction- and operation-related TAC emissions was assessed qualitatively. This assessment was based on the proximity of TAC-generating construction activity to sensitive receptors within the project area, typical types of diesel-powered construction equipment that would be used, and the potential duration of potential TAC exposure. Operation-related exposure from existing sources (e.g., stationary sources, roadways) to sensitive receptors was also evaluated qualitatively.

Impacts related to odors were assessed qualitatively, based on potential construction activities, equipment types and duration of use, overall construction schedule, and distance to nearby sensitive receptors. Potential operational odor sources were also evaluated qualitatively based on the proposed land uses. Odor impacts were evaluated in accordance with SMAQMD guidance and methods.

THRESHOLDS OF SIGNIFICANCE

Per Appendix G of the CEQA Guidelines and SMAQMD recommendations, the project's impact to air quality is considered significant if it would do any of the following:

- conflict with or obstruct implementation of the applicable air quality plan;
- construction-generated criteria air pollutant or precursor emissions to exceed SMAQMD-recommended thresholds of 85 lb/day for NO_X, 0 lb/day of PM_{10}, and 0 lb/day of $PM_{2.5}$. As noted in SMAQMD's recommended significance thresholds, if all feasible "Best Management Practices" (BMPs), as defined by SMAQMD, for controlling construction emissions are applied, the applicable threshold would be 80 lb/day and 14.6 tons/year for PM_{10}, and 82 lb/day and 15 tons/year for $PM_{2.5}$;
- a net increase in long-term operational criteria air pollutant or precursor emissions that exceed the SMAQMD-recommended thresholds of 65 lb/day for ROG and NO_X, 0 lb/day of PM_{10}, and 0 lb/day of $PM_{2.5}$. If all feasible BMPs, as defined by SMAQMD, for controlling operational phase emissions are applied, the applicable threshold would be 80 lb/day and 14.6 tons/year for PM_{10}, and 82 lb/day and 15 tons/year for $PM_{2.5}$;
- expose sensitive receptors to a substantial pollutant concentrations, which could include an incremental increase in TAC emissions that exceed 10 in one million for carcinogenic risk (i.e., the risk of contracting cancer) and/or a noncarcinogenic hazard index of 1.0 or greater; and/or
- create objectionable odors affecting a substantial number of people.

ISSUES NOT DISCUSSED FURTHER

Localized Emissions of Mobile-Source CO

Localized emissions of mobile-source CO are not included in this analysis. The SVAB has been in attainment for CO for several years, and this pollutant is less of a concern because operational activities are unlikely to generate substantial CO emissions. As discussed in SMAQMD's CEQA Guide, CO emissions are "predominately generated in the form of mobile-source exhaust from vehicle trips. These vehicle trips occur throughout a paved network of roads, and therefore, associated exhaust emissions of [CO] are not generated in a single location where high concentrations could be formed" (SMAQMD 2020b:4-7). A CO impact is not anticipated unless an intersection experiences more than 31,600 vehicles per hour. Considering the project would result in a maximum 7,928 daily trips, the number of vehicles traveling through intersections fall well short of the 31,600-vehicles-per-hour threshold. Furthermore, the CMC is intended to support sustainable transportation research and prototyping. CMC would be a testing and manufacturing facility for mobility technologies such as electric vehicles, autonomous transportation, battery storage, and transit, which would not generate CO. For these reasons, localized mobile-source CO emissions associated with the project are not anticipated to exceed SMAQMD's thresholds and therefore are not discussed further in this analysis.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Impact 3.2-1: Conflict with or Obstruct Implementation of an Applicable Air Quality Plan

Implementation of the project would not increase projected growth beyond the City's 2035 General Plan, which considered the expected growth of the SCI Specific Plan in which the project is located. Because the 2035 General Plan was used to inform the projected growth in the air quality attainment plans (AQAPs), the project would be consistent with the AQAPs. The project is consistent with the AQAP and this impact would be **less than significant**.

The SVAB is currently designated as nonattainment for ozone and PM_{10}. SMAQMD has developed AQAPs (i.e., Sacramento Regional 2008 NAAQS 8-Hour Ozone Attainment and Reasonable Further Progress Plan), which present comprehensive strategies to reduce volatile organic compounds, NO_X, PM_{10}, and $PM_{2.5}$ emissions from stationary, area, mobile, and indirect sources to achieve attainment status of the NAAQS and CAAQS. SMAQMD has not prepared a similar plan for particulate matter. The emission inventories used to develop the applicable AQAPs are based primarily on projected population and employment growth and associated VMT for the SVAB. This growth is estimated for the region, based in part, on the planned growth identified in regional and local land use plans such as general plans or community plans. Therefore, projects that would result in increases in population or employment growth beyond that projected in regional or local plans could result in increases in VMT above that forecasted in the attainment plans, further resulting in mobile source emissions that could conflict with or obstruct implementation of the AQAP. Increases in VMT beyond that projected in the City's General Plan, SACOG's regional VMT modeling, and SMAQMD regional AQAPs generally would be considered to have a significant adverse incremental effect on the SVAB's ability to attain CAAQS and NAAQS for all criteria air pollutants.

The project site is located within the City of Sacramento's 240-acre SCI Specific Plan area which is identified as an employment growth and economic development center in the City's 2035 General Plan. The project site is also identified as an Employment Center within the Fruitridge-Broadway Community Plan of the 2035 General Plan (City of Sacramento 2015). Because the SCI Specific Plan area was considered in the 2035 General Plan, the land uses and growth projects of the project area were considered in the development of the AQAPs.

To achieve attainment status of NAAQS and CAAQS, strategies in the AQAPs include the adoption of rules and regulations; enhancement of CEQA participation; implementation of a new and modified indirect source review program; adoption of local air quality plans; and stationary, mobile, and indirect source control measures. Because the project is consistent with the land uses of the SCI Specific Plan and would not modify land uses from those anticipated in the City's General Plan, the project would not conflict with the implementation of the SMAQMD AQAP for long-range air quality planning and would not facilitate further growth. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.2-2: Cause Construction-Generated Criteria Air Pollutant or Precursor Emissions to Exceed SMAQMD-Recommended Thresholds

Construction of the project would result in emissions of ROG, NO_X, PM_{10}, and $PM_{2.5}$. Construction activities would result in maximum daily emissions of PM_{10} and $PM_{2.5}$ that would exceed SMAQMD's thresholds of significance without BMPs. This impact would be **significant.**

Project construction activities would result in emissions of ROG, NO_X, PM_{10}, and $PM_{2.5}$ from demolition, site preparation (e.g., excavation, clearing), off-road equipment, material delivery, worker commute trips, building construction, asphalt paving, and application of architectural coatings. Fugitive dust emissions of PM_{10} and $PM_{2.5}$ are associated primarily with site preparation and grading and vary as a function of soil silt content, soil moisture, wind speed, acreage of disturbance, and VMT on and off the site. Emissions of ozone precursors, ROG and NO_X, are associated primarily with construction equipment and on-road mobile exhaust. Paving and the application of architectural coatings result in off-gas emissions of ROG. PM_{10} and $PM_{2.5}$ are also contained in vehicle exhaust.

Typical construction activities would require all-terrain forks, forklifts, cranes, pick-up and fuel trucks, compressors, loaders, backhoes, excavators, dozers, scrapers, pavement compactors, welders, concrete pumps, concrete trucks, and off-road haul trucks, as well as other diesel-fueled equipment as necessary.

Construction activities are anticipated to occur over a five-year timeframe in two phases. Phase I of construction is projected to begin in 2023 and is estimated to be complete by 2026. Phase II of construction is projected to begin after Phase I in 2027 and is estimated to be completed in 2028. Conservative assumptions were used and construction of individual buildings were overlapped (i.e., CMC and CA DOJ) to account for construction activities potentially occurring simultaneously. As such, reported emissions represent a conservative estimate of maximum daily emissions. It is also important to note that as construction continues in the future, equipment exhaust emission rates would decrease as newer, more emission-efficient construction equipment replaces older, less efficient equipment. For specific assumptions and modeling inputs, refer to Appendix B.

Table 3.2-4 summarizes the modeled maximum daily emissions from the construction activities by phase and year over the buildout period (ending in 2028). This analysis is conservative because it assumes development could overlap in time, which would depend on market conditions and construction schedules of individual development on the project site.

Table 3.2-4 Unmitigated Maximum Daily Emissions of Criteria Air Pollutants and Precursors Emissions Associated with Project Construction (lb/day)

Construction Year	ROG (lb/day) Emissions	NO_X (lb/day) Emissions	PM_{10} (lb/day) Emissions	PM_{10} (tpy) Emissions	$PM_{2.5}$ (lb/day) Emissions	$PM_{2.5}$ (tpy) Emissions
Phase I						
2023	3.6	34.6	21.1	<1	11.3	<1
2024	3.3	24.5	5.8	<1	2.0	<1
2025	3.1	23.3	5.7	<1	1.9	<1
2026	124.5	8.6	0.8	<1	<1	<1
Phase II						
2027	2.0	15.6	7.7	<1	3.9	<1
2028	135.4	15.6	2.2	<1	<1	<1
SMAQMD Thresholds of Significance	None	85	0[1]	0[1]	0[2]	0[2]

Notes: ROG = reactive organic gas; NO_X = oxides of nitrogen; PM_{10} = respirable particulate matter; lb/day = pounds per day; SMAQMD = Sacramento Air Quality Management District; tpy = tons per year

[1] If all feasible BACT/BMPs are applied, then 82 lb/day and 15 tpy.

[2] If all feasible BACT/BMPs are applied, then 80 lb/day and 14.6 tpy.

Source: Modeling conducted by Ascent Environmental in 2021.

According to the SMAQMD guidance, projects that do not implement SMAQMD's BMPs must meet a zero peak daily and annual emission threshold for PM_{10} and $PM_{2.5}$. With implementation of SMAQMD's BMPs, the SMAQMD's peak daily and annual thresholds increase to 80 lb/day or 14.6 tons per years (tpy) for PM_{10} and 82 lb/day or 15 tpy for $PM_{2.5}$. As shown above in Table 3.2-4, construction activity associated with implementation of the project is anticipated to generate emissions in exceedance of the established maximum daily limit of zero for PM_{10}, and $PM_{2.5}$. As a result, the project could result in a substantial contribution to an existing adverse air quality condition. This impact is **significant**.

Mitigation Measures

Mitigation Measure 3.2-2: Implement SMAQMD's Basic Construction Emission Control Practices

For all project-related development, construction contractors shall implement SMAQMD's Basic Construction Emission Control Practices, including the following:

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

Significance after Mitigation

With implementation of SMAQMD's Basic Construction Emission Control Practices , the emissions thresholds for PM_{10} and $PM_{2.5}$ would be 80 lb/day or 14.6 tpy of PM_{10} and 82 lb/day or 15 tpy of $PM_{2.5}$. As shown in Table 3.2-5, modeled PM_{10} and $PM_{2.5}$ emissions would fall below the adjusted thresholds. Therefore, PM_{10} and $PM_{2.5}$ emissions resulting from construction of the project would not exceed applicable thresholds and construction associated with the project would not contribute substantially to the nonattainment status of the SVAB. With incorporation of Mitigation Measure 3.2-2, this impact would be reduced to **less than significant**.

Table 3.2-5 Mitigated Maximum Daily Emissions of Criteria Air Pollutants and Precursors Emissions Associated with Project Construction (lb/day)

Construction Year	ROG (lb/day) Emissions	NO_X (lb/day) Emissions	PM_{10} (lb/day) Emissions	PM_{10} (tpy) Emissions	$PM_{2.5}$ (lb/day) Emissions	$PM_{2.5}$ (tpy) Emissions
Phase I						
2023	3.6	34.6	10.2	0.4	5.7	0.2
2024	3.3	24.5	5.4	0.7	1.9	0.2
2025	3.1	23.3	5.3	0.7	1.9	0.2
2026	124.5	8.6	0.8	0.0	0.4	0.0
Phase II						
2027	2.0	15.6	3.8	0.3	2.0	0.1
2028	135.4	15.6	2.1	0.2	0.9	0.1
SMAQMD Thresholds of Significance	None	85	80[1]	14.6[1]	82[2]	15[2]

Notes: ROG = reactive organic gas; NO_X = oxides of nitrogen; PM_{10} = respirable particulate matter; lb/day = pounds per day; SMAQMD = Sacramento Air Quality Management District; tpy = tons per year

[1] If all feasible BACT/BMPs are applied, then 82 lb/day and 15 tpy.

[2] If all feasible BACT/BMPs are applied, then 80 lb/day and 14.6 tpy.

Source: Modeling conducted by Ascent Environmental in 2021.

Impact 3.2-3: Result in a Net Increase in Long-Term Operational Criteria Air Pollutant and Precursor Emissions That Exceed SMAQMD-Recommended Thresholds

Implementation of the project would result in long-term operational emissions that are not expected to exceed the SMAQMD's thresholds of significance. Thus, operation-generated emissions would not contribute substantially to the nonattainment statuses of SVAB. Additionally, examination of the project using SMAQMD's Minor Project Health Effects Tool indicates that the project would not result in sizeable health effects and may result in no health effects. This impact would be **less than significant**.

Project operation would result in the generation of long-term operational emissions of ROG, NO_X, and particulate matter (e.g., PM_{10} and $PM_{2.5}$) as a result of mobile, stationary, and area-wide sources. Mobile-source emissions of criteria air pollutants and precursors would result from vehicle trips generated by students, residents, employee commute trips, and other associated vehicle trips (e.g., delivery of supplies, visitors). Stationary and area-wide sources would include the combustion of natural gas for appliances, electronics, and other miscellaneous plug-in uses, fuel associated with the use of landscaping equipment, the periodic application of architectural coatings, and generation of ROG from the use of consumer products. Stationary source emissions from the back-up emergency generator would result in long-term operational emissions, however, the project is subject to ~~the~~ an Authority to Construct and Permit to Operate from the SMAQMD ~~permitting requirements set forth by SMAQMD and would~~ to ensure that all emissions standards are met. In addition, SMAQMD will conduct a health risk assessment (HRA) that will evaluate the impact to sensitive receptors from all stationary emission sources that are a part of this project, which could help provide further public disclosure on possible operational health risk.[1] Furthermore, because the generators would be used for emergency events, their operational emissions would be short-term and not result in a significant concentration of emissions.

In order to reduce operational PM emissions for land use development projects, SMAQMD recommends projects to implement operational BMPs, which also allows for projects to apply a non-zero threshold of significance. The project would comply with SMAQMD's BMPs for PM reduction through implementation of state regulatory requirements under California Building Energy Efficiency Standards, Title 24, Part 6 and Part 11~~the California Energy Efficiency Standards and Green Building Code~~, compliance with SMAQMD Rules and Regulations, and CARB anti-idling regulations. As part of the project design, these measures have been included and would be considered to be in place for the purpose of this analysis as they would be required through the building permit and inspection process.

Table 3.2-6 summarizes the maximum daily and annual operational emissions of criteria air pollutants and ozone precursors at full buildout.

Table 3.2-6 Unmitigated Criteria Air Pollutant and Precursor Emissions Associated with Project Buildout Operations (2028)

Source	ROG (lb/day)	NO_X (lb/day)	PM_{10} (lb/day)	PM_{10} (tpy)	$PM_{2.5}$ (lb/day)	$PM_{2.5}$ (tpy)
Area	16.4	<1	<1	<1	<1	<1
Energy	<1	1	<1	<1	<1	<1
Mobile	28	34	69	9	19	2
Total	49	35	69	9	19	2
SMAQMD Thresholds of Significance	65	65	80[1]	14.6[1]	82[2]	15[2]

Notes: ROG = reactive organic gas; NO_X = oxides of nitrogen; CO = carbon monoxide; PM_{10} = respirable particulate matter; lb/day = pounds per day; SMAQMD = Sacramento Metropolitan Air Quality Management District.

[1] If all feasible BACT/BMPs are applied, then 82 lb/day and 15 tpy.

[2] If all feasible BACT/BMPs are applied, then 80 lb/day and 14.6 tpy.

Source: Modeled by Ascent Environmental in 2021

[1] For information on SMAQMD HRA timing and public website access, please contact Steve Mosunic, Program Supervisor with the Sac Metro Air District Permitting Section, at 279-207-1137 or smosunic@airquality.org.

Project implementation would generate emissions of all four criteria air pollutants currently under non-attainment status (i.e., ROG, NO_X, PM_{10}, $PM_{2.5}$). However, based on project characteristics and design features included in the project to reduce energy use and reduce mobile-source emission (e.g., nearby transit use), operational daily emissions would be below the thresholds of significance for all applicable criteria air pollutants with the implementation of operational BMPs and the project would not result in a substantial contribution to the nonattainment status of the SVAB. In addition, the project would include 71 parking spaces equipped with Electric Vehicle Supply Equipment (EVSE), which would reduce tailpipe emissions from vehicle use associated with the project. Furthermore, as described in Chapter 2, "Project Description," the University is considering acquisition of a parcel south of the project site (APN 079-0260-006) for an optional action to develop a direct road connection between the project and Cucamonga Avenue. If this optional road connection is constructed as part of Phase II of the project, vehicles travelling to and from the site via Power Inn Road would be afforded an earlier access point, which would reduce VMT and associated criteria pollutant emissions from mobile sources. However, the level of VMT reduction (and associated criteria pollutant emission reduction) of this access improvement would be minimal (approximately 0.2 miles per vehicle trip). Regardless, the effect of the access option would not result in a substantial increase in criteria pollutant emissions, if selected.

The Minor Project Health Effects Tool was used to evaluate potential health effects of mass emissions associated with implementation of the project; the outputs reflect the potential increase in premature deaths over the background health incidence rate of each health endpoint in the region.

However, The *Guidance to Address the Friant Ranch Ruling for CEQA Projects in the Sac Metro Air District, Sacramento, California* (SMAQMD 2020) notes that, by default, the model generates conservatively high health effects. As explained in the guidance, the outputs are based on simulation of a full year of exposure at the maximum daily average of increases in air pollutant concentrations. In the Minor Projects Health Effects Tool, emissions are assumed to be at 82 pounds per day of NO_X, ROG, or PM. As described above, the project emissions would, in actuality, be substantially less than SMAQMD's recommended mass thresholds for criteria air pollutants. Therefore, the model output of additional mortality (i.e., additional mortality of 2.1 persons due to ozone and $PM_{2.5}$ exposure) unequivocally overstates the potential cardiovascular and respiratory health impacts of the project, and it is possible there would be no cardiovascular and respiratory health impacts (i.e., zero cases of additional mortality) attributable to mass emissions of the project (SMQMD 2020b:A-15). The SMAQMD guidance also notes that the model output includes only health effects with sufficient research to provide quantification. Other health effects are linked to emissions of $PM_{2.5}$ and ozone that are not quantified in the Minor Projects Health Effects Tool (SMAQMD 2020). Other health effects of criteria air pollutants and ozone are discussed in Section 3.2.2, "Environmental Setting," above. The linkage between mass emissions and other health effects are not quantifiable, and the project would not result in sizeable quantifiable health effects if it resulted in health effects at all. Therefore, it is presumed that these other health effects would also not be sizeable or would be zero.

<u>Summary</u>

The project would not result in a SMAQMD threshold of significance exceedance or substantially contribute to a nonattainment status of the SVAB. Furthermore, based on health effect modeling, the project would not result in adverse health impacts. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.2-4: Expose Sensitive Receptors to Substantial Pollutant Concentrations

Construction-related emissions of TACs associated with proposed project would be spread over the project area, not affecting any one receptor for extended periods of time, and therefore, would not result in exposure of existing receptors to substantial TAC concentrations. The project would not result in exposure of sensitive receptors to excessive TAC emissions from operational emissions. This impact would be **less than significant**.

The focus of this TAC analysis is diesel PM. Although other TACs exist (e.g., benzene, 1,3-butadiene, hexavalent chromium, formaldehyde, methylene chloride), they are primarily associated with industrial operations and the project would not include any industrial sources. TACs from diesel PM are of particular importance because the potential cancer risk from inhalation of diesel PM outweighs the risk for all other health impacts (i.e., noncancer chronic risk, short-term acute risk) and health impacts from other TACs (CARB 2003).

Construction

Construction-related activities would result in temporary, intermittent emissions of diesel PM from the exhaust of off-road, heavy-duty diesel equipment used for site preparation (e.g., demolition, clearing, grading); paving; on-road truck travel; and other miscellaneous activities. On-road diesel-powered haul trucks traveling to and from the construction areas to deliver materials and equipment are less of a concern because they would not stay on the site for long periods of time.

With regards to exposure of diesel PM, the dose to which receptors are exposed is the primary factor used to determine health risk. Dose is a function of the concentration of a substance or substances in the environment and the duration of exposure to the substance. Dose is positively correlated with time, meaning that a longer exposure period would result in a higher level of health risk for nay exposed receptor. Thus, the risks estimated for an exposed individual are higher if a fixed exposure occurs over a longer period.

Based on the emissions modeling conducted and presented in Table 3.2-5 above, maximum daily emissions of diesel PM would be 5.7 pounds per day during construction activity. This maximum daily emission level represents multiple, simultaneous construction projects. It is more likely, however, that construction activities would be located at various locations throughout the project area, and due to the dispersive properties of diesel PM, concentrations from individual construction sites would be lower (e.g., decrease of 70 percent at 500 feet from the source). In addition, the use of off-road heavy-duty diesel equipment would be limited to the construction phase of five years and split between two phases. Construction activity intensity and duration would vary throughout the project area. As such, no single existing or future receptor would be exposed to substantial construction-related emissions of diesel PM for extended periods of time.

Residential receptors are generally of primary concern when discussing TAC exposure, as they would generally be exposed to project generated TACs for extended periods of time. Provided that the nearest residences are located approximately 970 feet northwest of the project site, TAC exposure from construction activities would not be considered substantial at these receptors. Further, the nearby Little League would not be considered a sensitive receptor for TAC exposure as users of the park typically spend only a few hours at a time there. Thus, given the distance (i.e., approximately 660 feet) from the project site and the minimal exposure time anyone user at the park could potentially be exposed to TACs, TAC exposure at this land use would not be substantial. Further, mitigation measures identified under Impact 3.2-2 would serve to substantially reduce diesel PM emissions compared to unmitigated emissions evaluated herein. Thus, given the temporary and intermittent nature of construction activities within the project area (i.e., construction does not occur in any one part of the campus during the five-year buildout period), the dose of diesel PM of any one receptor would be limited. This impact would be less than significant.

Operations

The project's new facilities would not result in any new stationary sources of TACs. Individual buildings constructed under the project would install back-up diesel-powered generators; however, Sacramento State would comply with the permitting requirements set forth by SMAQMD and would ensure that all emissions standards are met. The project would result in the operation of additional land uses within the project area, which would have a corresponding increase in vehicle trips and diesel PM emissions. In particular, diesel-powered trucks associated with the commercial and mixed-use land uses could contribute additional diesel PM emissions. Daily maximum emissions of diesel PM would be approximately 19 pounds per day. However, these emissions would be generated by new vehicle trips within the Sacramento region with only a small portion of these trips occurring within the project area near sensitive receptors. As a result, the actual concentration near sensitive land uses associated with implementation of the project would be minimal, and implementation of the project would not result in exposure of new or existing sensitive receptors to TACs from regular and frequent visits by diesel-powered haul trucks. Further, the project's proposed manufacturing operations would not generate substantial TACs since the project would only be use for prototyping and use all electric energy. Use of any equipment subject to substantial TAC generation would be subject to SMAQMD permitting requirements.

Considering the highly dispersive properties of diesel PM, the relatively low mass of diesel PM emissions that would be generated at any single place during the construction and operation of new land uses under the WBSP and the relatively short period during which diesel PM-emitting construction activity would take place, WBSP-related TACs are not anticipated to result in the exposure of sensitive receptors to an incremental increase in cancer risk that exceeds 10 in one million or a hazard index of 1.0 or greater As a result, this impact would be less than significant.

Summary

Considering the relatively low levels of diesel PM emissions that would be generated by construction, the relatively short duration of diesel PM-emitting construction activity at any one location of the project area, the distance to the nearest off-site sensitive receptors, and the highly dispersive properties of diesel PM, construction-related TAC emissions would not expose sensitive receptors to an incremental increase in cancer risk that exceed SMAQMD thresholds of significance. Project operations would result in increased diesel PM emissions from truck trips; however, the emissions would be distributed throughout the Sacramento region and would not result in substantial concentrations for nearby sensitive receptors. Furthermore, the installation of equipment subject to substantial TAC generation or back-up generators would be subject to SMAQMD permitting requirements. Thus, construction and operation-related TAC emissions would not expose sensitive receptors to an incremental increase in cancer risk that exceeds the SMAQMD thresholds of significance. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.2-5: Create Objectionable Odors Affecting a Substantial Number of People

The project would introduce construction-related odor sources into the area (e.g., temporary diesel exhaust emissions during construction). However, these odor sources would be temporary, intermittent, and dissipate rapidly from the source. The project would not introduce new odor sources identified by SMAQMD and therefore would not result in an odor impact. As a result, potential exposure of sensitive receptors to objectionable odors would be **less than significant**.

The occurrence and severity of odor impacts depends on numerous factors, including: the nature, frequency, and intensity of the source; wind speed and direction; and the sensitivity of the affected receptors. While offensive odors rarely cause any physical harm, they still can be very unpleasant, leading to considerable distress among the public and often generate citizen complaints to local governments and regulatory agencies. Projects with the potential to frequently expose a substantial number of people to objectionable odors would be deemed to have a significant impact.

Construction

Minor odors from the use of heavy-duty diesel equipment and the laying of asphalt during project-related construction activities would be intermittent and temporary and would dissipate rapidly from the source with an increase in distance. While construction would occur intermittently over a five-year buildout period, these types of odor-generating activities would not occur at any single location, or within proximity to off-site receptors, for an extended period. Existing sensitive receptors include the Little League Park approximately 660 feet to the west, multifamily residences (The Crossings on Ramona Avenue) approximately 970 feet to the northwest, and the Sutter Center for Psychiatry approximately 410 feet to the northwest of the project boundary. Given the temporary and intermittent nature of construction activities within specific locations in the project area (i.e., construction does not occur in any one part of the project area during the five-year buildout period), project construction is not anticipated to result in an odor-related impact during the construction phase of the project. Furthermore, the surrounding railroads and major roadways already result in odor producing sources from diesel use, thus this project would not introduce any new odor types.

<u>Operations</u>

The project facilities, including the CMC facility for testing and manufacturing of mobility technologies, CA DOJ facility with forensic laboratories and administrative uses, and the future mixed-use buildings do not involve odor sources identified in SMAQMD's odor source list. Odor sources of concern include wastewater treatment plants, sanitary landfills, composting facilities, recycling facilities, petroleum refineries, chemical manufacturing plants, painting operations, rendering plants, and food packaging plants (SMAQMD 2016). The Hub does not include odor sources of concern and operations are not anticipated to result in an odor-related impact. This impact would be less than significant.

<u>Summary</u>

Given the temporary and intermittent nature of construction activities within the project area (i.e., construction does not occur in any one part of the project area during the five-year buildout period), project construction is not anticipated to result in an odor-related impact during the construction phase of the project. Because the land uses proposed are not identified as odor sources, operation of the project is not anticipated to result in an odor-related impact. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

This page intentionally left blank.

3.3 BIOLOGICAL RESOURCES

This section addresses biological resources known or with potential to occur on or near the project site, describes the regulatory requirements pertaining to those resources, describes potential effects of implementation of the project on those resources, and identifies mitigation measures for those impacts determined to be significant. For this analysis, information about common and sensitive biological resources known or with potential to occur on or near the project site is based on:

- results of California Natural Diversity Database (CNDDB) record search of the Taylor Monument, Rio Linda, Citrus Heights, Sacramento East, Sacramento West, Carmichael, Clarksburg, Florin, and Elk Grove U.S. Geological Survey (USGS) 7.5-minute quadrangles (CNDDB 2021);
- results of California Native Plant Society, Inventory of Rare Plants search of the Taylor Monument, Rio Linda, Citrus Heights, Sacramento East, Sacramento West, Carmichael, Clarksburg, Florin, and Elk Grove USGS 7.5-minue quadrangles (CNPS 2021);
- reconnaissance-level survey of the project site by an Ascent Environmental wildlife biologist on May 5, 2021; and
- aerial photographs of the project site and region.

No comments related to biological resources were received in response to the Notice of Preparation.

3.3.1 Regulatory Setting

FEDERAL

Federal Endangered Species Act

Pursuant to the federal ESA (16 U.S.C. Section 1531 et seq.), the U.S. Fish and Wildlife Service (USFWS) regulates the taking of species listed in ESA as threatened or endangered. In general, persons subject to ESA are prohibited from "taking" endangered or threatened fish and wildlife species on private or government-owned property, and from "taking" endangered or threatened plants in areas under federal jurisdiction or in violation of state law. Under Section 9 of the ESA, the definition of "take" is to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." USFWS has also interpreted the definition of "harm" to include significant habitat modification that could result in take.

Section 10 of ESA applies if a non-federal agency is the lead agency for an action that results in take and no other federal agencies are involved in permitting the action. Section 7 of ESA applies if a federal discretionary action is required (e.g., a federal agency must issue a permit), in which case the involved federal agency consults with USFWS.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA), first enacted in 1918, provides for protection of international migratory birds and authorizes the Secretary of the Interior to regulate the taking of migratory birds. The MBTA provides that it is unlawful, except as permitted by regulations, to pursue, take, or kill any migratory bird, or any part, nest, or egg of any such bird. Under the MBTA, "take" is defined as "to pursue, hunt, shoot, wound, kill, trap, capture, or collect, or any attempt to carry out these activities." A take does not include habitat destruction or alteration, if there is not a direct taking of birds, nests, eggs, or parts thereof. The current list of species protected by the MBTA can be found in Title 50 of the Code of Federal Regulations (CFR), Section 10.13 (50 CFR 10.13). The list includes nearly all birds that are native to the United States.

STATE

California Endangered Species Act

Pursuant to the California Endangered Species Act (CESA), a permit from the California Department of Fish and Wildlife (CDFW) is required for projects that could result in the "take" of a plant or animal species that is listed by the state as threatened or endangered. Under CESA, "take" is defined as an activity that would directly or indirectly kill an individual of a species, but the CESA definition of take does not include "harm" or "harass," like the federal Endangered Species Act (ESA) definition does. As a result, the threshold for take is greater under CESA than under ESA. Authorization for take of state-listed species can be obtained through a California Fish and Game Code Section 2081 incidental take permit.

Native Plant Protection Act

The Native Plant Protection Act (NPPA) (California Fish and Game Code Section 1900 et seq.) allows the California Fish and Game Commission to designate plants as rare or endangered. Sixty-four species, subspecies, and varieties of plants are protected as rare under the NPPA. The act prohibits take of endangered or rare native plants but includes exceptions for agricultural and nursery operations; for emergencies; and, after proper notification of CDFW, for vegetation removal from canals, roads, and other building sites, changes in land use, and other situations.

California Fish and Game Code Sections 3503 and 3503.5

Section 3503 of the California Fish and Game Code states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird. Section 3503.5 of the California Fish and Game Code states that it is unlawful to take, possess, or destroy any raptors (i.e., species in the orders *Falconiformes* and *Strigiformes*), including their nests or eggs. Typical violations include destruction of active nests as a result of tree removal or disturbance caused by project construction or other activities that cause the adults to abandon the nest, resulting in loss of eggs or young.

Fully Protected Species

Sections 3511, 4700, 5050, and 5515 of the California Fish and Game Code prohibit take of fully protected birds, mammals, reptiles and amphibians, and fish. Species listed under these statutes may not be taken or possessed at any time and no incidental take permits can be issued for these species except for scientific research purposes, for relocation to protect livestock, or as part of a natural community conservation plan (NCCP).

LOCAL

Sacramento State is part of the CSU, which is a statutorily- and legislatively-created and constitutionally authorized entity of the State of California, and the Ramona Property (the project site) is owned by the CSU. As explained in Chapter 3, section, "California State University Autonomy," of this ~~Draft~~ EIR, State agencies are not subject to local government planning and land use plans, policies, or regulations. Nevertheless, in the exercise of its discretion, CSU does reference, describe, and address local plans, policies, and regulations where appropriate and for informational purposes. This evaluation is also intended to be used by local agencies for determining, as part of their permit processes, the project's consistency with local plans, policies, and regulations.

City of Sacramento 2035 General Plan

The following policies of the *City of Sacramento 2035 General Plan* (City of Sacramento 2015) are relevant to the analysis of biological resources effects of the project:

- **Policy ER 2.1.1: Resource Preservation**. The City shall encourage new development to preserve on-site natural elements that contribute to the community's native plant and wildlife species value and to its aesthetic character.
- **Policy ER 3.1.2: Manage and Enhance the City's Tree Canopy**. The City shall continue to plant new trees, ensure new developments have sufficient right-of-way width for tree plantings, manage and care for all publicly owned trees, and work to retain healthy trees. The City shall monitor, evaluate and report, by community plan area and

city wide, on the entire tree canopy in order to maintain and enhance trees throughout the City and to identify opportunities for new plantings.

- **Policy ER 3.1.3: Trees of Significance**. The City shall require the retention of City trees and Heritage Trees by promoting stewardship of such trees and ensuring that the design of development projects provides for the retention of these trees wherever possible. Where tree removal cannot be avoided, the City shall require tree replacement or appropriate remediation.
- **Policy ER 3.1.4: Visibility of Commercial Corridors**. The City shall balance the tree canopy of the urban forest with the need for visibility along commercial corridors, including the selection of tree species with elevated canopies.
- **Policy ER 3.1.6: Urban Heat Island Effects**. The City shall continue to promote planting shade trees with substantial canopies, and require, where feasible, site design that uses trees to shade rooftops, parking facilities, streets, and other facilities to minimize heat island effects.
- **Policy ER 3.1.7: Shade Tree Planting Program**. The City shall continue to provide shade trees along street frontages within the city.

City of Sacramento Tree Preservation Ordinance

The City of Sacramento (City) has adopted an ordinance to protect trees as a significant resource to the community (City Code Title 12, Chapter 12.56, Ordinance 2016-0026 Section 4). It is the City's policy to retain all trees when possible, regardless of their size. This includes "City Trees" and "Private Protected Trees" (which include trees formerly referred to as "Heritage Trees"). When circumstances will not allow for retention, permits are required to remove trees that are within City jurisdiction. Trees on University-owned property are not within City jurisdiction and are not subject to the City's Tree Preservation Ordinance. However, trees within the City's right of way, or "City street trees," are under the jurisdiction of the City. Some of the trees along Ramona and Cucamonga Avenue may qualify as City street trees. Removal of, or construction around, trees that are protected by the tree ordinance are subject to permission and inspection by City arborists. The City's Tree Services Division reviews project plans and works with the City Public Works Department during the construction process to minimize impacts on street trees in Sacramento.

3.3.2 Environmental Setting

The project site is located in a highly urbanized and industrial portion of Sacramento (see Figure 2-1). The project site contains concrete foundations associated with buildings that have been removed, impervious surfaces (e.g., sidewalks, roads, parking areas), and material stockpile areas (e.g., gravel, rock, dirt). The project site contains some areas of periodically mowed ruderal grassland dominated by nonnative grasses and forbs and an estimated 75 landscaping trees of varying size and condition. The project site contains no aquatic habitat either natural (e.g., wetlands, streams) or human-made (e.g., canals, irrigation ditches).

RUDERAL GRASSLAND AND TREES

The undeveloped portions of the project site contain ruderal grassland and trees that were previously associated with ornamental landscaping on the site, including lawns. Ruderal grassland areas are dominated by nonnative grass and forb species, including crabgrass (*Digitaria* sp.), field bindweed (*Convolvulus arvensis*), heron's bill (*Erodium* sp.), thistle (*Carduus* spp., *Silybum marianum*), vetch (*Vicia* sp.), and Himalayan blackberry (*Rubus armeniacus*). The estimated 75 trees on the project site vary in size from small saplings to large (i.e., greater than 30 inches diameter at breast height [dbh]), mature trees. Nonnative ornamental trees on the project site include maples (*Acer* sp.), mulberry (*Morus alba*), tree of heaven (*Ailanthus altissima*), privet (*Ligustrum* sp.), blue gum (*Eucalyptus globulus*), black walnut (*Juglans nigra*), Mexican fan palm (*Washingtonia robusta*), and Chinese elm (*Ulmus parvifolia*). Native tree species on the project site included Fremont cottonwood (*Populus fremontii*), valley oak (*Quercus lobata*; some larger than 30 inches dbh), California buckeye (*Aesculus californica*), and interior live oak (*Quercus wislizeni*). The project site contains many downed branches and other woody material.

COMMON WILDLIFE SPECIES

The project site supports a low diversity of wildlife because it is located in a heavily urbanized area with no native vegetation communities. Most of the wildlife species expected to occur in the project vicinity are adapted to urban or suburban environments, and several of the species observed on-site are nonnative species. However, the project site is completely fenced and experiences a lower level of persistent disturbance from human activity relative to the surrounding urban area. Common bird species observed or expected to occur in the project vicinity include American crow (*Corvus brachyrhynchos*), American robin (*Turdus migratorius*), black phoebe (*Sayornis nigricans*), Brewer's blackbird (*Euphagus cyanocephalus*), California scrub-jay (*Aphelocoma californica*), California towhee (*Melozone crissalis*), Cedar waxwing (*Bombycilla cedrorum*), European starling (*Sturnus vulgaris*), house finch (*Haemorhous mexicanus*), house sparrow (*Passer domesticus*), killdeer (*Charadrius vociferus*), mourning dove (*Zenaida macroura*), northern mockingbird (*Mimus polyglottos*), and rock pigeon (*Columba livia*). Common mammals observed or expected to occur in the project vicinity include eastern fox squirrel (*Sciurus niger*), gray squirrel (*Sciurus griseus*), raccoon (*Procyon lotor*), and Virginia opossum (*Didelphis virginiana*).

SENSITIVE BIOLOGICAL RESOURCES

Special-Status Species

Special-status species are defined as species that are legally protected or that are otherwise considered sensitive by federal, state, or local resource agencies. Special-status species are species, subspecies, or varieties that fall into one or more of the following categories, regardless of their legal or protection status:

- officially listed by California under the CESA or the federal government under the ESA as endangered, threatened, or rare;
- a candidate for state or federal listing as endangered, threatened, or rare under CESA or ESA;
- taxa (i.e., taxonomic category or group) that meet the criteria for listing, even if not currently included on any list, as described in Section 15380 of the State CEQA Guidelines;
- species identified by CDFW as Species of Special Concern;
- species listed as Fully Protected under the California Fish and Game Code;
- species afforded protection under local planning documents; and
- taxa considered by the CDFW to be "rare, threatened, or endangered in California" and assigned a California Rare Plant Rank (CRPR) of 1, or 2. The CDFW system includes rarity and endangerment ranks for categorizing plant species of concern, and ranks 1 and 2 are summarized as follows:
  - CRPR 1A - Plants presumed to be extinct in California;
  - CRPR 1B - Plants that are rare, threatened, or endangered in California and elsewhere;
  - CRPR 2A - Plants presumed to be extinct in California but common elsewhere;
  - CRPR 2B - Plants that are rare, threatened, or endangered in California but more common elsewhere; and

The term "California species of special concern" is applied by CDFW to animals not listed under ESA or CESA, but that are considered to be declining at a rate that could result in listing, or that historically occurred in low numbers and known threats to their persistence currently exist. CDFW's fully protected status was California's first attempt to identify and protect animals that were rare or facing extinction. Most species listed as fully protected were eventually listed as threatened or endangered under CESA; however, some species remain listed as fully protected but do not have simultaneous listing under CESA. Fully protected species may not be taken or possessed at any time and no take permits can be issued for these species except for scientific research purposes, for relocation to protect livestock, or as part of an NCCP.

Of the 17 special-status plant species that are known to occur within the nine USGS 7.5-minute quadrangles including and surrounding the project site, none have potential to occur on the project site based on the absence of habitat suitable for the species (CNDDB 2021, CNPS 2021, Table 33-1). Of the 46 special-status wildlife species that could occur within the nine USGS quadrangles, six species were determined to have potential to occur on the project site based on the presence of habitat suitable for the species (CNDDB 2021, Table 3.3-2). The tables describe the species' regulatory status, habitat, and potential for occurrence on the project site.

Table 3.3-1 Special-Status Plant Species Known to Occur in the Vicinity of the Project Site and Potential for Occurrence on the Project Site

Species	Federal Listing Status[1]	Status[1] State Listing	CRPR	Habitat	Potential for Occurrence
Ferris' milk-vetch *Astragalus tener* var. *ferrisiae*	–	–	1B.1	Subalkaline flats on overflow land in the Central Valley; usually seen in dry, adobe soil. 16–246 feet in elevation. Blooms April–May.	Not expected to occur. The project site does not contain subalkaline flat habitat.
Bristly sedge *Carex comosa*	–	–	2B.1	Lake margins, wet places; site below sea level is on a Delta island. -16–5,315 feet in elevation. Blooms May–September.	Not expected to occur. The project site does not contain lake margin or mesic habitat.
Pappose tarplant *Centromadia parryi* ssp. *parryi*	–	–	1B.2	Vernally mesic, often alkaline sites. 7–1,378 feet in elevation. Blooms May–November.	Not expected to occur. The project site does not contain vernally mesic habitat or alkaline soils.
Peruvian dodder *Cuscuta obtusiflora* var. *glandulosa*	–	–	2B.2	Freshwater marsh. 49–919 feet in elevation. Blooms July–October.	Not expected to occur. The project site does not contain freshwater marsh habitat.
Dwarf downingia *Downingia pusilla*	–	–	2B.2	Vernal lake and pool margins with a variety of associates. In several types of vernal pools. 3–1,608 feet in elevation. Blooms March–May.	Not expected to occur. The project site does not contain vernal lake or vernal pool habitat.
Boggs Lake hedge-hyssop *Gratiola heterosepala*	–	SE	1B.2	Clay soils; usually in vernal pools, sometimes on lake margins. 33–7,792 feet in elevation. Blooms April–August.	Not expected to occur. The project site does not contain vernal pool or lake margin habitat.
Woolly rose-mallow *Hibiscus lasiocarpos* var. *occidentalis*	–	–	1B.2	Moist, freshwater-soaked riverbanks and low peat islands in sloughs; can also occur on riprap and levees. In California, known from the delta watershed. 0–509 feet in elevation. Blooms June–September.	Not expected to occur. The project site does not contain riverbank or slough habitat.
Ahart's dwarf rush *Juncus leiospermus* var. *ahartii*	–	–	1B.2	Restricted to the edges of vernal pools in grassland. 98–328 feet in elevation. Blooms March–May.	Not expected to occur. The project site does not contain vernal pool habitat.
Alkali-sink goldfields *Lasthenia chrysantha*	–	–	1B.1	Vernal pools. Alkaline. 0–656 feet in elevation. Blooms February–June.	Not expected to occur. The project site does not contain vernal pool habitat.
Legenere *Legenere limosa*	–	–	1B.1	In beds of vernal pools. 3–2,887 feet in elevation. Blooms April–June.	Not expected to occur. The project site does not contain vernal pool habitat.
Heckard's pepper-grass Lep*idium latipes* var. *heckardii*	–	–	1B.2	Grassland, and sometimes vernal pool edges. Alkaline soils. 3–98 feet in elevation. Blooms March–May.	Not expected to occur. The project site does not contain vernal pool habitat or alkaline soils.
Mason's lilaeopsis *Lilaeopsis masonii*	–	SR	1B.1	Tidal zones, in muddy or silty soil formed through river deposition or riverbank erosion. 0–33 feet in elevation. Blooms April–November.	Not expected to occur. The project site does not contain tidal or riverbank habitat.

Species	Federal Listing Status[1]	Status[1] State Listing	CRPR	Habitat	Potential for Occurrence
Slender Orcutt grass *Orcuttia tenuis*	FT	SE	1B.1	Vernal pools, wetland. Often in gravelly substrate. 82–5,758 feet in elevation. Blooms May–September.	Not expected to occur. The project site does not contain vernal pool or wetland habitat.
Sacramento Orcutt grass *Orcuttia viscida*	FE	SE	1B.1	Vernal pools, wetland. 49–279 feet in elevation. Blooms April–July.	Not expected to occur. The project site does not contain vernal pool or wetland habitat.
Sanford's arrowhead *Sagittaria sanfordii*	–	–	1B.2	In standing or slow-moving freshwater ponds, marshes, and ditches. 0–2,133 feet in elevation. Blooms May–October.	Not expected to occur. The project site does not contain pond, marsh, or ditch habitat.
Suisun Marsh aster *Symphyotrichum lentum*	–	–	1B.2	Most often seen along sloughs. 0–98 feet in elevation. Blooms May–November.	Not expected to occur. The project site does not contain slough habitat.
Saline clover *Trifolium hydrophilum*	–	–	1B.2	Marshes and swamps, valley and foothill grassland, vernal pools. Mesic, alkaline sites. 0–984 feet in elevation. Blooms April–June.	Not expected to occur. The project site does not contain vernal pool, marsh, or swamp habitat.

Notes: CRPR = California Rare Plant Rank; CESA = California Endangered Species Act; CEQA = California Environmental Quality Act; ESA = Endangered Species Act; NPPA = Native Plant Protection Act

1 Legal Status Definitions

Federal:

FE Federally Listed as Endangered (legally protected by ESA)
FT Federally Listed as Threatened (legally protected by ESA)

State:

SE State Listed as Endangered (legally protected by CESA)
SR State Listed as Rare (legally protected by NPPA)

California Rare Plant Ranks:

1B Plant species considered rare or endangered in California and elsewhere (protected under CEQA, but not legally protected under ESA or CESA).
2B Plant species considered rare or endangered in California but more common elsewhere (protected under CEQA, but not legally protected under ESA or CESA).

Threat Ranks:

0.1 Seriously threatened in California (over 80% of occurrences threatened; high degree and immediacy of threat)
0.2 Moderately threatened in California (20-80% occurrences threatened; moderate degree and immediacy of threat)

Sources: CNDDB 2021; CNPS 2021

Table 3.3-2 Special-Status Wildlife Species Known to Occur in the Vicinity of the Project Site and Potential for Occurrence on the Project Site

Species	Federal Listing Status[1]	State Listing Status[1]	Habitat	Potential for Occurrence
Amphibians and Reptiles				
Coast horned lizard *Phrynosoma blainvillii*	–	SSC	Frequents a wide variety of habitats, most common in lowlands along sandy washes with scattered low bushes. Open areas for sunning, bushes for cover, patches of loose soil for burial, and abundant supply of ants and other insects.	Not expected to occur. The project site does not contain shrub habitat suitable for this species or loose soils. Soils on the project site are compacted or covered with paved surfaces.
Giant gartersnake *Thamnophis gigas*	FT	ST	Prefers freshwater marsh and low gradient streams. Has adapted to drainage canals and irrigation ditches. This is the most aquatic of the garter snakes in California.	Not expected to occur. The project stie does not contain marsh, stream, or irrigation ditch habitat suitable for this species.

Species	Federal Listing Status[1]	State Listing Status[1]	Habitat	Potential for Occurrence
Western pond turtle *Actinemys marmorata*	–	SSC	Aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation, below 6,000 feet elevation. Need basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.3 mile from water for egg-laying.	Not expected to occur. The project site does not contain stream, irrigation ditch, or other aquatic habitat suitable for this species.
Western spadefoot *Spea hammondii*	–	SSC	Occurs primarily in grassland habitats, but can be found in valley-foothill hardwood woodlands. Vernal pools are essential for breeding and egg-laying.	Not expected to occur. The project site does not contain vernal pool or wetland habitat suitable for this species.
Birds				
American peregrine falcon *Falco peregrinus anatum*	FD	SD FP	Near wetlands, lakes, rivers, or other water; on cliffs, banks, dunes, mounds; also, human-made structures. Nest consists of a scrape or a depression or ledge in an open site.	Not expected to occur. The project site does not contain natural or human-made nesting habitat suitable for this species.
Bald eagle *Haliaeetus leucocephalus*	FD	SE FP	Ocean shore, lake margins, and rivers for both nesting and wintering. Most nests within 1 mile of water. Nests in large, old-growth, or dominant live tree with open branches, especially ponderosa pine. Roosts communally in winter.	Not expected to occur. The project site does not contain nesting habitat (i.e., large trees close to open water sources) suitable for this species.
Bank swallow *Riparia riparia*	–	ST	Colonial nester; nests primarily in riparian and other lowland habitats west of the desert. Requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, ocean to dig nesting hole.	Not expected to occur. The project site does not contain bank or cliff habitat suitable for this species.
Burrowing owl *Athene cunicularia*	–	SSC	Open, dry annual or perennial grasslands, deserts and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	May occur. The project site contains some areas of ruderal grassland habitat that may provide habitat suitable for nesting burrowing owls. While this habitat is not optimal, burrowing owls are known to nest in urban areas.
California black rail *Laterallus jamaicensis coturniculus*	–	ST FP	Inhabits freshwater marshes, wet meadows and shallow margins of saltwater marshes bordering larger bays. Needs water depths of about 1 inch that do not fluctuate during the year and dense vegetation for nesting habitat.	Not expected to occur. The project site does not contain marsh or meadow habitat suitable for this species.
California least tern *Sternula antillarum browni*	FE	SE FP	Nests along the coast from San Francisco Bay south to northern Baja California. Colonial breeder on bare or sparsely vegetated, flat substrates: sand beaches, alkali flats, landfills, or paved areas.	Not expected to occur. The project site does not contain beach, alkali flat, or other nesting habitat suitable for this species.
Golden eagle *Aquila chrysaetos*	–	FP	Rolling foothills, mountain areas, sage-juniper flats, and desert. Cliff-walled canyons provide nesting habitat in most parts of range; also, large trees in open areas.	Not expected to occur. The project site does not contain nesting habitat (i.e., cliffs, large trees in open areas) suitable for this species.
Grasshopper sparrow *Ammodramus savannarum*	–	SSC	Dense grasslands on rolling hills, lowland plains, in valleys and on hillsides on lower mountain slopes. Favors native grasslands with a mix of grasses, forbs and scattered shrubs. Loosely colonial when nesting.	Not expected to occur. The project site does not contain native grassland habitat suitable for this species.

Species	Federal Listing Status[1]	State Listing Status[1]	Habitat	Potential for Occurrence
Greater sandhill crane *Antigone canadensis tabida*	–	ST FP	Nests in wetland habitats in northeastern California; winters in the Central Valley. Prefers grain fields within 4 miles of a shallow body of water used as a communal roost site; irrigated pasture used as loafing sites.	Not expected to occur. The project site does not contain wetland habitat suitable for this species.
Least Bell's vireo *Vireo bellii pusillus*	FE	SE	Summer resident of Southern California in low riparian in vicinity of water or in dry river bottoms; below 2,000 feet. Nests placed along margins of bushes or on twigs projecting into pathways, usually willow, *Baccharis*, mesquite.	Not expected to occur. The project site does not contain riparian habitat suitable for this species.
Least bittern *Ixobrychus exilis*	–	SSC	Colonial nester in marshlands and borders of ponds and reservoirs which provide ample cover. Nests usually placed low in tules, over water.	Not expected to occur. The project site does not contain marsh or pond habitat suitable for this species.
Loggerhead shrike *Lanius ludovicianus*	–	SSC	Broken woodlands, savannah, pinyon-juniper, Joshua tree, and riparian woodlands, desert oases, scrub and washes. Prefers open country for hunting, with perches for scanning, and fairly dense shrubs and brush for nesting.	Not expected to occur. The project site is disturbed and is completely surrounded by urban development. While the project site contains some shrub habitat, loggerhead shrikes are unlikely to nest because the site is not contiguous with large expanses of natural habitat for hunting.
Mountain plover *Charadrius montanus*	–	SSC	Short grasslands, freshly plowed fields, newly sprouting grain fields, and sometimes sod farms. Short vegetation, bare ground and flat topography. Prefers grazed areas and areas with burrowing rodents.	Not expected to occur. The project site does not contain grassland habitat suitable for this species. The ruderal grassland habitat present on the project site is low quality due to disturbance and surrounding urban development.
Northern harrier *Circus hudsonius*	–	SSC	Coastal salt and fresh-water marsh. Nest and forage in grasslands, from salt grass in desert sink to mountain cienagas. Nests on ground in shrubby vegetation, usually at marsh edge; nest built of a large mound of sticks in wet areas.	Not expected to occur. The project site does not contain marsh or grassland nesting habitat suitable for this species. The ruderal grassland habitat present on the project site does not provide sufficient cover for nesting northern harriers.
Purple martin *Progne subis*	–	SSC	Inhabits woodlands, low elevation coniferous forest of Douglas-fir, ponderosa pine, and Monterey pine. Nests in old woodpecker cavities mostly, also in human-made structures. Nest often located in tall, isolated tree/snag.	Not expected to occur. Purple martin nesting has been documented near the overpass of approximately 0.4 mile northwest of the project site (CNDDB 2021, eBird 2021). While this species could forage on the project site occasionally, the project site does not contain nesting habitat suitable for this species.
Song sparrow ("Modesto" population) *Melospiza melodia*	–	SSC	Emergent freshwater marshes, riparian willow thickets, riparian forests of valley oak and vegetated irrigation canals and levees.	Not expected to occur. The project site does not contain freshwater marsh or riparian habitat suitable for this species.

Species	Federal Listing Status[1]	State Listing Status[1]	Habitat	Potential for Occurrence
Swainson's hawk *Buteo swainsoni*	–	ST	Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, and agricultural or ranch lands with groves or lines of trees. Requires adjacent suitable foraging areas such as grasslands, or alfalfa or grain fields supporting rodent populations.	May occur. While optimal habitat for Swainson's hawk is not present on the project site, the project site contains large trees that may provide nesting habitat suitable for the species.
Tricolored blackbird *Agelaius tricolor*	–	ST SSC	Highly colonial species, most numerous in Central Valley and vicinity. Largely endemic to California. Requires open water, protected nesting substrate, and foraging area with insect prey within a few kilometers of the colony.	Not expected to occur. The project site does not contain open water or wetland habitat or associated vegetation suitable for this species.
Vaux's swift *Chaetura vauxi*	–	SSC	Redwood, Douglas fir, and other coniferous forests. Nests in large hollow trees and snags. Often nests in flocks. Forages over most terrains and habitats but shows a preference for foraging over rivers and lakes.	Not expected to occur. The project site does not contain forest habitat suitable for this species.
Western yellow-billed cuckoo *Coccyzus americanus occidentalis*	FT	SE	Riparian forest nester, along the broad, lower flood-bottoms of larger river systems. Nests in riparian jungles of willow, often mixed with cottonwoods, with lower story of blackberry, nettles, or wild grape.	Not expected to occur. The project site does not contain riparian habitat suitable for this species.
White-tailed kite *Elanus leucurus*	–	FP	Rolling foothills and valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodland. Open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.	May occur. While optimal habitat for white-tailed kite is not present on the project site, the project site contains large trees that may provide nesting habitat suitable for the species.
Yellow warbler *Setophaga petechia*	–	SSC	Riparian plant associations in close proximity to water. Also nests in montane shrubbery in open conifer forests in Cascades and Sierra Nevada. Frequently found nesting and foraging in willow shrubs and thickets, and in other riparian plants including cottonwoods, sycamores, ash, and alders.	Not expected to occur. The project site does not contain riparian habitat suitable for this species.
Yellow-breasted chat *Icteria virens*	–	SSC	Summer resident; inhabits riparian thickets of willow and other brushy tangles near watercourses. Nests in low, dense riparian, consisting of willow, blackberry, wild grape; forages and nests within 10 feet of ground.	Not expected to occur. The project site does not contain riparian habitat suitable for this species.
Yellow-headed blackbird *Xanthocephalus xanthocephalus*	–	SSC	Nests in freshwater emergent wetlands with dense vegetation and deep water. Often along borders of lakes or ponds. Nests only where large insects such as Odonata are abundant, nesting timed with maximum emergence of aquatic insects.	Not expected to occur. The project site does not contain freshwater emergent wetland habitat suitable for this species.
Fish				
Chinook salmon - Sacramento River winter-run ESU *Oncorhynchus tshawytscha* pop. 7	FE	SE	Sacramento River below Keswick Dam. Spawns in the Sacramento River, but not in tributary streams.	Not expected to occur. The project site does not contain aquatic habitat suitable for this species.
Chinook salmon - upper Klamath and Trinity Rivers ESU. *Oncorhynchus tshawytscha* pop. 30	FC	SC SSC	Spring-run chinook in the Trinity River and the Klamath River upstream of the mouth of the Trinity River. Major limiting factor for juvenile chinook salmon is temperature, which strongly effects growth and survival.	Not expected to occur. The project site does not contain aquatic habitat suitable for this species.

Species	Federal Listing Status[1]	State Listing Status[1]	Habitat	Potential for Occurrence
Delta smelt *Hypomesus transpacificus*	FT	SE	Seasonally in Suisun Bay, Carquinez Strait, and San Pablo Bay.	Not expected to occur. The project site does not contain aquatic habitat suitable for this species.
Hardhead *Mylopharodon conocephalus*	–	SSC	Low to mid-elevation streams in the Sacramento-San Joaquin drainage. Also present in the Russian River. Clear, deep pools with sand-gravel-boulder bottoms and slow water velocity. Not found where exotic centrarchids predominate.	Not expected to occur. The project site does not contain aquatic habitat suitable for this species.
Longfin smelt *Spirinchus thaleichthys*	FC	SSC	Found in open waters of estuaries, mostly in middle or bottom of water column. Can be found in completely freshwater to almost pure seawater.	Not expected to occur. The project site does not contain aquatic habitat suitable for this species.
Pacific lamprey *Entosphenus tridentatus*	–	SSC	Found in Pacific Coast streams north of San Luis Obispo County, however regular runs in Santa Clara River. Size of runs is declining. Swift-current gravel-bottomed areas for spawning.	Not expected to occur. The project site does not contain aquatic habitat suitable for this species.
Sacramento hitch *Lavinia exilicauda exilicauda*	–	SSC	Aquatic. Inhabit warm, lowland, waters including clear streams, turbid sloughs, lakes and reservoirs. In streams they are generally found in pools or runs among aquatic vegetation, although small individuals will also use riffles.	Not expected to occur. The project site does not contain aquatic habitat suitable for this species.
Sacramento splittail *Pogonichthys macrolepidotus*	–	SSC	Endemic to the lakes and rivers of the Central Valley, but now confined to the Delta, Suisun Bay and associated marshes. Slow moving river sections, dead end sloughs. Requires flooded vegetation for spawning and foraging for young.	Not expected to occur. The project site does not contain aquatic habitat suitable for this species.
Steelhead - central California coast DPS *Oncorhynchus mykiss irideus* pop. 8	FT	–	From Russian River, south to Soquel Creek and to, but not including Pajaro River. Also San Francisco and San Pablo Bay basins.	Not expected to occur. The project site does not contain aquatic habitat suitable for this species.
Steelhead - Central Valley DPS *Oncorhynchus mykiss irideus* pop. 11	FT	–	Populations in the Sacramento and San Joaquin rivers and their tributaries.	Not expected to occur. The project site does not contain aquatic habitat suitable for this species.
Western river lamprey *Lampetra ayresii*	–	SSC	Lower Sacramento River, San Joaquin River and Russian River. May occur in coastal streams north of San Francisco Bay. Adults need clean, gravelly riffles and ammocoetes need sandy backwaters or stream edges.	Not expected to occur. The project site does not contain aquatic habitat suitable for this species.
White sturgeon *Acipenser transmontanus*	–	SSC	Live in estuaries of large rivers, moving into freshwater to spawn. Most abundant in brackish portions of estuaries. In estuaries adults concentrate in deep areas with soft bottoms.	Not expected to occur. The project site does not contain aquatic habitat suitable for this species.
Invertebrates				
Valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	FT	–	Occurs only in the Central Valley of California, in association with blue elderberry (*Sambucus nigra* ssp. *caerulea*). Prefers to lay eggs in elderberries 2–8 inches in diameter; some preference shown for "stressed" elderberries.	Not expected to occur. The project site does not contain blue elderberry shrubs, as confirmed during a reconnaissance-level survey on May 5, 2021.

Species	Federal Listing Status[1]	State Listing Status[1]	Habitat	Potential for Occurrence
Vernal pool fairy shrimp *Branchinecta lynchi*	FT	–	Endemic to the grasslands of the Central Valley, Central Coast mountains, and South Coast mountains, in astatic rain-filled pools. Inhabit small, clear-water sandstone-depression pools and grassed swale, earth slump, or basalt-flow depression pools.	Not expected to occur. The project site does not contain vernal pool habitat suitable for this species.
Vernal pool tadpole shrimp *Lepidurus packardi*	FE	–	Inhabits vernal pools and swales in the Sacramento Valley containing clear to highly turbid water. Pools commonly found in grass bottomed swales of unplowed grasslands. Some pools are mud-bottomed and highly turbid.	Not expected to occur. The project site does not contain vernal pool habitat suitable for this species.
Mammals				
American badger *Taxidea taxus*	–	SSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Needs sufficient food, friable soils and open, uncultivated ground. Preys on burrowing rodents. Digs burrows.	Not expected to occur. The project site is disturbed and is surrounded by fencing. While there are some ruderal grassland areas on the project site, the site is disconnected from any contiguous grassland habitat in the region and is surrounded completely by urban development. For these reasons, habitat suitable for American badger is not present on the project site.
Pallid bat *Antrozous pallidus*	–	SSC	Deserts, grasslands, shrublands, woodlands and forests. Most common in open, dry habitats with rocky areas for roosting. Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	May occur. The project site contains large trees and snags which may provide roosting habitat suitable for pallid bat.
Western red bat *Lasiurus blossevillii*	–	SSC	Roosts primarily in trees, 2-40 feet above ground, from sea level up through mixed conifer forests. Prefers habitat edges and mosaics with trees that are protected from above and open below with open areas for foraging.	May occur. The project site contains large trees and snags which may provide roosting habitat suitable for western red bat.

Notes: CNDDB = California Natural Diversity Database; CEQA = California Environmental Quality Act

1 Legal Status Definitions

Federal:

FE Federally Listed as Endangered (legally protected)
FT Federally Listed as Threatened (legally protected)
FD Federally Delisted
FC Federal Candidate for Listing

State:

FP Fully protected (legally protected)
SSC Species of special concern (no formal protection other than CEQA consideration)
SE State Listed as Endangered (legally protected)
ST State Listed as Threatened (legally protected)
SC State Candidate for listing (legally protected)
SD State Delisted

Sources: CNDDB 2021; eBird 2021

Sensitive Natural Communities

Sensitive natural communities are those native plant communities defined by CDFW as having limited distribution statewide or within a county or region and that are often vulnerable to environmental effects of projects (CDFW 2018). These communities may or may not contain special-status plants or their habitat (CDFW 2018). CDFW designates sensitive natural communities based on their state rarity and threat ranking using NatureServe's Heritage Methodology. Natural communities with rarity ranks of S1 to S3, where S1 is critically imperiled, S2 is imperiled, and S3 is vulnerable, are considered sensitive natural communities to be addressed in the environmental review processes of CEQA and its equivalents (CDFW 2018).

Sensitive natural communities are generally identified at the alliance level of vegetation classification hierarchy using the Manual of California Vegetation (Sawyer et al. 2009). Known occurrences of sensitive natural communities are included in the CNDDB; however, no new occurrences have been added to the CNDDB since the mid-1990s when funding was eliminated for this portion of the CNDDB program. Five sensitive natural communities were identified within the nine USGS quadrangles including and surrounding the project site through a query of the CNDDB: elderberry savanna, Great Valley cottonwood riparian forest, Great Valley valley oak riparian forest, northern claypan vernal pool, and northern volcanic mud flow vernal pool (CNDDB 2021). None of these sensitive natural communities are present on the project site.

Given the incomplete nature of this information in the CNDDB, it is assumed that other sensitive natural communities may occur that were not identified in the CNDDB query. However, while the project site contains some native trees, including oak trees, the trees are not associated with any contiguous natural habitat (e.g., oak woodlands, riparian habitat) and would not be considered part of a sensitive natural community.

3.3.3 Environmental Impacts and Mitigation Measures

METHODOLOGY

This impact evaluation is based on data collected during a reconnaissance-level field survey conducted on May 5, 2021, review of aerial photographs, and review of existing databases that address biological resources in the project vicinity, as described above. To evaluate the potential impacts of The Hub on biological resources, the types, extent, and quality of biological resources that could be directly or indirectly affected were considered in relation to the proposed construction and operation of facilities at the project site and any policies and programs related to the protection of biological resources.

THRESHOLDS OF SIGNIFICANCE

An impact on biological resources is considered significant if implementation of the project would do any of the following:

- 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 CDFW or USFWS;
- have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by CDFW or USFWS;
- 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;
- 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;
- conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; and/or

- conflict with the provisions of an adopted habitat conservation plan (HCP), Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

ISSUES NOT DISCUSSED FURTHER

Special-Status Plants

The project site does not contain habitat suitable for the special-status plant species identified within the nine USGS 7.5-minute quadrangles surrounding the project site or otherwise known to occur in the region. Project implementation would not result in any impact on special-status plants. This issue is not discussed further.

Sensitive Natural Communities and Riparian Habitat

There are no sensitive natural communities and no riparian habitat in or immediately adjacent to the project site. Project implementation would not result in any impact on these resources. This issue is not discussed further.

State-Protected or Federally Protected Wetlands

The project site does not contain any aquatic habitat (i.e., wetlands, streams, canals, irrigation ditches). Project implementation would not result in any impact on State-protected or federally protected wetlands. This issue is not discussed further.

Wildlife Movement Corridors or Nurseries

The project site was previously fully developed and although buildings have been removed, the project site has maintained the characteristics of a developed site with concrete foundations, roads, parking lots, and other impervious surfaces. The project site does not contain natural terrestrial habitat that could function as a native wildlife nursery site, and is characterized by many existing barriers to wildlife movement, including fencing and surrounding urban and industrial development. While wildlife may use the project site for nesting and roosting or may pass through the site occasionally, it is unlikely that the project site functions as a significant wildlife movement corridor or wildlife nursery site. Project implementation would not change the overall character of the project site and surroundings. Therefore, project implementation would result in no impact and this issue is not discussed further.

Consistency with Habitat Conservation Plans

The project site is not within the plan area of any adopted HCP or natural community conservation plan. The South Sacramento HCP plan area is located nearby, but the project site is outside of the plan area and the City of Sacramento, and the University is not a participant in this plan. This issue is not discussed further.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Impact 3.3-1: Result in Disturbance to or Loss of Special-Status Wildlife Species and Habitat

Project implementation would include construction activities including ground disturbance, vegetation clearing, and tree removal, which could result in disturbance, injury, or mortality of several special-status wildlife species if present. This would be a **potentially significant** impact.

Table 3.3-2 provides a list of the special-status wildlife species that may occur on the project site. Five special-status wildlife species may occur on the project site: burrowing owl, Swainson’s hawk, white-tailed kite, pallid bat, and western red bat. Additionally, common native nesting birds protected under California Fish and Game Code and the federal MBTA may also be present on the project site. The following discussion is divided by species, according to habitat type.

Burrowing Owl

Burrowing owl is a CDFW species of special concern. This species is commonly associated with grassland habitat with burrows created by fossorial mammals, most commonly California ground squirrel (*Otospermophilus beecheyi*). While the habitat on the project site is not optimal, burrowing owls are known to occupy ruderal grassland habitat in urban areas. Several California ground squirrel burrows were observed within ruderal grassland habitat on the project site during the May 5, 2021 reconnaissance-level survey. The nearest known contemporary (i.e., less than 20 years ago) burrowing owl occurrence is approximately 1.7 miles south of the project site in similar habitat (i.e., grassland surrounded by industrial uses). In addition to the ruderal grassland habitat on the project site, potential artificial burrow habitat is also present, including dirt and cement stockpiles, utility boxes without lids and exposed cement pipes.

Project implementation would include ground disturbance (e.g., grading, excavation) and vegetation clearing, which would require the use of vehicles and heavy machinery. These activities could result in inadvertent disturbance, injury, or mortality of burrowing owl. If present, burrowing owls could be disturbed due to the presence of equipment and personnel and could be inadvertently injured or killed by heavy machinery or vehicles. Active burrows could be inadvertently crushed and destroyed, if present, potentially resulting in the loss of eggs or chicks. This would be a **potentially significant** impact.

Mitigation Measures

Mitigation 3.3-1a: Conduct Take Avoidance Survey for Burrowing Owl, Implement Avoidance Measures, and Compensate for Loss of Occupied Burrows

The following measures shall be implemented prior to and during project construction activities:

- A qualified biologist will conduct a focused survey for burrowing owls in areas of habitat suitable for the species (e.g., ruderal grassland, artificial burrow habitat) on and within accessible areas 1,640 feet (500 meters) 1,500 feet of the project site no less than 14 days prior to initiating ground disturbance activities using survey methods described in Appendix D of the CDFW Staff Report (CDFW 2012).
- If no occupied burrows are found, the qualified biologist will submit a report documenting the survey methods and results to the University, and no further mitigation will be required.
- If an active burrow is found within 1,640 feet of pending construction activities that would occur during the nonbreeding season (September 1 through January 31), the University shall establish and maintain a minimum protection buffer of 164 feet (50 meters) around the occupied burrow throughout construction. The actual buffer size will be determined by the qualified biologist based on the time of year and level of disturbance in accordance with guidance provided in the CDFW Staff Report on Burrowing Owl Mitigation (CDFW 2012). The protection buffer may be adjusted if, in consultation with CDFW, a qualified biologist determines that an alternative buffer will not disturb burrowing owl use of the burrow because of particular site features or other buffering measures. If occupied burrows are present that cannot be avoided or adequately protected with a no-disturbance buffer, a burrowing owl exclusion plan will be developed, as described in Appendix E of the CDFW Staff Report (CDFW 2012). Burrowing owls will not be excluded from occupied burrows until the project burrowing owl exclusion plan is approved by CDFW. The exclusion plan will include a compensatory habitat mitigation plan (see below).
- If an active burrow is found during the breeding season (February 1 through August 31), occupied burrows will not be disturbed and will be provided with a protective buffer at a minimum of 164 feet unless a qualified biologist verifies through noninvasive means that either: (1) the birds have not begun egg laying, or (2) juveniles from the occupied burrows are foraging independently and are capable of independent survival. The size of the buffer may be adjusted depending on the time of year and level of disturbance as outlined in the CDFW Staff Report (CDFW 2012). The size of the buffer may be reduced if a broad-scale, long-term, monitoring program acceptable to CDFW is implemented so that burrowing owls are not adversely affected. Once the fledglings are capable of independent survival, the owls can be evicted, and the burrow can be destroyed per the terms of a CDFW-approved burrowing owl exclusion plan developed in accordance with Appendix E of CDFW Staff Report (CDFW 2012).
- If burrowing owls are evicted from burrows and the burrows are destroyed by implementation of project construction activities, the University will mitigate the loss of occupied habitat in accordance with guidance provided in the CDFW Staff Report, which states that permanent impacts on nesting, occupied and satellite

burrows, and burrowing owl habitat (i.e., grassland habitat with suitable burrows) will be mitigated such that habitat acreage and number of burrows are replaced through permanent conservation of comparable or better habitat with similar vegetation communities and burrowing mammals (e.g., ground squirrels) present to provide for nesting, foraging, wintering, and dispersal (CDFW 2012). The University will retain a qualified biologist to develop a burrowing owl mitigation and management plan that incorporates the following goals and standards:

- Mitigation lands will be selected based on comparison of the habitat lost to the compensatory habitat, including type and structure of habitat, disturbance levels, potential for conflicts with humans, pets, and other wildlife, density of burrowing owls, and relative importance of the habitat to the species throughout its range.
- If feasible, mitigation lands will be provided adjacent or proximate to the project site so that displaced owls can relocate with reduced risk of injury or mortality. Feasibility of providing mitigation adjacent or proximate to the project site depends on availability of sufficient habitat to support displaced owls that may be preserved in perpetuity.
- If habitat suitable for burrowing owl is not available for conservation adjacent or proximate to the project site, mitigation lands can be secured off-site and will aim to consolidate and enlarge conservation areas outside of planned development areas and within foraging distance of other conservation lands. Mitigation may be also accomplished through purchase of mitigation credits at a CDFW-approved mitigation bank, if available. Alternative mitigation sites and acreages may also be determined in consultation with CDFW.
- If burrowing owl habitat mitigation is completed through permittee-responsible conservation lands, the mitigation plan will include mitigation objectives, site selection factors, site management roles and responsibilities, vegetation management goals, financial assurances and funding mechanisms, performance standards and success criteria, monitoring and reporting protocols, and adaptive management measures. Success will be based on the number of adult burrowing owls and pairs using the site and if the numbers are maintained over time. Measures of success, as suggested in the CDFW Staff Report, will include site tenacity, number of adult owls present and reproducing, colonization by burrowing owls from elsewhere, changes in distribution, and trends in stressors (CDFW 2012).

<u>Significance after Mitigation</u>

Implementation of Mitigation Measure 3.3-1a would reduce potential impacts on burrowing owl to a **less-than-significant** level by requiring take avoidance surveys for burrowing owl, implementation of measures to avoid injury or mortality of burrowing owls and destruction of active nests if detected, and compensation if burrows cannot be avoided.

Swainson's Hawk, White-tailed Kite, and Common Native Birds

Swainson's hawk is listed as threatened under CESA and white-tailed kite is a fully protected species under California Fish and Game Code. While the project site does not provide optimal habitat for these species due to the surrounding urban and industrial land uses, the project site contains many large trees (i.e., greater than 30 inches dbh) and some large snags that may provide nesting habitat suitable for these species. The nearest known occurrence of a nesting Swainson's hawk is approximately 1.2 miles northeast of the project site and the nearest known occurrence of a nesting white-tailed kite is approximately 3.3 miles northeast; both associated with the American River Parkway (CNDDB 2021).

Other raptor species (e.g., red-tailed hawk [*Buteo jamaicensis*], Cooper's hawk [*Accipiter cooperi*], red-shouldered hawk [*Buteo lineatus*]) and other common native birds and their nests are protected under California Fish and Game Code and the federal MBTA. Large trees on the project site may provide nesting habitat suitable for common raptor species, and trees and shrubs of various sizes may provide nesting habitat for other common native birds. During the May 5, 2021 reconnaissance-level survey, several stick nests were observed in trees on the project site, and a killdeer pair was observed exhibiting territorial behavior, and was likely nesting on the project site. Killdeer are known to nest in developed areas, and could nest in disturbed areas on the project site, including materials stockpile areas.

Project implementation would include ground disturbance (e.g., grading, excavation), vegetation clearing, and tree removal which would require the use of equipment, vehicles, and heavy machinery. These construction activities could result in inadvertent disturbance, injury, or mortality of special-status and common native birds. If present, special-status and common native birds could be disturbed due to the presence of equipment and personnel potentially leading to nest abandonment. Active nests could be inadvertently removed and destroyed during vegetation and tree removal activities, if present, potentially resulting in the loss of eggs or chicks. This would be a **potentially significant** impact.

Mitigation Measures

Mitigation 3.3-1b: Conduct Focused Surveys for Special-Status Birds, Nesting Raptors, and Other Native Nesting Birds and Implement Protective Buffers

The following measures shall be implemented prior to and during project construction activities:

- To minimize the potential for loss of special-status bird species, raptors, and other native birds, project construction activities (e.g., tree removal, vegetation clearing, ground disturbance, staging) will be conducted during the nonbreeding season (approximately September 1-January 31, as determined by a qualified biologist), if feasible. If project construction activities are conducted during the nonbreeding season, no further mitigation will be required.
- Within 14 days before the onset of project construction activities during the breeding season (approximately February 1 through August 31, as determined by a qualified biologist), a qualified biologist familiar with birds of California and with experience conducting nesting bird surveys will conduct focused surveys for special-status birds, other nesting raptors, and other native birds. Surveys will be conducted within 0.25 mile of the project site for Swainson's hawk within 500 feet of the project site for white-tailed kite and other common raptors, and within 50 feet of the project site for non-raptor common native bird nests.
- Impacts on nesting birds will be avoided by establishing appropriate buffers around active nest sites identified during focused surveys to prevent disturbance to the nest. Project construction activity will not commence within the buffer areas until a qualified biologist has determined that the young have fledged, the nest is no longer active, or reducing the buffer will not likely result in nest abandonment. An avoidance buffer of a minimum of 0.25 mile will be implemented for Swainson's hawk in consultation with CDFW. For other species, a qualified biologist will determine the size of the buffer for non-raptor nests after a site- and nest-specific analysis. Buffers typically will be 500 feet for white-tailed kite and other raptors (other than Swainson's hawk). Buffer size for non-raptor bird species will be determined by a qualified biologist. Factors to be considered for determining buffer size will include presence of natural buffers provided by vegetation or topography, nest height above ground, baseline levels of noise and human activity, species sensitivity, and proposed project construction activities. Generally, buffer size for these species will be at least 20 feet. The size of the buffer may be adjusted if a qualified biologist, determines that such an adjustment would not be likely to adversely affect the nest. Any buffer reduction for a special-status species will require consultation with CDFW. Periodic monitoring of the nest by a qualified biologist during project construction activities will be required if the activity has potential to adversely affect the nest, the buffer has been reduced, or if birds within active nests are showing behavioral signs of agitation (e.g., standing up from a brooding position, flying off the nest) during project construction activities, as determined by the qualified biologist.

Significance after Mitigation

Implementation of Mitigation Measure 3.3-1b would reduce potential impacts on special-status birds, raptors, and other common native nesting birds to a **less-than-significant** level by requiring focused surveys for nesting birds and implementation of measures to avoid disturbance, injury, or mortality of the species if nests are detected.

Pallid Bat and Western Red Bat

Two special-status bat species could occur on the project site: pallid bat and western red bat. Both species are CDFW species of special concern. These species use a variety of habitats to roost, including caves, crevices, mines, hollow trees, and buildings. Potentially suitable roosting habitat is present on the project site within crevices (e.g., exfoliating bark, cracks and fissures in tree stems or branches), cavities (e.g., large tree hollows), and foliage (e.g., clusters of leaves).

Project implementation would include tree removal and the use of equipment, vehicles, and heavy machinery. These activities could result in inadvertent disturbance, injury, or mortality of special-status bats. If present, special-status bat roosts could be disturbed due to the presence of equipment and personnel leading to roost abandonment. Active roosts could be inadvertently removed and destroyed during tree removal activities. This would be a **potentially significant** impact.

Mitigation Measures

Mitigation 3.3-1c: Conduct Focused Bat Surveys and Implement Avoidance Measures

The following measures shall be implemented prior to and during project construction activities:

- Prior to the start of project construction activities a qualified biologist with familiarity with bats and bat ecology, and experienced in conducting bat surveys will conduct surveys for bat roosts in large trees on the project site.
- If no evidence of bat roosts is found, the qualified biologist will submit a report summarizing the results of the survey to the University, and no further study will be required.
- If evidence of bat roosts is observed, the species and number of bats using the roost will be determined. Bat detectors shall be used if deemed necessary to supplement survey efforts by the qualified biologist.
- A no-disturbance buffer of 250 feet will be established around active pallid bat or western red bat roosts, and project construction activities will not occur within this buffer until after the roosts are unoccupied as determined by a qualified biologist.
- If roosts of pallid bat or western red bat are determined to be present and must be removed, the bats will be excluded from the roosting site before the tree is removed. A program addressing compensation, exclusion methods, and roost removal procedures will be developed in consultation with CDFW before implementation. Exclusion efforts may be restricted during periods of sensitive activity (e.g., during hibernation or while females in maternity colonies are nursing young). The loss of each roost (if any) will be replaced in consultation with CDFW and may require construction and installation of bat boxes suitable to the bat species and colony size excluded from the original roosting site. If determined necessary during consultation with CDFW, replacement roosts will be implemented before bats are excluded from the original roost sites. Once the replacement roosts are constructed and it is confirmed that bats are not present in the original roost site by a qualified biologist, the roost tree may be removed.

Significance after Mitigation

Implementation of Mitigation Measure 3.3-1c would reduce potential impacts on pallid bat and western red bat to **less than significant** by requiring focused surveys for bat roosts, implementation of no-disturbance buffers around active special-status bat roosts, and consultation with CDFW if special-status bat roosts will be removed.

Impact 3.3-2: Conflict with Local Policies and Ordinances

The City of Sacramento 2035 General Plan and City of Sacramento Tree Preservation Ordinance contain policies and requirements that protect biological resources. The University is not subject to local government regulations. However, implementation of the project could result in the direct loss or temporary disturbance of City street trees located within the City right-of-way, or "City street trees", that are protected under the City of Sacramento Tree Preservation Ordinance. This impact would be **potentially significant.**

Appendix G of the State CEQA Guidelines suggests evaluating whether a project would "conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, a general plan, specific plan, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect." Pursuant to the University's sovereign immunity, development and uses on property under control of the

University that are in furtherance of its educational purposes are not subject to local land use regulation, including City of Sacramento 2035 General Plan policies regarding protection of biological resources or the City of Sacramento Tree Preservation Ordinance. Although the University is not subject to City policies and regulations and trees on University-owned property are not within City jurisdiction and are not subject to the City's Tree Preservation Ordinance, the University strives to be consistent with local policies, where feasible. Additionally, trees within the City's right of way that would qualify as City street trees are under the jurisdiction of the City. Up to 10 trees along Ramona Avenue and Cucamonga Avenue (which could be removed as part of one of the transportation access options) may qualify as City street trees.

The City of Sacramento 2035 General Plan includes policies protecting biological resources, such as plants, wildlife, and trees. As discussed above in Impacts 3.3-1, while implementation of the project may affect federally- and State-designated special-status wildlife, mitigation measures are required that would reduce impacts to less than significant. Therefore, there would be no conflict with City policies protecting these resources.

Project implementation may involve removal of trees from the City right-of-way (i.e., sidewalks and parkways lining the project site) that qualify as City street trees (see the discussion of the City of Sacramento Tree Preservation Ordinance in Section 4.13.1, "*Regulatory Setting*"). Of the estimated 75 trees on the project site, up to 10 may be within the City right of way along Ramona Avenue and Cucamonga Avenue and potentially affected by the project. Removal or disturbance of City street trees would conflict with tree protection requirements in the City of Sacramento Tree Preservation Ordinance. This impact would be **potentially significant**.

Mitigation Measures

Mitigation Measure 3.3-2: Remove and Replace City Street Trees Consistent with the City of Sacramento Tree Preservation Ordinance

Before construction begins, the University will complete a survey of City street trees at the project site and prepare and submit a detailed tree removal, protection, replanting, and replacement plan to the City arborist. The tree removal plan will be developed by a certified arborist. Separate plans may be prepared for different phases of project construction; however, each construction phase cannot be initiated until a completed plan addressing that construction phase is provided to the City of Sacramento. The plan shall include the following elements:

- The number, location, species, health, and sizes of all City street trees to be removed, relocated, or replaced will be identified. This information will also be provided on a map/design drawing to be included in the project plans.
- Planting techniques, the necessary maintenance regime, success criteria, and a monitoring program for all City street trees planted on or, disturbed but retained on the project site, will be described.

Significance after Mitigation

Implementation of Mitigation Measure 3.3-2 would reduce potential impacts related to conflict with the City of Sacramento Tree Preservation Ordinance to **less than significant** by requiring submission of a tree removal, protection, replanting, and replacement plan to the City prior to removal of any City street trees.

3.4 ARCHAEOLOGICAL, HISTORICAL, AND TRIBAL CULTURAL RESOURCES

This section analyzes and evaluates the potential impacts of the project on known and unknown cultural resources. Cultural resources include districts, sites, buildings, structures, or objects generally older than 50 years and considered to be important to a culture, subculture, or community for scientific, traditional, religious, or other reasons. They include prehistoric resources, historic-period resources, and "tribal cultural resources" (the latter as defined by Assembly Bill (AB) 52, Statutes of 2014, in Public Resources Code [PRC] Section 21074). Prehistoric resources are those resources that pre-date Euro-American settlement in the project area (circa 1839) and are typically associated with the time period of indigenous peoples-only occupation. Historic-period refers to the time of Euro-American settlement and is most typically associated with the actions Euro-American peoples; however, Native Americans, as well as other ethnicities are certainly part of this time frame as well, just as they are today.

Archaeological resources are locations where human activity has measurably altered the earth or left deposits of prehistoric or historic-period physical remains (e.g., stone tools, bottles, former roads, house foundations). Historical (or built-environment) resources include standing buildings (e.g., houses, barns, outbuildings, cabins) and intact structures (e.g., dams, bridges, roads, districts), or landscapes. A cultural landscape is defined as a geographic area (including both cultural and natural resources and the wildlife therein), associated with a historic event, activity, or person or exhibiting other cultural or aesthetic values. Tribal cultural resources are sites, features, places, cultural landscapes, sacred places and objects, with cultural value to a tribe.

The impact analysis for archaeological and historical resources is based on the findings and recommendations of the *Cultural Resources Assessment for the HUB, Sacramento State Research Park Project, City of Sacramento, Sacramento County, California* prepared by Natural Investigations Company (NIC) in May 2021. The analysis in this section is also informed by the provisions and requirements of federal, state, and local laws and regulations that apply to cultural resources.

Two comment letters regarding cultural resources were received in response to the NOP (see Appendix A). The Native American Heritage Commission (NAHC) requested AB 52 and SB 18 compliance information. SB 18 is not a CEQA requirement and therefore is not discussed in this section. Consistent with comments received on the NOP, the AB 52 compliance that was conducted for the project is described below. In the second comment letter, a representative of the Yocha Dehe Wintun Nation indicated that the project is not within the aboriginal territories of the Yocha Dehe Wintun Nation. The tribe therefore declined to comment on the project and deferred correspondence to the United Auburn Indian Community and the Wilton Rancheria (see AB 52 consultation information in Table 3.4-1, below).

3.4.1 Regulatory Setting

FEDERAL

National Register of Historic Places

The National Register of Historic Places (NRHP) is the nation's master inventory of known historic properties. It is administered by the National Park Service and includes listings of buildings, structures, sites, objects, and districts that possess historic, architectural, engineering, archaeological, or cultural significance at the national, state, or local level.

The formal criteria (36 CFR 60.4) for determining NRHP eligibility are as follows:

1. The property is at least 50 years old (however, properties under 50 years of age that are of exceptional importance or are contributors to a district can also be included in the NRHP);

2. It retains integrity of location, design, setting, materials, workmanship, feeling, and associations; and
3. It possesses at least one of the following characteristics:

   Criterion A Is associated with events that have made a significant contribution to the broad patterns of history (events).

   Criterion B Is associated with the lives of persons significant in the past (persons).

   Criterion C Embodies the distinctive characteristics of a type, period, or method of construction, or represents the work of a master, or possesses high artistic values, or represents a significant, distinguishable entity whose components may lack individual distinction (architecture).

   Criterion D Has yielded, or may be likely to yield, information important in prehistory or history (information potential).

For a property to retain and convey historic integrity it must possess most of the seven aspects of integrity: location, design, setting, materials, workmanship, feeling, and association. Location is the place where the historic property was constructed or the place where a historic event occurred. Integrity of location refers to whether the property has been moved since its construction. Design is the combination of elements that create the form, plan, space, structure, and style of a property. Setting is the physical environment of a historic property that illustrates the character of the place. Materials are the physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property. Workmanship is the physical evidence of the crafts of a particular culture or people during any given period in history or prehistory. Feeling is a property's expression of the aesthetic or historic sense of a particular period of time. This is an intangible quality evoked by physical features that reflect a sense of a past time and place. Association is the direct link between the important historic event or person and a historic property. Continuation of historic use and occupation help maintain integrity of association.

Listing in the NRHP does not entail specific protection or assistance for a property but it does guarantee consideration in planning for federal or federally-assisted projects, eligibility for federal tax benefits, and qualification for federal historic preservation assistance. Additionally, project effects on properties listed in the NRHP must be evaluated under CEQA.

The National Register Bulletin series was developed to assist evaluators in the application of NRHP criteria. For example, National Register Bulletin #36 provides guidance in the evaluation of archaeological site significance. If a property cannot be placed within a particular theme or time period, and thereby lacks "focus," it will be unlikely to possess characteristics which would make it eligible for listing in the NRHP. Evaluation standards for linear features (such as roads, trails, fence lines, railroads, ditches, and flumes) are considered in terms of four related criteria that account for specific elements that define engineering and construction methods of linear features: (1) size and length, (2) presence of distinctive engineering features and associated properties, (3) structural integrity, and (4) setting. The highest probability for NRHP eligibility exists in the intact, longer segments, where multiple criteria coincide.

STATE

California Register of Historical Resources

All properties in California that are listed in or formally determined eligible for listing in the NRHP are also listed in the California Register of Historical Resources (CRHR). The CRHR is a listing of State of California resources that are significant in the context of California's history. It is a Statewide program with a scope and with criteria for inclusion similar to those used for the NRHP. In addition, properties designated under municipal, or county ordinances are also eligible for listing in the CRHR.

A historical resource must be significant at the local, state, or national level under one or more of the criteria defined in the California Code of Regulations Title 15, Chapter 11.5, Section 4850 to be included in the CRHR. The CRHR criteria are tied to CEQA because any resource that meets the criteria below is considered a significant historical resource under CEQA. As noted above, all resources listed in or formally determined eligible for listing in the NRHP are automatically listed in the CRHR.

The CRHR uses four evaluation criteria:

Criterion 1. Is associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States.

Criterion 2. Is associated with the lives of persons important to local, California, or national history.

Criterion 3. Embodies the distinctive characteristics of a type, period, region, or method of construction; represents the work of a master; or possesses high artistic values.

Criterion 4. Has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California or the nation.

Similar to the NRHP, a historical resource must meet one of the above criteria and retain integrity to be listed in the CRHR. The CRHR uses the same seven aspects of integrity used by the NRHP.

California Environmental Quality Act

CEQA requires public agencies to consider the effects of their actions on "historical resources," "unique archaeological resources," and "tribal cultural resources." Pursuant to PRC Section 21084.1, a "project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment." Section 21083.2 requires agencies to determine whether projects would have effects on unique archaeological resources. PRC Section 21084.2establishes that "[a] project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment."

Historical Resources

"Historical resource" is a term with a defined statutory meaning (PRC Section 21084.1; State CEQA Guidelines Sections 15064.5[a] and [b]). Under State CEQA Guidelines Section 15064.5(a), historical resources include the following:

1) A resource listed in, or determined to be eligible by the State Historical Resources Commission for listing in, the CRHR (PRC Section 5024.1).

2) A resource included in a local register of historical resources, as defined in PRC Section 5020.1(k) or identified as significant in a historical resource survey meeting the requirements of PRC Section 5024.1(g), will be presumed to be historically or culturally significant. Public agencies must treat any such resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant.

3) Any object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California may be considered to be a historical resource, provided the lead agency's determination is supported by substantial evidence in light of the whole record. Generally, a resource will be considered by the lead agency to be historically significant if the resource meets the criteria for listing in the CRHR (PRC Section 5024.1).

4) The fact that a resource is not listed in or determined to be eligible for listing in the CRHR, not included in a local register of historical resources (pursuant to PRC Section 5020.1[k]), or identified in a historical resources survey (meeting the criteria in PRC Section 5024.1[g]) does not preclude a lead agency from determining that the resource may be a historical resource as defined in PRC Sections 5020.1(j) or 5024.1.

Unique Archaeological Resources

CEQA also requires lead agencies to consider whether projects will affect unique archaeological resources. PRC Section 21083.2(g) states that "unique archaeological resource" means an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets one or more of the following criteria:

1. Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
2. Has a special and particular quality such as being the oldest of its type or the best available example of its type.
3. Is directly associated with a scientifically recognized important prehistoric or historic event or person.

<u>Tribal Cultural Resources</u>

CEQA also requires lead agencies to consider whether projects will affect tribal cultural resources. PRC Section 21074 states:

a) "Tribal cultural resources" are either of the following:
   1) Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following:
      A) Included or determined to be eligible for inclusion in the California Register of Historical Resources.
      B) Included in a local register of historical resources as defined in subdivision (k) of Section 5020.1.
   2) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1. In applying the criteria set forth in subdivision (c) of Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.

b) A cultural landscape that meets the criteria of subdivision (a) is a tribal cultural resource to the extent that the landscape is geographically defined in terms of the size and scope of the landscape.

c) A historical resource described in Section 21084.1, a unique archaeological resource as defined in subdivision (g) of Section 21083.2, or a "nonunique archaeological resource" as defined in subdivision (h) of Section 21083.2 may also be a tribal cultural resource if it conforms with the criteria of subdivision (a).

California Native American Historical, Cultural, and Sacred Sites Act

The California Native American Historical, Cultural, and Sacred Sites Act (PRC Section 5097.9) applies to both State and private lands. The act requires, upon discovery of human remains, that construction or excavation activity cease and that the county coroner be notified. If the remains are those of a Native American, the coroner must notify the NAHC, which notifies and has the authority to designate the most likely descendant of the deceased. The act stipulates the procedures the descendants may follow for treating or disposing of the remains and associated grave goods.

Health and Safety Code, Sections 7050.5

Section 7050.5 of the Health and Safety Code requires that construction or excavation be stopped in the vicinity of discovered human remains until the coroner can determine whether the remains are those of a Native American. If they are determined to be those of a Native American, the coroner must contact NAHC.

Public Resources Code, Section 5097

PRC Section 5097 specifies the procedures to be followed if human remains are unexpectedly discovered on nonfederal land. The disposition of Native American burials falls within the jurisdiction of NAHC. Section 5097.5 of the code states:

> No person shall knowingly and willfully excavate upon, or remove, destroy, injure, or deface any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, or any other archaeological, paleontological or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over such lands. Violation of this section is a misdemeanor.

Assembly Bill 52 - Public Resources Code Section 21080.3

Assembly Bill 52, signed by the California Governor in September of 2014, established a new class of resources under CEQA: "tribal cultural resources," defined in PRC Section 21074. Pursuant to PRC Sections 21080.3.1, 21080.3.2, and 21082.3, lead agencies undertaking CEQA review must, upon written request of a California Native American Tribe, begin consultation before the release of an EIR, negative declaration, or mitigated negative declaration.

PRC Section 21080.3.2 states:

> Within 14 days of determining that a project application is complete, or to undertake a project, the lead agency must provide formal notification, in writing, to the tribes that have requested notification of proposed projects in the lead agency's jurisdiction. If it wishes to engage in consultation on the project, the tribe must respond to the lead agency within 30 days of receipt of the formal notification. The lead agency must begin the consultation process with the tribes that have requested consultation within 30 days of receiving the request for consultation. Consultation concludes when either: 1) the parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource, or 2) a party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached.

If the lead agency determines that a project may cause a substantial adverse change to a tribal cultural resource, and measures are not otherwise identified in the consultation process, provisions under PRC Section 21084.3 (b) describe mitigation measures that may avoid or minimize the significant adverse impacts. Examples include:

(1) Avoidance and preservation of the resources in place, including, but not limited to, planning and construction to avoid the resources and protect the cultural and natural context, or planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.

(2) Treating the resource with culturally appropriate dignity taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:

(A) Protecting the cultural character and integrity of the resource
(B) Protecting the traditional use of the resource
(C) Protecting the confidentiality of the resource.

(3) Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.

(4) Protecting the resource.

LOCAL

Sacramento State is part of the CSU, which is a statutorily- and legislatively-created, constitutionally authorized entity of the State of California, and the Ramona Property (the project site) is owned by the CSU. As explained in Section 3.0, "California State University Autonomy," of this ~~Draft~~ EIR, State agencies are not subject to local government planning and land use plans, policies, or regulations. Nevertheless, in the exercise of its discretion, CSU does reference, describe, and address local plans, policies, and regulations where appropriate and for informational purposes. This evaluation is also intended to be used by local agencies for determining, as part of their permit processes, the project's consistency with local plans, policies, and regulations.

City of Sacramento 2035 General Plan

The following goal and policies from the City of Sacramento 2035 General Plan Historic and Cultural Resources Element are relevant to the analysis of effects on cultural resources:

- Policy HCR 2.1.1: Identification. The City shall identify historic and cultural resources, including individual properties, districts, and sites (e.g., archaeological sites), to ensure adequate protection of these resources.
- Policy HCR 2.1.2: Applicable Laws and Regulations. The City shall ensure compliance with City, State, and Federal historic preservation laws, regulations, and codes to protect and assist in the preservation of historic and

archaeological resources, including the use of the California Historical Building Code as applicable. Unless listed in the Sacramento, California, or National registers, the City shall require discretionary projects involving resources 50 years and older to evaluate their eligibility for inclusion on the California or Sacramento registers for compliance with the California Environmental Quality Act.

- **Policy HCR 2.1.3: Consultation**. The City shall consult with appropriate organizations and individuals (e.g., California Historical Resources Information System (CHRIS) Information Centers, the Native American Heritage Commission (NAHC), the CA Office of Planning and Research (OPR) "Tribal Consultation Guidelines," etc.,) and shall establish a public outreach policy to minimize potential impacts to historic and cultural resources.
- **Policy HCR 2.1.10:** Early Project Consultation. The City shall minimize potential impacts to historic and cultural resources by consulting with property owners, land developers, and the building industry early in the development review process.
- **Policy HCR 2.1.16:** Archaeological & Cultural Resources. The City shall develop or ensure compliance with protocols that protect or mitigate impacts to archaeological and cultural resources including prehistoric resources.
- **Policy HCR 2.1.17:** Preservation Project Review. The City shall review and evaluate proposed development projects to minimize impacts on identified historic and cultural resources, including projects on Landmark parcels and parcels within Historic Districts, based on applicable adopted criteria and standards.

The following goal and policy from the City of Sacramento 2035 Land Use Element are relevant to the analysis of effects on cultural resources:

GOAL LU 1.1: Growth and Change. Support sustainable growth and change through orderly and well-planned development that provides for the needs of existing and future residents and businesses, ensures the effective and equitable provision of public services, and makes efficient use of land and infrastructure.

- **Policy LU 2.4.2: Responsiveness to Context**. The City shall require building design that respects and responds to the local context, including use of local materials where feasible, responsiveness to Sacramento's climate, and consideration of cultural and historic context of Sacramento's neighborhoods and centers.

Sacramento Planning and Development Code Chapter 17.604

Chapter 17.604 (Historic Preservation) of the City's Planning and Development Code includes provisions for the identification of significant historic, prehistoric and cultural resources, structures, districts, sites, landscapes, and properties within the City. This chapter also includes mechanisms and procedures to protect and encourage the preservation of the city's historic and cultural resources, as well as established the preservation commission and the responsibilities of the City's Preservation Director.

3.4.2 Environmental Setting

The following is taken from the technical report prepared for the project (NIC 2021).

REGIONAL NATIVE AMERICAN PRE-CONTACT HISTORY

The prehistory of the Sacramento Valley is grouped with that of the greater California Central Valley. The initial tripartite classification scheme for cultural change in California's Central Valley, the Windmiller, Berkeley, and Augustine Patterns, was developed in the 1930s based on finds at specific archaeological sites. Decades of additional research based on many more sites has refined these patterns and adjusted their timeframes based on radiocarbon testing and other absolute dating techniques. These refinements were recently summarized into the following chronological sequence: Paleo-Indian (11,500–8550 cal [calibrated] before common era [B.C.E]), Lower Archaic (8550–5550 cal B.C.E), Middle Archaic (5550–550 cal B.C.E), Upper Archaic (550 cal B.C.E–cal anno Domini [A.D.] 1100), and Emergent or Late Prehistoric Period (cal A.D. 1100–Historic Contact).

Paleo-Indian and Lower Archaic Periods (11,500–5550 cal B.C.)

There is little evidence of the Paleo-Indian and Lower Archaic periods in the Central Valley. As shown by geoarchaeological studies, large segments of the Late Pleistocene landscape throughout the central California lowlands have been buried or removed by periodic episodes of deposition or erosion. The archaeological evidence that is available for the Paleo-Indian Period is comprised primarily by fluted projectile points that are thicker at the top than they are at the bottom. These points are similar in shape to well-dated Clovis points found elsewhere in North America.

In the Central Valley, the Lower Archaic Period is mainly represented by isolated finds of single objects. The earliest confirmed evidence for habitation in the Sacramento vicinity during the Lower Archaic was recovered from a depth of 10-22 feet below current street level. This site, CA-SAC-38, is located on a paleo-sandbar which dates from 8,500 to 3,000 years ago. Other Lower Archaic sites around the Central Valley contain numerous milling slabs and handstones, and some at the most southernly end near Kern County, have yielded stemmed projectile points, chipped stone crescents, and the remains of fish, birds, and shellfish in abundance over larger game, such as deer or elk.

Middle Archaic Period (5550–550 cal B.C.)

For the first 3,000 years of the Middle Archaic, archaeological sites on the valley floor are relatively scarce, in part due to natural geological processes, unlike in the foothills where a number of buried sites dating to the Middle Archaic have been found. Regardless, the archaeological record in both locales indicate that the subsistence system during this period included a wide range of natural resources (e.g., plants, small and large mammals, fish, and waterfowl) that indicate people followed a seasonal foraging strategy. Projectile points with a triangular blade and contracting stems are common as are a variety of fishing implements such as angling hooks, composite bone hooks, spears, and baked clay artifacts, which may have been used as net or line sinkers. The points are classified within the Sierra Contracting Stem and Houx Contracting Stem series. The presence of milling implements (grinding slabs, handstones, pestles, and mortars) indicate that acorns or seeds were an important part of the Middle Archaic diet. In the foothills, pine nut was also an important part of the diet. The presence of an established trade network is indicated by the recovery of Olivella shell beads, obsidian tools, and quartz crystals. Obsidian tool sources during the Middle Archaic included quarries in the North Coast Ranges, eastern Sierra, and Cascades.

Upper Archaic Period (550 cal B.C.–cal A.D. 1100)

The Upper Archaic is characterized by a dramatic shift in milling technologies. Grinding slabs and handstones significantly decrease while mortars and pestles increase. Archaeologists generally agree mortars and pestles are better suited to crushing and grinding acorns, while grinding slabs and handstones may have been used primarily for processing wild grass seeds. Such a shift indicates acorns most likely became a dietary staple. Other innovations such as new types of shell beads, charmstones, bone tools, and ceremonial stone blades are additional evidence of the more specialized technology which dominates this period.

Upper Archaic shell bead assemblages are characterized by saddle-shaped Olivella beads and abalone ornaments. A variety of bone tool types, decorated bone tube whistles and earrings as well as clay pipes are also found. Mortuary practices are dominated by flexed interments, although a few cremations have been discovered at sites dating to this period. Trade networks brought obsidian to the Central Valley from the North Coast Ranges and the east side of the Sierra Nevada. Large villages located on natural levees and mounds become the norm around 2,700 years ago in the Sacramento and Delta regions. These sites include accumulations of habitation debris and features, such as cooking hearths, house floors, rock-lined ovens, shellfish remains, and flexed burials with variable orientations and a paucity of grave goods.

Emergent or Late Prehistoric Period (cal A.D. 1100 to Historic Contact)

The Emergent Period was shaped by a number of cultural innovations, such as the bow and arrow and more elaborate and diverse fishing technology, as well as an elaborate social and ceremonial organization. The increased number of archaeological sites dating to this period demonstrate that numerous villages, ranging in size from small to large, were established along the valley floor sloughs and river channels and along the foothills side streams. Many of the cultural patterns typical of this period are also reflected in the cultural traditions observed at historic contact.

The faunal and botanical remains recovered at Emergent Period archaeological sites indicate the occupants relied on a diverse assortment of mammals, fish, and plant parts, including acorns and pine nuts. Milling technologies included hopper mortars, shaped mortars and pestles. Bone awls were used to produce coiled baskets and bone fishhooks, harpoons, and gorge hooks were used for fishing, as well as the bow and arrow for hunting. Small, Gunther barbed series projectile points have been found at sites dating to the early part of the period, while Desert-side notched points appear later in the period. The Stockton serrated arrow point is a local variant that also appears in archaeological assemblages dating to this period. In some parts of the lower Sacramento Valley, Cosumnes Brownware ceramics appear indicating advancement in the baked clay industry. Mortuary practices changed to include more cremations, particularly of high-status individuals with many grave goods and pre-interment burning of burial pits. Currency, in the form of clamshell disk beads is an Emergent Period marker. Trade networks also shifted to a predominantly interior Napa obsidian sources instead of eastern Sierra sources and denitalium shell from coastal Oregon and Washington.

ETHNOGRAPHY

The project is in the ethnographic territory of the Valley Nisenan, also known as the Southern Maidu. Prior to European-American contact, Valley Nisenan territory included the southern extent of the Sacramento Valley, east of the Sacramento River between the North Fork Yuba River and Cosumnes Rivers on the north and south, respectively, and extended east into the base of the foothills of the Sierra Nevada Range. Neighboring groups included the Plains Miwok to the south, Southern Patwin to the west across the Sacramento River beyond the Yolo Basin, and Konkow and Maidu to the north.

Valley Nisenan villages were generally located on low, natural rises along streams and rivers or on gentle, south-facing slopes. Within these areas, the Nisenan practiced seasonal transhumance, moving from one area or elevation to another to harvest plants, fish, and hunt game across contrasting ecological zones that are in relatively proximity to each other. Village population varied and is reported as ranging from 15 to over 500 individuals with the number of residences ranging from 40 to 50 in larger villages, and only three to seven in smaller villages. Traditional village structures included semi-subterranean or aboveground conical, circular, or dome-shaped houses, as well as acorn granaries, winter grinding houses, ceremonial or dance houses, and sweathouses. Nisenan mortuary practices included cremation and burial in a separate cemetery area.

Foods were processed with a variety of tools, such as bedrock mortars, cobblestone pestles, anvils, and portable stone or wooden mortars that were used to grind or mill acorns and seeds. Additional tools and implements included knives, anvils, digging sticks, bone awls, coiled and twined baskets, as well as woven parching and winnowing trays, and strainers. Prior to processing, the acorns, seeds, and roots were often stored in the village granaries, particularly for winter use. Valley Nisenan and neighboring groups participated in an extensive east-west trade network between the coast and the Great Basin. From coastal groups marine shell (Olivella and abalone) and steatite moved eastward, while salt and obsidian traveled westward from the Sierras and Great Basin. Basketry, also an important trade item, moved in both directions.

Traditional culture and lifeways of the Valley Nisenan were disrupted beginning in the early 1800s. Although Spanish explorers entered their territory as early as 1808, it wasn't until the Mexican period around 1828, that local native peoples were significantly affected by land grant settlements, such as that at Sutter's Fort, and decimated by foreign disease epidemics that swept through the densely populated Central Valley, such as the epidemic of 1833 which is estimated to have caused the death of 75 percent of the local Native American population (Wilson and Towne 1978:396). The discovery of gold in 1848 at Sutter's Mill continued this pattern of devastation, so that by 1850, with their lands, resources and way of life being overrun by the steady influx of non-native people during the Gold Rush, surviving Valley Nisenan either retreated to the foothills and mountains or labored for the growing ranching, farming, and mining industries. Today, in the face of continuing disruption, many Valley Nisenan descendants who reside on and are associated with the Auburn Rancheria and other tribal entities, continue to live, work, and worship in the territory of their ancestors.

HISTORIC PERIOD SETTING

Regional History

Euro-American settlement in the Sacramento area did not occur until 1839 when Sutter landed in what would become the City of Sacramento and established a fort on his 48,839-acre land grant given to him by Governor Juan Bautista Alvarado in 1841; Sutter's Fort is located approximately four miles from the project site. Prior to Sutter, non-indigenous occupation was limited to the exploration of major rivers in the area, such as the expeditions of Spanish Lieutenant Gabriel Moraga on the Sacramento River in 1806 and 1808 and American fur-trapper Jedediah Smith of the American River in 1826 to 1827. By 1841, Sutter's settlement had grown beyond the fort into what he named New Helvetia. New Helvetia became a substantial agricultural center and trading post, encompassing lands not only in present-day Sacramento, but also in Sutter and Yuba Counties. However, with the start of the Gold Rush in 1848, Sutter's empire began to quickly subside as new entrepreneurs, prospectors, and farmers overtook the area. This population boon as well as the Treaty of Guadalupe Hidalgo, led to California becoming the thirty-first state of the United States in 1850. Shortly after that, the City of Sacramento became the state capital in 1854.

In the 1860s, the City of Sacramento was also a critical junction for two of three railroads that forged the first transcontinental railroad, the Western Pacific and Central Pacific. The Central Pacific Railroad was inaugurated in Sacramento on January 8, 1863. The Pacific Railroad was completed on May 10, 1869 in northern Utah, where it connected with the Central Railroad, completing the first Transcontinental Railroad to link the Atlantic with the Pacific Coast. By 1900, the Southern Pacific Company, which had leased the Central Pacific Railroad in 1885, was a major railroad system, extending through most of California and to points east. In 1996, the Southern Pacific was taken over by the Union Pacific Railroad.

Project Site History

Development in the general project area began the late 19th century. Examination of historical mapping and aerials show that by 1891, the Sacramento-Placerville Railroad was in place just north of the project area, along the path of the modern Union Pacific Railroad. This rail line was a consolidation of the Sacramento Valley and the Central Pacific Railroads made effective in 1877. Moving into the early 20th century, the general project area shows continued residential and industrial development as well as the construction of a fairground west of the project area in 1911. By the end of World War II, two unpaved roads are in place where the segments of Hunt Street and Del Monte Avenue are today and at least two residences and an agricultural field are adjacent to the project site. However, the actual project site remains entirely vacant until 1952 when the California Youth Authority (CYA) facility was constructed. A 1954 map shows a large complex consisting of more than a dozen buildings of varying sizes (NIC 2021:17). In 1954, the CYA opened this facility as the Northern California Youth Reception Center (NYRC).

The original NYRC facility included a 50-room dormitory for males on the south side of the campus, as well as a kitchen and dining rooms, an educational building, a multi-purpose programs building, and a clinical services building with a 19-bed hospital and medical and dental examination and treatment rooms. Both boys and girls between the ages of 8 and 21 were taken into custody due to problems ranging from maladjustment to serious antisocial behavior. A reduction of the number of females committed to the CYA led to a discontinuation of the co-educational program at the NYRC in the 1970s. Nevertheless, by the 1980s the NYRC had expanded to include 21 separate buildings.

The primary focus of the NYRC was the diagnosis of the condition and needs of youths committed to the CYA by juvenile and criminal courts. The clinic provided specialized psychiatric, medical, dental, and other services, as well as counseling services to emotional disturbed youths and those with severe behavioral disorders. In these cases, the staff-to-ward ratio was nearly one-to-one.

The CYA closed the NYRC at Sacramento in March of 2004. California State University, Sacramento (University) purchased the property in 2005, originally intending to develop faculty and staff housing, though with the decline of home prices in the Sacramento area, the University now proposes academic, research, and office space to support academic programming at the site. When the vacant commissary, kitchen, dining area, and warehouse buildings were severely damaged in a fire in June of 2010, all of the buildings were demolished and removed, leaving only their foundations on the site today (NIC 2021:18).

RECORDS SEARCHES, SURVEYS, AND CONSULTATION

Record Searches

A California Historical Resources Information System (CHRIS) records search was conducted by the North Central Information Center (NCIC) on the campus of California State University, Sacramento for the project site and a 0.25-mile radius. The results of the CHRIS search were returned on June 15, 2020. The archival search also included a review of the following sources:

- NRHP and CRHR,
- California Office of Historic Preservation Built Environment Resources Directory,
- Historic Property Data File for Sacramento County,
- Archaeological Determinations of Eligibility,
- California Inventory of Historic Resources,
- California State Historic Landmarks,
- California Points of Historical Interest,
- Historical GLO land plat maps, and
- Historic Properties/Historical Resources reference map.

The CHRIS records search indicates that no cultural resources have been previously identified within the project site and only one cultural resource study has been completed within the project area. Within the 0.25-mile record search radius, four cultural resources have been recorded and six additional studies have been completed outside the project area but within the 0.25-mile record search radius. These resources include two railroad segments, an electrical substation, and a residence over 50 years of age. The previous studies were completed between 1980 and 2018.

Other Sources

Other sources consulted as part of the background search include the additional historical maps and aerial photographs listed below:

- USGS Sacramento 30-minute topographic quadrangles of 1891, 1892, and 1893
- USGS Fair Oaks 15-minute topographic quadrangles of 1902 and 1954
- USGS Brighton 15-minute topographic quadrangle of 1911
- USGS Sacramento East 7.5-minute topographic quadrangles of 1949, 1954, 1967, 1992, 1994,2012, 2015, and 2018
- Aerial photographs of 1947, 1957, 1964, 1966, 1993, 1998, 2002, 2005, 2009, 2010, 2012,2014, and 2016

A geoarchaeological sensitivity analysis was also completed. This review included an examination of soil survey maps, the 2008 geoarchaeological sensitivity study conducted for the entire Sacramento region, and the results of past archaeological investigations in the vicinity of the project area. The geoarchaeological analysis concludes that despite the Holocene age (2,000 to 150 years ago) of the underlying San Joaquin Series soils, several site-specific factors suggest that the potential for discovery of intact archaeological deposits, including buried archaeological deposits, materials, or features, by implementation of the project is low. These factors include the absence of known prehistoric archaeological sites within 0.25 mile of the project site, the distance from freshwater sources, and the extent of past subgrade disturbance related to the construction, improvement, and ultimate demolition of the CYA reception facility.

Consultation

A search of the NAHC Sacred Lands File database was conducted on June 12, 2020. The results of the search were positive for the presence of Native American cultural resources in the project vicinity and recommended that the United Auburn Indian Community of the Auburn Rancheria (UAIC) be contacted for additional information. Ms. Anna Starkey, Cultural Regulatory Specialist for the UAIC, responded on July 2, 2020. She stated that she checked the tribal database and believes that the tribal resource that triggered the positive Sacred Lands File database result is located north of the project area and would not be impacted by the project (NIC 2021:20).

As previously stated in Section 3.4.1 "Regulatory Setting," AB 52 applies to those projects for which a lead agency had issued a notice of preparation of an EIR or notice of intent to adopt a negative declaration or mitigated negative declaration on or after July 1, 2015. Consultation under AB 52 was offered by the University to those tribal entities that had requested notification of proposed projects in the lead agency's jurisdiction and one tribe responded with a request for mitigation, as noted in Table 3.4-1.

The specific details of the consultations are confidential pursuant to California law; however, a summary of events related to communication between the tribes and the University is provided below in Table 3.4-1.

Table 3.4-1 AB 52 Consultation

Native American Tribe and Contact	Date of Initial Contact	Date of Initial Response	Follow-up Response	Comment
Ione Band of Miwok Indians Sara Dutschke Setshwaelo, Chairperson	March 22, 2021	None	—	No response received
Shingle Springs Band of Miwok Indians Kara Perry, Cultural Outreach Coordinator	March 22, 2021	None	—	No response received
Wilton Rancheria Ralph Hatch, Executive Director	March 22, 2021	None	—	No response received
United Auburn Indian Community Matthew Moore, Tribal Historic Preservation Officer	March 22, 2021	May 11, 2021	June 16, 2021	Ms. Anna Starkey, Cultural Regulatory Specialist, Tribal Historic Preservation Department, responded on behalf of the tribe requesting a copy of the cultural resources report prepared for the project. This was provided to her on June 9, 2021 by the University. On June 16, Ms. Starkey provided Tribal Cultural Resources Unanticipated Discoveries measures to be included in the CEQA document as mitigation for potential impacts to unknown tribal cultural resources.
Yocha Dehe Wintun Nation Isaac Bojorquez, Director of Cultural Resources	March 22, 2021	None	—	No response received (Response to Notice of Preparation indicated that the project is not within the aboriginal territories of the Yocha Dehe Wintun Nation.)

Source: Data compiled by Ascent Environmental in 2021

PEDESTRIAN SURVEY

A pedestrian survey of the 25-acre project site was conducted on May 18, 2021 (NIC 2021:22). All portions of the property were surveyed intensively using transects spaced no greater than 15 meters apart. During the pedestrian survey, all visible ground surface, ground disturbance, and geologic outcrops were carefully examined for cultural material (e.g., flaked stone tools, tool-making debris, stone milling tools, or fire-affected rock), cultural use (e.g., bedrock mortars, petroglyphs), soil discoloration that might indicate the presence of a cultural midden, soil depressions, features indicative of the former presence of structures or buildings (e.g., postholes, foundations), and historic-period debris (e.g., refuse of metal, glass, and ceramics).

Any materials identified were evaluated under NRHP and CRHR criteria discussed above in Section 3.4.1, "Regulatory Setting." Eligibility for listing on the NRHP and the CRHR rests on twin factors of significance and integrity. A resource must have both significance and integrity to be considered eligible. Loss of integrity, if sufficiently great, will become more important than the historical significance a resource may possess and render it ineligible. Likewise, a resource can have complete integrity, but if it lacks significance, it must also be considered ineligible.

One historic-period archaeological site was identified as a result of the survey effort, NIC-2021-Ramona-01. This archaeological site represents the physical remains of the NYRC facility. No other archaeological or built environment features were identified as either the result of the records search or pedestrian survey.

Archaeological Resources

NIC-2021-Ramona-01

NIC-2021- Ramona-01 is a historic-period archaeological site consisting of building foundations and associated hardscapes and greenspaces. It covers the entire 25-acres and consists of the remains of the CYA NRYC facility. It has 31 features which consist of four poured concrete pads and 27 poured concrete foundations. The facility was constructed in 1952 and was in use until 2004. In 2010, all remaining standing structures were razed after a fire gutted the remaining standing structures.

The evaluation of NIC-2021-Ramona-01 finds that it does not appear to be eligible for listing the in NRHP or CRHR and does not constitute a resource for CEQA purposes. Background research finds no evidence that the NRYC facility is associated with any events significant in history (Criterion A/1) or people significant in national, local, or regional history (Criterion B/2). The structural remains of the demolished facility do not reflect distinctive characteristics of a type, period, region, or method of construction, or represent the work of a master, or possesses high artistic values (Criterion C/3). Further, the integrity of the overall resource is poor, having been reduced to foundations and all the landscaping destroyed. As such, it would be unlikely to be able to convey historic significance under Criteria A, B, or C if any were present.

The site is also not likely to yield historically important information (Criterion D/4). For a site of this kind to be found significant under Criterion D/4, it needs to be, or to have been, the principal source of information. This is not the case for NIC-2021-Ramona-01, as archival and historical sources, CYA literature, as well as technical plans and drawings exist which can provide the same information. Additionally, the presence of data-rich subgrade archaeological deposits associated with the facility’s period of use is unlikely given its late-historical development long after organized methods of waste disposal were organized in the Sacramento metropolitan area. Lastly, the geoarchaeological sensitivity analysis concludes that the project area has a low sensitivity for archaeological resources. For these reasons, the data potential of NIC-2021-Ramona-01 appears to be exhausted in existing documentation and its formal recording.

Historic Built Environment Resources

No historic-period built environment buildings, structures, or objects were identified in the records search or during the May 18, 2021 survey of the project site (NIC 2021:24); the building foundations are considered archaeological resources and discussed above.

Tribal Cultural Resources

No tribal cultural resources were identified either as a result of the background research or the AB 52 consultation effort within the project area.

3.4.3 Impacts and Mitigation Measures

METHODOLOGY

The impact analysis for archaeological and historical resources is based on the findings and recommendations of the *Cultural Resources Assessment for the HUB, Sacramento State Research Park Project, City of Sacramento, Sacramento County, California* prepared by NIC in May 2021. The analysis of tribal cultural resources is based on the AB 52 consultation effort. The analysis for these resources is also informed by the provisions and requirements of federal, state, and local laws and regulations that apply to cultural resources. In determining the level of significance, the analysis assumes that the project would comply with relevant federal and state laws, regulations, and ordinances.

The record searches, survey, and consultation documented above in Section 3.4.2, establishes the environmental setting and provides substantial evidence in support of the impact evaluations below. PRC Section 21083.2(g) defines a "unique archaeological resource" as an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets one or more of the following CRHR-related criteria: (1) that it contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information; (2) that it as a special and particular quality, such as being the oldest of its type or the best available example of its type; or (3) that it is directly associated with a scientifically recognized important prehistoric or historic-period event or person. An impact on a resource that is not unique is not a significant environmental impact under CEQA (State CEQA Guidelines Section 15064.5[c][4]). If an archaeological resource qualifies as a resource under CRHR criteria, then the resource is treated as a unique archaeological resource for the purposes of CEQA.

PRC Section 21074 defines "tribal cultural resources" as "sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe" that are listed or determined eligible for listing in the CRHR, listed in a local register of historical resources, or otherwise determined by the lead agency to be a tribal cultural resource.

For the purposes of the impact discussion, "historical resource" is used to describe built-environment historic-period resources. Archaeological resources (both prehistoric and historic-period), which may qualify as "historical resources" pursuant to CEQA, are analyzed separately from built-environment historical resources.

THRESHOLDS OF SIGNIFICANCE

An impact on archaeological, historical, or tribal cultural resources is considered significant if implementation of the project would do any of the following:

- cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5 of the State CEQA Guidelines;
- cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5 of the State CEQA Guidelines;
- disturb any human remains, including those interred outside of formal cemeteries.
- cause a substantial adverse change in the significance of a tribal cultural resource, defined in PRC 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:
  - 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
  - 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 Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

Section 15064.5 of the State CEQA Guidelines defines "substantial adverse change" as physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings.

ISSUES NOT DISCUSSED FURTHER

Adverse Change in the Significance of a Historical Resource

No historical resources were identified on the project site, either through the records search or the pedestrian survey. Therefore, project construction and operation would have no impact on historical resources. This issue is not analyzed further.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Impact 3.4-1: Cause a Substantial Adverse Change in the Significance of an Archaeological Resource

Based on the records search and pedestrian survey, there are no archaeological resources located within the project site, or within the 0.25-mile radius. Additionally, the geoarchaeological sensitivity analysis found that the project site has low sensitivity for buried archaeological deposits. Therefore, implementation of the project would have a **less-than-significant** impact on archaeological resources.

One historic-period archaeological site was identified as a result of the survey effort, NIC-2021-Ramona-01. This historic-period archaeological site represents the physical remains of the NYRC facility. Archaeological resource NIC-2021-Ramona-01, was evaluated and found not eligible for listing in the CRHR or NRHP. It also does not meet the criteria of a unique archaeological resource under PRC Section 21083.2(g) (NIC 2021). As a result, it is not considered significant for the purposes of CEQA.

No other archaeological or built environment features were identified in the records search or the pedestrian survey. As discussed previously, the results of the geoarchaeological sensitivity analysis found that the project site has low sensitivity for buried archaeological deposits. Therefore, given the distance of the project site to nearby water bodies (0.75 miles south of the American River), lack of previously recorded archaeological resources in the project area, and previous site disturbance, proposed ground disturbing activities within the project area are unlikely to impact any archaeological resources. Therefore, this impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.4-2: Disturb Human Remains

Based on documentary research, there is no evidence that human interments are present within or in the immediate vicinity of the project site. However, project-related ground-disturbing activities could uncover previously unknown Native American or other human remains. Compliance with California Health and Safety Code Section 7050.5 and California Public Resources Code Section 5097 would make this impact **less than significant**.

Archival and background research found no documentary evidence to suggest that any marked or un-marked human interments are present within or in the immediate vicinity of the project site. However, the location of grave sites and Native American remains can occur outside of identified cemeteries or burial sites. Therefore, there is a possibility that unmarked, previously unknown Native American or other graves could be present within the project site and could be uncovered by project-related construction activities.

California law recognizes the need to protect Native American human burials, skeletal remains, and items associated with Native American burials from vandalism and inadvertent destruction. The procedures for the treatment of Native American human remains are contained in California Health and Safety Code Section 7050.5 and California Public Resources Code Section 5097.

These statutes require that, if human remains are discovered, potentially damaging ground-disturbing activities in the area of the remains shall be halted immediately, and the appropriate County coroner shall be notified immediately. If the remains are determined by the coroner to be Native American, NAHC shall be notified within 24 hours and the guidelines of the NAHC shall be adhered to in the treatment and disposition of the remains. Following the coroner's findings, the NAHC-designated Most Likely Descendant, and the landowner shall determine the ultimate treatment and disposition of the remains and take appropriate steps to ensure that additional human interments, if present, are not disturbed. The responsibilities for acting upon notification of a discovery of Native American human remains are identified in PRC Section 5097.94.

Compliance with California Health and Safety Code Section 7050.5 and California Public Resources Code Section 5097 provides for avoidance or minimization the disturbance of human remains, and appropriate treatment of any remains that are discovered. Therefore, this impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.4-3: Cause a Substantial Adverse Change in the Significance of a Tribal Cultural Resource

No tribal cultural resources have been identified as being present at the project site. However, earthmoving activities associated with project construction could disturb or destroy previously undiscovered significant subsurface tribal cultural resources. This impact would be **potentially significant**.

The search of the NAHC Scared Land Files returned a positive result for the project vicinity and stated that the UAIC should be contacted. As part of the background research conducted and AB 52 consultation with UAIC, the positive result was determined to be related to a resource located outside of the project area. No tribal cultural resources were identified as a result of the AB 52 consultation.

However, as noted above, evidence of Native American occupation within the Sacramento region dates back at least 9,500 years. Much of that occupation was focused on terraces above major river systems, such as the American River; the project site is located approximately 0.75 miles south of the American River. Over time, natural cycles flooding and siltation caused the river to change course, causing occupation centers to move as well. Although no previously recorded prehistoric archaeological resources have been recorded within the project site or within a 0.25-mile radius, the soils underlaying the project site were deposited 2,000 to 150 years ago, when Native Americans are known to have been living in this area. Therefore, occupational traces in the form of sites, features and/or objects with cultural value to a California Native American tribe may be present below the surface.

The project area is urban, the project site was previously developed, and there are multiple underground utilities present. It is likely that past construction activities may have damaged or removed subsurface resources. Regardless, due to the potential for unidentified subsurface resources to be present that could qualify as a tribal cultural resource, project related ground-disturbing activities could damage or destroy tribal cultural resources. This would be a **potentially significant** impact. Inclusion of the following mitigation measure for the unanticipated discovery of tribal cultural resources was requested by UAIC and the University has elected to include the following mitigation measure.

Mitigation Measures

Mitigation Measure 3.4-3 Tribal Cultural Resources Unanticipated Discovery

- A cultural resources respect training program will be provided to all construction personnel active on the project site prior to implementation of earth moving activities. The program will include relevant information regarding sensitive tribal cultural resources, including protocols for resource avoidance, applicable laws regulations, and the consequences of violating them. The program will also underscore the requirement for confidentiality and culturally-appropriate treatment of any find of significance to Native Americans and protocols, consistent, to the extent feasible, with Native American tribal values.
- If any suspected tribal cultural resources are discovered during ground disturbing construction activities, including midden soil, stone tools, chipped stone, or unusual amounts of baked clay, shell, or bone, all grading and excavation work shall cease within 100 feet of the find.
  - The applicant shall retain a qualified archaeologist and immediately notify and retain a tribal representative from a California Native American tribe that is traditionally and culturally affiliated with the geographic area. Together, the archaeologist and tribal representative shall determine if the find is a tribal cultural resource (pursuant to PRC Section 21074). If the find does not qualify as a tribal cultural resource, work may resume.

- If the find is determined to be a tribal cultural resource, the tribal representative shall make recommendations for the appropriate treatment, as necessary. Preservation in place is the preferred alternative under CEQA and tribal protocols, and every effort must be made to preserve the resources in place, including through project redesign.
- Culturally appropriate treatment may be, but is not limited to, processing materials for reburial, minimizing handling of cultural objects, leaving objects in place within the landscape, or returning objects to a location within the project vicinity where they will not be subject to future impacts. Materials shall not be permanently curated unless approved by the tribe. Treatment that preserves or restores the cultural character and integrity of a tribal cultural resource may include culturally appropriate recovery of cultural objects and reburial of cultural objects or cultural soil. The University shall work with the contractor and tribal representative to facilitate the appropriate tribal treatment of any finds, as necessary.
- Work at the discovery location cannot resume until all necessary investigation and evaluation of the discovery, has been completed.

Significance after Mitigation

Implementation of Mitigation Measure 3.4-3 would reduce potential impacts related to tribal cultural resources to a **less-than-significant** level by requiring a cultural resources respect training program and, in the case of a discovery, preservation in place and/or culturally appropriate treatment as directed by a tribal representative if significant artifacts are recovered.

3.5 ENERGY

This section evaluates whether implementation of The Hub would result in inefficient, wasteful, and unnecessary consumption of energy. The capacity of existing and proposed infrastructure to serve the project is evaluated in Section 3.10, "Utilities and Service Systems." Detailed calculations and results can be found in Appendix B.

Scoping comments received in response to the Notice of Preparation (see Appendix A) recommended that the project acknowledge impacts related to energy loads and energy efficiency.

3.5.1 Regulatory Setting

FEDERAL

Energy Policy and Conservation Act, and CAFE Standards

The Energy Policy and Conservation Act of 1975 established nationwide fuel economy standards to conserve oil. Pursuant to this Act, the National Highway Traffic and Safety Administration, part of the U.S. Department of Transportation (DOT), is responsible for revising existing fuel economy standards and establishing new vehicle economy standards.

The Corporate Average Fuel Economy (CAFE) program was established to determine vehicle manufacturer compliance with the government's fuel economy standards. Compliance with the CAFE standards is determined based on each manufacturer's average fuel economy for the portion of their vehicles produced for sale in the country. The U.S. Environmental Protection Agency calculates a CAFE value for each manufacturer based on the city and highway fuel economy test results and vehicle sales. Based on information generated under the CAFE program, DOT is authorized to assess penalties for noncompliance.

Energy Policy Act of 1992 and 2005

The Energy Policy Act of 1992 (EPAct) was passed to reduce the country's dependence on foreign petroleum and improve air quality. EPAct includes several parts intended to build an inventory of alternative fuel vehicles (AFVs) in large, centrally-fueled fleets in metropolitan areas. EPAct requires certain federal, state, and local government and private fleets to purchase a percentage of light-duty AFVs capable of running on alternative fuels each year. In addition, financial incentives are also included in EPAct. Federal tax deductions are allowed for businesses and individuals to cover the incremental cost of AFVs. States are also required by the act to consider a variety of incentive programs to help promote AFVs. The Energy Policy Act of 2005 provides renewed and expanded tax credits for electricity generated by qualified energy sources, such as landfill gas; provides bond financing, tax incentives, grants, and loan guarantees for clean renewable energy and rural community electrification; and establishes a federal purchase requirement for renewable energy.

Energy Independence and Security Act of 2007

The Energy Independence and Security Act of 2007 increases the supply of alternative fuel sources by setting a mandatory Renewable Fuel Standard requiring fuel producers to use at least 36 billion gallons of biofuel in 2022, which represents a nearly five-fold increase over current levels; and reduces U.S. demand for oil by setting a national fuel economy standard of 35 miles per gallon by 2020—an increase in fuel economy standards of 40 percent.

By addressing renewable fuels and the CAFE standards, the Energy Independence and Security Act of 2007 builds upon progress made by the Energy Policy Act of 2005 in setting out a comprehensive national energy strategy for the 21st century.

STATE

Warren-Alquist Act

The 1975 Warren-Alquist Act established the California Energy Resources Conservation and Development Commission, now known as the California Energy Commission (CEC). The Act established State policy to reduce wasteful, uneconomical, and unnecessary uses of energy by employing a range of measures. The California Public Utilities Commission regulates privately-owned utilities in the energy, rail, telecommunications, and water fields.

Assembly Bill 2076: Reducing Dependence on Petroleum

Pursuant to Assembly Bill (AB) 2076 (Chapter 936, Statutes of 2000), CEC and the California Air Resources Board (CARB) prepared and adopted a joint agency report in 2003, *Reducing California's Petroleum Dependence*. Included in this report are recommendations to increase the use of alternative fuels to 20 percent of on-road transportation fuel use by 2020 and 30 percent by 2030, significantly increase the efficiency of motor vehicles, and reduce per capita vehicle miles traveled (VMT) (CEC and CARB 2003). A performance-based goal of AB 2076 was to reduce petroleum demand to 15 percent below 2003 demand by 2030.

Integrated Energy Policy Report

Senate Bill (SB) 1389 (Chapter 568, Statutes of 2002) required CEC to: "conduct assessments and forecasts of all aspects of energy industry supply, production, transportation, delivery and distribution, demand, and prices. The Energy Commission shall use these assessments and forecasts to develop energy policies that conserve resources, protect the environment, ensure energy reliability, enhance the State's economy, and protect public health and safety" (Public Resources Code Section 25301(a)). This work culminated in the IEPR. CEC adopts an IEPR every two years and an update every other year. The 2019 IEPR is the most recent IEPR, which was adopted January 21, 2020. The 2019 IEPR provides a summary of priority energy issues currently facing the State, outlining strategies and recommendations to further the State's goal of ensuring reliable, affordable, and environmentally responsible energy sources.

Renewables Portfolio Standard

The State passed legislation referred to as the Renewables Portfolio Standard (RPS) that requires increasing use of renewable energy to produce electricity for consumers. California utilities are required to generate 33 percent of their electricity from renewables by 2020 (SB X1-2 of 2011); 52 percent by 2027 (SB 100 of 2018); 60 percent by 2030 (also SB 100 of 2018); and 100 percent by 2045 (also SB 100 of 2018).

Senate Bill 350: Clean Energy and Pollution Reduction Act of 2015

The Clean Energy and Pollution Reduction Act of 2015 (SB 350) requires that the amount of electricity generated and sold to retail customers per year from eligible renewable energy resources be increased to 50 percent by December 31, 2030. It also establishes energy efficiency targets that achieve statewide, cumulative doubling of the energy efficiency savings in electricity and natural gas end uses by the end of 2030.

California Energy Efficiency Action Plan

The 2019 California Energy Efficiency Action Plan has three primary goals for the State: double energy efficiency savings by 2030 relative to a 2015 base year (per SB 350), expand energy efficiency in low-income and disadvantaged communities, and reduce greenhouse gas (GHG) emissions from buildings. This plan provides guiding principles and recommendations on how the State would achieve those goals. These recommendations include:

- identifying funding sources that support energy efficiency programs,
- identifying opportunities to improve energy efficiency through data analysis,
- using program designs as a way to encourage increased energy efficiency on the consumer end,
- improving energy efficiency through workforce education and training, and
- supporting rulemaking and programs that incorporate energy demand flexibility and building decarbonization. (CEC 2019).

Assembly Bill 1007: State Alternative Fuels Plan

AB 1007 (Chapter 371, Statues of 2005) required CEC to prepare a State plan to increase the use of alternative fuels in California. CEC prepared the State Alternative Fuels Plan in partnership with CARB and in consultation with other State, federal, and local agencies. The plan presents strategies and actions California must take to increase the use of alternative nonpetroleum fuels in a manner that minimizes the costs to California and maximizes the economic benefits of in-state production. The plan assessed various alternative fuels and developed fuel portfolios to meet California's goals to reduce petroleum consumption, increase alternative fuel use, reduce GHG emissions, and increase in-state production of biofuels without causing a significant degradation of public health and environmental quality.

California Building Energy Efficiency Standards

Title 24, Part 6

The energy consumption of new residential and nonresidential buildings in California is regulated by the State's Title 24, Part 6, Building Energy Efficiency Standards (California Energy Code). The California Energy Code was established by CEC in 1978 in response to a legislative mandate to create uniform building codes to reduce California's energy consumption, and provide energy efficiency standards for residential and non-residential buildings. CEC updates the California Energy Code every 3 years with more stringent design requirements for reduced energy consumption, which results in the generation of fewer GHG emissions.

The 2019 California Energy Code was adopted by CEC on May 9, 2018 and will apply to projects constructed after January 1, 2020. The 2019 California Energy Code is designed to move the State closer to its zero-net energy (ZNE) goals for new residential development. It does so by requiring all new residences to install enough renewable energy to offset all the electricity needs of each residential unit (CCR, Title 24, Part 6, Section 150.1[c]4). CEC estimates that the combination of mandatory on-site renewable energy and prescriptively-required energy efficiency standards will result in a 53-percent reduction in new residential construction as compared to the 2016 California Energy Code. Nonresidential buildings are anticipated to reduce energy consumption by 30 percent as compared to the 2016 California Energy Code primarily through prescriptive requirements for high-efficiency lighting (CEC 2018). The Energy Code is enforced through the local plan check and building permit process. Local government agencies may adopt and enforce additional energy standards for new buildings as reasonably necessary due to local climatologic, geologic, or topographic conditions, provided that these standards exceed those provided in the California Energy Code. The 2022 California Energy Code is projected to be by the end of 2021.

Title 24, Part 11

The California Green Building Standards Code, referred to as CALGreen, was added to Title 24 as Part 11, first in 2009 as a voluntary code, which then became mandatory effective January 1, 2011 (as part of the 2010 California Building Standards Code). The 2019 CALGreen includes mandatory minimum environmental performance standards for all ground-up new construction of residential and non-residential structures. It also includes voluntary tiers (Tiers I and II) with stricter environmental performance standards for these same categories of residential and non-residential buildings. Local jurisdictions must enforce the minimum mandatory CALGreen standards and may adopt additional amendments for stricter requirements.

The mandatory standards require:

- 20 percent reduction in indoor water use relative to specified baseline levels;
- 65 percent construction/demolition waste diverted from landfills;
- Inspections of energy systems to ensure optimal working efficiency;
- Low-pollutant emitting exterior and interior finish materials such as paints, carpets, vinyl flooring, and particleboards;

The voluntary standards require:

- Tier I: stricter energy efficiency requirements, stricter water conservation requirements for specific fixtures, 65 percent reduction in construction waste with third-party verification, 10 percent recycled content for building materials, 20 percent permeable paving, 20 percent cement reduction, and cool/solar reflective roof; electric vehicle (EV) capable parking spaces; and

- Tier II: stricter energy efficiency requirements, stricter water conservation requirements for specific fixtures, 75 percent reduction in construction waste with third-party verification, 15 percent recycled content for building materials, 30 percent permeable paving, 25 percent cement reduction, and cool/solar reflective roof; stricter EV capable parking spaces.

Climate Change Scoping Plan and Update

California's 2017 Climate Change Scoping Plan (2017 Scoping Plan), prepared by CARB, outlines the main strategies California will implement to achieve the legislated GHG emission target for 2030 and "substantially advance toward our 2050 climate goals" (CARB 2017:1, 3, 5, 20, 25–26). It identifies the reductions needed by each GHG emission sector (e.g., transportation, industry, electricity generation, agriculture, commercial and residential, pollutants with high global warming potential, and recycling and waste). In 2015, electricity generation accounted for 11 percent of the State's GHG emissions. California plans to significantly reduce GHG emissions from the energy sector through the development of renewable electricity generation in the form of solar, wind, geothermal, hydraulic, and biomass generation. The State is on target to meet the SB X1-2 60 percent renewable energy target by 2030 and to 100-percent carbon-free electricity by 2045, pursuant to SB 100 of 2018. Additionally, the State will further its climate goals through improving the energy efficiency of residential and nonresidential buildings by continual updates (i.e., every 3 years) to the California Energy Code, which contains mandatory and prescriptive energy efficiency standards for all new construction.

For complete details about the statewide GHG reduction goals and 2017 Scoping Plan measures, refer to the regulatory setting of Section 3.6, "Greenhouse Gas Emissions and Climate Change."

Senate Bill 375

SB 375, signed into law in September 2008, aligns regional transportation planning efforts, regional GHG emission reduction targets, and land use and housing allocation. It requires metropolitan planning organizations (MPOs) to adopt a Sustainable Communities Strategy or Alternative Planning Strategy, showing prescribed land use allocation in each MPO's Regional Transportation Plan. CARB, in consultation with the MPOs, is to provide each affected region with reduction targets for GHGs emitted by passenger cars and light trucks for 2020 and 2035. Implementation of SB 375 will have the co-benefit of reducing California's dependency of fossil fuels and making land use development and transportation systems more energy efficient.

The Sacramento Area Council of Governments (SACOG) serves as the MPO for Sacramento, Placer, El Dorado, Yuba, Sutter, and Yolo Counties, excluding those lands located in the Lake Tahoe Basin. The project site is in Sacramento County. SACOG adopted its *Metropolitan Transportation Plan/Sustainable Communities Strategy* (MTP/SCS) 2020 in 2019. SACOG was tasked by CARB to achieve a 19 percent per capita reduction compared to 2005 emissions by 2040, which ARB confirmed the region would achieve by implementing its SCS (SACOG 2019). The MTP/SCS forecasted land use development by community types: Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development in the MTP/SCS Planning Period.

Executive Order B-18-12: Green Building Action Plan

In April 2012, Executive Order B-18-12 was issued, which requires State agencies to implement green building practices to improve energy, water, and materials efficiency; improve air quality and working conditions for State employees; reduce costs to the State; and reduce environmental impacts from State operations. Among other actions, Executive Order B-18-12 requires State agencies to reduce agency-wide water use by 10 percent by 2015 and 20 percent by 2020, as measured against a 2010 baseline. The Executive Order directs new State buildings designed after 2025 to be constructed as ZNE facilities, with an interim target of 50 percent of new facilities beginning design after 2020 to be ZNE. The Executive Order also calls for State agencies to identify and pursue opportunities to provide electric vehicle charging stations at employee parking facilities in new buildings.

Senate Bill 743 of 2013

SB 743 of 2013 required that the Governor's Office of Planning and Research (OPR) propose changes to the State CEQA Guidelines to address transportation impacts in transit priority areas and other areas of the state. In response, Section 15064.3, which requires that transportation impacts no longer consider congestion but instead focus on the impacts of VMT, was added to the State CEQA Guidelines in December 2018. In support of these changes, OPR published its *Technical Advisory on Evaluating Transportation Impacts in CEQA*, which recommends that the transportation impact of a project be based on whether the project would generate a level of VMT per capita (or VMT per employee or some other metric) that is 15 percent lower than that of existing development in the region (OPR 2017:12–13) or that a different threshold based on substantial evidence be used. OPR's technical advisory explains that this criterion is consistent with PRC Section 21099, which states that the criteria for determining significance must "promote the reduction in greenhouse gas emissions" (OPR 2017:18). This metric is intended to replace the use of delay and level of service to measure transportation-related impacts. More detail about SB 743 is provided in the regulatory setting of Section 3.9, "Transportation."

CALIFORNIA STATE UNIVERSITY

California State University Sustainability Policy

In May 2014, the California State University (CSU) Board of Trustees adopted the first CSU systemwide Sustainability Policy. The policy aims to reduce the environmental impact of construction and operation of buildings and to integrate sustainability into all facets of the CSU, including academics, facilities operations, the built environment, and student life. The CSU Sustainability Policy established the following goals related to energy:

- reduce GHG emissions to 1990 levels by 2020,
- reduce GHG emissions 80 percent below 1990 levels by 2040,
- procure 33 percent of energy supply from renewable sources by 2020,
- increase on-site energy generation from 44 to 80 megawatts by 2020, and
- promote use of alternative fuels and transportation programs.

Energy Use Index

Energy use is the primary metric used by the CSU to track progress toward energy conservation goals, referred to as the Energy Use Index (EUI). EUI represents total annual electricity and natural gas use per square foot of building space, measured in British thermal units per square foot. To normalize this metric between different CSU campuses, the square footage is adjusted to prorate or remove buildings and structures that are very low or zero energy users, such as parking structures, stadiums, and farm buildings such as barns and storage sheds. The last two CSU Executive Orders on energy and sustainability (i.e., 917 of 2004, 987 of 2006) established goals to reduce British thermal units per square foot by 15 percent over two consecutive 5-year periods.

Executive Order 987

Executive Order 987 is the CSU Policy Statement on Energy Conservation, Sustainable Building Practices, and Physical Plant Management. Sacramento State operates under this Executive Order, which sets minimum efficiency standards for new construction and renovations, and establishes operating practices intended to ensure CSU buildings are used in the most energy efficient and sustainable manner possible while still meeting the programmatic needs of the University.

Climate Action Plan

Sacramento State prepared a climate action plan (CAP) in 2018 as a mechanism to ensure the reduction GHG emissions associated with campus operations which would lead to achieving a carbon neutral goal by 2040. To set the path towards carbon neutrality the CAP includes milestone dates to reduce GHG emission levels by 50 percent by 2030 and 80 percent by 2035. The University's 2015 Master Plan's research and projections which laid the foundation to establish environmental sustainability are relied upon in the CAP to develop carbon neutrality strategies and goals. Energy related goals in the CAP address infrastructure improvements, new building construction, and renewable energy.

LOCAL

Sacramento State is an entity of the CSU, which is a statutorily- and legislatively-created, constitutionally authorized State agency, and the Ramona Property (the project site) is owned by the CSU. As explained in Section 3.0, "California State University Autonomy," of this ~~Draft~~ EIR, State agencies are not subject to local government planning and land use plans, policies, or regulations. Nevertheless, in the exercise of its discretion, CSU does reference, describe, and address local plans, policies, and regulations where appropriate and for informational purposes. This evaluation is also intended to be used by local agencies for determining, as part of their permit processes, the project's consistency with local plans, policies, and regulations.

City of Sacramento 2035 General Plan

The Utilities Chapter of the *City of Sacramento 2035 General Plan* includes the following policies applicable to increasing the energy efficiency of new development and reducing communitywide energy consumption in Sacramento (City of Sacramento 2015):

- **Policy U 6.1.5: Energy Consumption per Capita.** The City shall encourage residents and businesses to consume 25 percent less energy by 2030 compared to the baseline year of 2005.
- **Policy U 6.1.6: Renewable Energy.** The City shall encourage the installation and construction of renewable energy systems and facilities such as wind solar, hydropower, geothermal, and biomass facilities.
- **Policy U 6.1.7: Solar Access.** The City shall ensure, to the extent feasible, that sites, subdivisions, landscaping, and buildings are configured and designed to maximize passive solar access.
- **Policy U 6.1.8: Other Energy Generation Systems.** The City shall promote the use of locally shared solar, wind, and other energy generation systems as part of new planned developments.
- **Policy U 6.1.15: Energy Efficiency Appliances.** The City shall encourage builders to supply EnergyStar™ appliances and HVAC [heating, ventilation, and cooling] systems in all new residential developments, and shall encourage builders to install high-efficiency boilers where applicable, in all new non-residential developments.

Sacramento Climate Action Plan

The Sacramento CAP was adopted on February 14, 2012, by the Sacramento City Council and was incorporated into the 2035 General Plan (City of Sacramento 2015). The Sacramento CAP includes energy efficiency and renewable energy generation measures developed to help the city reach GHG reduction targets. Measures address energy consumption associated with transportation and land use, energy, water, waste management and recycling, and agriculture. The City's goals related to energy use in the General Plan are included above.

City of Sacramento Center for Innovation Specific Plan

The following goals and policies from the Sacramento Center for Innovation Specific Plan are relevant to energy within the entire project site:

<u>Utility Infrastructure</u>

GOAL UI 5.3: Reduce overall energy demand and promote air and water quality improvements.

- **Policy UI 5.3.1:** Encourage both new and rehabilitation projects to employ green building strategies and LEED or similar criteria that reduce energy consumption, promote air and water quality improvements and reduce heat-island effects. Encourage developers to participate in SMUD energy efficiency and load management programs.

3.5.2 Environmental Setting

Electricity service in the City of Sacramento is provided by Sacramento Municipal Utility District (SMUD). The project area is currently served by two 12-kilovolt (kV) primary feeders that run north/south along the railroad tracks and Power Inn Road, with smaller 12kV lines extending throughout the area to serve individual services. There is also a 69kV line running north/south along Power Inn Road and to the north near the Sacramento State main campus (City of Sacramento 2018).

Natural gas services are provided by Pacific Gas and Electric Company (PG&E). The existing natural gas facilities in the area consist of 4.5-inch to 16-inch pipelines in existing roadways delivering service to all customers that are not served by private propane tanks (City of Sacramento 2018).

ENERGY TYPES AND SOURCES

California relies on a regional power system comprised of a diverse mix of natural gas, renewable energy, hydroelectric, and nuclear generation resources. In 2014, approximately 35 percent of natural gas consumed in the state was used to generate electricity.

Gasoline and diesel fuel sold in California for motor vehicles is refined in California to meet specific formulations required by CARB. Major petroleum refineries in California are concentrated in three counties: Contra Costa County in northern California, Kern County in central California, and Los Angeles County in southern California.

Power plants in California meet approximately 68 percent of the in-state electricity demand; hydroelectric power from the Pacific Northwest provides 12 percent, and power plants in the southwestern U.S. provide the remaining 20 percent (EIA 2014). The contribution of in- and out-of-state power plants depends on the precipitation that occurred in the previous year, the corresponding amount of hydroelectric power that is available, and other factors. SMUD is the primary electricity supplier for the City of Sacramento. As of 2019, SMUD was powered by 27.8 percent renewables, including biomass, geothermal, small hydroelectric, solar, and wind (SMUD 2020).

Alternative Fuels

A variety of alternative fuels are used to reduce demand for petroleum-based fuel. The use of these fuels is encouraged through various statewide regulations and plans (e.g., Low Carbon Fuel Standard, AB 32 Scoping Plan). Conventional gasoline and diesel may be replaced (depending on the capability of the vehicle) with many transportation fuels, including biodiesel, electricity, ethanol, hydrogen, natural gas/methane, propane, and renewable diesel.

California has a growing number of alternative fuel vehicles through the joint efforts of CEC, California Air Resources Board, local air districts, federal government, transit agencies, utilities, and other public and private entities. As of June 2019, California contained over 34,713 alterative fueling stations (AFDC 2021). Sacramento State University has over 70 EV charging stations, making it the largest California State University supplier of EV charging stations.

Transportation Fuels

On-road vehicles use about 90 percent of the petroleum consumed in California. The California Department of Transportation projected 821 million gallons of gasoline and diesel were consumed in Sacramento County in 2020, an increase of approximately 75 million gallons of fuel from 2015 levels (Caltrans 2009).

3.5.3 Impacts and Mitigation Measures

METHODOLOGY

Construction- and operation-related energy consumption by the project, measured in megawatt-hours of electricity, therms of natural gas, gallons of gasoline, and gallons of diesel fuel were calculated using the proposed phasing of the project, the California Emissions Estimator Model (CalEEMod) version 2020.4.0 computer program, and fuel consumption rates obtained from CARB's EMission FACtors (EMFAC) model for Sacramento County. Project electricity consumption accounts for the planned onsite photovoltaic solar energy generation according to 2022 Building Efficiency Standards included in Title 24 of the California Building Code. To estimate the total onsite solar required by the 2022 Building Efficiency Standards, the total conditioned square footage was multiplied by a CEC climate zone photovoltaic capacity factor of 3.13 watts/sf, which results in the planned installation of approximately 119,651 square feet or 2,647 MWh/year of onsite solar (CEC 2021) (see Appendix B for further details). A minor amount of natural gas would be used in the California Department of Justice (CA DOJ) building for the forensic laboratories. CalEEMod default emissions factors for non-California Energy Code Title 24 natural gas was used based off the CalEEMod land use of research and development. Where project-specific information was not known, CalEEMod default values based on the project's location were used.

THRESHOLDS OF SIGNIFICANCE

An energy impact is considered significant if implementation of the project would:

- result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy, or wasteful use of energy resources, during project construction or operation; and/or
- conflict with or obstruct a State or local plan for renewable energy or energy efficiency.

ISSUES NOT DISCUSSED FURTHER

All issues related to energy listed under the significance criteria above are addressed in this section.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Impact 3.5-1: Result in the Wasteful, Inefficient, or Unnecessary Consumption of Energy or Wasteful Use of Energy Resources

Construction and operation of buildings and facilities associated with the project would result in consumption of fuel (gasoline and diesel), electricity, and natural gas. Energy consumption associated with construction would be temporary and would not require additional capacity or increased peak or base period demands for electricity or other forms of energy. Through adherence to and exceedance of current building code requirements, energy consumption associated with operation of the buildings and facilities would not result in wasteful, inefficient, or unnecessary consumption of energy. This impact would be **less than significant**.

Appendix G of the State CEQA Guidelines requires the consideration of the energy implications of a project. CEQA requires mitigation measures to reduce "wasteful, inefficient, and unnecessary energy usage" (PRC Section 21100[b][3]). Neither the law nor the State CEQA Guidelines establish criteria that define wasteful, inefficient, or unnecessary use. Compliance with the California Energy Code would result in energy-efficient buildings. However, compliance with the California Energy Code does not address all potential energy impacts during construction and operation of the project. Energy use is discussed by project component below.

Construction-Related Energy

Energy would be required for demolition and construction activities associated with the project. Construction-related energy use would be in the form of fuel (gasoline and diesel), required to operate and maintain construction equipment and to produce and transport construction materials. The one-time energy expenditure required to construct buildings would be nonrecoverable. Most energy consumption would result from the use of construction equipment and vehicle trips associated with commutes by construction workers and haul trucks carrying supplies. The modeled level of energy consumption associated with construction of both phases of the project would be 138,289 gallons of gasoline and 57,122 gallons of diesel fuel. Details about construction phasing can be found in Appendix B. The energy needs for project construction would be temporary and would not require additional capacity or increase peak or base period demands for electricity or other forms of energy.

Table 3.5-1 shows the amount of gasoline and diesel consumption associated with project construction by phase and year.

Table 3.5-1 Construction-Related Energy Consumption

Construction Years	Gasoline (gal/year)	Diesel (gal/year)
Phase I		
2023	13,699	16,061
2024	50,681	18,400
2025	47,935	1,473
2026	814	1,337
Phase I Sub Total	113,129	37,271
Phase II		
2027	12,417	17,291
2028	12,743	2,560
Phase II Sub Total	25,160	19,852
Total (All Vehicle Types)	**138,289**	**57,122**

Note: gal/year = gallons per year.

Source: Calculations by Ascent Environmental in 2021

Building Energy

The operation of new buildings and facilities would result in the consumption of electricity for lighting, space heating, water heating, and manufacturing and natural gas for CA DOJ forensic laboratories. Indirect energy use would include wastewater treatment; water pumping, treatment, and distribution; and solid waste removal. Electrical service is provided by SMUD, supplemented by onsite solar generation, and natural gas service would be provided by PG&E.

All new buildings proposed would be constructed in accordance with the most recent building code (i.e., California Building Code) at the time of construction, which includes energy efficiency requirements and the integration of approximately 119,651 square feet or 2,647 MWh/year of onsite solar (CEC 2021) per 2022 Building Efficiency Standards solar requirements for nonresidential projects (see Appendix B for further details). Additionally, all buildings would only allow for electricity use except for a small amount of natural gas that would be required for laboratories in the CA DOJ building. It should also be noted that the estimated energy use is conservative because it does not reflect the anticipated increase in building energy efficiency that technological advances will provide over time. The estimated energy demand from building energy is show in Table 3.5-2.

Table 3.5-2 Operational Energy Consumption for Buildout Year

Energy Type	Energy Consumption	Units
Electricity Demand[1]	6,888	MWh/year
Onsite Solar-Generated Electricity	2,647	MWh/year
Natural Gas Demand[2]	15,525	therm/year

Notes: MWh/year = megawatt-hours per year; therm/year = therms per year.

[1] Includes the net electricity from 119,651 square feet of onsite solar generation.

[2] Natural gas demand was based on CalEEMod default demand for non-residential buildings for energy demand not regulated by Title 24. Natural gas use would be required for laboratory applications only so this estimate is considered conservative.

Source: Calculations by Ascent Environmental in 2021

Transportation Energy

Transportation-related fuel consumption was estimated using the estimated daily VMT (89,571 miles, see Table 3.9-4 of this EIR) (Appendix B) and estimated miles per gallon per fuel type for Sacramento County from the CARB mobile source emissions inventory EMFAC2021 database. Accordingly, the project is estimated to require 910,388 gallons per year of gasoline and 32,172 gallons of diesel per year (see Appendix B). State and federal regulations regarding fuel efficiency standards for vehicles in California are designed to reduce wasteful, inefficient and unnecessary use of energy for transportation. Additionally, the project would install onsite protected bicycle lanes connected to the surrounding city street grid, onsite shuttle stops from Sacramento State University to serve University shuttles to and from the Sacramento State main campus. In addition, the Sacramento Regional Transit light rail (Gold Line) is located approximately 0.25 mile away, providing feasible use of transit to the project site.

Further, the project would install electric vehicle supply equipment (EVSE) (i.e., the wiring and chargers installed in addition to the conduit) at 10 percent of all onsite parking spaces (71 spaces), which exceeds Sacramento Metropolitan Air Quality Management District's GHG threshold requirements and CalGreen Tier 2 Standards for EV charging. According to Appendix F of the CEQA Guidelines, a project's efficient use of energy includes the reliance on renewable energy sources compared to non-renewable sources. Although the project would require additional electricity for the operation of the 71 EVSE parking spaces, the energy use would be consistent with a primary intent under CEQA to move away from the use of fossil fuels in exchange for renewable fuel sources. Thus, an increase in the use of electricity sources from SMUD, supplemented by onsite solar, which is subject to RPS with increasingly renewable sourced energy over time, would reduce the project's overall reliance on fossil fuels. In addition, micro-transit (i.e., electric bicycles and scooters) charging stations, bicycle parking (approximately 410 spaces) and storage, active transportation (walking, bicycle, scooters, skateboards, rollerblades, etc.) infrastructure would be installed. It should be noted that the trip generation and VMT estimated for the project considers the nearby transit and bus services.

<u>Summary</u>

The project would increase energy demand during temporary construction activities for new buildings and facilities. Construction activities would not increase long-term, ongoing demand for energy or fuel because project construction is anticipated to last 5 years and would be temporary. The Hub would comply with applicable energy efficiency requirements and would implement design features that exceed current requirements (i.e., EVSE parking spaces). The project would allow for electricity to be the main source of energy with a minor amount of natural gas use for the CA DOJ laboratories. Overtime the project's energy use would come from increasingly renewable sources according to RPS. In addition, the project would include on-site solar generation. to offset approximately 27 percent of the total electrical demand. The Hub also includes design features intended to support active transportation and is approximately 0.25 mile from transit, which would assist in the overall reduction in VMT, thereby reducing transportation-related energy demand. For these reasons, implementation of the Hub would not result in in the wasteful, inefficient, or unnecessary consumption of energy resources during construction or operations. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.5-2: Conflict with or Obstruct a State or Local Plan for Renewable Energy or Energy Efficiency

Onsite renewable energy generation from the implementation of project, would result in an increase in renewable energy use, which would directly support the goals and strategies in the State's Energy Efficiency Action Plan and the CSU Sustainability Policy. Construction and operating project buildings in compliance with the 2019 (or as updated) California Energy Code would improve energy efficiency compared to buildings built to earlier iterations of the code. Therefore, construction and operation of the project would not conflict with or obstruct a State or local plan for renewable energy or energy efficiency. **No impact** would occur.

Relevant plans that pertain to the efficient use of energy include the Energy Efficiency Action Plan, which focuses on energy efficiency and building decarbonization (CEC 2019; as well as the CSU Sustainability Policy, which seeks to increase on-site renewable energy generation, exceed RPS requirements, increase energy efficiency, and provide alternative transportation and use alternative fuels to meet GHG reduction goals (CSU 2014).

As discussed in Impact 3.5-1, although implementation of the Hub has the potential to result in the overall increase in consumption of energy resources during construction and operation of new buildings and facilities, implementation of the project would ensure various energy conservation and generation features would be incorporated into new development including the installation of renewable energy features, installation of energy efficient appliances, or other similar CSU standards, which would align with the Energy Efficiency Action Plan and CSU Sustainability Policy. Therefore, the project would not conflict with or obstruct a State or local plan for renewable energy or energy efficiency. **No impact** would occur.

Mitigation Measures

No mitigation is required for this impact.

This page intentionally left blank.

3.6 GREENHOUSE GAS EMISSIONS AND CLIMATE CHANGE

This section presents a summary of regulations applicable to greenhouse gas (GHG) emissions, a summary of climate change science and GHG sources in California, quantification of GHGs emitted from construction and operation of The Hub, and a discussion of their contribution to global climate change. Mitigation measures are recommended to reduce the project's contribution to climate change. Detailed calculations, modeling inputs, and results can be found in Appendix B.

Comments were received in response to the Notice of Preparation from the Sacramento Metropolitan Air Quality Management District (SMAQMD) which included recommended guidance for completing GHG emissions analysis under the California Environmental Quality Act (CEQA). This recommended guidance is used throughout this analysis to analyze impacts to GHGs.

3.6.1 Regulatory Setting

FEDERAL

Regulations for Greenhouse Gas Emissions from Passenger Cars and Trucks and Corporate Average Fuel Economy Standards

In October 2012, the U.S. Environmental Protection Agency (EPA) and the National Highway Traffic Safety Administration, on behalf of the U.S. Department of Transportation, issued final rules to further reduce GHG emissions and improve corporate average fuel economy standards for light-duty vehicles for model years 2017 and beyond (77 Federal Register [FR] 62624). These rules would increase fuel economy to the equivalent of 54.5 miles per gallon, limiting vehicle emissions to 163 grams of carbon dioxide (CO_2) per mile for the fleet of cars and light-duty trucks by model year 2025 (77 FR 62630). However, on April 2, 2018, the EPA administrator announced a final determination that the current standards are not appropriate and should be revised. It is not yet known what revisions will be adopted or when they will be implemented (EPA 2018).

Affordable Clean Energy Rule

In June 2019, EPA, under authority of the Clean Air Act Section 111(d), issued the Affordable Clean Energy rule which provides guidance to states on establishing emissions performance standards for coal-fired electric generating units (EGUs). Under this rule, states are required to submit plans to EPA that demonstrate the use of specifically listed retrofit technologies and operating practices to achieve CO_2 emission reductions through heat rate improvement (HRI). HRI is a measurement of power plant efficiency that EPA determined as part of this rulemaking to be the best system of emission reductions for CO_2 generated from coal-fired EGUs (EPA 2019).

Energy Independence and Security Act of 2007

The Energy Independence and Security Act of 2007 is designed to improve vehicle fuel economy and help reduce U.S. dependence on oil. It represents a major step forward in expanding the production of renewable fuels, reducing dependence on oil, and confronting global climate change. The Energy Independence and Security Act of 2007 increases the supply of alternative fuel sources by setting a mandatory Renewable Fuel Standard requiring fuel producers to use at least 36 billion gallons of biofuel in 2022, which represents a nearly fivefold increase over current levels, and reduces U.S. demand for oil by setting a national fuel economy standard of 35 miles per gallon by 2020—an increase in fuel economy standards of 40 percent.

STATE

Executive Order S-3-05

In 2005, Executive Order (EO) S-3-05 was signed into law and 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, statewide emissions are to be reduced to 2000 levels by 2010, 1990 levels by 2020, and 80 percent below 1990 levels by 2050.

Assembly Bill 32, the California Global Warming Solutions Act of 2006

In September 2006, the California Global Warming Solutions Act of 2006, Assembly Bill (AB) 32, was signed into law. AB 32 establishes regulatory, reporting, and market mechanisms to achieve quantifiable reductions in GHG emissions and a cap on statewide GHG emissions. AB 32 requires that statewide GHG emissions be reduced to 1990 levels by 2020. AB 32 also requires that "(a) the statewide greenhouse gas emissions limit shall remain in effect unless otherwise amended or repealed. (b) It is the intent of the Legislature that the statewide greenhouse gas emissions limit continue in existence and be used to maintain and continue reductions in emissions of greenhouse gases beyond 2020. (c) The State board [California Air Resources Board (CARB)] shall make recommendations to the Governor and the Legislature on how to continue reductions of greenhouse gas emissions beyond 2020" (California Health and Safety Code, Division 25.5, Part 3, Section 38551).

Senate Bill 32 and Assembly Bill 197 of 2016

In August 2016, SB 32 and AB 197 were signed into law and serve to extend California's GHG reduction programs beyond 2020. SB 32 amended the Health and Safety Code to include Section 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. SB 32 codified the targets established by EO B-30-15 for 2030, which set the next interim step in the State's continued efforts to pursue the long-term target expressed in EOs S-3-05 and B-30-15 of 80 percent below 1990 emissions levels by 2050.

Executive Order B-30-15

On April 20, 2015, EO B-30-15 was signed into law and established a California GHG reduction target of 40 percent below 1990 levels by 2030. The governor's EO aligns California's GHG reduction targets with those of leading international governments, such as the 28-nation European Union, which adopted the same target in October 2014. California is on track to meet or exceed the target of reducing GHG emissions to 1990 levels by 2020, as established in the California Global Warming Solutions Act of 2006 (AB 32, discussed above). California's new emission reduction target of 40 percent below 1990 levels by 2030 sets the next interim step in the State's continuing efforts to pursue the long-term target expressed under EO S-3-05 to reach the goal of reducing emissions 80 percent below 1990 levels by 2050. This is in line with the scientifically established levels needed in the United States to limit global warming below 2 degrees Celsius, the warming threshold at which major climate disruptions are projected, such as super droughts and rising sea levels.

Senate Bill 375 of 2008

In September 2008, Senate Bill (SB) 375 was signed into law and aligns regional transportation planning efforts, regional GHG emission reduction targets, and land use and housing allocation. SB 375 requires metropolitan planning organizations (MPOs) to adopt a Sustainable Communities Strategy (SCS) or Alternative Planning Strategy, showing prescribed land use allocation in each MPO's Regional Transportation Plan. CARB, in consultation with the MPOs, is to provide each affected region with reduction targets for GHGs emitted by passenger cars and light trucks for 2020 and 2035. The Sacramento Area Council of Governments (SACOG) serves as the MPO Sacramento, Placer, El Dorado, Yuba, Sutter, and Yolo Counties, excluding those lands located in the Lake Tahoe Basin. Under SB 375, SACOG adopted its most recent *Metropolitan Transportation Plan/Sustainable Communities Strategy* 2020 in 2019. SACOG was tasked by CARB to achieve a 19 percent per capita reduction compared to 2005 emissions by 2040, which ARB confirmed the region would achieve by implementing its SCS (SACOG 2019).

CARB's Mobile Source Strategy (2016) described California's strategy for containing air pollutant emissions from vehicles and quantifies growth in vehicle miles traveled (VMT) that is compatible with achieving State climate targets.

Cap-and-Trade Program

In 2011, CARB adopted the cap-and-trade regulations and created the cap-and-trade program. The program covers GHG emission sources that emit more than 25,000 metric tons of carbon dioxide equivalent per year ($MTCO_2e$/year), such as refineries, power plants, and industrial facilities. The cap-and-trade program includes an enforceable statewide emissions cap that declines approximately 3 percent annually. CARB distributes allowances, which are tradable permits, equal to the emissions allowed under the cap. Sources that reduce emissions more than their limits can auction carbon allowances to other covered entities through the cap-and-trade market. Sources subject to the cap are required to surrender allowances and offsets equal to their emissions at the end of each compliance period (CARB 2012). The cap-and-trade program took effect in early 2012 with the enforceable compliance obligation beginning January 1, 2013. The cap-and-trade program was initially slated to sunset in 2020, but the passage of SB 398 in 2017 extended the program through 2030.

Advanced Clean Cars Program

In January 2012, CARB approved the Advanced Clean Cars program, which combines the control of GHG emissions and criteria air pollutants, as well as requirements for greater numbers of zero-emission vehicles (ZEVs), into a single package of regulatory standards for vehicle model years 2017– 2025. The new regulations strengthen the GHG standards for 2017 models and beyond. This will be achieved through existing technologies, the use of stronger and lighter materials, and more efficient drivetrains and engines. The program's ZEV regulation requires battery, fuel cell, and plug-in hybrid electric vehicles (EV) to account for up to 15 percent of California's new vehicle sales by 2025 (CARB 2016a:15). The program also includes a clean fuels outlet regulation designed to support the commercialization of zero-emission hydrogen fuel cell vehicles planned by vehicle manufacturers by 2015 by requiring increased numbers of hydrogen fueling stations throughout the state. The number of stations will grow as vehicle manufacturers sell more fuel cell vehicles. By 2025, when the rules will be fully implemented, GHG emissions from the statewide fleet of new cars and light-duty trucks will be reduced by 34 percent, and cars will emit 75 percent less smog-forming pollution than the statewide fleet in 2016 (CARB 2016b:1).

California Renewables Portfolio Standard

SB X1-2 of 2011 requires all California utilities to generate 33 percent of their electricity from renewables by 2020. SB 100 of 2018 sets a three-stage compliance period requiring all California utilities, including independently owned utilities, energy service providers, and community choice aggregators, to generate 52 percent of their electricity from renewables by December 31, 2027; 60 percent by December 31, 2030; and 100 percent carbon-free electricity by December 31, 2045.

Building Energy Efficiency Standards

Title 24, Part 6

The energy consumption of new residential and nonresidential buildings in California is regulated by the State's Title 24, Part 6, Building Energy Efficiency Standards (California Energy Code). The California Energy Commission (CEC) updates the California Energy Code every 3 years with more stringent design requirements for reduced energy consumption, which results in the generation of fewer GHG emissions. The current California Energy Code (2016) is scheduled to be replaced by the 2019 standards on January 1, 2020. The 2019 California Energy Code will require builders to use more energy-efficient building technologies for compliance with increased restrictions on allowable energy use. Additionally, new residential units will be required to include solar panels, sized to offset the estimated electrical requirements of each unit (CCR, Title 24, Part 6, Section 150.1[c]14). CEC estimates that the combination of required energy-efficiency features and mandatory solar panels in the 2019 California Energy Code will result in new residential buildings that use 53 percent less energy than those designed to meet the 2016 California Energy Code. The CEC also estimates that the 2019 California Energy Code will result in new commercial buildings that use 30 percent less energy than those designed to meet the 2016 standards, primarily through the transition to high-efficacy lighting (CEC 2018). The 2022 California Energy Code is projected to be adopted to be adopted by the end of 2021.

Title 24, Part 11

The California Green Building Standards Code, referred to as CALGreen, was added to Title 24 as Part 11, first in 2009 as a voluntary code, which then became mandatory effective January 1, 2011 (as part of the 2010 California Building Standards Code). The 2019 CALGreen includes mandatory minimum environmental performance standards for all ground-up new construction of residential and non-residential structures. It also includes voluntary tiers (Tiers I and II) with stricter environmental performance standards for these same categories of residential and non-residential buildings. Local jurisdictions must enforce the minimum mandatory CALGreen standards and may adopt additional amendments for stricter requirements.

The mandatory standards require:

- 20 percent reduction in indoor water use relative to specified baseline levels;
- 65 percent construction/demolition waste diverted from landfills;
- Inspections of energy systems to ensure optimal working efficiency;
- Low-pollutant emitting exterior and interior finish materials such as paints, carpets, vinyl flooring, and particleboards;
- The voluntary standards require:
  - Tier I: stricter energy efficiency requirements, stricter water conservation requirements for specific fixtures, 65 percent reduction in construction waste with third-party verification, 10 percent recycled content for building materials, 20 percent permeable paving, 20 percent cement reduction, and cool/solar reflective roof; EV capable parking spaces; and
  - Tier II: stricter energy efficiency requirements, stricter water conservation requirements for specific fixtures, 75 percent reduction in construction waste with third-party verification, 15 percent recycled content for building materials, 30 percent permeable paving, 25 percent cement reduction, and cool/solar reflective roof; stricter EV capable parking spaces.

Low Carbon Fuel Standard

In January 2007, EO S-1-07 established a Low Carbon Fuel Standard (LCFS). The EO calls for a statewide goal to be established to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020 and for an LCFS for transportation fuels to be established for California. The LCFS applies to all refiners, blenders, producers, or importers (providers) of transportation fuels in California, including fuels used by off-road construction equipment (Wade, pers. comm. 2017). The LCFS is measured on the total fuel cycle and may be met through market-based methods. For example, providers exceeding the performance required by an LCFS receive credits that may be applied to future obligations or traded to providers not meeting the LCFS.

In Jun 2007, CARB adopted the LCFS as a Discrete Early Action item under AB 32 pursuant to Health and Safety Code Section 38560.5, and in April 2009, CARB approved the new rules and carbon intensity reference values with new regulatory requirements taking effect in January 2011. The standards require providers of transportation fuels to report on the mix of fuels they provide and demonstrate they meet the LCFS intensity standards annually. This is accomplished by ensuring that the number of "credits" earned by providing fuels with a lower carbon intensity than the established baseline (or obtained from another party) is equal to or greater than the "deficits" earned from selling higher-intensity fuels.

After some disputes in the courts, CARB readopted the LCFS regulation in September 2015, and the LCFS went into effect on January 1, 2016.

Climate Change Scoping Plan

In December 2008, CARB adopted its first version of its *Climate Change Scoping Plan,* which contained the main strategies California will implement to achieve the mandate of AB 32 (2006) to reduce statewide GHG emissions to 1990 levels by 2020. In May 2014, CARB released and subsequently adopted the *First Update to the Climate Change Scoping Plan* to identify the next steps in reaching the goals of AB 32 (2006) and evaluate the progress made between 2000 and 2012 (CARB 2014). After releasing multiple versions of proposed updates in 2017, CARB adopted the final version titled *California's 2017 Climate Change Scoping Plan* (2017 Scoping Plan) in December (CARB 2017). The 2017 Scoping Plan indicates that California is on track to achieve the 2020 statewide GHG target mandated by AB 32 of 2006 (CARB 2017:9). It also lays out the framework for achieving the mandate of SB 32 of 2016 to reduce statewide GHG emissions to at least 40 percent below 1990 levels by the end of 2030 (CARB 2017). The 2017 Scoping Plan identifies the GHG reductions needed by each emissions sector.

Senate Bill 743 of 2013

SB 743 of 2013 required that the Governor's Office of Planning and Research (OPR) propose changes to the State CEQA Guidelines to address transportation impacts in transit priority areas and other areas of the state. In response, Section 15064.3 was added to CEQA in December 2018, requiring that transportation impacts no longer consider congestion but instead focus on the impacts of VMT. Agencies have until July 1, 2020, to implement these changes but can also choose to implement these changes immediately. In support of these changes, OPR published its *Technical Advisory on Evaluating Transportation Impacts in CEQA*, which recommends that the transportation impact of a project be based on whether the project would generate a level of VMT per capita (or VMT per employee or some other metric) that is 15 percent lower than that of existing development in the region (OPR 2017:12–13), or that a different threshold is used based on substantial evidence. OPR's technical advisory explains that this criterion is consistent with PRC Section 21099, which states that the criteria for determining significance must "promote the reduction in greenhouse gas emissions" (OPR 2017:18). This metric is intended to replace the use of delay and level of service to measure transportation-related impacts. More detail about SB 743 is provided in the "Regulatory Setting" section of Section 3.9, "Transportation."

Executive Order B-48-18: Zero-Emission Vehicles

In January 2018, EO B-48-18 was signed into law and requires all State entities to work with the private sector to have at least 5 million ZEVs on the road by 2030, as well as install 200 hydrogen fueling stations and 250,000 EV charging stations by 2025. It specifies that 10,000 of the EV charging stations should be direct current fast chargers. This EO also requires all State entities to continue to partner with local and regional governments to streamline the installation of ZEV infrastructure. The Governor's Office of Business and Economic Development is required to publish a *Plug-in Charging Station Design Guidebook* and update the *2015 Hydrogen Station Permitting Guidebook* (Eckerle and Jones 2015) to aid in these efforts. All State entities are required to participate in updating the *2016 Zero-Emissions Vehicle Action Plan* (Governor's Interagency Working Group on Zero-Emission Vehicles 2016) to help expand private investment in ZEV infrastructure with a focus on serving low-income and disadvantaged communities. Additionally, all State entities are to support and recommend policies and actions to expand ZEV infrastructure at residential land uses, through the LCFS program, and to recommend how to ensure affordability and accessibility for all drivers.

CALIFORNIA STATE UNIVERSITY

California State University Sustainability Policy

In May 2014, the California State University (CSU) Board of Trustees adopted the first CSU systemwide Sustainability Policy. The policy aims to reduce the environmental impact of construction and operation of buildings and to integrate sustainability into all facets of the CSU, including academics, facilities operations, the built environment, and student life. The CSU Sustainability Policy established the following goals:

- Reduce GHG emissions to 1990 levels by 2020.
- Reduce GHG emissions 80 percent below 1990 levels by 2040.

- Procure 33 percent of energy supply from renewable sources by 2020.
- Increase on-site energy generation from 44 to 80 megawatts by 2020.
- Reduce per-capita landfill waste by 50 percent by 2016 and 80 percent by 2020.
- Reduce water use 10 percent by 2016 and 20 percent by 2020.
- Promote use of alternative fuels and transportation programs.
- Procure goods that are recycled, recyclable, or reusable.
- Procure 20 percent local/organic/free trade food by 2020.
- Integrate sustainability across the curriculum.

Under the CSU Sustainability Policy, campuses are responsible for quantifying and reducing their Scope 1 and 2 emissions to reach the 2020 and 2040 goals. Scope 1 emissions are direct emissions (e.g., combustion of fossil fuels, fleet vehicles, agriculture operations, use of refrigerants). Scope 2 emissions are emissions from purchased utilities (e.g., electricity, water).

CSU Executive Order 987

EO 987 is the CSU Policy Statement on Energy Conservation, Sustainable Building Practices, and Physical Plant Management. Sacramento State operates under this EO, which sets minimum efficiency standards for new construction and renovations, and establishes operating practices intended to ensure CSU buildings are used in the most energy efficient and sustainable manner possible while still meeting the programmatic needs of the University.

Association for the Advancement of Sustainability in Higher Education

Sacramento State participates in the Association for the Advancement of Sustainability in Higher Education's Sustainability Tracking, Assessment, and Rating System (STARS) as a framework for implementation, measurement, and improvement of sustainable practices across the entire University. The voluntary point-based rating system measures sustainability performance in the areas of Curriculum and Research, Campus and Community Engagement, Operations, and Planning and Administration. As of 2021, Sacramento State has earned a STARS Gold Rating in recognition of its sustainability achievements.

Second Nature Climate Leadership Commitment

In 2016, Sacramento State became a Charter Signatory to the Climate Leadership Commitment, establishing a goal for Sacramento State to achieve net zero emissions from all sources (Scope 1, 2, and 3) by 2050. Scope 3 emissions are emissions not under direct control (e.g., commuting, business travel, solid waste). Campuses that have signed the Second Nature Climate Leadership Commitment are also responsible for reducing Scope 3 emissions as part of climate action plans to achieve neutrality as soon as possible. The Climate Commitment also requires Sacramento State to collaborate with local governments to achieve climate resilience.

Climate Action Plan

Sacramento State prepared a climate action plan (CAP) in 2018 as a mechanism to ensure the reduction of GHG emissions associated with campus operations which would lead to achieving a carbon neutral goal by 2040. To set the path towards carbon neutrality, the CAP includes milestone dates to reduce GHG emission levels by 50 percent by 2030 and 80 percent by 2035. The University's 2015 Master Plan's research and projections which laid the foundation to establish environmental sustainability are relied upon in the CAP to develop carbon neutrality strategies and goals. The University CAP includes an extensive list of strategies that focus on energy, waste, and water to help achieve carbon neutrality. Applicable strategies to the project include, but are not limited to, photovoltaic (PV) systems on new buildings, installation of water-saving fixtures to reduce potable water use by 30 percent, implementation of energy construction strategies to reduce power loads, increasing construction and demolition waste diversion rates, increasing clean-air parking spaces, etc.

Sacramento State adopted an updated CAP in 2021 to align with the latest GHG reduction targets of the CSU system. The update CAP includes a 50 percent reduction target and zero waste campus by 2030, an 80 percent reduction target by 2035, and a carbon-neutrality reduction target by 2040. To achieve these goals the 2021 focuses on a 2019 Strategic Energy Plan to reach a net zero energy goal for existing and future buildings. Additional efforts to help achieve the campus reduction targets include adopting Green Office Certification, sustainable focused curriculum, using alternative transportation, reduced campus waste, involvement in environmental student organizations, as well as everyday student behavior changes that reduce environmental impact.

LOCAL

Sacramento State is an entity of the CSU, which is a statutorily and legislatively created and constitutionally authorized State agency, and the Ramona Property (the project site) is owned by the CSU. As explained in Chapter 3, section, "California State University Autonomy," of this ~~Draft~~ EIR, State agencies are not subject to local government planning and land use plans, policies, or regulations. Nevertheless, in the exercise of its discretion, CSU does reference, describe, and address local plans, policies, and regulations where appropriate and for informational purposes. This evaluation is also intended to be used by local agencies for determining, as part of their permit processes, the project's consistency with local plans, policies, and regulations.

Sacramento Metropolitan Air Quality Management District

SMAQMD is the primary agency responsible for addressing air quality concerns in Sacramento County–its role is discussed further in Section 3.2, "Air Quality." SMAQMD also recommends measures for analyzing project-generated GHGs in CEQA analyses and offers multiple potential GHG reduction measures for land use development projects. SMAQMD developed thresholds of significance in its CEQA Guidance and Tools (2020) to provide a uniform scale to measure the significance of GHG emissions from land use and stationary source projects in compliance with CEQA and SB 32. SMAQMD's goals in developing GHG thresholds include ease of implementation; use of standard analysis tools; and emissions mitigation consistent with SB 32 (SMAQMD 2020).

City of Sacramento General Plan and Climate Action Plan

The Sacramento CAP was adopted on February 14, 2012 by the Sacramento City Council and was incorporated into the 2035 General Plan. The CAP includes GHG emission reduction targets, strategies, and implementation measures developed to help the city reach these targets. Reduction strategies address GHG emissions associated with transportation and land use, energy, water, waste management and recycling, agriculture, and open space. The plan also includes measures designed to adapt and enhance resiliency in the face of the projected physical impacts of climate change anticipated in the region. The City's goals related to GHG reductions in the General Plan are included above.

The following goals and policies from the 2035 General Plan (City of Sacramento 2015) are considered relevant to climate change and GHG emissions for projects within the limits of City of Sacramento, which includes the project area.

Land Use

- Policy LU 2.6.1: Sustainable Development Patterns. The City shall promote compact development patterns, mixed use, and higher-development intensities that use land efficiently; reduce pollution and automobile dependence and the expenditure of energy and other resources; and facilitate walking, bicycling, and transit use.
- Policy LU 2.6.4: Sustainable Building Practices. The City shall promote and, where appropriate, require sustainable building practices that incorporate a "whole system" approach to designing and constructing buildings that consume less energy, water and other resources, facilitate natural ventilation, use daylight effectively, and are healthy, safe, comfortable, and durable.
- Policy LU 2.6.7: Green Building Retrofit. The City shall promote the retrofitting of existing structures with green building technologies/practices and encourage structures being renovated to be built to a higher green building standard such as CalGreen Tier 1 or Tier 2 or Leadership in Energy and Environmental Design (LEED).

- **Policy LU 2.6.10:** Promote Resiliency. The City shall continue to collaborate with nonprofit organizations, neighborhoods groups, and other community organizations to promote the issues of air quality, food availability, renewable energy systems, sustainable land use and the reduction of GHGs.

Mobility

- **Policy M 1.3.3:** Improve Transit Access. The City shall support the Sacramento Regional Transit District (RT) in addressing identified gaps in public transit networks by working with RT to appropriately locate passenger facilities and stations, providing and maintaining pedestrian walkways and bicycle access to transit stations and stops, and dedicating public rights of way as necessary for transit-only lanes, transit stops, and transit vehicle stations and layover.
- **Policy M 1.4.1:** The City shall work with a broad range of agencies (e.g., SACOG, SMAQMD, Sacramento RT, Caltrans) to encourage and support programs that increase regional average vehicle occupancy, including the provision of traveler information, shuttles, preferential parking for carpools/vanpools, transit pass subsidies, road and parking pricing, and other methods.
- **Policy M 1.5.1:** Facilities for Emerging Technologies. The City shall assist in the provision of support facilities such as advanced fueling stations (e.g., electric and hydrogen) for emerging technologies.
- **Policy M 1.5.5:** Support Zero- and Low-Emission Vehicle Adoption. The City shall continue to collaborate with its State and regional partners to support)rapid adoption of zero-emissions and low-emission vehicles, including standardizing infrastructure and regulations for public electric vehicle charging stations, streamlining the permit-process for private electric vehicle charging stations (including home charging stations), developing guidelines and standards for dedicated and preferential parking for zero- and low-emissions vehicles (including charging stations for plug-in-electric vehicles, where necessary).

Utilities

- **Policy U 2.1.10:** Water Conservation Standards. The City shall achieve a 20 percent reduction in per-capita water use by 2020 consistent with the State's 20x2020 Water Conservation Plan.
- **Policy U 2.1.13:** Recycled Water. The City shall continue to investigate the feasibility of utilizing recycled water where appropriate, cost effective, safe, and environmentally sustainable.
- **Policy U 2.1.15:** Landscaping. The City shall continue to require the use of water-efficient and river-friendly landscaping in all new development, and shall use water conservation gardens (e.g., Glen Ellen Water Conservation Office) to demonstrate.
- **Policy U 5.1.1:** Zero Waste. The City shall achieve zero waste to landfills by 2040 through reusing, reducing, and recycling solid waste and using conversion technology if appropriate. In the interim, the City shall achieve a waste reduction goal of 75 percent diversion from the waste stream over 2005 levels by 2020 and 90 percent diversion over 2005 levels by 2030, and shall support the Solid Waste Authority in increasing commercial solid waste diversion rates to 30 percent.
- **Policy U 5.1.15:** Recycling and Reuse of Construction Wastes. The City shall require recycling and reuse of construction wastes, including recycling materials generated by the demolition and remodeling of buildings, with the objective of diverting 85 percent to a certified recycling processor.
- **Policy U 6.1.6:** Renewable Energy. The City shall encourage the installation and construction of renewable energy systems and facilities such as wind, solar, hydropower, geothermal, and biomass facilities.
- **Policy U 6.1.14:** Energy Efficiency Partnerships. The City shall continue to build partnerships (e.g., Sacramento County Business Environmental Resource Center (BERC) and Sacramento Metropolitan Utility District (SMUD) to promote energy efficiency and conservation for the business community and residents.

Environmental Resources

- Policy ER 6.1.6: Community Greenhouse Gas Reductions. The City shall reduce community GHG emissions by 15 percent below 2005 baseline levels by 2020, and strive to reduce community emissions by 49 percent and 83 percent by 2035 and 2050, respectively.
- Policy ER 6.1.7: Greenhouse Gas Reduction in New Development. The City shall reduce greenhouse gas emissions from new development by discouraging auto-dependent sprawl and dependence on the private automobile; promoting water conservation and recycling; promoting development that is compact, mixed use, pedestrian friendly, and transit oriented; promoting energy-efficient building design and site planning; improving the jobs/housing ratio in each community; and other methods of reducing emissions.
- Policy ER 6.1.8: Additional GHG Emission Programs. The City shall continue to evaluate the feasibility and effectiveness of new policies, programs, and regulations that contribute to achieving the City's long-term GHG emissions reduction goals.
- Policy ER 6.1.9: Climate Change Assessment and Monitoring. The City shall continue to assess and monitor performance of GHG emissions reduction efforts beyond 2020, progress toward meeting long-term GHG emissions reduction goals, the effects of climate change, and the levels of risk in order to plan a community that can adapt to changing climate conditions and be resilient to negative changes and impacts.
- Policy ER 6.1.10: Coordination with SMAQMD. The City shall coordinate with SMAQMD to ensure projects incorporate feasible mitigation measures to reduce GHG emissions and air pollution if not already provided for through project design.

City of Sacramento Municipal Code

The following municipal code was adopted by the City as an amendment to the California Energy Code.

- 5.106.5.3.2 New Nonresidential: Tier 2. For new nonresidential, twenty (20) percent of the total number of parking spaces on a building site, provided for all types of parking facilities, but in no case less than one, shall be electric vehicle charging spaces (EV spaces) capable of supporting future Electric Vehicle Supply Equipment (EVSE). Calculations for the required number of EV spaces shall be rounded up to the nearest whole number. An electric vehicle charging station shall be installed in at least one electric vehicle charging space.

City of Sacramento SCI Specific Plan

The following goals and policies from the Sacramento Center for Innovation (SCI) Specific Plan are relevant to air quality on the project site:

Utility Infrastructure

- Policy UI 5.3.2: Support programs and developments that employ strategies to reduce vehicle greenhouse gas emissions and improve air quality.

3.6.2 Environmental Setting

THE PHYSICAL SCIENTIFIC BASIS OF GREENHOUSE GAS EMISSIONS AND CLIMATE CHANGE

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 atmosphere from space. A portion of the radiation is absorbed by the earth's surface, and a smaller portion of this radiation is reflected toward space. The absorbed radiation is then emitted from the earth as low-frequency infrared radiation. The frequencies at which bodies emit radiation are proportional to temperature. The earth has a much lower temperature than the sun; therefore, the earth 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.

Prominent GHGs contributing to the greenhouse effect are CO_2, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. Human-caused emissions of these GHGs in excess of natural ambient concentrations are found 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 forcing (IPCC 2014:5).

Climate change is a global problem. GHGs are global pollutants, unlike criteria air pollutants and toxic air contaminants, which are pollutants of regional and local concern. Whereas most pollutants with localized air quality effects have relatively short atmospheric lifetimes (approximately 1 day), GHGs have long atmospheric lifetimes (1 year to several thousand years). GHGs persist in the atmosphere long enough to be dispersed around the globe. Although the lifetime of any GHG molecule depends on multiple variables and cannot be determined with any certainty, it is understood that more CO_2 is emitted into the atmosphere than is sequestered by ocean uptake, vegetation, and other forms of sequestration. Of the total annual human-caused CO_2 emissions, approximately 55 percent are estimated to be sequestered through ocean and land uptake every year, averaged over the last 50 years, whereas the remaining 45 percent of human-caused CO_2 emissions remain stored in the atmosphere (IPCC 2013:467).

The quantity of GHGs in the atmosphere responsible for climate change is not precisely known, but it is enormous. No single project alone would measurably contribute to an incremental change in the global average temperature or to global or local climates or microclimates. From the standpoint of CEQA, GHG impacts relative to global climate change are inherently cumulative.

GREENHOUSE GAS EMISSION SOURCES

As discussed previously, GHG emissions are attributable in large part to human activities. The total GHG inventory for California in 2019 was 418 million $MMTCO_2e$ (CARB 2021). This is less than the 2020 target of 431 $MMTCO_2e$ (CARB 2021). Table 3.6-1 summarizes the statewide GHG inventory for California.

Table 3.6-1 Statewide GHG Emissions by Economic Sector in 2019

Sector	Percent
Transportation	40
Industrial	21
Electricity generation (in state)	9
Electricity generation (imports)	3
Agriculture	8
Residential	7
Commercial	4
High GWP	5
Waste	2

Source: CARB 2021.

As shown in Table 3.6-1, transportation, industry, and electricity generation are the largest GHG emission sectors.

A GHG inventory for the City of Sacramento was completed for inventory year 2016, which is summarized in Table 3.6-2.

Table 3.6-2 Sacramento 2016 GHG Inventory by Emissions Sector ($MTCO_2e$)

Emissions Sector	2016
Residential Electricity	318,275
Commercial Industrial Electricity	489,945
Residential Gas	318,304
Commercial Industrial Gas	172,019
Waste	160,843
Waste	9,607
Wastewater	19,867
Transportation	1,935,870
Total	3,424,728

Notes: Totals may not equal the sum of the numbers because of independent rounding.

$MTCO_2e$ = metric tons of carbon dioxide equivalent.

Source: City of Sacramento 2020.

In 2020, Sacramento State reported their scope 1 emissions to be 6,591 metric tons, scope 2 emissions to be 8,077 metric tons, and scope 3 emissions to be 710 metric tons, for a total of 15,378 metric tons. Their 2020 emissions dropped below their report 1990 baseline levels of approximately 17,000 metric tons (CSUS 2020).

EFFECTS OF CLIMATE CHANGE ON THE ENVIRONMENT

According to the Intergovernmental Panel on Climate Change, which was established in 1988 by the World Meteorological Organization and the United Nations Environment Programme, global average temperature will increase by 3.7 to 3.8 degrees Celsius (°C) (6.7 to 8.6 degrees Fahrenheit [°F]) by the end of the century unless additional efforts to reduce GHG emissions are made (IPCC 2014:10). According to CEC, temperatures in California will warm by approximately 2.7°F above 2000 averages by 2050 and by 4.1°F to 8.6°F by 2100, depending on emission levels (CEC 2012:2).

Other environmental resources could be indirectly affected by the accumulation of GHG emissions and the resulting rise in global average temperature. In recent years, California has been marked by extreme weather and its effects. According to CNRA's *Safeguarding California Plan: 2018 Update*, California experienced the driest 4-year statewide precipitation on record from 2012 through 2015; the warmest years on average in 2014, 2015, and 2016; and the smallest and second smallest Sierra snowpack on record in 2015 and 2014 (CNRA 2018:55). In contrast, the northern Sierra Nevada experienced its wettest year on record during the 2016-2017 water year (CNRA 2018:64). The changes in precipitation exacerbate wildfires throughout California, increasing their frequency, size, and devastation. As temperatures increase, the amount of precipitation falling as rain rather than snow also increases, which could lead to increased flooding because water that would normally be held in the snowpack of the Sierra Nevada and Cascade Range until spring would flow into the Central Valley during winter rainstorm events. This scenario would place more pressure on California's levee/flood control system (CNRA 2018:190–192). Furthermore, in the extreme scenario involving the rapid loss of the Antarctic ice sheet, the sea level along California's coastline could rise up to 10 feet by 2100, which is approximately 30–40 times faster than the sea-level rise experienced over the last century (CNRA 2017:102). Changes in temperature, precipitation patterns, extreme weather events, wildfires, and sea-level rise have the potential to threaten transportation and energy infrastructure and crop production (CNRA 2018:64, 116–117, 127).

Cal-Adapt is a climate change scenario planning tool developed by CEC that downscales global climate model data to local and regional resolution under two emissions scenarios. The Representative Concentration Pathway (RCP) 8.5 scenario represents a business-as-usual future emissions scenario, and the RCP 4.5 scenario represents a future with reduced GHG emissions. According to Cal-Adapt, annual average temperatures in the project area are projected to rise by 9.3°F to 12.7°F by 2099, with the low and high ends of the range reflecting the lower and higher emissions increase scenarios (CEC 2021a).

Sacramento County experienced an annual average high temperature of 74.4°F between 1950 and 2005. Under the RCP 4.5 scenario, the county's annual average high temperature is projected to increase by 2.8°F to 77.2°F by 2050 and increase an additional 7.2°F to 84.4°F by 2099 (CEC 2021a). Under the RCP 8.5 scenario, the county's annual average high temperature is projected to increase by 3.1°F to 77.5°F by 2050 and increase an additional 2.3°F to 79.8°F by 2099 (CEC 2021a).

Sacramento County experienced an average precipitation of 19.3 inches per year between 1950 and 2005. Under the RCP 4.5 scenario, the county is projected to experience an increase of 2.4 inches to 21.7 inches per year by 2050 and decrease to 21.3 inches per year by 2099 (CEC 2021a). Under the RCP 8.5 scenario, the county is projected to experience an increase of 1.4 inches to 20.7 inches per year by 2050 and increase to 21.7 inches per year by 2099 (CEC 2021a).

3.6.3 Environmental Impacts and Mitigation Measures

METHODOLOGY

The methods of analysis of GHG emissions for this project are consistent with SMAQMD recommendations and models described in their most recent CEQA Guide (2020). Specifically, SMAQMD has adopted separate thresholds for construction and operational phases of projects, including guidance on how projects should be evaluated for consistency with their adopted thresholds, for the purposes of GHG analyses under CEQA. A detailed discussion of SMAQMD's guidance, as it pertains to GHG emissions, and associated thresholds are described below, under "Thresholds of Significance."

GHG emissions associated with the project would be generated during project construction and during operation after the project is built. Both construction and operational GHG emissions were calculated using the California Emissions Estimator Model (CalEEMod) Version 2020.4.0 computer program, as recommended by SMAQMD. The technical modeling approach, including a summary of primary modeling inputs and parameters, is provided below for construction and operational phases, and included in Appendix B.

Construction-Related Greenhouse Gas Emissions

Modeling was based on project-specific information (e.g., land use type, building square footage) where available; reasonable assumptions based on typical construction activities; and default values in CalEEMod that are based on the project's location and land use type.

It was assumed that construction activities would occur in two separate phases over a five-year timeframe. Phase I is projected to begin in 2023 and end in 2026. Phase I is anticipated to include the construction of the California Mobility Center (CMC) and the California Department of Justice (CA DOJ) buildings along with utility upgrades; development of internal access and roadways; development of bicycle and pedestrian pathways; and development of open space areas, plazas, and bioretention facilities. It was assumed that all construction activities in Phase I would be constructed concurrently to provide a conservative annual emissions amount. Construction of Phase II is projected to begin in 2027 and end in 2028. Phase II is anticipated to include the demolition of a parking lot proposed during Phase I, expansion of the CMC building, and construction of the academic and/or research facilities. Like Phase I, development proposed in Phase II was assumed to be constructed concurrently to provide a conservative average daily and annual emissions amount to be compared against SMAQMD's maximum 1,100 $MTCO_2e$/year GHG emissions threshold, as discussed in more detail below. Construction of the access option within Phase II, as identified in Chapter 2, "Project Description," is considered to be included as part of the overall construction effort. Detailed construction assumptions and inputs can be found in Appendix B.

Operations-Related Greenhouse Gas Emissions

Operation-related emissions of GHGs were estimated for area sources (e.g., landscape maintenance equipment), energy use (i.e., electricity and natural gas consumption), water use, wastewater generation, solid waste generation, and mobile sources. Operation-related mobile-source GHG emissions were modeled based on the estimated level of VMT generated by employees. VMT estimates were derived from data generated during the transportation impact analysis conducted for the project (see Section 3.9, "Transportation"). Mobile-source emissions were calculated using CalEEMod. The project would install EVSE on 10 percent of the parking spaces (71 spaces), which exceeds CalGreen Tier 2 standards and SMAQMD's Tier 1 best management practices (BMPs) (these only require EV-ready spaces). EVSE spaces include a 208/240-Volt, 40-amp panel with conduit, wiring, receptacle, and overprotection devices. Emissions modeling accounted for anticipated GHG reductions associated with the 71 EVSE parking spaces. See Appendix B for model inputs and outputs.

Indirect emissions associated with electricity consumption were estimated using adjusted GHG emissions factors for SMUD based on compliance with Renewable Portfolio Standard (RPS) targets. All buildings and facilities would be electric except for a small amount of natural gas use for the laboratory equipment within the CA DOJ Building. Building electricity consumption and onsite photovoltaic solar energy generation in compliance with 2022 Building Efficiency Standards included in Title 24 of the California Building Code was used for this analysis. To estimate the total onsite solar required by the 2022 Building Efficiency Standards, the total conditioned square footage was multiplied by a CEC climate zone photovoltaic capacity factor of 3.13 watts/sf which equates to approximately 119,651 sf of onsite solar (CEC 2021b) (See Appendix B for further details). For the portion of electricity demand that would not be supplied by onsite solar, GHG emissions for electricity were calculated by applying an estimated emissions factor according to SMUD's RPS for 2028. The minor amount of natural gas for the CA DOJ laboratory was estimated using CalEEMod default emissions factors for non-California Energy Code Title 24 natural gas for the CalEEMod land use of research and development. Operational area source GHG emissions from landscaping equipment were estimated using CalEEMod based on model defaults for the applied land uses. The project's operational emission were compared to SMAQMD's thresholds as detailed in the section below. Detailed model assumptions and inputs for these calculations are presented in Appendix B.

Consistency with Applicable Plans, Policies, Regulations

The project was also evaluated for its consistency with adopted regulations, plans, and policies aimed at reducing GHG emissions. These include the 2017 Scoping Plan, CSU Sustainability Policy, Second Nature Climate Leadership Commitment, and the Sacramento State CAP. The analysis was generally qualitative in nature and considered proposed GHG-reduction design features as GHG emissions reduction targets set by CSU and Sacramento State.

THRESHOLDS OF SIGNIFICANCE

The issue of global climate change is inherently a cumulative issue because the GHG emissions of individual projects cannot be shown to have any material effect on global climate. Thus, the project's impact on climate change is addressed only as a cumulative impact.

State CEQA Guidelines Section 15064 and relevant checklist questions contained in Appendix G recommend that a lead agency consider a project's consistency with relevant, adopted plans and discuss any inconsistencies with applicable regional plans, including plans to reduce GHG emissions. Under Appendix G of the State CEQA Guidelines, implementing the project would result in a cumulatively considerable contribution to climate change if it would:

- generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment, or
- conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs.

Sacramento State has not developed project specific GHG emissions thresholds. Thus, to evaluate the project in light of the 2030 statewide GHG reduction target codified by SB 32 (i.e., 40 percent below 1990 levels), and the 2050 long-term statewide goal identified in EO B-30-15 (i.e., 80 percent below 1990 levels), this analysis relies on the most recently adopted SMAQMD CEQA Guide and GHG thresholds (2020). Based on SMAQMD's guidance, which includes a tiered approach to determining project significance, the project would result in a cumulatively considerable contribution to climate change if it would:

Construction

Result in construction emissions that exceed 1,100 MT CO_2e/year, as established in SMAQMD's CEQA Guide and GHG thresholds (2020).

Operation

Be inconsistent with the Climate Change Scoping Plan by not implementing applicable BMPs or equivalent on/off site mitigation. The following tiered approach is used to determine consistency:

- Tier 1 BMPs (BMP 1 & 2)
  - Projects shall be designed and constructed without natural gas infrastructure.
  - Projects shall meet the current CalGreen Tier 2 EV charging standards (i.e., 10 percent of all parking spaces to be EV-ready).
  - After Tier 1 standards are met, do the project's emissions exceed 1,100 MT CO_2e/year?
- Tier 2 (BMP 3)
  - Residential projects shall achieve a 15 percent reduction in VMT per resident and office projects shall achieve a 15 percent reduction in VMT per worker compared to existing average VMT for the county, and retail projects shall achieve no net increase in total VMT to show consistency with SB 743.

To apply the tiered approach shown above, total annual construction emissions for each year of construction should be compared to the annual threshold of 1,100 MTCO_2e and emissions that exceed the threshold in any year would be determined to have a cumulative considerable contribution to climate change. Mitigation would be required to reduce emissions to the threshold for that given year.

For operational emissions, SMAQMD recommends a tiered approach to determine significance, as shown above. Tier 1 requires projects to implement BMPs 1 and 2 to demonstrate consistency with the 2017 Scoping Plan. Once BMPs 1 and 2 are implemented, the project's operational GHG emissions would be compared to a threshold of 1,100 MTCO_2e per year. Projects that fall under that level would not result in a cumulative considerable contribution to climate change and projects that exceed the screening level threshold are to implement the Tier 2 BMP (BMP 3) to be consistent with SB 743.

ISSUES NOT DISCUSSED FURTHER

All issues pertaining to GHGs and climate change are discussed below.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Impact 3.6-1: Generate Greenhouse Gas Emissions, Either Directly or Indirectly, That May Have a Significant Impact on the Environment

The project would result in GHG emissions from construction activities and operational activities including vehicle trips, area sources, electricity and natural gas consumption, water use and waste generation. The project includes installation of onsite solar according to 2022 Building Efficiency Standards and the installation of 71 EVSE-equipped parking spaces, which would offset a portion of project GHG emissions. However, the project may not achieve a 15 percent reduction in regional VMT; therefore, the project would not be consistent with SMAQMD's VMT reduction threshold of significance and the project's GHG emissions would be **significant**.

GHG emissions associated with the project would be generated during construction and operation, which are discussed separately below to address SMAQMD's thresholds for each. However, GHG emissions are inherently cumulative in nature and the overall project-related GHGs are considered in determining the GHG impact conclusion.

Construction

Project-related construction activities would result in the generation of GHG emissions from the use of heavy-duty off-road construction equipment, delivery trucks associated with materials transport, and vehicle use during worker commute during both phases of construction. Table 3.6-3 provides a summary of the total construction-related emissions that would occur.

Table 3.6-3 Construction-Generated Greenhouse Gas Emissions

Construction Year	Total $MTCO_2e$ per Year
Phase 1	
2023	497
2024	1,210
2025	1,154
2026	36
Phase 2	
2027	512
2028	489
SMAQMD Threshold of Significance	1,100

Notes: Totals may not add due to rounding.

$MTCO_2e$ = metric tons of carbon dioxide equivalent; GHG = greenhouse gas.

Source: Modeled conducted by Ascent Environmental in 2021

As shown in Table 3.6-3 the project's construction emissions for years 2024 and 2025 would result in an exceedance of the SMAQMD threshold. Considering the annual construction emissions threshold of 1,100 $MTCO_2e$ and the modeled emissions, construction activities in 2024 would exceed the threshold by 110 $MTCO_2e$ in 2024 and by 54 $MTCO_2e$ in 2025, for a combined total exceedance of 164 $MTCO_2e$. It should be noted that construction emissions may be conservative if construction activities do not occur at the accelerated rate as specified in the project description.

Operations

Operation of the project would result in mobile-source GHG emissions from vehicle trips, area-source emissions from the operation of landscape maintenance equipment, energy use emissions from consumption of electricity and natural gas, water-related energy consumption associated with water use and the conveyance and treatment of wastewater, and waste-generated emissions from the transport and disposal of solid waste. Table 3.6-4 below summarizes the project's operational emissions for the buildout year of 2028.

Table 3.6-4 Operational Greenhouse Gas Emissions

Emissions Source	Total $MTCO_2e$ per Year
Area	<1
Electricity[1]	291
Natural Gas	83
Mobile (Vehicular)	7,163
Waste	230
Water	174
Sub Total	*7,941*

Emissions Source	Total $MTCO_2e$ per Year
Electric Vehicle Supply Equipment[2]	-285
Total	7,655
SMAQMD Screening Level Threshold	**1,100**

Notes: GHG = greenhouse gas; $MTCO_2e$ = metric tons of carbon dioxide equivalent.

[1] Electricity emissions considers the net reduction in emissions from the installation of onsite solar panels in compliance with 2022 Building Efficiency Standards.

[2] 10 percent of parking spaces are to include EVSE, resulting in 71 EVSE parking spaces. One EVSE parking space equates to a reduction of 4 $MTCO_2e$/year.

Source: Modeling conducted by Ascent Environmental in 2021

As shown in Table 3.6-4, operational emissions would be 7,941 $MTCO_2e$/year without accounting for GHG reductions associated with onsite EVSE parking spaces and 7,655 $MTCO_2e$/year with associated GHG reductions.

Project Elements that Offset Greenhouse Gas Emissions

In addition to the required onsite solar energy generation, the project would include a minimum of 10 percent of the project's 710 total parking spaces (i.e., 71 spaces) fully equipped with EVSE during project operations, exceeding the CalGreen Tier 2 and SMAQMD standards of installing 10 percent of all parking spaces as EV-ready. Of the 71 parking spaces that would be equipped with EVSE during project operations, three parking spaces with EVSE, operating over a 20-year charging station lifespan, would achieve a reduction of 240 $MTCO_2e$ (3 spaces multiplied by 4 $MTCO_2e$/year multiplied by 20 years equates to 240 $MTCO_2e$). Modeling inputs and assumptions used to estimate GHG offsets are detailed in Appendix B. The project commitment to EVSE would both achieve and exceed the reduction needed to offset the project's construction mass emissions of 164 $MTCO_2e$ (Table 3.6-3), and would more than offset the energy-related emissions from natural gas.

Conclusion

Per Tables 3.6-3 and 3.6-4, above, the project's construction emissions for years 2024 and 2025 would result in an exceedance of the SMAQMD threshold of 1,100 $MTCO_2e$/year. In addition, the total anticipated annual GHG emissions from project operations (7,655 $MTCO_2e$/year), which accounted for the project's onsite solar and EVSE parking spaces, would exceed SMAQMD's screening-level of 1,100 $MTCO_2e$/year. Furthermore, as discussed in Section 3.9, "Transportation," Impact 3.9-2, the project's VMT per service population would not achieve a 15 percent reduction in total VMT from the City of Sacramento's or the SACOG planning region's VMT per service population. Thus, the project would not be consistent with SMAQMD Tier 2, BMP 3 which calls for a project 15 percent reduction in VMT per service population compared to regional SB 743 targets. Although the project includes solar and EVSE parking spaces, the project would result in a **significant** impact due to GHG emissions.

Mitigation Measures

Mitigation Measure 3.6-1a: Reduce Project-Related Construction Greenhouse Gas Emissions

During construction activities, the University shall require its contractors to implement the following best management practices, as recommended by SMAQMD:

- Improve fuel efficiency from construction equipment:
  - Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to no more than 3 minutes (5-minute limit is required by the state airborne toxics control measure [Title 13, sections 2449(d)(3) and 2485 of the California Code of Regulations]). Provide clear signage that posts this requirement for workers at the entrances to the site.
  - Maintain all construction equipment in proper working condition according to manufacturer's specifications. The equipment must be checked by a certified mechanic and determined to be running in proper condition before it is operated.

- Perform on-site material hauling with trucks equipped with on-road engines
- Use alternative fuels for generators at construction sites such as propane or solar, or use electrical power.
- Require workers to use carpools, shuttle vans, transit passes and/or secure bicycle parking for construction worker commutes.
- Reduce electricity use in the construction office by using compact fluorescent bulbs, powering off computers every day, and replacing heating and cooling units with more efficient ones.
- Recycle or salvage 75 percent of non-hazardous construction and demolition debris by weight.
- Use 20 percent of locally sourced or recycled materials for construction materials. Wood products utilized are to be certified and verified through a sustainable forestry program.
- Utilize a low carbon concrete option.
- Use SmartWay certified trucks for deliveries and equipment transport.

In addition and prior to the start of any construction activities, the University shall require its construction contractors to use renewable diesel (RD) fuel for all diesel-powered construction equipment. Any RD product that is considered for use by the construction contractors shall comply with California's Low Carbon Fuel Standards and be certified by the CARB Executive Officer. RD fuel must also meet the following criteria:

- be hydrogenation-derived (reaction with hydrogen at high temperatures) from 100 percent biomass material (i.e., nonpetroleum sources), such as animal fats and vegetables,
- contain no fatty acids or functionalized fatty acid esters, and
- have a chemical structure that is identical to petroleum-based diesel which ensures RD will be compatible with all existing diesel engines; it must comply with American Society for Testing and Materials (ASTM) D975 requirements for diesel fuels.

Mitigation Measure 3.6-1b: Implement Transportation Demand Management Strategies to Reduce Project-Generated VMT

The University shall implement transportation demand management (TDM) strategies to reduce vehicle trips and, in turn, VMT that would be generated by the project. The implementation of TDM strategies shall reduce total VMT per service population to levels that are 15 percent or more below the existing City of Sacramento and SACOG Region total VMT per service population averages.

Potential TDM strategies and their GHG mitigation potential include, but are not limited to, the following:

- Promote walking and bicycling for employee and student trips to and from the project site, including improved bicycle and pedestrian connections between the project site and Power Inn Station as described in Mitigation Measure 3.9-1d. This measure would result in a GHG mitigation potential of up to 4 percent of mobile emissions.
- Expand public transit service, including additional service connecting the project site with employee and student residential areas, as well as additional service connecting the project site with the Sacramento State main campus. This measure would result in a GHG mitigation potential of up to 4.6 percent of mobile emissions.
- Implement a fair value commuting program or other pricing of vehicle travel and parking. This measure would result in a GHG mitigation potential of up to 8 percent of mobile emissions.
- Provide carpool and/or vanpool incentive programs. This measure would result in a GHG mitigation potential of up to 8 percent of mobile emissions.
- Offer remote and/or hybrid working options. This measure's GHG mitigation potential is supportive of the measures provided above.

<u>The GHG mitigation potential of the TDM strategies list were provided from the California Air Pollution Control Officers Association (2021), *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity.*</u>

The TDM strategies implemented will be consistent with existing and planned TDM programs on the Sacramento State main campus. If these TDM strategies are not sufficient to reduce total VMT per service population as described above, additional TDM measures or adjustments to the measures above shall be implemented as needed to reduce total VMT per service population consistent with the criteria described above.

Significance after Mitigation

Implementation of Mitigation Measure 3.6-1a would reduce project construction-related GHG emissions by implementing BMPs and renewable diesel to reduce GHG emissions from construction equipment. However, the level of GHG emission reductions from BMPs and renewable diesel engines cannot be determined at this time due to potential physical site or technological constrains prohibiting infrastructure to be installed. Therefore, it cannot be determined if the project's construction impacts would be reduced below SMAQMD's 1,100 $MTCO_2e$ threshold.

Implementation of Mitigation Measure 3.6-1b would reduce project-generated VMT per service population by instituting a TDM program and reduce GHG emissions from external vehicle trips generated by the project. However, the effectiveness of the TDM strategies is not known and subsequent vehicle trip and GHG emission reduction effects cannot be guaranteed. Existing evidence indicates that the effectiveness of TDM strategies in regard to trip and GHG emissions reductions can vary based on a variety of factors, including the context of the surrounding built environment (e.g., urban versus suburban) and the aggregate effect of multiple TDM strategies deployed together. Moreover, many TDM strategies are not just site-specific, but also rely on implementation and/or adoption by private entities (e.g., elective use of carpool program by office building tenants).

Due to uncertainties regarding the ability for the aforementioned mitigation measures to quantifiably reduce both construction-related GHG emissions and operational, VMT-related emissions, applicable thresholds (e.g., a 15 percent reduction in operational VMT and associated GHG emissions) may still be exceeded even with implementation of mitigation. Potential additional mitigation included the purchase of offsets, however, due to uncertainties surrounding the availability, feasibility (e.g., due to per-credit cost variability), and verifiability of carbon credits, this is not considered feasible mitigation for the purposes of this project. Therefore, the project would be inconsistent with SMAQMD's Tier 2, BMP 3, and the project's impact on GHG emissions would remain **significant and unavoidable**.

Impact 3.6-2: Conflict with an Applicable Plan, Policy or Regulation Adopted for the Purpose of Reducing the Emissions of Greenhouse Gases

The project would include GHG efficiency measures consistent with CSU policies and plans adopted for the purpose of reducing GHG emissions and enabling the achievement of reduction targets. However, the project would not be consistent with the BMPs required by SMAQMD to align with the goals of the 2017 Scoping Plan. Therefore, this impact would be **significant**.

The project was evaluated, qualitatively, for consistency with applicable local and State plans that were developed with the intent of reducing GHG emissions. Each applicable plan is discussed separately below.

Consistency with the 2017 Scoping Plan

The 2017 Scoping Plan lays out the framework for achieving the 2030 statewide GHG reduction target of 40 percent below 1990 levels and progress toward additional reductions. Appendix B of the 2017 Scoping Plan includes detailed GHG reduction measures and local actions that land use development projects can implement to support the statewide goal. For CEQA analyses, the 2017 Scoping Plan states that projects should implement feasible mitigation, preferably measures that can be implemented on-site. The project would include many GHG reduction features including building electrification through limited natural gas use and onsite solar. However, natural gas consumption would still be used onsite. The project includes the installation of 71 EVSE parking spaces, in exceedance of Building Efficiency Standards, which would offset emissions from natural gas use in the CA DOJ laboratories. However, the project would not result in a 15 percent reduction in VMT per service population compared to regional targets, which conflicts with the 2017 Scoping Plan's efforts to reduce GHG emissions from transportation. For these reasons, operational GHG emissions would not be consistent with the intent of reducing GHG emissions in the 2017 Scoping Plan.

Consistency with the CSU Sustainability Policy

The CSU Sustainability Policy aims to reduce the environmental impact of construction and operation of buildings and to integrate sustainability across the curriculum. The latest GHG emissions reduction target of the policy includes 80 percent below 1990 levels by 2040. This goal would be achieved through implementation of various sustainability strategies including water conservation, waste management, very limited natural gas use, onsite solar energy generation, and EVSE parking in exceedance of Building Efficiency Standards. Therefore, the project would be consistent with goals of the CSU Sustainability Policy.

Consistency with the Second Nature Climate Leadership Commitment

In 2016, Sacramento State became a Charter Signatory to the Climate Leadership Commitment, establishing a goal for Sacramento State to achieve net zero emissions from all sources (Scope 1, 2, and 3) by 2050. As discussed above, this project would help achieve GHG emission reduction targets with implementation of sustainable design features to help achieve net zero emissions by 2050. The project would be consistent with the Climate Leadership Commitment.

Consistency with California State University, CAP

The 2021 Sacramento State CAP aims to exceed the CSU Sustainability Policy by setting a carbon neutral goal by 2040. For the same reasons that the project would be consistent with Climate Leadership Commitment, the project would implement sustainable design features that would put the university on track toward meeting emission reduction goals. These features include limited natural gas use, onsite solar energy generation, and EVSE parking spaces. Thus, the project would be consistent with the 2021 CAP.

Consistency with the City of Sacramento Climate Action Plan

Although not required of CSU (refer to statements regarding CSU sovereignty on page 3.6-7, above), the project would not conflict with the goals and policies of the City's CAP (listed under Regulatory Setting) to achieve carbon neutrality by 2035 through limited natural gas use, onsite solar energy generation, and EVSE parking spaces. Thus, the project would be considered consistent with the CAP.

Summary

Because the project would not implement SMAQMD's BMPs to reduce VMT to be consistent with the 2017 Scoping Plan, it would conflict with an applicable plan adopted for the purpose of reducing the emissions of greenhouse gases. Therefore, this impact is **significant**.

Mitigation Measures

Mitigation Measure 3.6-2: Implement Mitigation Measure 3.6-1a: Reduce Project-Related Construction Greenhouse Gas Emissions and Mitigation Measure 3.6-1b, Implement Transportation Demand Management Strategies to Reduce Project-Generated VMT.

Significance after Mitigation

Implementation of Mitigation Measure 3.6-2 would require the project to reduce GHG emissions from construction and from mobile source emissions through the implementation of BMPs and a TDM program. However, the effectiveness of the BMPs and TDM strategies is not known and subsequent vehicle trip reduction effects cannot be guaranteed. Moreover, many TDM strategies are not just site-specific, but also rely on implementation and/or adoption by private entities (e.g., elective use of carpool program by office building tenants). Therefore, consistency with the 2017 Scoping Plan cannot be determined. This impact would be **significant and unavoidable**.

This page intentionally left blank.

3.7 HAZARDS AND HAZARDOUS MATERIALS

This section describes the potential impacts of the project related to hazardous materials and public health. Hazards evaluated include those associated with identified existing or suspected sites of contamination and potential exposure to hazardous materials used, stored, or transported during demolition and construction. Potential risks associated with toxic air contaminant emissions are discussed in Section 3.2, "Air Quality."

Comments received in response to the Notice of Preparation included recommendations for surveys and evaluation of the potential for onsite hazards and hazardous materials.

3.7.1 Regulatory Setting

FEDERAL

Management of Hazardous Materials

Various federal laws address the proper handling, use, storage, and disposal of hazardous materials, as well as requiring measures to prevent or mitigate injury to health or the environment if such materials are accidentally released. The U.S. Environmental Protection Agency (EPA) is the agency primarily responsible for enforcement and implementation of federal laws and regulations pertaining to hazardous materials. Applicable federal regulations pertaining to hazardous materials are primarily contained in Code of Federal Regulations (CFR) Titles 29, 40, and 49. Hazardous materials, as defined in the Code, are listed in 49 CFR 172.101. Management of hazardous materials is governed by the following laws.

- The Toxic Substances Control Act of 1976 (15 U.S. Code [USC] Section 2601 et seq.) regulates the manufacturing, inventory, and disposition of industrial chemicals, including hazardous materials. Section 403 of the Toxic Substances Control Act establishes standards for lead-based paint hazards in paint, dust, and soil.
- The Resource Conservation and Recovery Act of 1976 (42 USC 6901 et seq.) is the law under which EPA regulates hazardous waste from the time the waste is generated until its final disposal ("cradle to grave").
- The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (also called the Superfund Act or CERCLA) (42 USC 9601 et seq.) gives EPA authority to seek out parties responsible for releases of hazardous substances and ensure their cooperation in site remediation.
- The Superfund Amendments and Reauthorization Act of 1986 (Public Law 99-499; USC Title 42, Chapter 116), also known as SARA Title III or the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA), imposes hazardous materials planning requirements to help protect local communities in the event of accidental release.
- The Spill Prevention, Control, and Countermeasure (SPCC) rule includes requirements for oil spill prevention, preparedness, and response to prevent oil discharges to navigable waters and adjoining shorelines. The rule requires specific facilities to prepare, amend, and implement SPCC Plans. The SPCC rule is part of the Oil Pollution Prevention regulation, which also includes the Facility Response Plan rule.

Transport of Hazardous Materials

The U.S. Department of Transportation regulates transport of hazardous materials between states and is responsible for protecting the public from dangers associated with such transport. The federal hazardous materials transportation law, 49 USC 5101 et seq. (formerly the Hazardous Materials Transportation Act 49 USC 1801 et seq.) is the basic statute regulating transport of hazardous materials in the United States, with the purpose of adequately protecting the nation against risk to life and property that is inherent in the commercial transportation of hazardous materials. The regulations that govern the transport of hazardous materials are applicable to any person who transports, ships, causes to be transported or shipped, or who is involved in any way with the manufacture or testing of hazardous materials packaging or containers. Hazardous materials transport regulations are enforced by the Federal Highway Administration, the U.S. Coast Guard, the Federal Railroad Administration, and the Federal Aviation Administration.

Worker Safety

The federal Occupational Safety and Health Administration (OSHA) is the agency responsible for assuring worker safety in the handling and use of chemicals identified in the Occupational Safety and Health Act of 1970 (Public Law 91-596, 9 USC 651 et seq.). OSHA has adopted numerous regulations pertaining to worker safety, contained in CFR Title 29. These regulations set standards for safe workplaces and work practices, including standards relating to the handling of hazardous materials and those required for excavation and trenching.

STATE

Management of Hazardous Materials

In California, both federal and state community right-to-know laws are coordinated through the Governor's Office of Emergency Services. The federal law, SARA Title III or EPCRA, described above, encourages and supports emergency planning efforts at the state and local levels and to provide local governments and the public with information about potential chemical hazards in their communities. Because of the community right-to-know laws, information is collected from facilities that handle (e.g., produce, use, store) hazardous materials above certain quantities. The provisions of EPCRA apply to four major categories:

- emergency planning,
- emergency release notification,
- reporting of hazardous chemical storage, and
- inventory of toxic chemical releases.

The corresponding state law is Chapter 6.95 of the California Health and Safety Code (Hazardous Materials Release Response Plans and Inventory). Under this law, qualifying businesses are required to prepare a Hazardous Materials Business Plan, which would include hazardous materials and hazardous waste management procedures and emergency response procedures, including emergency spill cleanup supplies and equipment. At such time as the applicant begins to use hazardous materials at levels that reach applicable state and/or federal thresholds, the plan is submitted to the administering agency.

The California Department of Toxic Substances Control (DTSC), a division of the California Environmental Protection Agency (CalEPA), has primary regulatory responsibility over hazardous materials in California, working in conjunction with EPA to enforce and implement hazardous materials laws and regulations. As required by Section 65962.5 of the California Government Code, DTSC maintains a hazardous waste and substances site list for the State, known as the Cortese List. Individual regional water quality control boards (RWQCBs) are the lead agencies responsible for identifying, monitoring, and cleaning up leaking underground storage tanks (USTs). The Central Valley RWQCB has jurisdiction over the project site.

Transport of Hazardous Materials and Hazardous Materials Emergency Response Plan

The State of California has adopted U.S. Department of Transportation regulations for the movement of hazardous materials originating within the state and passing through the state; state regulations are contained in 26 California Code of Regulations (CCR). State agencies with primary responsibility for enforcing state regulations and responding to hazardous materials transportation emergencies are the California Highway Patrol and the California Department of Transportation (Caltrans). Together, these agencies determine container types used and license hazardous waste haulers to transport hazardous waste on public roads.

California has developed an emergency response plan to coordinate emergency services provided by federal, state, and local governments and private agencies. Response to hazardous materials incidents is one part of the plan. The plan is managed by the Governor's Office of Emergency Services, which coordinates the responses of other agencies in the project area.

Management of Construction Activities

Through the Porter-Cologne Water Quality Act and the National Pollution Discharge Elimination System (NPDES) program, RWQCBs have the authority to require proper management of hazardous materials during project construction. The State Water Board adopted the statewide NPDES General Permit in August 1999. The state requires that projects disturbing more than one acre of land during construction file a Notice of Intent with the RWQCB to be covered under this permit. Construction activities subject to the General Permit include clearing, grading, stockpiling, and excavation. Dischargers are required to eliminate or reduce non-stormwater discharges to storm sewer systems and other waters. A stormwater pollution prevention plan (SWPPP) must be developed and implemented for each site covered by the permit. The SWPPP must include best management plans (BMPs) designed to prevent construction pollutants from contacting stormwater and keep products of erosion from moving off-site into receiving waters throughout the construction and life of the project; the BMPs must address source control and, if necessary, pollutant control.

Worker Safety

The California Occupational Safety and Health Administration (Cal/OSHA) assumes primary responsibility for developing and enforcing workplace safety regulations within the state. Cal/OSHA standards are typically more stringent than federal OSHA regulations and are presented in Title 8 of the CCR. Cal/OSHA conducts onsite evaluations and issues notices of violation to enforce necessary improvements to health and safety practices.

Title 8 of the CCR also includes regulations that provide for worker safety when blasting and explosives are utilized during construction activities. These regulations identify licensing, safety, storage, and transportation requirements related to the use of explosives in construction.

CALIFORNIA STATE UNIVERSITY

California State University Sustainability Policy

In May 2014, the California State University (CSU) Board of Trustees adopted the first CSU systemwide Sustainability Policy. The policy aims to reduce the environmental impact of construction and operation of buildings and to integrate sustainability into all facets of the CSU, including academics, facilities operations, the built environment, and student life. The CSU Sustainability Policy established the following goal related to hazardous waste:

- reduction of hazardous waste to the extent possible while supporting the academic program.

LOCAL

Sacramento State is part of the CSU, which is a statutorily- and legislatively-created and constitutionally authorized entity of the State of California, and the Ramona Property (the project site) is owned by the CSU. As explained in Chapter 3, section, "California State University Autonomy," of this ~~Draft~~ EIR, State agencies are not subject to local government planning and land use plans, policies, or regulations. Nevertheless, in the exercise of its discretion, CSU does reference, describe, and address local plans, policies, and regulations where appropriate and for informational purposes. This evaluation is also intended to be used by local agencies for determining, as part of their permit processes, the project's consistency with local plans, policies, and regulations.

County of Sacramento

The County of Sacramento enforces State regulations governing hazardous substance generators; hazardous substance storage; and the inspection, enforcement, and removals of USTs in both the City of Sacramento and Sacramento County. The County Hazardous Materials Division (HMD) regulates the storage, use, and disposal of hazardous materials in Sacramento County by issuing permits, monitoring regulatory compliance, and investigating complaints. HMD oversees remediation of certain contaminated sites resulting from leaking USTs, reviews technical aspects of cleanup of hazardous-substance sites, and provides assistance to public and private operations seeking to minimize the generation of hazardous substances.

Certified Unified Program Agency

CalEPA designates specific local agencies as Certified Unified Program Agencies (CUPAs). As the CUPA within Sacramento County, the Sacramento County Environmental Management Department is responsible for the implementation of six statewide programs within its jurisdiction. These programs include:

- underground storage of hazardous substances,
- hazardous materials business plan requirements,
- hazardous waste generator requirements,
- California Accidental Release Prevention program,
- Uniform Fire Code hazardous materials management plan, and
- aboveground storage tanks (Spill Prevention Control and Countermeasures Plan only).

Implementation of these programs involves:

- permitting and inspection of regulated facilities,
- providing educational guidance and notice of changing requirements stipulated in State or Federal laws and regulations,
- investigations of complaints regarding spills or unauthorized releases, and
- administrative enforcement actions levied against facilities that have violated applicable laws and regulations.

City of Sacramento 2035 General Plan

The following goal and policies from the Sacramento 2035 General Plan Health and Safety Element (City of Sacramento 2015) pertain to hazardous materials and are relevant to the project:

GOAL PHS 3.1: Reduce Exposure to Hazardous Materials and Waste. Protect and maintain the safety of residents, businesses, and visitors by reducing, and where possible, eliminating exposure to hazardous materials and waste.

- **Policy PHS 3.1.1: Investigate Sites for Contamination.** The City shall ensure buildings and sites are investigated for the presence of hazardous materials and/or waste contamination before development for which City discretionary approval is required. The City shall ensure appropriate measures are taken to protect the health and safety of all possible users and adjacent properties.
- **Policy PHS 3.1.2: Hazardous Material Contamination Management Plan.** The City shall require that property owners of known contaminated sites work with Sacramento County, the State, and/or Federal agencies to develop and implement a plan to investigate and manage sites that contain or have the potential to contain hazardous materials contamination that may present an adverse human health or environmental risk.
- **Policy PHS 3.1.4: Transportation Routes.** The City shall restrict transport of hazardous materials within Sacramento to designated routes.
- **Policy PHS 3.1.5.** The City shall strive to maintain existing clean industries in the city and discourage the expansion of businesses, with the exception health care and related medical facilities that require on-site treatment of hazardous industrial waste.
- **Policy PHS 4.1.3.** The City, in conjunction with other local, State, and Federal agencies, shall ensure operations readiness of the Emergency Operations Center, conduct annual training for staff, and maintain, test, and update equipment to meet current standards.
- **Policy PHS 4.1.4.** The City shall coordinate with local and regional jurisdictions to conduct emergency and disaster preparedness exercises to test operational and emergency plans.

City of Sacramento Department of Utilities

The City of Sacramento regulates the discharge of groundwater to the City's sewer and separated drainage systems. The City's Department of Utilities Engineering Services Resolution No. 92-439 requires approval of a Memorandum of

Understanding (MOU) for long-term (greater than 30 days), and an approval letter for short term (less than 30 days), groundwater dewatering discharges to the City's sewer and/or separated drainage system. The MOU must cover proposed dewatering details such as flow rate, system design, and contaminant monitoring plan. Discharges to the sewer must meet the Sacramento Regional County Sanitation District (SRCSD) and RWQCB-approved levels. Dischargers to the sewer must obtain a SRCSD discharge permit. Discharges to the separated drainage system will require approval from RWQCB.

City of Sacramento Hazardous Materials Program

The City's Hazardous Materials Program (HazMat) provides capability for response to hazardous material emergencies. HazMat contains a minimum of 108 fire fighters trained to the Hazardous Materials Response level and includes three Hazardous Materials Response Teams and one Decontamination Team. Under a contractual agreement, HazMat provides 24-hour first response to hazardous materials incidents within the City of Sacramento (City of Sacramento 2014).

City of Sacramento Emergency Operations Plan

The City of Sacramento Emergency Operations Plan (EOP) provides guidance for those with emergency management responsibilities within the City of Sacramento. The EOP provides year-long preparedness guidance, as well as specific guidance to those activated in the event of an emergency in order to save lives, enhance the health of citizens, and protect property and the environment. This EOP authorizes the city's personnel in all its departments and offices, to perform their duties and tasks before, during, and after an emergency.

The EOP complies and is consistent with the National Incident Management System, California's Standardized Emergency Management System, and the Federal Emergency Management Agency's standards on EOP organization for a local jurisdiction (City of Sacramento 2018).

City of Sacramento Evacuation Plan

The City of Sacramento Evacuation Plan (2008) provides evacuation-specific strategy and information to support and guide the City's Emergency Managers, Emergency Operations Center staff, and other governmental and non-governmental agencies that would be involved with an evacuation event in the City. Therefore, the Evacuation Plan serves as an extension to the EOP. Flooding is considered the primary threat that would invoke an evacuation in Sacramento. Therefore, much of the Evacuation Plan is dedicated to procedures to be followed in the event of a flood emergency. However, the associated strategy and plan details apply to other hazards, as well. The City of Sacramento Fire Department maintains updated records of the emergency response and evacuation routes for the city (City of Sacramento 2008).

Sacramento Center for Innovation Specific Plan

The Sacramento Center for Innovation (SCI) Specific Plan includes the following goals and policies relevant to hazards and hazardous materials:

- Policy LU 3.4.2. Support the monitoring, closure and eventual redevelopment of the 14th Avenue landfill in accordance with the regulations governing post-closure landfills, as set forth in Title 27 of the California Code of Regulations.
- Policy LU 3.5.3. Prohibit residential development within a 1,000 foot buffer from the edge of the landfill.
- Policy LU 3.5.4. Require that all non-residential development within 1,000 feet of the 14th Avenue landfill comply with the regulations contained in Section 21190(g) of Title 27 of the California Code of Regulations governing post-closure land use. Specifically, all on-site construction within 1,000 feet of the landfill shall be designed and constructed in accordance with the following, or in accordance with an equivalent design which will prevent gas migration into the building:

  (1) a geomembrane or equivalent system with low permeability to landfill gas shall be installed between the concrete floor slab of the building and subgrade;

(2) a permeable layer of open graded material or clean aggregate with a minimum thickness of 12 inches shall be installed between the geomembrane and the subgrade or slab;

(3) a geotextile filter shall be utilized to prevent the introduction of fines into the permeable layer;

(4) perforated venting pipes shall be installed within the permeable layer, and shall be designed to operate without clogging;

(5) the venting pipe shall be constructed with the ability to be connected to an induced draft exhaust system;

(6) automatic methane gas sensors shall be installed within the permeable gas layer, and inside the building to trigger an audible alarm when methane gas concentrations are detected; and

(7) periodic methane gas monitoring shall be conducted inside all buildings and underground utilities in accordance with Article 6, of Subchapter 4 of section 20920 et seq of CCR Title 27.

- Policy LU 3.5.5. Require notification at point of sale to all prospective purchasers of properties on or within 1,000 feet of the 14th Avenue landfill regarding potential exposure to gas migration from the landfill.
- Policy LU 3.5.6. Conditionally allow for equipment rental and sales yards on sites constrained by limitations associated with the 14th Avenue landfill until such time as higher and better uses become feasible. As a condition of approval, such uses shall be developed in an attractive manner that contributes positively to the improvement of the area.

3.7.2 Environmental Setting

For purposes of this section, the term “hazardous materials” refers to both hazardous substances and hazardous wastes. A “hazardous material” is defined in the CFR as “a substance or material that … is capable of posing an unreasonable risk to health, safety, and property when transported in commerce” (49 CFR 171.8). California Health and Safety Code Section 25501 defines a hazardous material as follows:

> “Hazardous material” means any material that, because of its 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. “Hazardous materials” include, but are not limited to, hazardous substances, hazardous waste, and any material which a handler or the administering agency has a reasonable basis for believing that it would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment.

“Hazardous wastes” are defined in California Health and Safety Code Section 25141(b) as wastes that:

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

As described in Section 3.4, “Archaeological, Historical, and Tribal Cultural Resources,” the project site was formerly the Northern California Youth Reception Center from 1954 until 2004. California State University, Sacramento (CSUS) purchased the property in 2005 with the intent to develop faculty and staff housing at the site. After a fire incident at the site in June 2010, all site buildings were demolished and removed, leaving only their foundations on the site today (NIC 2021). No hazardous materials surveys, reports, or remediation have occurred at the site since the fire incident in 2010.

The project site is located within the SCI Specific Plan area. The historic 14th Avenue landfill is located at the southeastern corner of the SCI area. This 16.67 acre landfill was originally an open-pit gravel mine that was converted to a landfill from 1968 through 1976. The former landfill consists of nine separate parcels, and those property owners formed the Power Inn Association to handle costs and work associated with monitoring and eventual closure of the landfill. However, even after proper closure of the landfill, any future development on or within 1,000 feet of the boundary must comply with State regulations governing construction on or near former landfills (City of Sacramento

2018). Specifically, all non-residential development within 1,000 feet of the 14th Avenue landfill must comply with the regulations contained in Section 21190(g) of Title 27 of the California Code of Regulations governing post-closure land use (City of Sacramento 2013). As described in Chapter 2, "Project Description," and shown on Figure 2-2, an additional 0.5-acre parcel (APN 079-0260-006) located at 7825 Cucamonga Avenue is being considered for acquisition by the University. Within the context of this EIR, this property acquisition and the University's use of the parcel for a roadway connection between the project site and Cucamonga Avenue is considered an optional additional action, and this parcel is partially located within the 1,000-foot landfill buffer boundary.

The State Water Resources Control Board (SWRCB) GeoTracker website, which provides data relating to leaking USTs and other types of soil and groundwater contamination, along with associated cleanup activities, does not identify any active hazards related to USTs and other types of contamination within the project site or surrounding area (SWRCB 2021).

DTSC's Envirostor website, which provides data related to hazardous materials spills and clean ups, also does not identify any hazards related to any cleanup sites within the project site (DTSC 2021a). There is one active cleanup site within 0.5 mile of the project site. The site, located at 3101 Redding Avenue and 7050 San Joaquin Street, has been active since 2018 and previously contained row crops, concrete construction company, and lumber yard. While used as a lumberyard, USTs were used for gasoline and diesel fuel. Additional potential contaminants of concern at the site include cobalt, polychlorinated biphenyls, and volatile organics. As of February 2020, DTSC agreed to additional cobalt sampling within the site soils and are awaiting results of a technical memo (DTSC 2021b).The nearest school, Sacramento City Unified School, is located approximately 0.5 mile west of the project site.

The Sacramento Executive Airport is located approximately 4.5 miles southwest of the project site while the Mather Airport is located approximately 5.5 miles to the east.

The project site is located in the Local Responsibility Area (LRA) within a Non-Very High Fire Hazard Severity Zone (CAL FIRE 2021).

3.7.3 Environmental Impacts and Mitigation Measures

METHODOLOGY

The following reports and data sources document potential hazardous conditions at the project site and were reviewed for this analysis:

- available literature, including documents published by federal, State, County, and City agencies; and
- California Environmental Protection Agency's Cortese List Database (including SWRCB's GeoTracker website and California Department of Toxic Substances Control's Envirostor website)

Project construction and operation were evaluated against the hazardous materials information gathered from these sources to determine whether any risks to public health and safety or other conflicts would occur.

THRESHOLDS OF SIGNIFICANCE

An impact related to hazards and hazardous materials is considered significant if implementation of the project would do any of the following:

- create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;
- create a significant hazard to the public or the environment through reasonably foreseeable upset and/or accident conditions involving the release of hazardous materials into the environment;
- emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school;

- 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;
- for a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area;
- implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan; or
- expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires.

ISSUES NOT DISCUSSED FURTHER

Hazardous Emissions or Hazardous Materials Near Existing or Proposed Schools

There are no schools within 0.25 mile of the project site; the nearest school is Sacramento City Unified School is located approximately 0.5-mile west of the project site. Therefore, impacts related to hazardous emissions or handling of hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school is not evaluated further.

Hazardous Materials Sites

The SWRCB GeoTracker website does not identify any active hazards related to USTs and other types of contamination within the project site or surrounding area (SWRCB 2021). Further, DTSC's Envirostor website also does not identify any hazards related to any cleanup sites within the project site (DTSC 2021a) As such, the project site is not included on a list of hazardous-materials sites compiled pursuant to Government Code Section 65962.5 (Cortese List) (CalEPA 2021). Therefore, this issue is not evaluated further.

Airport Hazards

The project site is not located within an airport land use plan or within 2 miles of a public airport or public use airport, or within the vicinity of a private airstrip, and would not result in an aviation related safety or noise hazard for people residing or working in the project area. Therefore, this issue is not evaluated further.

Emergency Response and Evacuation

Implementation of the project would not modify existing emergency routes or amend the City of Sacramento Emergency Operations Plan or the City of Sacramento's Evacuation Plan. The project would be developed on existing Sacramento State property and utility connections would not modify surrounding roadways. The University would prepare a construction traffic control plan, consistent with Section 12.20.20 of the Sacramento City Code, that illustrates the location of the proposed work area; identifies the location of areas where the public right-of-way would be closed or obstructed, and the placement of traffic control devices necessary to perform the work; shows the proposed phases of traffic control; and identifies the time periods when the traffic control would be in effect and, although not expected, the time periods when work would prohibit access to private property from a public right-of-way. The traffic control plan would also provide information on access for emergency vehicles to prevent interference with emergency response. No impacts related to impairment or interference of an adopted emergency response or evacuation plan would occur, and this issue is not evaluated further.

Wildland Fires

As noted above, the project site is not located within a high or moderate fire hazard severity zone. The project would involve development on an infill site that is surrounded by urban development within the city. The project would not expose people or structures to increased risks related to wildland fires. Therefore, no impacts related to risk, loss, or injury involving wildfires would occur, and this issue is not evaluated further.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Impact 3.7-1: Hazard to the Public or the Environment Through the Storage, Use, or Transport of Hazardous Materials

Project construction activities and operation of future buildings would involve the storage, use, and transport of hazardous materials at the project site. However, use of hazardous materials would be in compliance with local, State, and federal regulations. Therefore, adverse impacts related to the creation of significant hazards to the public through routine transport, storage, use, disposal, and risk of upset would not occur. This impact would be **less than significant**.

Implementation of the project would result in construction of several new buildings, landscaping and bioretention areas, common areas, internal vehicular and bike networks, and parking areas. Construction activities would likely involve the temporary storage, use, and transport of hazardous materials (e.g., asphalt, fuels, lubricants, paint, solvents, cleaners). Transportation of hazardous materials on area roadways is regulated by the California Highway Patrol and Caltrans, whereas use of these materials is regulated by DTSC, as outlined in CCR Title 22. Sacramento State, CMC, and DGS would be required to use, store, and transport hazardous materials in compliance with local, State, and federal regulations during facility construction. Any disposal of hazardous materials would occur in a manner consistent with applicable regulations and at an appropriate off-site disposal facility. In addition, the County Hazardous Materials Division shall be notified if evidence of previously undiscovered soil or groundwater contamination (e.g., stained soil, odorous groundwater) is encountered during exterior renovations, utility trenching, or landscaping.

Operation of the project would also involve the use of small amounts of common hazardous materials, such as, cleaning solvents, fertilizers, herbicides, and pesticides. Additionally, chemicals and other materials associated with CMC autonomous vehicles (i.e., battery storage, electric vehicle fluids [e-fluids], and any EV coatings) or with the forensic laboratories in the CA DOJ building would be present onsite during project operation. Any storage or use of hazardous materials during operation of onsite buildings would be required to comply with appropriate regulatory agency standards designed to avoid releases of hazardous materials.

Because construction and operation of the project would comply with existing hazardous materials regulations, impacts related to creation of significant hazards to the public through routine transport, use, disposal, and risk of upset would not occur. Therefore, this impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.7-2: Hazards to the Public or Environment Through Reasonably Foreseeable Upset and/or Accident Conditions Involving the Release of Hazardous Materials into the Environment

Because no post-fire hazardous material surveys have occurred within the project site, there is the potential for unidentified hazardous conditions (i.e., toxic soil) to be present. Construction activities resulting project implementation could result in disturbance or accidental release of unidentified hazard materials within the project site. This impact would be **potentially significant.**

Project implementation would involve construction and operation of several new site buildings, common areas, internal vehicular and bike networks, parking areas, as well as landscaping and bioretention areas. As previously described, the project site experienced a fire incident in June 2010 that resulted in damage to several existing buildings. Shortly after, all site buildings were demolished and removed, leaving only their foundations on the site today (NIC 2021). No hazardous materials surveys, reports, or remediation have occurred at the site since the fire incident in 2010.

The 0.5-acre parcel (APN 079-0260-006) located at 7825 Cucamonga Avenue being considered for acquisition by the University and potential use for a roadway connection between the project site and Cucamonga Avenue is partially located within the 14th Avenue Landfill development buffer boundary. No additional development is currently anticipated for this parcel. Neither The Hub nor the optional vehicular access through this parcel would include any residential uses. Because APN 079-0260-006 falls within the landfill buffer, the optional future construction activities for a roadway connection would be required to comply with regulations contained in Section 21190(g) of Title 27 of the California Code of Regulations governing post-closure land use. In addition, the optional roadway through this parcel would be required to be designed and constructed according to the SCI policies listed under Section 3.7.1, "Environmental Setting".

As previously described, no active hazards related to USTs and other types of contamination or known hazardous cleanup sites have been identified within the project site or surrounding area (SWRCB 2021; DTSC 2021a). However, based on the project site's fire history and because no post-fire hazardous material surveys have occurred, it is possible that hazardous materials may be present within the project site, notably within soils surrounding former buildings. Construction activities resulting from implementation of the project could result in disturbance or accidental release of unidentified hazard materials (i.e., ash, toxic or hazardous soils, and other materials burned in the fire). Because of the potential for hazardous environmental conditions (i.e., hazardous materials) to be present within the project site, and because project construction activities could result in accident conditions involving the release of materials, this impact is considered **potentially significant**.

Mitigation Measures

Mitigation Measure 3.7-2: Identification and Treatment of Potential Hazardous Materials and Conditions

To reduce health hazards associated with potential exposure to hazardous substances, Sacramento State and/or its construction contractors shall implement the following measures before initiation of construction activities within the project site:

- Sacramento State shall retain a qualified environmental professional to conduct a hazardous materials survey (i.e., Phase I Environmental Site Assessment) to characterize potential contamination and to identify any required remediation that shall be conducted consistent with applicable regulations. The environmental professional shall prepare a report that includes but is not limited to activities performed for the assessment, a summary of anticipated contaminants and contaminant concentrations at the project site, and recommendations for appropriate handling of any contaminated materials during construction. Any contaminated areas shall be remediated in accordance with recommendations made by the Sacramento County Environmental Management Department, Central Valley RWQCB, DTSC, or other appropriate federal, state, or local regulatory agencies.
- If hazardous materials or conditions are identified, completion of all recommended site remediation and cleanup activities shall occur prior to project construction.
- If Sacramento State acquires the parcel (APN 079-0260-006) south of the project site for a roadway connection between the project site and Cucamonga Avenue, Sacramento State shall comply with regulations contained in Section 21190(g) of Title 27 of the California Code of Regulations governing post-closure land use and this area. Additionally, construction and operation of this optional parcel shall comply with requirements listed in SCI Policy LU 3.5.4.

Significance after Mitigation

Implementation of Mitigation Measure 3.7-2 would require Sacramento State to conduct a hazardous materials survey to locate potential hazardous materials at the project site prior to development and would ensure that any encountered hazardous materials, including contaminated soils, are appropriately remediated and disposed of in accordance with applicable regulations and the safety of the surrounding environment. Mitigation Measure 3.7-2 also requires compliance with the regulations governing post-closure land use if APN 079-0260-006 is acquired and utilized for a roadway connection to Cucamonga Avenue. Following implementation of mitigation, impacts would be **less than significant**.

3.8 NOISE AND VIBRATION

This section includes a summary of applicable regulations related to noise and vibration, a description of ambient-noise conditions, and an analysis of potential short-term construction and long-term operational-source noise impacts associated with the project. Modeling data and assumptions are provided in Appendix C, "Noise Measurement Data and Noise Modeling Calculations."

No comments regarding noise were received in response to the Notice of Preparation.

This analysis uses the following noise and vibration descriptors:

- A-Weighted Decibels (dBA): Noise levels are commonly reported in decibels using the A-weighting decibel scale (dbA). The A-weighting network approximates the frequency response of the average young ear when listening to most ordinary sounds. When people make judgments of the relative loudness or annoyance of a sound, their judgment correlates well with the A-scale sound levels of those sounds.
- Equivalent Continuous Sound Level (L_{eq}): L_{eq} represents an average of the sound energy occurring over a specified period. In effect, L_{eq} is the steady-state sound level containing the same acoustical energy as the time-varying sound level that occurs during the same period (Caltrans 2013:2-48). For instance, the 1-hour equivalent sound level, also referred to as the hourly L_{eq}, is the energy average of sound levels occurring during a 1-hour period and is the basis for noise abatement criteria used by the California Department of Transportation (Caltrans) and Federal Transit Administration (FTA) (Caltrans 2013:2-47; FTA 2018).
- Percentile-Exceeded Sound Level (L_X): L_X represents the sound level exceeded for a given percentage of a specified period (e.g., L_{10} is the sound level exceeded 10 percent of the time, and L_{90} is the sound level exceeded 90 percent of the time) (Caltrans 2013:2-16).
- Maximum Sound Level (L_{max}): L_{max} is the highest instantaneous sound level measured during a specified period (Caltrans 2013:2-48; FTA 2018).
- Day-Night Level (L_{dn}): L_{dn} is the energy average of A-weighted sound levels occurring over a 24-hour period, with a 10-decibel (dB) "penalty" applied to sound levels occurring during nighttime hours between 10 p.m. and 7 a.m. (Caltrans 2013:2-48; FTA 2018).
- Community Noise Equivalent Level (CNEL): CNEL is the energy average of the A-weighted sound levels occurring over a 24-hour period, with a 10-dBA penalty applied to sound levels occurring during the nighttime hours between 10 p.m. and 7 a.m. and a 5-dBA penalty applied to the sound levels occurring during evening hours between 7 p.m. and 10 p.m., to account for added human sensitivity to noise during these periods (Caltrans 2013:2-48).
- Vibration Decibels (VdB): VdB is the vibration velocity level in decibel scale (FTA 2018:Table 5-1).
- Peak Particle Velocity (PPV): PPV is the peak signal value of an oscillating vibration waveform. Usually expressed in inches/second (FTA 2018:Table 5-1).

3.8.1 Regulatory Setting

FEDERAL

U.S. Environmental Protection Agency Office of Noise Abatement and Control

The U.S. Environmental Protection Agency (EPA) Office of Noise Abatement and Control was originally established to coordinate Federal noise control activities. In 1981, EPA administrators determined that subjective issues such as noise would be better addressed at more local levels of government. Consequently, in 1982 responsibilities for regulating noise control policies were transferred to state and local governments. However, documents and research completed by the EPA Office of Noise Abatement and Control continue to provide value in the analysis of noise effects.

Federal Transit Administration

To address the human response to ground vibration, FTA has set forth guidelines for maximum-acceptable vibration criteria for different types of land uses. These guidelines are presented in Table 3.8-1.

Table 3.8-1 Ground-Borne Vibration Impact Criteria for General Assessment

Land Use Category	GBV Impact Levels (VdB re 1 micro-inch/second) Frequent Events[1]	GBV Impact Levels (VdB re 1 micro-inch/second) Occasional Events[2]	GBV Impact Levels (VdB re 1 micro-inch/second) Infrequent Events[3]
Category 1: Buildings where vibration would interfere with interior operations.	65 [4]	65 [4]	65 [4]
Category 2: Residences and buildings where people normally sleep.	72	75	80
Category 3: Institutional land uses with primarily daytime uses.	75	78	83

Notes: GBV = Ground-Borne Vibration, VdB = vibration decibels referenced to 1 μ inch/second and based on the root mean square (RMS) velocity amplitude.

1 "Frequent Events" is defined as more than 70 vibration events of the same source per day.

2 "Occasional Events" is defined as between 30 and 70 vibration events of the same source per day.

3 "Infrequent Events" is defined as fewer than 30 vibration events of the same source per day.

4 This criterion is based on levels that are acceptable for most moderately sensitive equipment such as optical microscopes. Vibration-sensitive manufacturing or research would require detailed evaluation to define acceptable vibration levels.

Source: FTA 2018.

STATE

California Department of Transportation

In 2020, Caltrans published the Transportation and Construction Vibration Manual (Caltrans 2020). The manual provides general guidance on vibration issues associated with construction and operation of projects in relation to human perception and structural damage. Table 3.8-2 presents recommendations for levels of vibration that could result in damage to structures exposed to continuous vibration.

Table 3.8-2 Caltrans Recommended Threshold Criteria for Vibration Exposure

Maximum PPV (in/sec) Transient Sources	Maximum PPV (in/sec) Continuous/ Frequent Intermittent Sources	Type of Building and Condition
0.12	0.08	Extremely fragile historic buildings, ruins, ancient monuments
0.2	0.1	Fragile buildings
0.5	0.25	Historic and some old buildings
0.5	0.3	Older residential structures
1.0	0.5	New residential structures
2.0	0.5	Modern industrial/commercial buildings

Notes: PPV = Peak Particle Velocity; in/sec = inches per second

Source: Caltrans 2020:38.

LOCAL

Sacramento State is an entity of the CSU, which is a statutorily- and legislative-created, constitutionally authorized State agency, and the Ramona Property (the project site) is owned by the CSU. As explained in Chapter 3, section, "California State University Autonomy," of this ~~Draft~~ EIR, State agencies are not subject to local government planning and land use plans, policies, or regulations. Nevertheless, in the exercise of its discretion, CSU does reference, describe, and address local plans, policies, and regulations where appropriate and for informational purposes.

City of Sacramento 2035 General Plan

The Noise section of the Environmental Constraints Element of the *City of Sacramento 2035 General Plan* (City of Sacramento 2015) establishes the following standards and policies that are relevant to the analysis of the noise effects of the project:

- **EC 3.1.1 Exterior Noise Standards.** The City shall require noise mitigation for all development where the projected exterior noise levels exceed those shown in Table EC 1 (presented as Table 3.8-3, below), to the extent feasible.
- **EC 3.1.2 Exterior Incremental Noise Standards.** The City shall require noise mitigation for all development that increases existing noise levels by more than the allowable increment shown in Table EC 2 (presented as Table 3.8-4, below), to the extent feasible.
- **EC 3.1.3 Interior Noise Standards.** The City shall require new development to include noise mitigation to assure acceptable interior noise levels appropriate to the land use type: 45 dB L_{dn} (with windows closed) for residential, transient lodgings, hospitals, nursing homes and other uses where people normally sleep; and 45 dB L_{eq} (peak hour with windows closed) for office buildings and similar uses.
- **EC 3.1.5 Interior Vibration Standards.** The City shall require construction projects anticipated to generate a significant amount of vibration to ensure acceptable interior vibration levels at nearby residential and commercial uses based on the current City or Federal Transit Administration (FTA) criteria.
- **EC 3.1.6 Effects of Vibration.** The City shall consider potential effects of vibration when reviewing new residential and commercial projects that are proposed in the vicinity of rail lines or light rail lines.
- **EC 3.1.7 Vibration.** The City shall require an assessment of the damage potential of vibration-induced construction activities, highways, and rail lines in close proximity to historic buildings and archaeological sites and require all feasible measures be implemented to ensure no damage would occur.
- **EC 3.1.8 Operational Noise.** The City shall require mixed-use, commercial, and industrial projects to mitigate operational noise impacts to adjoining sensitive uses when operational noise thresholds are exceeded.
- **EC 3.1.10 Construction Noise.** The City shall require development projects subject to discretionary approval to assess potential construction noise impacts on nearby sensitive uses and to minimize impacts on these uses, to the extent feasible.
- **EC 3.1.11 Alternatives to Sound Walls.** The City shall encourage the use of design strategies and other noise reduction methods along transportation corridors in lieu of sound walls to mitigate noise impacts and enhance aesthetics.

Table 3.8-3 Exterior Noise Compatibility Standards for Various Land Uses

Land Use Type	Highest Level of Noise Exposure that is Regarded as "Normally Acceptable" [1] (L_{dn} [2] or CNEL [3])
Residential—Low Density Single Family, Duplex, Mobile Homes	60 dB [4]
Residential—Multi-family [5]	65 dB
Urban Residential Infill [6] and Mixed-Use Projects [7,8]	70 dB
Transient Lodging—Motels, Hotels	65 dB
Schools, Libraries, Churches, Hospitals, Nursing Homes	70 dB
Auditoriums, Concert Halls, Amphitheaters	Mitigation based on site-specific study
Sports Arena, Outdoor Spectator Sports	Mitigation based on site-specific study
Playgrounds, Neighborhood Parks	70 dB
Golf Courses, Riding Stables, Water Recreation, Cemeteries	75 dB
Office Buildings—Business, Commercial and Professional	70 dB
Industrial, Manufacturing, Utilities, Agriculture	75 dB

1. "Normally Acceptable" means that the specified land use is satisfactory, based upon the assumption that any building involved is of normal conventional construction, without any special noise insulation requirements.
2. Ldn or Day Night Average Level is an average 24-hour noise measurement that factors in day and night noise levels.
3. CNEL or Community Noise Equivalent Level measurements are a weighted average of sound levels gathered throughout a 24-hour period.
4. Applies to the primary open space area of a detached single-family home, duplex, or mobile home, which is typically the backyard or fenced side yard, as measured from the center of the primary open space area (not the property line). This standard does not apply to secondary open space areas, such as front yards, balconies, stoops, and porches.
5. Applies to the primary open space areas of townhomes and multi-family apartments or condominiums (private year yards for townhomes; common courtyards, roof gardens, or gathering spaces for multi-family developments). These standards shall not apply to balconies or small attached patios in multistoried multi-family structures.
6. With land use designations of Central Business District, Urban Neighborhood (Low, Medium, or High) Urban Center (Low or High), Urban Corridor (Low or High).
7. All mixed-use projects located anywhere in the City of Sacramento
8. See notes 4 and 5 above for definition of primary open space areas for single-family and multi-family developments.

Source: OPR 2003, cited in City of Sacramento 2015, 2035 General Plan Table EC 1

Table 3.8-4 Exterior Incremental Noise Impact Standards for Noise-Sensitive Uses (dB)

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

1 This category includes homes, hospitals, and hotels where a nighttime sensitivity to noise is assumed to be of utmost importance.

2 The category includes schools, libraries, theaters, and churches where it is important to avoid interference with such activities as speech, meditation, and concentration on reading material.

Source: FTA 2006, cited in City of Sacramento 2015, 2035 General Plan Table EC 2

City of Sacramento Noise Control Ordinance

The City's Noise Control Ordinance in the City of Sacramento Municipal Code establishes the following standards related to noise that are applicable to the project:

<u>8.68.070 Exterior Noise Standards</u>

A. The following noise standards, unless otherwise specifically indicated in this article, shall apply to all agricultural and residential properties.

   1. From seven a.m. to ten p.m. the exterior noise standard shall be 55 dB.
   2. From ten p.m. to seven a.m. the exterior noise standard shall be 50 dB.

B. It is unlawful for any person at any location to create any noise which causes the noise levels when measured on agricultural or residential property to exceed for the duration of time set forth following, the specified exterior noise standards in any one hour by:

Cumulative Duration of the Intrusive Sound	Allowance Decibels
Cumulative period of 30 minutes per hour	0
Cumulative period of 15 minutes per hour	+5
Cumulative period of 5 minutes per hour	+10
Cumulative period of 1 minute per hour	+15
Level not to be exceeded for any time per hour	+20

C. Each of the noise limits specified in subsection B. of this section shall be reduced by 5 dB for impulsive or simple tone noises, or for noises consisting of speech or music.

D. If the ambient noise level exceeds that permitted by any of the first four noise limit categories specified in subsection B of this section, the allowable noise limit shall be increased in 5 dB increments in each category to encompass the ambient noise level. If the ambient noise level exceeds the fifth noise level category, the maximum ambient noise level shall be the noise limit for that category.

<u>8.68.080 Interior Noise Standards</u>

A. In any apartment, condominium, townhouse, duplex or multiple dwelling unit it is unlawful for any person to create any noise from inside his or her unit that causes the noise level when measured in a neighboring unit during the periods ten p.m. to seven a.m. to exceed:

   1. Forty-five dB for a cumulative period of more than five minutes in any hour;
   2. Fifty dB for a cumulative period of more than one minute in any hour;
   3. Fifty-five dB for any period of time.

B. If the ambient noise level exceeds that permitted by any of the noise level categories specified in subsection A of this section, the allowable noise limit shall be increased in five dB increments in each category to encompass the ambient noise level.

<u>8.68.090 Exemptions</u>

The following activities shall be exempted from the provisions of this chapter:

D. Noise sources due to the erection (including excavation), demolition, alteration or repair of any building or structure between the hours of seven a.m. and six p.m. on Monday, Tuesday, Wednesday, Thursday, Friday and Saturday, and between nine a.m. and six p.m. on Sunday; provided, however, that the operation of an internal combustion engine shall not be exempt pursuant to this subsection if such engine is not equipped with suitable exhaust and intake silencers which are in good working order. The director of building inspections may permit work to be done during the hours not exempt by this subsection in the case of urgent necessity and in the interest of public health and welfare for a period not to exceed three days. Application for this exemption may be made in conjunction with the application for the work permit or during progress of the work.

3.8.2 Environmental Setting

SOUND, NOISE, AND ACOUSTICS

Sound can be described as the mechanical energy of a vibrating object transmitted by pressure waves through a liquid or gaseous medium (e.g., air) to a human ear. Noise is defined as loud, unexpected, annoying, or unwanted sound.

In the science of acoustics, the fundamental model consists of a sound (or noise) source, a receiver, and the propagation path between the two. The loudness of the noise source and obstructions or atmospheric factors affecting the propagation path to the receiver determines the sound level and characteristics of the noise perceived by the receiver. The field of acoustics deals primarily with the propagation and control of sound.

FREQUENCY

Continuous sound can be described by frequency (pitch) and amplitude (loudness). A low-frequency sound is perceived as low in pitch. Frequency is expressed in terms of cycles per second, or hertz (Hz) (e.g., a frequency of 250 cycles per second is referred to as 250 Hz). High frequencies are sometimes more conveniently expressed in kilohertz, or thousands of hertz. The audible frequency range for humans is generally between 20 Hz and 20,000 Hz.

SOUND PRESSURE LEVELS AND DECIBELS

The amplitude of pressure waves generated by a sound source determines the loudness of that source. Sound pressure amplitude is measured in micro-Pascals (mPa). One mPa is approximately one hundred billionth (0.00000000001) of normal atmospheric pressure. Sound pressure amplitudes for different kinds of noise environments can range from less than 100 to 100,000,000 mPa. Because of this large range of values, sound is rarely expressed in terms of mPa. Instead, a logarithmic scale is used to describe sound pressure level (SPL) in terms of decibels (dB).

ADDITION OF DECIBELS

Because decibels are logarithmic units, SPLs cannot be added or subtracted through ordinary arithmetic. Under the decibel scale, a doubling of sound energy corresponds to a 3-dB increase. In other words, when two identical sources are each producing sound of the same loudness at the same time, the resulting sound level at a given distance would be 3 dB higher than if only one of the sound sources was producing sound under the same conditions. For example, if one idling truck generates an SPL of 70 dB, two trucks idling simultaneously would not produce 140 dB; rather, they would combine to produce 73 dB. Under the decibel scale, three sources of equal loudness together produce a sound level approximately 5 dB louder than one source.

A-WEIGHTED DECIBELS

As noted above, 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. Although the intensity (energy per unit area) of the sound is a purely physical quantity, the loudness or human response is determined by the characteristics of the human ear.

Human hearing is limited in the range of audible frequencies as well as in the way it perceives the SPL in that range. In general, people are most sensitive to the frequency range of 1,000–8,000 Hz and perceive sounds within this range better than sounds of the same amplitude with frequencies outside of this range. To approximate the response of the human ear, sound levels of individual frequency bands are weighted, depending on the human sensitivity to those frequencies. Then, an "A-weighted" sound level (expressed in units of A-weighted decibels) can be computed based on this information.

The A-weighting network approximates the frequency response of the average young ear when listening to most ordinary sounds. When people make judgments of the relative loudness or annoyance of a sound, their judgment correlates well with the A-scale sound levels of those sounds. Thus, noise levels are typically reported in terms of A-weighted decibels. Table 3.8-5 describes typical A-weighted noise levels for various noise sources.

Table 3.8-5 Typical A-Weighted Noise Levels

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	— 110 —	Rock band
Jet fly-over at 1,000 feet	— 100 —	
Gas lawn mower at 3 feet	— 90 —	
Diesel truck at 50 feet at 50 miles per hour	— 80 —	Food blender at 3 feet, Garbage disposal at 3 feet
Noisy urban area, daytime, Gas lawn mower at 100 feet	— 70 —	Vacuum cleaner at 10 feet, Normal speech at 3 feet
Commercial area, Heavy traffic at 300 feet	— 60 —	
Quiet urban daytime	— 50 —	Large business office, Dishwasher next room
Quiet urban nighttime	— 40 —	Theater, large conference room (background)
Quiet suburban nighttime	— 30 —	Library, Bedroom at night
Quiet rural nighttime	— 20 —	
	— 10 —	Broadcast/recording studio
Lowest threshold of human hearing	— 0 —	Lowest threshold of human hearing

Source: Caltrans 2013: Table 2-5

HUMAN RESPONSE TO CHANGES IN NOISE LEVELS

The doubling of sound energy results in a 3-dB increase in the sound level. However, given a sound level change measured with precise instrumentation, the subjective human perception of a doubling of loudness will usually be different from what is measured.

Under controlled conditions in an acoustical laboratory, the trained, healthy human ear can discern 1-dB changes in sound levels when exposed to steady, single-frequency ("pure-tone") signals in the mid-frequency (1,000–8,000 Hz) range. In general, the healthy human ear is most sensitive to sounds between 1,000 and 5,000 Hz and perceives both higher and lower frequency sounds of the same magnitude with less intensity (Caltrans 2013:2-18). In typical noisy environments, changes in noise of 1–2 dB are generally not perceptible. However, it is widely accepted that people can begin to detect sound level increases of 3 dB in typical noisy environments. Further, a 5-dB increase is generally perceived as a distinctly noticeable increase, and a 10-dB increase is generally perceived as a doubling of loudness (Caltrans 2013:2-10). Therefore, a doubling of sound energy (e.g., doubling the volume of traffic on a highway) that would result in a 3-dB increase in sound would generally be perceived as barely detectable.

VIBRATION

Vibration is the periodic oscillation of a medium or object with respect to a given reference point. Ground-borne vibration is vibration of and through the ground. Ground-borne vibration can range from levels that are imperceptible by humans to levels that can create substantial damage to buildings and structures. Sources ground-borne of vibration include natural phenomena (e.g., earthquakes, volcanic eruptions, sea waves, landslides) and those introduced by human activity (e.g., explosions, machinery, traffic, trains, construction equipment). Vibration sources may be continuous, (e.g., operating factory machinery) or transient in nature (e.g., explosions). Vibration levels can be depicted in terms of amplitude and frequency, relative to displacement, velocity, or acceleration.

Ground-borne vibration amplitudes are commonly expressed in peak particle velocity (PPV) or root-mean-square (RMS) vibration velocity. PPV and RMS vibration velocity are normally described in inches per second (in/sec) or in millimeters per second. PPV is defined as the maximum instantaneous positive or negative peak of a vibration signal. PPV is typically used in the monitoring of transient and impact vibration and has been found to correlate well to the stresses experienced by buildings (FTA 2018:110; Caltrans 2020:6).

Although PPV is appropriate for evaluating the potential for building damage, it is not always suitable for evaluating human response. It takes some time for the human body to respond to vibration signals. In a sense, the human body responds to average vibration amplitude. The RMS of a signal is the average of the squared amplitude of the signal, typically calculated over a 1-second period. As with airborne sound, the RMS velocity is often expressed in decibel notation as VdB, which serves to compress the range of numbers required to describe vibration (FTA 2018:110, 199; Caltrans 2013:7). This is based on a reference value of 1 microinch per second.

The typical background ground-borne vibration-velocity level in residential areas is approximately 50 VdB. Ground vibration is normally perceptible to humans at approximately 65 VdB. For most people, a vibration-velocity level of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels (FTA 2018:120; Caltrans 2013:27).

Typical outdoor sources of perceptible ground vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. If a roadway is smooth, the ground vibration is rarely perceptible. The range of interest is from approximately 50 VdB, which is the typical background vibration-velocity level, to 100 VdB, which is the general threshold where minor damage can occur to fragile buildings. Construction activities can generate sufficient ground vibrations to pose a risk to nearby structures. Constant or transient vibrations can weaken structures, crack facades, and disturb occupants (FTA 2018:113).

Ground vibration levels generated by construction activity can be transient, random, or continuous. Transient construction vibrations are generated by blasting, impact pile driving, and wrecking balls. Continuous vibrations are generated by vibratory pile drivers, large pumps, and compressors. Random vibration can result from jackhammers, pavement breakers, and heavy construction equipment.

Table 3.8-6 summarizes the general human response to different ground vibration-velocity levels.

Table 3.8-6 Human Response to Different Levels of Ground Noise and Vibration

Vibration-Velocity Level	Human Reaction
65 VdB	Approximate threshold of perception.
75 VdB	Approximate dividing line between barely perceptible and distinctly perceptible. Many people find that transportation-related vibration at this level is unacceptable.
85 VdB	Vibration acceptable only if there are an infrequent number of events per day.

Notes: VdB = vibration decibels referenced to 1 μ inch/second and based on the root mean square (RMS) velocity amplitude.

Source: FTA 2018:120

SOUND PROPAGATION

When sound propagates over a distance, it changes in level and frequency content. The manner in which a noise level decreases with distance depends on the following factors:

Geometric Spreading

Sound from a localized source (i.e., a point source) propagates uniformly outward in a spherical pattern. The sound level attenuates (or decreases) at a rate of 6 dB for each doubling of distance from a point source. Roads and highways consist of several localized noise sources on a defined path and hence can be treated as a line source, which approximates the effect of several point sources, thus propagating at a slower rate in comparison to a point source. Noise from a line source propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of 3 dB for each doubling of distance from a line source.

Ground Absorption

The propagation path of noise from a source to a receiver is usually very close to the ground. Noise attenuation from ground absorption and reflective-wave canceling provides additional attenuation associated with geometric spreading. Traditionally, this additional attenuation has also been expressed in terms of attenuation per doubling of distance. This approximation is usually sufficiently accurate for distances of less than 200 feet. For acoustically hard sites (i.e., sites with a reflective surface between the source and the receiver, such as a parking lot or body of water), no excess ground attenuation is assumed. For acoustically absorptive or soft sites (i.e., those sites with an absorptive ground surface between the source and the receiver, such as soft dirt, grass, or scattered bushes and trees), additional ground-attenuation value of 1.5 dB per doubling of distance is normally assumed. When added to the attenuate rate associated with cylindrical spreading, the additional ground attenuation results in an overall drop-off rate of 4.5 dB per doubling of distance. This would hold true for point sources, resulting in an overall drop-off rate of up to 7.5 dB per doubling of distance.

Atmospheric Effects

Receivers located downwind from a source can be exposed to increased noise levels relative to calm conditions, whereas locations upwind can have lowered noise levels, as wind can carry sound. Sound levels can be increased over large distances (e.g., more than 500 feet) from the source because of atmospheric temperature inversion (i.e., increasing temperature with elevation). Other factors such as air temperature, humidity, and turbulence can also affect sound attenuation.

Shielding by Natural or Human-Made Features

A large object or barrier in the path between a noise source and a receiver attenuate noise levels at the receiver. The amount of attenuation provided by shielding depends on the size of the object and the frequency content of the noise source. Natural terrain features (e.g., hills and dense woods) and human-made features (e.g., buildings and walls) can substantially reduce noise levels. A barrier that breaks the line of sight between a source and a receiver will typically result in at least 5 dB of noise reduction (Caltrans 2013:2-41; FTA 2018:42). Barriers higher than the line of sight provide increased noise reduction (FTA 2018:16). Vegetation between the source and receiver is rarely effective in reducing noise because it does not create a solid barrier unless there are multiple rows of vegetation (FTA 2018:15, 104, 106).

EXISTING NOISE ENVIRONMENT

Existing Noise- and Vibration-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, and because of the potential for nighttime noise to result in sleep disruption. Additional land uses such as schools, transient lodging, historic sites, cemeteries, and places of worship are also generally considered sensitive to increases in noise levels. These land use types are also considered vibration-sensitive land uses, as are commercial and industrial buildings where vibration would interfere with operations within the building, including levels that may be well below those associated with human annoyance, and fragile masonry buildings that could experience structural damage from intense vibration levels generated nearby.

The project site is immediately surrounded by a mixture of commercial and industrial land uses. The nearest noise-sensitive receptors to the project site are multifamily residential uses approximately 970 feet to the northwest (The Crossings on Ramona Avenue). Other sensitive receptors include a residential neighborhood approximately 1,100 feet southwest of the project site and the Phoenix Sacramento apartment complex and the Golden Palms Mobile Homes Estates (both approximately 1,800 feet away to the east of the project site).

Existing Noise Sources

Because the project site is located within a highly urbanized and industrial portion of Sacramento, several noise sources exist in the project vicinity, predominantly vehicle traffic on the surrounding roadway network (e.g., Brighton Avenue, Power Inn Road, Cucamonga Avenue, Ramona Avenue, U.S. Highway 50 [US 50]). Other existing noise sources include trains on the nearby light rail, mechanical equipment on nearby buildings, and operational activities associated with adjacent commercial and industrial land uses (e.g., parking lots, loading docks and delivery trucks). Table 3.8-7 summarizes the modeled existing traffic noise levels at 100 feet from the centerline of each area roadway segments, and lists distances from each roadway centerline to the 75, 70, and 65 dBA CNEL traffic noise contours. For further details on traffic-noise modeling inputs and parameters, refer to Appendix C.

Table 3.8-7 Summary of Modeled Existing Traffic Noise Levels

Roadway Segment/Segment Description	CNEL at 100 feet from Roadway Centerline	Distance (feet) from Roadway Centerline to CNEL Contour 75 dBA	Distance (feet) from Roadway Centerline to CNEL Contour 70 dBA	Distance (feet) from Roadway Centerline to CNEL Contour 65 dBA
Elvas Avenue between J Street and Folsom Boulevard	60.2	4	13	41
Folsom Boulevard between 47th Street and 65th Street	63.6	9	27	87
Folsom Boulevard between Howe Avenue and Jackson Highway	68.3	26	83	264
Power Inn Road between US 50 and 14th Avenue	71.4	61	193	610
Hornet Drive between US 50 and Folsom Boulevard	63.7	9	29	90
14th Avenue between 65th Street and Power Inn Road	63.3	9	28	88
Power Inn Road between 14th Avenue and Fruitridge Road	69.7	36	115	364

Notes: CNEL = Community Noise Equivalent Level; dBA = A-weighted decibel

All modeling assumes average pavement, level roadways (less than 1.5% grade), constant traffic flow, and does not account for shielding of any type or finite roadway adjustments. For additional details, refer to Appendix C for detailed traffic data, and traffic-noise modeling input data and output results.

Source: Modeled by Ascent Environmental in 2021

3.8.3 Environmental Impacts and Mitigation Measures

METHODOLOGY

Construction Noise and Vibration

To assess potential short-term, construction-related noise and vibration impacts, sensitive receptors and their relative exposure were identified. Project-generated construction noise and vibration levels were determined based on methodologies, reference emission levels, and usage factors from FTA's *Guide on Transit Noise and Vibration Impact Assessment* methodology (FTA 2018) and FHWA's *Roadway Construction Noise Model User's Guide* (FHWA 2006). Reference levels for noise and vibration emissions for specific equipment or activity types are well documented and the usage thereof common practice in the field of acoustics.

Operational Noise and Vibration

With respect to non-transportation noise sources (e.g., stationary) associated with project implementation, the assessment of long-term (operational-related) impacts was based on reconnaissance data, reference noise emission levels, and measured noise levels for activities and equipment associated with project operation (e.g., heating, ventilation and air conditioning [HVAC] units, delivery docks), and standard attenuation rates and modeling techniques.

To assess potential long-term (operation-related) noise impacts due to project-generated increases in traffic, noise levels were estimated in using calculations consistent with the Federal Highway Administration's Traffic Noise Model Version 2.5 (FHWA 2004) and project-specific traffic data (Appendix C). The analysis is based on the reference noise emission levels for automobiles, medium trucks, and heavy trucks, with consideration given to vehicle volume, speed, roadway configuration, distance to the receiver, and ground attenuation factors. Truck usage and vehicle speeds on area roadways were estimated from field observations and the project-specific traffic report. Note that the modeling conducted does not account for any natural or human-made shielding (e.g., the presence of walls or buildings) or reflection off building surfaces.

THRESHOLDS OF SIGNIFICANCE

Sacramento State does not have adopted noise standards or policies. Therefore, although State projects are exempt from local ordinances and standards, the City of Sacramento's noise standards are appropriate thresholds for determination of significance and are used in this analysis for purposes of impact determination. Accordingly, a noise impact is considered significant if implementation of the project would result in any of the following:

- construction-generated noise levels exceeding the City's Noise Control Ordinance standards during the more noise-sensitive evening, nighttime, and early-morning hours (6 p.m. to 7 a.m., Monday through Saturday, and between 6 p.m. and 9 a.m. on Sunday);
- construction-generated vibration levels exceeding the Caltrans recommended standards with respect to the prevention of building structural damage (0.5 for modern industrial/commercial buildings and new residential structures) or the FTA's maximum-acceptable-vibration standard with respect to human response (80 VdB for residential uses) at nearby existing vibration-sensitive land uses;
- long-term operational noise levels generated by stationary or area sources that exceed the City's Noise Control Ordinance or General Plan standards; or
- long-term, traffic-generated noise levels exceeding the City's noise standards for land use compatibility (Table 4.10-3) as specified in the City's General Plan, an increase in ambient-noise levels of more than the allowable noise increment at nearby existing noise-sensitive land uses (Table 4.10-4) as specified in the City's General Plan, or an increase in ambient noise levels exceeding interior noise standards (45 CNEL/L_{dn}) at nearby existing noise-sensitive land uses as specified in the City's General Plan.
- 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, expose people residing or working in the project area to excessive noise levels; or
- for a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels.

ISSUES NOT DISCUSSED FURTHER

Airport/Airstrip-Related Noise Exposure

The project is not located within an airport land use plan, or within two miles of a public airport or public use airport. Additionally, the project is not located within two miles of a private airstrip. Sacramento Executive Airport is the closest airport and is located approximately 4.3 miles southwest of the project site. Thus, the project would not result in noise impacts related to the exposure of people residing or working in the project area to excessive aircraft-related noise levels.

Long-Term Operational Vibration

The implementation of The Hub would not introduce any major sources of long-term or permanent ground vibration (in contrast to construction vibration, which is evaluated in impact analysis, below). Additionally, no major stationary sources of groundborne vibration were identified in the project area that would result in the long-term exposure of proposed on-site land uses to unacceptable levels of ground vibration. Thus, long-term or permanent ground vibration levels in exceedance of the significance thresholds are not anticipated as a result of project implementation. This issue is not discussed further in this EIR.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Impact 3.8-1: Generate Substantial Temporary (Construction) Noise

Construction activity would result in increased noise levels in the vicinity of the activity. However, noise-generating construction activity would be performed during daytime hours when construction noise is exempt from noise standards established in the City of Sacramento Noise Control Ordinance. Further, the closest sensitive receptors are located approximately 970 feet from the project site, with other sensitive receptors located even farther distant. At this distance, project-generated noise levels attenuate to or below existing background noise levels. Since construction would not result in a substantial temporary increase in noise, this impact would be **less than significant**.

The project would be constructed in two phases. Construction of Phase I would begin in summer 2023 and is expected to take approximately 2.5 years, with estimated completion in Spring 2026. Construction of Phase II would begin after 2026 and is expected to take approximately 2 years, with tenant occupancy anticipated no earlier than 2028. The types of heavy equipment used during project construction would include concrete/industrial saws, dozers, backhoes, excavators, drill rigs, graders, scrapers, cranes, concrete trucks, rollers, compactors, generators, welders, compressors, and haul trucks. No pile driving or blasting would occur as part of the project. Reference noise levels of heavy equipment that would be used during project construction are summarized in Table 3.8-8.

Table 3.8-8 Noise Levels Generated by Construction Equipment

Equipment Type	Typical Noise Level (dB) at 50 feet
Backhoe	80
Compressor	80
Concrete mixer truck	85
Concrete pump truck	82
Concrete/industrial saw	90
Crane	85
Dozer	85
Drill rig	84
Excavator	85
Front End Loader	80
Generator	82
Grader	85
Man lift	85
Roller	85
Scraper	85
Tractor	84
Welder/torch	73

Source: FHWA 2006:3

As shown in Table 3.8-8, noise generated by individual pieces of construction equipment would range from 73 to 90 dB at 50 feet. The combined noise levels generated by construction activity would fluctuate depending on the type, number, and duration in which vehicles and equipment are used. The effects of construction noise largely depend on the type of construction activities occurring on any given day; the noise levels generated by those activities; distances to noise-sensitive receptors; any noise-attenuating features such as topography, vegetation, and existing structures; and existing ambient noise levels.

Noise generated by construction activity during daytime hours between 7 a.m. and 6 p.m., Monday through Saturday, and between 9 a.m. and 6 p.m. on Sunday would be exempt from the City's daytime noise standards. Nonetheless, construction noise modeling was conducted to estimate anticipated noise exposure at nearby existing receptors. Daytime construction noise modeling conservatively assumed simultaneous operation of a dozer, front-end loader, and an excavator. Based on modeling conducted, combined noise levels from construction activities could reach 85 dBA L_{eq} at 50 feet from the source. Applying standard attenuation rates, from distance alone, construction noise levels would attenuate to 59 dBA L_{eq} at the nearest sensitive receptors, residences approximately 970 feet to the northwest of the project site. Construction noise levels at more distant receptors would be lower still because noise decreases with distance (e.g., 54 dBA L_{eq} at the apartments 1,800 feet east of the project site). Detailed calculations are provided in Appendix C.

As discussed above and in Chapter 2, "Project Description," construction activities would take place during the less-sensitive daytime hours (i.e., 8 a.m. to 5 p.m.), when ambient noise levels are higher, construction noise is generally indistinguishable from ambient noise, and people are less sensitive to increases in noise. Further, modeled construction noise levels at nearby receptors (i.e., 59 dBA L_{eq}) are generally lower than typical levels for commercial and noisy urban areas (e.g., 60-70 dBA, Table 3.8-5). Thus, when lower levels are combined with higher ambient levels, the combined effect does not result in a substantial increase (i.e., 3 dB) in noise. For these reasons, short-term construction-generated noise levels would not result in a substantial temporary increase in noise that exceed applicable standards. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.8-2: Generate Substantial Temporary (Construction) Vibration Levels

Operation of construction equipment, possibly including a drill rig, would generate vibration during project construction. However, the resultant vibration level would not have the potential to cause structural damage to nearby structures or human annoyance at nearby residences. This impact would be **less than significant**.

Construction activities generate varying degrees of temporary ground vibration, depending on the specific construction equipment used and activities involved. Ground vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance. The effects of ground vibration may be imperceptible at the lowest levels, result in low rumbling sounds and detectable vibrations at moderate levels, and, at high levels, cause annoyance, sleep disturbance, or damage to nearby structures.

Pile driving and blasting are the types of construction activities that typically generate the highest vibration levels and are, therefore, of greatest concern when evaluating construction-related vibration impacts. However, pile driving and blasting would not be conducted as part of the project.

The most ground vibration–intensive activity performed during project construction would be use of a drill rig. Caisson drilling generates a ground vibration level of 0.089 in/sec PPV and 87 VdB at 25 feet (FTA 2018:184). Vibration from drilling could exceed the threshold of significance of 0.5 in/sec PPV for building structural damage within 8 feet of drilling activities and the threshold of significance for human annoyance of 80 VdB within 43 feet of drilling activities. Refer to Appendix C for modeling details. No drilling would occur within 8 feet of an existing building or within 43 feet of a residence. In addition, all buildings located within the surrounding properties appear to be in good condition, not meeting the Caltrans criteria for old/fragile structures. Therefore, construction generated vibration would not result in structural damage or human annoyance, and this impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.8-3: Generate Substantial Long-Term Increase in Stationary Noise

The new buildings and facilities constructed as part of the project would result in increased noise levels as a result of new stationary noise sources/activities, such as the CMC mobility test track, outdoor gathering spaces, loading docks, HVAC equipment, and parking lots. Noise levels associated with these new noise sources would not result in the exceedance of applicable City noise standards at existing noise-sensitive land uses. Therefore, this impact would be **less than significant**.

Implementation of the project would result in new academic, research, office, and green space. The development of these new spaces would introduce new sources of operational noise, including an autonomous electric vehicle (EV) test track; use of the central green, plazas, and outdoor courtyards as a community gathering and collaboration spaces; internal roadways; loading docks; building mechanical equipment (e.g., HVAC units and emergency generators); and parking lots.

Electric Vehicle Test Track

The northern portion of the project site would include a 3-acre autonomous electric vehicle test track, associated with the CMC facility. Roadway noise from vehicles includes engines running, the sound of tires rolling on the pavement, braking noise, and noise from the vehicle passing through the air; all contribute to the overall noise level perceived by the receptor. All these sources would be present at the autonomous EV test track with the exception of combustion engine idling/running noise.

Vehicle noise associated with the test track use can be compared to roadway noise by comparing daily track use to ADT volumes on nearby roadways. Assuming the autonomous electric vehicle test track would operate constantly throughout the day and would run up to four vehicles at a time, a maximum activity level of 32 track trips, or ADT could occur. Existing ADT volumes on nearby roadways range from approximately 12,000 to 62,000 (Appendix C). Thus, considering the logarithmic properties of noise, a doubling of a noise source is required to result in a noticeable increase in noise of 3 dB, and when a louder noise level is combined with a lower noise level, the louder noise level would dominate, while the lower noise level would not combine to result in higher noise levels. Considering that existing ADT on surrounding roadways is substantially greater than anticipated autonomous electric vehicle use on the track, existing roadway noise would continue to dominate the project area and the additional noise generated by the test track would not result in a substantial or audible increase in noise.

Thus, considering typical daily operation of the test track during the less sensitive times of the day, the fact that the electric vehicles would generate less noise than combustion engines, that the autonomous vehicles would not be moving at high speeds, and that existing roadway noise and associated volumes would be substantially greater than the test track, the new test track would not result in a substantial increase in noise that could exceed applicable standards.

Outdoor Gatherings and Activities

Activities occurring within outdoor and green spaces such as the central green, the greenway corridor, and other plazas and outdoor courtyards (e.g., community gathering, outdoor classes, active transportation, outdoor dining) could include people talking/gathering, and, potentially, the use of amplified microphones and speakers. However, such gatherings would involve a small number of people, would occur intermittently, and would occur during the daytime hours. Further, as discussed above for Impact 3.8-1, sensitive receptors are located approximately 970 feet from the project site and would be located even further from where these events would take place, which would be on the central green or greenway corridor located between the proposed buildings. The project does not propose any new facilities where large outdoor publicly-attended events (e.g., concerts, sporting events) would occur that could generate a substantial increase in noise level. Therefore, the use of outdoor space on the project site is not anticipated to expose off-site receptors to noise levels that would exceed applicable standards.

Loading Dock Activity

Some buildings constructed as part of the project may include loading docks or designated areas for receiving shipments by commercial trucks. Noise sources from truck activity associated with delivery areas are usually short-term and can include activities such as vehicle idling, engine revving, and the release of air brakes on heavy trucks. Measured noise levels for these noise-generating activities are summarized in Table 3.8-9. Most of the noise-generating activities listed in Table 3.8-9 last for a period ranging from a few seconds (e.g., release of air brakes) to a few minutes (e.g., idling) and can reoccur multiple times during a single truck visit.

As shown in Table 3.8-9, the loudest measured truck-related noise is the release of a truck's air brakes after it comes to a stop, which generates noise levels as high as 86 dB L_{max} at 50 feet. Due to the short-term nature of loading dock and corporation yard truck noise, the City's daytime and nighttime L_{max} standards for residential land uses are applied in this analysis. Based on the highest noise level (86 dB L_{max} at 50 feet) listed in Table 3.8-9, noise levels would attenuate to the City's daytime standard of 75 dB L_{max} at a distance of 180 feet and the City's nighttime standard of 70 dB L_{max} at a distance of 320 feet. Detailed calculations are provided in Appendix C.

The nearest residential receptors are located approximately 970 feet from the project site and potential locations of loading docks. Therefore, no residential receptors would be exposed to noise levels that exceed the City's daytime standards (i.e., 75 dBA L_{max}) or nighttime standards of (i.e., 70 dBA L_{max}).

Table 3.8-9 Noise Levels Generated by Truck Activity at Delivery Areas

Noise-Generating Activity	Noise Level (dB L_{max}) at 50 feet
Idling 18-wheel heavy truck	64–65
Truck with trailer driving at 5 mph	65
Truck with trailer driving at 10 mph	66–68
Truck revving engine	69-80
Truck releasing air brakes at a stop	74–86

Notes: dB = decibel; mph = miles per hour.

Sources: Measurement data collected by EDAW in August 2006 and presented in the Merced Wal-Mart Distribution Center EIR (City of Merced 2009:4.8-21)

Building Mechanical Equipment

Implementation of the project would introduce new stationary noise sources associated with building mechanical equipment, primarily HVAC units. Detailed information regarding the stationary equipment to be installed for facilities constructed under the project is not available at this time. However, noise levels commonly associated with larger commercial-use air conditioning systems can reach levels of up to 78 dB at 3 feet (Lennox 2018). Applying this reference noise level as an hourly average (L_{eq}) and assuming a 50 percent usage rage, would result in a 75 dBA L_{eq} at 3 feet from the source.

Commonly installed building equipment, such as HVAC systems, can be located in the interior of the structure, on rooftops, or in direct line-of-sight to adjacent land uses. Based on the reference noise level of 73 dBA L_{eq} at 3 feet, assuming typical attenuation rates, from distance alone, noise from HVAC units would reduce to 25 dBA L_{eq} at the nearest residential receptors, approximately 970 feet away. These levels would not exceed City of Sacramento's daytime or nighttime standards of 55 dBA L_{eq} or 50 dBA L_{eq}, respectively. Refer to Appendix C for detailed calculations.

Parking Lots

The project would include surface parking lots and other parking facilities. Noise sources associated with parking lots are generally short-term and can include car engines revving or idling, tires squeaking, car alarms, car horns, doors slamming, and people talking. As discussed previously, the nearest sensitive receptors are located approximately 970 feet from the project site and outdoor surface lots would be located even further than this. On-site parking spaces would be used primarily during the less noise-sensitive daytime hours when project-related facilities are open. Because parking facilities would be set back from noise-sensitive receptors, separated from sensitive receptors by landscaping and other structures, and primarily used during the daytime hours, noise generated by parking lots would not expose any offsite receptors to excessive noise levels that could exceed City standards or disturb people during the sensitive times of the day.

Summary

Noise generated by activities in outdoor spaces, loading dock activity, building mechanical equipment, and parking lot activity would not exceed any applicable City noise standards at nearby sensitive receptors. Therefore, the impact related long-term operational stationary source noise would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.8-4: Generate Substantial Increase in Long-Term (Traffic) Noise Levels

The construction of new buildings and facilities as part of the project would result in long-term increase in traffic volumes on nearby roads, subsequently resulting in traffic noise increases. Noise levels increase associated with the increased traffic volumes would not result in the exceedance of applicable City noise standards at existing noise-sensitive land uses. Therefore, this impact would be **less than significant**.

Project-generated vehicle trips generated by the approximately 2,034 employees would increase average daily traffic volumes and associated increases in traffic noise levels along affected roadway segments near the project site. To analyze the impact of project-generated transportation noise sources, traffic volumes and their correlating noise level under existing, and existing-plus-project conditions were modeled for major roadway segments in the project area that could be affected by project-related vehicle trips and roadway segments with sensitive receptors. Refer to Appendix C for detailed traffic noise modeling input parameters. Table 3.8-10 summarizes the modeled traffic noise levels at 100 feet from the roadway centerlines under existing and existing plus project conditions, along with the overall net change in noise level as a result of project-generated traffic.

Table 3.8-10 Modeled Traffic Noise Levels under Existing and Existing Plus Project Conditions

Item No.	Roadway	Segment From	Segment To	Predicted Existing dBA CNEL, 100 Feet from Near-Travel Lane Centerline	Predicted Existing Plus Project dBA CNEL, 100 Feet from Near-Travel Lane Centerline	Predicted Change (dBA)
1	Elvas Avenue	J Street	Folsom Boulevard	60.2	60.3	0.1
2	Folsom Boulevard	47th Street	65th Street	63.6	63.7	0.1
3	Folsom Boulevard	Howe Avenue	Jackson Highway	68.3	68.3	0.0
4	Power Inn Road	US 50	14th Avenue	71.4	71.7	0.3
5	Hornet Drive	US 50	Folsom Boulevard	63.7	63.8	0.1
6	14th Avenue	65th Street	Power Inn Road	63.3	63.4	0.1
7	Power Inn Road	14th Avenue	Fruitridge Road	69.7	69.8	0.1

Notes: Traffic noise levels were calculated using methods consistent with the FHWA roadway noise prediction model, based on data obtained from the traffic analysis prepared for this project; dBA=A-weighted decibel.

Source: Modeled by Ascent Environmental in 2021

The Sacramento City Noise Ordinance (Table 3.8-4) establishes a 5 dB increase in a noise source as a substantial noise increase for existing transportation noise levels of less than 60 dB, 3 dB increase for existing noise levels between 60-65 dB, and 1.5 dB for existing noise levels greater than 65 dB. Considering traffic noise specifically, an increase in dB levels exceeding these standards would be considered substantial. The increase in roadway volumes along Power Inn Road represents the greatest increase in traffic volume in the existing-plus-project scenario . As shown in Table 3.8-10, project implementation would result in a maximum increase of 0.1 dB along the Power Inn Road between US 50 and 14th Avenue, which currently exhibits noise levels of 71.4 dB. Hence, the additional trips as a result of the project would not result in substantial increases (i.e., 5 dB or greater for existing noise levels of 60 dB or below, 3 dB for existing noise levels of 60-65 dB, and 1.5 dB or greater for noise levels of 65 dB or above) in traffic noise on affected roadways.

Furthermore, based on prior analyses for development in the area, including The Crossings (located approximately 970 feet northwest of the project site) (City of Sacramento 2016), the dominant ambient noise levels in the project area are the two existing rail lines to the north and west, US 50, and nearby industrial uses. In addition, roadway volumes immediately adjacent to the project site are not anticipated to increase as a result of project implementation such that a substantial increase in ambient noise levels would also occur. For example, prior modeling of ambient noise levels at The Crossings identified ambient roadway noise levels in 2026 of 60.9 dB CNEL, whereas nearby freight operations result in ambient noise levels of up to 74.2 dB CNEL. Therefore, while the project would increase roadway volumes along Ramona, Brighton, and Cucamonga Avenues as a result of project implementation, it would not result in a substantive increase in overall ambient noise levels in the immediate vicinity of the project site due to existing ambient noise levels from rail operations in the area. Further and with respect to the access option along Cucamonga Avenue (refer to Chapter 2, "Project Description," for further clarification), implementation of the option to acquire the additional parcel and construct direct roadway access south to Cucamonga would further reduce the number of vehicles travelling to and from the site along Ramona Avenue and potentially Brighton Avenue, which would result in a lesser level of roadway noise along those segments.

Therefore, increases in traffic due to The Hub would not exceed of applicable City noise standards and the impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

This page intentionally left blank.

3.9 TRANSPORTATION

This section identifies applicable regulatory requirements related to transportation and describes the existing transportation system within and in the vicinity of the project site. The transportation impact analysis presented in this chapter, identifies the environmental effects resulting from implementation of the project and, if necessary, mitigation measures are set forth to reduce significant transportation impacts. Consistent with CEQA Guidelines, impacts associated with bicycle, pedestrian, and transit facilities; the generation of vehicle miles traveled (VMT); transportation hazards; and emergency access are evaluated as part of this analysis.

Comments received on the Notice of Preparation (Appendix A) included concerns related to transit demand, access, and improvements; connectivity between the project site and the existing Power Inn Light Rail Station; pedestrian safety; and the increase in VMT associated with the project. All scoping comments are addressed in the analysis that follows.

3.9.1 Regulatory Setting

FEDERAL

There are no federal plans, policies, regulations, or laws related to transportation that would affect the project. However, federal regulations relating to the Americans With Disabilities Act, Title VI, which prohibits discrimination based on race, color, and national origin, and Environmental Justice (Executive Order 12898 – Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations) are applicable to the manner in which transit service is provided.

STATE

Senate Bill 743

Senate Bill (SB) 743, passed in 2013, required the California Governor's Office of Planning and Research (OPR) to develop new guidelines that address transportation metrics under CEQA. Enacted as part of SB 743 (2013), Public Resources Code (PRC) section 21099, subdivision (b)(1), directed the OPR to prepare, develop, and transmit to the Secretary of the Natural Resources Agency for certification and adoption proposed CEQA Guidelines addressing "criteria for determining the significance of transportation impacts of projects within transit priority areas. Those criteria shall promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses. In developing the criteria, [OPR] shall recommend potential metrics to measure transportation impacts that may include, but are not limited to, vehicle miles traveled, vehicle miles traveled per capita, automobile trip generation rates, or automobile trips generated."

Subdivision (b)(2) of PRC section 21099 further provides that "[u]pon certification of the guidelines by the Secretary of the Natural Resources Agency pursuant to this section, automobile delay, as described solely by level of service or similar measures of vehicular capacity or traffic congestion *shall not be considered a significant impact on the environment* pursuant to [CEQA], except in locations specifically identified in the guidelines, if any." (*emphasis* added)

OPR published its proposal for the comprehensive updates to the CEQA Guidelines in November 2017 which included proposed updates related to analyzing transportation impacts pursuant to SB 743. The updated CEQA Guidelines were adopted on December 28, 2018; and according to the new CEQA Guidelines Section 15064.3, VMT replaced congestion as the metric for determining transportation impacts. The guidelines state that "lead agencies may elect to be governed by these provisions of this section immediately. Beginning July 1, 2020, the provisions of this section shall apply statewide."

To provide guidance to agencies implementing the new CEQA requirements, OPR published the *Technical Advisory on Evaluating Transportation Impacts in CEQA* (*Technical Advisory*) in December 2018. The *Technical Advisory* describes considerations agencies may use in selecting VMT metrics, calculation methodologies, and significance thresholds. The *Technical Advisory* does not mandate the use of specific metrics, methodologies or significance thresholds, because agencies have discretion to select those that are appropriate for the local land use and transportation context. (OPR 2018.)

The *Technical Advisory* also provides guidance on impacts to transit. Specifically, the *Technical Advisory* suggests that lead agencies generally should not treat the addition of new transit users as an adverse impact. As an example, the *Technical Advisory* suggests the following:

> [An] infill development may add riders to transit systems and the additional boarding and alighting may slow transit vehicles, but it also adds destinations, improving proximity and accessibility. Such development also improves regional vehicle flow by adding less vehicle travel onto the regional network.

California State Department of Transportation

The California Department of Transportation (Caltrans) is responsible for planning, designing, constructing, operating, and maintaining the -*). Federal highway standards are implemented in California by Caltrans. Any improvements or modifications to the SHS would need to be approved by Caltrans. The following Caltrans planning documents emphasize the State of California's focus on transportation infrastructure that supports mobility choice through multimodal options, smart growth, and efficient development.

- *Smart Mobility 2010: A Call to Action for the New Decade* (Caltrans 2010a).
- *Complete Streets Implementation Action* Plan (Caltrans 2010b).
- *California Transportation Plan 2040* (Caltrans 2016).
- *Strategic Management Plan 2015-2020—2019 Update* (Caltrans 2019).

Within the project vicinity, Caltrans has developed the following plans and studies that set expectations for the performance of U.S. Route 50 (US 50) and State Route 99 (SR 99).

- *SR 99 & Interstate 5 Corridor System Management Plan* (Caltrans 2009).
- *District System Management and Development Plan, Caltrans District 3* (Caltrans 2013).
- *Transportation Concept Report and Corridor System Management Plan, United States Route 50, District 3* (Caltrans 2014).
- *Transportation Concept Report, State Route 99, District* 3 (Caltrans 2017).

Vehicle Miles Traveled-Focused Transportation Impact Study Guide

On May 20, 2020, Caltrans adopted the *Vehicle Miles Traveled-Focused Transportation Impact Study Guide* (TISG) (Caltrans 2020a) to provide updated guidance to Caltrans Districts, lead agencies, tribal governments, developers, and consultants based on changes to Caltrans' review process for local development intergovernmental review under the updated CEQA Guidelines. The TISG outlines how Caltrans will review land use projects with a focus on supporting state land use goals, state planning priorities, and GHG emission reduction goals. It also identifies the possible transportation impacts on the SHS and potential non-capacity increasing mitigation measures for land use projects. The TISG replaces the *Guide for the Preparation of Traffic Impact Studies* and does not apply to transportation projects on the State Highway System. The TISG does not prescribe VMT calculation methodologies, metrics, or significance criteria; but rather provides guidance based primarily on what is detailed in the *Technical Advisory.*

Interim Land Development and Intergovernmental Review (LDIGR) Safety Review Practitioners Guidance

In July 2020, Caltrans released the *Interim Local Development Intergovernmental Review Safety Review Practitioners Guidance* (Caltrans 2020b) which provides updated guidance to Caltrans Districts, lead agencies, developers, and consultants conducting safety review for proposed land use projects and plans that would affect the SHS. The interim guidance recommends that safety analyses include a review of three primary elements related to transportation safety—design standard compliance, collision history, and collision risk (consistent with the Federal Highway

Administration's Systemic Approach to Safety). The interim guidance does not establish specific analysis methods or significance thresholds for determining safety impacts under CEQA. The document states that significance of impacts should be determined with careful judgment on the part of a public agency and based, to the greatest extent possible, on scientific and factual data consistent with Caltrans' CEQA guidance contained in Caltrans' Standard Environmental Reference, Chapter 36, "Environmental Impact Report," and CEQA guidelines found in the California Code of Regulations, title 14, division 6, chapter 3, article 5, section 15064, "Determining the Significance of the Environmental Effects Caused by a Project." Finally, the interim guidance states that Caltrans District traffic safety staff will use available data to determine if the proposed project may influence or contribute to significant impacts to the SHS.

California State University

California State University Transportation Impact Study Manual

The California State University *Transportation Impact Study Manual* (TISM) (CSU 2020) provides guidance for addressing transportation-related impacts under CEQA. The TISM includes guidance for analyzing transportation impacts (including VMT), applicable significance thresholds, and recommended mitigation measures. The TISM recommends the following thresholds of significance:

- Plan Conflict: The project would conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadways, bicycle and pedestrian facilities.
- VMT Impacts
  - Project Level: For projects that do not meet any of the VMT screening criteria described within the California State University (CSU) TISM, which includes projects that generate no or few trips and are not anticipated to increase VMT per capita, analysis is required to determine whether the project would result in VMT per service population (campus residents, employees, and students) in excess of 15 percent below the existing regional, sub-regional, or citywide VMT per service population. VMT trip purposes are defined as Home-Based Work (Production & Attraction) + Home-Based Other (Production & Attraction) + Non-Home-Based (Production & Attraction).
  - Cumulative: The CSU TISM also requires evaluation of whether the project would result in an increase or decrease in the regional, sub-regional, or citywide VMT per service population, to determine whether the project would result significant cumulative impacts. Accordingly, the CSU TISM recommends the evaluation of the VMT per service population under the "with project" condition to determine whether VMT would be in excess of the Citywide, regional, or sub-regional VMT/Service Population identified under the Regional Transportation Plan (RTP)/Sustainable Communities Strategy (SCS) condition.
- Hazard Impact: The project would substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).
- Emergency Access Impact: The project would result in inadequate emergency access.

California State University Sustainability Policy

The California State University (CSU) Sustainability Policy (CSU 2014) aims to reduce the university's impact on the environment, educate students, faculty, and staff on sustainable practices, and incorporate sustainability principles and climate science in the university's educational offerings. The policy contains the following statement related to transportation:

- The CSU will encourage and promote the use of alternative transportation and/or alternative fuels to reduce GHG emissions related to university associated transportation, including commuter and business travel.

California State University Transportation Demand Management Manual

The CSU Transportation Demand Management Manual (Nelson Nygaard 2012) provides a framework for implementing sustainable transportation programs for campuses throughout the CSU system. The manual contains a set of goals, criteria, and best practices that encourage students, faculty, and staff to commute to and from campus via bus/rail transit, carpools, vanpools, bicycling, and walking to lessen reliance upon single-occupant vehicle (SOV) travel and reduce vehicle trips to campuses.

The manual establishes the following goals and objectives:

GOAL 1: Encourage the Use of Non-Auto Modes

- Objective 1A: Develop TDM programs that are effective, scalable, and sustainable over time.
- Objective 1B: Monitor key criteria to ensure the effectiveness of TDM programs.
- Objective 1C: Enhance the pedestrian, cyclist, and transit user experience.
- Objective 1D: Enhance safety for pedestrians and cyclists.
- Objective 1E: Increase dialogue and communication among campus departments and establish a forum for ongoing coordination and policy development to strengthen a campus's capacity to design and deliver effective TDM strategies in a coordinated manner.
- Objective 1F: Provide effective transportation alternatives to driving alone.
- Objective 1G: Provide sufficient on-campus or nearby housing and basic commercial needs to encourage walking and biking.
- Objective 1H: Effectively market all TDM programs.

GOAL 2: Maintain Financially Sustainability

- Objective 2A: Develop TDM programs that are financially sustainable over time.
- Objective 2B: Implement the most cost-effective blend of parking & TDM investments to accommodate affiliate needs.

GOAL 3: Ensure Equitable Access

- Objective 3A: Provide transportation opportunities for all students.
- Objective 3B: Encourage the use of non-SOV modes through financial incentives.

GOAL 4: Preserve Valuable Campus Lane

- Objective 4A: Ensure that campus land is treated as a commodity to help meet future needs.
- Objective 4B: Reduce off-site infrastructure needs.

GOAL 5: Promote Environmental Sustainability

- Objective 5A: Support system-wide sustainability goals set forth in California State University Executive Order 987, adopted in August 2006.
- Objective 5B: Encourage the use of non-SOV modes for both internal and external trips to and from campus.
- Objective 5C: Measure the environmental impacts of transportation investments.

GOAL 6: Build Partnerships with the Local Community and Private and Institutional Actors

- Objective 6A: Increase the level of engagement and partnership with regional agencies and regional transit providers.
- Objective 6B: Enhance collaboration between the university and public and private sectors.
- Objective 6C: Develop and test new ways of engaging and partnering with public and private institutional actors.
- Objective 6D: Ensure quality multi-modal campus connections between on-campus and off-campus pedestrian, bicycle, and transit routes.

Sacramento State Climate Action Plan

The Sacramento State Climate Action Plan (CAP) (Sacramento State 2018) presents a climate change mitigation strategy to ensure the reduction of greenhouse gas emissions associated with campus operations leading to a carbon neutral campus by the year 2040. The CAP includes a detailed list of strategies to reduce transportation-related emissions, including the following:

- Bicycle Circulation
  - Conversion of vehicle right-of-way to bike and pedestrian-only boulevard
  - New bike racks, bike repair stations, and bike share stations
  - Host educational and promotional events
  - Hire active transportation coordinator
- Parking
  - Increase permit fees
  - Increase car sharing opportunities
- Transit
  - Improve transit access for pedestrians, including physical proximity and scheduling
  - Enhance service to 65th Street Light Rail Station
- Commuting Reduction
  - Build additional campus housing
  - Increase telecommuting options
  - Require lowerclassmen to live on campus

Sacramento State Police Department Policy Manual

The Sacramento State Police Department Policy Manual (Sacramento State 2019) includes provisions that promote the safe and orderly movement of traffic on the Sacramento State campus. The code supplements the provisions identified in the California Vehicle Code. Rules and standards included in the code pertain to vehicle operations and parking.

Sacramento State 2015 Master Plan

The Sacramento State 2015 Master Plan (Sacramento State 2015) provides a guide to the development of the physical campus and its facilities over the next 20 years. The 2015 Master Plan describes the vision and goals for campus development to accommodate an enrollment cap of 25,000 full-time-equivalent students. The 2015 Master Plan does not identify development on the project site within the Plan's 20-year timeframe. Moreover, the 2015 Master Plan does not identify changes to the transportation system within the vicinity of the project site.

Chapter 4.4 of the 2015 Master Plan (Transportation Management, Vehicle Circulation, and Parking) identifies multi-modal transportation system modifications and transportation demand management (TDM) strategies for the of the Sacramento State main campus. The University is implementing a suite of TDM strategies listed in Table 3.9-1 to increase the likelihood of shifting transportation mode split away from single-occupant vehicle trips to campus, thereby reducing the demand for campus parking.

Table 3.9-1 Sacramento State 2015 Master Plan – TDM Strategies

TDM Strategy	Suggestion for Further Drive-Alone Reduction
Parking Pricing	▶ Increase permit fees ▶ Parking pricing based on distance of parking lot from center of campus ▶ No on-campus parking for freshmen
Transit Service	▶ Reduce price of staff commuter sleeve ▶ Improve transit access for pedestrians
Bicycle and Pedestrian Amenities	▶ Expand additional on-campus bike parking ▶ Construct/staff "bike station" with high- quality bike parking, bike shop, repair station, and commuter showers ▶ Implement bike sharing on campus to connect to the planned Sacramento/ Davis system ▶ Improve campus access for bicyclists and pedestrians
Campus Housing and Amenities	▶ Increase the amount of housing and amenities provided on campus
Car-sharing	▶ Work with car-sharing providers to increase the number of cars on campus, including at non-residential locations ▶ Provide reduced memberships for car-sharing
Ride-matching	▶ Setup CSUS-specific ride-matching program using service such as Zimride
Carpool and Vanpool Incentives	▶ Provide reduced-cost parking permits for carpooling/ vanpooling
Shuttle Services	▶ Provide more service (increased service hours, frequency, etc.) on Hornet Shuttle ▶ Enhance service between 65th Street Light Rail station and campus

Source: Sacramento State 2015: 99.

LOCAL

Sacramento State is part of the CSU, which is a statutorily- and legislative-created, constitutionally authorized entity of the State of California, and the Ramona Property (the project site) is owned by the CSU. As explained in Chapter 3, section, "California State University Autonomy," of this ~~Draft~~ EIR, State agencies are not subject to local government planning and land use plans, policies, or regulations. Nevertheless, in the exercise of its discretion, CSU does reference, describe, and address local plans, policies, and regulations where appropriate and for informational purposes. This evaluation is also intended to be used by local agencies for determining, as part of their permit processes, the project's consistency with local plans, policies, and regulations.

Sacramento Area Council of Governments

The Sacramento Area Council of Governments (SACOG) is the metropolitan planning organization governing the six-county Sacramento region consisting of El Dorado, Placer, Sacramento, Sutter, Yolo, and Yuba Counties and their 22 cities. SACOG is responsible for the preparation of, and updates to, the Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS) and the associated Metropolitan Transportation Improvement Program (MTIP) for the six-county region. Adopted in November 2019, the SACOG 2020 MTP/SCS provides a 20-year transportation vision and corresponding list of transportation projects. The MTIP identifies short-term projects (i.e., projects with a 7-year horizon) in more detail.

The SACOG 2020 MTP/SCS provides the basis for air quality conformity findings related to the national Clean Air Act and determinations of whether the region is complying with GHG reduction targets for automobiles and light trucks established under SB 375. Major projects that are inconsistent with the 2020 MTP/SCS could jeopardize the plan's effectiveness for air pollution and GHG reduction. Consequently, consistency with the MTP/SCS is a potential basis for determining adverse impacts related to these environmental topics.

The SACOG 2020 MTP/SCS acknowledges the following:

> A more compact land development pattern and providing alternatives to driving alone are critical strategies for reducing the amount of driving we do in our daily lives. Location within the region is likely the most important variable in determining how much time people spend in their vehicles. Communities within existing urban areas, and with a mix and density of uses, tend to produce less VMT per resident than places that are farther away and spread out. These "lower VMT" areas also tend to have the density and mix of uses to support better transit service and are friendlier to biking and walking for some trips. (SACOG 2019)

City of Sacramento

Sacramento 2035 General Plan

The Mobility Element of the *Sacramento 2035 General Plan* (City of Sacramento 2015) includes goals and policies that address the transportation and circulation system. The following policies from the Mobility Element are applicable to analysis of the project.

- Policy M 1.2.4: Multimodal Access. The City shall facilitate the provision of multimodal access to activity centers such as commercial centers and corridors, employment centers, transit stops/stations, airports, schools, parks, recreation areas, medical centers, and tourist attractions.
- Policy M 1.3.1: Grid Network. To promote efficient travel for all modes, the City shall require all new residential, commercial, or mixed-use development that proposes or is required to construct or extend streets to develop a transportation network that is well-connected, both internally and to offsite networks preferably with a grid or modified grid-form.
- Policy M 1.4.2: Automobile Commute Trip Reduction. The City shall encourage employers to reduce the number of single-occupant vehicle commute trips to their sites by enforcing the existing trip reduction ordinance in the City Code.
- Policy M 3.3.4: Private Shuttle Services. The City shall support the integration of privately-operated shuttle services into the transportation system that complement existing public bus and rail transit service.
- Policy M 4.1.1: Emergency Access. The City shall develop a roadway system that is redundant (i.e., includes multiple alternative routes) to the extent feasible to ensure mobility in the event of emergencies.
- Policy M 4.2.1: Accommodate All Users. The City shall ensure that all new roadway projects and any reconstruction projects designate sufficient travel space for all users including bicyclists, pedestrians, transit riders, and motorists except where pedestrians and bicyclists are prohibited by law from using a given facility.
- Policy M 4.3.1: Neighborhood Traffic Management. The City shall continue wherever possible to design streets and approve development applications in a manner as to reduce high traffic flows and parking problems within residential neighborhoods.

City of Sacramento Bicycle Master Plan

The City of Sacramento Bicycle Master Plan (City of Sacramento 2016) establishes bicycle related investments, policies, programs, and strategies to establish a complete bicycle system throughout the City. The plan envisions a safe, comfortable, and continuous network of bikeways attracting and serving bicyclists of all ages and abilities from all neighborhoods and thereby integrating bicycling as a fundamental part of Sacramento's everyday transportation system. The plan includes the goals of increasing bicycle ridership, safety, connectivity, and equity. The plan additionally includes guidance on the selection of bicycle facility types based on vehicle volume and speed thresholds.

The plan includes an accompanying map entitled City of Sacramento Existing and Proposed Bicycle Facilities Map (City of Sacramento 2018), which illustrates the location and type of existing and planned bicycle facilities throughout the City. The map identifies the following planned bicycle facilities in the vicinity of the project site:

- Class I shared-use path along the SacRT Gold Line LRT line between Capital City Freeway and the easterly City Limits
- Class II bicycle lanes on Ramona Avenue
- Class II bicycle lanes on Brighton Avenue between Ramona Avenue and Heinz Street
- Class I shared-use path between the Ramona Avenue elbow and 14th Avenue
- Class III bicycle route on Cucamonga Avenue between Ramona Avenue and Power Inn Road
- Class I shared-use path between Redding Avenue and Ramona Avenue, including a grade-separated crossing of the UPPR tracks
- Class I shared-use path along the Union Pacific Railroad (UPRR) tracks between the main Sacramento State campus and the southerly City Limits

The map does not identify planned bicycle facilities within the project site itself.

<u>City of Sacramento 65th Street Station Area Study</u>

The City of Sacramento 65th Street Station Area Study (City of Sacramento 2010) proposes a plan for mixed-use, pedestrian-oriented neighborhoods in the area of the 65th Street/University Light Rail station. The study incorporates concepts from previous planning efforts that established new land uses and development intensities in the area, but that lacked a complete vision that fully integrated a complete transportation infrastructure plan including streets, sidewalks, and bicycle facilities.

The study analyzed multiple scenarios for enhancing the circulation system in the study area. In October 2010, Scenario C-Prime was adopted as the preferred alternative by the Sacramento City Council. Scenario C-Prime focuses on maximizing access through the transit village area of the station area for pedestrians and bicyclists as well as incorporating major roadway improvements. Scenario C-Prime identifies the following transportation system modifications within the immediate vicinity of the project site:

- Roadway improvements including new required rights-of-way:
  - Extension of Ramona Avenue with two travel lanes southward from the current elbow roughly 850 feet west of the Ramona Avenue and Power Inn Road intersection to a new intersection at 14th Avenue.
  - Extension of San Joaquin Street east from its current terminus west of the UPRR tracks to Ramona Avenue at Cucamonga Avenue with a grade-separated crossing of the UPRR tracks.
- Installation of Class II bicycle lanes:
  - Ramona Avenue between 14th Avenue and Folsom Boulevard
  - San Joaquin Street between 65th Street and Power Inn Road
- Construction of Class I shared-use paths:
  - East-west path situated between the SacRT LRT tracks and Brighton Avenue between Ramona Avenue and Power Inn Station, including a new grade-separated crossing of Power Inn Road
  - East-west path between the easterly 69th Street terminus to the Folsom Boulevard/Ramona Avenue intersection, including a new grade separated crossing of the UPRR tracks
- Installation of new intersection traffic controls
  - New traffic signal at the Ramona Avenue/14th Avenue intersection
  - New traffic signal at the Ramona Avenue/Cucamonga Avenue/San Joaquin Street intersection
  - New all-way stop control at the Ramona Avenue intersection with the new east-west road between Ramona Avenue and Power Inn Road (i.e., the existing east-west portion of Ramona Avenue east of the elbow)

<u>Sacramento Center for Innovation Specific Plan</u>

The SCI Specific Plan (City of Sacramento 2013) serves as a tool to guide the development of land in the plan area, which is located southeast of the main Sacramento State campus and west of the Granite Regional Park Development Area. The plan area is bounded by US 50 on the north, the UPRR tracks on the west, Power Inn Road on the east, and the UPRR crossing at Power Inn Road at the south. The plan area is envisioned to become a hub for innovative business and clean technology industries. The plan area overlaps with substantial portions of the study area from the City of Sacramento 65th Street Station Area Study.

The plan expands on the circulation improvements identified in Scenario C-Prime in the City of Sacramento 65th Street Station Area Study. In particular, the plan identifies additional multi-modal transportation system modifications on the project site. These modifications, which are presented as Options A and B in Figures 4-2 and 4-3 of the plan, are summarized below:

- Option A
  - Construction of a new north-south road between Brighton Avenue and Cucamonga Avenue
  - Construction of a new east-west road between Ramona Avenue and the new north-south road
  - Extension of Del Monte Avenue between Brighton Avenue and Cucamonga Avenue
  - Extension of Hunt Street and Heinz Street between Brighton Avenue and the new east-west road
  - Construction of a new east-west Class I shared-use path between the new north-south road and Power Inn Road
- Option B
  - Construction of a new north-south road between Brighton Avenue and Cucamonga Avenue
  - Construction of a new east-west road between the new north-south road and Power Inn Road
  - Extension of Del Monte Avenue between Brighton Avenue and Cucamonga Avenue
  - Extension of Hunt Street south of Brighton Avenue into the project site
  - Extension of Heinz Street between Brighton Avenue and Ramona Avenue

Additionally, the plan identifies the potential construction of a new light rail station on the SacRT Gold Line between the University/65th Street and Power Inn stations. Finally, the plan identifies the construction of sidewalks on Brighton Avenue as well as the construction of a new east-west Class I shared-use path situated between the SacRT LRT tracks and Brighton Avenue between Ramona Avenue and Power Inn Station, including a new grade-separated crossing of Power Inn Road.

Sacramento Regional Transit District

SacRT operates fixed-route bus, light rail, and ADA paratransit services throughout Sacramento County, including the cities of Sacramento, Citrus Heights, Elk Grove, Folsom, and Rancho Cordova. Per Federal Transit Administration requirements, the *SacRT Service Standards* (Sacramento Regional Transit District 2013) establishes the following four service standards and two service policies:

- vehicle loading standards,
- productivity standards (headway standard),
- on-time performance standards,
- service area coverage standards,
- vehicle assignment policy, and
- transit amenity distribution policy.

Standards relevant to this section include the following:

- Vehicle loading standards for light rail service based on maximum load factors (i.e., the ratio of total passenger capacity to total seats) for each vehicle type. The load factor standard for light rail vehicles is 2.0 (equal to a maximum load of 128 passengers per light rail car, or 512 passengers for a typical four-car light rail train). SacRT considers a route to be overloaded if 25 percent or more of one-way vehicle trips are regularly overloaded.
- Productivity standards for light rail service, where routes exceeding SacRT's maximum productivity standards are recommended for service increases while corrective action is recommended for routes that fail to meet SacRT's minimum productivity standards. The maximum productivity standard for weekday light rail service is a maximum load of 400 passengers per train.

3.9.2 Environmental Setting

The following section describes the existing environmental setting, including the roadway, bicycle, pedestrian, and transit facilities in the vicinity of the project site based on data collection and field observations conducted in August 2021.

ROADWAY SYSTEM

The project site is centrally located in the Sacramento metropolitan area with access to three of the region's major freeways (i.e., US 50, SR 99, and the Capital City Freeway [also known as "Business 80"]). Local vehicular access to and from the project site is primarily provided by Ramona Avenue, which connects to the principal arterials of Folsom Boulevard and Power Inn Road as shown in Figure 3.9-1. Descriptions of the regional and local roadways serving the project site are provided below.

Regional Roadways

Regional access to the project site is provided by US 50, SR 99, and the Capital City Freeway. Local freeway access is primarily provided by the US 50 interchange at Howe Avenue/Power Inn Road. Additional freeway access points in the project vicinity include the US 50 interchange at 59th and 65th Streets.

US 50 is a cross-country east–west highway that provides access to the Sacramento region. Locally, US 50 connects the area to Yolo County to the west and Rancho Cordova, Folsom, and El Dorado County to the east. In the project vicinity, US 50 is a limited-access freeway and generally consists of eight travel lanes (four mixed-flow lanes in each direction).

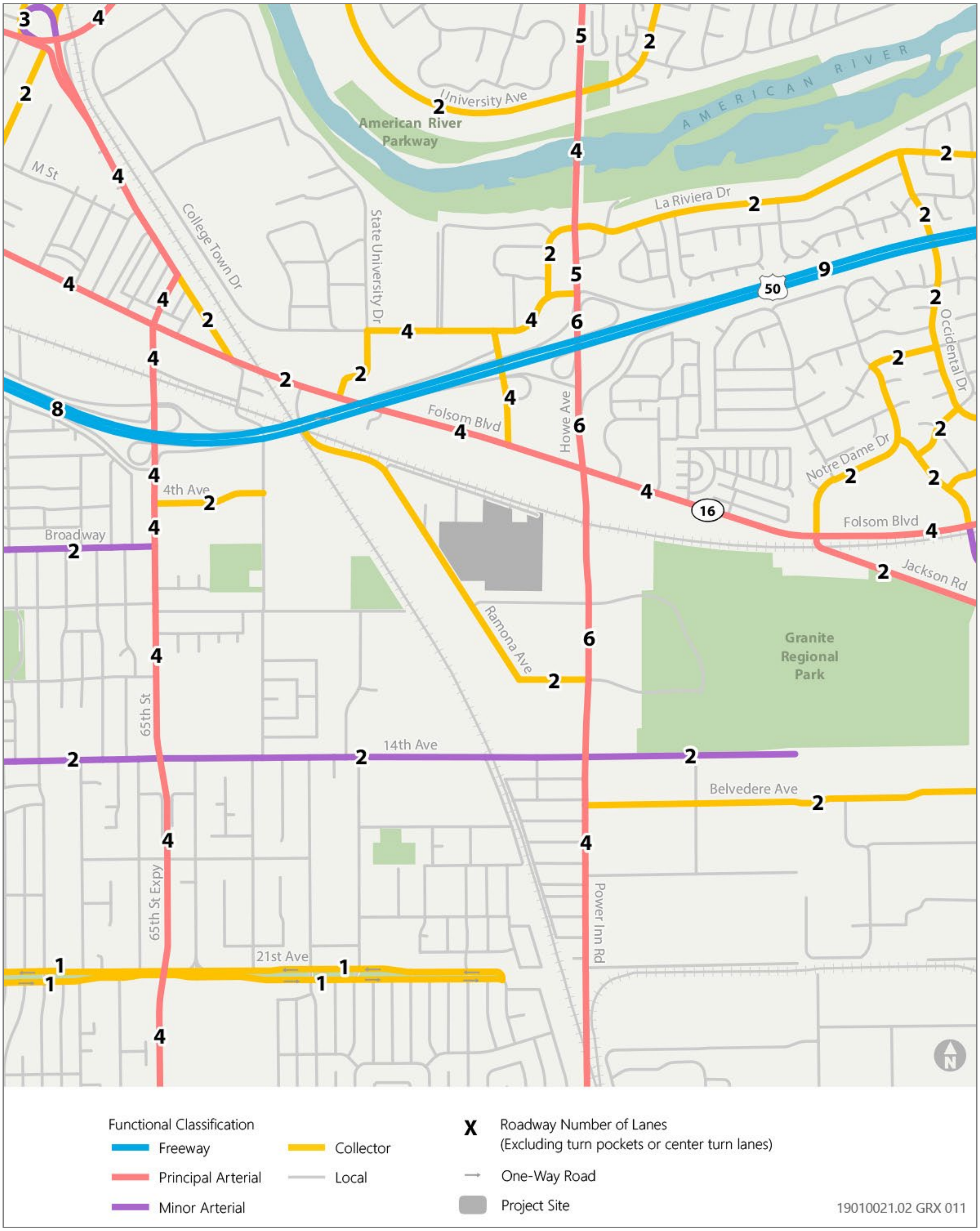
SR 99 is a north–south state highway that connects the area to south Sacramento and Elk Grove to the south. In the project vicinity, SR 99 is a limited-access freeway and generally consists of eight travel lanes (four mixed-flow lanes in each direction).

Capital City Freeway is an east–west business loop that consists of two distinct segments in the project vicinity. West of the US 50/SR 99 Oak Park interchange, it is co-signed with US 50 and extends westerly into West Sacramento. East of the US 50/SR 99 Oak Park interchange, it is also known as SR 51 and extends northeasterly toward the unincorporated Arden-Arcade and Carmichael communities in Sacramento County.

Local Roadways

Power Inn Road is a north-south principal arterial that extends from Elk Grove in the south, through Florin, to Folsom Boulevard in the north, at which point it becomes Howe Avenue. Howe Avenue then continues north through Fair Oaks and Arden-Arcade before terminating at the Capital City Freeway. Power Inn Road is six lanes within the project site vicinity.

Folsom Boulevard is an east-west principal arterial serving communities throughout Sacramento County, including East Sacramento, Rancho Cordova, and Folsom. As a historic state highway, Folsom Boulevard functions as a "main street" for many of the neighborhoods it traverses. In the vicinity of the project site, Folsom Boulevard is five lanes (with a center turn lane) between Howe Avenue and US 50.



Source: Image produced and provided by Fehr & Peers in 2021

Figure 3.9-1 Existing Roadway Network

Ramona Avenue is a two-lane north-south collector that extends between Folsom Boulevard and Granite Regional Park located immediately east of Power Inn Road. The recently completed Ramona Avenue extension provides multi-modal grade-separated crossings of US 50 and the SacRT rail line situated between the project site and Folsom Boulevard. Ramona Avenue forms the westerly boundary of the project site.

Cucamonga Avenue is an east-west local road that extends between the north-south portion of Ramona Avenue adjacent to the project site to the east-west portion of Ramona Avenue near Granite Regional Park. Cucamonga Avenue generally forms the southerly boundary of the project site.

Brighton Avenue is a two-lane east-west local road that parallels the southerly edge of the SacRT rail line. Brighton Avenue extends between Ramona Avenue and its eastern terminus west of Power Inn Road. Brighton Avenue generally forms the northerly boundary of the project site.

TRANSPORTATION SAFETY

According to the Statewide Integrated Traffic Records System, 60 injury collisions were reported on public streets within 1,200 feet of the project site over the most recent three-year period of verifiable data (2016 through 2018). Appendix D provides a summary of the collisions, including their location, parties involved, and primary collision factor. The table also includes 11 collisions that occurred at or near the interchange of US 50 and Howe Avenue.

As shown in greater detail in Appendix D, 6 of the 71 reported collisions involved a bicycle and 2 of the 71 reported collisions involved a pedestrian. One of the 71 collisions resulted in a victim being killed or seriously injured. Moreover, 28 of the 71 collisions had a primary collision factor of unsafe speed, while 11 of 71 were related to driving under the influence of alcohol or drugs. In the project site vicinity, collisions were most prevalent at the Howe Avenue/US 50 interchange and the Folsom Boulevard/Howe Avenue/Power Inn Road intersection.

TRANSIT SYSTEM

Transit services and facilities within 2 miles of the project site are shown in Figure 3.9-2. Transit service operating in the vicinity of the project site is provided by SacRT and CSU Sacramento.

Sacramento Regional Transit District

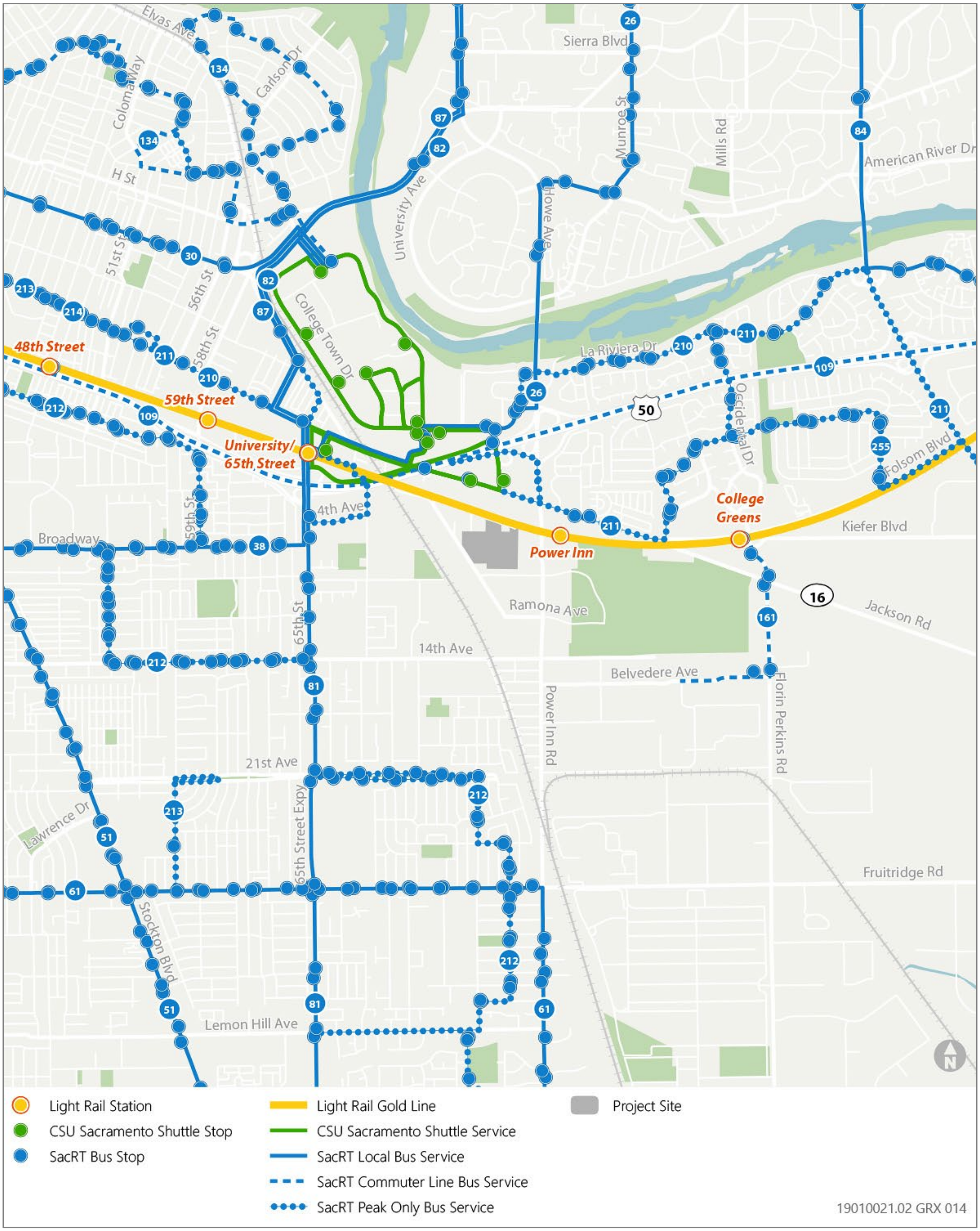
SacRT provides light rail transit (LRT), bus, and paratransit service throughout Sacramento County. SacRT operates the Gold Line LRT service, which runs between the City of Folsom and downtown Sacramento, parallel to US 50. The Gold Line offers service on weekdays between 4:00 a.m. and 12:30 a.m. and on weekends and holidays between 5:00 a.m. and 12:30 a.m. Headways are typically half an hour, except during weekday peak periods when they are 15 minutes. The Gold Line serves two stations near the project site, including the Power Inn Station (approximately 0.25 mile west of the project site) and the University/65th Street Station (approximately 0.75 mile northwest of the project site). In February 2020, during weekdays, the Power Inn and University/65th Street stations generated approximately 555 and 1,290 daily passenger boardings, respectively, and the maximum peak load experienced by the Gold Line was 224 passengers.[1] For comparison, the seated capacity is 256 passengers for a typical four-car light-rail train, and the total capacity (seated plus standing capacity) is 512 passengers.[2]

SacRT does not currently operate bus service within the immediate vicinity of the project site. SacRT bus service in the general area is primarily concentrated in and around Oak Park, East Sacramento, the Sacramento State main campus, and Fair Oaks.

Sacramento State Shuttle

Sacramento State operates the Hornet Shuttle system which is comprised of four routes. The Hornet Shuttle typically operates Monday through Friday when classes are in session and does not operate during breaks and holidays. Hornet Shuttle service was suspended between March 2020 and August 2021 due to the COVID-19 pandemic.

[1] Based on February 2020 average weekday ridership data provided by SacRT.
[2] Per the SacRT Service Standards.



Source: Image produced and provided by Fehr & Peers in 2021

Figure 3.9-2 Existing SacRT Transit Stops and Routes Serving the Project Site

The Hornet Shuttle does not currently operate in the immediate vicinity of the project site. Two Hornet Shuttle routes serve the southern portion of the Sacramento State main campus, including the Hornet and Stinger Lines. The Stinger Line circles the main campus and crosses US 50 to serve a lecture hall and satellite parking lot, while the Hornet Line connects campus to the University/65th Street LRT station through Folsom Boulevard and State University Drive.

BICYCLE SYSTEM

The California Highway Design Manual (Caltrans 2019b) identifies four primary types of bicycle facilities: Class I bicycle paths (including shared-use paths), Class II bicycle lanes, Class III bicycle routes, and Class IV separated bikeways. These bicycle facilities are briefly described below.

- Class I (Bicycle Path/Shared-Use Path)—A facility with exclusive right-of-way with cross flows by vehicles minimized. Motor vehicles are prohibited from bicycle paths. Unless adjacent to an adequate pedestrian facility, Class I facilities are for the exclusive use of bicycles and pedestrians.
- Class II (Bicycle Lane)—A dedicated facility for bicyclists adjacent to motor vehicle traffic on streets. They are identified with striping, pavement markings, and signage. The striping on Class II bicycle lanes is intended to delineate the right-of-way assigned to bicyclists and motorists and to provide for more predictable movements by each.
- Class III (Bicycle Route)—On-street bicycle routes where bicycles and motor vehicles share the road. They are identified with signage and may also be indicated with pavement markings (e.g., "sharrows"). Class III facilities are intended to provide continuity to other bicycle facilities (usually Class II bikeways) or designate preferred routes through high demand corridors. These routes are typically assigned to low-volume and/or low-speed streets.
- Class IV (Separated Bikeway)—Facility for the exclusive use of bicycles that is separated from adjacent vehicular traffic. The separation may include grade separation, flexible posts, inflexible barriers, or on-street parking. Also referred to as protected bicycle lanes or cycle tracks.

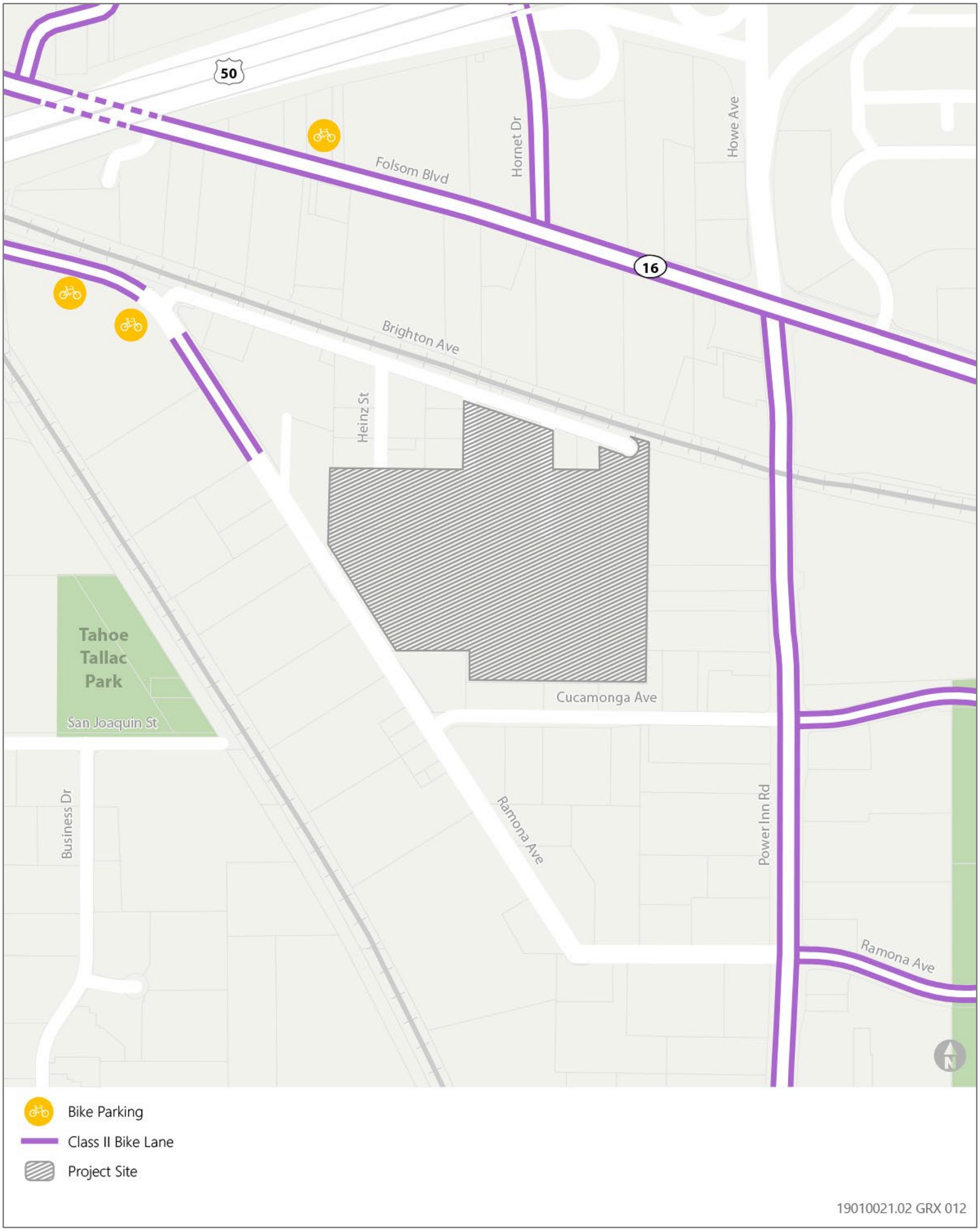
Existing bicycle facilities within the vicinity of the project site are shown in Figure 3.9-3. Class II bicycle lanes are provided on Power Inn Road, Folsom Boulevard, and Ramona Avenue (between the project site and Folsom Boulevard). Bicycle facilities are not present on Ramona Avenue, along the project site frontage or between the project site and Power Inn Road; or on Cucamonga Avenue between Ramona Avenue and Power Inn Road.

Multiple bicycle facilities extend into the Sacramento State main campus north of Folsom Boulevard, including Class II bicycle facilities on State University Drive and Hornet Drive and a Class I bicycle path that extends north of the Folsom Boulevard/Ramona Avenue intersection through Parking Lot 9.

PEDESTRIAN SYSTEM

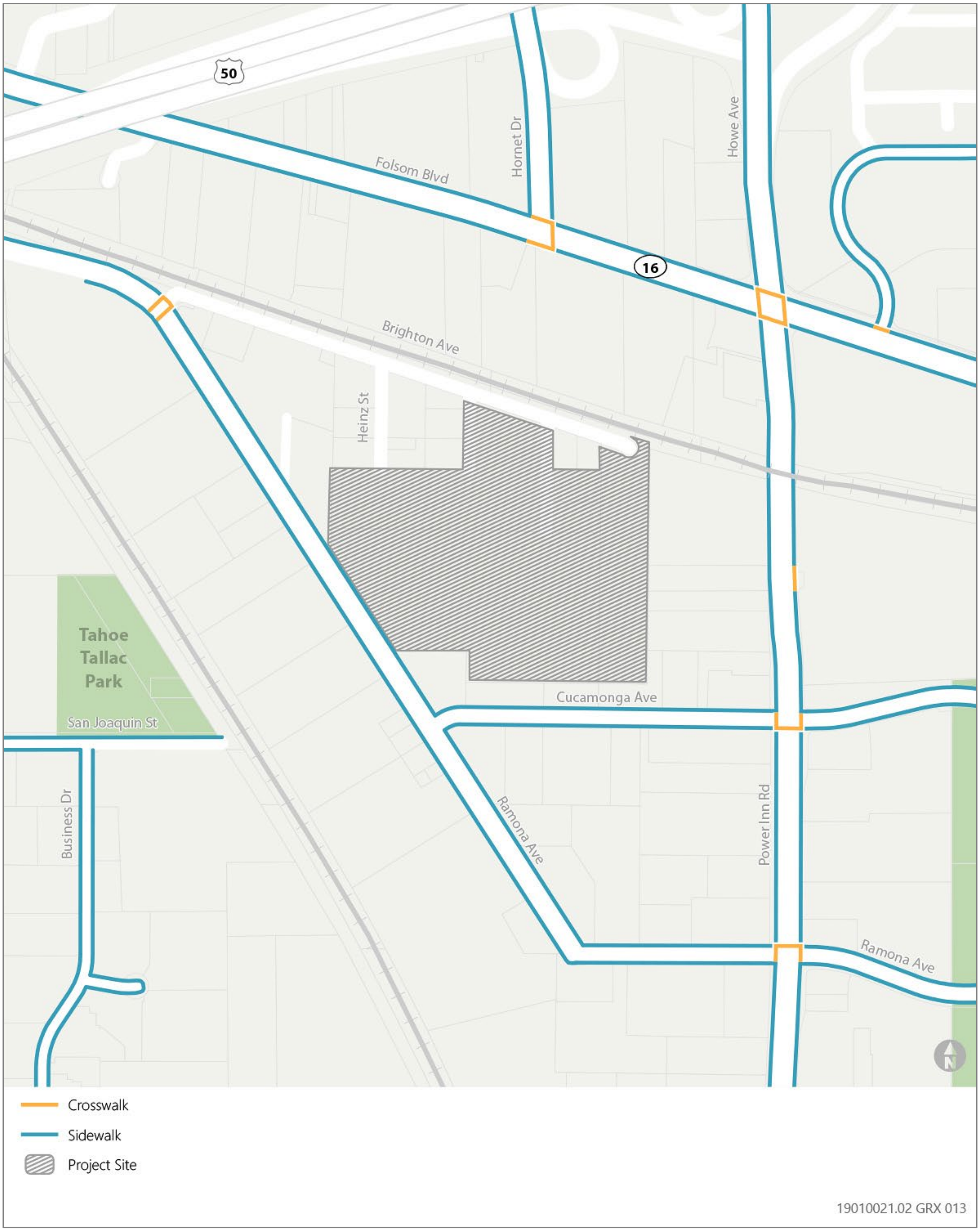
Pedestrian facilities in the vicinity of the project site are shown in Figure 3.9-4. Most roadways in the vicinity of the project site include sidewalks on one or both sides of the road, including Ramona Avenue, Cucamonga Avenue, Power Inn Road, and Folsom Boulevard. Brighton Avenue currently lacks sidewalks on both sides of the road. Several pedestrian routes extend into the Sacramento State main campus north of Folsom Boulevard, including sidewalks on State University Drive and Hornet Drive and a Class I bicycle path that extends north of the Folsom Boulevard/Ramona Avenue intersection through Parking Lot 9.

Marked crosswalks and traffic control devices facilitate pedestrian movements across roadways in the vicinity of the project site. Marked crosswalks are provided on the west, south, and east legs of the signalized intersection at Power Inn Road/Cucamonga Avenue. A marked crosswalk in provided on the east leg of the signalized intersection at the Power Inn Road/Power Inn Station Driveway. Marked crosswalks are provided on all legs of the roundabout at the Ramona Avenue/Brighton Avenue intersection. Marked crosswalks are provided on the south and east legs of the signalized intersection at Folsom Boulevard/Ramona Avenue.



Source: Image produced and provided by Fehr & Peers in 2021

Figure 3.9-3 Existing Bicycle Facilities



Source: Image produced and provided by Fehr & Peers in 2021

Figure 3.9-4 Existing Sidewalks and Crosswalks

3.9.3 Environmental Impacts and Mitigation Measures

METHODOLOGY

The Hub Master Plan identifies design guidelines related to several topics. Under the Site Use and Behavior section, the Master Plan states: "Access to The Hub should prioritize active transportation modes: walking, walking from bus and light rail stops, bicycle, scooter, skateboarding, rollerblading, etc." Furthermore, the Plan states opportunities to ensure priority for active transportation modes include "financial investment prioritized for active transportation, inclusion of a bicycle hub and shared mobility docking stations, facilities protected from vehicles, and locational priority given to active transportation, among others."

The Master Plan for the project includes the following design guidelines:

- Streets
  - All streets should provide separated facilities for pedestrian and bicycle users, both protected from vehicle traffic.
  - Streets should be designed based on future, forward-looking concepts for integrating landscape, autonomous vehicles, and returning space to pedestrians.
  - Streets should incorporate NACTO traffic calming elements in order to be designed to limit vehicle speeds to 20 mph.
  - Crossing areas should utilize curb extensions to minimize crossing widths.
  - All street intersections, or other places where vehicle traffic crosses pedestrian pathways, should have a consistent design as raised intersections utilizing permeable paving material.
- Multimodal Parking
  - The Hub should include an active transportation parking hub (bike hub) that accommodates bicycles, scooters, etc.
  - Short-term bicycle, scooter, etc., parking should be included around the project.
  - Short-term active transportation parking should maximize convenience to building entrances.
  - Short-term active transportation parking should be covered and incorporate solar panels, pollinator plants, etc.
- Safety and Security
  - Active transportation safety will take precedence when planning and designing streets and vehicle routes.
  - Pedestrian safety will take precedence when planning and designing bicycle routes.
  - Develop bicycle routes through the project and identify bicycle and pedestrian zones that will help to increase safety and functionality.
  - The design of the vehicular circulation system will focus on safety (e.g., by limiting vehicle speeds, using traffic calming elements that enhance pedestrian realm, etc.), accessibility and support of emergency vehicle, service, and maintenance functions.
  - To enhance wayfinding and to help support pedestrian safety, special pavement is proposed at key pedestrian crossings.

Consistency with Programs, Plans, Ordinances, or Policies Addressing Roadway, Transit, Bicycle, and Pedestrian Facilities

Transit Service and Facilities

The potential impact to transit service or facilities was evaluated based on whether the proposed project would physically disrupt an existing facility/service or interfere with the implementation of a planned facility/service. In addition, the proposed project was evaluated to determine if it would create potential conflicts with applicable policies, plans, or programs (as defined in the regulatory setting above) supporting transit such that the conflict could reduce transit trips or increase conflicts with other modes. Per the CSU TISM, this evaluation includes a review of both CSU and local policies, plans, and programs.

Bicycle and Pedestrian Facilities

The potential impact to bicycle and pedestrian facilities was evaluated based on whether the proposed project would physically disrupt an existing facility or interfere with the implementation of a planned facility. In addition, the proposed project was evaluated to determine if it would create potential conflicts with applicable policies, plans, or programs (as defined in the regulatory setting above) supporting bicycle use and pedestrian travel such that the conflict could reduce bicycle or walking trips. Per the CSU TISM, this evaluation includes a review of both CSU and local policies, plans, and programs.

Vehicle Miles Traveled

A refined version of the SACOG SACSIM19 travel demand model was used to estimate vehicle trips and VMT for the project. The refined model was prepared by Fehr & Peers in support of the I-80/US 50 Managed Lanes project and includes improvements to the base (2016) and cumulative (year 2040) land use inputs, transportation system inputs, and model gateway inputs. This model was further refined in support of this EIR to include traffic analysis zone (TAZ) splits, land use inputs, and centroid connectors that align with the various components and access locations of the project.

Table 3.9-2 summarizes the land use inputs utilized for the project site in the SACSIM19 travel demand model under Existing Plus Project and Cumulative Plus Project conditions. Project employee estimates were derived using employment yields specific to the greater Sacramento region developed by SACOG for travel demand modeling purposes. Project student estimates were derived based upon the university employee to university student ratio for the SACOG region as identified in the base year land use inputs in the SACSIM19 travel demand model. Project students represent students who would travel to and from the project site for classes, lectures, etc. Both Existing Plus Project and Cumulative Plus Project conditions reflect the full buildout of the project.

Table 3.9-2 The Hub Project Land Use Summary

Project Component	Existing Plus Project GSF	Existing Plus Project Employees	Existing Plus Project Students [1]	Cumulative Plus Project GSF	Cumulative Plus Project Employees	Cumulative Plus Project Students [1]
California Mobility Center	182,400	319		182,400	319	
California Department of Justice	250,000	1,203	1,123	250,000	1,203	1,123
Future Users	290,000	512		290,000	512	
Total	**722,400**	**2,034**	**1,123**	**722,400**	**2,034**	**1,123**

Note: [1] Derived from base year SACSIM19 travel demand model land use inputs as follows: 225 education employees x 4.99 university students/employee = 1,123 university students.
Source: The Hub Project Description, SACSIM19 travel demand model, 2021.

Project-generated VMT was estimated using the latest SACOG-recommended methodology, which accounts for the full amount of VMT generated by trips with a trip end located outside of the SACOG region. Therefore, the analysis presented here-in complies with the OPR Technical Advisory guidance stating that lead agencies should not truncate any VMT analysis because of jurisdictional or other boundaries. This differs from the VMT methodology used by SACOG for the 2020 MTP/SCS, which truncated external trips and their associated VMT at the SACOG region boundary.

Per the CSU TISM, this analysis uses the VMT per service population metric for the purposes of analyzing potential impacts to VMT. This methodology calculates VMT by summing the "VMT from" and "VMT to" a specified area. The VMT accounting is as follows:

$$VMT = (II + IX) + (II + XI) = (2 \times II) + IX + XI$$

- Internal-internal (II): The full length of all trips made entirely within the geographic area limits is counted.
- Internal-external (IX): The full length of all trips with an origin within the geographic area and destination outside of the area is counted.
- External-internal (XI): The full length of all trips with an origin outside of the geographic area and destination within the area is counted.

The intra-zonal VMT and VMT between traffic analysis zones, or TAZs, that are both in the study area are double counted. To cancel out the double counting, the VMT is divided by the service population, the generators of both trip ends of the VMT. This is necessary when expressing VMT as an efficiency metric that also represents the VMT generation rate of the service population. The resulting VMT is then compared to the existing VMT and a determination made as to whether the project VMT exceeds the applicable thresholds. Given the academic components of the project, for the purposes of this analysis, service population is defined as residential population plus employment population plus university student population.

It should be noted that travel behavior and transportation systems are changing quickly in response to emerging trends, new technologies, and different preferences, as noted in Appendix D. These changes combined with the current effects of the COVID-19 pandemic increase uncertainty about how VMT generation rates may change by the time the project would be constructed and occupied. However, the SACSIM model represents the state of the practice for the estimation of VMT; and thus, is the best available and most appropriate tool available to analyze VMT for the project.

Table 3.9-3 summarizes the existing weekday total VMT per service population forecasts for the City of Sacramento and the SACOG Region.

Table 3.9-3 Weekday Total VMT per Service Population – Existing Conditions

Metric	City of Sacramento	SACOG Region
Total VMT per Service Population	29.957	31.622

Source: SACOG SACSIM19 travel demand model, Fehr & Peers in 2021.

Table 3.9-4 summarizes the daily vehicle trips and daily VMT that would be generated by the project under Existing Plus Project conditions. Table 3.9-4 provides both total VMT and work VMT. Total VMT accounts for the vehicle trips and trip lengths associated with all vehicle trips that enter or exit the project site. Work VMT accounts for the vehicle trips and trip lengths associated with work-based tours and sub-tours (i.e., trips made as part of one's commute from home to work—including intermediate stops, such as a coffee shop or gas station—or trips made to or from the workplace during the workday). Total VMT is relevant to other topics discussed in this ~~Draft~~ EIR, such as GHG. Work VMT is relevant to the VMT impact analysis discussed within this chapter.

Table 3.9-4 Project Daily Vehicle Trips and VMT Estimates

Project Component	Existing Plus Project	Cumulative Plus Project
Daily VMT (Total)	89,571	78,765
Daily Vehicle Trips (Total)	8,613	7,928

Source: SACOG SACSIM19 travel demand model, Fehr & Peers in 2021.

Transportation Hazards

Transportation hazards were analyzed based on whether the project would physically or operationally change the existing transportation network. Changes could be physical, representing new access, or to demand, reflecting new trips to and from the project site. Analysis was focused on whether the changes would create conditions that are no longer compatible with the physical network such that the volume, mix, or speed of traffic was not anticipated as part of the original transportation network design.

Emergency Access

Potential transportation impacts related to emergency access are based on a review of project changes to the transportation network and a qualitative assessment of whether those changes would conflict with applicable standards or result in detrimental conditions based on the thresholds of significance.

THRESHOLDS OF SIGNIFICANCE

The following thresholds of significance are based on Appendix G of the State CEQA Guidelines, the CSU TISM, and the OPR Technical Advisory. The project could have a significant effect related to transportation if it would:

- conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadways, bicycle, and pedestrian facilities;
- result in a VMT-related impact as described below;
- substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment); or
- result in inadequate emergency access.

With respect to the issue of CEQA Guidelines Section 15064.3, Sacramento State, as part of the CSU system, would consider a VMT impact to be significant if the project would exceed the Master Plan CSU TISM significance threshold:

- VMT / Service Population exceeds threshold of 15 percent below existing regional, subregional, or citywide VMT / Employee.

ISSUES NOT DISCUSSED FURTHER

Level of Service

As stated in Subdivision (b)(2) of PRC Section 21099, upon adoption of the new guidelines, "automobile delay, as described solely by level of service or similar measures of vehicular capacity or traffic congestion shall not be considered a significant impact on the environment pursuant to this division, except in locations specifically identified in the guidelines, if any." Therefore, in accordance with the December 28, 2018 amendments to the State CEQA Guidelines, VMT is the most appropriate measure of transportation impacts, supplanting vehicular LOS (i.e., delay) and the evaluation of LOS is not discussed further.

Emergency Access

The Hub would be compliant with all applicable emergency access requirements, including Uniform Fire Code requirements; thus, emergency access for development of the site would be subject to review by all appropriate responsible emergency service agencies. Additionally, all CSU projects are required to follow the State University Administrative Manual which requires the State Fire Marshal to review all projects prior to implementation. Therefore, future projects under the Master Plan would be designed to meet applicable emergency access and design standards, and adequate emergency access would be provided. This issue is not discussed further.

Temporary Construction Traffic

Construction of the project may temporarily disrupt parking and pedestrian and bike access in the vicinity of the project site. However, construction staging would occur on the project site and these localized and temporary impacts would be minimized through implementation of a Construction Traffic Management Plan in accordance with City of Sacramento Code for any offsite improvements. This issue is not discussed further.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Impact 3.9-1: Conflict with a Program, Plan, Ordinance, or Policy Addressing Roadway, Transit, Bicycle, and Pedestrian Facilities

The project would not interfere with the implementation of a planned facility, including transit, roadway, bicycle, and pedestrian facilities. However, the project would conflict with CSU and Sacramento State policies that promote the use of bicycling, walking, and transit for travel to and from campus. Additionally, the project would change the volume of vehicle traffic on City of Sacramento facilities in a manner that would conflict with City of Sacramento bicycle facility design guidance. Therefore, this impact would be **significant**.

Transit Services and Facilities

Shuttle stops would be established on the project site to serve University shuttles to and from the Sacramento State main campus. It is anticipated that at least one of the existing University shuttle routes would add a stop at the Hub once development of the site warrants it and there are student programs offered at the site. Planning documents of existing transit service providers in the vicinity of the project stie (i.e., SacRT and Sacramento State) do not identify any planned changes to transit services or facilities in the immediate vicinity of project site. Thus, the project would not interfere with the implementation of planned transit services or facilities.

New transit passenger trips would be generated by the project commensurate with growth to employees and students traveling to and from the project site. Based on existing US Census Journey to Work data, the project would generate demand for approximately 280 new daily passenger boardings (representing 140 people traveling to and from the project site by transit). The increase in transit ridership demand generated by the project would be accommodated at new on-site shuttle/bus stops proposed as part of the project and at the existing Power Inn Station (i.e., for travel on the SacRT Gold Line LRT service).

The SacRT Service Standards establish vehicle loading standards for SacRT bus and light rail service based on maximum load factors (i.e., the ratio of total passenger capacity to total seats) for each vehicle type. The load factor standard for light rail vehicles is 2.0 (equal to a maximum load of 128 passengers per light rail car, or 512 passengers for a typical four-car light rail train). SacRT considers a route to be overloaded if 25 percent or more of one-way vehicle trips are regularly overloaded. In February 2020 (pre-COVID), the maximum peak load experienced by the Gold Line was 224 passengers during a typical weekday. Zero percent of Gold Line trips currently measure above the established load factor during a typical weekday. Therefore, even if all 140 new project-generated passengers were to board the Gold Line during the time of maximum peak load, the total number of passengers on a typical four-car light rail train would not exceed the maximum load factor of 512 passengers per train ([224+140]<512). Thus, the primary SacRT route serving the project site (i.e., Gold Line) currently meets the established SacRT loading standard, and project-generated passenger demand would not cause the Gold Line to fail to meet its established loading standard.

SacRT Service Standards also establish productivity standards for each service type. Routes exceeding SacRT's maximum productivity standards are recommended for service increases while corrective action is recommended for routes that fail to meet SacRT's minimum productivity standards. The maximum productivity standard for weekday light rail service is a maximum load of 400 passengers per train. In February 2020, SacRT Gold Line experienced a maximum peak load of 224 passengers during a typical weekday. Therefore, even if all 140 new project-generated passengers were to board the Gold Line during the time of maximum peak load, the total number of passengers on a typical four-car light rail train would not exceed the productivity standard of 400 passengers per train ([224+140]<400). Thus, the primary SacRT service that serves the project site currently meets the established SacRT productivity standard, and project-generated passenger demand would not cause the Gold Line to fail to meet its established productivity standard.

Therefore, the project would not physically disrupt any existing transit facility, interfere with the implementation of any planned transit service or facility, or conflict with any SacRT service standards.

<u>Roadway Facilities</u>

The project would include the construction of new roadways within the project site, including the new east-west Road between Ramona Avenue and the easterly project site boundary and the new north-south road between Brighton Avenue and the southerly project site boundary. While not part of the project, the new east-west road could be extended to Power Inn Road and, as stated in Chapter 2, "Project Description," a new north-south Road that extends to Cucamonga Avenue is considered as an option within this EIR.

The project would modify existing off-site roadways through the construction of new intersections and driveways on Ramona Avenue and Brighton Avenue. These would include the intersections of Ramona Avenue/new east-west Road and Brighton Avenue/new north-south Road as well as the two new project driveways on Ramona Avenue. The project would not otherwise alter lane configurations or intersection controls on existing off-site roadways. The project would not otherwise alter lane configurations or intersection controls on existing off-site roadways. Therefore, the identified improvements would enhance connectivity to and within the project site.

With respect to planned improvements, several City of Sacramento planning documents identify planned roadway facilities within the project site vicinity, including the 65th Street Station Area Study and the SCI Specific Plan. These planned roadway facilities include the following:

- Extension of Ramona Avenue with two travel lanes southward from the current elbow roughly 850 feet west of the Ramona Avenue and Power Inn Road intersection to a new intersection at 14th Avenue.
- Extension of San Joaquin Street east from its current terminus west of the UPRR tracks to Ramona Avenue at Cucamonga Avenue with a grade separated crossing of the UPRR tracks.
- Multiple options for extending roadways into the project site, as identified in the SCI Specific Plan.

The project, as currently proposed, would not conflict or otherwise interfere with implementation of the listed planned roadway facilities. Moreover, the project would include the extension of roadways into the project site, consistent with the concepts established in the SCI Specific Plan.

<u>Bicycle Facilities</u>

The project would include the construction of new on-site bicycle facilities on the east-west road, the north-south road, and the north-south central greenway. The east-west road and north-south road would include Class IV separated bikeways and the central greenway would include a Class I bike path. The project, as proposed, would not modify existing off-site bicycle facilities or conflict with existing bicycle facilities.

Several City of Sacramento planning documents identify planned bicycle facilities within the project site vicinity, including the City of Sacramento Bicycle Master Plan, the 65th Street Station Area Study, and SCI Specific Plan. These planned bicycle facilities include the following:

- New Class II bicycle lanes on Ramona Avenue between Brighton Avenue and Power Inn Road.
- New Class III bicycle route on Cucamonga Avenue between Ramona Avenue and Power Inn Road.
- New Class I shared-use path situated between Brighton Avenue and the SacRT LRT tracks between Ramona Avenue and Power Inn Station, including a new grade-separated bicycle and pedestrian crossing over Power Inn Road.
- New Class II bike lanes on San Joaquin Street between the existing eastern terminus of San Joaquin Street and Ramona Avenue, including a new grade-separated crossing of the UPRR tracks.

The project would not interfere with the implementation of any of the planned bicycle facilities identified above. While the project would not include the construction of these planned bicycle facilities, The Hub Master Plan describes the benefits that these facilities would provide with respect to multi-modal travel to and from the project site.

The project would increase bicycle travel activity within the project site and between the project site and nearby activity centers and destinations. Internal bicycle facilities proposed by the project would accommodate increases to bicycle travel within the project site. Outside of the project site, major bicycle desire lines (i.e., the most convenient and direct path between two locations) exist between the project site and the main Sacramento State campus and between the project site and Power Inn Station. Bicyclists traveling between the project site and these destinations would utilize existing bicycle facilities on Ramona Avenue (north of the project site), through Parking Lots 9 and 10, on Cucamonga Avenue (east of Power Inn Road), on the north-south driveway between Cucamonga Avenue and Power Inn Station (parallel to Power Inn Road), and on Power Inn Road. Notable bicycle network gaps (i.e., locations that lack designated bicycle facilities) exist on these routes at the following locations:

- Ramona Avenue along the project site frontage and south of the project site currently lacks designated bicycle facilities.
- Cucamonga Avenue between Ramona Avenue and Power Inn Road currently lacks designated bicycle facilities.
- Brighton Avenue east of Ramona Avenue currently lacks designated bicycle facilities.

The project would also increase vehicle travel activity within the vicinity of the project site, particularly on Power Inn Road, Cucamonga Avenue, and Ramona Avenue.

In locations with bicycle network gaps, project-generated bicyclists would physically mix with higher speeds and volumes of vehicle traffic, including additional vehicle traffic that would be generated by the project. In such instances, the project would increase the potential for bicycle-vehicle conflicts, which would conflict with CSU and Sacramento State policies that promote the use of bicycles for travel to and from campus, including those identified in the CSU Sustainability Policy and the CSU TDM Manual. Moreover, increases to vehicle traffic associated with the project would change the volume of vehicle traffic on Ramona Avenue and Cucamonga Avenue in a manner that would conflict with bicycle facility design guidance established in the City of Sacramento Bicycle Master Plan.

Pedestrian Facilities

The project would include the construction of new on-site pedestrian facilities on the east-west road, the north-south road, and the north-south central greenway. Additionally, the project would include the construction of on-side sidewalks and promenades to provide formal connections between buildings, open spaces, and parking. The project, as proposed, would not modify or conflict existing off-site pedestrian facilities.

Several City of Sacramento planning documents identify planned pedestrian facilities within the project site vicinity, including the 65th Street Station Area Study and the Sacramento Center for Innovation Specific Plan. These planned pedestrian facilities include the following:

- New Class I shared-use path situated between Brighton Avenue and the SacRT LRT tracks between Ramona Avenue and Power Inn Station, including a new grade-separated bicycle and pedestrian crossing over Power Inn Road.
- Extension of San Joaquin Street (including sidewalks) between the existing eastern terminus of San Joaquin Street and Ramona Avenue, including a new grade-separated crossing of the UPRR tracks.
- New sidewalks on Brighton Avenue east of Ramona Avenue.

The project would not interfere with the implementation of any of the planned pedestrian facilities identified above. While the project would not include the construction of these planned pedestrian facilities, The Hub Master Plan describes the benefits that these facilities would provide with respect to multi-modal travel to and from the project site.

The project would increase pedestrian travel activity within the project site and between the project site and nearby activity centers and destinations. Internal pedestrian facilities proposed by the project would accommodate increases to pedestrian travel within the project site. Outside of the project site, major pedestrian desire lines would exist between the project site and the main Sacramento State campus and between the project site and Power Inn Station. People walking between the project site and these destinations would utilize existing pedestrian facilities on Ramona Avenue, through Parking Lots 9 and 10, on Cucamonga Avenue, and on Power Inn Road. Notable pedestrian network gaps exist on these routes at the following locations:

- Brighton Avenue currently lacks sidewalks.

- The Power Inn Road/Cucamonga Avenue intersection currently has marked crosswalks on the west, south, and east legs. Pedestrians attempting to walk between the project site and Power Inn Station would desire to travel between the northwest and northeast corners of the intersection using a north leg crossing that does not currently exist.
- Direct pedestrian connections do not exist between the project site and Power Inn Road or Cucamonga Avenue.

On Brighton Avenue, project-generated pedestrians would physically mix with vehicle traffic, including additional vehicle traffic that would be generated by the project. In such instances, the project would increase the potential for pedestrian-vehicle conflicts, which would conflict with CSU and Sacramento State policies that promote walking for travel to, from, and within campus. At the Power Inn Road/Cucamonga Avenue intersection, the lack of a marked crosswalk on the north leg of the intersection would require three-stage crossings for pedestrians traveling between the project site and Power Inn Station. This would require substantial out-of-direction travel and pose a barrier to pedestrian travel, which in turn would conflict with CSU and Sacramento State policies that promote walking and transit for travel to and from campus. Finally, the lack of direct pedestrian connections between the project site and Power Inn Road or Cucamonga Avenue would require substantial out-of-direction travel for pedestrians attempting to walk between the project site and Power Inn Station, which in turn would conflict with CSU and Sacramento State policies that promote walking and transit for travel to and from campus.

Conclusion

The project would not physically disrupt an existing facility or interfere with the implementation of a planned facility, including transit, roadway, bicycle, and pedestrian facilities. However, the project would conflict with CSU and Sacramento State policies that promote the use of bicycling, walking, and transit for travel to and from campus, including those identified in the CSU Sustainability Policy and the CSU TDM Manual. The project would change the volume of vehicle traffic on Ramona Avenue and Cucamonga Avenue in a manner that would conflict with bicycle facility design guidance established in the City of Sacramento Bicycle Master Plan. As a result, this impact would be **significant**.

Mitigation Measures

Mitigation Measure 3.9-1a: Construct Bicycle Facility Improvements on Ramona Avenue

Sacramento State shall coordinate with the City of Sacramento to implement the construction of Class II bicycle lanes on Ramona Avenue between Brighton Avenue and Cucamonga Avenue, or an improvement of equal effectiveness. This modification has been identified as a planned improvement in multiple City of Sacramento planning documents, including the Bicycle Master Plan.

Additionally, to further improve bicycle safety along this roadways segment, Sacramento State shall coordinate with City of Sacramento to ensure the construction of bike lane conflict markings (e.g., at driveways and intersection approaches), reductions to crossing distances (i.e., to reduce bicyclist exposure to conflicting vehicles), intersection crossing markings, and crosswalk at all driveways and intersections providing ingress/egress to the project site.

Improvements shall be constructed prior to occupancy of Phase I of the project. As part of this coordination effort, Sacramento State and City of Sacramento shall determine which agency will be responsible for constructing these improvements and how fair-share cost will be determined if the City is determined to be the appropriate agency to build the improvements.

Mitigation Measure 3.9-1b: Construct Bicycle Facility Improvements on Cucamonga Avenue

Sacramento State shall coordinate with the City of Sacramento to implement the construction of bicycle facility improvements on Cucamonga Avenue between Ramona Avenue and Power Inn Road, or an improvement of equal effectiveness. Potential bicycle facility improvement alternatives include the following:

- Construction of Class II bicycle lanes. This improvement would require the removal of existing on-street parking or the widening of the roadway.

- Construction of a Class III bicycle route. This improvement would require that the speed of vehicle traffic be managed such that a considerable speed differential would not exist between bicyclists and vehicles occupying the same physical space. This modification has been identified as a planned improvement in the City of Sacramento Bicycle Master Plan.

Additionally, to further improve bicycle safety along this roadways segment, Sacramento State shall coordinate with City of Sacramento to ensure the construction of bike lane conflict markings (e.g., at driveways and intersection approaches), reductions to crossing distances (i.e., to reduce bicyclist exposure to conflicting vehicles), intersection crossing markings, and crosswalks at all driveways and intersections providing ingress/egress to the project site.

Improvements shall be constructed prior to occupancy of Phase I of the project. As part of this coordination effort, Sacramento State and City of Sacramento shall determine which agency will be responsible for constructing these improvements and how fair-share cost will be determined if the City is determined to be the appropriate agency to build the improvements.

Mitigation Measure 3.9-1c: Construct Bicycle and Pedestrian Facility Improvements on Brighton Avenue

Sacramento State shall coordinate with the City of Sacramento to implement the construction of bicycle facility improvements on Brighton Avenue between Ramona Avenue and the eastern Brighton Avenue terminus, or identify an improvement of equal effectiveness. Potential bicycle facility improvement alternatives include the following:

- Construction of a Class I shared-use path on the north side of Brighton Avenue and new sidewalks on the south side of Brighton Avenue. This modification has been identified as a planned improvement in multiple City of Sacramento planning documents.
- Construction of Class II bicycle lanes and new sidewalks on both sides of Brighton Avenue.

Additionally, to further improve bicycle and pedestrian safety along this roadways segment, Sacramento State shall coordinate with City of Sacramento to ensure the construction of bike lane conflict markings (e.g., at driveways and intersection approaches), reductions to crossing distances (i.e., to reduce bicyclist and pedestrian exposure to conflicting vehicles), intersection crossing markings, and crosswalks at all driveways and intersections providing ingress/egress to the project site.

Improvements shall be constructed prior to occupancy of Phase I of the project. As part of this coordination effort, Sacramento State and City of Sacramento shall determine which agency will be responsible for constructing these improvements and how fair-share cost will be determined if the City is determined to be the appropriate agency to build the improvements.

Mitigation Measure 3.9-1d: Construct Bicycle and Pedestrian Access Improvements Between the Project Site and Power Inn Station

Sacramento State shall coordinate with the City of Sacramento to ensure construction of bicycle and pedestrian access improvements between the project site and Power Inn Station, or an improvement of equal effectiveness. Potential bicycle and pedestrian facility improvement alternatives include the following:

- If selected, the extension of the new north-south road to Cucamonga Avenue shall provide designated bicycle and pedestrian facilities. Construct a north leg marked crosswalk and install associated pedestrian crossing signal equipment at the Power Inn Road/Cucamonga Avenue intersection.
- Extend the new east-west road to Power Inn Road and provide designated bicycle and pedestrian facilities. Construct a north or south leg marked crosswalk and install associated pedestrian crossing signal equipment at the Power Inn Road/east-west road/Power Inn Station Driveway intersection.
- Construct a Class I shared-use path between the eastern terminus of the new east-west road and Power Inn Road. Construct a north or south leg marked crosswalk and install associated pedestrian crossing signal equipment at the Power Inn Road/east-west road/Power Inn Station Driveway intersection.

- Construct a grade-separated bicycle and pedestrian crossing over Power Inn Road between the eastern terminus of Brighton Avenue and Power Inn Station.

Improvements shall be constructed prior to occupancy of Phase II of the project. As part of this coordination effort, Sacramento State and City of Sacramento shall determine which agency will be responsible for constructing these improvements and how fair-share cost will be determined if the City is determined to be the appropriate agency to build the improvements.

Significance after Mitigation

Implementation of Mitigation Measures 3.9-1a through 3.9-1d would reduce impacts to a less-than-significant level by reducing the potential for conflicts involving bicyclists or pedestrians in a manner consistent with CSU and Sacramento State policies the promote the use of walking, bicycling, and transit to and from campus. Moreover, implementation of these mitigation measures would modify City of Sacramento facilities to accommodate project-related changes to vehicle traffic in a manner that would bring the facilities into compliance with City of Sacramento bicycle facility design guidance. However, the City of Sacramento holds jurisdictional control of the public roadway right-of-way surrounding the project site, including the roadway segments/right-of-way identified for improvements in Mitigation Measures 3.9-1a through 3.9-1d. Therefore, because Sacramento State does not have jurisdictional control of the right-of-way and thus does not have the ability to construct these improvements, it cannot be ensured that Mitigation Measures 3.9-1a through 3.9-1d would be implemented. Therefore, this impact would be **significant and unavoidable**.

Impact 3.9-2: Conflict or Be Inconsistent with CEQA Guidelines Section 15064.3, Subdivision (b) Related to Vehicle Miles Traveled

The project would generate total VMT per service population at a rate that exceeds the threshold of 15 percent below the existing City or regional average. Therefore, this impact would be **significant**.

Forecasts of weekday total VMT per service population for the project, the City of Sacramento, and the SACOG Region are summarized in Table 3.9-5. As shown in Table 3.9-5, using the SACSIM19 model, the project would reduce the VMT per service population compared to existing conditions in the city and the region. However, this reduction would be less than 15 percent below the existing City of Sacramento and SACOG Region total VMT per service population averages. This impact would be **significant**.

Table 3.9-5 Weekday Total VMT per Service Population – Existing Plus Project Conditions

Metric	Project	City of Sacramento	SACOG Region
Total VMT per Service Population	28.851	29.957	31.622
% Difference between project and existing local/regional average	-	-5.3%	-10.3%
Exceeds VMT Threshold (-15%)?	-	Yes	Yes

Note: City of Sacramento and SACOG Region total VMT per service population estimates represent existing conditions.
Source: SACOG SACSIM19 travel demand model, Fehr & Peers in 2021.

Mitigation Measures

Mitigation Measure 3.9-2: Implement Transportation Demand Management Strategies to Reduce Project-Generated VMT

Sacramento State shall implement transportation demand management (TDM) strategies to reduce vehicle trips and, in turn, VMT that would be generated by the project. The implementation of TDM strategies shall reduce total VMT per service population to levels that are 15 percent or more below the existing City of Sacramento and SACOG Region total VMT per service population averages.

Potential TDM strategies include, but are not limited to, the following:

- Promote walking and bicycling for employee and student trips to and from the project site, including improved bicycle and pedestrian connections between the project site and Power Inn Station as described in Mitigation Measure 3.9-1d.
- Expand public transit service, including additional service connecting the project site with employee and student residential areas, as well as additional service connecting the project site with the Sacramento State main campus.
- Implement a fair value commuting program or other pricing of vehicle travel and parking.
- Provide carpool and/or vanpool incentive programs.
- Offer remote and/or hybrid working options.

The TDM strategies implemented will be consistent with existing and planned TDM programs on the Sacramento State main campus. If these TDM strategies are not sufficient to reduce total VMT per service population as described above, additional TDM measures or adjustments to the measures above shall be implemented as needed to reduce total VMT per service population consistent with the criteria described above.

Significance after Mitigation

Implementation of Mitigation Measure 3.9-2 would reduce project-generated VMT per service population by instituting a TDM program to reduce external vehicle trips generated by the project. However, the effectiveness of the TDM strategies is not known and subsequent vehicle trip reduction effects cannot be guaranteed. Existing evidence indicates that the effectiveness of TDM strategies with regard to vehicle trip reduction can vary based on a variety of factors, including the context of the surrounding built environment (e.g., urban versus suburban) and the aggregate effect of multiple TDM strategies deployed together. Moreover, many TDM strategies are not just site-specific, but also rely on implementation and/or adoption by private entities (e.g., elective use of carpool program by office building tenants).

As noted above, due to uncertainties regarding the ability for the aforementioned mitigation measure to quantifiably reduce VMT impacts to less-than-significant levels, this impact would be **significant and unavoidable**.

Impact 3.9-3: Hazards Due to a Geometric Design Feature or Incompatible Uses

All new roadway, bicycle, and pedestrian infrastructure improvements constructed as part of the project would be subject to, and designed in accordance with all applicable CSU and City of Sacramento design and safety standards to avoid creating a geometric design hazard. However, gaps in the bicycle and pedestrian network could pose a barrier to bicycle and pedestrian travel and increase the potential for bicycle-vehicle or pedestrian-vehicle conflicts. Therefore, implementation of the project could potentially result in hazards to bicyclists and pedestrians. This impact would be **significant**.

The project would include the construction of new on-site multi-modal transportation facilities and access intersections/driveways. All new roadway, bicycle, and pedestrian infrastructure improvements constructed as part of the project would be subject to, and designed in accordance with applicable CSU and City design and safety standards to avoid creating a geometric design hazard.

The project would be mixed-use infill development consistent with the existing land use character of the surrounding area, which is comprised of office, industrial, and academic (i.e., the main Sacramento State campus) uses. As such, the project would generate a mix of traffic that would generally be similar to existing conditions, with the exception of increases to walking and bicycling activity within the project site vicinity and between the project site and nearby destinations such as the main Sacramento State campus and Power Inn Station. With more people traveling to and from the project site, the volume of traffic across modes would increase, and this may result in slower travel speeds for some modes. These changes would not cause conditions that warrant modification of the existing transportation system, with the exception of modifications to bicycle and pedestrian facilities within the project site vicinity as described in Impact 3.9-1. As noted above, project-generated bicyclists in locations with bicycle network gaps would physically mix with higher speeds and volumes of vehicle traffic, including additional vehicle traffic that would be generated by the project. In such instances, the project would increase the potential for bicycle-vehicle conflicts; and thus, could potentially result in hazards to bicyclists. Similarly, the aforementioned gaps in the pedestrian network could result in substantial out-of-direction travel and project-generated pedestrians physically mixing with vehicle traffic, including additional vehicle traffic that would be generated by the project. These gaps in the pedestrian network could pose a barrier to pedestrian travel and increase the potential for pedestrian-vehicle conflicts.

Thus, implementation of the project could potentially result in hazards to bicyclists and pedestrians. This impact would be **significant**.

Mitigation Measures

Mitigation Measure 3.9-3a: Construct Bicycle Facility Improvements on Ramona Avenue
Implement Mitigation Measure 3.9-1a.

Mitigation Measure 3.9-3b: Construct Bicycle Facility Improvements on Cucamonga Avenue
Implement Mitigation Measure 3.9-1b.

Mitigation Measure 3.9-3c: Construct Bicycle and Pedestrian Facility Improvements on Brighton Avenue
Implement Mitigation Measure 3.9-1c.

Mitigation Measure 3.9-3d: Construct Bicycle and Pedestrian Access Improvements between the Project Site and Power Inn Station
Implement Mitigation Measure 3.9-1d.

Significance after Mitigation

Implementation of Mitigation Measures 3.9-3a through 3.9-3d would reduce impacts to a less-than-significant level by reducing the potential for conflicts involving bicyclists or pedestrians in a manner consistent with CSU and Sacramento State policies the promote the use of walking, bicycling, and transit to and from campus. Moreover, implementation of these mitigation measures would modify City of Sacramento facilities to accommodate project-related changes to vehicle traffic in a manner that would bring the facilities into compliance with City of Sacramento bicycle facility design guidance. However, the City of Sacramento holds jurisdictional control of the public roadway right-of-way surrounding the project site, including the roadway segments/right-of-way identified for improvement in Mitigation Measures 3.9-3a through 3.9-3d. Therefore, because Sacramento State does not have jurisdictional control of the right-of-way; and thus, does not have the ability to construct these improvements and moreover control the timing of the aforementioned improvements prior to operation of on-site uses, it cannot be ensured that Mitigation Measures 3.9-3a through 3.9-3d would be implemented. Therefore, this impact would be **significant and unavoidable**.

3.10 UTILITIES AND SERVICE SYSTEMS

This section evaluates the adequacy of existing and planned utilities to serve the demands projected to result from campus development and growth with implementation of The Hub, Sacramento Research Park Project. Specifically, this section addresses:

- water supply, distribution, and treatment;
- wastewater treatment and disposal;
- stormwater management;
- solid waste disposal; and
- energy facilities.

Refer to Section 3.5, "Energy," for an analysis of energy efficiency related to implementation of the project pursuant to State CEQA Guidelines, Appendix F requirements. Impacts related to groundwater aquifers, hydrology and water quality are addressed in the beginning of Chapter 3, under the "Hydrology and Water Quality" of "Effects Found Not to Be Significant" on page 3-2 of this EIR.

Scoping comments received in response to the Notice of Preparation (see Appendix A) included recommendations to address any project-related impacts to utility line routing and the potential for relocation or removal of electrical infrastructure.

3.10.1 Regulatory Setting

FEDERAL

Clean Water Act

The Clean Water Act (CWA) employs a variety of regulatory and nonregulatory tools to reduce direct pollutant discharges into waterways, finance municipal wastewater treatment facilities, and manage polluted runoff. The U.S. Environmental Protection Agency (EPA) established primary drinking water standards in Section 304 of the CWA. States are required to ensure that the public's potable water meets these standards.

Section 402 of the CWA creates the National Pollutant Discharge Elimination System (NPDES) regulatory program. Point sources must obtain a discharge permit from the proper authority (usually a state, sometimes EPA, a tribe, or a territory). NPDES permits cover various industrial and municipal discharges, including discharges from storm sewer systems in larger cities, storm water associated with numerous kinds of industrial activity, runoff from construction sites disturbing more than 1 acre, and mining operations. All so-called "indirect" dischargers are not required to obtain NPDES permits. "Indirect" dischargers send wastewater into a public sewer system, which carries it to the municipal sewage treatment plant, through which it passes before entering a surface water.

Safe Drinking Water Act

As mandated by the Safe Drinking Water Act (Public Law 93-523), passed in 1974, EPA regulates contaminants of concern to domestic water supply. Such contaminants are defined as those that pose a public health threat or that alter the aesthetic acceptability of the water. These types of contaminants are regulated by EPA primary and secondary Maximum Contaminant Levels (MCLs). MCLs and the process for setting these standards are reviewed every three years. Amendments to the Safe Drinking Water Act enacted in 1986 established an accelerated schedule for setting drinking water MCLs. EPA has delegated responsibility for California's drinking water program to the State Water Resources Control Board Division of Drinking Water (SWRCB-DDW). SWRCB-DDW is accountable to EPA for program implementation and for adoption of standards and regulations that are at least as stringent as those developed by EPA.

STATE

California Code of Regulations, Energy Efficiency Standards

Energy consumption in new buildings in California is regulated by State Building Energy Efficiency Standards (CALGreen) contained in the CCR, Title 24, Part 2, Chapter 2-53. Title 24 applies to all new construction of both residential and nonresidential buildings, and regulates energy consumed for heating, cooling, ventilation, water heating, and lighting. The 2016 Building Energy Efficiency Standards have improved efficiency requirements from previous codes and the updated standards are expected to result in a statewide consumption reduction.

California Fire Code

The 2016 California Fire Code, which is codified at Part 9 of Title 24 of the CCR, incorporates by adoption the 2015 International Fire Code and contains regulations related to construction, maintenance, and use of buildings. Topics addressed in the California Fire Code include fire department access, fire hydrants, automatic sprinkler systems, fire alarm systems, fire and explosion hazards safety, hazardous materials storage and use, provisions intended to protect and assist fire responders, industrial processes, and many other general and specialized fire-safety requirements for new and existing buildings and the surrounding premises. The California Fire Code contains specialized technical regulations related to fire and life safety. The California Building Standards Code, including the California Fire Code, is revised and published every 3 years by the California Building Standards Commission.

California Water Code, Water Supply

According to California Water Code (CWC) Section 10910 (referenced in State CEQA Guidelines Section 15155), local lead agencies, are required to identify the public water system(s) that would serve a project and assess whether the water supply is sufficient to provide for projected water demand associated with a project when existing and future uses are also considered (CWC Section 10910[c][3]). The definition of a water-demand project is the same as State CEQA Guidelines Section 15155.

California Water Code, Water Supply Wells and Groundwater Management

The CWC is enforced by the California Department of Water Resources (DWR). DWR's mission is "to manage the water resources of California in cooperation with other agencies, to benefit the state's people, and to protect, restore, and enhance the natural and human environments." DWR is responsible for promoting California's general welfare by ensuring beneficial water use and development statewide. The laws regarding groundwater wells are described in CWC Division 1, Article 2 and Articles 4.300 to 4.311; and Division 7, Articles 1-4. Further guidance is provided by bulletins published by DWR, such as Bulletins 74-81 and 74-90 related to groundwater well construction and abandonment standards.

Groundwater Management is outlined in the CWC, Division 6, Part 2.75, Chapters 1-5, Sections 10750 through 10755.4. The Groundwater Management Act was first introduced in 1992 as Assembly Bill (AB) 3030 and has since been modified by Senate Bill (SB) 1938 in 2002, AB 359 in 2011, and AB 1739 in 2014. The intent of the Groundwater Management Act is to encourage local agencies to work cooperatively to manage groundwater resources within their jurisdictions and to provide a methodology for developing a Groundwater Management Plan.

Water Conservation Act of 2009

Requirements regarding per capita water use targets are defined in the Water Conservation Act of 2009 that was signed into law in November 2009 as part of a comprehensive water legislation package. Known as SB X7-7, the legislation sets a goal of achieving a 20-percent reduction in urban per capita water use statewide by 2020. SB X7-7 requires that retail water suppliers define in their 2010 urban water management plans the gallons-per-capita-per-day targets for 2020, with an interim 2015 target.

California's Integrated Waste Management Act of 1989

The California Integrated Waste Management Act (CIWMA) of 1989 created the California Integrated Waste Management Board, now known as the California Department of Resources Recycling and Recovery (CalRecycle). CalRecycle is the agency designated to oversee, manage, and track California's 92 million tons of waste generated each year. CalRecycle provides grants and loans to help cities, counties, businesses, and organizations meet the State's waste reduction, reuse, and recycling goals. CalRecycle promotes a sustainable environment in which these resources are not wasted but can be reused or recycled. In addition to many programs and incentives, CalRecycle promotes the use of new technologies to divert resources away from landfills. CalRecycle is responsible for ensuring that waste management programs are carried out primarily through local enforcement agencies.

The CIWMA is the result of two pieces of legislation: AB 939 and SB 1322. The CIWMA was intended to minimize the amount of solid waste that must be disposed of through transformation and land disposal by requiring all cities and counties to divert 25 percent of all solid waste from landfill facilities by January 1, 1995, and 50 percent by January 1, 2000.

The 50 percent diversion requirement is measured in terms of per capita disposal expressed as pounds per day per resident and per employee. The per capita disposal and goal measurement system uses an actual disposal measurement based on population and disposal rates reported by disposal facilities, and it evaluates program implementation efforts.

Mandatory Recycling Requirements

AB 341 requires CalRecycle to issue a report to the legislature that includes strategies and recommendations that would enable the State to recycle 75 percent of the solid waste generated in the State by January 1, 2020, requires businesses that meet specified thresholds in the bill to arrange for recycling services by July 1, 2012, and also streamlines various regulatory processes.

Mandatory Commercial Organics Recycling Requirements

In October 2014, AB 1826 Chesbro (Chapter 727, Statutes of 2014) was signed into law, requiring businesses to recycle their organic waste on and after April 1, 2016, depending on the amount of waste they generate per week. This law also requires that on and after January 1, 2016, local jurisdictions across the state implement an organic waste recycling program to divert organic waste generated by businesses, including multifamily residential dwellings of five or more units (multifamily dwellings are not required to have a food waste diversion program, however). Organic waste means food waste, green waste, landscape and pruning waste, nonhazardous wood waste, and food-soiled paper waste that is mixed in with food waste.

Short-Lived Climate Pollutant Reduction Strategy

In September 2016, SB 1383 (Lara, Chapter 395, Statutes of 2016) was signed into law, establishing methane emissions reduction targets in a statewide effort to reduce emissions of short-lived climate pollutants in various sectors of California's economy. Actions to reduce short-lived climate pollutants are essential to address the many impacts of climate change on human health, especially in California's most at-risk communities, and on the environment.

As it pertains to solid waste, SB 1383 establishes targets to achieve a 50-percent reduction in the volume of statewide disposal of organic waste from 2014 levels by 2020 and a 75-percent reduction by 2025. The law grants CalRecycle the regulatory authority required to achieve the organic waste disposal reduction targets and establishes an additional target that not less than 20 percent of currently disposed edible food is recovered for human consumption by 2025. To meet these goals, universities would be required to divert organic waste, including edible food, from disposal at landfills. Rulemaking activities associated with SB 1383 are currently in process.

CALIFORNIA STATE UNIVERSITY

California State University Sustainability Policy

In May 2014, the California State University (CSU) Board of Trustees adopted the first CSU systemwide Sustainability Policy. The policy aims to reduce the environmental impact of construction and operation of buildings and to integrate sustainability into all facets of the CSU, including academics, facilities operations, the built environment, and student life. The CSU Sustainability Policy established the following goals related to utilities:

Water Conservation

- Water resource conservation to reduce water consumption by 10 percent by 2016, and 20 percent by 2020 including such steps to develop sustainable landscaping, install controls to optimize irrigation water use, reduce water usage in restrooms and showers, and promote use of reclaimed/recycled water. In the event of a declaration of drought, the CSU will cooperate with the state, city, and county governments to the greatest extent possible to reduce water consumption.

Waste Management

- Reduce the solid waste disposal rate by 50 percent (PRC §42921) by 2016, by 80 percent by 2020, and move to zero waste.
- To move to zero waste: (1) encourage use of products that minimize the volume of trash sent to landfill or incinerators; (2) participate in the CalRecycle Buy-Recycled program or equivalent; and (3) increase recycled content purchases in all Buy Recycled program product categories.
- Report on all recycled content product categories, consistent with Public Contract Code Sections 12153–12217.

Sacramento State Storm Water Management Plan

California State University campuses serve as their own nontraditional municipal separate storm sewer system (MS4) Small Permittee. An MS4 is a defined as a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains) owned or operated by a State (SWRCB 2021).The General Permit for the Discharge of Storm Water from Small Municipal Separate Storm Sewer Systems WQO No. 2003-0005-DWQ (Small MS4 General Permit), requires that dischargers develop and implement a Storm Water Management Program (SWMP) that describes the best management practices (BMPs), measurable goals, and time schedules of implementation as well as assigns responsibility of each task. In 2006, Sacramento State approved a SWMP to (1) identify pollutant sources potentially affecting the quality and quantity of storm water discharges; (2) to provide BMPs for municipal and small construction activities implemented by California State University, Sacramento staff and contractors and; (3) provide measurable goals for the implementation of this SWMP to reduce the discharge of the identified pollutants into the storm drain system and associated water ways (Sacramento State 2006).

LOCAL

Sacramento State is part of the CSU, which is a legislatively- and statutorily-created, constitutionally-authorized entity of the State of California, and the Ramona Property (the project site) is owned by the CSU. As explained in Section 3.0, "California State University Autonomy," of this ~~Draft~~ EIR, State agencies are not subject to local government planning and land use plans, policies, or regulations. Nevertheless, in the exercise of its discretion, CSU does reference, describe, and address local plans, policies, and regulations where appropriate and for informational purposes. This evaluation is also intended to be used by local agencies for determining, as part of their permit processes, the project's consistency with local plans, policies, and regulations.

Sacramento Regional County Sanitation District Consolidated Ordinance

The Sacramento Regional County Sanitation District (Regional San) Consolidated Ordinance sets forth requirements for use of its wastewater collection and treatment system, provides for the enforcement of these requirements, establishes penalties for violations, and establishes the rates and fees for users of Regional San's sewer facilities.

Stormwater Quality Design Manual for the Sacramento and South Placer Regions

The Stormwater Quality Design Manual outlines planning tools and requirements to reduce urban runoff pollution to the maximum extent practicable from new development and redevelopment projects. The manual is a collaborative effort between multiple jurisdictions and is intended to satisfy the regulatory requirements of municipal stormwater permits. The plan provides planning and design tools for use by planners, architects, landscape architects, engineers and environmental professionals.

City of Sacramento 2035 General Plan

The following goals and policies from the Sacramento 2035 General Plan Utilities Element (City of Sacramento 2015) relate to water supply, stormwater, wastewater, solid waste, and utility infrastructure.

GOAL U 2.1: High-Quality and Reliable Water Service. Provide water supply facilities to meet future growth within the City's Place of Use and assure a high-quality and reliable supply of water to existing future residents.

- **Policy U 2.1.9: New Development.** The City shall ensure that water supply capacity is in place prior to granting building permits for new development.
- **Policy U 2.1.12: Water Conservation Enforcement.** The city shall continue to enforce City ordinances that prohibit the waste or runoff of water, establish limits on outdoor water use, and specify applicable penalties.
- **Policy U 2.1.14: Rain Capture.** The City shall promote the use of rain barrels and rain gardens to conserve water, while not increasing the occurrence of disease vectors.
- **Policy U 2.1.15: Landscaping.** The City shall continue to require the use of water-efficient and river-friendly landscaping in all new development, and shall use water conservation gardens (e.g., Glen Ellen Water Conservation Office) to demonstrate and promote water conserving landscapes.
- **Policy U 2.1.16: River-Friendly Landscaping.** The City shall promote "River Friendly Landscaping" techniques which include the use of native and climate appropriate plants; sustainable design and maintenance; underground (water-efficient) irrigation; and yard waste reduction practices.

GOAL U 1.1: High-Quality Infrastructure and Services. Provide and maintain efficient, high quality public infrastructure facilities and services in all areas of the city.

- **Policy U 1.1.5: Growth and Level of Service.** The City shall require new development to provide adequate facilities or pay its fair share of the cost for facilities needed to provide services to accommodate growth without adversely impacting current service levels.

GOAL U 3.1: Adequate and Reliable Sewer and Wastewater Facilities. Provide adequate and reliable sewer and wastewater facilities that collect, treat and safely dispose of wastewater.

- **Policy U 3.1.4:** In keeping with its CSS Long Term Control Plan (LTCP), the City will continue to rehabilitate the CSS to decrease flooding, CSS outflows and CSOs. Through these improvements and new development requirements the City will also insure that development in the CSS does not result in increased flooding, CSS outflows or CSOs.

GOAL U 4.1: Adequate Stormwater Drainage. Provide adequate stormwater drainage facilities and services that are environmentally sensitive, accommodate growth, and protect residents and property.

- **Policy U 4.1.5: Green Stormwater Infrastructure.** The City shall encourage "green infrastructure" design and Low Impact Development (LID) techniques for stormwater facilities (i.e., using vegetation and soil to manage stormwater) to achieve multiple benefits (e.g., preserving and creating open space, improving runoff water quality).

GOAL U 5.1: Solid Waste Facilities. Provide adequate solid waste facilities, meet or exceed State law requirements, and utilize innovative strategies for economic and efficient collection, transfer, recycling, storage, and disposal of refuse.

- **Policy U 5.1.1: Zero Waste.** The City shall achieve zero waste to landfills by 2040 through reusing, reducing, and recycling solid waste; and using conversion technology if appropriate. In the interim, the City shall achieve a waste reduction goal of 75 percent diversion from the waste stream over 2005 levels by 2020 and 90 percent diversion over 2005 levels by 2030 and shall support the Solid Waste Authority in increasing commercial solid waste diversion rates to 30 percent.
- **Policy U 5.1.8: Diversion of Waste**. The City shall encourage recycling, composting, and waste separation to reduce the volume and toxicity of solid wastes sent to landfill facilities.
- **Policy U 5.1.9: Electronic Waste Recycling**. The City shall continue to coordinate with businesses that recycle electronic waste (e.g., batteries, fluorescent lamps, compact-fluorescent (CFL) bulbs) and the California Product Stewardship Council to provide convenient collection/drop off locations for city residents.

- **Policy U 5.1.14: Recycled Materials in New Construction**. The City shall encourage the use of recycled materials in new construction.
- **Policy U 5.1.15: Recycling and Reuse of Construction Wastes**. The City shall require recycling and reuse of construction wastes, including recycling materials generated by the demolition and remodeling of buildings, with the objective of diverting 85 percent to a certified recycling processor.

3.10.2 Environmental Setting

The project site is served by public utilities as identified in Table 3.10-1 and discussed in detail below.

Table 3.10-1 Utilities Providers for the Project Area

Utility	Agency/Provider
Water Supply	City of Sacramento
Wastewater Collection and Conveyance	Sacramento Area Sewer District (SASD)
Wastewater Treatment	Sacramento Regional County Sanitation District (Regional San)
Stormwater Conveyance	City of Sacramento
Solid Waste Collection	City of Sacramento Recycling and Solid Waste Division; Various private franchised haulers
Electrical Service	Sacramento Municipal Utility District (SMUD)
Natural Gas	Pacific Gas & Electric Company (PG&E)

Source: Data compiled by Ascent Environmental in 2021

WATER SUPPLY, TREATMENT, AND CONVEYANCE

The City of Sacramento Department of Utilities is responsible for the treatment and provision of potable water supplies within the city limits, including to the project site. The City provides drinking water from groundwater and surface water resources. Surface water is diverted at two locations: from the American River downstream of the Howe Avenue Bridge, and from the Sacramento River downstream of the confluence of the American and Sacramento Rivers. The City draws groundwater from two subbasins of the Sacramento Valley Groundwater Basin, the North American Subbasin, located north of the American River, and South American Subbasin, located south of the American River.

The City's retail service area covers approximately 101 square miles (64,425 acres). The city reported that it is approximately 99 percent metered as of December 31, 2020 (City of Sacramento 2021a:ES-2). The City also provides wholesale water supplies to the Sacramento County Water Agency, Sacramento Suburban Water District, California American Water, and Natomas Unified School District (City of Sacramento 2021a: 3-5).

Surface Water Supply

The City of Sacramento has relied on river water as its primary source of water supplies since 1854 and claims pre-1914 rights to divert approximately 75 cubic feet per second (cfs) from the Sacramento River (City of Sacramento 2021a:6-9). In addition, the City holds five water rights permits to serve the city: one for diversion of Sacramento River water and four for diversion of American River water. Diverted water is treated at the Fairbairn Water Treatment Plant (FWTP) or Sacramento River Water Treatment Plant (SRWTP).

Table 3.10-2 shows the City's schedule of authorized surface water supply over the next approximately 20 years.

Table 3.10-2 Maximum Annual Surface Water Diversion for the City of Sacramento [a]

Water Source	2020	2025	2030	2035	2040
Maximum Diversion from the Sacramento River (afy)[b]	81,800	81,800	81,800	81,800	81,800
Maximum Diversion from the American River (afy) [c]	208,500	228,000	245,000	245,000	245,000
Total (afy)	**278,000**	**304,000**	**326,800**	**326,800**	**326,800**

Note: afy = acre-feet per year

a. Data obtained from Schedule A of the 1957 Water Rights Settlement Contract between USBR and the City.

b. The City may divert up to 81,800 afy from the Sacramento River as long as the total combined diversion from both the Sacramento and American Rivers does not exceed the Maximum Combined Diversion.

c. The City may divert up to the Maximum Diversion from the American River as long as the total combined diversion from both the Sacramento and American Rivers does not exceed the Maximum Combined Diversion.

Source: City of Sacramento 2021a:6-12

Minimum-Flow Requirements

Current usage and future development must be sensitive to American River stream flows, especially during dry periods. There are two major institutional constraints that limit the FWTP diversion capacity: Hodge Flow conditions and Extremely Dry Year conditions, described below. When American River flows are above a certain level (dubbed "Hodge Flow conditions[1]" and named for the presiding judge in the deciding case), the City may divert up to 310 cfs (200 million gallons per day [mgd]) from the American River.

During extremely dry years ("Conference Years[2]"), defined by specific inflow levels to Folsom Reservoir, the City limits its diversions to the FWTP to 155 cfs (100 mgd) and 50,000 acre-feet per year (afy) (16,300 million gallons per year). Conference Years have occurred on the American River only three times over the recorded hydrologic history: in 1924, 1977, and 2015.

Although Hodge Flow Conditions and Conference Years may reduce the amount of water that can be diverted from the FWTP on the American River, the City can instead divert its remaining American River entitlements downstream at the SRWTP (City of Sacramento 2021a:6-13).

Groundwater Supply

The City also utilizes groundwater as part of its overall system supply. The city currently operates 23 groundwater supply wells, with the majority of these wells located within the City's service area north of the American River (City of Sacramento 2021a:6-6). The current total pumping capacity of the City's municipal supply wells is approximately 18.2 mgd (20,429 afy). The City's 2017 Groundwater Master Plan includes recommendations for the city to continue to budget for well replacement so that groundwater remains a reliable part of the City's water supply portfolio. This would involve replacing 24-38 wells by 2040 (City of Sacramento 2021a:6-7). The groundwater pumping capacity is anticipated to increase to approximately 24.2 mgd (27,083 afy) by 2025 based on planned future groundwater pumping (City of Sacramento 2021a:6-8). As stated in the City's Water Forum Agreement – Purveyor Specific Agreement, the City will maintain an estimate average annual sustainable yield of 131,000 acre feet (City of Sacramento 2021a).

Water Treatment Plants

The SRWTP, located just east of Interstate 5 and south of Richards Boulevard, treats water pumped from the Sacramento River about one-half mile downstream from the American River confluence. The diversion capacity at the SRWTP is 160 mgd. The City is currently evaluating further expansion of the SRWTP to increase the diversion and treatment capacity to 310 mgd.

1 During Hodge Flow Conditions, diversion from the American River is limited at the E.A. Fairburn Water Treatment Plant, located on the south bank of the American River.

2 The City's Water Forum Purveyor Specific Agreement defines Conference Years as years in which the Department of Water Resources (DWR) projects the annual unimpaired inflow into Folsom Reservoir of 550,000 acre feet or less or when DWR projects the March through November unimpaired flow into Folsom Reservoir at less than 400,000 acre feet (City of Sacramento 2021a:6-13).

The FWTP is located on the south bank of the lower American River, approximately 7 miles upstream from its confluence with the Sacramento River. Construction of the FWTP was completed in 1964 with various improvements completed over the years. The plant was designed to be expanded in stages to an ultimate treatment capacity of 404 mgd, however, it is currently rated at a diversion capacity of 200 mgd, with a permitted treatment capacity of 160 mgd. The FWTP is unable to operate reliably at capacity due to the poor condition of some of the plant facilities, and due to environmental agreements that frequently limit diversions during summer months, and other reduced rated during different parts of the year due to water rights agreements. Therefore, the current reliable capacity of the FWTP during peak demand periods is 80 mgd, with the ability to operate at up to 100 mgd, but only for short periods of time (City of Sacramento 2021a:3-8).

Current and Projected City Water Supply

In 2020, as reported in the 2020 UWMP, the total water supply (retail and wholesale customers) was 100,512 afy (89.73 mgd) (City of Sacramento 2021a:6-25). The total water demand in 2020 was 100,483 afy (89.71 mgd) (City of Sacramento 2021a: 6-25). Table 3.10-3, below describes current and projected surface water supplies for both retail and wholesale customers in the City of Sacramento.

Table 3.10-3 Current and Projected Surface Water Supplies[1] – Retail and Wholesale(afy)

	2020	2025	2030	2035	2040	2045
Surface Water[2]						
Retail	68,021	309,800	326,800	326,800	326,800	326,800
Wholesale	2,895	22,006	46,735	68,698	90,660	90,660
Groundwater						
Retail	20,429	22,400	22,400	22,400	22,400	22,400
Wholesale	712	6,400	6,400	6,400	6,400	6,400
Recycled Water						
Retail	29	1,000	1,000	1,000	1,000	1,000
Wholesale	0	0	0	0	0	0
Purchased or Imported						
Retail	8,427	NA	NA	NA	NA	NA
Wholesale	NA	NA	NA	NA	NA	NA
Retail Total	96,905	333,200	350,200	350,200	350,200	350,200
Wholesale Total	3,607	28,406	53,135	75,098	97,060	97,060
Grand Total	**100,512**	**361,606**	**403,335**	**425,298**	**447,260**	**447,260**

City of Sacramento 2021a:6-9; 6-21;6-24; 6-25, 6-26.

NA = Not Available

[1] Includes current and projected water supplies for retail customers and is based on reasonably available volume (see Table 6-23 on page 6-26 of the UWMP)

[2] Includes surface water supplies from the Sacramento and American rivers

Projected water supplies shown in Table 3.10-3 are based on reasonably available volume, which in some cases is less than the total right or safe yields. The total right (or safe yield) for the Sacramento River is equal to the reasonably available volume (81,800 afy); for the American River it is 228,000 afy in 2025 and increases to 245,000 afy in 2030 through 2045; and for groundwater it is 41,400 afy (City of Sacramento 2021a:6-26).

The planned supplies and demand shown in Table 3.10-4, below, are representative of anticipated supplies and demand in a normal year, single dry year, and multiple dry years. The City has elected in the past, and may in the future, to engage in more aggressive demand management measures or reoperation of the water system to benefit broader statewide conditions during drier periods irrespective of legal entitlements to supply. Future surface water projects under consideration by the City include expansion of the SRWTP or participation in the RiverArc project to increase the City's long-term treatment capacity for its surface water supply. The City's groundwater wells are also an important component of its water supply portfolio. The City's 2017 Groundwater Master Plan includes recommendations for continued well replacements and consideration of expanding the groundwater program which would maximize the City's water supply flexibility (City of Sacramento 2021a: 7-13, 7-15).

Table 3.10-4 Projected Water Supply and Demand during Normal, Single Dry, and Multiple Dry Years[1] (afy)

	2025	2030	2035	2040	2045
Normal Years[2]					
Supply	333,200	350,200	350,200	350,200	350,200
Demand	108,432	114,809	121,187	127,564	133,942
Difference	*224,769*	*235,391*	*229,014*	*222,636*	*216,258*
Single Dry Year					
Supply	333,200	350,200	350,200	350,200	350,200
Demand	108,432	114,809	121,187	127,564	133,942
Difference	*224,769*	*235,391*	*229,014*	*222,636*	*216,258*
Multiple Dry Years					
First Year					
Supply	350,200	350,200	350,200	350,200	350,200
Demand	108,432	114,809	121,187	127,564	133,942
Difference	*224,769*	*235,391*	*229,014*	*222,636*	*216,258*
Second Year					
Supply	333,200	350,200	350,200	350,200	350,200
Demand	109,707	116,085	122,465	128,840	138,397
Difference	*223,493*	*234,116*	*227,738*	*221,360*	*211,803*
Third Year					
Supply	333,200	350,200	350,200	350,200	350,200
Demand	110,983	117,360	123,738	130,115	142,853
Difference	*222,218*	*232,840*	*226,463*	*220,085*	*207,347*
Fourth Year					
Supply	333,200	350,200	350,200	350,200	350,200
Demand	112,258	118,636	125,013	131,391	147,308
Difference	*220,942*	*231,565*	*225,187*	*218,809*	*202,892*
Fifth Year					
Supply	333,200	350,200	350,200	350,200	350,200
Demand	113,534	119,911	126,289	132,666	151,764
Difference	*219,667*	*230,289*	*223,912*	*217,534*	*198,436*

City of Sacramento 2021a:7-10; 7-11; 7-14.

[1] Projections included reflect retail water supply and demand.

As shown in the table above, the City has ample water supplies to meet water supply demands through 2045. The surplus water supply during multiple dry years (fifth year), after meeting anticipated demands, represents approximately 65 percent of the total supply in 2025 and decreases to approximately 55 percent of total supply in 2045.

WASTEWATER

The project site is served by the City of Sacramento's separated sewer system (SSS). The SSS is operated by the City and SASD. The SSS is composed of about 482 miles of 4- to 36-inch diameter pipe and 35 individual pump stations. Flows conveyed by the SSS are routed to the Regional San wastewater treatment plant (WWTP) for treatment and disposal via an interceptor system consisting of large diameter pumps and pump stations (City of Sacramento 2021a:6-19). Wastewater collection at the project site consists of a 10-inch sewer line to the west in Ramona Avenue, an 8-inch sewer line in Brighton Avenue to the north, 12-inch line to the south in Cucamonga Avenue, and an 8-inch line to the east in Power Inn Road.

Wastewater Treatment and Disposal

Wastewater treatment within the city is provided by Regional San and the City of Sacramento. Regional San operates all regional interceptors and wastewater treatment plants serving the city except for the combined sewer and storm drain treatment facilities, which are operated by the City of Sacramento.

Sacramento Regional Wastewater Treatment Plant

Regional San was formed in the mid-1970s as a result of the Sacramento Regional Wastewater Management Program. The program consolidated more than a dozen treatment facilities and virtually eliminated effluent discharge into local waterways, instead treating all wastewater to a high level and discharging it at one point in the Sacramento River. About 1.6 million people are provided sewer service by the Regional San (Regional San 2021a). Regional San has begun construction on mandated treatment plant upgrades, known as the EchoWater Project, which will improve effluent water quality. Upgrades will be complete by 2023.

The Regional San wastewater conveyance system is comprised of 169 miles of interceptor pipelines, 58 miles of force mains, and 11 pump stations before it reaches the Regional San WWTP near Elk Grove (Regional San 2021b). The Regional San WWTP currently provides secondary treatment of wastewater, has a permitted treatment capacity of 181 mgd of average dry-weather flow, and a daily peak wet weather flow of 392 mgd (City of Sacramento 2021a: 6-19). A Wastewater Operating Agreement between Regional San and the City, limits wastewater flows from the city to 60 mgd (City of Sacramento 2021a:6-18). In 2020, 40,341 afy (36 mgd) of wastewater flows were collected in the City's Urban Water Management Plan service area delivered to the Regional San WWTP (City of Sacramento 2021a:6-15, 6-16).

ENERGY SUPPLIES

Electricity

SMUD generates, transmits, and distributes electrical power to a 900-square-mile service area that includes Sacramento County and a small portion of Placer County. SMUD's electricity sources include hydropower generation; cogeneration; advanced and renewable technologies such as wind, solar, and biomass/landfill gas power; and power purchased on the wholesale market.

The project area is currently served by two 12 kilovolts (kV) primary feeders that run north/south along the railroad tracks and Power Inn Road, additionally smaller 12KV lines throughout the area serve individual services. There is also a 69kV line running north/south along Power Inn Road and to the north near the Sacramento State main campus (City of Sacramento 2018).

Natural Gas

PG&E supplies natural gas to the Sacramento area, and to a larger 70,000 square mile service territory. In downtown Sacramento, PG&E has both high-pressure and low-pressure distribution systems. High-pressure system pipelines, generally 4 inches in diameter and larger, carry gas at approximately 40 pounds per square inch (psi). Low-pressure system pipelines, generally 2 inches in diameter, carry gas at about 0.25 psi. Service is generally provided from the low-pressure system unless usage exceeds about 3,000 cubic feet per hour. Regulator stations at various locations are used to reduce high pressure to low pressure.

Natural gas service in the project area is provided by Pacific Gas and Electric. The existing facilities in the area consist of 4.5-inch to 16-inch pipelines delivering service to all customers that are not served by private propane tanks (City of Sacramento 2018).

SOLID WASTE

The waste stream generated in the City of Sacramento is over 620,000 tons per year and includes everything from recycling to construction and demolition material to garden refuse (CalRecycle 2020). The City collects all residential solid waste within city boundaries. Most of the residential waste is disposed at the Sacramento County Kiefer Landfill. Commercial solid waste is collected by private franchised haulers authorized by the Sacramento Solid Waste Authority. There are seventeen different solid waste haulers that provide solid waste collection for commercial properties and businesses in Sacramento. Waste collected in the city is disposed of at various facilities including Kiefer Landfill, the Yolo County Landfill, and L and D Landfill. For the landfills that serve the city, between 68 percent and 96 percent of their respective total capacities remain (see Table 3.10-5). Each of these landfills have a substantial amount of capacity remaining: approximately 68 percent of L and D Landfill's capacity remains, and 96 percent of Kiefer Landfill's capacity remains.

Table 3.10-5 Landfill Capacity

Facility	Daily Permitted Capacity (tons)	Maximum Permitted Capacity (cubic yards)	Remaining Capacity (cubic yards)
L and D Landfill	4,125	20,500,000	3,115,900
Sacramento County Kiefer Landfill	10,815	117,400,000	112,900,000
Elder Creek Transfer and Recovery Station	2,500	NA	NA
North Area Transfer Station	2,400	NA	NA
Sacramento Recycling and Transfer Station	2,500	NA	NA

Note: NA = not applicable

Source: CalRecycle 2021a, 2021b, 2021c, 2021d, 2021e

3.10.3 Environmental Impacts and Mitigation Measures

ANALYSIS METHODOLOGY

The analysis is based on documents obtained from the City of Sacramento, Regional San, and personal communications with City staff.

Water Demand and Wastewater

Impacts on water demand, wastewater, and associated infrastructure that would result from the project were identified by determining adequacy of existing infrastructure and comparing existing service capacity against future demand associated with project implementation. When possible, a quantitative comparison was used to determine impacts of the project on future demands. Evaluations of potential utilities impacts are based on personal communications and information pertaining to the project with Sacramento State and the City of Sacramento. Additional information was obtained through consultation with appropriate agencies and review of letters received during the scoping period.

Solid Waste

This analysis evaluates the potential for increased waste generation through project implementation, based on the generation rates, developed using CalEEMod default values. In addition, CSU, Sacramento State policies and procedures were evaluated for consistency with attainment of solid waste reduction goals, and other statutes and regulations associated with solid waste.

Energy

Electricity

Impacts related to electricity were evaluated by determining whether any new facilities would need to be constructed to serve the project, whether SMUD would be able to serve the project, and whether the construction of necessary electrical improvements would adversely affect SMUD electrical capacity or infrastructure or interrupt utility service during construction.

Natural Gas

Similar to electricity, impacts related to natural gas were evaluated by determining whether any new facilities would need to be constructed to serve the project, and whether any utility services would be interrupted during construction.

THRESHOLDS OF SIGNIFICANCE

A utilities and service systems impact is considered significant if implementation of the project would do any of the following:

- require or result in the relocation or construction of new or expanded water, or wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects;
- have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years;
- result in a determination by the wastewater treatment provider that 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;
- 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; or
- fail to comply with federal, state, and local management and reduction statutes and regulations related to solid waste.

ISSUES NOT DISCUSSED FURTHER

Increases in Demand for Groundwater

As described above, the City currently operates 23 groundwater supply wells with a total pumping capacity of 18.2 mgd. Through the recommendations of the City’s 2017 Groundwater Master Plan, the City would continue to budget for well replacement so that groundwater remains a reliable part of the City’s water supply portfolio. The demand for groundwater would not change with implementation of the proposed project, and any increase in groundwater pumping capacity would continue to occur per the goals, policies, and recommendations of the 2017 Groundwater Master Plan. Therefore, groundwater demand is not evaluated further in terms of water supply availability.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Impact 3.10-1: Require or Result in the Relocation or Construction of New or Expanded Utility Infrastructure

The project would include connections to existing infrastructure and onsite infrastructure, including electrical, water, and wastewater infrastructure. Trenching for pipeline connections between the proposed buildings and the existing utility mains would occur in compliance with Best Management Practices (BMPs) set forth in the Stormwater Quality Design Manual for the Sacramento Region. No additional new or expanded infrastructure beyond those proposed as part of the project and for the project site would be required. This impact would be **less than significant**.

Existing water supply, wastewater, stormwater, natural gas, and electric infrastructure is in place and located within the roadways surrounding the project site. As described in Chapter 2, "Project Description", and in Figure 2-5, new infrastructure within the project site and connections to existing surrounding infrastructure would be required to provide reliable and sustainable utility services to The Hub. Specifically, the project would include the following utility infrastructure:

- a new water loop system for domestic water, irrigation, and fire service would be constructed within the project site to connect to the existing water mains;
- three sewer lines from Ramona Avenue to the CMC building, the CA DOJ building, and the southern mixed-use building pad;
- sewer cleanouts would be installed at the point of service;
- bioswales to collect, convey, filter, and infiltrate stormwater;
- direct connections to energy infrastructure off of Ramona Avenue or Brighton Avenue;
- a SMUD-owned, pad-mount utility transformer; and
- direct connections to existing natural gas infrastructure.

Proposed site infrastructure, as well as connections to existing infrastructure, would be implemented within the proposed footprint of ground disturbance as part of the project, and would require trenching, installation of pipes, and associated infrastructure at site buildings. Trenching would occur in compliance with best management practices (BMPs) set forth in the Stormwater Quality Design Manual for the Sacramento Region and the potential environmental effects of construction activities have been evaluated throughout this EIR, as they are included in the project.

As a construction project that would disturb at least 1 acre of land, the project would require coverage under the General Construction Permit: SWRCB Water Quality Order No. 2009-0009-DWQ, NPDES General Permit No. CAS000002. Compliance with the NPDES General Construction Permit requires applicants to submit a notice of intent to the SWRCB and to prepare a stormwater pollution prevention plan (SWPPP). The SWPPP identifies BMPs that must be implemented to reduce construction effects on receiving water quality. The BMPs identified are directed at implementing both sediment and erosion control measures and other measures to control potential chemical contaminants. The permit also requires dischargers to consider the use of post-construction permanent BMPs that remain in service to protect water quality throughout the life of the project. All NPDES permits also have inspection, monitoring, and reporting requirements. Once the project is operational, Sacramento State would amend its approved SWMP to include and provide coverage for the project site. All future development of the site as part of the project would comply with the conditions of the Sacramento State Small Permittee MS4 permit and requirements for stormwater management outlined in the University's 2006 SWMP, including BMPs to reduce the discharge of pollutants.

As described in Section 3, "Approach to Environmental Analysis," once operational, open space areas of the project site would provide stormwater capture areas as well as onsite bio-retention areas and bioswales. Stormwater runoff from all impervious surfaces would be directed towards onsite bio-retention areas and bioswales where water would naturally infiltrate. Further, other areas within the project site would include permeable paving or permeable landscape areas. These areas would enable water infiltration in place rather than directing water flows to bio-retention areas (Sacramento State 2021).

Project construction could result in temporary interruption of utility service to existing land uses in the project area if there was inadvertent damage to existing infrastructure or the need to reroute existing lines. Sacramento State would coordinate with utility providers throughout the design and construction process, as necessary, to ensure minimal disruption of utility services and minimal inconvenience to existing utility customers. In addition, Sacramento State would obtain encroachment permits from the City of Sacramento Department of Public Works before ground disturbing activities or improvements within City rights-of-way, which would prevent the potential for damage to existing utility lines and provide adequate coordination for any required interim rerouting, thus avoiding the potential for interruption of existing utility service.

Construction of the necessary site infrastructure as well as connections to existing utilities are evaluated as part of the project throughout this EIR and no additional new or expanded infrastructure would be required. This impact is **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.10-2: Have Insufficient Water Supplies Available to Serve the Project

The estimated water demand for the project is 230 afy (0.21 mgd), which would represent an approximate increase of 0.23 percent on City's current water demand. Once project construction activities are complete in 2028, the estimated water demand would represent 0.11 percent of the City's projected surplus water supply through 2045. The City would have adequate water supply to serve the project. Further, the project would also reduce its water demand through project design and implementation of water conservation measures that would aim to meet or exceed CALGreen Water Efficiency measures and as required for Leadership in Energy and Environmental Design version 4 (LEED v4) Certification. This impact would be **less than significant**.

Because the project site is currently vacant, this analysis assumes no existing water demand at the site. While the project site does not currently generate water supply, existing water supply infrastructure is in place surrounding the site. As described in Impact 3.10-1, the project would include connections to existing infrastructure for water supply.

Implementation of the project would result in approximately 2,034 site occupants/employees. Based on the City of Sacramento's SB 610/SB 221 Water Supply Assessment (WSA) and Certification Form's water demand factors provided per employees and use, the estimated water demand at buildout of the project is approximately 230 afy (0.21 mgd) (City of Sacramento 2021b). Additionally, the project would reduce its water demand through implementation of water conservation measures that aim to meet or exceed CALGreen Water Efficiency measures and as required for LEED v4 certification.

As stated above, the University, as lead agency is required to identify the public water system that would serve the project and assess whether the water supply is sufficient to provide for projected water demand associated with a project when existing and future uses are also considered. Also explained above, the City of Sacramento is the water purveyor for the project site. The project-related water demand of 230 afy would represent approximately 0.23 percent of the City's overall system demand of 100,483 afy in 2020. As described in Section 3.10.3, "Environmental Setting" the City provided water supply almost equal to the demand in 2020. Additionally, as described in Table 3.10-3, the City has a projected water supply of 447,260 afy through 2045. The City is projected to have surplus water supplies ranging from 224,769 afy in 2025 to 216,258 afy in 2045 during normal and single dry years and a surplus water supplies ranging between 219,667 afy in 2025 and 198,436 afy in 2045 during multiple dry year conditions (see Table 3.10-4). Once project construction activities are complete and the project site is fully occupied in 2028, the estimated project water demand would represent approximately 0.1 percent of the City's surplus water supply in 2025 and approximately 0.11 percent of the projected surplus water supply in 2045. The WSA and Certification Form (provided in Appendix E) confirms that the City's planned water supplies would be adequate to serve the project during normal, single dry, and multiple dry years over a 20-year period (City of Sacramento 2021b).

Additionally, implementation of the project would include water conservation measures that aim to meet or exceed current CALGreen Water Efficiency measures and as required for LEED v4 Certification. In addition, the landscaping irrigation system within the project site would be designed to utilize rainwater captured onsite and would comply with the State's Model Water Efficient Landscape Ordinance. Because the project would implement water efficiency measures, the project-related estimated water demand is a conservative estimate. With implementation of the water-saving measures, the project would be consistent with City policies related to reducing water demand through implementation of water conservation measures (Policies U 2.1.10 and U 2.1.12).

The City would have adequate water supply to serve the project after construction is complete. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.10-3: Result in Inadequate Wastewater Treatment Capacity

While project implementation would result in an increase in wastewater generation within the City of Sacramento, the Regional San WWTP has adequate capacity to serve the estimated 0.3 percent increase in permitted wastewater flows. Therefore, impacts would be **less than significant**.

As described in Impact 3.10-2, above, the project is currently vacant, and as such, does not generate any wastewater. However, existing wastewater infrastructure is present surrounding the site and as described in Impact 3.10-1, the project would include construction of new wastewater utility lines as well as bioswales to collect, convey, filter, and infiltrate stormwater.

Based on the project's approximate water demand of 230 afy (0.21 mgd), wastewater generation is conservatively estimated to be 0.21 mgd. As previously described, the City delivered 36 mgd (40,341 afy) of wastewater flows to the Regional San WWTP in 2020, and the existing operating agreement with Regional San allows the City to convey up to 60 mgd to the facility. Additionally, the Regional San WWTP has a permitted treatment capacity of 181 mgd of average dry-weather flow, and a daily peak wet weather flow of 392 mgd. Once project construction activities are complete in 2028, the project's wastewater generation would represent 0.6 percent of the City's current wastewater generation and 0.3 percent of the City's permitted wastewater flows to the Regional San WWTP. Further, project implementation would represent 0.11 percent of Regional San's treatment capacity during average flows and 0.05 percent of the treatment capacity during peak wet weather flows.

While implementation of the project would increase the amount of wastewater generated within the city as well as the amount of wastewater treated by Regional San WWTP, Regional San would be able to adequately serve the estimated 0.3 percent increase in the city's permitted wastewater flows. The project impact on wastewater infrastructure would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.10-4: 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 or Requirements

Construction of the project is estimated to generate approximately 25,555 cubic yards of debris. In accordance with Section 5.408 of the CALGreen Code, the project would implement a Construction Waste Management Plan for recycling and/or salvaging for reuse of a minimum of 65 percent of debris generated during construction. Operation of the project site is estimated to generate 456 tons (608 cubic yards) of waste annually. Operation of new site buildings would be required to recycle a minimum of 50 percent of the waste, as required for State operations by AB 75 and AB 939 (which would result in 228 tons or 304 cubic yards of annual waste) . Furthermore, there is adequate capacity at landfills in the region for disposal of solid waste generated by the project. Therefore, the project would comply with federal, state, and local management and reduction statutes and regulations related to solid waste and this impact would be **less than significant**.

The project is estimated to generate 25,555 cubic yards of debris during construction and site clearing activities. In accordance with Section 5.408 of the CALGreen Code, the project would implement a Construction Waste Management Plan for recycling and/or salvaging for reuse of a minimum of 65 percent of nonhazardous construction and demolition debris generated during project construction. Additionally, the project would also be required to meet LEED v4 requirements for waste reduction during construction.

At buildout, the new facilities would accommodate approximately 2,247 occupants/employees. Operation of the project is estimated to generate 456 tons (608 cubic yards) of waste annually. The buildings would be required to recycle a minimum of 50 percent of the waste, as required for State operations by AB 75 and AB 939. Recycling requirements would result in the project's generation of 228 tons per year (or 304 cubic yards per year) of solid waste. Individual businesses, including State buildings and facilities, are required to contract their own solid waste collection service. Commercial solid waste haulers can dispose of the collected waste at any landfill facility or transfer station they select. Multiple landfills, including Sacramento County Kiefer Landfill, L and D Landfill, and recycling and transfer stations, are located throughout the region. The Kiefer Landfill has a remaining capacity of 112,900,000 cubic yards (96 percent of permitted capacity of 117,400,000 cubic yards) (Table 3.10-5). The L and D Landfill has a remaining capacity of 3,115,900 cubic yards (15 percent of permitted capacity of 20,500,000 cubic yards) (Table 3.10-5). Waste generated by the project would represent 0.006 percent of the Kiefer Landfill's daily capacity and 0.013 percent of the landfill's remaining capacity. The project would also represent and 0.15 percent of the L and D Landfill's daily capacity and 0.49 percent of the landfill's remaining capacity. As such, there is adequate capacity at landfills in the region for disposal of solid waste generated by this project. Additionally, the project would comply with applicable State and local requirements including those pertaining to solid waste, construction waste diversion, and recycling. Thus, The Hub would not generate solid waste in excess of State standards, substantially affect landfill capacity such that additional waste disposal facilities would be required, or otherwise impair the attainment of solid waste reduction requirements. Therefore, this impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

4 CUMULATIVE IMPACTS

4.1 INTRODUCTION TO THE CUMULATIVE ANALYSIS

This ~~draft~~ final environmental impact report (~~Draft~~ Final EIR) provides an analysis of cumulative impacts of the proposed project taken together with other past, present, and probable future projects producing related impacts, as required by Section 15130 of the California Environmental Quality Act Guidelines (State CEQA Guidelines). The goal of such an exercise is twofold: first, to determine whether the overall long-term impacts of all such projects would be cumulatively significant; and second, to determine whether the incremental contribution to any such cumulatively significant impacts by the project would be "cumulatively considerable" (and thus significant). (See State CEQA Guidelines Sections 15130[a]–[b], Section 15355[b], Section 15064[h], and Section 15065[c]; and Communities for a Better Environment v. California Resources Agency [2002] 103 Cal. App. 4th 98, 120.) In other words, the required analysis intends first to create a broad context in which to assess cumulative impacts, viewed on a geographic scale beyond the project site itself, and then to determine whether the project's incremental contribution to any significant cumulative impacts from all projects is itself significant (i.e., "cumulatively considerable").

Cumulative impacts are defined in State CEQA Guidelines Section 15355 as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts." A cumulative impact occurs from "the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time" (State CEQA Guidelines Section 15355[b]).

Consistent with State CEQA Guidelines Section 15130, the discussion of cumulative impacts in this ~~Draft~~ Final EIR focuses on significant and potentially significant cumulative impacts. Section 15130(b) of the State CEQA Guidelines provides, in part, the following:

> [t]he discussion of cumulative impacts shall reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide as great detail as is provided for the effects attributable to the project alone. The discussion should be guided by the standards of practicality and reasonableness, and should focus on the cumulative impact to which the identified other projects contribute rather than the attributes of other projects which do not contribute to the cumulative impact.

A proposed project is considered to have a significant cumulative effect if:

- the cumulative effects of development without the project are not significant and the project's additional impact is substantial enough, when added to the cumulative effects, to result in a significant impact; or
- the cumulative effects of development without the project are already significant and the project contributes measurably to the effect.

The term "measurably" is subject to interpretation. The standards used herein to determine measurability are that the impact must be noticeable to a reasonable person, or must exceed an established threshold of significance (defined throughout the resource sections in Chapter 3 of this ~~Draft~~ Final EIR).

4.2 CUMULATIVE SETTING

4.2.1 Geographic Scope

The geographic area that could be affected by development of the project varies depending on the type of environmental resource being considered. The general geographic area associated with various environmental effects of project construction and operation defines the boundaries of the area used for compiling the list of projects considered in the cumulative impact analysis. Table 4-1 presents the general geographic areas associated with the different resources addressed in this ~~Draft~~ Final EIR and evaluated in those sections of this cumulative analysis.

Table 4-1 Geographic Scope of Cumulative Impacts

Resource Topic	Geographic Area
Aesthetics	Local (project site and surrounding public viewpoints)
Air Quality	Regional (Sacramento Air Quality Management District—pollutant emissions that have regional effects) Local (immediate project vicinity—pollutant emissions that are highly localized)
Archaeological, Historical, and Tribal Cultural Resources	Local
Biological Resources	Regional
Energy	Regional (SMUD energy grid and PG&E natural gas lines within City and County of Sacramento)
Greenhouse Gas Emissions and Climate Change	Global
Hazards and Hazardous Materials	Local (immediate project vicinity)
Noise and Vibration	Local (immediate project vicinity)
Transportation	Regional and Local
Utilities and Service Systems	Local (utility service areas)

Source: Compiled by Ascent Environmental in 2021

As noted in Table 4-1, the potential geographic scope of some cumulative effects is more localized than others. To account for both regional and localized cumulative impacts, this EIR uses regional growth projections to assess regionally cumulative impacts and the list method to assess more localized cumulative impacts. Table 4-2 (correlated with their locations in Figure 4-1) lists present and future development projects within approximately two miles of the project site. This list is not intended to be an all-inclusive list of projects in the region, but rather an identification of projects constructed, approved, or under review in the vicinity of the project site (approximately two miles) that have some relation to the environmental impacts of construction and operation of the project.

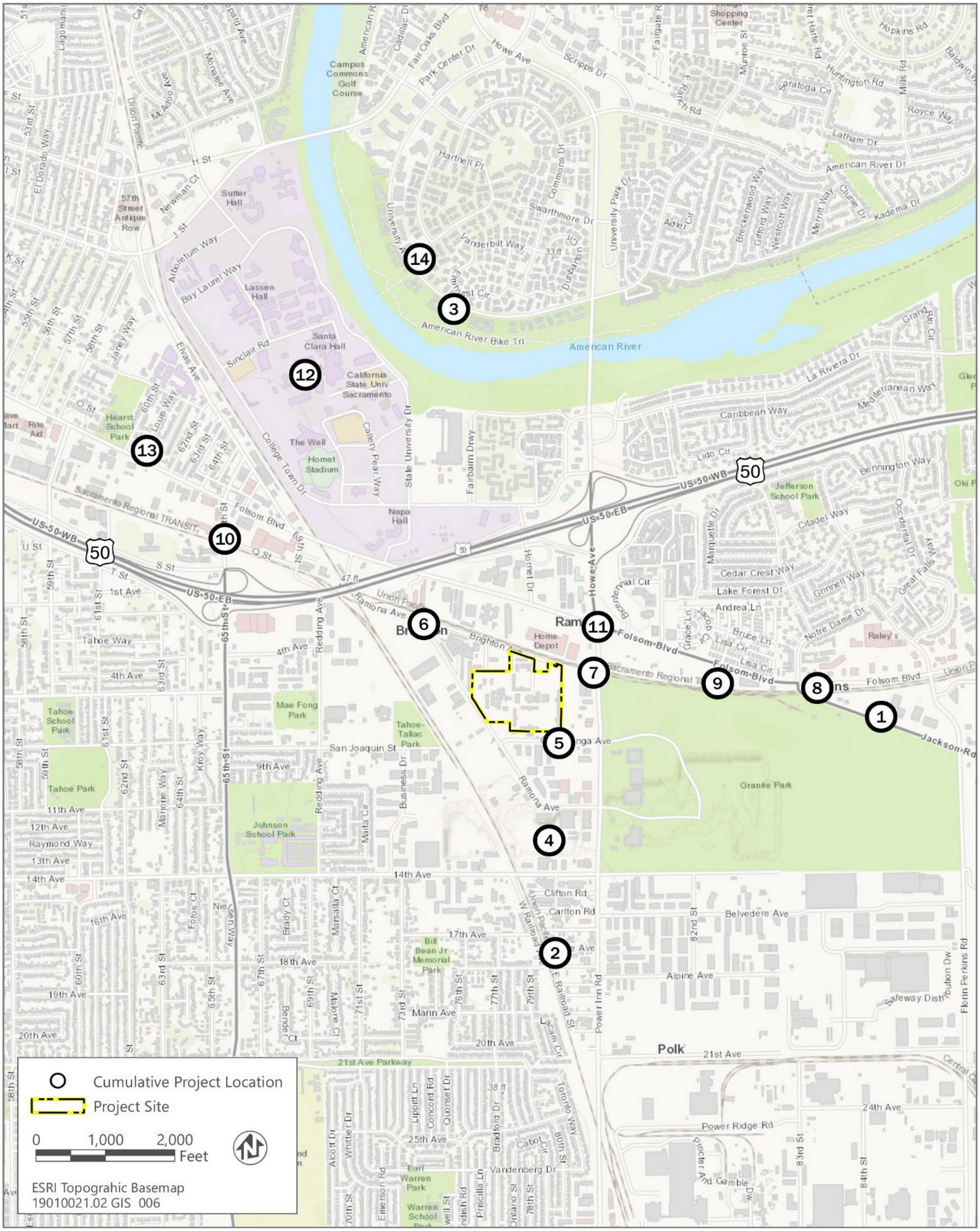
Table 4-2 Cumulative Projects List

Map Key	Project Name	Developed or Proposed Land Use	Description/Size (Acreage and/or Dwelling Units)	Project Status
City of Sacramento				
1	8411 Jackson Road – St John's Shelter Minor Modification	Residential	Addition of 22 beds to a previously approved 100-bed temporary residential shelter.	In Progress
2	7916 & 7922 Butte Avenue – Marijuana Cultivation	Industrial and Manufacturing	Conditional Use Permit for Marijuana Cultivation in two proposed new buildings totaling ±13,613 square feet (±7,646 & ±5,967) on two parcels of approximately 0.26 acres (0.14 & 0.12) in the Light Industrial, Solid Waste Restricted (M-1-SWR) zone.	In Progress
3	1255 University Avenue #228 – Apartment Remodel	Residential	Remodel of existing 107-unit apartment complex.	In Progress
4	Sacramento Center for Innovation Specific Plan	Specific Plan (utility, retail, office, light industrial, public/civic)	Land uses and proposed intensities for future development of the Sacramento Center for Innovation (development of approximately 1,418,000 square feet of non-residential uses)	Proposed/ In Progress

Map Key	Project Name	Developed or Proposed Land Use	Description/Size (Acreage and/or Dwelling Units)	Project Status
5	Cucamonga Avenue Roadway Extension		Extension of the north-south road to Cucamonga Avenue and 14th Street.	Proposed
6	Brighton Avenue Improvements		Development of multi-modal streetscape with a separated pedestrian and bicycle trail connecting The Hub to the Sacramento State campus and the Power Inn Light Rail Station.	Proposed
7	Light Rail Station and Bicycle/Pedestrian Bridge	Mobility Infrastructure	Development of Light Rail Station north of The Hub and construction of a new Power Inn Road Bicycle/Pedestrian Bridge extension for the multi-use path along Brighton Avenue, connecting the neighborhood to the Power Inn light rail station.	Proposed
8	8354 Folsom Boulevard - Bicentennial Commercial	Commercial	Construction of 5,137 sf commercial space and a drive-thru.	Proposed
9	8240 Folsom Boulevard - New Crescendo Self Storage	General Commercial	Construction of 68,000 sf self-storage facility on a 4.66-acre lot.	In Progress
10	Accelerated Water Meter Project	Utility	Installation of approximately 25,700 water meters throughout the City of Sacramento, and as related to the project, is bounded by 65th Street, 46th Street, Folsom Boulevard, and US 50.	In Progress
11	65th Street Station Area Plan (65th Street/University Light Rail station)	Transit	Two transportation network options that include vehicle, bicycle, pedestrian, and transit components.	In Progress
Sacramento State				
12	Sacramento State Campus Master Plan	Administrative, Educational, Recreational, Residential, utility infrastructure	Development of 1.3 -1.5 million square feet of new academic and administrative facilities, 250-300 new apartments for faculty, staff, and graduate students, expansion of existing University Union facilities, campus connectivity improvements, utility infrastructure, and open space areas.	In Progress
13	6011 Folsom Boulevard – Sacramento State Gymnastics and Childcare	Educational	Interior modifications to commercial building for Sacramento State gymnastics practice and a childcare center.	Proposed
14	910 University Avenue – Faculty/Staff Housing	Residential	Construction of 30 apartments to support Sacramento State faculty and staff.	Proposed

Notes: sf = square feet

Source: Data compiled by Ascent Environmental in 2021, based on data obtained from the City of Sacramento Community Development Tracker in 2021



Source: adapted by Ascent Environmental in 2021

Figure 4-1 Cumulative Projects

4.3 ANALYSIS OF CUMULATIVE IMPACTS

The following sections contain a discussion of the cumulative effects anticipated from implementation of The Hub, together with related projects and planned development in the project area, for each of the 10 environmental issue areas evaluated in this ~~Draft~~ Final EIR. The analysis conforms with Section 15130(b) of the State CEQA Guidelines, which specifies that the "discussion of cumulative impacts shall reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide as great detail as is provided for the effects attributable to the project alone. The discussion should be guided by the standards of practicality and reasonableness, and should focus on the cumulative impact to which the identified other projects contribute rather than the attributes of other projects which do not contribute to the cumulative impact."

When considered in relation to other reasonably foreseeable projects, cumulative impacts to some resources would be significant and more severe than those caused by the proposed project alone.

For purposes of this EIR, the project would result in a significant cumulative effect if:

- the cumulative effects of related projects (past, current, and probable future projects) are not significant and the incremental impact of implementing The Hub is substantial enough, when added to the cumulative effects of related projects, to result in a new cumulatively significant impact; or
- the cumulative effects of related projects (past, current, and probable future projects) are already significant and implementation of The Hub makes a considerable contribution to the effect. The standards used herein to determine a considerable contribution are that either the impact must be substantial or must exceed an established threshold of significance.

This cumulative analysis assumes that all mitigation measures identified in Chapter 3 to mitigate project impacts are adopted and implemented, and all elements of the design build performance criteria that would minimize environmental effects are implemented. The analysis herein analyzes whether, after implementation of project-specific mitigation and performance criteria that minimize environmental effects, the residual impacts of the project would cause a cumulatively significant impact or would contribute considerably to existing/anticipated (without the project) cumulatively significant effects. Where the project would so contribute, additional mitigation is recommended where feasible.

4.3.1 Aesthetics

The cumulative context for the assessment of impacts to aesthetics and visual resources is limited to public viewpoints in and around the project site. Viewer groups in the project area predominantly consist of motorists, transit riders, bicyclists, and pedestrians traveling along Ramona Avenue, Brighton Avenue, Cucamonga Avenue, and Power Inn Road. The project site is also visible from commercial land uses, including the Home Depot, on the north side of Folsom Boulevard, approximately 500 feet from the project site. The visual character surrounding the project site is industrial, including buildings of similar heights, utility lines, roadway light rail lines, parking lots, associated trees and landscaping, and other facilities typical of industrial and commercial land uses. The growth, development, infrastructure, and lighting in the project area has resulted in a cumulative impact in the visual character and quality of the project area.

Project activities would place new viewers of the project site and of surrounding areas within the project site - especially within buildings, along bike and pedestrian pathways, and in common open areas such as the proposed central greenspace. Design guidelines included as part of the project would be followed to establish a consistent visual character with the Sacramento State main campus.

Project components would be designed to contribute to and enhance the urban form currently existing in the area, with limited building heights and landscaping designed to add to the aesthetic quality of the project site. The facilities to be developed as part of The Hub would alter the existing visual setting of the project site, but would not conflict with or reduce the quality of views from and of surrounding existing and proposed development. The building design guidelines require Sacramento State to maintain aesthetic consistency with University's main campus buildings, to use natural-toned materials for building exteriors (i.e., non-reflective material), to establish a maximum building height of five stories, and to use exterior window shading to reduce glare impacts (CSU Sacramento 2021: 140-158). Though past and current development in the project area has resulted in a cumulative impact on aesthetics and scenic resources, implementation the project would not preclude long distance views and would be consistent with adjacent development in the area. Further, because the project would result in the redevelopment of a currently paved and vacant site, project implementation is not considered cumulatively considerable with respect to visual setting impacts. Therefore, cumulative impacts on visual character would be less than significant.

The potential cumulative impacts of lighting are visible over a wide area, because of the potential for lighting from a number of projects to contribute to skyglow. Under existing conditions, the project site and surrounding uses are located within a predominantly industrial area of the city, and nighttime lighting is provided, including for security purposes. The current dominant source of night lighting in the area is the Sacramento State Football Stadium, which uses high-intensity field lighting during sporting and other special events. Redevelopment of the project site would result in lighting consistent within the urban condition and not dissimilar to existing conditions at the site. As described in Section 3.1, "Aesthetics," onsite lighting for The Hub would be limited to pedestrian scale, would avoid harsh lighting colors, and would be shielded and downward-cast in order to reduce light trespass. No large-scale sources of intense light or glare that could be annoying or disabling to surrounding land uses or motorists on surrounding roadways are proposed as part of the project. Therefore, the project would not result in a considerable contribution to light, glare, or skyglow such that new impacts to light, glare, or skyglow would occur.

Implementation of The Hub in combination with cumulative development would not result in substantial changes to the local visual environment because the new facilities would not preclude long distance views, would be consistent with adjacent development in the area, and would result in a cumulative contribution to light and glare in the area. Further, the project would introduce new aesthetic value to the project area, and would comply with design guidelines to ensure visual quality at the project site. Therefore, the project would result in a **less-than-significant** cumulative visual impact.

4.3.2 Air Quality

The cumulative context for air quality is both regional (Sacramento Metropolitan Air Quality Management District [SMAQMD]) for criteria pollutants and local for carbon monoxide (CO), toxic air contaminants (TAC), and odors. The proposed land uses under the project would result in an increase of emissions from area sources, energy sources, stationary sources, and mobile sources. Cumulative development in the region will continue to increase the concentration of pollutants from traffic, natural gas combustion in buildings, area sources, and stationary sources, but would be partially offset by state and Federal policies that set emissions standards for mobile and non-mobile sources.

Further, as noted in Section 3.2, "Air Quality," SMAQMD provides guidance for evaluating air quality impacts. In accordance with SMAQMD guidance, the project was evaluated qualitatively for consistency with the most recently adopted air quality plan in the region. Specifically, the land uses of the project were compared to the General Plan which informs the growth projects of the Sacramento Association of Governments regional VMT modeling and the Sacramento Valley Air Basin's ability to attain ambient air quality standards. Because the project's land uses are consistent with the Sacramento Center for Innovation Specific Plan, the project is consistent with applicable air quality plans and would not result in cumulatively considerable contribution to cumulatively significant impacts.

In addition, SMAQMD-adopted significance thresholds are cumulative in nature; that is, they identify the level of project-generated emissions above which impacts would be cumulatively considerable. Thus, they represent the level at which emissions of a given project would impede the air basin from achieving ambient air quality standards, considering anticipated growth and associated emissions in that region. A quantitative emission analysis was conducted to determine cumulative impacts from short-term construction and long-term operational emissions associated with the project.

SHORT-TERM CONSTRUCTION

Sacramento County is in nonattainment for ozone and particulate matter with an aerodynamic diameter of 10 microns or less (PM_{10}) with respect to the California Ambient Air Quality Standards (CAAQS), and for ozone and particulate matter with an aerodynamic diameter of 2.5 microns or less ($PM_{2.5}$) with respect to the National Ambient Air Quality Standards (NAAQS). Construction activities in the region would emit additional particulate matter and ozone precursors that may conflict with attainment efforts in the County. Because the region is in nonattainment, the existing cumulative condition is adverse and any additional emissions would exacerbate that condition. However, SMAQMD has established construction emission thresholds for individual construction projects, which determine whether that particular project's emissions would be cumulatively considerable (SMAQMD 2020). As detailed in Section 3.2, based on the most intensive likely construction schedule (which assumes both the California Mobility Center (CMC and California Department of Justice (CA DOJ) buildings would be under construction simultaneously), and application of the SMAQMD's emission thresholds without the application of best management practices (BMPs), construction emissions of PM_{10} and $PM_{2.5}$ could exceed the applicable mass emission thresholds established by SMAQMD without BMPs. However, Mitigation Measure 3.2-2 requires the incorporation of SMAQMDs BMPs that would reduce project-specific PM_{10} and $PM_{2.5}$ emissions. Therefore, project construction emissions would not be cumulatively considerable, and the cumulative impact would be **less than significant**.

LONG-TERM OPERATION

SMAQMD has established operational emission criteria thresholds with and without BMPs for projects beyond which a particular project's emissions would be cumulatively considerable (SMAQMD 2020). A project that operates below the threshold levels is generally considered not to result in a cumulatively significant air quality impact, and those that operate above the thresholds would result in a cumulative impact.

Implementation of the project would result in the generation of long-term operational emissions of reactive organic gasses (ROG), oxides of nitrogen (NO_X), and particulate matter (PM_{10} and $PM_{2.5}$) because of mobile, energy, stationary, and area-wide emissions associated with project land uses. Mobile-source emissions of criteria air pollutants and precursors would result from vehicle trips generated by employee commute trips and other associated vehicle trips (e.g., delivery of supplies, maintenance vehicles for commercial and retail land uses). Stationary and area-wide sources would include the combustion of natural gas for appliances, electronics, and other miscellaneous plug-in uses, the use of landscaping equipment and other small equipment, the periodic application of architectural coatings, and ROG from the use of consumer products. As discussed in Impact 3.2-3, the project would not result in operational activity that would not exceed SMAQMD's emission threshold for ROG, NO_X, PM_{10}, and $PM_{2.5}$., with implementation of BMPs. Projects that emit criteria air pollutants in exceedance of SMAQMD's thresholds would contribute to the regional degradation of air quality within the SVAB and would be considered cumulatively considerable. Because the contribution of the project's operational emissions to the nonattainment status of Sacramento County are not considered to be cumulatively considerable, the cumulative impact would be **less than significant**.

EXPOSURE TO POLLUTANT CONCENTRATIONS

Toxic air contaminants (TACs), which are examined under Impact 3.2-4, are also pollutants of localized concern. High concentrations of TACs within urban areas may result from heavy vehicle traffic, industrial sources, or other sources, which when in close proximity to one another could result in unhealthy air quality conditions for nearby receptors, which would be considered a significant cumulative impact. However, due to the highly dispersive properties of TACs evaluated, emissions do not typically combine from construction or new stationary sources with other adjacent sources to result in cumulative impacts. Because of the localized nature of TACs and that project-generated TAC emissions would not be substantial, project-generated increases in TAC emissions would not be cumulatively considerable. Impacts would be **less than significant**.

ODORS

The potential creation of objectionable odors affecting a substantial number of people, is also an impact of localized concern. Construction and operation of land uses under the project would not result in the development of new odor sources atypical of developed urban areas and odor-generating construction activity would be temporary. Any new odor sources would be subject to future environmental review, and to SMAQMD Rule 402, Nuisance. The project's potential in contributing to cumulative odor impacts would not be cumulatively considerable. Impacts would be **less than significant**.

4.3.3 Biological Resources

Sensitive habitats for biological resources in the vicinity of the project site and in the region have been modified over time as land has been developed and converted to urban uses. Future projects in the region, including projects described in Table 4-2, could continue to result in losses of sensitive habitats and sensitive species. Although individual projects would be required to mitigate for significant impacts on a project-by-project basis, they may result in residual impacts that combine with the existing adverse condition to create a significant cumulative condition related to special-status species and sensitive habitats.

The project site and vicinity are located in an area of the City of Sacramento characterized by urban and industrial development. No special-status plants have potential to occur on the project site and there are no state or federally protected wetlands, sensitive natural communities, wildlife movement corridors, or wildlife nursery sites on the project site. However, project construction may result in potentially significant impacts on burrowing owl, Swainson's hawk, white-tailed kite, other nesting raptors, other nesting native birds, and special-status bat roosts. Mitigation Measure 3.3-1a, 3.3-1b, and 3.3-1c would minimize potential adverse effects on these species and would reduce impacts to a less-than-significant level.

Implementation of the project would result in a potentially significant impact related to removal or disturbance of protected City street trees. This impact would be reduced to a less-than-significant level with implementation of Mitigation Measure 3.3-3. Implementation of the aforementioned mitigation measures would reduce the project's impacts to biological resources such that the project would not be considered cumulatively considerable with other development in the area. As a result, the impact would be **less than significant**.

4.3.4 Archaeological, Historical, and Tribal Cultural Resources

Because all significant cultural resources are unique and nonrenewable members of finite classes, meaning there are a limited number of significant cultural resources, all adverse effects erode a dwindling resource base. The loss of any one archaeological site could affect the scientific value of others in a region because these resources are best understood in the context of the entirety of the cultural system of which they are a part. The cultural system is represented archaeologically by the total inventory of all sites and other cultural remains in the region. As a result, a meaningful approach to preserving and managing cultural resources must focus on the likely distribution of cultural resources, rather than on a single project or parcel boundary.

The historic lands of the Nisenan people have been affected by development since the arrival of the first Spanish settlers in the early 1800s. Agricultural development beginning in the 1860s was soon followed by railroad and commercial development. Development of Nisenan lands continued with residential growth which increased after World War II. These activities have resulted in an existing significant adverse effect on archaeological resources, TCRs, and human remains. Cumulative development, including projects described in Table 4-2, continues to contribute to the disturbance of cultural resources.

No known unique archaeological resources, TCRs, or human remains are located within the boundaries of the proposed project area; nonetheless, project-related earth-disturbing activities could damage undiscovered archaeological resources, TCRs, or human remains. The proposed project, in combination with other development in the region, could contribute to ongoing substantial adverse changes in the significance of unique archaeological resources resulting from urban development and conversion of natural lands.

Mitigation Measure 3.4-2 would ensure that the proposed project's contribution to cumulatively significant tribal cultural resource impacts would not be considerable by requiring preservation options and proper care of significant artifacts if they are recovered. Further, cumulative development would be required to implement similar mitigation to avoid/reduce impacts to tribal cultural resources. Compliance with California Health and Safety Code Sections 7050.5 and 7052 and PRC Section 5097 would ensure that treatment and disposition of the remains occurs in a manner consistent with State guidelines and California Native American Heritage Commission guidance. Therefore, the proposed project would not have a considerable contribution to any significant cumulative impact related to archaeological resources and TCRs, and this cumulative impact would be **less than significant**.

4.3.5 Energy

The geographic area considered for cumulative impacts related to energy use includes the Sacramento Metropolitan Utility District (SMUD) service area. SMUD employs various programs and mechanisms to support provision of gas and electricity services to new development; to recoup costs of new infrastructure, connection fees are typically charged through standard billings for services.

Several other currently planned and approved projects identified in Table 4-2 would also receive electricity and natural gas service provided by SMUD. These projects would also consume energy related to transportation (i.e., gasoline and diesel consumption for passenger vehicles, trucks, buses, and other vehicles) and construction. These projects would be required to implement energy efficiency measures in accordance with the California Energy Code to reduce energy demand from buildings and would likely implement transportation demand management considerations to reduce vehicle trips and miles traveled, which would reduce fuel consumption. There is no evidence to suggest that implementation of cumulative development would result in wasteful or inefficient use of energy, and the cumulative energy impact would be less than significant.

According to Appendix F of the State CEQA Guidelines, the means to achieve the goal of conserving energy include decreasing overall per capita energy consumption, decreasing reliance on natural gas and oil, and increasing reliance on renewable energy sources. Impact 3.5-1 concludes that the project would not result in wasteful or inefficient use of energy and transportation-related fuel consumption. The project would increase energy demand during temporary construction activities for new buildings and facilities; however, construction activities would not increase long-term, ongoing demand for energy or fuel because project construction is anticipated to last 5 years and would be temporary. The Hub would comply with applicable energy efficiency requirements and would implement design features that meet or exceed current requirements, including approximately 119,651 square feet or 2,647 MWh/year of onsite solar (CEC 2021) per 2022 Building Efficiency Standards solar requirements for nonresidential projects and 10 percent of onsite parking spaces would be EVSE, which exceeds CalGreen Tier 2 Standards for EV charging. The project would allow for electricity to be the main source of energy with a minor amount of natural gas use for the CA DOJ laboratories. Overtime the project's energy use would come from increasingly renewable sources according to RPS. In addition, the project would include on-site solar generation. to offset approximately 27 percent of the total electrical demand. Because the project would not result in wasteful or inefficient use of energy and not contribute to a significant cumulative impact, the project would not result in a considerable contribution to a significant cumulative impact. This impact would be **less than significant**.

4.3.6 Greenhouse Gas Emissions and Climate Change

The impact of greenhouse gas (GHG) emissions generated by project construction and operation, discussed in Section 3.6, "Greenhouse Gas Emissions and Climate Change," is inherently cumulative. GHG emissions from one project cannot, on their own, result in changes in climatic conditions; therefore, the emissions from any project must be considered in the context of their contribution to cumulative global emissions, which is the basis for determining a significant cumulative impact, as noted in Section 3.6.

As discussed in Impact 3.6-1, the project would result in GHG emissions from construction activities and operational activities including vehicle trips, area sources, electricity and natural gas consumption, water use and waste generation. The project includes installation of onsite solar according to 2022 Building Efficiency Standards and the installation of 71 EVSE-equipped parking spaces, which would offset a portion of project GHG emissions. However, the project may not achieve a 15 percent reduction in regional VMT; therefore, the project would not be consistent with SMAQMD's VMT reduction threshold of significance and the project's GHG emissions would be significant.

Implementation of Mitigation Measure 3.6-1a would reduce project construction-related GHG emissions by implementing BMPs and renewable diesel to reduce GHG emissions from construction equipment. However, the level of GHG emission reductions from BMPs and renewable diesel engines cannot be determined at this time due to potential physical site or technological constrains prohibiting infrastructure to be installed. Therefore, it cannot be determined if the project's construction impacts would be reduced below SMAQMD's 1,100 MTCO2e threshold.

Implementation of Mitigation Measure 3.6-1b would reduce project-generated VMT per service population by instituting a TDM program and reduce GHG emissions from external vehicle trips generated by the project. However, the effectiveness of the TDM strategies is not known and subsequent vehicle trip and GHG emission reduction effects cannot be guaranteed. Existing evidence indicates that the effectiveness of TDM strategies in regard to trip and GHG emissions reductions can vary based on a variety of factors, including the context of the surrounding built environment (e.g., urban versus suburban) and the aggregate effect of multiple TDM strategies deployed together. Moreover, many TDM strategies are not just site-specific, but also rely on implementation and/or adoption by private entities (e.g., elective use of carpool program by office building tenants).

Due to uncertainties regarding the ability for the aforementioned mitigation measures to quantifiably reduce both construction-related GHG emissions and operational, VMT-related emissions, applicable thresholds (e.g., a 15 percent reduction in operational VMT and associated GHG emissions) may still be exceeded even with implementation of mitigation. Potential additional mitigation included the purchase of offsets, however, due to uncertainties surrounding the availability, feasibility (e.g., due to per-credit cost variability), and verifiability of carbon credits, this is not considered feasible mitigation for the purposes of this project. The project would be inconsistent with SMAQMD's Tier 2, BMP 3, the project would result in a considerable contribution to climate change, and impacts would be cumulatively **significant and unavoidable**.

4.3.7 Hazardous Materials and Public Health

The cumulative context for hazards and hazardous materials is considered local, limited to within 1,000 feet of the project site, including the 14th Avenue Landfill buffer boundary. Though some hazardous materials releases can cover a large area and interact with other releases (e.g., atmospheric contamination, contamination of groundwater aquifers), incidents of hazardous materials contamination are typically isolated to a small area, such as leaking underground storage tank sites or release at individual businesses. Because of this, isolated areas of contamination typically do not interact in a cumulative manner with other sites of hazardous materials contamination. However, if the project would create a new site of contamination or contribute substantially to a hazardous condition in the general project area, it could be considered to contribute to a cumulative impact. Impacts related to emergency vehicle access and response are considered site specific and not cumulatively considerable.

While it is possible that hazardous materials and/or conditions may be present within the project site and construction activities associated with development could result in the accidental disturbance and/or release of materials, implementation of the Mitigation Measure 3.7-2 would require appropriate identification and treatment of any contamination within the bounds of the project site prior to development. Mitigation Measure 3.7-2 would therefore reduce the project's contribution to a potential cumulative hazardous material impact to less than cumulatively considerable. As a result, the project impact would be less than significant with mitigation incorporated.

Further, future projects within the area could add uses that may use, store, and/or generate hazardous materials. However, these projects would be subject to the same hazardous materials laws and regulations as the project and would be required to implement project-specific mitigation consistent with applicable laws and regulations to reduce any significant hazards and hazardous materials impacts. Further, based on the projected use types, none of the projects listed in Table 4-2 are considered to require the use of unusual or acutely hazardous materials and would likely use typical household-type cleaning products and maintenance products. Any hazardous materials stored on-site (at the project site and related sites) would be used/stored in compliance with applicable federal and state laws related to the storage of hazardous materials, thereby limiting their potential contribution to less than cumulatively considerable, similar to the proposed project. Therefore, cumulative hazards and hazardous materials impacts would be **less than significant.**

4.3.8 Noise

Noise is typically considered a local impact because noise levels dissipate rapidly with increased distance from the source. When discussing increases in noise levels, a doubling of a noise source is necessary to result in a 3-dB (i.e., audible) increase. Thus, for cumulative noise impacts to occur, noise sources must combine to result in increases in noise at the same receptor that otherwise would not experience the increase attributed to the combined (or cumulative) condition.

CONSTRUCTION-GENERATED NOISE

Construction-related noise and vibration are typically considered localized impacts, affecting only receptors closest to construction activities. Therefore, unless construction of cumulative projects, including the facilities proposed under The Hub, occur in close proximity to each other (i.e., less than 500 feet) and at the same time, noise and vibration from individual construction projects have little chance of combining to create cumulative impacts. For these reasons, cumulative noise and vibration impacts from construction are generally less than significant.

Noise and vibration associated with construction of new buildings and facilities associated with The Hub would be intermittent, temporary, and would fluctuate over the estimated five years of construction. In addition, construction would be implemented during daytime hours, in compliance with the City noise ordinance, restricting construction noise to the less-sensitive times of the day.

Given that none of the projects listed in Table 4-2 are located within 500 feet of the project site, construction activities for The Hub would not readily combine with construction noise and vibration from other construction activities in the area to result in a substantial increase in cumulative noise and vibration levels. Furthermore, the projects listed in Table 4-2 may not be in construction concurrently with facilities for The Hub. Therefore, the potential construction-generated noise and vibration impacts of those projects are not cumulatively considerable with The Hub. As such, construction noise and vibration would not be cumulatively considerable, and impacts would be **less than significant**.

OPERATIONAL NOISE

As discussed in Section 3.8, “Noise and Vibration,” project-related traffic increases would not result in a substantial noise increase on affected roadways (i.e., less than 1 dB). Refer to Table 3.8-10 for further information. Based on the project list provided in Table 4-2, vehicle roadway volumes are not anticipated to double, which would indicate a potential cumulative roadway noise impact. Therefore, even though traffic in the project vicinity is expected to increase under cumulative conditions, the project’s contribution to roadway noise during operation would not be cumulatively considerable.

New development associated with the related projects listed in Table 4-2, as well as The Hub, would include the autonomous electric vehicle test track, stationary equipment associated with building mechanical equipment, outdoor gathering areas, and parking facilities. However, noise from these sources would be localized and would not combine with noise sources from other related projects in the project area due to a minimum 500-foot distance between sources. In addition, considering that existing ADT on surrounding roadways is substantially greater than the anticipated autonomous electric vehicle use on the track, existing roadway noise would continue to dominate the project area and the additional noise generated by the test track would not result in a substantial or audible increase in noise. Increases in operational noise sources at the project site would not combine with other area sources to result in a substantial increase in ambient noise. As a result, the project would not be cumulatively considerable, and this impact would be **less than significant**.

4.3.9 Transportation and Circulation

VEHICLE MILES TRAVELED

As noted in Section 3.9, "Transportation," existing city-wide, region-wide, and project-generated VMT estimates were calculated using a refined version of the SACOG SACSIM19 travel demand model. The refined model was prepared by Fehr & Peers in support of the I-80/US 50 Managed Lanes project and includes improvements to the cumulative (2040) land use inputs, transportation system inputs, and model gateway inputs. This model was further refined in support of this EIR to include traffic analysis zone (TAZ) splits, land use inputs, and centroid connectors that align with the various components and access locations of the project. Table 4-3 summarizes the daily vehicle trips and daily VMT that would be generated by the project under Cumulative Plus Project conditions. Total VMT accounts for the vehicle trips and trip lengths associated with all vehicle trips that enter or exit the project site.

Table 4-3 Project Daily Cumulative Vehicle Trips and VMT Estimates

Project Component	Cumulative Plus Project (Phases I and II)
Daily VMT (Total)	78,765
Daily Vehicle Trips (Total)	7,928

Source: SACOG SACSIM19 travel demand model from Fehr & Peers in 2021

Cumulative impacts are analyzed according to whether implementation of the project in the cumulative scenario (i.e., Cumulative Plus Project conditions) would result in an increase in Weekday VMT per Service Population above that which is shown for the Cumulative No Project scenario. The contribution of the project would be cumulatively considerable, as it relates to cumulative VMT, if it meets the following criteria

- VMT / Service Population under the Cumulative Plus Project condition exceeds the citywide, regional, or sub-regional VMT / Service Population identified under the RTP/SCS condition

Weekday VMT per service population forecasts for the City of Sacramento and the SACOG Region under the Cumulative No Project and Cumulative Plus Project condition are summarized in Table 4-4.

Table 4-4 Weekday Work VMT per Employee – Cumulative Conditions

Analysis Scenario	City of Sacramento	SACOG Region
Cumulative No Project	27.041	29.712
Cumulative (2040) Plus Project	26.981	29.701
Increase between Cumulative No Project and Cumulative Plus Project conditions?	No	No

Source: SACOG SACSIM19 travel demand model from Fehr & Peers in 2021

As shown in Table 4-3, implementation of the project in the cumulative scenario would result in a reduction in the total VMT per service population for both the City of Sacramento and the SACOG Region as compared to the Cumulative No Project scenario. Therefore, the project would not result in a cumulatively considerable contribution to a significant cumulative VMT impact. This impact would be **less than significant**.

CONFLICTS WITH PROGRAMS, PLANS, ORDINANCES OR POLICIES RELATED TO TRANSIT SERVICE AND FACILITIES, ROADWAY FACILITIES, BICYCLE FACILITIES, AND PEDESTRIAN FACILITIES

Development of the project would occur incrementally over time. Combined with other cumulative development in the area, the need for transit service and facilities, bicycle facilities, and pedestrian facilities is anticipated to increase. The project includes the construction of new on-site shuttle/bus stops along with modifications to the Hornet Shuttle system to connect the project site with the main Sacramento State campus. Additionally, the project includes the construction of new roadways within the project site which would enhance internal and external project site roadway connectivity. Finally, as discussed in Section 3.9, "Transportation," the project would provide a network of on-site bicycle and pedestrian facilities that can access every destination on the site, and that would be aligned to connect to the surrounding city street grid and facilitate connections through the neighborhood and between The Hub, the main Sacramento State campus, and Power Inn light rail station. Further, as cumulative development occurs in the area, additional facilities would be constructed that would reasonably be anticipated to improve the level of connectiveness of the transit, bicycle, and pedestrian facilities networks. However, although many of the improvements proposed as part Mitigation Measures 3.9-1a through 3.9-1d are included in City of Sacramento planning document (e.g., City of Sacramento Bicycle Master Plan, Sacramento Center for Innovation Specific Plan), these improvements are not currently funded; and thus, cannot be assumed in the cumulative scenario. Therefore, significant cumulative impacts are anticipated and the project's contribution to those impacts would be cumulatively considerable. This impact would be **significant and unavoidable**.

EMERGENCY ACCESS

In general, adequate emergency access is site-specific and not cumulative in nature. Additionally, as noted in Section 3.9, "Transportation," emergency access would be ensured through required compliance with all applicable emergency access requirements including Uniform Fire Code requirements, emergency access review by all appropriate responsible emergency service agencies, and compliance with the State University Administrative Manual which requires the State Fire Marshal to review all projects prior to implementation. Therefore, the project would not result in inadequate emergency access, and the impacts from implementation of the project would be less than cumulatively considerable, and this impact would be **less than significant**.

HAZARDS DUE TO A GEOMETRIC DESIGN FEATURE OR INCOMPATIBLE USES

In general, transportation hazards are site-specific and not cumulative in nature. As detailed in Section 3.9, "Transportation," all new on-site roadway, bicycle, and pedestrian infrastructure improvements constructed as part of the project would be subject to, and designed in accordance with applicable design and safety standards to avoid creating a geometric design hazard and enhance overall network performance. However, as identified in Impact 3.9-3 of Section 3.9, "Transportation," gaps in the bicycle and pedestrian facilities surrounding the project site could result in substantial out-of-direction travel and project-generated bicyclists and pedestrians physically mixing with vehicle traffic, including the additional vehicle traffic that would be generated by the project. Therefore, a potential for an increase in conflicts between travel mode was identified. Mitigation Measures 3.9-1a through 3.9-1d are recommended to reduce the identified impacts related to transportation hazards; however, it cannot be ensured that they would be implemented due to Sacramento State not having jurisdictional control of the right-of-way upon which these improvements would need to be constructed. Although many of the improvements proposed as part Mitigation Measures 3.9-3a through 3.9-3d are included in City of Sacramento planning document (e.g., City of Sacramento Bicycle Master Plan, Sacramento Center for Innovation Specific Plan), these improvements are not currently funded; and thus, cannot be assumed in the cumulative scenario. Therefore, similar to the discussion above regarding alternative transportation, significant cumulative impacts are anticipated and the project's contribution to those impacts would be cumulatively considerable. This impact would be **significant and unavoidable**.

4.3.10 Utilities and Service Systems

The cumulative context for utility-related impacts is the service area for each utility (water, wastewater, stormwater, solid waste). Future projects in the region, including projects described in Table 4-2, would result in increased utility service demands, but are assumed to comply with current building codes and efficiency requirements. Given the cumulative projects in Table 4-2 are located within developed areas in the City of Sacramento that are served by existing utility infrastructure, it is expected that cumulative projects may need specific service connections, but no new or expanded infrastructure would be required. Therefore, impacts associated with the need for new or expanded utility infrastructure would not be cumulatively considerable.

As noted in Section 3.10, "Utilities and Service Systems," water would be supplied to the project site by the City of Sacramento. The projected long-term water supplies (normal, single, and multiple dry weather years) available to the City and its customers are sufficient to serve the City's projected future demands (i.e. potential cumulative demand) through 2045. The Hub and the cumulative projects listed in Table 4-2 would not be constructed without demonstration of adequate water supplies. Furthermore, The Hub would include responsible conservation strategies for reduced potable water consumption in the buildings. Ultra-low flow fixtures, automatic sensor controls, and reduced flow aerators would be utilized to meet or exceed current State Building Energy Efficiency Standards (CALGreen) water efficiency measures and as required for Leadership in Energy and Environmental Design version 4 (LEED v4) certification. As a result, The Hub is not considered cumulatively considerable with respect to water supply impacts.

As discussed in Section 3.10, "Utilities and Service Systems," the Regional San wastewater treatment plant is anticipated to have adequate capacity to serve the project-generated 0.3 percent increase in the City's permitted wastewater flows. As a result, the project contribution would not be cumulatively considerable as it would not add additional flows to the City's existing wastewater collection and treatment system in excess of existing contractual rights or peak wet weather conditions.

Generally, the capacity of solid waste facilities in Sacramento County and the region is continually declining as cumulative development and ongoing disposal reduces remaining capacity. However, the project's solid waste generation would be served by multiple landfills in the project area, including L and D and Kiefer Landfill. The landfills that receive waste generated at the project site are projected to have adequate capacity for the next several years (refer to Impact 3.10-4 in Section 3.10 "Utilities and Service Systems"). Given the landfill's available capacity to serve the project site and development in the area over the long term, the project would not be cumulatively considerable. In addition, as discussed in Section 3.10, "Utilities and Service Systems," in accordance with Section 5.408 of the CALGreen Code, the University would implement a Construction Waste Management Plan for recycling and/or salvaging for reuse of a minimum of 65 percent of nonhazardous construction/demolition debris for The Hub. Additionally, the buildings would be required to recycle a minimum of 50 percent of the waste, as required for State operations by AB 75 and AB 939. Therefore, solid waste from The Hub would be minimized to the degree feasible and contribution to the cumulative impacts on capacity of solid waste facilities would not be cumulatively considerable.

Because future utility demands include development within the cumulative context, the analysis provided in Section 3.10, "Utilities and Service Systems," is considered inherently cumulative. As a result and based on the analysis provided above and in Section 3.10, the project would not be considered cumulatively considerable, and impacts would be **less than significant** with respect to utilities and service systems.

5 OTHER CEQA SECTIONS

5.1 GROWTH INDUCEMENT

California Environmental Quality Act (CEQA) Section 21100(b)(5) specifies that the growth-inducing impacts of a project must be addressed in an environmental impact report (EIR). Section 15126.2(d) of the State CEQA Guidelines provides the following guidance for assessing growth-inducing impacts of a project:

> Discuss the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects which would remove obstacles to population growth (a major expansion of a wastewater treatment plant might, for example, allow for more construction in service areas). Increases in the population may tax existing community service facilities, requiring construction of new facilities that could cause significant environmental effects. Also, discuss the characteristics of some projects which may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively. It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment.

A project can induce growth directly, indirectly, or both. Direct growth inducement would result if a project involved construction of new housing. Indirect growth inducement would result, for instance, if implementing a project resulted in any of the following:

- substantial new permanent employment opportunities (e.g., commercial, industrial, or governmental enterprises);
- substantial short-term employment opportunities (e.g., construction employment) that indirectly stimulates the need for additional housing and services to support the new temporary employment demand; and/or
- removal of an obstacle to additional growth and development, such as removing a constraint on a required public utility or service (e.g., construction of a major sewer line with excess capacity through an undeveloped area).

Growth inducement itself is not an environmental effect but may foreseeably lead to environmental effects. If substantial growth inducement occurs, it can result in secondary environmental effects, such as increased demand for housing, demand for other community and public services and infrastructure capacity, increased traffic and noise, degradation of air or water quality, degradation or loss of plant or animal habitats, conversion of agricultural and open-space land to urban uses, and other effects.

5.1.1 Summary of Growth-Inducing Impacts

The State CEQA Guidelines require discussion in an EIR of the ways in which a project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. It is not assumed that growth in any area is beneficial or detrimental, consistent with the State CEQA Guidelines (CCR Section 15126.2[d]).

Environmental effects resulting from induced growth fit the CEQA definition of "indirect" effects in the State CEQA Guidelines (CCR Section 15358[a][2]). These indirect or secondary effects of growth may result in significant environmental impacts. CEQA does not require that the EIR speculate unduly about the precise location and site-specific characteristics of significant, indirect effects caused by induced growth, but a good-faith effort is required to disclose what is feasible to assess. Potential secondary effects of growth could include consequences – such as increased traffic and noise, and degradation of air quality – that are the result of growth fostered by the project.

5.1.2 Growth-Inducing Impacts of the Project

GROWTH-INDUCING EFFECTS OF CONSTRUCTION

The construction labor force would fluctuate depending on the phase of work. Construction efforts would be relatively modest and short term (occurring over a 5-year period) and are not expected to result in employees relocating to the area. According to the latest labor data available from California Employment Development Department (EDD 2021), 71,800 residents in Sacramento-Roseville-Arden Arcade Metropolitan Statistical Area (MSA) are employed in the construction industry (EDD 2021). Based on applying the most recent unemployment rate of 6.7 percent for Sacramento-Roseville-Arden Arcade Metropolitan Statistical Area MSA to the construction sector, approximately 4,810 construction employees could be available in the region to work on the proposed project. This existing number of residents who are in the construction labor force (labor force is defined as all of those people that are employed or are looking for employment) within commute distance (e.g., Yolo, Placer, and El Dorado counties), would be sufficient to meet the demand for construction workers that would be generated by the project. Construction jobs supporting the proposed project would be temporary and it is the nature of construction work that construction contractors bid and work on projects based on their availability and need for work, and in regions that are accessible to their work force. As existing construction projects near completion, contractors may seek out new construction projects to maintain employment for the same workers. Although it is possible that some construction workers could move to the city or the region as a result of the proposed project and the cumulative projects, the existing labor force is anticipated to be sufficient to meet construction employment needs for the renovation. Furthermore, the Sacramento 2035 General Plan anticipates continued growth in jobs and includes policies, such as Policy LU 2.8.6, that promote the designation of sufficient land and development potential for housing and employment opportunities for a range of incomes and household types throughout the city, and encourages a balance between job type, workforce, and housing development. For these reasons, substantial population growth or increases in housing demand in the region as a result of these construction jobs is not anticipated. Therefore, the project would not be expected to directly induce population growth by bringing substantial numbers of construction jobs to the area, or to result in associated increases in demand for housing or goods and services.

GROWTH-INDUCING EFFECTS OF OPERATION

The project would not include construction of new housing or removal of housing. The project site was previously developed, is surrounded by development, and is served by existing utilities. Development of the project site would not extend roads or other infrastructure to new areas that would induce growth in new locations. Therefore, The Hub would not result in direct growth inducement.

The Hub is a proposed public-private partnership that would create a research and innovation park focused on technology, forensic science, and academics on the California State University property that would incubate new mobility, promote scientific discoveries, spur economic growth, support education and new jobs for the local community, and become the anchor for the broader innovation district envisioned in the Sacramento Center for Innovation (SCI) Specific Plan (see Section 2.4, "Project Goal and Objectives"). At full buildout, the total estimated onsite employees would be 2,034, which would be composed of approximately 319 employees/occupants at the California Mobility Center (CMC) facility (including the ramp-up facility and office space), approximately 1,203 employees/occupants at the California Department of Justice (CA DOJ), approximately 225 employees/occupants in the northern mixed-use building and approximately 287 employees/occupants in the southern mixed-use building. Although the majority of the estimated 1,203 CA DOJ employees would be relocated from other DOJ facilities within the Sacramento area, The Hub would result in substantial new permanent employment opportunities, which would result in indirect growth inducement in the region.

The project is intended to accommodate high-skilled technology-related jobs and allow a greater number of residents to live and work in the community. As described in the SCI Specific Plan, the City's General Plan identifies the SCI Specific Plan area as an employment growth and development center. As such, increased population and employment growth in the area, including the project site, has been previously contemplated. Though the project would introduce new employment opportunities, there is availability in the labor market and current unemployment rates (6.7 percent as described above) which would allow for opportunities to fill new positions with local hires (EDD 2021). While new employment opportunities would be created through project implementation, the site has been identified for future growth in local plans (i.e., the SCI Specific Plan and the City's 2035 General Plan), and as such, would not require development of housing or other facilities that is not identified in these City plans. The project's indirect growth is anticipated to primarily occur in the City of Sacramento and adjacent communities in Sacramento County, but may include other adjacent communities (including the cities of West Sacramento, Woodland, Davis, Rancho Cordova, Elk Grove, and Folsom).

The environmental impacts of population growth in the city were evaluated in the 2035 General Plan and EIR, as well as the SCI Specific Plan and Mitigated Negative Declaration. The project's potential secondary effects of growth are evaluated in cumulative impacts in Chapter 4, "Cumulative Impacts," of this EIR and are determined to be less than significant.

5.2 SIGNIFICANT AND UNAVOIDABLE ADVERSE IMPACTS

The State CEQA Guidelines Section 15126.2(b) requires EIRs to include a discussion of the significant environmental effects that cannot be avoided if the proposed project is implemented. As documented throughout Chapter 3 (project-level impacts) and Chapter 4, "Cumulative Impacts," of this ~~Draft~~ EIR, after implementation of the recommended mitigation measures, the project impacts would be reduced to a less-than-significant level except impacts related to greenhouse gas (GHG) emissions and climate change, and transportation.

Project construction and operation would result in GHG emissions from vehicle trips, area sources, electricity and natural gas consumption, water use and waste generation. The project includes installation of onsite solar according to 2022 Building Efficiency Standards and the installation of EVSE parking spaces. However, as noted in Section 3.6, "Greenhouse Gas Emissions and Climate Change," Impact 3.6-1, the effectiveness of the construction BMPs and TDM strategies is not known, and subsequent vehicle trip reduction effects cannot be guaranteed. Due to uncertainties regarding the ability for Mitigation Measures 3.6-1a and 3.6-1b to quantifiably reduce both construction-related GHG emissions and operational, VMT-related emissions, applicable thresholds (e.g., a 15 percent reduction in operational VMT and associated GHG emissions) may still be exceeded. Therefore, the project would not meet SMAQMD's VMT reduction threshold due to the aforementioned uncertainties and would conflict with applicable plans for the reduction of GHG emissions. The project would result in a considerable contribution to climate change, and the project's GHG impacts (Impacts 3.6-1 and 3.6-2) would be significant and unavoidable.

The project would conflict with CSU and Sacramento State policies that promote the use of bicycling, walking, and transit for travel to and from campus. The project would change the volume of vehicle traffic on City of Sacramento facilities in a manner that would conflict with City of Sacramento bicycle facility design guidance. In addition, gaps in the bicycle and pedestrian network could pose a barrier to bicycle and pedestrian travel and increase the potential for bicycle-vehicle or pedestrian-vehicle conflicts. Implementation of Mitigation Measures 3.9-1a through 3.9-1d (and Mitigation Measures 3.9-3a through 3.9-3d) would reduce impacts to a less-than-significant level by reducing the potential for conflicts involving bicyclists or pedestrians in a manner consistent with CSU and Sacramento State policies the promote the use of walking, bicycling, and transit to and from campus. Moreover, implementation of these mitigation measures would modify City of Sacramento facilities to accommodate project-related changes to vehicle traffic in a manner that would bring the facilities into compliance with City of Sacramento bicycle facility design guidance. However, the City of Sacramento holds jurisdictional control of the public roadway right-of-way surrounding the project site, including the roadway segments/right-of-way identified for improvements in Mitigation Measures 3.9-1a through 3.9-1d. Therefore, because Sacramento State does not have jurisdictional control of the right-of-way and thus, does not have the ability to construct these improvements, it cannot be ensured that Mitigation Measures 3.9-1a through 3.9-1d (and Mitigation Measures 3.9-3a through 3.9-3d) would be implemented. Therefore, impacts related to conflict with City of Sacramento bicycle facility design guidance and hazards to bicyclists and pedestrians would be significant and unavoidable.

The project would generate total VMT per service population at a rate that exceeds the threshold of 15 percent below the existing City or regional average. Implementation of Mitigation Measure 3.9-2 would reduce project-generated VMT per service population by instituting a TDM program to reduce external vehicle trips generated by the project. However, the effectiveness of the TDM strategies is not known and subsequent vehicle trip reduction effects cannot be guaranteed. Existing evidence indicates that the effectiveness of TDM strategies with regards to vehicle trip reduction can vary based on a variety of factors, including the context of the surrounding built environment (e.g., urban versus suburban) and the aggregate effect of multiple TDM strategies deployed together. Moreover, many TDM strategies are not just site specific, but also rely on implementation and/or adoption by private entities (e.g., elective use of carpool program by office building tenants). Due to uncertainties regarding the ability for the mitigation measure to quantifiably reduce VMT impacts to less-than-significant levels, this impact would be significant and unavoidable.

5.3 SIGNIFICANT AND IRREVERSIBLE ENVIRONMENTAL CHANGES

The State CEQA Guidelines requires a discussion of any significant irreversible environmental changes that would be caused by the project. Specifically, the State CEQA Guidelines section 15126.2(c) states:

> Uses of nonrenewable resources during the initial and continued phases of the project may be irreversible, since a large commitment of such resources makes removal or nonuse thereafter unlikely. Primary impacts and, particularly, secondary impacts (such as highway improvement which provides access to a previously inaccessible area) generally commit future generation to similar uses. Also, irreversible damage can result from environmental accidents associated with the project. Irretrievable commitments of resources should be evaluated to assure that such current consumption is justified.

Generally, a project would result in significant irreversible environmental changes if:

- the primary and secondary impacts would generally commit future generations to similar uses;
- the project would involve uses in which irreversible damage could result from any potential environmental accidents associated with the project;
- the project would involve a large commitment of nonrenewable resources; or
- the proposed consumption of resources is not justified (e.g., the project involves the wasteful use of energy).

These nonrenewable resources would represent only a modest portion of the resources available in the region and would not affect the availability of these resources for other needs within the region.

Construction of the project would result in the irretrievable commitment of nonrenewable energy resources, primarily in the form of fossil fuels (including fuel oil) and gasoline for automobiles and construction equipment. However, construction activities would not result in inefficient use of energy or natural resources as contractors would use best available engineering techniques, construction and design practices, and equipment operating procedures.

With respect to operational activities, compliance with and exceedance of applicable building codes, along with project-specific measures, would ensure that natural resources are conserved or recycled to the maximum extent feasible. The Hub is envisioned to be a Net-Zero Energy project through all electric energy and minimizing building energy use. The project would be designed to meet current building standards, including the 2019 (or as updated) Building Energy Efficiency Standards and LEED v4 Silver certification. Energy Star office equipment, energy efficient computer monitors, and LED (light-emitting diode) lighting and lighting controls would be used throughout the buildings to achieve the energy goals. In addition, The Hub would include onsite photovoltaic solar energy generation according to 2022 Building Efficiency Standards included in Title 24 of the California Building Code (see Appendix B for further details). The water fixtures in the new buildings would be low-flow/high-efficiency fixtures. Furthermore, project site improvements would improve pedestrian and bicycle facilities and public transit would continue to be available for site users due to proximity to the Sacramento Regional Transit light rail and nearby bus stops.

6 ALTERNATIVES

6.1 INTRODUCTION

The California Code of Regulations (CCR) Section 15126.6(a) (State CEQA Guidelines) requires EIRs to describe "… a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives. An EIR need not consider every conceivable alternative to a project. Rather, it must consider a range of potentially feasible alternatives that will avoid or substantially lessen the significant adverse impacts of a project, and foster informed decision making and public participation. An EIR is not required to consider alternatives that are infeasible. The lead agency is responsible for selecting a range of project alternatives for examination and must publicly disclose its reasoning for selecting those alternatives. There is no ironclad rule governing the nature or scope of the alternatives to be discussed other than the rule of reason." This section of the State CEQA Guidelines also provides guidance regarding what the alternatives analysis should consider. Subsection (b) further states the purpose of the alternatives analysis is as follows:

> Because an EIR must identify ways to mitigate or avoid the significant effects that a project may have on the environment (Public Resources Code [PRC] Section 21002.1), the discussion of alternatives shall focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly.

The State CEQA Guidelines require that the EIR include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed project. If an alternative would cause one or more significant effects in addition to those that would be caused by the project as proposed, the significant effects of the alternative must be discussed, but in less detail than the significant effects of the project as proposed (CCR Section 15126.6[d]).

The State CEQA Guidelines further require that the "no project" alternative be considered (CCR Section 15126.6[e]). The purpose of describing and analyzing a no project alternative is to allow decision makers to compare the impacts of approving a proposed project with the impacts of not approving the proposed project. If the no project alternative is the environmentally superior alternative, CEQA requires that the EIR "…shall also identify an environmentally superior alternative among the other alternatives." (CCR Section 15126[e][2]).

In defining "feasibility" (e.g., "… feasibly attain most of the basic objectives of the project …"), CCR Section 15126.6(f) (1) states, in part:

> Among the factors that may be taken into account when addressing the feasibility of alternatives are site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries (projects with a regionally significant impact should consider the regional context), and whether the proponent can reasonably acquire, control or otherwise have access to the alternative site (or the site is already owned by the proponent). No one of these factors establishes a fixed limit on the scope of reasonable alternatives.

In determining what alternatives should be considered in the EIR, it is important to consider the objectives of the project, the project's significant effects, and unique project considerations. These factors are crucial to the development of alternatives that meet the criteria specified in Section 15126.6(a). Although, as noted above, EIRs must contain a discussion of "potentially feasible" alternatives, the ultimate determination as to whether an alternative is feasible or infeasible is made by the lead agency's decision-making body, here the CSU Board of Trustees. (See PRC Sections 21081.5, 21081[a] [3].)

6.2 CONSIDERATIONS FOR SELECTION OF ALTERNATIVES

6.2.1 Attainment of Project Objectives

As described above, one factor that must be considered in selection of alternatives is the ability of a specific alternative to attain most of the basic objectives of the project (CCR Section 15126.6[a]). Chapter 2, "Project Description," articulates the project objectives The Hub, Sacramento State Research Park Project. The underlying purpose of the Hub, Sacramento State Research Park Project is the creation of a research and innovation center that provides hands-on learning opportunities for Sacramento State students in technology and forensic science and fosters the incubation of new mobility technologies, the promotion of scientific discoveries, and jobs creation for the local community. The project is intended to be a showcase facility for the University and a model for integrating higher education, research, and industry in California and beyond. The objectives of The Hub are to:

1. provide public and private partnerships in research and innovation that support the academic curriculum at Sacramento State and provide student internships and other hands-on learning opportunities;
2. work jointly with CMC partners, develop a facility that supports CMC research and development and provides opportunities for direct student involvement in autonomous electric vehicle manufacturing and testing;
3. provide for direct student involvement in criminal justice and forensics investigations and consolidate CA DOJ programs and research;
4. enhance opportunities for collaboration between the University, the CA DOJ, and startup businesses that would accommodate high-skilled technology-related jobs, reduce loss of intellectual capital and revenue to enhance sustainability within the Sacramento region and beyond, and allow a greater number of residents to live and work in the community;
5. provide opportunities for public and private research partnerships and internships at a location close to and accessible from the Sacramento State main campus;
6. provide energy-efficient building design, low-water use, and high-quality construction, consistent with CSU sustainable design practices; and
7. promote flexibility in project design and implementation to respond to market demand, through phasing of construction.

6.2.2 Summary of Environmental Impacts of The Hub, Sacramento State Research Park Project

The Executive Summary chapter of this EIR presents a detailed summary of the potential environmental impacts of implementation of The Hub, Sacramento State Research Park Project. Overall, the project would result in less-than-significant impacts with respect to aesthetics; air quality; biological resources; archaeological, historical, and tribal cultural resources; energy; hazards and hazardous materials; noise; and utilities. However, The Hub would result in significant and unavoidable impacts related to greenhouse gas emissions and climate change, and transportation.

6.3 ALTERNATIVES CONSIDERED BUT NOT EVALUATED FURTHER

As described above, State CEQA Guidelines Section 15126.6(c) provides that the range of potential alternatives for the project shall include those that could feasibly accomplish most of the basic objectives of the project, and could avoid or substantially lessen one or more of the significant effects. Alternatives that fail to meet the fundamental project purpose need not be addressed in detail in an EIR (*In re Bay-Delta Programmatic Environmental Impact Report Coordinated Proceedings* (2008) 43 Cal.4th 1143, 1165-1167.)

In determining what alternatives should be considered in the EIR, it is important to acknowledge the objectives of the project, the project's significant effects, and unique project considerations. These factors are crucial to the development of alternatives that meet the criteria specified in Section 15126.6(a). Although, as noted above, EIRs must contain a discussion of "potentially feasible" alternatives, the ultimate determination as to whether an alternative is feasible or infeasible is made by lead agency decision-maker(s). (See Pub. Resources Code, Section 21081(a)(3).) At the time of action on the project, the decision-maker(s) may consider evidence beyond that found in this EIR in addressing such determinations. The decision-maker(s), for example, may conclude that a particular alternative is infeasible (i.e., undesirable) from a policy standpoint, and may reject an alternative on that basis provided that the decision-maker(s) adopts a finding, supported by substantial evidence, to that effect, and provided that such a finding reflects a reasonable balancing of the relevant economic, environmental, social, and other considerations supported by substantial evidence. (*City of Del Mar v. City of San Diego* (1982) 133 Cal.App.3d 401, 417; *California Native Plant Society v. City of Santa Cruz* (2009) 177 Cal.App.4th 957, 998.)

The EIR should also identify any alternatives that were considered by the lead agency, but were rejected during the planning or scoping process and briefly explain the reasons underlying the lead agency's determination. The following alternatives were considered by the University but are not evaluated further in this ~~Draft~~ EIR.

6.3.1 Buildout of the Ramona Property as Identified in the SCI Specific Plan

Although the Ramona property (project site) is owned by the University, a state agency, and is therefore not subject to local land use regulations, this alternative considers buildout of the site consistent with the SCI Specific Plan. The project site is identified for "Employment Center Mid-Rise" land uses and is zoned as Manufacturing, Research and Development Zone (MRD-SWR) in the SCI Specific Plan. As described in the SCI Specific Plan, this zoning designation allows for light industrial, flex space, office, manufacturing, and research and development uses. Retail is allowed by right up to 40,000 square feet. Retail larger than 40,000 square feet will require a conditional use permit. Residential development is conditionally permitted in this zone subject to the amenities necessary to support a neighborhood (i.e., open space, local shopping, transit access, etc.). Outdoor recycling, solid waste, auto wrecking and dismantling, self-storage, tow yards, or other heavy industrial uses are not permitted (City of Sacramento 2018). The proposed project, described in Chapter 2, "Project Description," would result in construction and operation of the California Mobility Center (CMC) and test track for autonomous vehicles, State of California Department of Justice (CA DOJ) office building and laboratory space, building space for future site users, and other site improvements (e.g., landscaping, public spaces, internal roadway network). Therefore, the proposed project is consistent with the SCI Specific Plan. Under this alternative, buildout of the Ramona property would be consistent with the zoning and land use designations identified in the SCI Specific Plan, which would be similar to the proposed project because it would entail light industrial/manufacturing, office, and research and development uses at the project site. Because buildout of the Ramona property as described in the SCI Specific Plan would be similar to buildout of the proposed project, this alternative was not further evaluated.

6.3.2 No Development and Sale of the Ramona Property

This alternative contemplates no development of the project site. Instead, the University would sell the project site to another buyer for development. Sacramento State purchased the project site in 2005 from the California Department of General Services (DGS). As described in the purchase agreement, should the University sell the Ramona property, Sacramento State would be required to remit a percentage of the property's purchase value back to DGS (DGS 2005). The value of the property's sale profit to be returned to DGS is dependent on the amount of time expended from the original purchase date of 2005. For example, if Sacramento State were to sell the Ramona property in 2022, 25 percent of the sale value would be required to be transferred back to DGS. For this reason, sale of the property is not considered feasible for at least 5 years, and Sacramento State would not contemplate selling the Ramona property due to the conditions described in the property's purchase agreement with DGS. This alternative would not achieve any of the project objectives and this alternative is not evaluated further.

6.3.3 Faculty and Staff Housing

The University considered the construction of faculty and staff housing on the Ramona Property after property acquisition and prior to the 2008 recession. Under this alternative, the project site would be developed to include a mixed-use neighborhood that would incorporate a range of residential, retail, and commercial uses as well as small neighborhood parks within the 25-acre project site. However, the 2008 recession caused the University to abandon the housing project. While the project site would be a suitable location for mixed-use residential and commercial development, the City's 2035 General Plan identifies the property and surrounding area for development of employment center uses rather than residential uses. Additionally, the project site was included in the SCI Specific Plan in 2018, which identified the project site and surrounding area as a center for employment and innovation growth. Thus, the proposed faculty and staff housing proposal was no longer deemed a suitable fit for the project site. Furthermore, development of the project site with residential uses would result in potentially greater impacts associated with transportation, utilities, and air quality than the project as currently proposed due to increased population onsite, increased trips to/from the site, and increased utility demands. Because this alternative would not meet most of the project objectives and would not reduce or eliminate environmental impacts relative to The Hub, this alternative is not considered in further detail.

6.3.4 Student Housing

Under this alternative, Sacramento State would provide up to 500 residential units (approximately 1,300 student beds) for students (graduates and undergraduates) at the project site. This would provide additional housing proximate to campus for approximately 4 percent of student enrollment in fall 2021. The University determined student housing would not be a good fit for the project site for the same reasons potential faculty and staff housing was rejected; residential uses would not be consistent with local planning efforts for the area, nor would it fulfill the objectives of the project. In addition, the project would not provide innovation space proximate to the Sacramento State campus that would allow for additional academic opportunities for students. In addition, student housing would result in potentially greater impacts than the project due to increased trips to/from the site, and increased utility demands. As this alternative would not fulfill the basic project objectives and would be inconsistent with current planning efforts for the site, is not feasible and is not considered in further detail.

6.3.5 Sacramento State Academic Buildings

Under the Sacramento State Academic Buildings alternative, the project site would be developed with Sacramento State academic buildings/facilities and would not include non-University tenants. This alternative would allow for greater use of the site for Sacramento State curriculum, programs, and administration. Greater use of the site by Sacramento State students, faculty, and staff would result in increased travel (i.e., local VMT) between the project site and the main campus, which could result in greater transportation impacts related to bicycle and pedestrian safety. The office and academic buildings under this alternative are anticipated to result in onsite population, utility demands, and air quality emissions similar to The Hub. While this alternative would support University academic opportunities, it would not meet the project objectives related to public-private partnerships in research and innovation, supporting local business growth, CMC research and development, and consolidation of CA DOJ space. Further, the Sacramento State Academic Buildings alternative would not meet the City's intent for the project site, as indicated in the SCI Specific plan, to support a mid-rise employment center. Because this alternative would not meet many of the project objectives and would not reduce or eliminate environmental impacts relative to The Hub, this alternative is not considered in further detail.

6.3.6 Alternate Site Configurations

Under this alternative, the site would be reconfigured but would include the same primary components (i.e., facilities for DOJ, CMC, and potential academic/mixed-use) as The Hub. The University explored planning the CMC offices, ramp-up facility, and test track in the southern portion of the site and two CA DOJ office buildings in the northwestern portion of the site, with space available for additional users along the northern portion of the site, off Brighton Avenue. This alternative also considered parking space (surface lot and structure[s]) near Ramona Avenue and Brighton Avenue. While this alternative would meet the project objectives and would support CMC, CA DOJ, and future users, it would alter the internal circulation of the site as well as vehicular ingress/egress locations from Ramona Avenue and Brighton Avenue. As described in Chapter 2, "Project Description," the project as currently proposed would enable onsite road alignments to be aligned in the future for potential roadway connections to Power Inn Road to the east and/or Cucamonga Avenue (and ultimately 14th Street) to the south. Although this alternative would allow for the alignment to Power Inn Road, the configuration of buildings and internal roadways under this alternative would not support future connection to Cucamonga Avenue due to the location of CMC and the test track. Because Sacramento State would like to enable potential future connections to Power Inn Road and/or Cucamonga Avenue, this alternative was removed from further consideration. Furthermore, because this alternative would not alter the amount of development, types of uses, or occupancy on the project site, this alternative would not reduce or eliminate environmental impacts relative to The Hub. Therefore, this alternative is not considered in further detail.

6.4 ALTERNATIVES SELECTED FOR DETAILED ANALYSIS

The following alternatives evaluated in this ~~Draft~~ EIR.

- **Alternative 1: No Project–No Development Alternative** assumes no alternation of the project site. No development would occur and the project site would remain in its current condition, undeveloped and unused.
- **Alternative 2: Reduced Density Alternative** assumes buildout of the project site at a reduced density. This would involve construction and operation of buildings and facilities proposed for Phase I of the project, including CMC and CA DOJ facilities. However, the increased site development proposed during Phase II of the project, including future mixed-use buildings, expansion of CMC, and expansion of CA DOJ would not occur.

Further details on these alternatives, and an evaluation of environmental effects relative to the project, are provided below.

6.4.1 Alternative 1: No Project–No Development Alternative

CEQA Guidelines Section 15126.6(e)(1) requires that the "no project" alternative be described and analyzed "to allow decision makers to compare the impacts of approving the project with the impacts of not approving the project." The no project analysis is required to discuss "the existing conditions at the time the notice of preparation is published…as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services" (Section 15126.6[e][2]). "If the project is…a development project on identifiable property, the no project alternative is the circumstance under which the project does not proceed. Here the discussion would compare the environmental effects of the property remaining in its existing state against environmental effects that would occur if the project is approved. If disapproval of the project under consideration would result in predictable actions by others, such as the proposal of some other project, this 'no project' consequence should be discussed. In certain instances, the no project alternative means 'no build' wherein the existing environmental setting is maintained. However, where failure to proceed with the project will not result in preservation of existing environmental conditions, the analysis should identify the practical result of the project's non-approval and not create and analyze a set of artificial assumptions that would be required to preserve the existing physical environment" (Section 15126[e][3][B]). Under Alternative 1, the No Project–No Development Alternative, no actions would be taken by Sacramento State and the project site would remain unchanged from current conditions. The Ramona property would remain vacant with paved but undeveloped areas and ruderal vegetation and would remain unused. As previously described above, Sacramento State would not contemplate selling the Ramona property due to the conditions described in the property's purchase agreement with DGS.

As required by CEQA, the No Project–No Development Alternative is evaluated in this ~~Draft~~ EIR. For purposes of comparison with the action alternatives, conclusions for each technical area are characterized as "impacts" that are comparatively greater, similar, or less than those of the proposed project.

AESTHETICS

Under the No Project–No Development Alternative, there would be no alteration of the visual character of the project site and views of the area from surrounding vantage points would not change as a result of construction activities or project operation. In comparison, The Hub would result in development of new buildings ranging from 35 to 75 feet in height and site improvements including roads, paths, parking, and landscaping. Because the project site is currently vacant and located in an urban, developed area of Sacramento, the local visual character after project development, as experienced by viewer groups in the area, would be altered by The Hub; however, it would be consistent with existing surrounding development. Further, no scenic vista impacts would occur as a result of the project. Because the project would not result in any significant impacts related to aesthetics, light, and glare, the No Project-No Development Alternative would not avoid any significant impacts. In addition, the No Project–No Development Alternative would make no changes to the visual character or quality of the site, which would remain vacant with pavement and ruderal vegetation. Although the No Project-No Development Alternative would avoid both short-term and long-term visual changes, the proposed development of the vacant site may be considered an improvement to the visual quality of the area by removing debris and abandoned materials, and introducing new aesthetic elements through the construction of new buildings, greenspaces, and landscaping. However, in comparison to implementation of The Hub, the No Project – No Development Alternative would not introduce new lighting or development of the site, resulting no alteration to the visual character or lighting at the site. Therefore, the No Project- No Development Alternative would result in less of an impact than the proposed project with regard to visual impacts. *(Less impact)*

AIR QUALITY

Because the project site is vacant and not currently used and because the No Project–No Development Alternative would involve no construction disturbance and no new vehicular trip generation, this alternative would not generate construction- or operations-related air emissions. By comparison, with implementation of mitigation measures, The Hub would result in less-than-significant construction and operational emissions related to new occupant/employee vehicular vehicle trip generation. Implementation of the No Project–No Development Alternative would not result in these air quality impact; therefore, this alternative would result in less of an impact than the proposed project. *(Less impact)*

ARCHAEOLOGICAL, HISTORICAL, AND TRIBAL CULTURAL RESOURCES

The No Project–No Development Alternative would not involve any construction activities, thereby avoiding impacts related to the disturbance, destruction, or alteration of any known or as-yet-undiscovered/unrecorded pre-historic or historic archeological resources, tribal cultural resources, human remains, or historic architectural resources. In comparison, implementation of The Hub would result in ground disturbing activities that could cause potentially significant impacts related to disturbance of undiscovered/unrecorded subsurface tribal cultural resources. These impacts would be reduced to less-than-significant levels with implementation of mitigation measures. Because the No Project–No Development Alternative would not include any ground disturbance, it has a lesser potential to result in the disturbance of as-yet undiscovered subsurface tribal cultural resources. Therefore, the cultural resource impacts under the No Project–No Development Alternative would be less than the proposed project. *(Less impact)*

BIOLOGICAL RESOURCES

The No Project–No Development Alternative would not include any development activities and would not disturb any existing on-site biological resources. Construction of The Hub would result in tree removal and the potential disturbance of nesting raptors or bat roosts, which would be mitigated to avoid disturbance to these resources, resulting in less-than-significant impacts. The project site is disturbed, paved, within a developed urban location, and the proposed project would not result in any significant biological resources impacts after mitigation. However, the No Project- No Development Alternative would avoid disturbance to the project site, and would therefore result in less potential biological resource impacts than the proposed project. *(Less impact)*

ENERGY

Under the No Project–No Development Alternative, no development would occur. The project site would remain in its vacant and unused condition, which has minimal energy needs except for limited security lighting. Retention of the project site in its current condition would result in no change in energy use compared to existing conditions. While The Hub would not result in wasteful, inefficient, or unnecessary consumption of energy during construction and would involve the operation of energy efficient structures onsite, the No Project-No Development Alternative would avoid all energy use related to construction and operation of the proposed project, thereby resulting in less energy use. *(Less impact)*

GREENHOUSE GAS EMISSIONS AND CLIMATE CHANGE

Because the No Project–No Development Alternative would involve no construction disturbances and no new vehicular trip generation, this alternative would not generate new construction- or operations-related greenhouse gas (GHG) emissions. By comparison, with implementation of mitigation measures, The Hub would result in significant and unavoidable GHG emissions. However, the No Project–No Development Alternative would not result any new construction, transportation, or operational-related GHG emissions, and as such would have less impact than the proposed project with regard to climate change. *(Less impact; significant and unavoidable GHG impact avoided)*

HAZARDS AND HAZARDOUS MATERIALS

The Ramona property has the potential to yield hazardous materials and/or conditions associated with the site's history of structural fires. The potential for upset conditions due hazardous materials would remain in place at the project site under the No Project-No Development Alternative. In contrast, construction activities associated with the project could result in the exposure of construction workers and the public to hazardous materials or conditions at the project site. However, compliance with federal, State, and local regulations would protect workers and the public from exposure to hazardous or contaminated materials and to ensure the appropriate remediation and disposal of these materials. Construction and operation of the project would also involve the storage, use, and transport of hazardous materials; however, such use would be done in compliance with federal, State, and local regulations. Although the project would not result in any significant impacts related to hazardous materials and public health, the No Project-No Development Alternative would result in no potential disturbance of existing hazardous materials or use of hazardous materials. Therefore, the No Project-No Development Alternative would result in less of an impact than the proposed project with regard to hazards and hazardous materials. *(Less impact)*

NOISE AND VIBRATION

Under the No Project–No Development Alternative no development activities would occur and no additional traffic would be generated. Therefore, there would be no increase in potential noise conflicts under the No Project-No Development Alternative. By comparison, the proposed project would result in less-than-significant construction-generated noise and vibration levels and less-than-significant operation-related traffic noise. Although the project would not have significant noise impacts, the No Project–No Development Alternative would not generate noise as a result of onsite construction or operation activities or presence of employees; therefore, noise impacts associated with this alternative would be less than the proposed project. *(Less impact)*

TRANSPORTATION

Under the No Project–No Development Alternative, no vehicular trips would be generated as a result of onsite construction or operation of new facilities, and there would be no change to local vehicular trips because the project site would remain vacant and unused. In comparison, the proposed project would add new trips to the local roadway network, which would result in vehicle miles traveled (VMT) that exceed appropriate standards (significant and unavoidable). Construction of the project may temporarily disrupt parking and pedestrian and bike access in the vicinity of the project site, but these localized and temporary impacts would be minimized through implementation of a Construction Traffic Management Plan in accordance with City of Sacramento Code for any offsite improvements. However, The Hub would result in significant and unavoidable operational impacts related to conflicting with the City of Sacramento bicycle facility design guidance and hazards due to insufficient bicycle and pedestrian facilities between the Sacramento State main campus and the project site. The No Project-No Development Alternative would avoid the significant and unavoidable VMT, plan conflict, and hazards related to bicycle and pedestrian facilities due to the proposed project. Additionally, under this alternative, no new vehicular or bicycle facilities would be introduced as part of the project, and therefore, no connectivity improvements in the SCI Specific Plan area would be implemented. Further, the No Project-No Development Alternative would result in no additional trips, no vehicular transportation impacts and no transit, bicycle, or pedestrian impacts. Therefore, the No Project-No Development Alternative would result in transportation and circulation impacts that are less than the proposed project. *(Less impact; significant and unavoidable transportation impacts avoided)*

UTILITIES AND SERVICE SYSTEMS

The No Project–No Development Alternative would not result in additional demand for water, wastewater treatment, stormwater conveyance, electricity, or natural gas; nor would it result in the need for new infrastructure. By comparison, the proposed project would result in less-than-significant impacts to utility demand and infrastructure. The No Project–No Development Alternative would not avoid any significant impacts; however, because the site would remain vacant and unused, it would have no demand for potable water, stormwater/surface-runoff management, wastewater treatment, and wastewater conveyance infrastructure. With respect to utilities and service systems, the No Project-No Development Alternative would have less impact than the proposed project. *(Less impact)*

ACHIEVEMENT OF PROJECT OBJECTIVES

The No Project-No Development Alternative would not support public-private partnerships in research and innovation, would not support the academic opportunities at Sacramento State, and would not support CMC or CA DOJ programs (Objectives 1, 2, 3, and 5). Alternative 1 would not accommodate high-skilled technology-related jobs to enhance sustainability within the Sacramento region and beyond, nor would it allow a greater number of residents to live and work in the community (Objective 4). Further, because the project site would remain undeveloped, implementation of Alternative 1 would not allow for development of energy-efficient building design, sustainable design practices within the site, nor would it promote flexibility in project design and implementation to respond to market demand (Objectives 6 and 7). Thus, Alternative 1 would not meet any of the project objectives and would not achieve the underlying project purpose.

6.4.2 Alternative 2: Reduced Density Alternative

Under the Reduced Density Alternative, buildout of the project site would involve construction and operation of buildings and site improvements that are proposed for Phase I of The Hub, as described in Chapter 2, "Project Description." Phase I would still include development of the CMC ramp-up facility, CMC showcase building, CA DOJ building as well as the site improvements including roads, pathways, utility connections, parking, and landscaping. However, Phase II of the project, which includes two mixed-use buildings and potential expansion of CMC and CA DOJ, would not be developed. Under Alternative 2, limiting construction to the facilities proposed for Phase I would result in less construction activity, fewer buildings, and fewer site occupants.

AESTHETICS

Both the Reduced Density Alternative and the proposed project would redevelop the existing vacant project site with new buildings, parking, open space and landscaping, and utility infrastructure. While this alternative would include less development at the Ramona property, because the project site is within an urban area of the city, is surrounded by developed uses, the local visual character as experienced by viewer groups in the area would not be substantially altered under either The Hub or the Reduced Density Alternative. Like the proposed project, Alternative 2 would be designed to replicate the built environment and landscape character of the Sacramento State main campus and would result in similar impacts related to light and glare related to construction of new buildings and landscaping. While reduced in density, the new buildings and site improvements would still introduce new sources of light and glare within the project area. Neither the project nor the Reduced Density Alternative would result in significant impacts related to aesthetics, light, and glare; therefore, the Reduced Density Alternative would result in similar aesthetic impacts to the project. *(Similar impact)*

AIR QUALITY

Similar to the proposed project, the Reduced Density Alternative would include construction of the CMC and test track, the CA DOJ building, internal roadways, and landscaping, which would generate less-than-significant construction-related air emissions with implementation of identified mitigation measures. However, implementation of the Reduced Density Alternative would reduce ground disturbance, which would result in incrementally reduced construction-related emissions. In addition, the elimination of the buildings and the occupants/employees associated with Phase II of the proposed project would reduce operations-related and vehicular air emissions. The proposed project would not result in significant air quality impacts; therefore, the Reduced Density Alternative would not avoid any significant impacts. However, the Reduced Density Alternative would reduce construction-air emissions and could reduce operational-air emissions relative to the proposed project, resulting in less severe air quality impacts than the project. *(Less impact)*

ARCHAEOLOGICAL, HISTORICAL, AND TRIBAL CULTURAL RESOURCES

The Reduced Density Alternative would still require excavation and disturbance of site soils during construction, which could result in the potential to disturb undiscovered/unrecorded subsurface archaeological resources, tribal cultural resources, and human remains. Both alternatives would reduce significant impacts related to these resources to less-than-significant levels with mitigation. Therefore, the Reduced Density Alternative would result in similar impacts related to the potential to disturb as-yet undiscovered subsurface archaeological resources and/or human remains. *(Similar impact)*

BIOLOGICAL RESOURCES

The Reduced Density Alternative would develop the same project site with the same above-ground structures described under Phase I of the proposed project. Although the project site is vacant with paved surfaces and ruderal vegetation, similar to The Hub, the Reduced Density Alternative would result in potential impacts related to tree removal, nesting raptors, and bat roosts, which would be mitigable to less-than-significant. Therefore, this alternative would have similar biological resource impacts as the project. *(Similar impact)*

ENERGY

Similar to the project, the Reduced Density Alternative would include development of Phase I of the proposed project, which would result in an increase in electricity consumption relative to existing conditions. Also similar to the proposed project, Alternative 2 would be designed to meet current building standards and would implement energy efficiency measures to achieve LEED v4 Silver certification (consistent with EO B-18-12). Therefore, neither the project nor this alternative would result in wasteful, inefficient, or unnecessary consumption of energy during construction or operation. Alternative 2 would not avoid significant energy impacts. However, the Reduced Density Alternative would result in less construction activities and operation of fewer site buildings, which would further reduce fuel consumption and energy use. Therefore, this alternative would result in less impact related to energy use and efficiency than the project. *(Less impact)*

GREENHOUSE GAS EMISSIONS AND CLIMATE CHANGE

Similar to the proposed project, the Reduced Density Alternative would include construction of the CMC and test track, the CA DOJ building, internal roadways and paths, and landscaping. As with the proposed project, Alternative 2 would install Electric Vehicle Supply Equipment (EVSE) for 10 percent of the parking spaces and onsite solar according to the 2022 Building Efficiency Standards. However, like the proposed project, the GHG emissions, including construction, vehicle trips, area sources, electricity and natural gas consumption, water use and waste generation, would be significant. Similar to the proposed project, Alternative 2 would implement construction BMPs and transportation demand management strategies to reduce project-generated vehicle miles travelled (VMT) (Mitigation Measures 3.6-1a and 3.6-1b). Due to uncertainties regarding the ability for the mitigation measures to quantifiably reduce both construction-related GHG emissions and operational, VMT-related emissions, applicable thresholds (e.g., a 15 percent reduction in operational VMT and associated GHG emissions) may still be exceeded even with implementation of mitigation. However, implementation of the Reduced Density Alternative would reduce construction-related emissions because Phase II of the proposed project would not be implemented. Because additional buildout of the project site beyond Phase I would not occur, the Reduced Density Alternative would also result in a reduction of site occupants/ employees at that project site, which would reduce operations-related GHG emissions. The reduction in site occupants/employees associated with buildout may also reduce vehicle trips and VMT. Overall, the Reduced Density Alternative would reduce GHG emissions, resulting in impacts that are less than the proposed project relative to GHG emissions and climate change, but Alternative 2 would not avoid the significant and unavoidable GHG emissions impact. *(Less impact; similar significant and unavoidable impact)*

HAZARDS AND HAZARDOUS MATERIALS

Similar to the project, construction activities associated with the Reduced Density Alternative could result in the exposure of construction workers and the public to hazardous materials. However, compliance with federal, State, and local regulations would protect workers and the public from exposure to hazardous materials and to ensure the appropriate remediation and disposal of these materials. Construction and operation of either the project or the Reduced Density Alternative would also involve the storage, use, and transport of hazardous materials; however, such use would be done in compliance with federal, State, and local regulations. Additionally, both the proposed project and Reduced Density Alternative would include mitigation measures to reduce accident conditions involving the release of hazardous materials. Because neither the project nor the Reduced Density Alternative would result in any significant impacts related to hazardous materials and public health, the Reduced Density Alternative would have similar impacts as the project with regard to hazardous materials and public health. *(Similar impact)*

NOISE AND VIBRATION

Similar to the project, the Reduced Density Alternative would include construction of the CMC and test track, a CA DOJ building, internal roadways, common areas such as the greenway, and site landscaping. The Reduced Density Alternative would reduce construction activities and construction related noise compared to the proposed project because it would not include buildout of Phase II. Additionally, because the Reduced Density Alternative would not include buildout of Phase II, there would also be reduced operational uses, less occupants, less parking, and less mechanical equipment compared to the proposed project. The overall construction and operational noise impacts of the Reduced Density Alternative would be less than the noise impacts of the proposed project. *(Less impact)*

TRANSPORTATION

Because the Reduced Density Alternative would not include buildout of Phase II it would reduce the construction effort and would generate less short-term construction traffic. The localized and temporary impacts would continue to be minimized through implementation of a Construction Traffic Management Plan in accordance with City of Sacramento Code for offsite improvements. Because the Reduced Density Alternative would accommodate fewer site occupants/employees than the project, local traffic impacts would also be reduced. However, it is unclear if this alternative would reduce VMT to below threshold and this alternative may continue to result in a significant and unavoidable VMT impact. Furthermore, the operational impacts would continue to result in a significant and unavoidable impacts due conflict with the City of Sacramento bicycle facility design guidance and hazards due to insufficient bicycle and pedestrian facilities between the Sacramento State main campus and the project site. Although Alternative 2 would not avoid these significant and unavoidable impacts, the transportation-related impacts under the Reduced Density Alternative would be less than those for the proposed project. *(Less impact; similar significant and unavoidable transportation impacts)*

UTILITIES AND SERVICE SYSTEMS

The Reduced Density Alternative only includes construction and operation of Phase I of the proposed project. Therefore, this alternative could result in an incrementally lower demand for water, wastewater treatment, and electricity. Above-ground exterior building and site features described for Phase I of the proposed project would be the same as the Reduced Density Alternative. Because the project site under the Reduced Density Alternative would support fewer site occupants/employees, utility demands would be reduced. The proposed project would not result in significant utilities impacts; therefore, the Reduced Density Alternative would not avoid any significant impacts. However, Alternative 2 would reduce utility demands. Therefore, this alternative would result in less impacts compared to the proposed project. *(Less impact)*

ACHIEVEMENT OF PROJECT OBJECTIVES

Alternative 2 would achieve the stated project objectives (Objectives 1-7) similar to the proposed project. However, Alternative 2 would provide less opportunity to support public-private partnerships in research and innovation, academic opportunities at Sacramento State, and accommodate high-skilled technology-related jobs to enhance sustainability within the Sacramento region (Objectives 1, 4, and 5). Thus, Alternative 2 would not provide the same level of achievement of the project objectives and would be less effective in supporting the underlying purpose of The Hub (i.e., to create a research and innovation center that provides hands-on learning opportunities for Sacramento State students in technology and forensic science and fosters the incubation of new mobility technologies, the promotion of scientific discoveries, and jobs creation for the local community.)

6.5 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

Because the No Project–No Development Alternative (described above in Section 6.4.1) would avoid the adverse impacts resulting from construction and operation of the project analyzed in Chapter 2, it is the environmentally superior alternative. However, the No Project–No Development Alternative would not meet the objectives the project as presented above in Section 6.2, and would leave the project site paved and disturbed without aesthetic site improvements.

When the environmentally superior alternative is the No Project Alternative, the State CEQA Guidelines (Section 15126[d][2]) require selection of an environmentally superior alternative from among the other action alternatives evaluated. As shown in Table 6-1, although the project would implement all feasible mitigation for all potentially significant impacts, the project would result in significant and unavoidable impacts related to GHG emissions, VMT, and bicycle and pedestrian facilities.

When considering objectives, The Hub, Sacramento State Research Park would best meet the project objectives, as stated in Chapter 2, "Project Description." In contrast, The No Project Alternative would not optimize an underutilized infill location, would not support public-private partnerships in research and innovation, would not support the academic opportunities at Sacramento State, and would not support CMC or CA DOJ programs. Furthermore, Alternative 1 would not accommodate high-skilled technology-related jobs to enhance sustainability within the Sacramento region and beyond, nor would it allow a greater number of residents to live and work in the community.

Although the Reduced Density Alternative (Alternative 2) would achieve the stated project objectives similar to the proposed project, it would not provide the flexibility for future roadway connections and would not support University programs to the same extent. The Reduced Density Alternative would provide less opportunity to support public-private partnerships in research and innovation, academic opportunities at Sacramento State (Objectives 1 and 5), and would accommodate less high-skilled technology-related jobs to enhance sustainability within the Sacramento region (Objective 4). Thus, Alternative 2 would not provide the same level of achievement of the project objectives.

Consistent with the State CEQA Guidelines (CCR Section 15126.6 [e][2]), because the environmentally superior alternative was identified as the No Project Alternative, another environmentally superior alternative must be identified. Based on the environmental analysis contained in this ~~Draft~~ EIR, the Reduced Density Alternative would reduce the severity of impacts compared to the project. However, Alternative 2 would not avoid the significant and unavoidable impacts related to GHG emissions, VMT, and bicycle and pedestrian facilities that would occur under The Hub, Sacramento State Research Park and mitigation similar to the project would be required for the Reduced Density Alternative. Nonetheless, the Reduced Density Alternative is the environmentally superior alternative.

Table 6-1 Summary of Environmental Effects of the Alternatives Relative to the Proposed Project

Environmental Topic	Proposed Project	Alternative 1: No Project – No Development Alternative	Alternative 2: Reduced Density Alternative
Aesthetics	LTS	Less	Similar
Air Quality	LTS/M	Less	Less
Archaeological, Historical, and Tribal Cultural Resources	LTS/M	Less	Similar
Biological Resources	LTS/M	Less	Similar
Energy	LTS	Less	Less
Greenhouse Gas Emissions and Climate Change	SU	Less (avoids SU)	Less (remains SU)
Hazards and Hazardous Materials	LTS/M	Less	Similar
Noise	LTS	Less	Less
Transportation/Traffic	SU	Less (avoids SU)	Less (remains SU)
Utilities and Service Systems	LTS	Less	Less

Impact Status:

LTS = less-than-significant impact

LTS/M = LTS with mitigation

SU = Significant and Unavoidable

Similar = Impacts would be similar to those of the project.

Less = Impacts would be less than those of the project.

Greater = Impacts would be greater than those of the project.

Source: Data compiled by Ascent Environmental in 2021

7 REFERENCES

Executive Summary

City of Sacramento. 2015 (March). *2035 General Plan*. Adopted March 3, 2015. Accessed May 20, 2021. Available: http://www.cityofsacramento.org/Community-Development/Resources/Online-Library/2035--General-Plan.

———. 2017. 2035 General Plan Land Use & Urban Form Diagram. Last Amended February 22, 2017. Available: file:///P:/2019/19010021.02%20-%20CSUS%20Ramona%20Master%20Plan%20EIR/3_Project%20library/References/Land%20Use/City%20of%20Sac_2017_2035-SacGPU_LUD.pdf Accessed on 5/20/2021.

Chapter 1 Introduction

No references were used.

Chapter 2 Project Description

City of Sacramento. 2015 (March). *2035 General Plan*. Adopted March 3, 2015. Accessed May 20, 2021. Available: http://www.cityofsacramento.org/Community-Development/Resources/Online-Library/2035--General-Plan.

———. 2017. 2035 General Plan Land Use & Urban Form Diagram. Last Amended February 22, 2017. Available: file:///P:/2019/19010021.02%20-%20CSUS%20Ramona%20Master%20Plan%20EIR/3_Project%20library/References/Land%20Use/City%20of%20Sac_2017_2035-SacGPU_LUD.pdf Accessed on 5/20/2021.

———. 2018. *Sacramento Center for Innovation Specific Plan*. 2013. As amended January 23, 2018. Accessed 5/20/2021. Available: file://aei-mp01-vm/Shares/Projects/2019/19010021.02%20-%20CSUS%20Ramona%20Master%20Plan%20EIR/3_Project%20library/Background%20Information/SCI-Specific-Plan_2018.pdf.

NETR. 2021. Historic Aerials. Nationwide Environmental Title Research, LLC. Available: https://www.historicaerials.com.

Writer, S. 2010. Fire Guts Vacant Building Owned by Sacramento State. Firefighting News. June 30. Available: http://firefightingnews.com/fire-guts-vacant-building-owned-by-sacramento-state/.

Chapter 3 Environmental Impacts and Mitigation Measures

CAL FIRE. *See* California Department of Forestry and Fire Protection.

California Department of Conservation, Division of Land Resource Protection. 2017. Farmland Mapping and Monitoring Program. Sacramento County Important Farmland 2016.

California Department of Conservation. 2021. California Geological Survey Data Viewer. Accessed October 1, 2021. Available: https://maps.conservation.ca.gov/cgs/#webmaps.

California Department of Forestry and Fire Protection. 2007. Sacramento County. Fire Hazard Severity Zones in SRA. Adopted by CAL FIRE on November 7, 2007. Accessed April 30, 2019. Available: http://frap.fire.ca.gov/webdata/maps/sacramento/fhszs_map.34.pdf.

California Employment Development Department. 2021 (August). Sacramento—Roseville--Arden-Arcade Metropolitan Statistical Area (MSA) (El Dorado, Placer, Sacramento, and Yolo Counties). Seasonal gains in government led month-over job growth. Data produced by the Labor Market Information Division. Available: https://www.labormarketinfo.edd.ca.gov/. Accessed August 26, 2021.

California Geological Survey. 1999. Mineral Land Classification Map of PCC-Grade Aggregate Resources in Sacramento County. Open File Report 99-09, Plate 3.

California State University, Sacramento. 2021 (July). *The Hub, Sacramento State Research Park Draft Master Plan*.

City of Sacramento. 2017. *2035 General Plan Land Use and Urban Form Diagram*. Adopted March 3, 2015. Last Amended February 22, 2017.

EDD. *See* California Employment Development Department.

Federal Emergency Management Agency. 2021. Flood Insurance Rate Map. Available: https://www.fema.gov/flood-maps/national-flood-hazard-layer. Accessed August 26, 2021.

FEMA. *See* Federal Emergency Management Agency.

Section 3.1 Aesthetics

California Department of Transportation. 2017. California Scenic Highway Mapping System, Scenic Routes in Sacramento. Available: http://www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/index.htm. Accessed: February 9, 2017.

California State University, Sacramento. 2015. *California State University, Sacramento Campus Master Plan 2015. Chapter 7: Design Guidelines*. Available: https://www.csus.edu/administration-business-affairs/facilities-management/_internal/_documents/sacramento-state-master-plan-042815-reduced.pdf. Accessed December 13, 2021.

———. 2021 (July). *The Hub, Sacramento State Research Park Draft Master Plan.*

Caltrans. *See* California Department of Transportation.

City of Sacramento. 2015 (March). *2035 General Plan*. Adopted March 3, 2015. Accessed August 14, 2021. Available: http://www.cityofsacramento.org/Community-Development/Resources/Online-Library/2035--General-Plan.

U.S. Fish and Wildlife Service. 2021. National Wild and Scenic Rivers System map viewer. Available: https://www.rivers.gov/rivers/american-lower.php. Accessed September 13, 2021.

USFWS. *See* U.S. Fish and Wildlife Service.

Section 3.2 Air Quality

California Air Resources Board. 2000 (October). *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles*. Available: https://www.arb.ca.gov/diesel/documents/rrpFinal.pdf. Accessed September 7, 2021.

———. 2003. *HARP User Guide.* Sacramento, CA.

———. 2005 (April). *Air Quality and Land Use Handbook: A Community Health Perspective.* Available: http://arb.ca.gov/ch/handbook.pdf. Accessed September 7, 2021.

———. 2013. *California Almanac of Emissions and Air Quality—2013 Edition*. Available: http://www.arb.ca.gov/aqd/almanac/almanac13/almanac13.htm. Accessed September 7, 2021.

———. 2016, May 4. Ambient Air Quality Standards. Available: https://www.arb.ca.gov/research/aaqs/aaqs2.pdf. Accessed September 7, 2021.

———. 2017. Sacramento Region Air Quality Plans. Available: https://ww2.arb.ca.gov/our-work/programs/california-state-implementation-plans/nonattainment-area-plans/sacramento-region. Accessed October 13, 2021.

———. 2018. Attainment Designations by County. Last Updated December 28, 2018. Available: https://www.arb.ca.gov/desig/adm/adm.htm. Accessed September 7, 2021.

CARB. *See* California Air Resources Board.

City of Sacramento. 2015 (March). *2035 General Plan*. Accessed August 14, 2021.

EPA. *See* U.S. Environmental Protection Agency.

Sacramento Metropolitan Air Quality Management District. 2015. *Renewable Diesel*. LUTRA News. Volume 9, Issue 2

———. 2016. *Guide to Air Quality Assessment in Sacramento County*. Available: http://www.airquality.org/Residents/CEQA-Land-Use-Planning/CEQA-Guidance-Tools. Accessed September 7, 2021.

———. 2019 (April). Guide to Air Quality Assessment in Sacramento County—Chapter 3 Appendix: Off-Site Mitigation Fees. Available: http://www.airquality.org/LandUseTransportation/Documents/Ch3Off-SiteMitigationFeesFinal4-2019.pdf. Accessed October 23, 2019.

———. 2020 (October). Guidance to Address the Friant Ranch Ruling for CEQA Projects in the Sac Metro Air District. Sacramento Metropolitan Air Quality Management District. Sacramento, California. Prepared by Ramboll US Corporation. San Francisco, California.

U.S. Environmental Protection Agency. 2012 (April). *2008 Ground-Level Ozone Standards: Region 9 Final Designations*. Available: https://www3.epa.gov/region9/air/ozone/index.html. Accessed September 7, 2021.

———. 2016. *Criteria Air Pollutants*. Available: https://www.epa.gov/criteria-air-pollutants#self. Last updated October 19, 2016. Accessed September 7, 2021.

———. 2019. Current Nonattainment Counties for All Criteria Pollutants. Last Updated April 30, 2019. Available: https://www3.epa.gov/airquality/greenbook/ancl.html. Accessed September 7, 2021.

Western Regional Climate Center. 2016. Sacramento 5 ESE, California Period of Monthly Climate Summary. Available: http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca7633. Accessed September 7, 2021.

———. 2017. Average Wind Direction. Available: https://wrcc.dri.edu/Climate/comp_table_show.php?stype=wind_dir_avg. Accessed September 7, 2021.

WRCC. *See* Western Regional Climate Center.

Section 3.3 Biological Resources

California Department of Fish and Wildlife. 2012. *Staff Report on Burrowing Owl Mitigation.* Available: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=83843. Accessed July 29, 2021.

———. 2018. *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities.* Available: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=18959&inline. Accessed July 30, 2021.

CDFW. *See* California Department of Fish and Wildlife.

California Native Plant Society. 2021. Inventory of Rare and Endangered Plants of California (online edition, v3-03 0.39). Available: http://www.rareplants.cnps.org. Accessed May 3, 2021.

California Natural Diversity Database. 2021. Results of electronic records search. Sacramento: California Department of Fish and Wildlife, Biogeographic Data Branch. Accessed May 3, 2021.

City of Sacramento. 2015 (March). *2035 General Plan*. Adopted March 3, 2015. Accessed August 14, 2021. Available: http://www.cityofsacramento.org/Community-Development/Resources/Online-Library/2035--General-Plan.

CNDDB. *See* California Natural Diversity Database.

CNPS. *See* California Native Plant Society.

eBird. 2021. eBird. Ithaca, NY. Available: http://www.ebird.org. Accessed July 29, 2021.

Sawyer, J. O., T. Keeler-Wolf, and J. M. Evens. 2009. *A Manual of California Vegetation*. Second edition. California Native Plant Society Press, Sacramento, California, USA.

Section 3.4 Archaeological, Historical, and Tribal Cultural Resources

Natural Investigations Company. 2021 (May). *Cultural Resources Assessment for the HUB, Sacramento State Research Park Project, City of Sacramento, Sacramento County, California*. Sacramento, CA. Prepared for Ascent Environmental, Inc., Sacramento, CA.

Wilson, N. L., and A. H. Towne. 1978. Nisenan. In, *California Handbook of North American Indians, Vol. 8*, ed. R. F. Heizer and W. C. Sturtevant, 387-397. Washington, D.C: Smithsonian Institution.

Section 3.5 Energy

AFDC. *See* Alternative Fuels Data Center.

Alternative Fuels Data Center. 2021. Alternative Fueling Station Counts by State. Available: https://afdc.energy.gov/stations/states. Accessed September 8, 2021.

California Air Resources Board. 2017 (November). *California's 2017 Climate Change Scoping Plan: The Strategy for Achieving California's 2030 Greenhouse Gas Target*. Available: https://www.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf. Accessed September 8, 2021.

California Energy Commission. 2018 (March). 2019 Building Energy Efficiency Standards Frequently Asked Questions. Available: http://www.energy.ca.gov/title24/2019standards/documents/2018_Title_24_2019_Building_Standards_FAQ.pdf. Accessed September 8, 2021.

———. 2019. 2019 California Energy Efficiency Action Plan. California Energy Commission. Publication Number: CEC400-2019-010-SF. Available: https://ww2.energy.ca.gov/business_meetings/2019_packets/2019-12-11/Item_06_2019%20California%20Energy%20Efficiency%20Action%20Plan%20(19-IEPR-06).pdf. Accessed September 8, 2021.

———. 2021. Draft 2022 Energy Code Multifamily and Nonresidential Compliance Manual. Available: https://www.energy.ca.gov/programs-and-topics/programs/building-energy-efficiency-standards/2022-building-energy-efficiency. Accessed December 21, 2021.

California Energy Commission and California Air Resources Board. 2003 (August). Reducing California's Petroleum Dependence. Joint Agency Report by California Energy Commission and California Air Resources Board. Available: https://www.arb.ca.gov/fuels/carefinery/ab2076final.pdf. Accessed September 8, 2021.

California Department of Transportation. 2009. *2008 California Motor Vehicle Stock, Travel and Fuel Forecast*.

California State University. 2014 (May). California State University Policy Proposal. Available: http://www.calstate.edu/cpdc/sustainability/policies-reports/documents/JointMeeting-CPBG-ED.pdf. Accessed September 8, 2021.

Caltrans. *See* California Department of Transportation.

CARB. *See* California Air Resources Board.

CEC. *See* California Energy Commission.

CEC and CARB. *See* California Energy Commission and California Air Resources Board.

CEC and CPUC. *See* California Energy Commission and California Public Utilities Commission.

CSU. *See* California State University.

EIA. *See* U.S. Energy Information Administration.

City of Sacramento. 2015 (March). *2035 General Plan*. Adopted March 3, 2015. Accessed August 14, 2021. Available: http://www.cityofsacramento.org/Community-Development/Resources/Online-Library/2035--General-Plan.

———. 2018. *Sacramento Center for Innovation Specific Plan*. 2013. As amended January 23, 2018. Available: file://aei-mp01-vm/Shares/Projects/2019/19010021.02%20-

%20CSUS%20Ramona%20Master%20Plan%20EIR/3_Project%20library/Background%20Information/SCI-Specific-Plan_2018.pdf. September 8, 2021.

Governor's Office of Planning and Research. 2017 (November). Technical Advisory on Evaluating Transportation Impacts in CEQA. Available: http://www.opr.ca.gov/docs/20171127_Transportation_Analysis_TA_Nov_2017.pdf. Accessed September 8, 2021.

Sacramento Council of Governments. 2019. 2020 Metropolitan Transportation Plan/Sustainable Communities Strategy. Available: https://www.sacog.org/2020-metropolitan-transportation-plansustainable-communities-strategy. Accessed September 8, 2021.

Sacramento Municipal Utility District. (2020). 2019 Power Content Label. Available: https://www.energy.ca.gov/filebrowser/download/3262. Accessed September 8, 2021.

U.S. Energy Information Administration. 2014. California Energy Highlight. 2014 EIA reports and publications. Available: https://www.eia.gov/state/state_one_pager/California.pdf. Accessed September 8, 2021.

Section 3.6 Greenhouse Gas Emissions and Climate Change

California Air Pollution Control Officers Association. 2021. *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity*. Available: https://www.caleemod.com/documents/handbook/full_handbook.pdf. Accessed March 17, 2022.

California Air Resources Board. 2012. Assembly Bill 32: Global Warming Solutions Act. Available: http://www.arb.ca.gov/cc/ab32/ab32.htm. Accessed September 10, 2021.

———. 2014 (May). *First Update to the Climate Change Scoping Plan*. Available: https://ww3.arb.ca.gov/cc/scopingplan/2013_update/first_update_climate_change_scoping_plan.pdf. Accessed September 10, 2021.

———. 2016a (October). *2016 ZEV Action Plan*. Available: https://www.gov.ca.gov/wp-content/uploads/2017/09/2016_ZEV_Action_Plan.pdf. Accessed September 10, 2021.

———. 2016b. *Facts about the Advanced Clean Cars Program*. Available: https://www.arb.ca.gov/msprog/zevprog/factsheets/advanced_clean_cars_eng.pdf. Accessed September 10, 2021.

———. 2017 (November). *California's 2017 Climate Change Scoping Plan: The Strategy for Achieving California's 2030 Greenhouse Gas Target*. Available: https://www.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf. Accessed September 10, 2021.

———. 2021 (July 11). California Greenhouse Gas Emission Inventory. Available: https://ww3.arb.ca.gov/cc/inventory/pubs/reports/2000_2019/ghg_inventory_trends_00-19.pdf. Accessed September 10, 2021.

California Energy Commission. 2012. *Our Changing Climate 2012: Vulnerability & Adaptation to the Increasing Risks from Climate Change in California*. Available: http://www.energy.ca.gov/2012publications/CEC-500-2012-007/CEC-500-2012-007.pdf. Accessed September 10, 2021.

———. 2018 (March). *2019 Building Energy Efficiency Standards: Frequently Asked Questions*. Available: http://www.energy.ca.gov/title24/2019standards/documents/2018_Title_24_2019_Building_Standards_FAQ.pdf. Accessed September 10, 2021.

———. 2021a. Cal-Adapt Annual Averages Tool. Available: http://cal-adapt.org/tools/annual-averages/. Accessed September 10, 2021.

———. 2021b. Draft 2022 Energy Code Multifamily and Nonresidential Compliance Manual. Available: https://www.energy.ca.gov/programs-and-topics/programs/building-energy-efficiency-standards/2022-building-energy-efficiency. Accessed December 21, 2021.

California Natural Resources Agency. 2017 (May). *Draft Report: Safeguarding California Plan: 2017 Update*. Available: http://resources.ca.gov/wp-content/uploads/2017/05/DRAFT-Safeguarding-California-Plan-2017-Update.pdf. Accessed September 10, 2021.

———. 2018 (January). *Safeguarding California Plan: 2018 Update*. Available: http://resources.ca.gov/docs/climate/safeguarding/update2018/safeguarding-california-plan-2018-update.pdf. Accessed September 10, 2021.

California State University, Sacramento. 2020. Sustainability Report 2019-2020. Available: https://www.csus.edu/experience/innovation-creativity/sustainability/_internal/sustainability-report-print-reduced.pdf. Accessed October 13, 2021.

CARB. *See* California Air Resources Board.

CEC. *See* California Energy Commission.

City of Sacramento. 2015 (March). *2035 General Plan*. Adopted March 3, 2015. Accessed August 14, 2021. Available: http://www.cityofsacramento.org/Community-Development/Resources/Online-Library/2035--General-Plan.

———. 2020. City of Sacramento Climate Action Plan Update. Available: https://www.cityofsacramento.org/-/media/Corporate/Files/CDD/Planning/Major-Projects/App-A---Community-Technical-Appendix-Final-3_16_20.pdf?la=en. Accessed September 10, 2021.

CNRA. *See* California Natural Resources Agency.

CSUS. *See* California State University, Sacramento.

Eckerle, T., and T. Jones. 2015 (November). *Zero-Emission Vehicles in California: Hydrogen Station Permitting Guide*. California Governor's Office of Business and Economic Development. Available: http://businessportal.ca.gov/Portals/0/Files/Hydrogen%20Permitting%20Guidebook%20FINAL%20-%202.0.pdf?ver=2016-11-14-170829-243.

EPA. *See* U.S. Environmental Protection Agency.

Governor's Interagency Working Group on Zero-Emission Vehicles. 2016 (October). *2016 ZEV Action Plan*. Available: https://www.gov.ca.gov/wp-content/uploads/2018/01/2016_ZEV_Action_Plan-1.pdf. Accessed September 10, 2021.

Governor's Office of Planning and Research. 2017 (November). *Technical Advisory on Evaluating Transportation Impacts in CEQA*. Available: http://www.opr.ca.gov/docs/20171127_Transportation_Analysis_TA_Nov_2017.pdf. Accessed September 10, 2021.

Intergovernmental Panel on Climate Change. 2013. Chapter 6, Carbon and Other Biogeochemical Cycles. Pages 465–570 in *Climate Change 2013: The Physical Science Basis*. Working Group I Contribution to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. Available: http://www.climatechange2013.org/images/report/WG1AR5_ALL_FINAL.pdf. Accessed September 10, 2021.

———. 2014. *Climate Change 2014 Synthesis Report: Summary for Policymakers*. Available: https://www.ipcc.ch/pdf/assessment-report/ar5/syr/AR5_SYR_FINAL_SPM.pdf. Accessed September 10, 2021.

IPCC. *See* Intergovernmental Panel on Climate Change.

OPR. *See* Governor's Office of Planning and Research.

SACOG. *See* Sacramento Area Council of Governments.

Sacramento Council of Governments. 2019. 2020 Metropolitan Transportation Plan/Sustainable Communities Strategy. Available: https://www.sacog.org/2020-metropolitan-transportation-plansustainable-communities-strategy. Accessed. September 10, 2021.

Sacramento Metropolitan Air Quality Management District. 2020. Greenhouse Gas Thresholds for Sacramento County. Available: Accessed http://airquality.org/LandUseTransportation/Documents/SMAQMDGHGThresholds2020-03-04v2.pdf. October 13, 2021.SMAQMD. *See* Sacramento Metropolitan Air Quality Management District.

U.S. Environmental Protection Agency. 2018 (April 2). *EPA Administrator Pruitt: GHG Emissions Standards for Cars and Light Trucks Should be Revised*. Available: https://www.epa.gov/newsreleases/epa-administrator-pruitt-ghg-emissions-standards-cars-and-light-trucks-should-be. Accessed September 10, 2021.

———. 2019. Fact Sheet – The Affordable Clean Energy Rule. Available: https://www.epa.gov/sites/production/files/2019-06/documents/bser_and_eg_fact_sheet_6.18.19_final.pdf. Accessed September 10, 2021.

Wade, Samuel. Branch chief. Transportation Fuels Branch, Industrial Strategies Division, California Air Resources Board, Sacramento, CA. June 30, 2017—e-mail to Austin Kerr of Ascent Environmental regarding whether the Low Carbon Fuel Standard applies to fuels used by off-road construction equipment.

Section 3.7 Hazards and Hazardous Materials

CAL EPA. *See* California Environmental Protection Agency.

CAL FIRE. *See* California Department of Forestry and Fire Protection.

California Department of Forestry and Fire Protection. 2021. Fire Hazard Severity Zone Viewer. Accessed August 11, 2021. Available: https://egis.fire.ca.gov/FHSZ/.

California Environmental Protection Agency. 2021. Cortese List Data Resources. Accessed August 11, 2021. Available: https://calepa.ca.gov/sitecleanup/corteselist/.

California Department of Toxic Substances Control. 2021a. Envirostor Database. Accessed August 9, 2021. Available: https://www.envirostor.dtsc.ca.gov/public/search?cmd=search&reporttype=CORTESE&site_type=CSITES,FUDS&status=ACT,BKLG,COM&reporttitle=HAZARDOUS+WASTE+AND+SUBSTANCES+SITE+LIST+%28CORTESE%29

California Department of Toxic Substances Control. 2021b. Sacramento City USD – District Bus Yard & Central Kitchen. Accessed August 9, 2021. Available: https://www.envirostor.dtsc.ca.gov/public/map/?global_id=38330005.

City of Sacramento 2008. *Evacuation Plan* Accessed August 11, 2021. Available: https://sacramentoready.saccounty.net/Documents/sac_018943.pdf.

———. 2013 (October). *Informational Report on the Sacramento Center for Innovation Specific Plan Effort (LR13-009). Accessed October 18, 2021. Available:* http://sacramento.granicus.com/MetaViewer.php?view_id=29&clip_id=3353&meta_id=405534.

———. 2014. *Hazardous Materials Program (HazMat). Accessed October 18, 2021. Available:* http://www.cityofsacramento.org/fire/operations/special-operations.

———. 2015 (March). *2035 General Plan*. Adopted March 3, 2015. Accessed August 14, 2021. Available: http://www.cityofsacramento.org/Community-Development/Resources/Online-Library/2035--General-Plan.

———. 2018. *Emergency Operations Plan*. Accessed August 11, 2021. Available: https://www.cityofsacramento.org/-/media/Corporate/Files/Emergency-Services/2018-City-of-Sacramento-Emergency-Operations-Plan.pdf?la=en.

DTSC. *See* California Department of Toxic Substances Control.

Natural Investigations Company. 2021 (May). *Cultural Resources Assessment for the HUB, Sacramento State Research Park Project, City of Sacramento, Sacramento County, California*. Sacramento, CA. Prepared for Ascent Environmental, Inc., Sacramento, CA.

SWRCB. *See* State Water Resources Control Board.

State Water Resources Control Board. 2021. Geotracker Database. Accessed August 9, 2021. Available: https://geotracker.waterboards.ca.gov/search?CMD=search&case_number=&business_name=&main_street_name=&city=&zip=&county=&SITE_TYPE=LUFT&oilfield=&STATUS=&BRANCH=&MASTER_BASE=&Search=Search

Section 3.8 Noise and Vibration

California Department of Transportation. 2013 (September). *Technical Noise Supplement.* California Department of Transportation Division of Environmental Analysis. Sacramento, CA. Prepared by ICF Jones & Stokes.

———. 2020 (April). *Transportation and Construction Vibration Guidance Manual*. Sacramento, CA: Noise, Division of Environmental Analysis. Sacramento, CA.

Caltrans. *See* California Department of Transportation

City of Sacramento. 2015 (March). *2035 General Plan*. Adopted March 3, 2015. Accessed August 14, 2021. Available: http://www.cityofsacramento.org/Community-Development/Resources/Online-Library/2035--General-Plan.

———. 2015 (March). City of Sacramento General Plan 2035. Available: http://www.cityofsacramento.org/Community-Development/Resources/Online-Library/2035--General-Plan. Accessed October 25, 2021.

———. 2016. *The Crossings (P15-061) Mitigated Negative Declaration*. Available: www.cityofsacramento.org/-/media/Corporate/Files/CDD/Planning/Environmental-Impact-Reports/The-Crossings-ISMND-with-Errata-and-Response-to-Comments.pdf?la=en. Accessed October 21, 2021.

EPA. *See* U.S. Environmental Protection Agency.

Federal Highway Administration. 2004. Traffic Noise Model, Version 2.5. Available for download at https://www.fhwa.dot.gov/environment/noise/traffic_noise_model/purchasing_tnm/. Accessed April 4, 2017.

———. 2006 (January). *Roadway Construction Noise Model User's Guide*. Washington, D.C. Prepared by the Research and Innovative Technology Administration, Cambridge, MA.

Federal Transit Administration. 2006. *Transit Noise and Vibration Impact Assessment*. Washington, D.C. Available: https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/FTA_Noise_and_Vibration_Manual.pdf. Accessed April 4, 2017.

———. 2018. *Transit Noise and Vibration Impact Assessment*. FTA Report No. 0123. Prepared by John A. Volpe National Transportation Systems Center, Cambridge, MA. Available: https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf. Accessed October 25, 2021.

FHWA. *See* Federal Highway Administration.

FTA. *See* Federal Transit Administration.

Governor's Office of Planning and Research. 2003 (October). *State of California General Plan Guidelines*. Sacramento, CA. Available: http://opr.ca.gov/docs/General_Plan_Guidelines_2003.pdf. Accessed April 4, 2017.

Lennox. 2019. *16ACX Merit Series Product Specifications*.

OPR. *See* Governor's Office of Planning and Research.

Section 3.9 Transportation

California Department of Transportation. 2009. *SR 99 & Interstate 5 Corridor System Management Plan*.

———. 2010a. *Smart Mobility 2010: A Call to Action for the New Decade*.

———. 2010b. *Complete Streets Implementation Action Plan*.

———. 2013. *District System Management and Development Plan, Caltrans District 3*.

———. 2014. *Transportation Concept Report and Corridor System Management Plan, United States Route 50, District 3*.

———. 2016. *California Transportation Plan 2040*.

———. 2017. *Transportation Concept Report, State Route 99, District 3*.

———. 2019. *Strategic Management Plan 2015-2020—2019 Update*.

———. 2020a (May 20). *Vehicle Miles Traveled-Focused Transportation Impact Study Guide*.

———. 2020 (December 18). *Interim Local Development Intergovernmental Review Safety Review Practitioners Guidance*.

California Governor's Office of Planning and Research. 2018 (December). *Technical Advisory on Evaluating Transportation Impacts in CEQA*.

Nelson Nygaard. 2012 (November). *California State University Transportation Demand Management Manual*.

California State University. 2014 (May). *California State University Sustainability Policy*.

———. 2020 (January). *California State University Transportation Impact Study Manual*.

California State University, Sacramento. 2015. *California State University, Sacramento Campus Master Plan 2015*. Available: https://www.csus.edu/administration-business-affairs/facilities-management/_internal/_documents/sacramento-state-master-plan-042815-reduced.pdf.

———. 2018. *Sacramento State Climate Action Plan*.

———. 2019 (December). *Sacramento State Police Department Policy Manual*.

Caltrans. *See* California Department of Transportation.

City of Sacramento. 2010. *City of Sacramento 65th Street Station Area Study*.

———. 2013. *Sacramento Center for Innovation (SCI) Specific Plan*.

———. 2015 (March). *2035 General Plan*. Adopted March 3, 2015. Accessed August 14, 2021. Available: http://www.cityofsacramento.org/Community-Development/Resources/Online-Library/2035--General-Plan.

———. 2016 (August 16). *City of Sacramento Bicycle Master Plan*.

———. 2018 (June). City of Sacramento Existing and Proposed Bicycle Facilities Map.

OPR. *See* Governor's Office of Planning and Research.

SACOG. *See* Sacramento Area Council of Governments.

Sacramento Area Council of Governments. 2019 (November). *2020 Metropolitan Transportation Plan/Sustainable Communities Strategy*.

Sacramento Regional Transit District. 2013 (June 28). Service Standards.

SacRT. *See* Sacramento Regional Transit District.

Section 3.10 Utilities and Service Systems

California Department of Resources Recycling and Recovery. 2020. Jurisdiction Disposal Tonnage Trend. Available: https://www2.calrecycle.ca.gov/LGCentral/AnnualReporting/ReviewReports/DisposalTonnageTrend. Accessed October 25, 2021.

———. 2021a. *SWIS Facility/Site Activity Details: L and D Landfill*. Available: https://www2.calrecycle.ca.gov/SolidWaste/Site/Search. Accessed October 5, 2021.

———. 2021b. SWIS Facility/Site Activity Details: Sacramento County Landfill (Kiefer). Available: https://www2.calrecycle.ca.gov/SolidWaste/Site/Search. Accessed October 5, 2021.

———. 2021c. SWIS Facility/Site Activity Details: Elder Creek Transfer and Recovery. Available: https://www2.calrecycle.ca.gov/SolidWaste/Site/Search. Accessed October 5, 2021.

———. 2021d. SWIS Facility/Site Activity Details: North Area Transfer Station. Available: https://www2.calrecycle.ca.gov/SolidWaste/Site/Search. Accessed October 5, 2021.

———. 2021e. SWIS Facility/Site Activity Details: Sacramento Recycling & Transfer Station. Available: https://www2.calrecycle.ca.gov/SolidWaste/Site/Search. Accessed October 5, 2021.

California State University, Sacramento State. 2006. *Storm Water Management Plan*. Accessed December 12, 2021. Available: https://www.csus.edu/campus-safety/environmental-health-safety/_internal/_documents/swmp.pdf.

California State Water Resources Control Board. 2021. Municipal Stormwater Program. Accessed December 12, 2021. Available: https://www.waterboards.ca.gov/water_issues/programs/stormwater/municipal.htmlCalRecycle. *See* California Department of Resources Recycling and Recovery.

City of Sacramento. 2015 (March). *2035 General Plan*. Adopted March 3, 2015. Accessed August 14, 2021. Available: http://www.cityofsacramento.org/Community-Development/Resources/Online-Library/2035--General-Plan.

———. 2018. *Sacramento Center for Innovation Specific Plan*. 2013. As amended January 23, 2018. Accessed 5/20/2021. Available: file://aei-mp01-vm/Shares/Projects/2019/19010021.02%20-%20CSUS%20Ramona%20Master%20Plan%20EIR/3_Project%20library/Background%20Information/SCI-Specific-Plan_2018.pdf.

———. 2021a (June). *2020 Urban Water Management Plan*. Accessed October 3, 2021. Available: https://www.cityofsacramento.org/-/media/Corporate/Files/DOU/Reports/Sacramento-2020-UWMP---Final-Public-Copy.pdf?la=en.

———. 2021b. *SB 610/SB 221 Water Supply Assessment and Certification Form*.

Regional Sanitation District. 2021a. About Us. Available: https://www.regionalsan.com/about-us. Accessed October 6, 2021.

———. 2021b. Conveyance System. Available: https://www.regionalsan.com/general-information/conveyance-system Accessed: October 6, 2021.

Sacramento State. 2021 (July). *The Hub, Sacramento State Research Park Draft Master Plan*.

Chapter 4 Cumulative Impacts

California Energy Commission. 2021. Draft 2022 Energy Code Multifamily and Nonresidential Compliance Manual. Available: https://www.energy.ca.gov/programs-and-topics/programs/building-energy-efficiency-standards/2022-building-energy-efficiency. Accessed December 21, 2021.

CEC. *See* California Energy Commission.

Sacramento Metropolitan Air Quality Management District. 2020. Greenhouse Gas Thresholds for Sacramento County. Available: Accessed http://airquality.org/LandUseTransportation/Documents/SMAQMDGHGThresholds2020-03-04v2.pdf. October 13, 2021.SMAQMD. *See* Sacramento Metropolitan Air Quality Management District.

Chapter 5 Other CEQA Sections

California Employment Development Department. 2021. Sacramento—Roseville--Arden-Arcade Metropolitan Statistical Area (MSA) (El Dorado, Placer, Sacramento, and Yolo Counties). Seasonal gains in government led month-over job growth. Data produced by the Labor Market Information Division. Available: https://www.labormarketinfo.edd.ca.gov/. Accessed August 26, 2021.

Chapter 6 Alternatives

No references were used.

8 REPORT PREPARERS

California State University, Office of the Chancellor

Anne Collins-Doehne .... Principal Environmental Planner

California State University, Sacramento

Victor Takahashi .... Director Planning, Design & Construction
Tania Nunez .... Project Manager

Ascent Environmental, Inc.

Chris Mundhenk .... Principal
Suzanne Enslow .... Project Manager
Kirsten Burrowes .... Assistant Project Manager, Environmental Planner
Dimitri Antoniou, AICP .... Senior Air Quality and Climate Change Analyst
Alyssa Way .... Air Quality and Climate Change Analyst
Shaurya Johari .... Noise
Allison Fuller .... Biologist
Zachary Miller, AICP .... Transportation Planner
Richa Nanavati .... Aesthetics
Emilie Zelazo .... Cultural Resources Specialist
Lisa Merry .... GIS Specialist
Gayiety Lane .... Publishing Specialist
Michele Mattei .... Publishing Specialist
Brian Perry .... Graphic Specialist
Corey Alling .... Graphic Specialist

Fehr and Peers, Inc.

Greg Behrens, AICP .... Associate, Sierra Region Office Leader
Adrita Islam .... Senior Transportation Planner

Natural Investigations Company, Inc.

Cindy Arrington .... Principal
Tim Spillane, MA, RPA .... Principal Investigator/Project Manager/GIS Analyst II
Phil Hanes, MA, RPA .... Archaeologist

MIG

Dan Amsden, AICP .... Planner, Urban Designer, Project Manager
Ryan Kucinski, LFA .... Urban Designer

This page intentionally left blank.

Appendix A

Notice of Preparation and
Scoping Comments

NOTICE OF PREPARATION OF AN ENVIRONMENTAL IMPACT REPORT

The Hub, Sacramento State Research Park Project
California State University, Sacramento

Date: March 22, 2021

To: Responsible Agencies, Trustee Agencies, and Interested Persons

Lead Agency: California State University, Sacramento

Subject: The Hub, Sacramento State Research Park Project

Review Period: March 22, 2021 – April 21, 2021

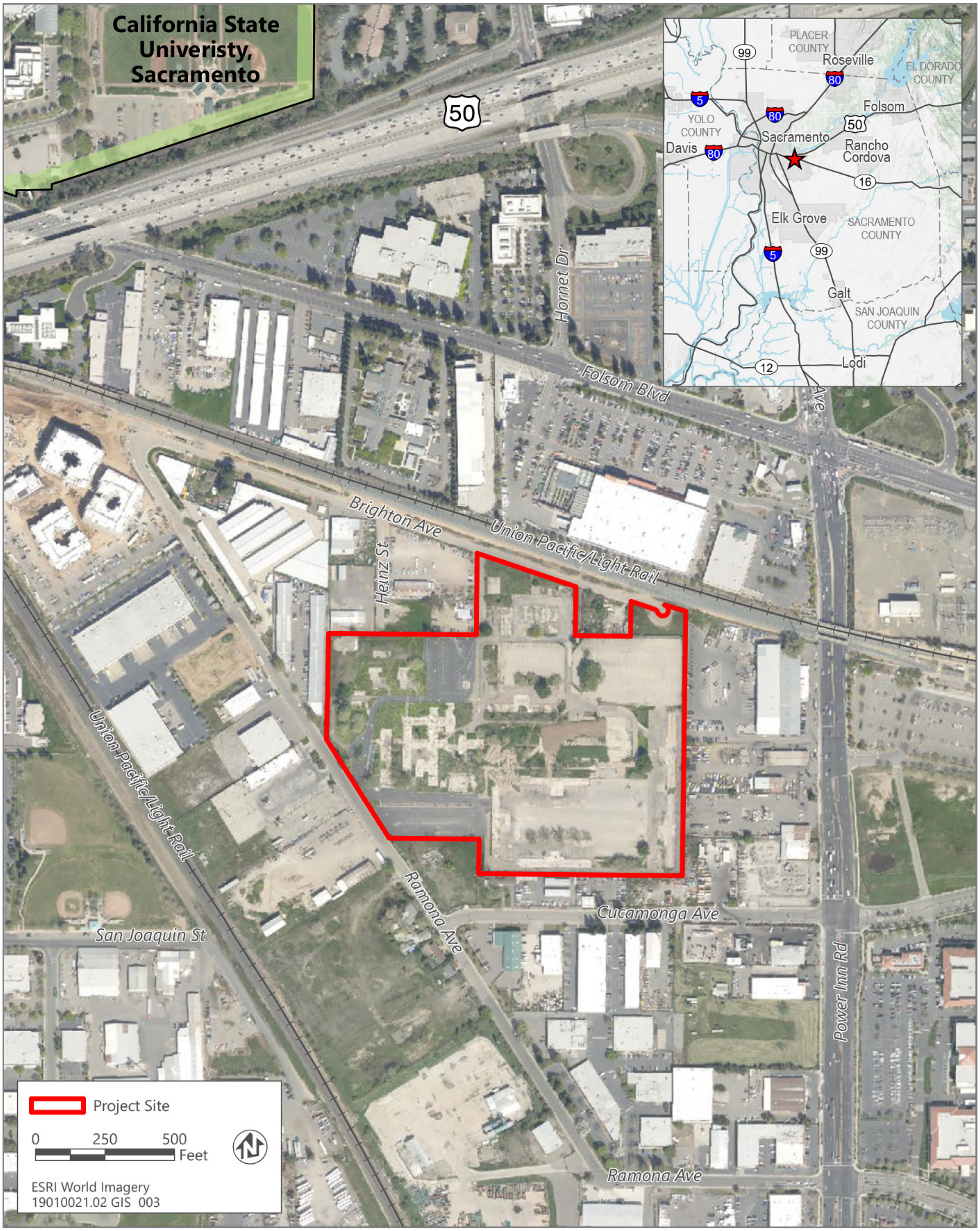
Purpose of Notice: In accordance with the California Environmental Quality Act (CEQA), California State University, Sacramento (Sacramento State) is distributing a notice of preparation (NOP) to solicit comments on the scope of an environmental impact report (EIR) that is being prepared for The Hub, Sacramento State Research Park Project (project). The California State University (CSU) Board of Trustees is the lead agency responsible for approval of the project and as such is also responsible for complying with the provisions of CEQA.

This NOP has been prepared pursuant to Sections 15082 and 15083 of the CEQA Guidelines. This NOP starts a public scoping period that will assist CSU in the preparation of the Draft EIR. The public scoping period is for 30 days and will run from March 22, 2021 to April 21, 2021. The purpose of the NOP is to provide sufficient information about the project and its potential environmental impacts to allow agencies and the interested parties the opportunity to provide a meaningful response related to the scope and content of the EIR, including possible environmental impacts, mitigation measures, and alternatives.

Project Location: The 25-acre Ramona Property (project site), which is entirely owned and operated by Sacramento State, is located at 3001 Ramona Avenue in the City of Sacramento, California and is approximately one-quarter mile south of the Sacramento State main campus (Figure 1). The project site is within a highly urbanized and industrial portion of the City of Sacramento, bounded by Brighton Avenue to the north, Power Inn Road to the east, Cucamonga Avenue to the south, and Ramona Avenue to the west. U.S. Highway 50 (US 50) is located less than 0.5 miles north of the site.

Description of Project: The project proposes development of the project site in two phases with academic, research, and office space that support the academic programming of Sacramento State. Phase I of the project (Figure 2) would include construction and operation of the Sacramento Municipal Utility District (SMUD)-affiliated nonprofit California Mobility Center (CMC) testing and manufacturing facility (ramp-up facility) and a new office building/crime laboratory for the California Department of Justice (CADOJ). The proposed CMC would consist of a research facility for mobility technologies such as electric vehicles, autonomous transportation, battery storage, and transit; a showcase building; and an approximately three-acre test track for CMC autonomous vehicles and surface parking, occupying approximately 11 acres within the northern half of the site. Under Phase I, the CADOJ facility would occupy approximately nine acres in the southern half of the site for a building and secure parking. Both the CMC and CADOJ facilities would provide opportunities for integration with Sacramento State instruction: classes, hands-on learning, internships, etc.

The remaining five acres of the project site would accommodate a central plaza/green space, landscaping and stormwater detention areas, bicycle and pedestrian pathways, and internal access roads. Phase II of the project, as shown in Figure 3, would replace Phase I surface parking in the eastern portion of the project site with two mixed-use buildings. As currently envisioned, the Phase II buildings would provide academic, administrative, and/or research office space with ground-level retail and parking, as well as additional space for CMC expansion, adjacent to the testing and manufacturing facility.



Source: adapted by Ascent Environmental in 2021

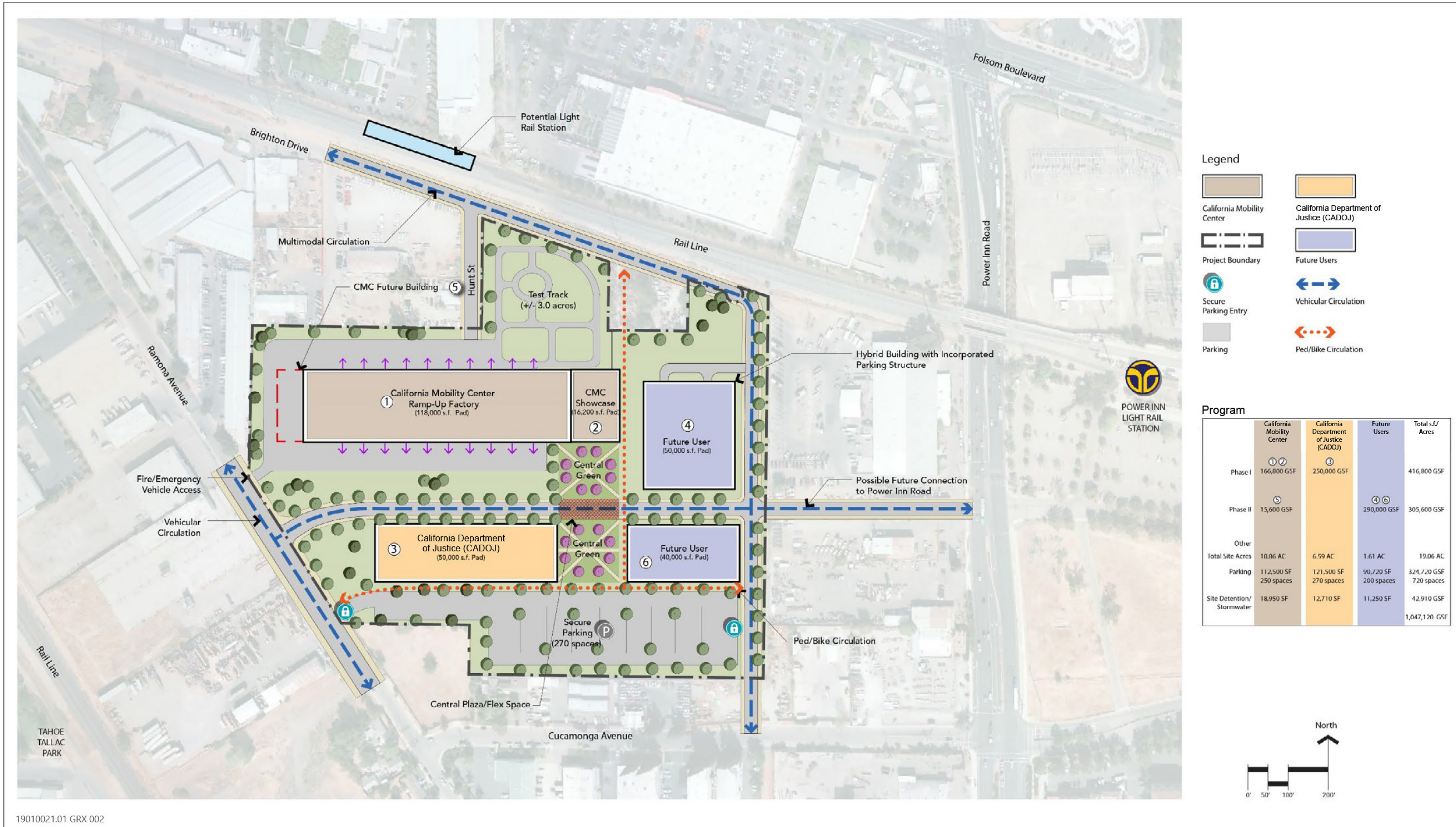
Figure 1 The Hub, Sacramento State Research Park, Project Site

Program

	California Mobility Center ① ②	California Department of Justice (CADOJ) ③	Future Users	Total s.f./ Acres
Phase I	166,800 GSF	250,000 GSF		416,800 GSF
Phase II				
Other				
Total Site Acres	10.86 AC	6.59 AC	1.61 AC	19.06 AC
Parking	112,500 SF 250 spaces	121,500 SF 270 spaces	22,500 SF 50 spaces	234,720 GSF 570 spaces
Site Detention/ Stormwater	18,950 SF	12,710 SF	11,250 SF	42,910 GSF
				651,520 GSF

Source: Image provided by Sacramento State in 2021

Figure 2 The Hub, Sacramento State Research Park, Project Concept Phase I



Program

	California Mobility Center	California Department of Justice (CADOJ)	Future Users	Total s.f./ Acres
Phase I	① ② 166,800 GSF	③ 250,000 GSF		416,800 GSF
Phase II	⑤ 15,600 GSF		④ ⑥ 290,000 GSF	305,600 GSF
Other				
Total Site Acres	10.86 AC	6.59 AC	1.61 AC	19.06 AC
Parking	112,500 SF 250 spaces	121,500 SF 270 spaces	90,720 SF 200 spaces	324,720 GSF 720 spaces
Site Detention/ Stormwater	18,950 SF	12,710 SF	11,250 SF	42,910 GSF
				1,047,120 GSF

Source: Image provided by Sacramento State in 2021

Figure 3 The Hub, Sacramento State Research Park, Project Concept Phase II

Potential Permits and Approvals Required: Elements of the project could be subject to permitting and/or approval by agencies other than the CSU Board of Trustees. As the lead agency pursuant to CEQA, CSU is responsible for considering the adequacy of the EIR and determining whether to approve the project. Permits that may be required from other agencies include:

- Central Valley Regional Water Quality Control Board: National Pollutant Discharge Elimination System construction stormwater permit (Notice of Intent to proceed under General Construction Permit), discharge permit for stormwater, general order for dewatering, recycled water permit
- California Department of Transportation: Permits for movement of oversized or excessive loads on State highways
- Sacramento Metropolitan Air Quality Management District: Authority to construct, permit to operate
- City of Sacramento: Sidewalk and roadway encroachment permits, utility connection permits, utility easements, tree removal permits

Potential Environmental Effects: The EIR will describe the significant direct and indirect environmental impacts of the project. The EIR also will evaluate the cumulative impacts of the project, defined as impacts that could be exacerbated when considered in conjunction with other related past, present, and reasonably foreseeable future projects. Sacramento State anticipates that the project could result in potentially significant environmental impacts in the following resource areas, which will be further evaluated in the EIR:

- **Aesthetics:** Temporary and long-term changes in views or visual character of the project site, as viewed by motorists from public vantagepoints on US 50, 59th Street, Power Inn Road, and Ramona Avenue.
- **Air Quality**: Temporary increases in air pollutant emissions associated with construction and long-term increases in pollutant emissions associated with project operations and associated vehicular trips.
- **Biological Resources**: Although the project site is a disturbed, vacant sit in an urban setting, the potential for impacts to biological resources, including tree removal, nesting birds, and bats, will be evaluated.
- **Cultural Resources**: Disturbance of known or unknown archaeological or tribal cultural resources.
- **Energy**: Utilization of energy for construction and operation of the project.
- **Greenhouse Gas Emissions:** Temporary increases in greenhouse gas (GHG) emissions associated with mobile-source exhaust from construction worker commute trips, truck haul trips, and equipment (e.g., excavators, graders); and long-term increases in GHG emissions associated with project operations, including stationary and mobile sources.
- **Hazards and Hazardous Materials:** Potential risks associated with accident or upset conditions during construction or due to the potential use, storage, or transportation of hazardous materials related to project operations.
- **Noise:** Temporary increases in noise (including off-site, vehicle traffic noise) and vibration levels during construction; and long-term increases in noise from project operation, including stationary and mobile sources.
- **Transportation and Traffic:** Temporary and long-term increases in vehicular trips, potential traffic hazards on local roadways, parking, and impacts to transit, pedestrian, or bicycle facilities due to construction and operations.
- **Utilities and Service Systems:** Increased demand for water, wastewater service, electricity, or natural gas at the project site and the potential need to increase the capacity of existing infrastructure.

The aforementioned issue areas and associated impacts will be evaluated in detail in the EIR. As necessary, feasible and practicable mitigation measures will be recommended to reduce any identified significant or potentially significant impacts.

Sacramento State anticipates that the project would not result in significant environmental impacts to the following resources and does not propose to evaluate them in depth in the EIR: agriculture and forest resources, cultural resources (historic resources only), geology and soils, hydrology and water quality, land use and planning, mineral resources, population and housing, public services, recreation, and wildfire. Brief discussions of these resources will be provided in the EIR with explanations as to why significant impacts to each resource are not anticipated.

Comment Period: Written comments on the NOP can be sent anytime during the NOP review period which begins March 22, 2021 to April 21, 2021. Sacramento State will accept written or electronic comments submitted by 5:00 p.m. on April 21, 2021, to the following address:

Tania Nunez, Project Manager
California State University, Sacramento, Planning, Design, & Construction
6000 J Street
Sacramento, CA 95819
Email: tania.nunez@csus.edu

Comments provided via email should include "The Hub, Sacramento State Research Park Project NOP Scoping Comment" in the subject line and the name and physical address of the commenter in the body of the email.

Public Scoping Meeting: Sacramento State will host a public scoping meeting to inform interested parties about the project, and to provide agencies and the public with an opportunity to provide comments on the scope and content of the EIR. In accordance with public health orders, the scoping meeting will be held via webinar only.

- Wednesday April 7, 2021 5:30 p.m. to 6:30 p.m.
- Participants must register to attend the scoping meeting here: https://csus.zoom.us/meeting/register/tZIkdeirpj0uHte6I55YYi6H_HdpC-Gm--ll

  After registering, you will receive the link to log-into the webinar on April 7th.

Central Valley Regional Water Quality Control Board

21 April 2021

Tania Nunez
California State University, Sacramento
Planning, Design, & Construction
6000 J Street
Sacramento, CA 95819
tania.nunez@csus.edu

COMMENTS TO REQUEST FOR REVIEW FOR THE NOTICE OF PREPARATION FOR THE DRAFT ENVIRONMENTAL IMPACT REPORT, THE HUB, SACRAMENTO STATE RESEARCH PARK PROJECT, SCH#2021030485, SACRAMENTO COUNTY

Pursuant to the State Clearinghouse's 22 March 2021 request, the Central Valley Regional Water Quality Control Board (Central Valley Water Board) has reviewed the *Request for Review for the Notice of Preparation for the Draft Environmental Impact Report* for The Hub, Sacramento State Research Park Project, located in Sacramento County.

Our agency is delegated with the responsibility of protecting the quality of surface and groundwaters of the state; therefore our comments will address concerns surrounding those issues.

I. Regulatory Setting

Basin Plan

The Central Valley Water Board is required to formulate and adopt Basin Plans for all areas within the Central Valley region under Section 13240 of the Porter-Cologne Water Quality Control Act. Each Basin Plan must contain water quality objectives to ensure the reasonable protection of beneficial uses, as well as a program of implementation for achieving water quality objectives with the Basin Plans. Federal regulations require each state to adopt water quality standards to protect the public health or welfare, enhance the quality of water and serve the purposes of the Clean Water Act. In California, the beneficial uses, water quality objectives, and the Antidegradation Policy are the State's water quality standards. Water quality standards are also contained in the National Toxics Rule, 40 CFR Section 131.36, and the California Toxics Rule, 40 CFR Section 131.38.

The Basin Plan is subject to modification as necessary, considering applicable laws, policies, technologies, water quality conditions and priorities. The original Basin Plans were adopted in 1975, and have been updated and revised periodically as required, using Basin Plan amendments. Once the Central Valley Water Board has

adopted a Basin Plan amendment in noticed public hearings, it must be approved by the State Water Resources Control Board (State Water Board), Office of Administrative Law (OAL) and in some cases, the United States Environmental Protection Agency (USEPA). Basin Plan amendments only become effective after they have been approved by the OAL and in some cases, the USEPA. Every three (3) years, a review of the Basin Plan is completed that assesses the appropriateness of existing standards and evaluates and prioritizes Basin Planning issues. For more information on the *Water Quality Control Plan for the Sacramento and San Joaquin River Basins*, please visit our website:
http://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/

Antidegradation Considerations

All wastewater discharges must comply with the Antidegradation Policy (State Water Board Resolution 68-16) and the Antidegradation Implementation Policy contained in the Basin Plan. The Antidegradation Implementation Policy is available on page 74 at:
https://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/sacsjr_201805.pdf

In part it states:

Any discharge of waste to high quality waters must apply best practicable treatment or control not only to prevent a condition of pollution or nuisance from occurring, but also to maintain the highest water quality possible consistent with the maximum benefit to the people of the State.

This information must be presented as an analysis of the impacts and potential impacts of the discharge on water quality, as measured by background concentrations and applicable water quality objectives.

The antidegradation analysis is a mandatory element in the National Pollutant Discharge Elimination System and land discharge Waste Discharge Requirements (WDRs) permitting processes. The environmental review document should evaluate potential impacts to both surface and groundwater quality.

II. Permitting Requirements

Construction Storm Water General Permit

Dischargers whose project disturb one or more acres of soil or where projects disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres, are required to obtain coverage under the General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit), Construction General Permit Order No. 2009-0009-DWQ. Construction activity subject to this permit includes clearing, grading, grubbing, disturbances to the ground, such as stockpiling, or excavation, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility. The Construction General Permit requires the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP). For more information on the Construction General Permit, visit the

State Water Resources Control Board website at:
http://www.waterboards.ca.gov/water_issues/programs/stormwater/constpermits.shtml

Phase I and II Municipal Separate Storm Sewer System (MS4) Permits[1]

The Phase I and II MS4 permits require the Permittees reduce pollutants and runoff flows from new development and redevelopment using Best Management Practices (BMPs) to the maximum extent practicable (MEP). MS4 Permittees have their own development standards, also known as Low Impact Development (LID)/post-construction standards that include a hydromodification component. The MS4 permits also require specific design concepts for LID/post-construction BMPs in the early stages of a project during the entitlement and CEQA process and the development plan review process.

For more information on which Phase I MS4 Permit this project applies to, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/water_issues/storm_water/municipal_permits/

For more information on the Phase II MS4 permit and who it applies to, visit the State Water Resources Control Board at:
http://www.waterboards.ca.gov/water_issues/programs/stormwater/phase_ii_municipal.shtml

Industrial Storm Water General Permit

Storm water discharges associated with industrial sites must comply with the regulations contained in the Industrial Storm Water General Permit Order No. 2014-0057-DWQ. For more information on the Industrial Storm Water General Permit, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/water_issues/storm_water/industrial_general_permits/index.shtml

Clean Water Act Section 404 Permit

If the project will involve the discharge of dredged or fill material in navigable waters or wetlands, a permit pursuant to Section 404 of the Clean Water Act may be needed from the United States Army Corps of Engineers (USACE). If a Section 404 permit is required by the USACE, the Central Valley Water Board will review the permit application to ensure that discharge will not violate water quality standards. If the project requires surface water drainage realignment, the applicant is advised to contact the Department of Fish and Game for information on Streambed Alteration Permit requirements. If you have any questions regarding the Clean Water Act

---

[1] Municipal Permits = The Phase I Municipal Separate Storm Water System (MS4) Permit covers medium sized Municipalities (serving between 100,000 and 250,000 people) and large sized municipalities (serving over 250,000 people). The Phase II MS4 provides coverage for small municipalities, including non-traditional Small MS4s, which include military bases, public campuses, prisons and hospitals.

Section 404 permits, please contact the Regulatory Division of the Sacramento District of USACE at (916) 557-5250.

Clean Water Act Section 401 Permit – Water Quality Certification
If an USACE permit (e.g., Non-Reporting Nationwide Permit, Nationwide Permit, Letter of Permission, Individual Permit, Regional General Permit, Programmatic General Permit), or any other federal permit (e.g., Section 10 of the Rivers and Harbors Act or Section 9 from the United States Coast Guard), is required for this project due to the disturbance of waters of the United States (such as streams and wetlands), then a Water Quality Certification must be obtained from the Central Valley Water Board prior to initiation of project activities. There are no waivers for 401 Water Quality Certifications. For more information on the Water Quality Certification, visit the Central Valley Water Board website at: https://www.waterboards.ca.gov/centralvalley/water_issues/water_quality_certification/

Waste Discharge Requirements – Discharges to Waters of the State
If USACE determines that only non-jurisdictional waters of the State (i.e., "non-federal" waters of the State) are present in the proposed project area, the proposed project may require a Waste Discharge Requirement (WDR) permit to be issued by Central Valley Water Board. Under the California Porter-Cologne Water Quality Control Act, discharges to all waters of the State, including all wetlands and other waters of the State including, but not limited to, isolated wetlands, are subject to State regulation. For more information on the Waste Discharges to Surface Water NPDES Program and WDR processes, visit the Central Valley Water Board website at:https://www.waterboards.ca.gov/centralvalley/water_issues/waste_to_surface_water/

Projects involving excavation or fill activities impacting less than 0.2 acre or 400 linear feet of non-jurisdictional waters of the state and projects involving dredging activities impacting less than 50 cubic yards of non-jurisdictional waters of the state may be eligible for coverage under the State Water Resources Control Board Water Quality Order No. 2004-0004-DWQ (General Order 2004-0004). For more information on the General Order 2004-0004, visit the State Water Resources Control Board website at: https://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2004/wqo/wqo2004-0004.pdf

Dewatering Permit
If the proposed project includes construction or groundwater dewatering to be discharged to land, the proponent may apply for coverage under State Water Board General Water Quality Order (Low Threat General Order) 2003-0003 or the Central Valley Water Board's Waiver of Report of Waste Discharge and Waste Discharge Requirements (Low Threat Waiver) R5-2018-0085. Small temporary construction dewatering projects are projects that discharge groundwater to land from excavation activities or dewatering of underground utility vaults. Dischargers seeking coverage

under the General Order or Waiver must file a Notice of Intent with the Central Valley Water Board prior to beginning discharge.

For more information regarding the Low Threat General Order and the application process, visit the Central Valley Water Board website at: http://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2003/wqo/wqo2003-0003.pdf

For more information regarding the Low Threat Waiver and the application process, visit the Central Valley Water Board website at: https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/waivers/r5-2018-0085.pdf

Limited Threat General NPDES Permit

If the proposed project includes construction dewatering and it is necessary to discharge the groundwater to waters of the United States, the proposed project will require coverage under a National Pollutant Discharge Elimination System (NPDES) permit. Dewatering discharges are typically considered a low or limited threat to water quality and may be covered under the General Order for *Limited Threat Discharges to Surface Water* (Limited Threat General Order). A complete Notice of Intent must be submitted to the Central Valley Water Board to obtain coverage under the Limited Threat General Order. For more information regarding the Limited Threat General Order and the application process, visit the Central Valley Water Board website at: https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/general_orders/r5-2016-0076-01.pdf

NPDES Permit

If the proposed project discharges waste that could affect the quality of surface waters of the State, other than into a community sewer system, the proposed project will require coverage under a National Pollutant Discharge Elimination System (NPDES) permit. A complete Report of Waste Discharge must be submitted with the Central Valley Water Board to obtain a NPDES Permit. For more information regarding the NPDES Permit and the application process, visit the Central Valley Water Board website at: https://www.waterboards.ca.gov/centralvalley/help/permit/

If you have questions regarding these comments, please contact me at (916) 464-0335 or Angela.Nguyen-Tan@waterboards.ca.gov.

Angela Nguyen-Tan
Environmental Scientist

cc: State Clearinghouse unit, Governor’s Office of Planning and Research, Sacramento

Jared Blumenfeld
Secretary for
Environmental Protection

Department of Toxic Substances Control

Meredith Williams, Ph.D.
Director
8800 Cal Center Drive
Sacramento, California 95826-3200

Gavin Newsom
Governor

March 25, 2021

Ms. Tania Nunez
California State University
Board of Trustees
6000 J Street
Sacramento, CA 95819
Tania.Nunez@csus.edu

NOTICE OF PREPARATION OF AN ENVIRONMENTAL IMPACT REPORT FOR THE HUB, SACRAMENTO STATE RESEARCH PARK PROJECT – DATED MARCH 22, 2021 (STATE CLEARINGHOUSE NUMBER: 2021030485)

Ms. Nunez:

The Department of Toxic Substances Control (DTSC) received a Notice of Preparation of an Environmental Impact Report (EIR) for The Hub, Sacramento State Research Park Project (Project). The Lead Agency is receiving this notice from DTSC because the Project includes one or more of the following: groundbreaking activities, work in close proximity to a roadway, work in close proximity to mining or suspected mining or former mining activities, presence of site buildings that may require demolition or modifications, importation of backfill soil, and/or work on or in close proximity to an agricultural or former agricultural site.

DTSC recommends that the following issues be evaluated in the EIR Hazards and Hazardous Materials section:

1. The EIR should acknowledge the potential for historic or future activities on or near the project site to result in the release of hazardous wastes/substances on the project site. In instances in which releases have occurred or may occur, further studies should be carried out to delineate the nature and extent of the contamination, and the potential threat to public health and/or the environment should be evaluated. The EIR should also identify the mechanism(s) to initiate any required investigation and/or remediation and the government agency who will be responsible for providing appropriate regulatory oversight.

2. Refiners in the United States started adding lead compounds to gasoline in the 1920s in order to boost octane levels and improve engine performance. This practice did not officially end until 1992 when lead was banned as a fuel additive

in California. Tailpipe emissions from automobiles using leaded gasoline contained lead and resulted in aerially deposited lead (ADL) being deposited in and along roadways throughout the state. ADL-contaminated soils still exist along roadsides and medians and can also be found underneath some existing road surfaces due to past construction activities. Due to the potential for ADL-contaminated soil DTSC, recommends collecting soil samples for lead analysis prior to performing any intrusive activities for the project described in the EIR.

3. If any sites within the project area or sites located within the vicinity of the project have been used or are suspected of having been used for mining activities, proper investigation for mine waste should be discussed in the EIR. DTSC recommends that any project sites with current and/or former mining operations onsite or in the project site area should be evaluated for mine waste according to DTSC's 1998 Abandoned Mine Land Mines Preliminary Assessment Handbook (https://dtsc.ca.gov/wp-content/uploads/sites/31/2018/11/aml_handbook.pdf).

4. If buildings or other structures are to be demolished on any project sites included in the proposed project, surveys should be conducted for the presence of lead-based paints or products, mercury, asbestos containing materials, and polychlorinated biphenyl caulk. Removal, demolition and disposal of any of the above-mentioned chemicals should be conducted in compliance with California environmental regulations and policies. In addition, sampling near current and/or former buildings should be conducted in accordance with DTSC's 2006 *Interim Guidance Evaluation of School Sites with Potential Contamination from Lead Based Paint, Termiticides, and Electrical Transformers* (https://dtsc.ca.gov/wpcontent/uploads/sites/31/2018/09/Guidance_Lead_Contamination_050118.pdf).

5. If any projects initiated as part of the proposed project require the importation of soil to backfill any excavated areas, proper sampling should be conducted to ensure that the imported soil is free of contamination. DTSC recommends the imported materials be characterized according to *DTSC's 2001 Information Advisory Clean Imported Fill Material* (https://dtsc.ca.gov/wp-content/uploads/sites/31/2018/09/SMP_FS_Cleanfill-Schools.pdf).

6. If any sites included as part of the proposed project have been used for agricultural, weed abatement or related activities, proper investigation for organochlorinated pesticides should be discussed in the EIR. DTSC recommends the current and former agricultural lands be evaluated in accordance with DTSC's 2008 *Interim Guidance for Sampling Agricultural Properties (Third Revision)* (https://dtsc.ca.gov/wp-content/uploads/sites/31/2018/09/Ag-Guidance-Rev-3-August-7-2008-2.pdf).

DTSC appreciates the opportunity to comment on the EIR. Should you need any assistance with an environmental investigation, please submit a request for Lead Agency Oversight Application, which can be found at: https://dtsc.ca.gov/wp-content/uploads/sites/31/2018/09/VCP_App-1460.doc. Additional information regarding voluntary agreements with DTSC can be found at: https://dtsc.ca.gov/brownfields/.

If you have any questions, please contact me at (916) 255-3710 or via email at Gavin.McCreary@dtsc.ca.gov.

Sincerely,

Gavin McCreary
Project Manager
Site Evaluation and Remediation Unit
Site Mitigation and Restoration Program
Department of Toxic Substances Control

cc: (via email)

Governor's Office of Planning and Research
State Clearinghouse
State.Clearinghouse@opr.ca.gov

Mr. Dave Kereazis
Office of Planning & Environmental Analysis
Department of Toxic Substances Control
Dave.Kereazis@dtsc.ca.gov

NATIVE AMERICAN HERITAGE COMMISSION

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov
NAHC.ca.gov

March 24, 2021

Tania Nunez
California State University (CSU) Board of Trustees (CSU Sacramento)
6000 J Street
Sacramento, CA 95819

Re: 2021030485, The Hub, Sacramento State Research Park Project, Sacramento County

Dear Ms. Nunez:

The Native American Heritage Commission (NAHC) has received the Notice of Preparation (NOP), Draft Environmental Impact Report (DEIR) or Early Consultation for the project referenced above. The California Environmental Quality Act (CEQA) (Pub. Resources Code §21000 et seq.), specifically Public Resources Code §21084.1, states that a project that may cause a substantial adverse change in the significance of a historical resource, is a project that may have a significant effect on the environment. (Pub. Resources Code § 21084.1; Cal. Code Regs., tit.14, §15064.5 (b) (CEQA Guidelines §15064.5 (b)). If there is substantial evidence, in light of the whole record before a lead agency, that a project may have a significant effect on the environment, an Environmental Impact Report (EIR) shall be prepared. (Pub. Resources Code §21080 (d); Cal. Code Regs., tit. 14, § 5064 subd.(a)(1) (CEQA Guidelines §15064 (a)(1)). In order to determine whether a project will cause a substantial adverse change in the significance of a historical resource, a lead agency will need to determine whether there are historical resources within the area of potential effect (APE).

CEQA was amended significantly in 2014. Assembly Bill 52 (Gatto, Chapter 532, Statutes of 2014) (AB 52) amended CEQA to create a separate category of cultural resources, "tribal cultural resources" (Pub. Resources Code §21074) and provides that a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment. (Pub. Resources Code §21084.2). Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource. (Pub. Resources Code §21084.3 (a)). **AB 52 applies to any project for which a notice of preparation, a notice of negative declaration, or a mitigated negative declaration is filed on or after July 1, 2015.** If your project involves the adoption of or amendment to a general plan or a specific plan, or the designation or proposed designation of open space, on or after March 1, 2005, it may also be subject to Senate Bill 18 (Burton, Chapter 905, Statutes of 2004) (SB 18). **Both SB 18 and AB 52 have tribal consultation requirements.** If your project is also subject to the federal National Environmental Policy Act (42 U.S.C. § 4321 et seq.) (NEPA), the tribal consultation requirements of Section 106 of the National Historic Preservation Act of 1966 (154 U.S.C. 300101, 36 C.F.R. §800 et seq.) may also apply.

The NAHC recommends consultation with California Native American tribes that are traditionally and culturally affiliated with the geographic area of your proposed project as early as possible in order to avoid inadvertent discoveries of Native American human remains and best protect tribal cultural resources. Below is a brief summary of portions of AB 52 and SB 18 as well as the NAHC's recommendations for conducting cultural resources assessments.

Consult your legal counsel about compliance with AB 52 and SB 18 as well as compliance with any other applicable laws.

AB 52

AB 52 has added to CEQA the additional requirements listed below, along with many other requirements:

1. Fourteen Day Period to Provide Notice of Completion of an Application/Decision to Undertake a Project: Within fourteen (14) days of determining that an application for a project is complete or of a decision by a public agency to undertake a project, a lead agency shall provide formal notification to a designated contact of, or tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, to be accomplished by at least one written notice that includes:

a. A brief description of the project.

b. The lead agency contact information.

c. Notification that the California Native American tribe has 30 days to request consultation. (Pub. Resources Code §21080.3.1 (d)).

d. A "California Native American tribe" is defined as a Native American tribe located in California that is on the contact list maintained by the NAHC for the purposes of Chapter 905 of Statutes of 2004 (SB 18). (Pub. Resources Code §21073).

2. Begin Consultation Within 30 Days of Receiving a Tribe's Request for Consultation and Before Releasing a Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report: A lead agency shall begin the consultation process within 30 days of receiving a request for consultation from a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project. (Pub. Resources Code §21080.3.1, subds. (d) and (e)) and prior to the release of a negative declaration, mitigated negative declaration or Environmental Impact Report. (Pub. Resources Code §21080.3.1(b)).

a. For purposes of AB 52, "consultation shall have the same meaning as provided in Gov. Code §65352.4 (SB 18). (Pub. Resources Code §21080.3.1 (b)).

3. Mandatory Topics of Consultation If Requested by a Tribe: The following topics of consultation, if a tribe requests to discuss them, are mandatory topics of consultation:

a. Alternatives to the project.

b. Recommended mitigation measures.

c. Significant effects. (Pub. Resources Code §21080.3.2 (a)).

4. Discretionary Topics of Consultation: The following topics are discretionary topics of consultation:

a. Type of environmental review necessary.

b. Significance of the tribal cultural resources.

c. Significance of the project's impacts on tribal cultural resources.

d. If necessary, project alternatives or appropriate measures for preservation or mitigation that the tribe may recommend to the lead agency. (Pub. Resources Code §21080.3.2 (a)).

5. Confidentiality of Information Submitted by a Tribe During the Environmental Review Process: With some exceptions, any information, including but not limited to, the location, description, and use of tribal cultural resources submitted by a California Native American tribe during the environmental review process shall not be included in the environmental document or otherwise disclosed by the lead agency or any other public agency to the public, consistent with Government Code §6254 (r) and §6254.10. Any information submitted by a California Native American tribe during the consultation or environmental review process shall be published in a confidential appendix to the environmental document unless the tribe that provided the information consents, in writing, to the disclosure of some or all of the information to the public. (Pub. Resources Code §21082.3 (c)(1)).

6. Discussion of Impacts to Tribal Cultural Resources in the Environmental Document: If a project may have a significant impact on a tribal cultural resource, the lead agency's environmental document shall discuss both of the following:

a. Whether the proposed project has a significant impact on an identified tribal cultural resource.

b. Whether feasible alternatives or mitigation measures, including those measures that may be agreed to pursuant to Public Resources Code §21082.3, subdivision (a), avoid or substantially lessen the impact on the identified tribal cultural resource. (Pub. Resources Code §21082.3 (b)).

7. Conclusion of Consultation: Consultation with a tribe shall be considered concluded when either of the following occurs:

a. The parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or

b. A party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached. (Pub. Resources Code §21080.3.2 (b)).

8. Recommending Mitigation Measures Agreed Upon in Consultation in the Environmental Document: Any mitigation measures agreed upon in the consultation conducted pursuant to Public Resources Code §21080.3.2 shall be recommended for inclusion in the environmental document and in an adopted mitigation monitoring and reporting program, if determined to avoid or lessen the impact pursuant to Public Resources Code §21082.3, subdivision (b), paragraph 2, and shall be fully enforceable. (Pub. Resources Code §21082.3 (a)).

9. Required Consideration of Feasible Mitigation: If mitigation measures recommended by the staff of the lead agency as a result of the consultation process are not included in the environmental document or if there are no agreed upon mitigation measures at the conclusion of consultation, or if consultation does not occur, and if substantial evidence demonstrates that a project will cause a significant effect to a tribal cultural resource, the lead agency shall consider feasible mitigation pursuant to Public Resources Code §21084.3 (b). (Pub. Resources Code §21082.3 (e)).

10. Examples of Mitigation Measures That, If Feasible, May Be Considered to Avoid or Minimize Significant Adverse Impacts to Tribal Cultural Resources:

a. Avoidance and preservation of the resources in place, including, but not limited to:

i. Planning and construction to avoid the resources and protect the cultural and natural context.

ii. Planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.

b. Treating the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:

i. Protecting the cultural character and integrity of the resource.

ii. Protecting the traditional use of the resource.

iii. Protecting the confidentiality of the resource.

c. Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.

d. Protecting the resource. (Pub. Resource Code §21084.3 (b)).

e. Please note that a federally recognized California Native American tribe or a non-federally recognized California Native American tribe that is on the contact list maintained by the NAHC to protect a California prehistoric, archaeological, cultural, spiritual, or ceremonial place may acquire and hold conservation easements if the conservation easement is voluntarily conveyed. (Civ. Code §815.3 (c)).

f. Please note that it is the policy of the state that Native American remains and associated grave artifacts shall be repatriated. (Pub. Resources Code §5097.991).

11. Prerequisites for Certifying an Environmental Impact Report or Adopting a Mitigated Negative Declaration or Negative Declaration with a Significant Impact on an Identified Tribal Cultural Resource: An Environmental Impact Report may not be certified, nor may a mitigated negative declaration or a negative declaration be adopted unless one of the following occurs:

a. The consultation process between the tribes and the lead agency has occurred as provided in Public Resources Code §21080.3.1 and §21080.3.2 and concluded pursuant to Public Resources Code §21080.3.2.

b. The tribe that requested consultation failed to provide comments to the lead agency or otherwise failed to engage in the consultation process.

c. The lead agency provided notice of the project to the tribe in compliance with Public Resources Code §21080.3.1 (d) and the tribe failed to request consultation within 30 days. (Pub. Resources Code §21082.3 (d)).

The NAHC's PowerPoint presentation titled, "Tribal Consultation Under AB 52: Requirements and Best Practices" may be found online at: http://nahc.ca.gov/wp-content/uploads/2015/10/AB52TribalConsultation_CalEPAPDF.pdf

SB 18

SB 18 applies to local governments and requires local governments to contact, provide notice to, refer plans to, and consult with tribes prior to the adoption or amendment of a general plan or a specific plan, or the designation of open space. (Gov. Code §65352.3). Local governments should consult the Governor's Office of Planning and Research's "Tribal Consultation Guidelines," which can be found online at: https://www.opr.ca.gov/docs/09_14_05_Updated_Guidelines_922.pdf.

Some of SB 18's provisions include:

1. Tribal Consultation: If a local government considers a proposal to adopt or amend a general plan or a specific plan, or to designate open space it is required to contact the appropriate tribes identified by the NAHC by requesting a "Tribal Consultation List." If a tribe, once contacted, requests consultation the local government must consult with the tribe on the plan proposal. **A tribe has 90 days from the date of receipt of notification to request consultation unless a shorter timeframe has been agreed to by the tribe.** (Gov. Code §65352.3 (a)(2)).
2. No Statutory Time Limit on SB 18 Tribal Consultation. There is no statutory time limit on SB 18 tribal consultation.
3. Confidentiality: Consistent with the guidelines developed and adopted by the Office of Planning and Research pursuant to Gov. Code §65040.2, the city or county shall protect the confidentiality of the information concerning the specific identity, location, character, and use of places, features and objects described in Public Resources Code §5097.9 and §5097.993 that are within the city's or county's jurisdiction. (Gov. Code §65352.3 (b)).
4. Conclusion of SB 18 Tribal Consultation: Consultation should be concluded at the point in which:

  a. The parties to the consultation come to a mutual agreement concerning the appropriate measures for preservation or mitigation; or
  b. Either the local government or the tribe, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached concerning the appropriate measures of preservation or mitigation. (Tribal Consultation Guidelines, Governor's Office of Planning and Research (2005) at p. 18).

Agencies should be aware that neither AB 52 nor SB 18 precludes agencies from initiating tribal consultation with tribes that are traditionally and culturally affiliated with their jurisdictions before the timeframes provided in AB 52 and SB 18. For that reason, we urge you to continue to request Native American Tribal Contact Lists and "Sacred Lands File" searches from the NAHC. The request forms can be found online at: http://nahc.ca.gov/resources/forms/.

NAHC Recommendations for Cultural Resources Assessments

To adequately assess the existence and significance of tribal cultural resources and plan for avoidance, preservation in place, or barring both, mitigation of project-related impacts to tribal cultural resources, the NAHC recommends the following actions:

1. Contact the appropriate regional California Historical Research Information System (CHRIS) Center (http://ohp.parks.ca.gov/?page_id=1068) for an archaeological records search. The records search will determine:

  a. If part or all of the APE has been previously surveyed for cultural resources.
  b. If any known cultural resources have already been recorded on or adjacent to the APE.
  c. If the probability is low, moderate, or high that cultural resources are located in the APE.
  d. If a survey is required to determine whether previously unrecorded cultural resources are present.

2. If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.

  a. The final report containing site forms, site significance, and mitigation measures should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum and not be made available for public disclosure.
  b. The final written report should be submitted within 3 months after work has been completed to the appropriate regional CHRIS center.

3. Contact the NAHC for:

a. A Sacred Lands File search. Remember that tribes do not always record their sacred sites in the Sacred Lands File, nor are they required to do so. A Sacred Lands File search is not a substitute for consultation with tribes that are traditionally and culturally affiliated with the geographic area of the project's APE.

b. A Native American Tribal Consultation List of appropriate tribes for consultation concerning the project site and to assist in planning for avoidance, preservation in place, or, failing both, mitigation measures.

4. Remember that the lack of surface evidence of archaeological resources (including tribal cultural resources) does not preclude their subsurface existence.

a. Lead agencies should include in their mitigation and monitoring reporting program plan provisions for the identification and evaluation of inadvertently discovered archaeological resources per Cal. Code Regs., tit. 14, §15064.5(f) (CEQA Guidelines §15064.5(f)). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American with knowledge of cultural resources should monitor all ground-disturbing activities.

b. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the disposition of recovered cultural items that are not burial associated in consultation with culturally affiliated Native Americans.

c. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the treatment and disposition of inadvertently discovered Native American human remains. Health and Safety Code §7050.5, Public Resources Code §5097.98, and Cal. Code Regs., tit. 14, §15064.5, subdivisions (d) and (e) (CEQA Guidelines §15064.5, subds. (d) and (e)) address the processes to be followed in the event of an inadvertent discovery of any Native American human remains and associated grave goods in a location other than a dedicated cemetery.

If you have any questions or need additional information, please contact me at my email address: Nancy.Gonzalez-Lopez@nahc.ca.gov.

Sincerely,

Nancy Gonzalez

Nancy Gonzalez-Lopez
Cultural Resources Analyst

cc: State Clearinghouse

Regional Transit

Sacramento Regional Transit District
A Public Transit Agency and Equal Opportunity Employer

Administrative Offices
1400 29th Street
Sacramento, CA 95816
916-321-2800

Mailing Address
P.O. Box 2110
Sacramento, CA 95812-2110

Human Resources
2810 O Street
Sacramento, CA 95816
916-556-0299

Customer Service & Sales Center
1225 R Street
Sacramento, CA 95811

Route, Schedule & Fare Information
916-321-BUSS (2877)
TDD 916-483-HEAR (4327)
www.sacrt.com

Public Transit Since 1973

April 21, 2021

Tania Nunez
Project Manager
California State University, Sacramento, Planning, Design & Construction
6000 J Street
Sacramento, CA 95819

PROJECT TITLE:	The Hub, Sacramento State Research Park Project
TYPE OF DOCUMENT:	Notice of Preparation for Draft Environmental Impact Report

Dear Ms. Nunez,

Thank you for the opportunity to review the Notice of Preparation (NOP) for the Sacramento State Research Park Project, otherwise known as "The Hub". As described in the NOP, the project site encompasses 25 acres in a highly urbanized and industrial portion of the City of Sacramento, and is approximately one-quarter mile south of the Sacramento State main campus.

Sacramento Regional Transit District (SacRT) has been involved in the Ramona Master Plan community working groups with the master plan project team, and various stakeholders to discuss the project background and preferred development concepts. SacRT feels that this project is a very important addition to the region, including phases that support the academic programming of Sacramento State. SacRT will continue to be involved in all phases of this project, and looks forward to serving this community once developed.

The project site is located with ¼ mile of SacRT's Power Inn Light Rail Station. We anticipate an increase in transit demand as this project develops, and are prepared to work in partnership with Sacramento State, the City of Sacramento, and others to consider transit access, infrastructure, and operational improvements needed in order for members of the public to access the site.

SacRT recognizes that there may be temporary and long-term increases in vehicular trips due to this project, which would result in increased VMTs in the region. With that said, we will be carefully considering the environmental analysis related to VMTs, and are prepared to recommend necessary outcomes to provide a safe, efficient circulation system that promotes transit options and pedestrian circulation to reduce VMTs through encouraging non-vehicular trips.

SacRT also looks forward to reviewing a transportation and circulation analysis to identify connectivity improvements between the project site, the existing Power Inn Light Rail Station, and potential bus routing. We are also open to the possibility of a new station location that is more accessible to the project site.

SacRT recognizes the importance of the environmental impact analysis, and will continue to work with Sacramento State, City staff, and others to provide data and assist in the process, when necessary.

Thank you again for the opportunity to comment on the NOP for the Hub. Please send any subsequent documents and notices that pertain to this project as they become available. If you have further questions regarding these requests, please contact me at 916.556.0518 or spoe@sacrt.com.

Sincerely,

Sarah Poe

Sarah Poe
Planner

c: James Boyle, Planning Director

SACRAMENTO METROPOLITAN
AIR QUALITY
MANAGEMENT DISTRICT

April 21, 2021

Tania Nunez, Project Manager
California State University, Sacramento
Planning, Design, & Construction
6000 J Street
Sacramento, CA 95819
tania.nunez@csus.edu

Subject: **The Hub Research Park Project NOP**
State Clearinghouse # 2021030485

Dear Tania Nunez:

The Sacramento Metropolitan Air Quality Management District (Sac Metro Air District) thanks California State University Sacramento (CSUS) for the opportunity to review the Notice of Preparation (NOP) for an Environmental Impact Report (EIR) for The Hub Research Park Project (The Hub), a proposal to develop 25 acres in the City of Sacramento, with academic, research, and office space that support CSUS academic programming. Please accept our comments on air quality considerations for project California Environmental Quality Act (CEQA) review.

CEQA Review

Please reference Sac Metro Air District's guidance on reviewing projects under CEQA, The Guide to Air Quality Assessment in Sacramento County (CEQA Guide), in preparing The Hub EIR. Below are recommendations for CEQA analysis of project-specific components, using the CEQA Guide. Sac Metro Air District recommends that The Hub EIR's analysis of cumulative air quality impacts use methods of disclosing and mitigating these impacts found in the CEQA Guide's chapter on Cumulative Air Quality Impacts.

Construction Analysis

The Hub EIR's construction analysis should quantify and disclose projected construction emissions of Criteria Pollutants, pollutants regulated by the Clean Air Act, using methods referenced in the CEQA Guide's chapter on Construction-Generated Criteria Air Pollutant and Precursor Emissions. If construction emissions are projected to exceed applicable Sac Metro Air District thresholds of significance, the EIR should incorporate mitigation measures for construction emissions, using methods in this chapter.

All projects must implement Sac Metro Air District Basic Construction Emission Control Practices in order to use the non-zero particulate matter CEQA thresholds of significance. These are also helpful to ensure compliance with Sac Metro Air District's Rule 403, Fugitive Dust.

Please note that all projects are subject to Sac Metro Air District rules and regulations at the time of construction. Please visit our website to find a list of the most common rules that apply at the construction phase of projects.

Operational Analysis

The Hub EIR's analysis of operational emissions should quantify and disclose projected operational emissions of Criteria Pollutants, using methods referenced in the CEQA Guide's chapter on Operational Criteria Air Pollutant and Precursor Emissions. If operational emissions are projected to exceed applicable Sac Metro Air District thresholds of significance, the EIR should incorporate mitigation measures for those emissions, using methods in this chapter.

For projects that will exceed Sac Metro Air District's operational emissions thresholds of significance for reactive organic gases, oxides of nitrogen, or particulate matter, Sac Metro Air District recommends the project proponent develop an Air Quality Mitigation Plan (AQMP) with measures to reduce operational emissions by 15% or more. The AQMP can be a standalone document or incorporated into the environmental document. The AQMP must be referenced in the EIR as an air quality mitigation measure, appended to the document, and referenced as a condition of approval by the lead agency.

Sac Metro Air District recommends using its Recommended Guidance for Land Use Emission Reductions to develop AQMP measures. Should the project develop an AQMP, Sac Metro Air District respectfully requests consultation to review the AQMP for technical adequacy prior to inclusion in the draft EIR.

Analysis of operational Criteria Pollutants should also include an analysis of health effects that may result from operational emissions, pursuant to the "Friant Ranch" decision. In December 2018 the California Supreme Court issued a decision in the Sierra Club v. County of Fresno case regarding the "Friant Ranch" project ((2018) 6 Cal. 5th 502). The Court determined that CEQA air quality analysis should include a reasonable effort to connect a project's air quality impacts to likely health consequences or explain in meaningful detail why it is not feasible to do so. To analyze health effects pursuant to the Friant Ranch decision, consult Sac Metro Air District's Guidance to Address the Friant Ranch Ruling for CEQA Projects in the Sac Metro Air District.

Greenhouse Gas Analysis

The Hub EIR's analysis should quantify and disclose projected greenhouse gas (GHG) emissions resulting from project construction and operations, using methods referenced in the CEQA Guide's chapter on Greenhouse Gas Emissions. If GHG emissions are projected to exceed applicable Sac Metro Air District thresholds of significance, the EIR should incorporate mitigation measures for those emissions, using methods in this chapter.

Under Sac Metro Air District's GHG thresholds of significance, projects that are not subject to a Qualified Climate Action Plan must implement Best Management Practices (BMPs) including the following.

1. No natural gas: projects shall be designed and constructed without natural gas infrastructure

2. Electric vehicle (EV) ready: projects shall meet the current California Green Building Standards Code (CalGreen) Tier 2 standards, except all EV capable spaces shall instead be EV ready

3. After implementation of the first two BMPs, if the project's operational emissions exceed 1,100 metric tons of GHG emissions per year, then the project must demonstrate that it meets the California Governor's Office of Planning and Research SB 743 Technical Advisory de minimis criteria for vehicle miles traveled, or reduce project vehicle miles traveled by 15% residential and 15% worker relative to averages for Sacramento County, with no net increase in retail vehicle miles traveled.

For quick reference, please visit our Greenhouse Gas Threshold Applicability flow chart.

Toxic Air Contaminants
The Hub includes manufacturing uses, which are often associated with toxic air contaminant (TAC) emissions. Using methods referenced in the CEQA Guide's chapter on TAC Emissions, the Hub EIR should include a discussion of whether the project would locate any permitted or nonpermitted sources of TACs in locations with strong potential to affect human health, a significance determination about TAC exposure resulting from project operations without mitigation, and a discussion of feasible mitigation necessary to reduce TAC exposure resulting from project operations to a less-than-significant level.

Permitting Requirements
Please be aware that the project's manufacturing uses may require an Authority to Construct and Permit to Operate from the Sac Metro Air District. Please contact the Sac Metro Air District at 916-874-4800 or permitting@airquality.org with comments or questions on permit or registration requirements. For permit application forms and instructions, please visit the following page on the Sac Metro Air District website: http://www.airquality.org/Businesses/Permits-Registration-Programs.

Urban Heat Island Effect
The Sac Metro Air District participated in the 2020 Capital Region Transportation Sector Urban Heat Island Mitigation Project (UHI Project), producing a report on urban heat island effect impacts on the Sacramento region, and mitigation strategies for these impacts. The urban heat island effect already presents a serious challenge for our region, according to the report. Urbanized areas in Sacramento range 3 to 9 degrees Fahrenheit warmer than surrounding areas, which results in decreased air quality and associated public health impacts. The urban heat island results from the conversion of undeveloped land to urbanized land.

Consistent with mitigation strategies identified in the UHI Project report, Sac Metro Air District recommends the following project measures:

- New pavement for the project is "cool pavement," with an albedo of at least 0.25-0.5

- All project structures utilize certified cool roofs. The 2019 California Building Energy Efficiency Standards suggests an aged solar reflectance of at least 0.63 for low-sloped roofs and at least 0.20 for steep-sloped roofs, and minimum thermal emittance of 0.75. The Cool Roof Rating Council provides a product directory of roofs.

- Landscaping incorporates new trees to shade new and existing pavements and structures to the full extent feasible. Parking lots have at least 50% tree shade coverage, and shade trees line pedestrian paths to provide continuous shade coverage there. Please reference the Sacramento

Tree Foundation's Shady Eighty guide for a directory of air-quality supportive trees with information for each species on shade canopy, necessary distance between plantings, and more.

Conclusion

Thank you for your attention to our comments. If you have questions about them, please contact me at mwright@airquality.org or 916-874-4207.

Sincerely,

Molly Wright

Molly Wright, AICP
Air Quality Planner / Analyst

cc: Paul Philley, AICP, CEQA and Land Use Program Supervisor, Sac Metro Air District
Steve Mosunic, Permitting Program Supervisor, Sac Metro Air District

Sent Via E-Mail

April 21, 2021

Tania Nunez, Project Manager
California State University, Sacramento, Planning, Design, & Construction
6000 J Street
Sacramento, CA 95819
tania.nunez@csus.edu

Subject: **The Hub, Sacramento State Research Project | NOP | 2021030485**

Dear Ms. Nunez:

The Sacramento Municipal Utility District (SMUD) appreciates the opportunity to provide comments on the Notice of Preparation (NOP) for The Hub, Sacramento State Research Project (Project, SCH 2021030485). SMUD is the primary energy provider for Sacramento County and the proposed Project area. SMUD's vision is to empower our customers with solutions and options that increase energy efficiency, protect the environment, reduce global warming, and lower the cost to serve our region. As a Responsible Agency, SMUD aims to ensure that the proposed Project limits the potential for significant environmental effects on SMUD facilities, employees, and customers.

It is our desire that the Project will acknowledge any impacts related to the following:

- Overhead and or underground transmission and distribution line easements. Please view the following links on smud.org for more information regarding transmission encroachment:
  - https://www.smud.org/en/Business-Solutions-and-Rebates/Design-and-Construction-Services
  - https://www.smud.org/en/Corporate/Do-Business-with-SMUD/Land-Use/Transmission-Right-of-Way
- Utility line routing
- Electrical load needs/requirements
- Energy Efficiency
- Climate Change
- Cumulative impacts related to the need for increased electrical delivery
- The potential need to relocate and or remove any SMUD infrastructure that may be affected in or around the project area

More specifically, SMUD would like to have the following details related to the electrical infrastructure incorporated into the project description:

- SMUD would like to obtain additional details regarding the proposed Regional Transit station North of Brighton drive to ensure that there will not be any conflicts with SMUD transmission lines that run parallel with Brighton drive.

- SMUD would like to obtain additional details regarding any proposed above ground and subsurface improvements North of Brighton drive to ensure that there will not be any conflicts with SMUD transmission lines that run parallel with Brighton drive.

SMUD would like to be involved with discussing the above areas of interest as well as discussing any other potential issues. We aim to be partners in the efficient and sustainable delivery of the proposed Project. Please ensure that the information included in this response is conveyed to the Project planners and the appropriate Project proponents.

Environmental leadership is a core value of SMUD, and we look forward to collaborating with you on this Project. Again, we appreciate the opportunity to provide input on this NOP. If you have any questions regarding this letter, please do not hesitate to contact me at 916.732.6676, or by email at rob.ferrera@smud.org.

Sincerely,

Rob Ferrera
Environmental Services Specialist
Sacramento Municipal Utility District
6201 S Street
Sacramento, CA 95817

cc: Entitlements

YOCHA DEHE
CULTURAL RESOURCES

March 26, 2021

California State University, Sacramento, Planning, Design & Construction
Attn: Tania Nunez, Project Manager
6000 J Street
Sacramento, CA 95819

RE: Hub Sac State Research Park Project YD-03232021-01

Dear Ms. Nunez:

Thank you for your project notification letter dated, March 22, 2021, regarding cultural information on or near the proposed Hub Sac State Research Park Project, Sacramento County. We appreciate your effort to contact us.

The Cultural Resources Department has reviewed the project and concluded that it is not within the aboriginal territories of the Yocha Dehe Wintun Nation. Therefore, we respectively decline any comment on this project. However, based on the information provided, please defer correspondence to the following:

United Auburn Indian Community
Attn: Tribal Historic Preservation Officer
10720 Indian Hill Road
Auburn, CA 95603

Wilton Rancheria
Attn: Tribal Historic Preservation Officer
9728 Kent Street
Elk Grove, CA 95624

Please refer to identification number YD – 03232021-01 in any future correspondence with Yocha Dehe Wintun Nation concerning this project.

Thank you for providing us with this notice and the opportunity to comment.

Sincerely,

DocuSigned by:
Isaac Bojorquez
A61DE454C98B40A...

Isaac Bojorquez
Director of Cultural Resources

cc: United Auburn Indian Community

Appendix B

Air Quality, Greenhouse Gas, and Energy Modeling

CalEEMod Inputs (Construction)

Name: The Hub
Project Number: 19010021.02
Project Location: 3001 Ramona Ave Sacramento CA
County: Sacramento
Climate Zone: 6
Land Use Setting: Urban
Operational Year: 2029
Utility Company: SMUD (Electricity); Pacific Gas & Electric (NG)
Air Basin: Sacramento Valley Air Basin
Air District: SMAQMD

Land Use	FGSF	GSF	1000 GSF	Acres	
Phase 1					
Manufacturing	118,800	118,800	118.8	2.73	
General Office Building	21,600	32,400	32.4	0.50	
Other Asphalt Surfaces				3.00	
Parking Lot	72,000	72,000	72.0	1.65	
Research & Development	50,000	250,000	250.0	1.15	
Parking Lot	140,000	140,000	140.0	3.21	
Parking Lot	26,000	26,000	26.0	0.60	
Road				2.08	
City Park				9.47	
Total	**428,400**	**639,200**	**639**	**24**	
Phase 2					
Manufacturing	15,600	15,600	15.6	0.36	
General Office Building	64,000	189,500	189.5	0.00	***Acreage is considered under the parking s**
Strip Mall	14,500	14,500	14.5	0.00	***Acreage is considered under the parking s**
Parking Structure	64,000	180,000	180.0	1.47	
General Office Building	26,000	52,000	52.0	0.60	
Total	**184,100**	**451,600**	**452**	**2**	
	612,500	**1,090,800**	**1,091**	**27**	

Demolition Haul Data*

Component	Amount to be Demolished (SF)*	Haul Truck Capacity (Ton)	Haul Distance (miles)	Total Trip Ends	Duration (days)	Trip Ends/ day
Parking Lot	72,000	15	20	9,493	68	279
Parking Lot	26,000					
Total	98,000			**9,493**		

*Based on cubic yards provided by the applicant.

CalEEMod Inputs (Operations)

Name:	The Hub
Project Number:	19010021.02
Project Location:	3001 Ramona Ave Sacramento CA
County:	Sacramento
Climate Zone:	6
Land Use Setting:	Urban
Operational Year:	2029
Utility Company:	SMUD (Electricity); Pacific Gas & Electric (NG)
Air Basin:	Sacramento Valley Air Basin
Air District:	SMAQMD

Land Use	FGSF	GSF	1000 GSF	Acres
Phase 1				
Manufacturing	118,800	118,800	118.8	2.73
General Office Building	21,600	32,400	32.4	0.50
Other Asphalt Surfaces (test track)				3.00
Parking Lot	72,000	72,000	72.0	1.65
Research & Development	50,000	250,000	250.0	1.15
Parking Lot	140,000	140,000	140.0	3.21
Parking Lot	26,000	26,000	26.0	0.60
Road				2.08
City Park				9.47
Sub Total	**428,400**	**639,200**	**639**	**24**
Phase 2				
Manufacturing	15,600	15,600	15.6	0.36
General Office Building	64,000	189,500	189.5	0.00
Strip Mall	14,500	14,500	14.5	0.00
Parking Structure	64,000	180,000	180.0	1.47
General Office Building	26,000	52,000	52.0	0.60
Sub Total	**184,100**	**451,600**	**452**	**2**
Total	**612,500**	**1,090,800**	**1,091**	**27**
Both Phases				
Manufacturing	134,400	134,400	134.4	3.09
General Office Building	111,600	273,900	273.9	1.09
Research & Development	50,000	250,000	250.0	1.15
Strip Mall	14,500	14,500	14.5	0.00
Other Asphalt Surfaces				3.00
Parking Structure	64,000	180,000	180.0	1.47
Parking Lot	238,000	238,000	238	7.54
City Park				9.47
Total	**612,500**	**1,090,800**	**1,091**	**27**

Construction Schedule Adjustment

Phase 1					
Phase Name	**Phase Type**	**CalEEMod Total Days**	**Portion of Construction Schedule**	**Construction Schedule for 33 months**	**Check**
Site Preparation	Site Preparation	10	2%	16	2%
Grading	Grading	35	8%	55	8%
Building Construction	Building Construction	370	81%	581	81%
Paving	Paving	20	4%	31	4%
Architectural Coating	Architectural Coating	20	4%	31	4%
		455	100%	715	100%

Phase 2					
Phase Name	**Phase Type**	**CalEEMod Total Days**	**Portion of Construction Schedule**	**Construction Schedule for 2 year phase**	**Check**
Demolition	Demolition	20	7%	39	7%
Site Preparation	Site Preparation	3	1%	6	1%
Grading	Grading	6	2%	12	2%
Building Construction	Building Construction	220	82%	425	82%
Paving	Paving	10	4%	19	4%
Architectural Coating	Architectural Coating	10	4%	19	4%
		269	100%	520	100%

CalEEMod VMT Calculator (UNMITIGATED SCENARIO)

This calcultor was created based on the default trip inputs for the unmitigated CalEEMod run. The calculator calculateds the annual VMT from the proposed project using the same methodology from CalEEMod, described in Appendix A, for the UNMITIGATED SCENARIO. This calculator can be used to adjust land use trip rates for the MITIGATED PROJECT scenario which is based on the traffic study conducted for the project

Trip Type

CalEEMod defaults based on land uses inputted

Land Use	Miles			Trip %			Trip Purpose		
	H-w or C-W	H-S or C-C	H-O or C-O	H-w or C-W	H-S or C-C	H-O or C-O	Primary	Diverted	Pass-by
General Office Building	10.00	5.00	6.50	33.0%	48.0%	19.0%	77.0%	19.0%	4.0%
Manufacturing	10.00	5.00	6.50	59.0%	28.0%	13.0%	92.0%	5.0%	3.0%
Research & Development	10.00	5.00	6.50	33.0%	48.0%	19.0%	82.0%	15.0%	3.0%
Strip Mall	10.00	5.00	6.50	16.6%	64.4%	19.0%	45.0%	40.0%	15.0%
City Park	10.00	5.00	6.50	33.0%	48.0%	19.0%	66.0%	28.0%	6.0%

Total Trips

Total Trips = (TripRate weekday x 5 +Trip Sat + Trip Sun)

Average Daily Trips Based on CalEEMod Trip Gen Defaults per land use unit. Total trips Calculated

Land Use	Average Daily Trip Rate			
	weekday	Saturday	Sunday	Total Trips (weekly)
General Office Building	2,667.79	605.32	191.73	**14,135.98**
Manufacturing	528.19	862.85	684.096	**4,187.90**
Research & Development	2,815.00	475.00	277.5	**14,827.50**
Strip Mall	642.64	609.58	296.235	**4,119.02**
City Park	7.39	18.56	20.7393	**76.23**

Trip Length Calc

AVG Trip Length = Link % primary x trip length primary+link % divertedx0.25x length trip primary+link % passbyx0.1

Trip length calculated for each trip type based on trip purpose % and length defaults from CalEEMod

Land Use

	link % primary	trip length primary	link % diverted	Constant (0.25)	trip length primary	link % passby	constant	Trip Length
General Office Building	link % primary	trip length primary	link % diverted	Constant (0.25)	trip length primary	link % passby	constant	Trip Length
H-W or c-w	77.0%	10.00	19.0%	0.25	10	4.0%	0.1	8.2
h-s or c-c	77.0%	5.00	19.0%	0.25	5	4.0%	0.1	4.1
h-o or c-o	77.0%	6.50	19.0%	0.25	6.5	4.0%	0.1	5.3
Manufacturing	link % primary	trip length primary	link % diverted	Constant (0.25)	trip length primary	link % passby	constant	Trip Length
H-W or c-w	92.0%	10.00	5.0%	0.25	10.00	3.0%	0.1	9.3
h-s or c-c	92.0%	5.00	5.0%	0.25	5.00	3.0%	0.1	4.7
h-o or c-o	92.0%	6.50	5.0%	0.25	6.50	3.0%	0.1	6.1
Research & Development	link % primary	trip length primary	link % diverted	Constant (0.25)	trip length primary	link % passby	constant	Trip Length
H-W or c-w	82.0%	10.00	15.0%	0.25	10.00	3.0%	0.1	8.6
h-s or c-c	82.0%	5.00	15.0%	0.25	5.00	3.0%	0.1	4.3
h-o or c-o	82.0%	6.50	15.0%	0.25	6.50	3.0%	0.1	5.6
Strip Mall	link % primary	trip length primary	link % diverted	Constant (0.25)	trip length primary	link % passby	constant	Trip Length
H-W or c-w	45.0%	10.00	40.0%	0.25	10.00	15.0%	0.1	5.5
h-s or c-c	45.0%	5.00	40.0%	0.25	5.00	15.0%	0.1	2.8
h-o or c-o	45.0%	6.50	40.0%	0.25	6.50	15.0%	0.1	3.6
City Park	link % primary	trip length primary	link % diverted	Constant (0.25)	trip length primary	link % passby	constant	Trip Length
H-W or c-w	66.0%	10.00	28.0%	0.25	10.00	6.0%	0.1	7.3
h-s or c-c	66.0%	5.00	28.0%	0.25	5.00	6.0%	0.1	3.7
h-o or c-o	66.0%	6.50	28.0%	0.25	6.50	6.0%	0.1	4.8

VMT Calc Per Land Use Type (Weekly)

VMT = #Trips x AVG Trip Length per land use and trip type

Trip number for each trip type are derived by multiplying the total trips for each land use calculated above in the Total Trip Calcs by the trip % shown in the Trip Type table for each land use

General Office Building	**# trips**	**trip length**	**Weekly VMT**	**Annual VMT**
H-W or c-w	4,665	8.2	38,154	
h-s or c-c	6,785	4.1	27,762	
h-o or c-o	2,686	5.3	14,283	4,170,323.72
Manufacturing				
H-W or c-w	2,471	9.3	23,048	
h-s or c-c	1,173	4.7	5,471	
h-o or c-o	544	6.1	3,302	1,654,670.40
Research & Development				
h-s or c-c	4,893	8.6	41,973	
h-o or c-o	7,117	4.3	30,536	
h-o or c-o	2,817	5.6	15,711	4,587,445.38
Strip Mall				
H-W or c-w	684	5.5	3,771	
h-s or c-c	2,653	2.8	7,335	
h-o or c-o	783	3.6	2,810	723,583.25
City Park				
H-W or c-w	25	7.3	184	
h-s or c-c	37	3.7	134	
h-o or c-o	14	4.8	69	20,092.45
Total VMT			214,541	11,156,115.20

Annual VMT Calc

the calculated weekly VMT for each land use is summed. This value is multiplied by 50 weeks/year to equal the annual VMT number calculated by CalEEMod

Summed Weekly VMT from Each Land Use	214,540.68		
Weeks per Year CalEEMod Uses for Annual VMT	52.00	52.0000	52.14285714
Calculated Annual VMT	**11,156,115**		

CalEEMod VMT Calculator (UNMITIGATED SCENARIO)

This calcultor was created based on the default trip inputs for the unmitigated CalEEMod run. The calculator calculateds the annual VMT from the proposed project using the same methodology from CalEEMod, described in Appendix A, for the UNMITIGATED SCENARIO. This calculator can be used to adjust land use trip rates for the MITIGATED PROJECT scenario which is based on the traffic study conducted for the project

Daily VMT Provided	89571	347	days per year
Annual VMT Provided	23,288,460	https://ww3.arb.ca.gov/cc/inventory/	

Trip Type

CalEEMod defaults based on land uses inputted

Land Use	Miles			Trip %			Trip Purpose		
	H-w or C-W	H-S or C-C	H-O or C-O	H-w or C-W	H-S or C-C	H-O or C-O	Primary	Diverted	Pass-by
General Office Building	11.00	10.00	10.30	33.0%	48.0%	19.0%	100.0%	0.0%	0.0%
Manufacturing	0.00	0.00	0.00	59.0%	28.0%	13.0%	100.0%	0.0%	0.0%
Research & Development	0.00	0.00	0.00	33.0%	48.0%	19.0%	100.0%	0.0%	0.0%
Strip Mall	0.00	0.00	0.00	16.6%	64.4%	19.0%	100.0%	0.0%	0.0%
City Park	0.00	0.00	0.00	33.0%	48.0%	19.0%	100.0%	0.0%	0.0%

Total Trips

Total Trips = (TripRate weekday x 5 +Trip Sat + Trip Sun)

Average Daily Trips Based on CalEEMod Trip Gen Defaults per land use unit. Total trips Calculated

Land Use	Average Daily Trip Rate			
	weekday	Saturday	Sunday	Total Trips (weekly)
General Office Building	8,627.85000	0.00	0.00	**43,139.25**
Manufacturing	0.00	0.00	0.00	**0.00**
Research & Development	0.00	0.00	0.00	**0.00**
Strip Mall	0.00	0.00	0.00	**0.00**
City Park	0.00	0.00	0.00	**0.00**

Trip Length Calc

AVG Trip Length = Link % primary x trip length primary+link % divertedx0.25x length trip primary+link % passbyx0.1

Trip length calculated for each trip type based on trip purpose % and length defaults from CalEEMod

Land Use

	link % primary	trip length primary	link % diverted	Constant (0.25)	trip length primary	link % passby	constant	Trip Length
General Office Building								
H-W or c-w	100.0%	11.00	0.0%	0.25	11	0.0%	0.1	11.0
h-s or c-c	100.0%	10.00	0.0%	0.25	10	0.0%	0.1	10.0
h-o or c-o	100.0%	10.30	0.0%	0.25	10.3	0.0%	0.1	10.3
Manufacturing	link % primary	trip length primary	link % diverted	Constant (0.25)	trip length primary	link % passby	constant	Trip Length
H-W or c-w	100.0%	0.00	0.0%	0.25	0.00	0.0%	0.1	0.0
h-s or c-c	100.0%	0.00	0.0%	0.25	0.00	0.0%	0.1	0.0
h-o or c-o	100.0%	0.00	0.0%	0.25	0.00	0.0%	0.1	0.0
Research & Development	link % primary	trip length primary	link % diverted	Constant (0.25)	trip length primary	link % passby	constant	Trip Length
H-W or c-w	100.0%	0.00	0.0%	0.25	0.00	0.0%	0.1	0.0
h-s or c-c	100.0%	0.00	0.0%	0.25	0.00	0.0%	0.1	0.0
h-o or c-o	100.0%	0.00	0.0%	0.25	0.00	0.0%	0.1	0.0
Strip Mall	link % primary	trip length primary	link % diverted	Constant (0.25)	trip length primary	link % passby	constant	Trip Length
H-W or c-w	100.0%	0.00	0.0%	0.25	0.00	0.0%	0.1	0.0
h-s or c-c	100.0%	0.00	0.0%	0.25	0.00	0.0%	0.1	0.0
h-o or c-o	100.0%	0.00	0.0%	0.25	0.00	0.0%	0.1	0.0
City Park	link % primary	trip length primary	link % diverted	Constant (0.25)	trip length primary	link % passby	constant	Trip Length
H-W or c-w	100.0%	0.00	0.0%	0.25	0.00	0.0%	0.1	0.0
h-s or c-c	100.0%	0.00	0.0%	0.25	0.00	0.0%	0.1	0.0
h-o or c-o	100.0%	0.00	0.0%	0.25	0.00	0.0%	0.1	0.0

VMT Calc Per Land Use Type (Weekly)

VMT = #Trips x AVG Trip Length per land use and trip type

Trip number for each trip type are derived by multiplying the total trips for each land use calculated above in the Total Trip Calcs by the trip % shown in the Trip Type table for each land use

General Office Building	**# trips**	**trip length**	**Weekly VMT**	**Annual VMT**
H-W or c-w	14,236	11.0	156,595	
h-s or c-c	20,707	10.0	207,068	
h-o or c-o	8,196	10.3	84,424	23,300,544.27
Manufacturing				
H-W or c-w	0	0.0	-	
h-s or c-c	0	0.0	-	
h-o or c-o	0	0.0	-	-
Research & Development				
h-s or c-c	0	0.0	-	
h-o or c-o	0	0.0	-	
h-o or c-o	0	0.0	-	-
Strip Mall				
H-W or c-w	0	0.0	-	
h-s or c-c	0	0.0	-	
h-o or c-o	0	0.0	-	-
City Park				
H-W or c-w	0	0.0	-	
h-s or c-c	0	0.0	-	
h-o or c-o	0	0.0	-	-
Total VMT			448,087	23,300,544.27

Annual VMT Calc

the calculated weekly VMT for each land use is summed. This value is multiplied by 50 weeks/year to equal the annual VMT number calculated by CalEEMod

Summed Weekly VMT from Each Land Use	448,087.39		
Weeks per Year CalEEMod Uses for Annual VMT	52.00	52.0000	52.14285714
Calculated Annual VMT	**23,300,544**		

Construction Emissions

UNMITIGATED - Phase I

Construction - Annual

tons/year

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
2023	0.2251	2.0239	1.9758	0.0054	0.5809	0.0753	0.6562	0.2276	0.0698	0.2974
2024	0.4047	3.1740	3.9460	0.0127	0.6471	0.0898	0.7369	0.1758	0.0846	0.2604
2025	0.3709	2.9329	3.7539	0.0121	0.6229	0.0772	0.7001	0.1692	0.0727	0.2419
2026	1.9453	0.1144	0.2215	0.0004	0.0127	0.0055	0.0182	0.0034	0.0051	0.0085
Max	1.9453	3.1740	3.9460	0.0127	0.6471	0.0898	0.7369	0.2276	0.0846	0.2974

tons/year - Rounded

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
2023	0.2	2.0	2.0	0.0	0.6	0.1	0.7	0.2	0.1	0.3
2024	0.4	3.2	3.9	0.0	0.6	0.1	0.7	0.2	0.1	0.3
2025	0.4	2.9	3.8	0.0	0.6	0.1	0.7	0.2	0.1	0.2
2026	1.9	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max	1.9	3.2	3.9	0.0	0.6	0.1	0.7	0.2	0.1	0.3

Construction - Summer

lb/day

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
2023	3.5575	34.5480	33.0467	0.1020	19.7939	1.4253	21.0607	10.1388	1.3113	11.3042
2024	3.3317	23.6589	31.8861	0.1000	5.1082	0.6855	5.7936	1.3834	0.6452	2.0286
2025	3.1205	22.4171	30.8842	0.0981	5.1080	0.5978	5.7058	1.3833	0.5628	1.9462
2026	124.5442	8.5992	14.9111	0.0237	0.7683	0.4190	0.8233	0.2038	0.3855	0.4158
Max	124.5442	34.5480	33.0467	0.1020	19.7939	1.4253	21.0607	10.1388	1.3113	11.3042

Construction - Winter

lb/day

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
2023	3.3814	34.5553	31.4041	0.0981	19.7939	1.4253	21.0607	10.1388	1.3113	11.3042
2024	3.1432	24.5363	30.4214	0.0963	5.1082	0.6860	5.7942	1.3834	0.6458	2.0292
2025	2.9445	23.2657	29.5622	0.0945	5.1080	0.5983	5.7063	1.3833	0.5633	1.9466
2026	124.5133	8.6032	14.8714	0.0236	0.7683	0.4190	0.8233	0.2038	0.3855	0.4158
Max	124.5133	34.5553	31.4041	0.0981	19.7939	1.4253	21.0607	10.1388	1.3113	11.3042

lb/day - Max

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
2023	3.6	34.6	33.0	0.1	19.8	1.4	21.1	10.1	1.3	11.3
2024	3.3	24.5	31.9	0.1	5.1	0.7	5.8	1.4	0.6	2.0
2025	3.1	23.3	30.9	0.1	5.1	0.6	5.7	1.4	0.6	1.9
2026	124.5	8.6	14.9	0.0	0.8	0.4	0.8	0.2	0.4	0.4
Max	124.5	34.6	33.0	0.1	19.8	1.4	21.1	10.1	1.3	11.3

MITGATED Phase I

Operations - Annual

tons/year

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
2023	0.2251	2.0239	1.9758	0.0054	0.3426	0.0753	0.4178	0.1248	0.0698	0.1946
2024	0.4047	3.1740	3.9460	0.0127	0.5991	0.0898	0.6889	0.1640	0.0846	0.2486
2025	0.3709	2.9329	3.7539	0.0121	0.5766	0.0772	0.6539	0.1579	0.0727	0.2305
2026	1.9453	0.1144	0.2215	0.0004	0.0117	0.0055	0.0172	0.0031	0.0051	0.0082
Max	1.9453	3.1740	3.9460	0.0127	0.5991	0.0898	0.6889	0.1640	0.0846	0.2486

tons/year - Rounded

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
2023	0.2	2.0	2.0	0.0	0.3	0.1	0.4	0.1	0.1	0.2
2024	0.4	3.2	3.9	0.0	0.6	0.1	0.7	0.2	0.1	0.2
2025	0.4	2.9	3.8	0.0	0.6	0.1	0.7	0.2	0.1	0.2
2026	1.9	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max	1.9	3.2	3.9	0.0	0.6	0.1	0.7	0.2	0.1	0.2

Construction - Summer

lb/day

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
2023	3.5575	34.5480	33.0467	0.1020	8.9719	1.4253	10.2386	4.5798	1.3113	5.7452
2024	3.3317	23.6589	31.8861	0.1000	4.7263	0.6855	5.4118	1.2897	0.6452	1.9349
2025	3.1205	22.4171	30.8842	0.0981	4.7262	0.5978	5.3240	1.2896	0.5628	1.8524
2026	124.5442	8.5992	14.9111	0.0237	0.7082	0.4190	0.7632	0.1891	0.3855	0.4136
Max	124.54	34.55	33.05	0.10	8.97	1.43	10.24	4.58	1.31	5.75

Construction - Winter

lb/day

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
2023	3.3814	34.5553	31.4041	0.0981	8.9719	1.4253	10.2386	4.5798	1.3113	5.7452
2024	3.1432	24.5363	30.4214	0.0963	4.7263	0.6860	5.4123	1.2897	0.6458	1.9354
2025	2.9445	23.2657	29.5622	0.0945	4.7262	0.5983	5.3245	1.2896	0.5633	1.8529
2026	124.5133	8.6032	14.8714	0.0236	0.7082	0.4190	0.7632	0.1891	0.3855	0.4136
Max	124.51	34.56	31.40	0.10	8.97	1.43	10.24	4.58	1.31	5.75

lb/day - Max

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
2023	3.6	34.6	33.0	0.1	9.0	1.4	10.2	4.6	1.3	5.7
2024	3.3	24.5	31.9	0.1	4.7	0.7	5.4	1.3	0.6	1.9
2025	3.1	23.3	30.9	0.1	4.7	0.6	5.3	1.3	0.6	1.9
2026	124.5	8.6	14.9	0.0	0.7	0.4	0.8	0.2	0.4	0.4
Max	124.5	34.6	33.0	0.1	9.0	1.4	10.2	4.6	1.3	5.7

UNMITIGATED - Phase II

Construction - Annual

tons/year

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
2027	0.2358	1.9771	2.1837	0.0056	0.2708	0.0654	0.3362	0.0758	0.0621	0.1380
2028	1.5059	1.7921	2.1045	0.0054	0.1843	0.0582	0.2425	0.0501	0.0556	0.1057
Max	1.5059	1.9771	2.1837	0.0056	0.2708	0.0654	0.3362	0.0758	0.0621	0.1380

tons/year - Rounded

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
2027	0.2	2.0	2.2	0.0	0.3	0.1	0.3	0.1	0.1	0.1
2028	1.5	1.8	2.1	0.0	0.2	0.1	0.2	0.1	0.1	0.1
Max	1.5	2.0	2.2	0.0	0.3	0.1	0.3	0.1	0.1	0.1

Construction - Summer

lb/day

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
2027	2.0063	15.3611	18.4249	0.0480	7.1587	0.5579	7.6550	3.4449	0.5211	3.9016
2028	135.3998	15.2963	18.2481	0.0475	1.6932	0.4922	2.1853	0.4592	0.4709	0.9300
Max	135.3998	15.3611	18.4249	0.0480	7.1587	0.5579	7.6550	3.4449	0.5211	3.9016

Construction - Winter

lb/day

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
2027	1.9560	15.6409	18.0647	0.0469	7.1587	0.5579	7.6550	3.4449	0.5212	3.9016
2028	135.3910	15.5700	17.9106	0.0464	1.6932	0.4923	2.1854	0.4592	0.4710	0.9302
Max	135.3910	15.6409	18.0647	0.0469	7.1587	0.5579	7.6550	3.4449	0.5212	3.9016

lb/day - Max

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
2027	2.0	15.6	18.4	0.0	7.2	0.6	7.7	3.4	0.5	3.9
2028	135.4	15.6	18.2	0.0	1.7	0.5	2.2	0.5	0.5	0.9
Max	135.4	15.6	18.4	0.0	7.2	0.6	7.7	3.4	0.5	3.9

MITGATED - Phase II

Operations - Annual

tons/year

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
2027	0.2358	1.9771	2.1837	0.0056	0.2044	0.0654	0.2697	0.0569	0.0621	0.1190
2028	1.5059	1.7921	2.1045	0.0054	0.1706	0.0582	0.2289	0.0468	0.0556	0.1024
Max	1.5059	1.9771	2.1837	0.0056	0.2044	0.0654	0.2697	0.0569	0.0621	0.1190

tons/year - Rounded

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
2027	0.2	2.0	2.2	0.0	0.2	0.1	0.3	0.1	0.1	0.1
2028	1.5	1.8	2.1	0.0	0.2	0.1	0.2	0.0	0.1	0.1
Max	1.5	2.0	2.2	0.0	0.2	0.1	0.3	0.1	0.1	0.1

Construction - Summer

lb/day

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
2027	2.0063	15.3611	18.4249	0.0480	3.2573	0.5579	3.7537	1.5599	0.5211	2.0165
2028	135.3998	15.2963	18.2481	0.0475	1.5670	0.4922	2.0591	0.4282	0.4709	0.8991
Max	135.3998	15.3611	18.4249	0.0480	3.2573	0.5579	3.7537	1.5599	0.5211	2.0165

Construction - Winter

lb/day

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
2027	1.9560	15.6409	18.0647	0.0469	3.2573	0.5579	3.7537	1.5599	0.5212	2.0165
2028	135.3910	15.5700	17.9106	0.0464	1.5670	0.4923	2.0593	0.4282	0.4710	0.8992
Max	135.3910	15.6409	18.0647	0.0469	3.2573	0.5579	3.7537	1.5599	0.5212	2.0165

lb/day - Max

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
2027	2.0	15.6	18.4	0.0	3.3	0.6	3.8	1.6	0.5	2.0
2028	135.4	15.6	18.2	0.0	1.6	0.5	2.1	0.4	0.5	0.9
Max	135.4	15.6	18.4	0.0	3.3	0.6	3.8	1.6	0.5	2.0

Operations Emissions

Operations - Annual
tons/year

	ROG	NOx	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
Area	2.9877	0.0001		0.0001	0.0001		0.0001	0.0001
Energy	0.0084	0.0761		0.0058	0.0058		0.0058	0.0058
Mobile	3.0825	4.2206	8.6305	0.0532	8.6836	2.3065	0.0497	2.3561
Total	6.0786	4.2968	8.6305	0.0590	8.6894	2.3065	0.0555	2.3619

tons/year - Rounded

	ROG	NOx	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
Area	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Energy	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Mobile	3.1	4.2	8.6	0.1	8.7	2.3	0.0	2.4
Total	6.1	4.3	8.6	0.1	8.7	2.3	0.1	2.4
SMAQMD Threshold	-	-	-	-	14.6	-	-	15

Operations - Summer
lb/day

	ROG	NOx	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
Area	16.3744	0.0010		0.0004	0.0004		0.0004	0.0004
Energy	0.0459	0.4170		0.0317	0.0317		0.0317	0.0317
Mobile	28.3670	29.7997	68.7417	0.4092	69.1509	18.3196	0.3823	18.7019
Total	44.7873	30.2177	68.7417	0.4413	69.1830	18.3196	0.4144	18.7340

lb/day - Winter

	ROG	NOx	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
Area	16.3744	0.0010		0.0004	0.0004		0.0004	0.0004
Energy	0.0459	0.4170		0.0317	0.0317		0.0317	0.0317
Mobile	23.0444	34.4978	68.7417	0.4095	69.1513	18.3196	0.3826	18.7022
Total	39.4647	34.9158	68.7417	0.4416	69.1834	18.3196	0.4147	18.7343

lb/day - Max

	ROG	NOx	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
Area	16	0	0	0	0	0	0	0
Energy	0	0	0	0	0	0	0	0
Mobile	28	34	69	0	69	18	0	19
Total	44.8	34.9	68.7	0.4	69.2	18.3	0.4	18.7
SMAQMD Threshold	65	65	-	-	80	-	-	82

*Energy emissions are estimated by assuming half of CA DOJ building SF would use natural gas. Therefore, CalEEMod defaults have been divided by 2.

GHG Emissions Inventory

Construction - Unmitigated

		$MTCO_2e$ Total*
Phase 1		
	2023	497
	2024	1,210
	2025	1,154
	2026	36
Phase 2		
	2027	512
	2028	489

*CalEEMod, Version 2020.0.4

Operation*

Proposed			
Area	**0.029200**	$MTCO_2e$/Year**	0.000381%
Electricity	**291**	$MTCO_2e$/Year	3.8%
Natural Gas	**83**	$MTCO_2e$/Year	1.1%
Mobile	**7,163**	$MTCO_2e$/Year	93.6%
Solid Waste	**230**	$MTCO_2e$/Year	3.0%
Water	**174**	$MTCO_2e$/Year	2.3%
EVSE	**-285**	$MTCO_2e$/Year	-3.7%
Total	**7,655**	**$MTCO_2e$/Year**	103.7%

EVSE Emissions

	EV Chargers		
1	Number of Parking Spaces with EV Chargers	71	From calcualted number of electrically connected parking spaces
2	Connections per Charging Station	1	2 Connections at each charging station
3	Average Charging Hours per Connection per Day	3	Note 1
4	Average Total Hours Charging per year for all Connections	55,380	Item 1 * Item 2 * Item 3 * 260
5	Typical Average Charging Rate (kWh/hr)	6	Note 2
6	Total kWh charged per year	332,280	Item 4 * Item 5
7	Total MWh charged per year	332	Item 6 / 1000
8	**Public Charging Stations**		
9	Average Efficiency of EV LDV (kWh/100 mi)	34.0	Note 3
10	Average Efficiency of EV LDV (miles per kWh)	2.9	100 mi / Item 9
11	Number of Equivalent Miles Charged per year (gasoline miles avoided)	977,294	Item 6 * Item 10
12			
13	SMUD CO2 intensity in 2028 (lbs/MWh)	93.0	Note 4
14			
15	CO2 running emission factor for gasoline vehicles in 2035 (g/mi)	306.3	Note 5
16			
17	Annual CO2 Emissions Saved through Charging (tons per year)	330.0	Item 11 * Item 15 converted to tons
18	Annual CO2 Emissions Saved through Charging (metric tons per year)	299.4	Convert Item 17 to metric tons
19	Annual CO2 Emissions from Electricity required to charge (metric tons per year)	14.0	Item 7 * Item 13 converted to metric tons
20	**Net Annual CO2 Emissions Saved (metric tons per year)**	**285.4**	Item 18 minus Item 19

Construction EVSE Emissions

	EV Chargers		
1	Number of Parking Spaces with EV Chargers	3	From calcualted number of electrically connected parking spaces
2	Connections per Charging Station	1	2 Connections at each charging station
3	Average Charging Hours per Connection per Day	3	Note 1
4	Average Total Hours Charging per year for all Connections	2,340	Item 1 * Item 2 * Item 3 * 260
5	Typical Average Charging Rate (kWh/hr)	6	Note 2
6	Total kWh charged per year	14,040	Item 4 * Item 5
	Total kWh charged over 20-year charging lifespan	280,800	
7	Total MWh charged per year	14	Item 6 / 1000
8	**Public Charging Stations**		
9	Average Efficiency of EV LDV (kWh/100 mi)	34.0	Note 3
10	Average Efficiency of EV LDV (miles per kWh)	2.9	100 mi / Item 9
11	Number of Equivalent Miles Charged per year (gasoline miles avoided)	41,294	Item 6 * Item 10
12			
13	SMUD CO2 intensity in 2028 (lbs/MWh)	93.0	Note 4
14			
15	CO2 running emission factor for gasoline vehicles in 2028 (g/mi)	306.1	Note 5
16			
17	Annual CO2 Emissions Saved through Charging (tons per year)	13.9	Item 11 * Item 15 converted to tons
18	Annual CO2 Emissions Saved through Charging (metric tons per year)	12.6	Convert Item 17 to metric tons
19	Annual CO2 Emissions from Electricity required to charge (metric tons per year)	0.6	Item 7 * Item 13 converted to metric tons
20	**Net Annual CO2 Emissions Saved (metric tons per year)**	**12.0**	Item 18 minus Item 19
21	**Net Annual CO2 Emissions Saved (metric tons over 20-year charger lifespan)**	**241.0**	

Off-Model Electricity Calculations

All buildings, with the exception of some natural gas use for the laboratory building, would be all-electric. Natural gas demand for the lab building was obtained from nonresidential non-title 24 KBTU/yr values in CalEEMod. Project-specific energy use was available by building, except for the retail use. CalEEMod natural gas default demand was converted to electricty for the retail use.

Project Land Uses

1. Electricity

	KWH/YR*	**MWH/YR**	**lb/CO2**	**lb/CH4**	**lb/N2O**	**lb/CO2e**	**MT/CO2e**
California Mobility Center							
Showcase Building	380,059	380	35,361	3.80	0	35,456	16
Factory	1,300,645	1,301	121,012	13.01	0	124,888	57
Surface Parking	141,853	142	13,198	1.42	0	13,198	6
CA Department of Justice							
CA DOJ Consolidated Facility Building	4,032,258	4,032	375,161	40.32	0	375,161	170
Future User #1							
Office/Academic	2,392,962	2,393	222,641	23.93	0	222,641	101
Retail (strip mall in CalEEMod)**	185,511	186	17,260	1.86	0	17,260	8
Structured Parking **	469,795	470	43,710	4.70	0	43,710	20
Future User #2							
Office/Academic	609,971	610	56,752	6.10	0	56,752	26
Site							
Surface Parking	22,111	22	2,057	0.22	0	2,057	1
	9,535,165	9,535	887,152	95.35	0	891,123	**404**
With Solar***	6,888,093.8	6,888	640,868	68.88		640,868	291

Notes

*Annual electricity demand for all uses except retail were provided by CSU (See Project Elec. Demand Tab). For the retail use, default CalEEMod energy (electricity + NG) rates were used.

**NG demand was converted to electricity using default NG demand from CaLEEMod. Solar assumptions are 81250 SF of PV that generate

2. Natural Gas

	Non-T24 KBTU/YR/SF	**Size (SF)**	**KBTU/Yr**	**MMBTU/YR**	**lb/CO2**	**lb/CH4**	**lb/N2O**	**MT/CO2e**
DOJ Consolidated Facililty Building (R&D in CalEEMod)*	12.42	125,000	1,552,500	1,553	182647.0591	3.50073225	3.348525	82.84
			455011.7233	455.011723				

*the only natural gas use would be associated with the DOJ Consolidated Facility Building, represented as R&D in CalEEMod. Non Title 24 NG rates were used to estimate NG demand.

**CalEEMod Appendix D, Climate Zone 6

Energy Proportions

	MWh/yr	%
Electricity	6,888	94%
Natural Gas Converted to Electricity	455	6%
Total	7,343	100%

Emission and Conversion Factors

Natural Gas	**lb/MMBTU**
CO2 NBIO	117.647059
CH4	0.0022549
N20	0.00215686
Electricity	
SMUD Intensity Factors (lb/MWh)	**lb/MWh**
CO2	93.04
CH4	0.01
N2O	0
Converions	
kWh/kBTU	3.412
kWh/MWh	1000
lb/MT	2205
IPCC Fourth Assessment Report (Avg)	
CO2	1
CH4	25
N2O	298

The Hub - Sacramento State Research Park
Development Concepte - Estimated Annual Energy Use

	# Stories	Total Area (GSF)	Site EUI (kbtu/sf-yr)	Anticipated Solar (Area)	Anticipated Solar (kw)	Anticipated Solar (kwh)	Annual Gross Energy (kbtu/sf-yr)	Annual Gross Energy (kwh)	Annual Net Energy (kwh)
California Mobility Center									
Showcase Building	1	32,400	40	5,250	92	116,147	1,296,000	380,059	263,912
Factory	1	134,400	33	35,000	616	774,312	4,435,200	1,300,645	526,333
Surface Parking **	1	166,800	2.9	41,000	722	907,051	483,720	141,853	(765,198)
CA Department of Justice							-	-	-
CA DOJ Consolidated Facility Building	5	250,000	55.0		None		13,750,000	4,032,258	4,032,258
Future User #1							-	-	-
Office/Academic	3	204,000	40		None		8,160,000	2,392,962	2,392,962
Structured Parking **	NA	180,000	8.9				1,602,000	469,795	469,795
Future User #2							-	-	-
Office/Academic	2	52,000	40		None		2,080,000	609,971	609,971
Site								-	-
Surface Parking **	NA	26,000	2.9		None		75,400	22,111	22,111
								Total	**7,552,144**

2022 Title 24 Compliance		
Phase 1 Solar Requirement (kWPV)	1,256	
Phase 2 Solar Requirement (kWPV)	850	
Total (kWPV Required)	**2,106**	
Project (kWPV)	1,430	
Needed (kWPV)	676	
Additional SF	38,401	
Total SF	**119,651**	
Project kWh	1,797,510	
Needed KWh	849,561	
Total kWh	**2,647,071**	
PV Capacity Factor	3.13	Climate zone12: CEC 2022 Title 24
Energy Conversion Factors	3.41	btuh/watt
Assumed Solar Efficiency	17.6	watts/sf (premium panels assumed)
Assumed Solar Generation	1257	Kwh/yer per nominal installed Kw

** Per Energy star, parking lot ligting is 0.30 w/sf for enclosed and 0.15 w/sf for open. When lighting and ventilation are considereder, enclosed lots aer 8.9 EUI and open lots are 2.9 EUI.
https://www.energystar.gov/sites/default/files/tools/Parking_August_2018_EN_508.pdf?6f81-cd61

Emissions Factors

Year	Fuel Type	Utility (if applicable)	Percent GHG-Free	Unit	MT CO2 per unit	MT CH4 per unit	MT N2O per unit	MTCO2e per unit	MT CO2 per kBTU	MT CH4 per kBTU	MT N2O per kBTU
2009	Electricity	eGRID CAMX		MWh	4.11E-01	2.30E-05	3.31E-06	4.13E-01	1.21E-04	6.73E-09	9.70E-10
2010	Electricity	eGRID CAMX	55%	MWh	3.97E-01	2.38E-05	3.45E-06	3.98E-01	1.16E-04	6.98E-09	1.01E-09
2011	Electricity	eGRID CAMX	55%	MWh	3.97E-01	2.38E-05	3.45E-06	3.98E-01	1.16E-04	6.98E-09	1.01E-09
2012	Electricity	eGRID CAMX	62%	MWh	4.00E-01	2.31E-05	3.13E-06	4.01E-01	1.17E-04	6.77E-09	9.17E-10
2013	Electricity	eGRID CAMX	62%	MWh	4.00E-01	2.31E-05	3.13E-06	4.01E-01	1.17E-04	6.77E-09	9.17E-10
2014	Electricity	eGRID CAMX	62%	MWh	3.83E-01	2.35E-05	2.86E-06	3.85E-01	1.12E-04	6.87E-09	8.37E-10
2015	Electricity	eGRID CAMX	62%	MWh	3.83E-01	2.35E-05	2.86E-06	3.85E-01	1.12E-04	6.87E-09	8.37E-10
2016	Electricity	eGRID CAMX	50%	MWh	2.05E-01	1.18E-05	1.36E-06	2.06E-01	6.02E-05	3.46E-09	3.99E-10
2017	Electricity	eGRID CAMX	50%	MWh	2.05E-01	1.18E-05	1.36E-06	2.06E-01	6.02E-05	3.46E-09	3.99E-10
2018	Electricity	eGRID CAMX	50%	MWh	2.25E-01	1.54E-05	1.81E-06	2.26E-01	6.60E-05	4.52E-09	5.32E-10
2019	Electricity	eGRID CAMX	52%	MWh	2.06E-01	1.50E-05	1.81E-06	2.06E-01	6.02E-05	4.39E-09	5.32E-10
2020	Electricity	eGRID CAMX	54%	MWh	1.98E-01	1.44E-05	1.74E-06	1.99E-01	5.79E-05	4.22E-09	5.11E-10
2021	Electricity	eGRID CAMX	56%	MWh	1.90E-01	1.38E-05	1.67E-06	1.91E-01	5.56E-05	4.05E-09	4.91E-10
2022	Electricity	eGRID CAMX	58%	MWh	1.82E-01	1.32E-05	1.61E-06	1.83E-01	5.33E-05	3.88E-09	4.70E-10
2023	Electricity	eGRID CAMX	60%	MWh	1.74E-01	1.27E-05	1.54E-06	1.75E-01	5.10E-05	3.71E-09	4.50E-10
2024	Electricity	eGRID CAMX	61%	MWh	1.66E-01	1.21E-05	1.47E-06	1.67E-01	4.87E-05	3.54E-09	4.29E-10
2025	Electricity	eGRID CAMX	63%	MWh	1.58E-01	1.15E-05	1.40E-06	1.59E-01	4.63E-05	3.37E-09	4.09E-10
2026	Electricity	eGRID CAMX	65%	MWh	1.50E-01	1.09E-05	1.33E-06	1.51E-01	4.40E-05	3.21E-09	3.89E-10
2027	Electricity	eGRID CAMX	67%	MWh	1.42E-01	1.04E-05	1.26E-06	1.43E-01	4.17E-05	3.04E-09	3.68E-10
2028	Electricity	eGRID CAMX	69%	MWh	1.34E-01	9.79E-06	1.19E-06	1.35E-01	3.94E-05	2.87E-09	3.48E-10
2029	Electricity	eGRID CAMX	71%	MWh	1.27E-01	9.21E-06	1.12E-06	1.27E-01	3.71E-05	2.70E-09	3.27E-10
2030	Electricity	eGRID CAMX	72%	MWh	1.19E-01	8.64E-06	1.05E-06	1.19E-01	3.48E-05	2.53E-09	3.07E-10
2031	Electricity	eGRID CAMX	74%	MWh	1.11E-01	8.06E-06	9.77E-07	1.11E-01	3.24E-05	2.36E-09	2.86E-10
2032	Electricity	eGRID CAMX	76%	MWh	1.03E-01	7.48E-06	9.07E-07	1.03E-01	3.01E-05	2.19E-09	2.66E-10
2033	Electricity	eGRID CAMX	78%	MWh	9.49E-02	6.91E-06	8.37E-07	9.53E-02	2.78E-05	2.02E-09	2.45E-10
2034	Electricity	eGRID CAMX	80%	MWh	8.70E-02	6.33E-06	7.68E-07	8.74E-02	2.55E-05	1.86E-09	2.25E-10
2035	Electricity	eGRID CAMX	82%	MWh	7.91E-02	5.76E-06	6.98E-07	7.94E-02	2.32E-05	1.69E-09	2.05E-10
2036	Electricity	eGRID CAMX	83%	MWh	7.12E-02	5.18E-06	6.28E-07	7.15E-02	2.09E-05	1.52E-09	1.84E-10
2037	Electricity	eGRID CAMX	85%	MWh	6.33E-02	4.61E-06	5.58E-07	6.35E-02	1.85E-05	1.35E-09	1.64E-10
2038	Electricity	eGRID CAMX	87%	MWh	5.53E-02	4.03E-06	4.88E-07	5.56E-02	1.62E-05	1.18E-09	1.43E-10
2039	Electricity	eGRID CAMX	89%	MWh	4.74E-02	3.45E-06	4.19E-07	4.77E-02	1.39E-05	1.01E-09	1.23E-10
2040	Electricity	eGRID CAMX	91%	MWh	3.95E-02	2.88E-06	3.49E-07	3.97E-02	1.16E-05	8.44E-10	1.02E-10
2041	Electricity	eGRID CAMX	93%	MWh	3.16E-02	2.30E-06	2.79E-07	3.18E-02	9.27E-06	6.75E-10	8.18E-11
2042	Electricity	eGRID CAMX	94%	MWh	2.37E-02	1.73E-06	2.09E-07	2.38E-02	6.95E-06	5.06E-10	6.14E-11
2043	Electricity	eGRID CAMX	96%	MWh	1.58E-02	1.15E-06	1.40E-07	1.59E-02	4.63E-06	3.37E-10	4.09E-11
2044	Electricity	eGRID CAMX	98%	MWh	7.91E-03	5.76E-07	6.98E-08	7.94E-03	2.32E-06	1.69E-10	2.05E-11
2045	Electricity	eGRID CAMX	100%	MWh	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2016	Electricity	SMUD	43%	MWh	3.05E-01	1.18E-05	1.36E-06	3.06E-01	8.94E-05	3.46E-09	3.99E-10
2017	Electricity	SMUD	54%	MWh	2.33E-01	1.18E-05	1.36E-06	2.34E-01	6.84E-05	3.46E-09	3.99E-10
2018	Electricity	SMUD	36%	MWh	2.39E-01	1.54E-05	1.81E-06	2.40E-01	7.02E-05	4.52E-09	5.32E-10
2019	Electricity	SMUD	69%	MWh	0.232101704	1.49685E-05	1.81437E-06	0.233014649	6.80E-05	4.39E-09	5.32E-10
2020	Electricity	SMUD	72%	MWh	2.11E-01	1.36E-05	1.65E-06	2.12E-01	6.18E-05	3.99E-09	4.83E-10
2021	Electricity	SMUD	75%	MWh	1.90E-01	1.22E-05	1.48E-06	1.91E-01	5.57E-05	3.59E-09	4.35E-10
2022	Electricity	SMUD	78%	MWh	1.69E-01	1.09E-05	1.32E-06	1.69E-01	4.95E-05	3.19E-09	3.87E-10
2023	Electricity	SMUD	81%	MWh	1.48E-01	9.53E-06	1.15E-06	1.48E-01	4.33E-05	2.79E-09	3.38E-10
2024	Electricity	SMUD	83%	MWh	1.27E-01	8.16E-06	9.90E-07	1.27E-01	3.71E-05	2.39E-09	2.90E-10
2025	Electricity	SMUD	86%	MWh	1.06E-01	6.80E-06	8.25E-07	1.06E-01	3.09E-05	1.99E-09	2.42E-10
2026	Electricity	SMUD	89%	MWh	8.44E-02	5.44E-06	6.60E-07	8.47E-02	2.47E-05	1.60E-09	1.93E-10
2027	Electricity	SMUD	92%	MWh	6.33E-02	4.08E-06	4.95E-07	6.35E-02	1.86E-05	1.20E-09	1.45E-10
2028	Electricity	SMUD	94%	MWh	4.22E-02	2.72E-06	3.30E-07	4.24E-02	1.24E-05	7.98E-10	9.67E-11
2029	Electricity	SMUD	97%	MWh	2.11E-02	1.36E-06	1.65E-07	2.12E-02	6.18E-06	3.99E-10	4.83E-11
2030	Electricity	SMUD	100%	MWh	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2031	Electricity	SMUD	100%	MWh	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2032	Electricity	SMUD	100%	MWh	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2033	Electricity	SMUD	100%	MWh	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2034	Electricity	SMUD	100%	MWh	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2035	Electricity	SMUD	100%	MWh	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2036	Electricity	SMUD	100%	MWh	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2037	Electricity	SMUD	100%	MWh	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2038	Electricity	SMUD	100%	MWh	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2039	Electricity	SMUD	100%	MWh	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2040	Electricity	SMUD	100%	MWh	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2041	Electricity	SMUD	100%	MWh	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2042	Electricity	SMUD	100%	MWh	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2043	Electricity	SMUD	100%	MWh	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2044	Electricity	SMUD	100%	MWh	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2045	Electricity	SMUD	100%	MWh	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2050	Electricity	SMUD	100%	MWh	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

CSUS The Hub Construction Phase 1 - Sacramento County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

CSUS The Hub Construction Phase 1

Sacramento County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	32.40	1000sqft	0.50	32,400.00	0
Research & Development	250.00	1000sqft	1.15	250,000.00	0
Manufacturing	118.80	1000sqft	2.73	118,800.00	0
Other Non-Asphalt Surfaces	3.00	Acre	3.00	130,680.00	0
Other Non-Asphalt Surfaces	2.08	Acre	2.08	90,604.80	0
Parking Lot	72.00	1000sqft	1.65	72,000.00	0
Parking Lot	140.00	1000sqft	3.21	140,000.00	0
Parking Lot	26.00	1000sqft	0.60	26,000.00	0
City Park	9.47	Acre	9.47	412,513.20	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2028
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	93.04	**CH4 Intensity (lb/MWhr)**	0	**N2O Intensity (lb/MWhr)**	0

1.3 User Entered Comments & Non-Default Data

Project Characteristics - SMUD Invensity Factors adjusted accoding to RPS.

Land Use - Lot acreage adjusted according to FGSF

CSUS The Hub Construction Phase 1 - Sacramento County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Construction Phase - Adjusted based on 33 month schedule

Grading -

Construction Off-road Equipment Mitigation - Clean Paved Road % PM Reduction - SCAQMD Rule 1186

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	9
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	20.00	31.00
tblConstructionPhase	NumDays	370.00	581.00
tblConstructionPhase	NumDays	35.00	55.00
tblConstructionPhase	NumDays	20.00	31.00
tblConstructionPhase	NumDays	10.00	16.00
tblConstructionPhase	PhaseEndDate	3/18/2025	3/16/2026
tblConstructionPhase	PhaseEndDate	1/21/2025	12/18/2025
tblConstructionPhase	PhaseEndDate	8/22/2023	9/27/2023
tblConstructionPhase	PhaseEndDate	2/18/2025	1/30/2026
tblConstructionPhase	PhaseEndDate	7/4/2023	7/12/2023
tblConstructionPhase	PhaseStartDate	2/19/2025	2/2/2026
tblConstructionPhase	PhaseStartDate	8/23/2023	9/28/2023
tblConstructionPhase	PhaseStartDate	7/5/2023	7/13/2023
tblConstructionPhase	PhaseStartDate	1/22/2025	12/19/2025
tblLandUse	LotAcreage	0.74	0.50
tblLandUse	LotAcreage	5.74	1.15
tblProjectCharacteristics	CH4IntensityFactor	0.033	0
tblProjectCharacteristics	CO2IntensityFactor	357.98	93.04
tblProjectCharacteristics	N2OIntensityFactor	0.004	0

2.0 Emissions Summary

CSUS The Hub Construction Phase 1 - Sacramento County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule 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	0.2251	2.0239	1.9758	5.3700e-003	0.5809	0.0753	0.6562	0.2276	0.0698	0.2974	0.0000	488.2043	488.2043	0.0821	0.0220	496.8209
2024	0.4047	3.1740	3.9460	0.0127	0.6471	0.0898	0.7369	0.1758	0.0846	0.2604	0.0000	1,182.6703	1,182.6703	0.0952	0.0836	1,209.9736
2025	0.3709	2.9329	3.7539	0.0121	0.6229	0.0772	0.7001	0.1692	0.0727	0.2419	0.0000	1,128.4548	1,128.4548	0.0929	0.0785	1,154.1702
2026	1.9453	0.1144	0.2215	4.0000e-004	0.0127	5.4600e-003	0.0182	3.3800e-003	5.0900e-003	8.4700e-003	0.0000	35.4492	35.4492	7.5800e-003	2.4000e-004	35.7099
Maximum	**1.9453**	**3.1740**	**3.9460**	**0.0127**	**0.6471**	**0.0898**	**0.7369**	**0.2276**	**0.0846**	**0.2974**	**0.0000**	**1,182.6703**	**1,182.6703**	**0.0952**	**0.0836**	**1,209.9736**

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	0.2251	2.0239	1.9758	5.3700e-003	0.3426	0.0753	0.4178	0.1248	0.0698	0.1946	0.0000	488.2040	488.2040	0.0821	0.0220	496.8206
2024	0.4047	3.1740	3.9460	0.0127	0.5991	0.0898	0.6889	0.1640	0.0846	0.2486	0.0000	1,182.6699	1,182.6699	0.0952	0.0836	1,209.9733

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2025	0.3709	2.9329	3.7539	0.0121	0.5766	0.0772	0.6539	0.1579	0.0727	0.2305	0.0000	1,128.4545	1,128.4545	0.0929	0.0785	1,154.1698
2026	1.9453	0.1144	0.2215	4.0000e-004	0.0117	5.4600e-003	0.0172	3.1400e-003	5.0900e-003	8.2300e-003	0.0000	35.4492	35.4492	7.5800e-003	2.4000e-004	35.7098
Maximum	**1.9453**	**3.1740**	**3.9460**	**0.0127**	**0.5991**	**0.0898**	**0.6889**	**0.1640**	**0.0846**	**0.2486**	**0.0000**	**1,182.6699**	**1,182.6699**	**0.0952**	**0.0836**	**1,209.9733**

	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**	**17.90**	**0.00**	**15.80**	**21.91**	**0.00**	**15.62**	**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)
1	**6-21-2023**	**9-20-2023**	1.1863	1.1863
2	**9-21-2023**	**12-20-2023**	0.9684	0.9684
3	**12-21-2023**	**3-20-2024**	0.9053	0.9053
4	**3-21-2024**	**6-20-2024**	0.8895	0.8895
5	**6-21-2024**	**9-20-2024**	0.8868	0.8868
6	**9-21-2024**	**12-20-2024**	0.8971	0.8971
7	**12-21-2024**	**3-20-2025**	0.8482	0.8482
8	**3-21-2025**	**6-20-2025**	0.8417	0.8417
9	**6-21-2025**	**9-20-2025**	0.8391	0.8391
10	**9-21-2025**	**12-20-2025**	0.8379	0.8379
11	**12-21-2025**	**3-20-2026**	2.0787	2.0787
		Highest	2.0787	2.0787

3.0 Construction Detail

Construction Phase

CSUS The Hub Construction Phase 1 - Sacramento County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	6/21/2023	7/12/2023	5	16	
2	Grading	Grading	7/13/2023	9/27/2023	5	55	
3	Building Construction	Building Construction	9/28/2023	12/18/2025	5	581	
4	Paving	Paving	12/19/2025	1/30/2026	5	31	
5	Architectural Coating	Architectural Coating	2/2/2026	3/16/2026	5	31	

Acres of Grading (Site Preparation Phase): 24

Acres of Grading (Grading Phase): 165

Acres of Paving: 10.54

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 601,800; Non-Residential Outdoor: 200,600; Striped Parking Area: 27,557

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Building Construction	Cranes	1	7.00	231	0.29
Grading	Excavators	2	8.00	158	0.38
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Grading	Graders	1	8.00	187	0.41
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	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	Rubber Tired Dozers	3	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37

CSUS The Hub Construction Phase 1 - Sacramento County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Building Construction	Welders	1	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
Architectural Coating	1	101.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	506.00	209.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.00	6.50	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					0.1573	0.0000	0.1573	0.0808	0.0000	0.0808	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

CSUS The Hub Construction Phase 1 - Sacramento County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Off-Road	0.0213	0.2202	0.1460	3.0000e-004		0.0101	0.0101		9.3200e-003	9.3200e-003	0.0000	26.7606	26.7606	8.6500e-003	0.0000	26.9769
Total	**0.0213**	**0.2202**	**0.1460**	**3.0000e-004**	**0.1573**	**0.0101**	**0.1674**	**0.0808**	**9.3200e-003**	**0.0901**	**0.0000**	**26.7606**	**26.7606**	**8.6500e-003**	**0.0000**	**26.9769**

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	4.1000e-004	2.6000e-004	3.3600e-003	1.0000e-005	1.0600e-003	1.0000e-005	1.0600e-003	2.8000e-004	1.0000e-005	2.9000e-004	0.0000	0.8484	0.8484	3.0000e-005	2.0000e-005	0.8563
Total	**4.1000e-004**	**2.6000e-004**	**3.3600e-003**	**1.0000e-005**	**1.0600e-003**	**1.0000e-005**	**1.0600e-003**	**2.8000e-004**	**1.0000e-005**	**2.9000e-004**	**0.0000**	**0.8484**	**0.8484**	**3.0000e-005**	**2.0000e-005**	**0.8563**

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					

CSUS The Hub Construction Phase 1 - Sacramento County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Fugitive Dust					0.0708	0.0000	0.0708	0.0364	0.0000	0.0364	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0213	0.2202	0.1460	3.0000e-004		0.0101	0.0101		9.3200e-003	9.3200e-003	0.0000	26.7605	26.7605	8.6500e-003	0.0000	26.9769
Total	**0.0213**	**0.2202**	**0.1460**	**3.0000e-004**	**0.0708**	**0.0101**	**0.0809**	**0.0364**	**9.3200e-003**	**0.0457**	**0.0000**	**26.7605**	**26.7605**	**8.6500e-003**	**0.0000**	**26.9769**

<u>Mitigated Construction Off-Site</u>

	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	4.1000e-004	2.6000e-004	3.3600e-003	1.0000e-005	9.8000e-004	1.0000e-005	9.8000e-004	2.6000e-004	1.0000e-005	2.7000e-004	0.0000	0.8484	0.8484	3.0000e-005	2.0000e-005	0.8563
Total	**4.1000e-004**	**2.6000e-004**	**3.3600e-003**	**1.0000e-005**	**9.8000e-004**	**1.0000e-005**	**9.8000e-004**	**2.6000e-004**	**1.0000e-005**	**2.7000e-004**	**0.0000**	**0.8484**	**0.8484**	**3.0000e-005**	**2.0000e-005**	**0.8563**

3.3 Grading - 2023

<u>Unmitigated Construction On-Site</u>

	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

Date: 9/28/2021 9:33 AM

CSUS The Hub Construction Phase 1 - Sacramento County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Category	tons/yr										MT/yr					
Fugitive Dust					0.2531	0.0000	0.2531	0.1005	0.0000	0.1005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0914	0.9492	0.7714	1.7100e-003		0.0392	0.0392		0.0360	0.0360	0.0000	149.9718	149.9718	0.0485	0.0000	151.1844
Total	**0.0914**	**0.9492**	**0.7714**	**1.7100e-003**	**0.2531**	**0.0392**	**0.2923**	**0.1005**	**0.0360**	**0.1365**	**0.0000**	**149.9718**	**149.9718**	**0.0485**	**0.0000**	**151.1844**

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	1.5800e-003	9.8000e-004	0.0128	3.0000e-005	4.0400e-003	2.0000e-005	4.0600e-003	1.0700e-003	2.0000e-005	1.0900e-003	0.0000	3.2405	3.2405	1.0000e-004	9.0000e-005	3.2707
Total	**1.5800e-003**	**9.8000e-004**	**0.0128**	**3.0000e-005**	**4.0400e-003**	**2.0000e-005**	**4.0600e-003**	**1.0700e-003**	**2.0000e-005**	**1.0900e-003**	**0.0000**	**3.2405**	**3.2405**	**1.0000e-004**	**9.0000e-005**	**3.2707**

Mitigated Construction On-Site

CSUS The Hub Construction Phase 1 - Sacramento County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule 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					
Fugitive Dust					0.1139	0.0000	0.1139	0.0452	0.0000	0.0452	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0914	0.9492	0.7714	1.7100e-003		0.0392	0.0392		0.0360	0.0360	0.0000	149.9717	149.9717	0.0485	0.0000	151.1842
Total	**0.0914**	**0.9492**	**0.7714**	**1.7100e-003**	**0.1139**	**0.0392**	**0.1531**	**0.0452**	**0.0360**	**0.0813**	**0.0000**	**149.9717**	**149.9717**	**0.0485**	**0.0000**	**151.1842**

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	1.5800e-003	9.8000e-004	0.0128	3.0000e-005	3.7300e-003	2.0000e-005	3.7500e-003	1.0000e-003	2.0000e-005	1.0200e-003	0.0000	3.2405	3.2405	1.0000e-004	9.0000e-005	3.2707
Total	**1.5800e-003**	**9.8000e-004**	**0.0128**	**3.0000e-005**	**3.7300e-003**	**2.0000e-005**	**3.7500e-003**	**1.0000e-003**	**2.0000e-005**	**1.0200e-003**	**0.0000**	**3.2405**	**3.2405**	**1.0000e-004**	**9.0000e-005**	**3.2707**

3.4 Building Construction - 2023

Unmitigated Construction On-Site

CSUS The Hub Construction Phase 1 - Sacramento County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule 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					
Off-Road	0.0527	0.4819	0.5442	9.0000e-004		0.0234	0.0234		0.0221	0.0221	0.0000	77.6546	77.6546	0.0185	0.0000	78.1164
Total	**0.0527**	**0.4819**	**0.5442**	**9.0000e-004**		**0.0234**	**0.0234**		**0.0221**	**0.0221**	**0.0000**	**77.6546**	**77.6546**	**0.0185**	**0.0000**	**78.1164**

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	9.1300e-003	0.3413	0.1029	1.3300e-003	0.0410	1.8200e-003	0.0428	0.0119	1.7400e-003	0.0136	0.0000	129.8563	129.8563	3.2000e-003	0.0191	135.6145
Worker	0.0486	0.0301	0.3952	1.0800e-003	0.1245	6.6000e-004	0.1252	0.0331	6.1000e-004	0.0337	0.0000	99.8721	99.8721	3.1600e-003	2.8500e-003	100.8017
Total	**0.0578**	**0.3714**	**0.4981**	**2.4100e-003**	**0.1655**	**2.4800e-003**	**0.1680**	**0.0450**	**2.3500e-003**	**0.0473**	**0.0000**	**229.7284**	**229.7284**	**6.3600e-003**	**0.0219**	**236.4162**

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	0.0527	0.4819	0.5442	9.0000e-004		0.0234	0.0234		0.0221	0.0221	0.0000	77.6545	77.6545	0.0185	0.0000	78.1163
Total	**0.0527**	**0.4819**	**0.5442**	**9.0000e-004**		**0.0234**	**0.0234**		**0.0221**	**0.0221**	**0.0000**	**77.6545**	**77.6545**	**0.0185**	**0.0000**	**78.1163**

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	9.1300e-003	0.3413	0.1029	1.3300e-003	0.0384	1.8200e-003	0.0402	0.0112	1.7400e-003	0.0130	0.0000	129.8563	129.8563	3.2000e-003	0.0191	135.6145
Worker	0.0486	0.0301	0.3952	1.0800e-003	0.1148	6.6000e-004	0.1155	0.0307	6.1000e-004	0.0314	0.0000	99.8721	99.8721	3.1600e-003	2.8500e-003	100.8017
Total	**0.0578**	**0.3714**	**0.4981**	**2.4100e-003**	**0.1532**	**2.4800e-003**	**0.1557**	**0.0419**	**2.3500e-003**	**0.0443**	**0.0000**	**229.7284**	**229.7284**	**6.3600e-003**	**0.0219**	**236.4162**

3.4 Building Construction - 2024

Unmitigated Construction On-Site

CSUS The Hub Construction Phase 1 - Sacramento County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule 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					
Off-Road	0.1928	1.7611	2.1179	3.5300e-003		0.0803	0.0803		0.0756	0.0756	0.0000	303.7223	303.7223	0.0718	0.0000	305.5179
Total	**0.1928**	**1.7611**	**2.1179**	**3.5300e-003**		**0.0803**	**0.0803**		**0.0756**	**0.0756**	**0.0000**	**303.7223**	**303.7223**	**0.0718**	**0.0000**	**305.5179**

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	0.0342	1.3082	0.3898	5.1200e-003	0.1603	7.0100e-003	0.1673	0.0463	6.7000e-003	0.0530	0.0000	498.1522	498.1522	0.0122	0.0733	520.2870
Worker	0.1778	0.1047	1.4383	4.0700e-003	0.4868	2.4800e-003	0.4893	0.1295	2.2800e-003	0.1318	0.0000	380.7958	380.7958	0.0112	0.0104	384.1688
Total	**0.2119**	**1.4129**	**1.8281**	**9.1900e-003**	**0.6471**	**9.4900e-003**	**0.6566**	**0.1758**	**8.9800e-003**	**0.1848**	**0.0000**	**878.9480**	**878.9480**	**0.0234**	**0.0836**	**904.4558**

Mitigated Construction On-Site

CSUS The Hub Construction Phase 1 - Sacramento County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule 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					
Off-Road	0.1928	1.7611	2.1179	3.5300e-003		0.0803	0.0803		0.0756	0.0756	0.0000	303.7220	303.7220	0.0718	0.0000	305.5175
Total	**0.1928**	**1.7611**	**2.1179**	**3.5300e-003**		**0.0803**	**0.0803**		**0.0756**	**0.0756**	**0.0000**	**303.7220**	**303.7220**	**0.0718**	**0.0000**	**305.5175**

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	0.0342	1.3082	0.3898	5.1200e-003	0.1501	7.0100e-003	0.1571	0.0438	6.7000e-003	0.0505	0.0000	498.1522	498.1522	0.0122	0.0733	520.2870
Worker	0.1778	0.1047	1.4383	4.0700e-003	0.4490	2.4800e-003	0.4514	0.1202	2.2800e-003	0.1225	0.0000	380.7958	380.7958	0.0112	0.0104	384.1688
Total	**0.2119**	**1.4129**	**1.8281**	**9.1900e-003**	**0.5991**	**9.4900e-003**	**0.6085**	**0.1640**	**8.9800e-003**	**0.1730**	**0.0000**	**878.9480**	**878.9480**	**0.0234**	**0.0836**	**904.4558**

3.4 Building Construction - 2025

Unmitigated Construction On-Site

CSUS The Hub Construction Phase 1 - Sacramento County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule 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					
Off-Road	0.1723	1.5712	2.0267	3.4000e-003		0.0665	0.0665		0.0625	0.0625	0.0000	292.2185	292.2185	0.0687	0.0000	293.9358
Total	**0.1723**	**1.5712**	**2.0267**	**3.4000e-003**		**0.0665**	**0.0665**		**0.0625**	**0.0625**	**0.0000**	**292.2185**	**292.2185**	**0.0687**	**0.0000**	**293.9358**

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	0.0317	1.2327	0.3662	4.8200e-003	0.1541	6.6000e-003	0.1607	0.0446	6.3200e-003	0.0509	0.0000	469.4453	469.4453	0.0115	0.0692	490.3417
Worker	0.1606	0.0904	1.2940	3.7800e-003	0.4683	2.2800e-003	0.4705	0.1245	2.1000e-003	0.1266	0.0000	357.4039	357.4039	9.7900e-003	9.3300e-003	360.4296
Total	**0.1922**	**1.3230**	**1.6602**	**8.6000e-003**	**0.6224**	**8.8800e-003**	**0.6313**	**0.1691**	**8.4200e-003**	**0.1775**	**0.0000**	**826.8492**	**826.8492**	**0.0213**	**0.0785**	**850.7713**

Mitigated Construction On-Site

CSUS The Hub Construction Phase 1 - Sacramento County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule 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					
Off-Road	0.1723	1.5712	2.0267	3.4000e-003		0.0665	0.0665		0.0625	0.0625	0.0000	292.2182	292.2182	0.0687	0.0000	293.9355
Total	**0.1723**	**1.5712**	**2.0267**	**3.4000e-003**		**0.0665**	**0.0665**		**0.0625**	**0.0625**	**0.0000**	**292.2182**	**292.2182**	**0.0687**	**0.0000**	**293.9355**

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	0.0317	1.2327	0.3662	4.8200e-003	0.1444	6.6000e-003	0.1510	0.0422	6.3200e-003	0.0485	0.0000	469.4453	469.4453	0.0115	0.0692	490.3417
Worker	0.1606	0.0904	1.2940	3.7800e-003	0.4318	2.2800e-003	0.4341	0.1156	2.1000e-003	0.1177	0.0000	357.4039	357.4039	9.7900e-003	9.3300e-003	360.4296
Total	**0.1922**	**1.3230**	**1.6602**	**8.6000e-003**	**0.5762**	**8.8800e-003**	**0.5851**	**0.1578**	**8.4200e-003**	**0.1662**	**0.0000**	**826.8492**	**826.8492**	**0.0213**	**0.0785**	**850.7713**

3.5 Paving - 2025

Unmitigated Construction On-Site

CSUS The Hub Construction Phase 1 - Sacramento County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule 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					
Off-Road	4.1200e-003	0.0386	0.0656	1.0000e-004		1.8800e-003	1.8800e-003		1.7300e-003	1.7300e-003	0.0000	9.0087	9.0087	2.9100e-003	0.0000	9.0815
Paving	2.0800e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**6.2000e-003**	**0.0386**	**0.0656**	**1.0000e-004**		**1.8800e-003**	**1.8800e-003**		**1.7300e-003**	**1.7300e-003**	**0.0000**	**9.0087**	**9.0087**	**2.9100e-003**	**0.0000**	**9.0815**

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	1.7000e-004	1.0000e-004	1.3700e-003	0.0000	5.0000e-004	0.0000	5.0000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.3784	0.3784	1.0000e-005	1.0000e-005	0.3816
Total	**1.7000e-004**	**1.0000e-004**	**1.3700e-003**	**0.0000**	**5.0000e-004**	**0.0000**	**5.0000e-004**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**0.3784**	**0.3784**	**1.0000e-005**	**1.0000e-005**	**0.3816**

CSUS The Hub Construction Phase 1 - Sacramento County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	4.1200e-003	0.0386	0.0656	1.0000e-004		1.8800e-003	1.8800e-003		1.7300e-003	1.7300e-003	0.0000	9.0087	9.0087	2.9100e-003	0.0000	9.0815
Paving	2.0800e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**6.2000e-003**	**0.0386**	**0.0656**	**1.0000e-004**		**1.8800e-003**	**1.8800e-003**		**1.7300e-003**	**1.7300e-003**	**0.0000**	**9.0087**	**9.0087**	**2.9100e-003**	**0.0000**	**9.0815**

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	1.7000e-004	1.0000e-004	1.3700e-003	0.0000	4.6000e-004	0.0000	4.6000e-004	1.2000e-004	0.0000	1.2000e-004	0.0000	0.3784	0.3784	1.0000e-005	1.0000e-005	0.3816
Total	**1.7000e-004**	**1.0000e-004**	**1.3700e-003**	**0.0000**	**4.6000e-004**	**0.0000**	**4.6000e-004**	**1.2000e-004**	**0.0000**	**1.2000e-004**	**0.0000**	**0.3784**	**0.3784**	**1.0000e-005**	**1.0000e-005**	**0.3816**

CSUS The Hub Construction Phase 1 - Sacramento County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Paving - 2026

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	0.0101	0.0944	0.1604	2.5000e-004		4.6000e-003	4.6000e-003		4.2400e-003	4.2400e-003	0.0000	22.0212	22.0212	7.1200e-003	0.0000	22.1992
Paving	5.0800e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0152**	**0.0944**	**0.1604**	**2.5000e-004**		**4.6000e-003**	**4.6000e-003**		**4.2400e-003**	**4.2400e-003**	**0.0000**	**22.0212**	**22.0212**	**7.1200e-003**	**0.0000**	**22.1992**

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	3.9000e-004	2.1000e-004	3.1500e-003	1.0000e-005	1.2100e-003	1.0000e-005	1.2200e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	0.9030	0.9030	2.0000e-005	2.0000e-005	0.9104
Total	**3.9000e-004**	**2.1000e-004**	**3.1500e-003**	**1.0000e-005**	**1.2100e-003**	**1.0000e-005**	**1.2200e-003**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**0.0000**	**0.9030**	**0.9030**	**2.0000e-005**	**2.0000e-005**	**0.9104**

CSUS The Hub Construction Phase 1 - Sacramento County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	0.0101	0.0944	0.1604	2.5000e-004		4.6000e-003	4.6000e-003		4.2400e-003	4.2400e-003	0.0000	22.0212	22.0212	7.1200e-003	0.0000	22.1992
Paving	5.0800e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0152**	**0.0944**	**0.1604**	**2.5000e-004**		**4.6000e-003**	**4.6000e-003**		**4.2400e-003**	**4.2400e-003**	**0.0000**	**22.0212**	**22.0212**	**7.1200e-003**	**0.0000**	**22.1992**

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	3.9000e-004	2.1000e-004	3.1500e-003	1.0000e-005	1.1200e-003	1.0000e-005	1.1200e-003	3.0000e-004	1.0000e-005	3.0000e-004	0.0000	0.9030	0.9030	2.0000e-005	2.0000e-005	0.9104
Total	**3.9000e-004**	**2.1000e-004**	**3.1500e-003**	**1.0000e-005**	**1.1200e-003**	**1.0000e-005**	**1.1200e-003**	**3.0000e-004**	**1.0000e-005**	**3.0000e-004**	**0.0000**	**0.9030**	**0.9030**	**2.0000e-005**	**2.0000e-005**	**0.9104**

CSUS The Hub Construction Phase 1 - Sacramento County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Architectural Coating - 2026

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	1.9234					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.6500e-003	0.0178	0.0280	5.0000e-005		8.0000e-004	8.0000e-004		8.0000e-004	8.0000e-004	0.0000	3.9575	3.9575	2.2000e-004	0.0000	3.9629
Total	**1.9261**	**0.0178**	**0.0280**	**5.0000e-005**		**8.0000e-004**	**8.0000e-004**		**8.0000e-004**	**8.0000e-004**	**0.0000**	**3.9575**	**3.9575**	**2.2000e-004**	**0.0000**	**3.9629**

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	3.7200e-003	2.0100e-003	0.0299	9.0000e-005	0.0115	5.0000e-005	0.0116	3.0600e-003	5.0000e-005	3.1100e-003	0.0000	8.5675	8.5675	2.2000e-004	2.2000e-004	8.6373

CSUS The Hub Construction Phase 1 - Sacramento County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Total	**3.7200e-003**	**2.0100e-003**	**0.0299**	**9.0000e-005**	**0.0115**	**5.0000e-005**	**0.0116**	**3.0600e-003**	**5.0000e-005**	**3.1100e-003**	**0.0000**	**8.5675**	**8.5675**	**2.2000e-004**	**2.2000e-004**	**8.6373**

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	1.9234					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.6500e-003	0.0178	0.0280	5.0000e-005		8.0000e-004	8.0000e-004		8.0000e-004	8.0000e-004	0.0000	3.9575	3.9575	2.2000e-004	0.0000	3.9629
Total	**1.9261**	**0.0178**	**0.0280**	**5.0000e-005**		**8.0000e-004**	**8.0000e-004**		**8.0000e-004**	**8.0000e-004**	**0.0000**	**3.9575**	**3.9575**	**2.2000e-004**	**0.0000**	**3.9629**

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

CSUS The Hub Construction Phase 1 - Sacramento County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Worker	3.7200e-003	2.0100e-003	0.0299	9.0000e-005	0.0106	5.0000e-005	0.0107	2.8400e-003	5.0000e-005	2.8900e-003	0.0000	8.5675	8.5675	2.2000e-004	2.2000e-004	8.6373
Total	**3.7200e-003**	**2.0100e-003**	**0.0299**	**9.0000e-005**	**0.0106**	**5.0000e-005**	**0.0107**	**2.8400e-003**	**5.0000e-005**	**2.8900e-003**	**0.0000**	**8.5675**	**8.5675**	**2.2000e-004**	**2.2000e-004**	**8.6373**

CSUS The Hub Construction Phase 1 - Sacramento County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

CSUS The Hub Construction Phase 1

Sacramento County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	32.40	1000sqft	0.50	32,400.00	0
Research & Development	250.00	1000sqft	1.15	250,000.00	0
Manufacturing	118.80	1000sqft	2.73	118,800.00	0
Other Non-Asphalt Surfaces	3.00	Acre	3.00	130,680.00	0
Other Non-Asphalt Surfaces	2.08	Acre	2.08	90,604.80	0
Parking Lot	72.00	1000sqft	1.65	72,000.00	0
Parking Lot	140.00	1000sqft	3.21	140,000.00	0
Parking Lot	26.00	1000sqft	0.60	26,000.00	0
City Park	9.47	Acre	9.47	412,513.20	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2028
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	93.04	**CH4 Intensity (lb/MWhr)**	0	**N2O Intensity (lb/MWhr)**	0

1.3 User Entered Comments & Non-Default Data

Project Characteristics - SMUD Invensity Factors adjusted accoding to RPS.

Land Use - Lot acreage adjusted according to FGSF

CSUS The Hub Construction Phase 1 - Sacramento County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Construction Phase - Adjusted based on 33 month schedule

Grading -

Construction Off-road Equipment Mitigation - Clean Paved Road % PM Reduction - SCAQMD Rule 1186

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	9
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	20.00	31.00
tblConstructionPhase	NumDays	370.00	581.00
tblConstructionPhase	NumDays	35.00	55.00
tblConstructionPhase	NumDays	20.00	31.00
tblConstructionPhase	NumDays	10.00	16.00
tblConstructionPhase	PhaseEndDate	3/18/2025	3/16/2026
tblConstructionPhase	PhaseEndDate	1/21/2025	12/18/2025
tblConstructionPhase	PhaseEndDate	8/22/2023	9/27/2023
tblConstructionPhase	PhaseEndDate	2/18/2025	1/30/2026
tblConstructionPhase	PhaseEndDate	7/4/2023	7/12/2023
tblConstructionPhase	PhaseStartDate	2/19/2025	2/2/2026
tblConstructionPhase	PhaseStartDate	8/23/2023	9/28/2023
tblConstructionPhase	PhaseStartDate	7/5/2023	7/13/2023
tblConstructionPhase	PhaseStartDate	1/22/2025	12/19/2025
tblLandUse	LotAcreage	0.74	0.50
tblLandUse	LotAcreage	5.74	1.15
tblProjectCharacteristics	CH4IntensityFactor	0.033	0
tblProjectCharacteristics	CO2IntensityFactor	357.98	93.04
tblProjectCharacteristics	N2OIntensityFactor	0.004	0

2.0 Emissions Summary

CSUS The Hub Construction Phase 1 - Sacramento County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule 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	3.5575	34.5480	33.0467	0.1020	19.7939	1.4253	21.0607	10.1388	1.3113	11.3042	0.0000	10,428.0363	10,428.0363	1.9481	0.7146	10,661.2926
2024	3.3317	23.6589	31.8861	0.1000	5.1082	0.6855	5.7936	1.3834	0.6452	2.0286	0.0000	10,256.3654	10,256.3654	0.7962	0.6979	10,484.2560
2025	3.1205	22.4171	30.8842	0.0981	5.1080	0.5978	5.7058	1.3833	0.5628	1.9462	0.0000	10,086.4888	10,086.4888	0.7823	0.6813	10,309.0606
2026	124.5442	8.5992	14.9111	0.0237	0.7683	0.4190	0.8233	0.2038	0.3855	0.4158	0.0000	2,305.8396	2,305.8396	0.7159	0.0145	2,324.3773
Maximum	**124.5442**	**34.5480**	**33.0467**	**0.1020**	**19.7939**	**1.4253**	**21.0607**	**10.1388**	**1.3113**	**11.3042**	**0.0000**	**10,428.0363**	**10,428.0363**	**1.9481**	**0.7146**	**10,661.2926**

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	3.5575	34.5480	33.0467	0.1020	8.9719	1.4253	10.2386	4.5798	1.3113	5.7452	0.0000	10,428.0363	10,428.0363	1.9481	0.7146	10,661.2926
2024	3.3317	23.6589	31.8861	0.1000	4.7263	0.6855	5.4118	1.2897	0.6452	1.9349	0.0000	10,256.3654	10,256.3654	0.7962	0.6979	10,484.2560

CSUS The Hub Construction Phase 1 - Sacramento County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2025	3.1205	22.4171	30.8842	0.0981	4.7262	0.5978	5.3240	1.2896	0.5628	1.8524	0.0000	10,086.4888	10,086.4888	0.7823	0.6813	10,309.0606
2026	124.5442	8.5992	14.9111	0.0237	0.7082	0.4190	0.7632	0.1891	0.3855	0.4136	0.0000	2,305.8396	2,305.8396	0.7159	0.0145	2,324.3773
Maximum	**124.5442**	**34.5480**	**33.0467**	**0.1020**	**8.9719**	**1.4253**	**10.2386**	**4.5798**	**1.3113**	**5.7452**	**0.0000**	**10,428.0363**	**10,428.0363**	**1.9481**	**0.7146**	**10,661.2926**

	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	37.84	0.00	34.89	43.95	0.00	36.63	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	6/21/2023	7/12/2023	5	16	
2	Grading	Grading	7/13/2023	9/27/2023	5	55	
3	Building Construction	Building Construction	9/28/2023	12/18/2025	5	581	
4	Paving	Paving	12/19/2025	1/30/2026	5	31	
5	Architectural Coating	Architectural Coating	2/2/2026	3/16/2026	5	31	

Acres of Grading (Site Preparation Phase): 24

Acres of Grading (Grading Phase): 165

Acres of Paving: 10.54

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 601,800; Non-Residential Outdoor: 200,600; Striped Parking Area: 27,557

OffRoad Equipment

CSUS The Hub Construction Phase 1 - Sacramento County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Building Construction	Cranes	1	7.00	231	0.29
Grading	Excavators	2	8.00	158	0.38
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Grading	Graders	1	8.00	187	0.41
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	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	Rubber Tired Dozers	3	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Building Construction	Welders	1	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
Architectural Coating	1	101.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	506.00	209.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

CSUS The Hub Construction Phase 1 - Sacramento County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	lb/day										lb/day					
Fugitive Dust					19.6570	0.0000	19.6570	10.1025	0.0000	10.1025			0.0000			0.0000
Off-Road	2.6595	27.5242	18.2443	0.0381		1.2660	1.2660		1.1647	1.1647		3,687.3081	3,687.3081	1.1926		3,717.1219
Total	**2.6595**	**27.5242**	**18.2443**	**0.0381**	**19.6570**	**1.2660**	**20.9230**	**10.1025**	**1.1647**	**11.2672**		**3,687.3081**	**3,687.3081**	**1.1926**		**3,717.1219**

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

CSUS The Hub Construction Phase 1 - Sacramento County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Worker	0.0607	0.0291	0.4906	1.2500e-003	0.1369	7.1000e-004	0.1376	0.0363	6.5000e-004	0.0370		128.1058	128.1058	3.5200e-003	3.1500e-003	129.1312
Total	**0.0607**	**0.0291**	**0.4906**	**1.2500e-003**	**0.1369**	**7.1000e-004**	**0.1376**	**0.0363**	**6.5000e-004**	**0.0370**		**128.1058**	**128.1058**	**3.5200e-003**	**3.1500e-003**	**129.1312**

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					8.8457	0.0000	8.8457	4.5461	0.0000	4.5461			0.0000			0.0000
Off-Road	2.6595	27.5242	18.2443	0.0381		1.2660	1.2660		1.1647	1.1647	0.0000	3,687.3081	3,687.3081	1.1926		3,717.1219
Total	**2.6595**	**27.5242**	**18.2443**	**0.0381**	**8.8457**	**1.2660**	**10.1117**	**4.5461**	**1.1647**	**5.7108**	**0.0000**	**3,687.3081**	**3,687.3081**	**1.1926**		**3,717.1219**

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

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	0.0607	0.0291	0.4906	1.2500e-003	0.1262	7.1000e-004	0.1269	0.0337	6.5000e-004	0.0343		128.1058	128.1058	3.5200e-003	3.1500e-003	129.1312
Total	**0.0607**	**0.0291**	**0.4906**	**1.2500e-003**	**0.1262**	**7.1000e-004**	**0.1269**	**0.0337**	**6.5000e-004**	**0.0343**		**128.1058**	**128.1058**	**3.5200e-003**	**3.1500e-003**	**129.1312**

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					9.2036	0.0000	9.2036	3.6538	0.0000	3.6538			0.0000			0.0000
Off-Road	3.3217	34.5156	28.0512	0.0621		1.4245	1.4245		1.3105	1.3105		6,011.4777	6,011.4777	1.9442		6,060.0836
Total	**3.3217**	**34.5156**	**28.0512**	**0.0621**	**9.2036**	**1.4245**	**10.6281**	**3.6538**	**1.3105**	**4.9643**		**6,011.4777**	**6,011.4777**	**1.9442**		**6,060.0836**

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					

CSUS The Hub Construction Phase 1 - Sacramento County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	0.0674	0.0324	0.5451	1.3900e-003	0.1521	7.8000e-004	0.1529	0.0404	7.2000e-004	0.0411		142.3398	142.3398	3.9100e-003	3.5000e-003	143.4791
Total	**0.0674**	**0.0324**	**0.5451**	**1.3900e-003**	**0.1521**	**7.8000e-004**	**0.1529**	**0.0404**	**7.2000e-004**	**0.0411**		**142.3398**	**142.3398**	**3.9100e-003**	**3.5000e-003**	**143.4791**

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					4.1416	0.0000	4.1416	1.6442	0.0000	1.6442			0.0000			0.0000
Off-Road	3.3217	34.5156	28.0512	0.0621		1.4245	1.4245		1.3105	1.3105	0.0000	6,011.4777	6,011.4777	1.9442		6,060.0836
Total	**3.3217**	**34.5156**	**28.0512**	**0.0621**	**4.1416**	**1.4245**	**5.5661**	**1.6442**	**1.3105**	**2.9547**	**0.0000**	**6,011.4777**	**6,011.4777**	**1.9442**		**6,060.0836**

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

CSUS The Hub Construction Phase 1 - Sacramento County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	0.0674	0.0324	0.5451	1.3900e-003	0.1402	7.8000e-004	0.1410	0.0374	7.2000e-004	0.0382		142.3398	142.3398	3.9100e-003	3.5000e-003	143.4791
Total	**0.0674**	**0.0324**	**0.5451**	**1.3900e-003**	**0.1402**	**7.8000e-004**	**0.1410**	**0.0374**	**7.2000e-004**	**0.0382**		**142.3398**	**142.3398**	**3.9100e-003**	**3.5000e-003**	**143.4791**

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	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

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

CSUS The Hub Construction Phase 1 - Sacramento County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	0.2796	9.6775	3.0127	0.0398	1.2592	0.0540	1.3132	0.3624	0.0517	0.4141		4,271.6301	4,271.6301	0.1056	0.6262	4,460.8651
Worker	1.7051	0.8192	13.7900	0.0352	3.8491	0.0198	3.8690	1.0210	0.0183	1.0393		3,601.1963	3,601.1963	0.0988	0.0884	3,630.0214
Total	**1.9847**	**10.4968**	**16.8027**	**0.0750**	**5.1083**	**0.0739**	**5.1822**	**1.3834**	**0.0700**	**1.4534**		**7,872.8264**	**7,872.8264**	**0.2044**	**0.7146**	**8,090.8865**

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	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

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

CSUS The Hub Construction Phase 1 - Sacramento County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	0.2796	9.6775	3.0127	0.0398	1.1784	0.0540	1.2324	0.3426	0.0517	0.3943		4,271.6301	4,271.6301	0.1056	0.6262	4,460.8651
Worker	1.7051	0.8192	13.7900	0.0352	3.5481	0.0198	3.5679	0.9471	0.0183	0.9654		3,601.1963	3,601.1963	0.0988	0.0884	3,630.0214
Total	**1.9847**	**10.4968**	**16.8027**	**0.0750**	**4.7264**	**0.0739**	**4.8003**	**1.2897**	**0.0700**	**1.3597**		**7,872.8264**	**7,872.8264**	**0.2044**	**0.7146**	**8,090.8865**

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	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769		2,555.6989	2,555.6989	0.6044		2,570.8077
Total	**1.4716**	**13.4438**	**16.1668**	**0.0270**		**0.6133**	**0.6133**		**0.5769**	**0.5769**		**2,555.6989**	**2,555.6989**	**0.6044**		**2,570.8077**

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

CSUS The Hub Construction Phase 1 - Sacramento County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	0.2675	9.4854	2.9182	0.0391	1.2590	0.0533	1.3123	0.3624	0.0509	0.4133		4,190.2774	4,190.2774	0.1026	0.6157	4,376.3109
Worker	1.5926	0.7298	12.8011	0.0340	3.8491	0.0189	3.8680	1.0210	0.0174	1.0384		3,510.3891	3,510.3891	0.0893	0.0823	3,537.1375
Total	**1.8601**	**10.2152**	**15.7192**	**0.0731**	**5.1082**	**0.0722**	**5.1803**	**1.3834**	**0.0683**	**1.4517**		**7,700.6665**	**7,700.6665**	**0.1919**	**0.6979**	**7,913.4484**

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	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769	0.0000	2,555.6989	2,555.6989	0.6044		2,570.8077
Total	**1.4716**	**13.4438**	**16.1668**	**0.0270**		**0.6133**	**0.6133**		**0.5769**	**0.5769**	**0.0000**	**2,555.6989**	**2,555.6989**	**0.6044**		**2,570.8077**

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

CSUS The Hub Construction Phase 1 - Sacramento County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	0.2675	9.4854	2.9182	0.0391	1.1782	0.0533	1.2315	0.3425	0.0509	0.3935		4,190.2774	4,190.2774	0.1026	0.6157	4,376.3109
Worker	1.5926	0.7298	12.8011	0.0340	3.5481	0.0189	3.5670	0.9471	0.0174	0.9645		3,510.3891	3,510.3891	0.0893	0.0823	3,537.1375
Total	**1.8601**	**10.2152**	**15.7192**	**0.0731**	**4.7263**	**0.0722**	**4.7984**	**1.2897**	**0.0683**	**1.3580**		**7,700.6665**	**7,700.6665**	**0.1919**	**0.6979**	**7,913.4484**

3.4 Building Construction - 2025

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	1.3674	12.4697	16.0847	0.0270		0.5276	0.5276		0.4963	0.4963		2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**1.3674**	**12.4697**	**16.0847**	**0.0270**		**0.5276**	**0.5276**		**0.4963**	**0.4963**		**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

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

CSUS The Hub Construction Phase 1 - Sacramento County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	0.2579	9.2923	2.8497	0.0382	1.2589	0.0522	1.3111	0.3623	0.0499	0.4122		4,105.3090	4,105.3090	0.1005	0.6043	4,287.9097
Worker	1.4952	0.6552	11.9498	0.0329	3.8491	0.0181	3.8672	1.0210	0.0166	1.0377		3,424.7054	3,424.7054	0.0808	0.0769	3,449.6529
Total	**1.7531**	**9.9475**	**14.7995**	**0.0711**	**5.1080**	**0.0703**	**5.1783**	**1.3833**	**0.0666**	**1.4499**		**7,530.0144**	**7,530.0144**	**0.1813**	**0.6813**	**7,737.5625**

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	1.3674	12.4697	16.0847	0.0270		0.5276	0.5276		0.4963	0.4963	0.0000	2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**1.3674**	**12.4697**	**16.0847**	**0.0270**		**0.5276**	**0.5276**		**0.4963**	**0.4963**	**0.0000**	**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

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

CSUS The Hub Construction Phase 1 - Sacramento County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	0.2579	9.2923	2.8497	0.0382	1.1781	0.0522	1.2303	0.3425	0.0499	0.3924		4,105.3090	4,105.3090	0.1005	0.6043	4,287.9097
Worker	1.4952	0.6552	11.9498	0.0329	3.5481	0.0181	3.5662	0.9471	0.0166	0.9638		3,424.7054	3,424.7054	0.0808	0.0769	3,449.6529
Total	**1.7531**	**9.9475**	**14.7995**	**0.0711**	**4.7262**	**0.0703**	**4.7964**	**1.2896**	**0.0666**	**1.3562**		**7,530.0144**	**7,530.0144**	**0.1813**	**0.6813**	**7,737.5625**

3.5 Paving - 2025

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	0.9152	8.5816	14.5780	0.0228		0.4185	0.4185		0.3850	0.3850		2,206.7452	2,206.7452	0.7137		2,224.5878
Paving	0.4615					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3766**	**8.5816**	**14.5780**	**0.0228**		**0.4185**	**0.4185**		**0.3850**	**0.3850**		**2,206.7452**	**2,206.7452**	**0.7137**		**2,224.5878**

Unmitigated Construction Off-Site

CSUS The Hub Construction Phase 1 - Sacramento County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule 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					
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	0.0443	0.0194	0.3542	9.7000e-004	0.1141	5.4000e-004	0.1146	0.0303	4.9000e-004	0.0308		101.5229	101.5229	2.4000e-003	2.2800e-003	102.2624
Total	**0.0443**	**0.0194**	**0.3542**	**9.7000e-004**	**0.1141**	**5.4000e-004**	**0.1146**	**0.0303**	**4.9000e-004**	**0.0308**		**101.5229**	**101.5229**	**2.4000e-003**	**2.2800e-003**	**102.2624**

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	0.9152	8.5816	14.5780	0.0228		0.4185	0.4185		0.3850	0.3850	0.0000	2,206.7452	2,206.7452	0.7137		2,224.5878
Paving	0.4615					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3766**	**8.5816**	**14.5780**	**0.0228**		**0.4185**	**0.4185**		**0.3850**	**0.3850**	**0.0000**	**2,206.7452**	**2,206.7452**	**0.7137**		**2,224.5878**

Mitigated Construction Off-Site

CSUS The Hub Construction Phase 1 - Sacramento County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule 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					
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	0.0443	0.0194	0.3542	9.7000e-004	0.1052	5.4000e-004	0.1057	0.0281	4.9000e-004	0.0286		101.5229	101.5229	2.4000e-003	2.2800e-003	102.2624
Total	**0.0443**	**0.0194**	**0.3542**	**9.7000e-004**	**0.1052**	**5.4000e-004**	**0.1057**	**0.0281**	**4.9000e-004**	**0.0286**		**101.5229**	**101.5229**	**2.4000e-003**	**2.2800e-003**	**102.2624**

3.5 Paving - 2026

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	0.9152	8.5816	14.5780	0.0228		0.4185	0.4185		0.3850	0.3850		2,206.7452	2,206.7452	0.7137		2,224.5878
Paving	0.4615					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3766**	**8.5816**	**14.5780**	**0.0228**		**0.4185**	**0.4185**		**0.3850**	**0.3850**		**2,206.7452**	**2,206.7452**	**0.7137**		**2,224.5878**

CSUS The Hub Construction Phase 1 - Sacramento County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	0.0418	0.0176	0.3331	9.4000e-004	0.1141	5.1000e-004	0.1146	0.0303	4.7000e-004	0.0307		99.0944	99.0944	2.1800e-003	2.1500e-003	99.7895
Total	**0.0418**	**0.0176**	**0.3331**	**9.4000e-004**	**0.1141**	**5.1000e-004**	**0.1146**	**0.0303**	**4.7000e-004**	**0.0307**		**99.0944**	**99.0944**	**2.1800e-003**	**2.1500e-003**	**99.7895**

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	0.9152	8.5816	14.5780	0.0228		0.4185	0.4185		0.3850	0.3850	0.0000	2,206.7452	2,206.7452	0.7137		2,224.5878
Paving	0.4615					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3766**	**8.5816**	**14.5780**	**0.0228**		**0.4185**	**0.4185**		**0.3850**	**0.3850**	**0.0000**	**2,206.7452**	**2,206.7452**	**0.7137**		**2,224.5878**

CSUS The Hub Construction Phase 1 - Sacramento County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	0.0418	0.0176	0.3331	9.4000e-004	0.1052	5.1000e-004	0.1057	0.0281	4.7000e-004	0.0286		99.0944	99.0944	2.1800e-003	2.1500e-003	99.7895
Total	**0.0418**	**0.0176**	**0.3331**	**9.4000e-004**	**0.1052**	**5.1000e-004**	**0.1057**	**0.0281**	**4.7000e-004**	**0.0286**		**99.0944**	**99.0944**	**2.1800e-003**	**2.1500e-003**	**99.7895**

3.6 Architectural Coating - 2026

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	124.0920					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1709	1.1455	1.8091	2.9700e-003		0.0515	0.0515		0.0515	0.0515		281.4481	281.4481	0.0154		281.8319
Total	**124.2628**	**1.1455**	**1.8091**	**2.9700e-003**		**0.0515**	**0.0515**		**0.0515**	**0.0515**		**281.4481**	**281.4481**	**0.0154**		**281.8319**

CSUS The Hub Construction Phase 1 - Sacramento County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	0.2814	0.1186	2.2429	6.3500e-003	0.7683	3.4400e-003	0.7717	0.2038	3.1600e-003	0.2070		667.2356	667.2356	0.0147	0.0145	671.9157
Total	**0.2814**	**0.1186**	**2.2429**	**6.3500e-003**	**0.7683**	**3.4400e-003**	**0.7717**	**0.2038**	**3.1600e-003**	**0.2070**		**667.2356**	**667.2356**	**0.0147**	**0.0145**	**671.9157**

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	124.0920					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1709	1.1455	1.8091	2.9700e-003		0.0515	0.0515		0.0515	0.0515	0.0000	281.4481	281.4481	0.0154		281.8319
Total	**124.2628**	**1.1455**	**1.8091**	**2.9700e-003**		**0.0515**	**0.0515**		**0.0515**	**0.0515**	**0.0000**	**281.4481**	**281.4481**	**0.0154**		**281.8319**

CSUS The Hub Construction Phase 1 - Sacramento County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	0.2814	0.1186	2.2429	6.3500e-003	0.7082	3.4400e-003	0.7117	0.1891	3.1600e-003	0.1922		667.2356	667.2356	0.0147	0.0145	671.9157
Total	**0.2814**	**0.1186**	**2.2429**	**6.3500e-003**	**0.7082**	**3.4400e-003**	**0.7117**	**0.1891**	**3.1600e-003**	**0.1922**		**667.2356**	**667.2356**	**0.0147**	**0.0145**	**671.9157**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

CSUS The Hub Construction Phase 1

Sacramento County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	32.40	1000sqft	0.50	32,400.00	0
Research & Development	250.00	1000sqft	1.15	250,000.00	0
Manufacturing	118.80	1000sqft	2.73	118,800.00	0
Other Non-Asphalt Surfaces	3.00	Acre	3.00	130,680.00	0
Other Non-Asphalt Surfaces	2.08	Acre	2.08	90,604.80	0
Parking Lot	72.00	1000sqft	1.65	72,000.00	0
Parking Lot	140.00	1000sqft	3.21	140,000.00	0
Parking Lot	26.00	1000sqft	0.60	26,000.00	0
City Park	9.47	Acre	9.47	412,513.20	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2028
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	93.04	**CH4 Intensity (lb/MWhr)**	0	**N2O Intensity (lb/MWhr)**	0

1.3 User Entered Comments & Non-Default Data

Project Characteristics - SMUD Invensity Factors adjusted accoding to RPS.

Land Use - Lot acreage adjusted according to FGSF

CSUS The Hub Construction Phase 1 - Sacramento County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Construction Phase - Adjusted based on 33 month schedule

Grading -

Construction Off-road Equipment Mitigation - Clean Paved Road % PM Reduction - SCAQMD Rule 1186

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	9
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	20.00	31.00
tblConstructionPhase	NumDays	370.00	581.00
tblConstructionPhase	NumDays	35.00	55.00
tblConstructionPhase	NumDays	20.00	31.00
tblConstructionPhase	NumDays	10.00	16.00
tblConstructionPhase	PhaseEndDate	3/18/2025	3/16/2026
tblConstructionPhase	PhaseEndDate	1/21/2025	12/18/2025
tblConstructionPhase	PhaseEndDate	8/22/2023	9/27/2023
tblConstructionPhase	PhaseEndDate	2/18/2025	1/30/2026
tblConstructionPhase	PhaseEndDate	7/4/2023	7/12/2023
tblConstructionPhase	PhaseStartDate	2/19/2025	2/2/2026
tblConstructionPhase	PhaseStartDate	8/23/2023	9/28/2023
tblConstructionPhase	PhaseStartDate	7/5/2023	7/13/2023
tblConstructionPhase	PhaseStartDate	1/22/2025	12/19/2025
tblLandUse	LotAcreage	0.74	0.50
tblLandUse	LotAcreage	5.74	1.15
tblProjectCharacteristics	CH4IntensityFactor	0.033	0
tblProjectCharacteristics	CO2IntensityFactor	357.98	93.04
tblProjectCharacteristics	N2OIntensityFactor	0.004	0

2.0 Emissions Summary

CSUS The Hub Construction Phase 1 - Sacramento County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule 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	3.3814	34.5553	31.4041	0.0981	19.7939	1.4253	21.0607	10.1388	1.3113	11.3042	0.0000	10,033.2769	10,033.2769	1.9487	0.7291	10,271.2151
2024	3.1432	24.5363	30.4214	0.0963	5.1082	0.6860	5.7942	1.3834	0.6458	2.0292	0.0000	9,873.1363	9,873.1363	0.8099	0.7114	10,105.3833
2025	2.9445	23.2657	29.5622	0.0945	5.1080	0.5983	5.7063	1.3833	0.5633	1.9466	0.0000	9,713.9764	9,713.9764	0.7950	0.6939	9,940.6257
2026	124.5133	8.6032	14.8714	0.0236	0.7683	0.4190	0.8233	0.2038	0.3855	0.4158	0.0000	2,294.9671	2,294.9671	0.7163	0.0166	2,313.6070
Maximum	**124.5133**	**34.5553**	**31.4041**	**0.0981**	**19.7939**	**1.4253**	**21.0607**	**10.1388**	**1.3113**	**11.3042**	**0.0000**	**10,033.2769**	**10,033.2769**	**1.9487**	**0.7291**	**10,271.2151**

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	lb/day										lb/day					
2023	3.3814	34.5553	31.4041	0.0981	8.9719	1.4253	10.2386	4.5798	1.3113	5.7452	0.0000	10,033.2769	10,033.2769	1.9487	0.7291	10,271.2151
2024	3.1432	24.5363	30.4214	0.0963	4.7263	0.6860	5.4123	1.2897	0.6458	1.9354	0.0000	9,873.1363	9,873.1363	0.8099	0.7114	10,105.3833

CSUS The Hub Construction Phase 1 - Sacramento County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2025	2.9445	23.2657	29.5622	0.0945	4.7262	0.5983	5.3245	1.2896	0.5633	1.8529	0.0000	9,713.9764	9,713.9764	0.7950	0.6939	9,940.6257
2026	124.5133	8.6032	14.8714	0.0236	0.7082	0.4190	0.7632	0.1891	0.3855	0.4136	0.0000	2,294.9671	2,294.9671	0.7163	0.0166	2,313.6070
Maximum	**124.5133**	**34.5553**	**31.4041**	**0.0981**	**8.9719**	**1.4253**	**10.2386**	**4.5798**	**1.3113**	**5.7452**	**0.0000**	**10,033.2769**	**10,033.2769**	**1.9487**	**0.7291**	**10,271.2151**

	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**	**37.84**	**0.00**	**34.88**	**43.95**	**0.00**	**36.63**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

	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	6/21/2023	7/12/2023	5	16	
2	Grading	Grading	7/13/2023	9/27/2023	5	55	
3	Building Construction	Building Construction	9/28/2023	12/18/2025	5	581	
4	Paving	Paving	12/19/2025	1/30/2026	5	31	
5	Architectural Coating	Architectural Coating	2/2/2026	3/16/2026	5	31	

Acres of Grading (Site Preparation Phase): 24

CSUS The Hub Construction Phase 1 - Sacramento County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Acres of Grading (Grading Phase): 165

Acres of Paving: 10.54

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 601,800; Non-Residential Outdoor: 200,600; Striped Parking Area: 27,557

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Building Construction	Cranes	1	7.00	231	0.29
Grading	Excavators	2	8.00	158	0.38
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Grading	Graders	1	8.00	187	0.41
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	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	Rubber Tired Dozers	3	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Building Construction	Welders	1	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

CSUS The Hub Construction Phase 1 - Sacramento County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Architectural Coating	1	101.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	506.00	209.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.00	6.50	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	lb/day										lb/day					
Fugitive Dust					19.6570	0.0000	19.6570	10.1025	0.0000	10.1025			0.0000			0.0000
Off-Road	2.6595	27.5242	18.2443	0.0381		1.2660	1.2660		1.1647	1.1647		3,687.3081	3,687.3081	1.1926		3,717.1219
Total	**2.6595**	**27.5242**	**18.2443**	**0.0381**	**19.6570**	**1.2660**	**20.9230**	**10.1025**	**1.1647**	**11.2672**		**3,687.3081**	**3,687.3081**	**1.1926**		**3,717.1219**

Unmitigated Construction Off-Site

CSUS The Hub Construction Phase 1 - Sacramento County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule 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					
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	0.0537	0.0358	0.4272	1.1100e-003	0.1369	7.1000e-004	0.1376	0.0363	6.5000e-004	0.0370		113.9541	113.9541	4.0500e-003	3.6100e-003	115.1305
Total	**0.0537**	**0.0358**	**0.4272**	**1.1100e-003**	**0.1369**	**7.1000e-004**	**0.1376**	**0.0363**	**6.5000e-004**	**0.0370**		**113.9541**	**113.9541**	**4.0500e-003**	**3.6100e-003**	**115.1305**

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					8.8457	0.0000	8.8457	4.5461	0.0000	4.5461			0.0000			0.0000
Off-Road	2.6595	27.5242	18.2443	0.0381		1.2660	1.2660		1.1647	1.1647	0.0000	3,687.3081	3,687.3081	1.1926		3,717.1219
Total	**2.6595**	**27.5242**	**18.2443**	**0.0381**	**8.8457**	**1.2660**	**10.1117**	**4.5461**	**1.1647**	**5.7108**	**0.0000**	**3,687.3081**	**3,687.3081**	**1.1926**		**3,717.1219**

CSUS The Hub Construction Phase 1 - Sacramento County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	0.0537	0.0358	0.4272	1.1100e-003	0.1262	7.1000e-004	0.1269	0.0337	6.5000e-004	0.0343		113.9541	113.9541	4.0500e-003	3.6100e-003	115.1305
Total	**0.0537**	**0.0358**	**0.4272**	**1.1100e-003**	**0.1262**	**7.1000e-004**	**0.1269**	**0.0337**	**6.5000e-004**	**0.0343**		**113.9541**	**113.9541**	**4.0500e-003**	**3.6100e-003**	**115.1305**

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					9.2036	0.0000	9.2036	3.6538	0.0000	3.6538			0.0000			0.0000
Off-Road	3.3217	34.5156	28.0512	0.0621		1.4245	1.4245		1.3105	1.3105		6,011.4777	6,011.4777	1.9442		6,060.0836
Total	**3.3217**	**34.5156**	**28.0512**	**0.0621**	**9.2036**	**1.4245**	**10.6281**	**3.6538**	**1.3105**	**4.9643**		**6,011.4777**	**6,011.4777**	**1.9442**		**6,060.0836**

CSUS The Hub Construction Phase 1 - Sacramento County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	0.0597	0.0397	0.4747	1.2400e-003	0.1521	7.8000e-004	0.1529	0.0404	7.2000e-004	0.0411		126.6156	126.6156	4.5000e-003	4.0100e-003	127.9228
Total	**0.0597**	**0.0397**	**0.4747**	**1.2400e-003**	**0.1521**	**7.8000e-004**	**0.1529**	**0.0404**	**7.2000e-004**	**0.0411**		**126.6156**	**126.6156**	**4.5000e-003**	**4.0100e-003**	**127.9228**

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					4.1416	0.0000	4.1416	1.6442	0.0000	1.6442			0.0000			0.0000
Off-Road	3.3217	34.5156	28.0512	0.0621		1.4245	1.4245		1.3105	1.3105	0.0000	6,011.4777	6,011.4777	1.9442		6,060.0836
Total	**3.3217**	**34.5156**	**28.0512**	**0.0621**	**4.1416**	**1.4245**	**5.5661**	**1.6442**	**1.3105**	**2.9547**	**0.0000**	**6,011.4777**	**6,011.4777**	**1.9442**		**6,060.0836**

CSUS The Hub Construction Phase 1 - Sacramento County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	0.0597	0.0397	0.4747	1.2400e-003	0.1402	7.8000e-004	0.1410	0.0374	7.2000e-004	0.0382		126.6156	126.6156	4.5000e-003	4.0100e-003	127.9228
Total	**0.0597**	**0.0397**	**0.4747**	**1.2400e-003**	**0.1402**	**7.8000e-004**	**0.1410**	**0.0374**	**7.2000e-004**	**0.0382**		**126.6156**	**126.6156**	**4.5000e-003**	**4.0100e-003**	**127.9228**

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	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

CSUS The Hub Construction Phase 1 - Sacramento County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	0.2704	10.4011	3.1499	0.0399	1.2592	0.0547	1.3138	0.3624	0.0523	0.4147		4,274.6916	4,274.6916	0.1051	0.6277	4,464.3618
Worker	1.5101	1.0052	12.0102	0.0313	3.8491	0.0198	3.8690	1.0210	0.0183	1.0393		3,203.3754	3,203.3754	0.1138	0.1014	3,236.4473
Total	**1.7804**	**11.4063**	**15.1601**	**0.0712**	**5.1083**	**0.0745**	**5.1828**	**1.3834**	**0.0706**	**1.4540**		**7,478.0670**	**7,478.0670**	**0.2189**	**0.7291**	**7,700.8090**

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	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

CSUS The Hub Construction Phase 1 - Sacramento County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	0.2704	10.4011	3.1499	0.0399	1.1784	0.0547	1.2330	0.3426	0.0523	0.3949		4,274.6916	4,274.6916	0.1051	0.6277	4,464.3618
Worker	1.5101	1.0052	12.0102	0.0313	3.5481	0.0198	3.5679	0.9471	0.0183	0.9654		3,203.3754	3,203.3754	0.1138	0.1014	3,236.4473
Total	**1.7804**	**11.4063**	**15.1601**	**0.0712**	**4.7264**	**0.0745**	**4.8009**	**1.2897**	**0.0706**	**1.3603**		**7,478.0670**	**7,478.0670**	**0.2189**	**0.7291**	**7,700.8090**

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	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769		2,555.6989	2,555.6989	0.6044		2,570.8077
Total	**1.4716**	**13.4438**	**16.1668**	**0.0270**		**0.6133**	**0.6133**		**0.5769**	**0.5769**		**2,555.6989**	**2,555.6989**	**0.6044**		**2,570.8077**

Unmitigated Construction Off-Site

CSUS The Hub Construction Phase 1 - Sacramento County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Category	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
	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	0.2582	10.1976	3.0527	0.0391	1.2590	0.0538	1.3128	0.3624	0.0515	0.4138		4,193.8126	4,193.8126	0.1021	0.6171	4,380.2652
Worker	1.4134	0.8949	11.2019	0.0303	3.8491	0.0189	3.8680	1.0210	0.0174	1.0384		3,123.6248	3,123.6248	0.1034	0.0943	3,154.3104
Total	**1.6716**	**11.0925**	**14.2546**	**0.0694**	**5.1082**	**0.0727**	**5.1809**	**1.3834**	**0.0689**	**1.4523**		**7,317.4374**	**7,317.4374**	**0.2055**	**0.7114**	**7,534.5756**

Mitigated Construction On-Site

Category	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
	lb/day										lb/day					
Off-Road	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769	0.0000	2,555.6989	2,555.6989	0.6044		2,570.8077
Total	**1.4716**	**13.4438**	**16.1668**	**0.0270**		**0.6133**	**0.6133**		**0.5769**	**0.5769**	**0.0000**	**2,555.6989**	**2,555.6989**	**0.6044**		**2,570.8077**

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	0.2582	10.1976	3.0527	0.0391	1.1782	0.0538	1.2320	0.3425	0.0515	0.3940		4,193.8126	4,193.8126	0.1021	0.6171	4,380.2652
Worker	1.4134	0.8949	11.2019	0.0303	3.5481	0.0189	3.5670	0.9471	0.0174	0.9645		3,123.6248	3,123.6248	0.1034	0.0943	3,154.3104
Total	**1.6716**	**11.0925**	**14.2546**	**0.0694**	**4.7263**	**0.0727**	**4.7990**	**1.2897**	**0.0689**	**1.3585**		**7,317.4374**	**7,317.4374**	**0.2055**	**0.7114**	**7,534.5756**

3.4 Building Construction - 2025

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	1.3674	12.4697	16.0847	0.0270		0.5276	0.5276		0.4963	0.4963		2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**1.3674**	**12.4697**	**16.0847**	**0.0270**		**0.5276**	**0.5276**		**0.4963**	**0.4963**		**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

Unmitigated Construction Off-Site

CSUS The Hub Construction Phase 1 - Sacramento County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule 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					
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	0.2485	9.9930	2.9808	0.0383	1.2589	0.0527	1.3116	0.3623	0.0504	0.4127		4,109.2357	4,109.2357	0.1000	0.6057	4,292.2446
Worker	1.3286	0.8030	10.4968	0.0293	3.8491	0.0181	3.8672	1.0210	0.0166	1.0377		3,048.2663	3,048.2663	0.0941	0.0881	3,076.8830
Total	**1.5771**	**10.7960**	**13.4775**	**0.0675**	**5.1080**	**0.0708**	**5.1788**	**1.3833**	**0.0670**	**1.4504**		**7,157.5020**	**7,157.5020**	**0.1941**	**0.6939**	**7,369.1276**

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	1.3674	12.4697	16.0847	0.0270		0.5276	0.5276		0.4963	0.4963	0.0000	2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**1.3674**	**12.4697**	**16.0847**	**0.0270**		**0.5276**	**0.5276**		**0.4963**	**0.4963**	**0.0000**	**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

Mitigated Construction Off-Site

CSUS The Hub Construction Phase 1 - Sacramento County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule 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					
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	0.2485	9.9930	2.9808	0.0383	1.1781	0.0527	1.2308	0.3425	0.0504	0.3929		4,109.2357	4,109.2357	0.1000	0.6057	4,292.2446
Worker	1.3286	0.8030	10.4968	0.0293	3.5481	0.0181	3.5662	0.9471	0.0166	0.9638		3,048.2663	3,048.2663	0.0941	0.0881	3,076.8830
Total	**1.5771**	**10.7960**	**13.4775**	**0.0675**	**4.7262**	**0.0708**	**4.7969**	**1.2896**	**0.0670**	**1.3567**		**7,157.5020**	**7,157.5020**	**0.1941**	**0.6939**	**7,369.1276**

3.5 Paving - 2025

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	0.9152	8.5816	14.5780	0.0228		0.4185	0.4185		0.3850	0.3850		2,206.7452	2,206.7452	0.7137		2,224.5878
Paving	0.4615					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3766**	**8.5816**	**14.5780**	**0.0228**		**0.4185**	**0.4185**		**0.3850**	**0.3850**		**2,206.7452**	**2,206.7452**	**0.7137**		**2,224.5878**

CSUS The Hub Construction Phase 1 - Sacramento County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	0.0394	0.0238	0.3112	8.7000e-004	0.1141	5.4000e-004	0.1146	0.0303	4.9000e-004	0.0308		90.3636	90.3636	2.7900e-003	2.6100e-003	91.2120
Total	**0.0394**	**0.0238**	**0.3112**	**8.7000e-004**	**0.1141**	**5.4000e-004**	**0.1146**	**0.0303**	**4.9000e-004**	**0.0308**		**90.3636**	**90.3636**	**2.7900e-003**	**2.6100e-003**	**91.2120**

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	0.9152	8.5816	14.5780	0.0228		0.4185	0.4185		0.3850	0.3850	0.0000	2,206.7452	2,206.7452	0.7137		2,224.5878
Paving	0.4615					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3766**	**8.5816**	**14.5780**	**0.0228**		**0.4185**	**0.4185**		**0.3850**	**0.3850**	**0.0000**	**2,206.7452**	**2,206.7452**	**0.7137**		**2,224.5878**

CSUS The Hub Construction Phase 1 - Sacramento County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	0.0394	0.0238	0.3112	8.7000e-004	0.1052	5.4000e-004	0.1057	0.0281	4.9000e-004	0.0286		90.3636	90.3636	2.7900e-003	2.6100e-003	91.2120
Total	**0.0394**	**0.0238**	**0.3112**	**8.7000e-004**	**0.1052**	**5.4000e-004**	**0.1057**	**0.0281**	**4.9000e-004**	**0.0286**		**90.3636**	**90.3636**	**2.7900e-003**	**2.6100e-003**	**91.2120**

3.5 Paving - 2026

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	0.9152	8.5816	14.5780	0.0228		0.4185	0.4185		0.3850	0.3850		2,206.7452	2,206.7452	0.7137		2,224.5878
Paving	0.4615					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3766**	**8.5816**	**14.5780**	**0.0228**		**0.4185**	**0.4185**		**0.3850**	**0.3850**		**2,206.7452**	**2,206.7452**	**0.7137**		**2,224.5878**

CSUS The Hub Construction Phase 1 - Sacramento County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	0.0372	0.0216	0.2934	8.4000e-004	0.1141	5.1000e-004	0.1146	0.0303	4.7000e-004	0.0307		88.2220	88.2220	2.5500e-003	2.4600e-003	89.0192
Total	**0.0372**	**0.0216**	**0.2934**	**8.4000e-004**	**0.1141**	**5.1000e-004**	**0.1146**	**0.0303**	**4.7000e-004**	**0.0307**		**88.2220**	**88.2220**	**2.5500e-003**	**2.4600e-003**	**89.0192**

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	0.9152	8.5816	14.5780	0.0228		0.4185	0.4185		0.3850	0.3850	0.0000	2,206.7452	2,206.7452	0.7137		2,224.5878
Paving	0.4615					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3766**	**8.5816**	**14.5780**	**0.0228**		**0.4185**	**0.4185**		**0.3850**	**0.3850**	**0.0000**	**2,206.7452**	**2,206.7452**	**0.7137**		**2,224.5878**

CSUS The Hub Construction Phase 1 - Sacramento County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	0.0372	0.0216	0.2934	8.4000e-004	0.1052	5.1000e-004	0.1057	0.0281	4.7000e-004	0.0286		88.2220	88.2220	2.5500e-003	2.4600e-003	89.0192
Total	**0.0372**	**0.0216**	**0.2934**	**8.4000e-004**	**0.1052**	**5.1000e-004**	**0.1057**	**0.0281**	**4.7000e-004**	**0.0286**		**88.2220**	**88.2220**	**2.5500e-003**	**2.4600e-003**	**89.0192**

3.6 Architectural Coating - 2026

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	124.0920					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1709	1.1455	1.8091	2.9700e-003		0.0515	0.0515		0.0515	0.0515		281.4481	281.4481	0.0154		281.8319

CSUS The Hub Construction Phase 1 - Sacramento County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Total	**124.2628**	**1.1455**	**1.8091**	**2.9700e-003**		**0.0515**	**0.0515**		**0.0515**	**0.0515**		**281.4481**	**281.4481**	**0.0154**		**281.8319**

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	0.2505	0.1453	1.9757	5.6600e-003	0.7683	3.4400e-003	0.7717	0.2038	3.1600e-003	0.2070		594.0280	594.0280	0.0172	0.0166	599.3956
Total	**0.2505**	**0.1453**	**1.9757**	**5.6600e-003**	**0.7683**	**3.4400e-003**	**0.7717**	**0.2038**	**3.1600e-003**	**0.2070**		**594.0280**	**594.0280**	**0.0172**	**0.0166**	**599.3956**

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	124.0920					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000

Off-Road	0.1709	1.1455	1.8091	2.9700e-003		0.0515	0.0515		0.0515	0.0515	0.0000	281.4481	281.4481	0.0154		281.8319
Total	**124.2628**	**1.1455**	**1.8091**	**2.9700e-003**		**0.0515**	**0.0515**		**0.0515**	**0.0515**	**0.0000**	**281.4481**	**281.4481**	**0.0154**		**281.8319**

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	0.2505	0.1453	1.9757	5.6600e-003	0.7082	3.4400e-003	0.7117	0.1891	3.1600e-003	0.1922		594.0280	594.0280	0.0172	0.0166	599.3956
Total	**0.2505**	**0.1453**	**1.9757**	**5.6600e-003**	**0.7082**	**3.4400e-003**	**0.7117**	**0.1891**	**3.1600e-003**	**0.1922**		**594.0280**	**594.0280**	**0.0172**	**0.0166**	**599.3956**

CSUS The Hub Construction Phase 2 - Sacramento County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

CSUS The Hub Construction Phase 2

Sacramento County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	189.50	1000sqft	0.00	189,500.00	0
General Office Building	52.00	1000sqft	0.60	52,000.00	0
Manufacturing	15.60	1000sqft	0.36	15,600.00	0
Enclosed Parking with Elevator	180.00	1000sqft	1.47	180,000.00	0
Strip Mall	14.50	1000sqft	0.00	14,500.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2028
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	93.04	**CH4 Intensity (lb/MWhr)**	0	**N2O Intensity (lb/MWhr)**	0

1.3 User Entered Comments & Non-Default Data

Project Characteristics - SMUD Invensity Factors adjusted accoding to RPS.

Land Use - Lot acreage adjusted according to FGSF

Construction Phase - Adjusted for 2 year construction schedule

Demolition -

Construction Off-road Equipment Mitigation - Clean Paved Road % PM Reduction - SCAQMD Rule 1186

Grading -

CSUS The Hub Construction Phase 2 - Sacramento County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	9
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	20.00	39.00
tblConstructionPhase	NumDays	3.00	6.00
tblConstructionPhase	NumDays	6.00	12.00
tblConstructionPhase	NumDays	220.00	425.00
tblConstructionPhase	NumDays	10.00	19.00
tblConstructionPhase	NumDays	10.00	19.00
tblConstructionPhase	PhaseEndDate	1/28/2027	2/24/2027
tblConstructionPhase	PhaseEndDate	2/2/2027	3/4/2027
tblConstructionPhase	PhaseEndDate	2/10/2027	3/22/2027
tblConstructionPhase	PhaseEndDate	12/15/2027	11/6/2028
tblConstructionPhase	PhaseEndDate	12/29/2027	12/1/2028
tblConstructionPhase	PhaseEndDate	1/12/2028	12/28/2028
tblConstructionPhase	PhaseStartDate	1/29/2027	2/25/2027
tblConstructionPhase	PhaseStartDate	2/3/2027	3/5/2027
tblConstructionPhase	PhaseStartDate	2/11/2027	3/23/2027
tblConstructionPhase	PhaseStartDate	12/16/2027	11/7/2028
tblConstructionPhase	PhaseStartDate	12/30/2027	12/2/2028
tblLandUse	LotAcreage	4.35	0.00
tblLandUse	LotAcreage	1.19	0.60
tblLandUse	LotAcreage	4.13	1.47
tblLandUse	LotAcreage	0.33	0.00
tblProjectCharacteristics	CH4IntensityFactor	0.033	0
tblProjectCharacteristics	CO2IntensityFactor	357.98	93.04
tblProjectCharacteristics	N2OIntensityFactor	0.004	0

CSUS The Hub Construction Phase 2 - Sacramento County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.0 Emissions Summary

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					
2027	0.2358	1.9771	2.1837	5.6200e-003	0.2708	0.0654	0.3362	0.0758	0.0621	0.1380	0.0000	503.4030	503.4030	0.0607	0.0233	511.8727
2028	1.5059	1.7921	2.1045	5.3700e-003	0.1843	0.0582	0.2425	0.0501	0.0556	0.1057	0.0000	480.9593	480.9593	0.0524	0.0226	489.0044
Maximum	**1.5059**	**1.9771**	**2.1837**	**5.6200e-003**	**0.2708**	**0.0654**	**0.3362**	**0.0758**	**0.0621**	**0.1380**	**0.0000**	**503.4030**	**503.4030**	**0.0607**	**0.0233**	**511.8727**

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					
2027	0.2358	1.9771	2.1837	5.6200e-003	0.2044	0.0654	0.2697	0.0569	0.0621	0.1190	0.0000	503.4027	503.4027	0.0607	0.0233	511.8724
2028	1.5059	1.7921	2.1045	5.3700e-003	0.1706	0.0582	0.2289	0.0468	0.0556	0.1024	0.0000	480.9590	480.9590	0.0524	0.0226	489.0041
Maximum	**1.5059**	**1.9771**	**2.1837**	**5.6200e-003**	**0.2044**	**0.0654**	**0.2697**	**0.0569**	**0.0621**	**0.1190**	**0.0000**	**503.4027**	**503.4027**	**0.0607**	**0.0233**	**511.8724**

CSUS The Hub Construction Phase 2 - Sacramento County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule 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	17.60	0.00	13.84	17.68	0.00	9.14	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)
1	1-1-2027	3-31-2027	0.4931	0.4931
2	4-1-2027	6-30-2027	0.5644	0.5644
3	7-1-2027	9-30-2027	0.5706	0.5706
4	10-1-2027	12-31-2027	0.5782	0.5782
5	1-1-2028	3-31-2028	0.5688	0.5688
6	4-1-2028	6-30-2028	0.5615	0.5615
7	7-1-2028	9-30-2028	0.5677	0.5677
		Highest	0.5782	0.5782

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2027	2/24/2027	5	39	
2	Site Preparation	Site Preparation	2/25/2027	3/4/2027	5	6	
3	Grading	Grading	3/5/2027	3/22/2027	5	12	
4	Building Construction	Building Construction	3/23/2027	11/6/2028	5	425	
5	Paving	Paving	11/7/2028	12/1/2028	5	19	
6	Architectural Coating	Architectural Coating	12/2/2028	12/28/2028	5	19	

Acres of Grading (Site Preparation Phase): 9

CSUS The Hub Construction Phase 2 - Sacramento County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Acres of Grading (Grading Phase): 12

Acres of Paving: 1.47

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 407,400; Non-Residential Outdoor: 135,800; Striped Parking Area: 10,800

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Scrapers	1	8.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
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
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
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
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

CSUS The Hub Construction Phase 2 - Sacramento County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule 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
Demolition	5	13.00	0.00	446.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	164.00	74.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	33.00	0.00	0.00	10.00	6.50	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 Demolition - 2027

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					0.0503	0.0000	0.0503	7.6100e-003	0.0000	7.6100e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0261	0.2517	0.2600	4.7000e-004		0.0106	0.0106		9.9300e-003	9.9300e-003	0.0000	41.1435	41.1435	0.0104	0.0000	41.4030
Total	**0.0261**	**0.2517**	**0.2600**	**4.7000e-004**	**0.0503**	**0.0106**	**0.0609**	**7.6100e-003**	**9.9300e-003**	**0.0175**	**0.0000**	**41.1435**	**41.1435**	**0.0104**	**0.0000**	**41.4030**

CSUS The Hub Construction Phase 2 - Sacramento County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	5.4000e-004	0.0319	7.1900e-003	1.3000e-004	3.7700e-003	2.4000e-004	4.0100e-003	1.0300e-003	2.3000e-004	1.2600e-003	0.0000	12.7292	12.7292	5.1000e-004	2.0200e-003	13.3435
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	5.7000e-004	3.0000e-004	4.5900e-003	1.0000e-005	1.8600e-003	1.0000e-005	1.8700e-003	5.0000e-004	1.0000e-005	5.0000e-004	0.0000	1.3562	1.3562	3.0000e-005	3.0000e-005	1.3669
Total	**1.1100e-003**	**0.0322**	**0.0118**	**1.4000e-004**	**5.6300e-003**	**2.5000e-004**	**5.8800e-003**	**1.5300e-003**	**2.4000e-004**	**1.7600e-003**	**0.0000**	**14.0854**	**14.0854**	**5.4000e-004**	**2.0500e-003**	**14.7104**

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					0.0226	0.0000	0.0226	3.4300e-003	0.0000	3.4300e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0261	0.2517	0.2600	4.7000e-004		0.0106	0.0106		9.9300e-003	9.9300e-003	0.0000	41.1435	41.1435	0.0104	0.0000	41.4029

CSUS The Hub Construction Phase 2 - Sacramento County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Total	**0.0261**	**0.2517**	**0.2600**	**4.7000e-004**	**0.0226**	**0.0106**	**0.0333**	**3.4300e-003**	**9.9300e-003**	**0.0134**	**0.0000**	**41.1435**	**41.1435**	**0.0104**	**0.0000**	**41.4029**

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	5.4000e-004	0.0319	7.1900e-003	1.3000e-004	3.5100e-003	2.4000e-004	3.7500e-003	9.7000e-004	2.3000e-004	1.2000e-003	0.0000	12.7292	12.7292	5.1000e-004	2.0200e-003	13.3435
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	5.7000e-004	3.0000e-004	4.5900e-003	1.0000e-005	1.7200e-003	1.0000e-005	1.7300e-003	4.6000e-004	1.0000e-005	4.7000e-004	0.0000	1.3562	1.3562	3.0000e-005	3.0000e-005	1.3669
Total	**1.1100e-003**	**0.0322**	**0.0118**	**1.4000e-004**	**5.2300e-003**	**2.5000e-004**	**5.4800e-003**	**1.4300e-003**	**2.4000e-004**	**1.6700e-003**	**0.0000**	**14.0854**	**14.0854**	**5.4000e-004**	**2.0500e-003**	**14.7104**

3.3 Site Preparation - 2027

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					4.7700e-003	0.0000	4.7700e-003	5.2000e-004	0.0000	5.2000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

CSUS The Hub Construction Phase 2 - Sacramento County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Off-Road	3.3000e-003	0.0330	0.0268	7.0000e-005		1.2300e-003	1.2300e-003		1.1300e-003	1.1300e-003	0.0000	6.4574	6.4574	2.0900e-003	0.0000	6.5096
Total	**3.3000e-003**	**0.0330**	**0.0268**	**7.0000e-005**	**4.7700e-003**	**1.2300e-003**	**6.0000e-003**	**5.2000e-004**	**1.1300e-003**	**1.6500e-003**	**0.0000**	**6.4574**	**6.4574**	**2.0900e-003**	**0.0000**	**6.5096**

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	5.0000e-005	3.0000e-005	4.3000e-004	0.0000	1.8000e-004	0.0000	1.8000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1284	0.1284	0.0000	0.0000	0.1294
Total	**5.0000e-005**	**3.0000e-005**	**4.3000e-004**	**0.0000**	**1.8000e-004**	**0.0000**	**1.8000e-004**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**	**0.1284**	**0.1284**	**0.0000**	**0.0000**	**0.1294**

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					

CSUS The Hub Construction Phase 2 - Sacramento County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Fugitive Dust					2.1500e-003	0.0000	2.1500e-003	2.3000e-004	0.0000	2.3000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.3000e-003	0.0330	0.0268	7.0000e-005		1.2300e-003	1.2300e-003		1.1300e-003	1.1300e-003	0.0000	6.4574	6.4574	2.0900e-003	0.0000	6.5096
Total	**3.3000e-003**	**0.0330**	**0.0268**	**7.0000e-005**	**2.1500e-003**	**1.2300e-003**	**3.3800e-003**	**2.3000e-004**	**1.1300e-003**	**1.3600e-003**	**0.0000**	**6.4574**	**6.4574**	**2.0900e-003**	**0.0000**	**6.5096**

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	5.0000e-005	3.0000e-005	4.3000e-004	0.0000	1.6000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1284	0.1284	0.0000	0.0000	0.1294
Total	**5.0000e-005**	**3.0000e-005**	**4.3000e-004**	**0.0000**	**1.6000e-004**	**0.0000**	**1.6000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1284**	**0.1284**	**0.0000**	**0.0000**	**0.1294**

3.4 Grading - 2027

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

CSUS The Hub Construction Phase 2 - Sacramento County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Category	tons/yr										MT/yr					
Fugitive Dust					0.0425	0.0000	0.0425	0.0206	0.0000	0.0206	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.1400e-003	0.0746	0.0510	1.2000e-004		2.9800e-003	2.9800e-003		2.7400e-003	2.7400e-003	0.0000	10.8633	10.8633	3.5100e-003	0.0000	10.9512
Total	**7.1400e-003**	**0.0746**	**0.0510**	**1.2000e-004**	**0.0425**	**2.9800e-003**	**0.0455**	**0.0206**	**2.7400e-003**	**0.0233**	**0.0000**	**10.8633**	**10.8633**	**3.5100e-003**	**0.0000**	**10.9512**

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	1.3000e-004	7.0000e-005	1.0900e-003	0.0000	4.4000e-004	0.0000	4.4000e-004	1.2000e-004	0.0000	1.2000e-004	0.0000	0.3210	0.3210	1.0000e-005	1.0000e-005	0.3235
Total	**1.3000e-004**	**7.0000e-005**	**1.0900e-003**	**0.0000**	**4.4000e-004**	**0.0000**	**4.4000e-004**	**1.2000e-004**	**0.0000**	**1.2000e-004**	**0.0000**	**0.3210**	**0.3210**	**1.0000e-005**	**1.0000e-005**	**0.3235**

Mitigated Construction On-Site

CSUS The Hub Construction Phase 2 - Sacramento County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule 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					
Fugitive Dust					0.0191	0.0000	0.0191	9.2500e-003	0.0000	9.2500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.1400e-003	0.0746	0.0510	1.2000e-004		2.9800e-003	2.9800e-003		2.7400e-003	2.7400e-003	0.0000	10.8633	10.8633	3.5100e-003	0.0000	10.9512
Total	**7.1400e-003**	**0.0746**	**0.0510**	**1.2000e-004**	**0.0191**	**2.9800e-003**	**0.0221**	**9.2500e-003**	**2.7400e-003**	**0.0120**	**0.0000**	**10.8633**	**10.8633**	**3.5100e-003**	**0.0000**	**10.9512**

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	1.3000e-004	7.0000e-005	1.0900e-003	0.0000	4.1000e-004	0.0000	4.1000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3210	0.3210	1.0000e-005	1.0000e-005	0.3235
Total	**1.3000e-004**	**7.0000e-005**	**1.0900e-003**	**0.0000**	**4.1000e-004**	**0.0000**	**4.1000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**0.3210**	**0.3210**	**1.0000e-005**	**1.0000e-005**	**0.3235**

3.5 Building Construction - 2027

Unmitigated Construction On-Site

CSUS The Hub Construction Phase 2 - Sacramento County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule 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					
Off-Road	0.1520	1.2264	1.4287	2.5500e-003		0.0479	0.0479		0.0459	0.0459	0.0000	211.8900	211.8900	0.0389	0.0000	212.8615
Total	**0.1520**	**1.2264**	**1.4287**	**2.5500e-003**		**0.0479**	**0.0479**		**0.0459**	**0.0459**	**0.0000**	**211.8900**	**211.8900**	**0.0389**	**0.0000**	**212.8615**

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	8.4700e-003	0.3396	0.1011	1.3200e-003	0.0442	1.8000e-003	0.0460	0.0128	1.7200e-003	0.0145	0.0000	129.0210	129.0210	3.1300e-003	0.0191	134.7853
Worker	0.0375	0.0196	0.3028	9.3000e-004	0.1229	5.4000e-004	0.1234	0.0327	5.0000e-004	0.0332	0.0000	89.4930	89.4930	2.1500e-003	2.1900e-003	90.1988
Total	**0.0460**	**0.3592**	**0.4039**	**2.2500e-003**	**0.1670**	**2.3400e-003**	**0.1694**	**0.0455**	**2.2200e-003**	**0.0477**	**0.0000**	**218.5140**	**218.5140**	**5.2800e-003**	**0.0213**	**224.9841**

Mitigated Construction On-Site

CSUS The Hub Construction Phase 2 - Sacramento County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule 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					
Off-Road	0.1520	1.2264	1.4287	2.5500e-003		0.0479	0.0479		0.0459	0.0459	0.0000	211.8898	211.8898	0.0389	0.0000	212.8613
Total	**0.1520**	**1.2264**	**1.4287**	**2.5500e-003**		**0.0479**	**0.0479**		**0.0459**	**0.0459**	**0.0000**	**211.8898**	**211.8898**	**0.0389**	**0.0000**	**212.8613**

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	8.4700e-003	0.3396	0.1011	1.3200e-003	0.0414	1.8000e-003	0.0432	0.0121	1.7200e-003	0.0138	0.0000	129.0210	129.0210	3.1300e-003	0.0191	134.7853
Worker	0.0375	0.0196	0.3028	9.3000e-004	0.1133	5.4000e-004	0.1138	0.0303	5.0000e-004	0.0308	0.0000	89.4930	89.4930	2.1500e-003	2.1900e-003	90.1988
Total	**0.0460**	**0.3592**	**0.4039**	**2.2500e-003**	**0.1547**	**2.3400e-003**	**0.1570**	**0.0424**	**2.2200e-003**	**0.0446**	**0.0000**	**218.5140**	**218.5140**	**5.2800e-003**	**0.0213**	**224.9841**

3.5 Building Construction - 2028

Unmitigated Construction On-Site

CSUS The Hub Construction Phase 2 - Sacramento County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule 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					
Off-Road	0.1646	1.3286	1.5478	2.7700e-003		0.0519	0.0519		0.0497	0.0497	0.0000	229.5475	229.5475	0.0421	0.0000	230.6000
Total	**0.1646**	**1.3286**	**1.5478**	**2.7700e-003**		**0.0519**	**0.0519**		**0.0497**	**0.0497**	**0.0000**	**229.5475**	**229.5475**	**0.0421**	**0.0000**	**230.6000**

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	8.9000e-003	0.3619	0.1080	1.4000e-003	0.0478	1.9100e-003	0.0498	0.0138	1.8300e-003	0.0157	0.0000	136.9026	136.9026	3.3200e-003	0.0203	143.0286
Worker	0.0385	0.0196	0.3128	9.8000e-004	0.1331	5.5000e-004	0.1336	0.0354	5.0000e-004	0.0359	0.0000	94.9569	94.9569	2.1500e-003	2.2600e-003	95.6851
Total	**0.0474**	**0.3815**	**0.4208**	**2.3800e-003**	**0.1809**	**2.4600e-003**	**0.1834**	**0.0492**	**2.3300e-003**	**0.0516**	**0.0000**	**231.8595**	**231.8595**	**5.4700e-003**	**0.0225**	**238.7138**

Mitigated Construction On-Site

CSUS The Hub Construction Phase 2 - Sacramento County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule 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					
Off-Road	0.1646	1.3286	1.5478	2.7700e-003		0.0519	0.0519		0.0497	0.0497	0.0000	229.5473	229.5473	0.0421	0.0000	230.5997
Total	**0.1646**	**1.3286**	**1.5478**	**2.7700e-003**		**0.0519**	**0.0519**		**0.0497**	**0.0497**	**0.0000**	**229.5473**	**229.5473**	**0.0421**	**0.0000**	**230.5997**

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	8.9000e-003	0.3619	0.1080	1.4000e-003	0.0448	1.9100e-003	0.0467	0.0131	1.8300e-003	0.0149	0.0000	136.9026	136.9026	3.3200e-003	0.0203	143.0286
Worker	0.0385	0.0196	0.3128	9.8000e-004	0.1227	5.5000e-004	0.1233	0.0329	5.0000e-004	0.0334	0.0000	94.9569	94.9569	2.1500e-003	2.2600e-003	95.6851
Total	**0.0474**	**0.3815**	**0.4208**	**2.3800e-003**	**0.1676**	**2.4600e-003**	**0.1700**	**0.0459**	**2.3300e-003**	**0.0483**	**0.0000**	**231.8595**	**231.8595**	**5.4700e-003**	**0.0225**	**238.7138**

3.6 Paving - 2028

Unmitigated Construction On-Site

Date: 9/27/2021 4:46 PM

CSUS The Hub Construction Phase 2 - Sacramento County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule 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					
Off-Road	7.4600e-003	0.0707	0.1109	1.7000e-004		3.3300e-003	3.3300e-003		3.0700e-003	3.0700e-003	0.0000	14.7373	14.7373	4.6700e-003	0.0000	14.8540
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**7.4600e-003**	**0.0707**	**0.1109**	**1.7000e-004**		**3.3300e-003**	**3.3300e-003**		**3.0700e-003**	**3.0700e-003**	**0.0000**	**14.7373**	**14.7373**	**4.6700e-003**	**0.0000**	**14.8540**

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	1.5000e-004	2.4600e-003	1.0000e-005	1.0500e-003	0.0000	1.0500e-003	2.8000e-004	0.0000	2.8000e-004	0.0000	0.7467	0.7467	2.0000e-005	2.0000e-005	0.7524
Total	**3.0000e-004**	**1.5000e-004**	**2.4600e-003**	**1.0000e-005**	**1.0500e-003**	**0.0000**	**1.0500e-003**	**2.8000e-004**	**0.0000**	**2.8000e-004**	**0.0000**	**0.7467**	**0.7467**	**2.0000e-005**	**2.0000e-005**	**0.7524**

CSUS The Hub Construction Phase 2 - Sacramento County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	7.4600e-003	0.0707	0.1109	1.7000e-004		3.3300e-003	3.3300e-003		3.0700e-003	3.0700e-003	0.0000	14.7373	14.7373	4.6700e-003	0.0000	14.8540
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**7.4600e-003**	**0.0707**	**0.1109**	**1.7000e-004**		**3.3300e-003**	**3.3300e-003**		**3.0700e-003**	**3.0700e-003**	**0.0000**	**14.7373**	**14.7373**	**4.6700e-003**	**0.0000**	**14.8540**

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	1.5000e-004	2.4600e-003	1.0000e-005	9.7000e-004	0.0000	9.7000e-004	2.6000e-004	0.0000	2.6000e-004	0.0000	0.7467	0.7467	2.0000e-005	2.0000e-005	0.7524
Total	**3.0000e-004**	**1.5000e-004**	**2.4600e-003**	**1.0000e-005**	**9.7000e-004**	**0.0000**	**9.7000e-004**	**2.6000e-004**	**0.0000**	**2.6000e-004**	**0.0000**	**0.7467**	**0.7467**	**2.0000e-005**	**2.0000e-005**	**0.7524**

CSUS The Hub Construction Phase 2 - Sacramento County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.7 Architectural Coating - 2028

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	1.2839					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.6200e-003	0.0109	0.0172	3.0000e-005		4.9000e-004	4.9000e-004		4.9000e-004	4.9000e-004	0.0000	2.4256	2.4256	1.3000e-004	0.0000	2.4289
Total	**1.2855**	**0.0109**	**0.0172**	**3.0000e-005**		**4.9000e-004**	**4.9000e-004**		**4.9000e-004**	**4.9000e-004**	**0.0000**	**2.4256**	**2.4256**	**1.3000e-004**	**0.0000**	**2.4289**

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	6.7000e-004	3.4000e-004	5.4100e-003	2.0000e-005	2.3000e-003	1.0000e-005	2.3100e-003	6.1000e-004	1.0000e-005	6.2000e-004	0.0000	1.6427	1.6427	4.0000e-005	4.0000e-005	1.6553
Total	**6.7000e-004**	**3.4000e-004**	**5.4100e-003**	**2.0000e-005**	**2.3000e-003**	**1.0000e-005**	**2.3100e-003**	**6.1000e-004**	**1.0000e-005**	**6.2000e-004**	**0.0000**	**1.6427**	**1.6427**	**4.0000e-005**	**4.0000e-005**	**1.6553**

CSUS The Hub Construction Phase 2 - Sacramento County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	1.2839					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.6200e-003	0.0109	0.0172	3.0000e-005		4.9000e-004	4.9000e-004		4.9000e-004	4.9000e-004	0.0000	2.4256	2.4256	1.3000e-004	0.0000	2.4289
Total	**1.2855**	**0.0109**	**0.0172**	**3.0000e-005**		**4.9000e-004**	**4.9000e-004**		**4.9000e-004**	**4.9000e-004**	**0.0000**	**2.4256**	**2.4256**	**1.3000e-004**	**0.0000**	**2.4289**

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	6.7000e-004	3.4000e-004	5.4100e-003	2.0000e-005	2.1200e-003	1.0000e-005	2.1300e-003	5.7000e-004	1.0000e-005	5.8000e-004	0.0000	1.6427	1.6427	4.0000e-005	4.0000e-005	1.6553
Total	**6.7000e-004**	**3.4000e-004**	**5.4100e-003**	**2.0000e-005**	**2.1200e-003**	**1.0000e-005**	**2.1300e-003**	**5.7000e-004**	**1.0000e-005**	**5.8000e-004**	**0.0000**	**1.6427**	**1.6427**	**4.0000e-005**	**4.0000e-005**	**1.6553**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

CSUS The Hub Construction Phase 2

Sacramento County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	189.50	1000sqft	0.00	189,500.00	0
General Office Building	52.00	1000sqft	0.60	52,000.00	0
Manufacturing	15.60	1000sqft	0.36	15,600.00	0
Enclosed Parking with Elevator	180.00	1000sqft	1.47	180,000.00	0
Strip Mall	14.50	1000sqft	0.00	14,500.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2028
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	93.04	**CH4 Intensity (lb/MWhr)**	0	**N2O Intensity (lb/MWhr)**	0

1.3 User Entered Comments & Non-Default Data

Project Characteristics - SMUD Invensity Factors adjusted accoding to RPS.

Land Use - Lot acreage adjusted according to FGSF

Construction Phase - Adjusted for 2 year construction schedule

Demolition -

Construction Off-road Equipment Mitigation - Clean Paved Road % PM Reduction - SCAQMD Rule 1186

Grading -

CSUS The Hub Construction Phase 2 - Sacramento County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	9
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	20.00	39.00
tblConstructionPhase	NumDays	3.00	6.00
tblConstructionPhase	NumDays	6.00	12.00
tblConstructionPhase	NumDays	220.00	425.00
tblConstructionPhase	NumDays	10.00	19.00
tblConstructionPhase	NumDays	10.00	19.00
tblConstructionPhase	PhaseEndDate	1/28/2027	2/24/2027
tblConstructionPhase	PhaseEndDate	2/2/2027	3/4/2027
tblConstructionPhase	PhaseEndDate	2/10/2027	3/22/2027
tblConstructionPhase	PhaseEndDate	12/15/2027	11/6/2028
tblConstructionPhase	PhaseEndDate	12/29/2027	12/1/2028
tblConstructionPhase	PhaseEndDate	1/12/2028	12/28/2028
tblConstructionPhase	PhaseStartDate	1/29/2027	2/25/2027
tblConstructionPhase	PhaseStartDate	2/3/2027	3/5/2027
tblConstructionPhase	PhaseStartDate	2/11/2027	3/23/2027
tblConstructionPhase	PhaseStartDate	12/16/2027	11/7/2028
tblConstructionPhase	PhaseStartDate	12/30/2027	12/2/2028
tblLandUse	LotAcreage	4.35	0.00
tblLandUse	LotAcreage	1.19	0.60
tblLandUse	LotAcreage	4.13	1.47
tblLandUse	LotAcreage	0.33	0.00
tblProjectCharacteristics	CH4IntensityFactor	0.033	0
tblProjectCharacteristics	CO2IntensityFactor	357.98	93.04
tblProjectCharacteristics	N2OIntensityFactor	0.004	0

CSUS The Hub Construction Phase 2 - Sacramento County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.0 Emissions Summary

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					
2027	2.0063	15.3611	18.4249	0.0480	7.1587	0.5579	7.6550	3.4449	0.5211	3.9016	0.0000	4,742.5223	4,742.5223	0.7684	0.2283	4,822.4359
2028	135.3998	15.2963	18.2481	0.0475	1.6932	0.4922	2.1853	0.4592	0.4709	0.9300	0.0000	4,691.9831	4,691.9831	0.5438	0.2234	4,770.3736
Maximum	**135.3998**	**15.3611**	**18.4249**	**0.0480**	**7.1587**	**0.5579**	**7.6550**	**3.4449**	**0.5211**	**3.9016**	**0.0000**	**4,742.5223**	**4,742.5223**	**0.7684**	**0.2283**	**4,822.4359**

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					
2027	2.0063	15.3611	18.4249	0.0480	3.2573	0.5579	3.7537	1.5599	0.5211	2.0165	0.0000	4,742.5223	4,742.5223	0.7684	0.2283	4,822.4359
2028	135.3998	15.2963	18.2481	0.0475	1.5670	0.4922	2.0591	0.4282	0.4709	0.8991	0.0000	4,691.9831	4,691.9831	0.5438	0.2234	4,770.3736
Maximum	**135.3998**	**15.3611**	**18.4249**	**0.0480**	**3.2573**	**0.5579**	**3.7537**	**1.5599**	**0.5211**	**2.0165**	**0.0000**	**4,742.5223**	**4,742.5223**	**0.7684**	**0.2283**	**4,822.4359**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule 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	45.50	0.00	40.93	49.08	0.00	39.66	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	Demolition	Demolition	1/1/2027	2/24/2027	5	39	
2	Site Preparation	Site Preparation	2/25/2027	3/4/2027	5	6	
3	Grading	Grading	3/5/2027	3/22/2027	5	12	
4	Building Construction	Building Construction	3/23/2027	11/6/2028	5	425	
5	Paving	Paving	11/7/2028	12/1/2028	5	19	
6	Architectural Coating	Architectural Coating	12/2/2028	12/28/2028	5	19	

Acres of Grading (Site Preparation Phase): 9

Acres of Grading (Grading Phase): 12

Acres of Paving: 1.47

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 407,400; Non-Residential Outdoor: 135,800; Striped Parking Area: 10,800

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	8.00	247	0.40

CSUS The Hub Construction Phase 2 - Sacramento County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Scrapers	1	8.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
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
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
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
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

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
Demolition	5	13.00	0.00	446.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	164.00	74.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

CSUS The Hub Construction Phase 2 - Sacramento County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Architectural Coating	1	33.00	0.00	0.00	10.00	6.50	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 Demolition - 2027

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					2.5788	0.0000	2.5788	0.3905	0.0000	0.3905			0.0000			0.0000
Off-Road	1.3396	12.9057	13.3316	0.0242		0.5452	0.5452		0.5091	0.5091		2,325.7934	2,325.7934	0.5866		2,340.4584
Total	**1.3396**	**12.9057**	**13.3316**	**0.0242**	**2.5788**	**0.5452**	**3.1241**	**0.3905**	**0.5091**	**0.8995**		**2,325.7934**	**2,325.7934**	**0.5866**		**2,340.4584**

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					

CSUS The Hub Construction Phase 2 - Sacramento County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Hauling	0.0283	1.5450	0.3662	6.5800e-003	0.1992	0.0122	0.2115	0.0545	0.0117	0.0663		719.3439	719.3439	0.0288	0.1141	754.0630
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	0.0140	0.2731	7.9000e-004	0.0989	4.2000e-004	0.0993	0.0262	3.9000e-004	0.0266		83.9437	83.9437	1.7300e-003	1.7700e-003	84.5136
Total	**0.0625**	**1.5589**	**0.6394**	**7.3700e-003**	**0.2981**	**0.0127**	**0.3108**	**0.0808**	**0.0121**	**0.0929**		**803.2876**	**803.2876**	**0.0306**	**0.1159**	**838.5766**

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					1.1605	0.0000	1.1605	0.1757	0.0000	0.1757			0.0000			0.0000
Off-Road	1.3396	12.9057	13.3316	0.0242		0.5452	0.5452		0.5091	0.5091	0.0000	2,325.7934	2,325.7934	0.5866		2,340.4584
Total	**1.3396**	**12.9057**	**13.3316**	**0.0242**	**1.1605**	**0.5452**	**1.7057**	**0.1757**	**0.5091**	**0.6848**	**0.0000**	**2,325.7934**	**2,325.7934**	**0.5866**		**2,340.4584**

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

CSUS The Hub Construction Phase 2 - Sacramento County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Category	lb/day										lb/day					
Hauling	0.0283	1.5450	0.3662	6.5800e-003	0.1856	0.0122	0.1979	0.0512	0.0117	0.0629		719.3439	719.3439	0.0288	0.1141	754.0630
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	0.0140	0.2731	7.9000e-004	0.0912	4.2000e-004	0.0916	0.0243	3.9000e-004	0.0247		83.9437	83.9437	1.7300e-003	1.7700e-003	84.5136
Total	**0.0625**	**1.5589**	**0.6394**	**7.3700e-003**	**0.2768**	**0.0127**	**0.2894**	**0.0755**	**0.0121**	**0.0876**		**803.2876**	**803.2876**	**0.0306**	**0.1159**	**838.5766**

3.3 Site Preparation - 2027

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	1.0985	10.9957	8.9257	0.0245		0.4094	0.4094		0.3766	0.3766		2,372.6856	2,372.6856	0.7674		2,391.8700
Total	**1.0985**	**10.9957**	**8.9257**	**0.0245**	**1.5908**	**0.4094**	**2.0001**	**0.1718**	**0.3766**	**0.5484**		**2,372.6856**	**2,372.6856**	**0.7674**		**2,391.8700**

Unmitigated Construction Off-Site

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule 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					
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	0.0210	8.5800e-003	0.1681	4.9000e-004	0.0609	2.6000e-004	0.0611	0.0161	2.4000e-004	0.0164		51.6577	51.6577	1.0600e-003	1.0900e-003	52.0084
Total	**0.0210**	**8.5800e-003**	**0.1681**	**4.9000e-004**	**0.0609**	**2.6000e-004**	**0.0611**	**0.0161**	**2.4000e-004**	**0.0164**		**51.6577**	**51.6577**	**1.0600e-003**	**1.0900e-003**	**52.0084**

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					0.7158	0.0000	0.7158	0.0773	0.0000	0.0773			0.0000			0.0000
Off-Road	1.0985	10.9957	8.9257	0.0245		0.4094	0.4094		0.3766	0.3766	0.0000	2,372.6856	2,372.6856	0.7674		2,391.8700
Total	**1.0985**	**10.9957**	**8.9257**	**0.0245**	**0.7158**	**0.4094**	**1.1252**	**0.0773**	**0.3766**	**0.4539**	**0.0000**	**2,372.6856**	**2,372.6856**	**0.7674**		**2,391.8700**

Mitigated Construction Off-Site

CSUS The Hub Construction Phase 2 - Sacramento County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule 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					
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	0.0210	8.5800e-003	0.1681	4.9000e-004	0.0561	2.6000e-004	0.0564	0.0150	2.4000e-004	0.0152		51.6577	51.6577	1.0600e-003	1.0900e-003	52.0084
Total	**0.0210**	**8.5800e-003**	**0.1681**	**4.9000e-004**	**0.0561**	**2.6000e-004**	**0.0564**	**0.0150**	**2.4000e-004**	**0.0152**		**51.6577**	**51.6577**	**1.0600e-003**	**1.0900e-003**	**52.0084**

3.4 Grading - 2027

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	1.1904	12.4243	8.4937	0.0206		0.4961	0.4961		0.4564	0.4564		1,995.7975	1,995.7975	0.6455		2,011.9345
Total	**1.1904**	**12.4243**	**8.4937**	**0.0206**	**7.0826**	**0.4961**	**7.5787**	**3.4247**	**0.4564**	**3.8811**		**1,995.7975**	**1,995.7975**	**0.6455**		**2,011.9345**

Date: 9/27/2021 4:43 PM

CSUS The Hub Construction Phase 2 - Sacramento County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	0.0263	0.0107	0.2101	6.1000e-004	0.0761	3.2000e-004	0.0764	0.0202	3.0000e-004	0.0205		64.5721	64.5721	1.3300e-003	1.3600e-003	65.0105
Total	**0.0263**	**0.0107**	**0.2101**	**6.1000e-004**	**0.0761**	**3.2000e-004**	**0.0764**	**0.0202**	**3.0000e-004**	**0.0205**		**64.5721**	**64.5721**	**1.3300e-003**	**1.3600e-003**	**65.0105**

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					3.1872	0.0000	3.1872	1.5411	0.0000	1.5411			0.0000			0.0000
Off-Road	1.1904	12.4243	8.4937	0.0206		0.4961	0.4961		0.4564	0.4564	0.0000	1,995.7975	1,995.7975	0.6455		2,011.9345
Total	**1.1904**	**12.4243**	**8.4937**	**0.0206**	**3.1872**	**0.4961**	**3.6832**	**1.5411**	**0.4564**	**1.9975**	**0.0000**	**1,995.7975**	**1,995.7975**	**0.6455**		**2,011.9345**

CSUS The Hub Construction Phase 2 - Sacramento County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	0.0263	0.0107	0.2101	6.1000e-004	0.0701	3.2000e-004	0.0704	0.0187	3.0000e-004	0.0190		64.5721	64.5721	1.3300e-003	1.3600e-003	65.0105
Total	**0.0263**	**0.0107**	**0.2101**	**6.1000e-004**	**0.0701**	**3.2000e-004**	**0.0704**	**0.0187**	**3.0000e-004**	**0.0190**		**64.5721**	**64.5721**	**1.3300e-003**	**1.3600e-003**	**65.0105**

3.5 Building Construction - 2027

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	1.4897	12.0233	14.0072	0.0250		0.4700	0.4700		0.4498	0.4498		2,289.8898	2,289.8898	0.4200		2,300.3887
Total	**1.4897**	**12.0233**	**14.0072**	**0.0250**		**0.4700**	**0.4700**		**0.4498**	**0.4498**		**2,289.8898**	**2,289.8898**	**0.4200**		**2,300.3887**

CSUS The Hub Construction Phase 2 - Sacramento County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	0.0853	3.1618	0.9722	0.0130	0.4456	0.0176	0.4633	0.1283	0.0169	0.1451		1,393.6505	1,393.6505	0.0339	0.2060	1,455.8756
Worker	0.4313	0.1760	3.4456	0.0100	1.2476	5.2800e-003	1.2528	0.3309	4.8600e-003	0.3358		1,058.9820	1,058.9820	0.0218	0.0223	1,066.1716
Total	**0.5166**	**3.3378**	**4.4177**	**0.0230**	**1.6932**	**0.0229**	**1.7161**	**0.4592**	**0.0217**	**0.4809**		**2,452.6325**	**2,452.6325**	**0.0557**	**0.2283**	**2,522.0473**

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	1.4897	12.0233	14.0072	0.0250		0.4700	0.4700		0.4498	0.4498	0.0000	2,289.8898	2,289.8898	0.4200		2,300.3887
Total	**1.4897**	**12.0233**	**14.0072**	**0.0250**		**0.4700**	**0.4700**		**0.4498**	**0.4498**	**0.0000**	**2,289.8898**	**2,289.8898**	**0.4200**		**2,300.3887**

Mitigated Construction Off-Site

CSUS The Hub Construction Phase 2 - Sacramento County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule 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					
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	0.0853	3.1618	0.9722	0.0130	0.4170	0.0176	0.4346	0.1212	0.0169	0.1381		1,393.6505	1,393.6505	0.0339	0.2060	1,455.8756
Worker	0.4313	0.1760	3.4456	0.0100	1.1500	5.2800e-003	1.1553	0.3070	4.8600e-003	0.3118		1,058.9820	1,058.9820	0.0218	0.0223	1,066.1716
Total	**0.5166**	**3.3378**	**4.4177**	**0.0230**	**1.5670**	**0.0229**	**1.5899**	**0.4282**	**0.0217**	**0.4499**		**2,452.6325**	**2,452.6325**	**0.0557**	**0.2283**	**2,522.0473**

3.5 Building Construction - 2028

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	1.4897	12.0233	14.0072	0.0250		0.4700	0.4700		0.4498	0.4498		2,289.8898	2,289.8898	0.4200		2,300.3887
Total	**1.4897**	**12.0233**	**14.0072**	**0.0250**		**0.4700**	**0.4700**		**0.4498**	**0.4498**		**2,289.8898**	**2,289.8898**	**0.4200**		**2,300.3887**

Unmitigated Construction Off-Site

CSUS The Hub Construction Phase 2 - Sacramento County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule 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					
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	0.0828	3.1107	0.9587	0.0127	0.4456	0.0172	0.4629	0.1282	0.0165	0.1447		1,364.9828	1,364.9828	0.0332	0.2021	1,426.0262
Worker	0.4080	0.1623	3.2823	9.7200e-003	1.2476	4.9600e-003	1.2525	0.3309	4.5600e-003	0.3355		1,037.1105	1,037.1105	0.0201	0.0213	1,043.9587
Total	**0.4909**	**3.2730**	**4.2409**	**0.0224**	**1.6932**	**0.0222**	**1.7154**	**0.4592**	**0.0211**	**0.4802**		**2,402.0933**	**2,402.0933**	**0.0533**	**0.2234**	**2,469.9849**

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	1.4897	12.0233	14.0072	0.0250		0.4700	0.4700		0.4498	0.4498	0.0000	2,289.8898	2,289.8898	0.4200		2,300.3887
Total	**1.4897**	**12.0233**	**14.0072**	**0.0250**		**0.4700**	**0.4700**		**0.4498**	**0.4498**	**0.0000**	**2,289.8898**	**2,289.8898**	**0.4200**		**2,300.3887**

Mitigated Construction Off-Site

CSUS The Hub Construction Phase 2 - Sacramento County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule 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					
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	0.0828	3.1107	0.9587	0.0127	0.4170	0.0172	0.4342	0.1212	0.0165	0.1377		1,364.9828	1,364.9828	0.0332	0.2021	1,426.0262
Worker	0.4080	0.1623	3.2823	9.7200e-003	1.1500	4.9600e-003	1.1549	0.3070	4.5600e-003	0.3115		1,037.1105	1,037.1105	0.0201	0.0213	1,043.9587
Total	**0.4909**	**3.2730**	**4.2409**	**0.0224**	**1.5670**	**0.0222**	**1.5892**	**0.4282**	**0.0211**	**0.4492**		**2,402.0933**	**2,402.0933**	**0.0533**	**0.2234**	**2,469.9849**

3.6 Paving - 2028

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	0.7854	7.4371	11.6737	0.0179		0.3503	0.3503		0.3234	0.3234		1,710.0067	1,710.0067	0.5420		1,723.5556
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.7854**	**7.4371**	**11.6737**	**0.0179**		**0.3503**	**0.3503**		**0.3234**	**0.3234**		**1,710.0067**	**1,710.0067**	**0.5420**		**1,723.5556**

CSUS The Hub Construction Phase 2 - Sacramento County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Unmitigated Construction Off-Site

Category	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
	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	0.0373	0.0149	0.3002	8.9000e-004	0.1141	4.5000e-004	0.1146	0.0303	4.2000e-004	0.0307		94.8577	94.8577	1.8300e-003	1.9500e-003	95.4840
Total	**0.0373**	**0.0149**	**0.3002**	**8.9000e-004**	**0.1141**	**4.5000e-004**	**0.1146**	**0.0303**	**4.2000e-004**	**0.0307**		**94.8577**	**94.8577**	**1.8300e-003**	**1.9500e-003**	**95.4840**

Mitigated Construction On-Site

Category	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
	lb/day										lb/day					
Off-Road	0.7854	7.4371	11.6737	0.0179		0.3503	0.3503		0.3234	0.3234	0.0000	1,710.0067	1,710.0067	0.5420		1,723.5556
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.7854**	**7.4371**	**11.6737**	**0.0179**		**0.3503**	**0.3503**		**0.3234**	**0.3234**	**0.0000**	**1,710.0067**	**1,710.0067**	**0.5420**		**1,723.5556**

CSUS The Hub Construction Phase 2 - Sacramento County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	0.0373	0.0149	0.3002	8.9000e-004	0.1052	4.5000e-004	0.1056	0.0281	4.2000e-004	0.0285		94.8577	94.8577	1.8300e-003	1.9500e-003	95.4840
Total	**0.0373**	**0.0149**	**0.3002**	**8.9000e-004**	**0.1052**	**4.5000e-004**	**0.1056**	**0.0281**	**4.2000e-004**	**0.0285**		**94.8577**	**94.8577**	**1.8300e-003**	**1.9500e-003**	**95.4840**

3.7 Architectural Coating - 2028

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	135.1468					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1709	1.1455	1.8091	2.9700e-003		0.0515	0.0515		0.0515	0.0515		281.4481	281.4481	0.0154		281.8319
Total	**135.3177**	**1.1455**	**1.8091**	**2.9700e-003**		**0.0515**	**0.0515**		**0.0515**	**0.0515**		**281.4481**	**281.4481**	**0.0154**		**281.8319**

Date: 9/27/2021 4:43 PM

CSUS The Hub Construction Phase 2 - Sacramento County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	0.0821	0.0327	0.6605	1.9600e-003	0.2510	1.0000e-003	0.2520	0.0666	9.2000e-004	0.0675		208.6869	208.6869	4.0400e-003	4.2900e-003	210.0649
Total	**0.0821**	**0.0327**	**0.6605**	**1.9600e-003**	**0.2510**	**1.0000e-003**	**0.2520**	**0.0666**	**9.2000e-004**	**0.0675**		**208.6869**	**208.6869**	**4.0400e-003**	**4.2900e-003**	**210.0649**

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	135.1468					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1709	1.1455	1.8091	2.9700e-003		0.0515	0.0515		0.0515	0.0515	0.0000	281.4481	281.4481	0.0154		281.8319
Total	**135.3177**	**1.1455**	**1.8091**	**2.9700e-003**		**0.0515**	**0.0515**		**0.0515**	**0.0515**	**0.0000**	**281.4481**	**281.4481**	**0.0154**		**281.8319**

Date: 9/27/2021 4:43 PM

CSUS The Hub Construction Phase 2 - Sacramento County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	0.0821	0.0327	0.6605	1.9600e-003	0.2314	1.0000e-003	0.2324	0.0618	9.2000e-004	0.0627		208.6869	208.6869	4.0400e-003	4.2900e-003	210.0649
Total	**0.0821**	**0.0327**	**0.6605**	**1.9600e-003**	**0.2314**	**1.0000e-003**	**0.2324**	**0.0618**	**9.2000e-004**	**0.0627**		**208.6869**	**208.6869**	**4.0400e-003**	**4.2900e-003**	**210.0649**

CSUS The Hub Construction Phase 2 - Sacramento County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

CSUS The Hub Construction Phase 2

Sacramento County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	189.50	1000sqft	0.00	189,500.00	0
General Office Building	52.00	1000sqft	0.60	52,000.00	0
Manufacturing	15.60	1000sqft	0.36	15,600.00	0
Enclosed Parking with Elevator	180.00	1000sqft	1.47	180,000.00	0
Strip Mall	14.50	1000sqft	0.00	14,500.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2028
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	93.04	**CH4 Intensity (lb/MWhr)**	0	**N2O Intensity (lb/MWhr)**	0

1.3 User Entered Comments & Non-Default Data

Project Characteristics - SMUD Invensity Factors adjusted accoding to RPS.

Land Use - Lot acreage adjusted according to FGSF

Construction Phase - Adjusted for 2 year construction schedule

Demolition -

Construction Off-road Equipment Mitigation - Clean Paved Road % PM Reduction - SCAQMD Rule 1186

Grading -

CSUS The Hub Construction Phase 2 - Sacramento County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	9
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	20.00	39.00
tblConstructionPhase	NumDays	3.00	6.00
tblConstructionPhase	NumDays	6.00	12.00
tblConstructionPhase	NumDays	220.00	425.00
tblConstructionPhase	NumDays	10.00	19.00
tblConstructionPhase	NumDays	10.00	19.00
tblConstructionPhase	PhaseEndDate	1/28/2027	2/24/2027
tblConstructionPhase	PhaseEndDate	2/2/2027	3/4/2027
tblConstructionPhase	PhaseEndDate	2/10/2027	3/22/2027
tblConstructionPhase	PhaseEndDate	12/15/2027	11/6/2028
tblConstructionPhase	PhaseEndDate	12/29/2027	12/1/2028
tblConstructionPhase	PhaseEndDate	1/12/2028	12/28/2028
tblConstructionPhase	PhaseStartDate	1/29/2027	2/25/2027
tblConstructionPhase	PhaseStartDate	2/3/2027	3/5/2027
tblConstructionPhase	PhaseStartDate	2/11/2027	3/23/2027
tblConstructionPhase	PhaseStartDate	12/16/2027	11/7/2028
tblConstructionPhase	PhaseStartDate	12/30/2027	12/2/2028
tblLandUse	LotAcreage	4.35	0.00
tblLandUse	LotAcreage	1.19	0.60
tblLandUse	LotAcreage	4.13	1.47
tblLandUse	LotAcreage	0.33	0.00
tblProjectCharacteristics	CH4IntensityFactor	0.033	0
tblProjectCharacteristics	CO2IntensityFactor	357.98	93.04
tblProjectCharacteristics	N2OIntensityFactor	0.004	0

CSUS The Hub Construction Phase 2 - Sacramento County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.0 Emissions Summary

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					
2027	1.9560	15.6409	18.0647	0.0469	7.1587	0.5579	7.6550	3.4449	0.5212	3.9016	0.0000	4,628.1054	4,628.1054	0.7686	0.2320	4,709.2135
2028	135.3910	15.5700	17.9106	0.0464	1.6932	0.4923	2.1854	0.4592	0.4710	0.9302	0.0000	4,580.1504	4,580.1504	0.5441	0.2269	4,659.6823
Maximum	**135.3910**	**15.6409**	**18.0647**	**0.0469**	**7.1587**	**0.5579**	**7.6550**	**3.4449**	**0.5212**	**3.9016**	**0.0000**	**4,628.1054**	**4,628.1054**	**0.7686**	**0.2320**	**4,709.2135**

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					
2027	1.9560	15.6409	18.0647	0.0469	3.2573	0.5579	3.7537	1.5599	0.5212	2.0165	0.0000	4,628.1054	4,628.1054	0.7686	0.2320	4,709.2135
2028	135.3910	15.5700	17.9106	0.0464	1.5670	0.4923	2.0593	0.4282	0.4710	0.8992	0.0000	4,580.1504	4,580.1504	0.5441	0.2269	4,659.6823
Maximum	**135.3910**	**15.6409**	**18.0647**	**0.0469**	**3.2573**	**0.5579**	**3.7537**	**1.5599**	**0.5212**	**2.0165**	**0.0000**	**4,628.1054**	**4,628.1054**	**0.7686**	**0.2320**	**4,709.2135**

CSUS The Hub Construction Phase 2 - Sacramento County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule 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	45.50	0.00	40.93	49.08	0.00	39.66	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	Demolition	Demolition	1/1/2027	2/24/2027	5	39	
2	Site Preparation	Site Preparation	2/25/2027	3/4/2027	5	6	
3	Grading	Grading	3/5/2027	3/22/2027	5	12	
4	Building Construction	Building Construction	3/23/2027	11/6/2028	5	425	
5	Paving	Paving	11/7/2028	12/1/2028	5	19	
6	Architectural Coating	Architectural Coating	12/2/2028	12/28/2028	5	19	

Acres of Grading (Site Preparation Phase): 9

Acres of Grading (Grading Phase): 12

Acres of Paving: 1.47

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 407,400; Non-Residential Outdoor: 135,800; Striped Parking Area: 10,800

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73

CSUS The Hub Construction Phase 2 - Sacramento County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Scrapers	1	8.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
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
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
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
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

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
Demolition	5	13.00	0.00	446.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	164.00	74.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

CSUS The Hub Construction Phase 2 - Sacramento County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Paving	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	33.00	0.00	0.00	10.00	6.50	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 Demolition - 2027

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					2.5788	0.0000	2.5788	0.3905	0.0000	0.3905			0.0000			0.0000
Off-Road	1.3396	12.9057	13.3316	0.0242		0.5452	0.5452		0.5091	0.5091		2,325.7934	2,325.7934	0.5866		2,340.4584
Total	**1.3396**	**12.9057**	**13.3316**	**0.0242**	**2.5788**	**0.5452**	**3.1241**	**0.3905**	**0.5091**	**0.8995**		**2,325.7934**	**2,325.7934**	**0.5866**		**2,340.4584**

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

CSUS The Hub Construction Phase 2 - Sacramento County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Category	lb/day										lb/day					
Hauling	0.0268	1.6715	0.3723	6.5900e-003	0.1992	0.0123	0.2115	0.0545	0.0117	0.0663		719.8693	719.8693	0.0287	0.1142	754.6129
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	0.0305	0.0171	0.2411	7.1000e-004	0.0989	4.2000e-004	0.0993	0.0262	3.9000e-004	0.0266		74.7457	74.7457	2.0300e-003	2.0200e-003	75.3993
Total	**0.0572**	**1.6886**	**0.6134**	**7.3000e-003**	**0.2981**	**0.0127**	**0.3108**	**0.0808**	**0.0121**	**0.0929**		**794.6151**	**794.6151**	**0.0308**	**0.1162**	**830.0122**

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					1.1605	0.0000	1.1605	0.1757	0.0000	0.1757			0.0000			0.0000
Off-Road	1.3396	12.9057	13.3316	0.0242		0.5452	0.5452		0.5091	0.5091	0.0000	2,325.7934	2,325.7934	0.5866		2,340.4584
Total	**1.3396**	**12.9057**	**13.3316**	**0.0242**	**1.1605**	**0.5452**	**1.7057**	**0.1757**	**0.5091**	**0.6848**	**0.0000**	**2,325.7934**	**2,325.7934**	**0.5866**		**2,340.4584**

Mitigated Construction Off-Site

CSUS The Hub Construction Phase 2 - Sacramento County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule 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					
Hauling	0.0268	1.6715	0.3723	6.5900e-003	0.1856	0.0123	0.1979	0.0512	0.0117	0.0629		719.8693	719.8693	0.0287	0.1142	754.6129
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	0.0305	0.0171	0.2411	7.1000e-004	0.0912	4.2000e-004	0.0916	0.0243	3.9000e-004	0.0247		74.7457	74.7457	2.0300e-003	2.0200e-003	75.3993
Total	**0.0572**	**1.6886**	**0.6134**	**7.3000e-003**	**0.2768**	**0.0127**	**0.2895**	**0.0755**	**0.0121**	**0.0877**		**794.6151**	**794.6151**	**0.0308**	**0.1162**	**830.0122**

3.3 Site Preparation - 2027

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	1.0985	10.9957	8.9257	0.0245		0.4094	0.4094		0.3766	0.3766		2,372.6856	2,372.6856	0.7674		2,391.8700
Total	**1.0985**	**10.9957**	**8.9257**	**0.0245**	**1.5908**	**0.4094**	**2.0001**	**0.1718**	**0.3766**	**0.5484**		**2,372.6856**	**2,372.6856**	**0.7674**		**2,391.8700**

Unmitigated Construction Off-Site

CSUS The Hub Construction Phase 2 - Sacramento County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule 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					
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	0.0188	0.0105	0.1484	4.3000e-004	0.0609	2.6000e-004	0.0611	0.0161	2.4000e-004	0.0164		45.9974	45.9974	1.2500e-003	1.2400e-003	46.3995
Total	**0.0188**	**0.0105**	**0.1484**	**4.3000e-004**	**0.0609**	**2.6000e-004**	**0.0611**	**0.0161**	**2.4000e-004**	**0.0164**		**45.9974**	**45.9974**	**1.2500e-003**	**1.2400e-003**	**46.3995**

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					0.7158	0.0000	0.7158	0.0773	0.0000	0.0773			0.0000			0.0000
Off-Road	1.0985	10.9957	8.9257	0.0245		0.4094	0.4094		0.3766	0.3766	0.0000	2,372.6856	2,372.6856	0.7674		2,391.8700
Total	**1.0985**	**10.9957**	**8.9257**	**0.0245**	**0.7158**	**0.4094**	**1.1252**	**0.0773**	**0.3766**	**0.4539**	**0.0000**	**2,372.6856**	**2,372.6856**	**0.7674**		**2,391.8700**

CSUS The Hub Construction Phase 2 - Sacramento County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	0.0188	0.0105	0.1484	4.3000e-004	0.0561	2.6000e-004	0.0564	0.0150	2.4000e-004	0.0152		45.9974	45.9974	1.2500e-003	1.2400e-003	46.3995
Total	**0.0188**	**0.0105**	**0.1484**	**4.3000e-004**	**0.0561**	**2.6000e-004**	**0.0564**	**0.0150**	**2.4000e-004**	**0.0152**		**45.9974**	**45.9974**	**1.2500e-003**	**1.2400e-003**	**46.3995**

3.4 Grading - 2027

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	1.1904	12.4243	8.4937	0.0206		0.4961	0.4961		0.4564	0.4564		1,995.7975	1,995.7975	0.6455		2,011.9345
Total	**1.1904**	**12.4243**	**8.4937**	**0.0206**	**7.0826**	**0.4961**	**7.5787**	**3.4247**	**0.4564**	**3.8811**		**1,995.7975**	**1,995.7975**	**0.6455**		**2,011.9345**

CSUS The Hub Construction Phase 2 - Sacramento County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	0.0235	0.0131	0.1855	5.4000e-004	0.0761	3.2000e-004	0.0764	0.0202	3.0000e-004	0.0205		57.4967	57.4967	1.5600e-003	1.5600e-003	57.9994
Total	**0.0235**	**0.0131**	**0.1855**	**5.4000e-004**	**0.0761**	**3.2000e-004**	**0.0764**	**0.0202**	**3.0000e-004**	**0.0205**		**57.4967**	**57.4967**	**1.5600e-003**	**1.5600e-003**	**57.9994**

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					3.1872	0.0000	3.1872	1.5411	0.0000	1.5411			0.0000			0.0000
Off-Road	1.1904	12.4243	8.4937	0.0206		0.4961	0.4961		0.4564	0.4564	0.0000	1,995.7975	1,995.7975	0.6455		2,011.9345
Total	**1.1904**	**12.4243**	**8.4937**	**0.0206**	**3.1872**	**0.4961**	**3.6832**	**1.5411**	**0.4564**	**1.9975**	**0.0000**	**1,995.7975**	**1,995.7975**	**0.6455**		**2,011.9345**

CSUS The Hub Construction Phase 2 - Sacramento County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	0.0235	0.0131	0.1855	5.4000e-004	0.0701	3.2000e-004	0.0704	0.0187	3.0000e-004	0.0190		57.4967	57.4967	1.5600e-003	1.5600e-003	57.9994
Total	**0.0235**	**0.0131**	**0.1855**	**5.4000e-004**	**0.0701**	**3.2000e-004**	**0.0704**	**0.0187**	**3.0000e-004**	**0.0190**		**57.4967**	**57.4967**	**1.5600e-003**	**1.5600e-003**	**57.9994**

3.5 Building Construction - 2027

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	1.4897	12.0233	14.0072	0.0250		0.4700	0.4700		0.4498	0.4498		2,289.8898	2,289.8898	0.4200		2,300.3887
Total	**1.4897**	**12.0233**	**14.0072**	**0.0250**		**0.4700**	**0.4700**		**0.4498**	**0.4498**		**2,289.8898**	**2,289.8898**	**0.4200**		**2,300.3887**

CSUS The Hub Construction Phase 2 - Sacramento County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	0.0818	3.4021	1.0159	0.0130	0.4456	0.0178	0.4634	0.1283	0.0170	0.1452		1,395.2698	1,395.2698	0.0337	0.2065	1,457.6343
Worker	0.3845	0.2155	3.0416	8.9100e-003	1.2476	5.2800e-003	1.2528	0.3309	4.8600e-003	0.3358		942.9458	942.9458	0.0256	0.0255	951.1905
Total	**0.4663**	**3.6176**	**4.0575**	**0.0219**	**1.6932**	**0.0230**	**1.7162**	**0.4592**	**0.0218**	**0.4810**		**2,338.2156**	**2,338.2156**	**0.0593**	**0.2320**	**2,408.8249**

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	1.4897	12.0233	14.0072	0.0250		0.4700	0.4700		0.4498	0.4498	0.0000	2,289.8898	2,289.8898	0.4200		2,300.3887
Total	**1.4897**	**12.0233**	**14.0072**	**0.0250**		**0.4700**	**0.4700**		**0.4498**	**0.4498**	**0.0000**	**2,289.8898**	**2,289.8898**	**0.4200**		**2,300.3887**

CSUS The Hub Construction Phase 2 - Sacramento County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	0.0818	3.4021	1.0159	0.0130	0.4170	0.0178	0.4348	0.1212	0.0170	0.1382		1,395.2698	1,395.2698	0.0337	0.2065	1,457.6343
Worker	0.3845	0.2155	3.0416	8.9100e-003	1.1500	5.2800e-003	1.1553	0.3070	4.8600e-003	0.3118		942.9458	942.9458	0.0256	0.0255	951.1905
Total	**0.4663**	**3.6176**	**4.0575**	**0.0219**	**1.5670**	**0.0230**	**1.5900**	**0.4282**	**0.0218**	**0.4500**		**2,338.2156**	**2,338.2156**	**0.0593**	**0.2320**	**2,408.8249**

3.5 Building Construction - 2028

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	1.4897	12.0233	14.0072	0.0250		0.4700	0.4700		0.4498	0.4498		2,289.8898	2,289.8898	0.4200		2,300.3887
Total	**1.4897**	**12.0233**	**14.0072**	**0.0250**		**0.4700**	**0.4700**		**0.4498**	**0.4498**		**2,289.8898**	**2,289.8898**	**0.4200**		**2,300.3887**

Unmitigated Construction Off-Site

CSUS The Hub Construction Phase 2 - Sacramento County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule 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					
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	0.0793	3.3480	1.0011	0.0127	0.4456	0.0174	0.4630	0.1282	0.0166	0.1449		1,366.6880	1,366.6880	0.0331	0.2025	1,427.8692
Worker	0.3640	0.1987	2.9023	8.6600e-003	1.2476	4.9600e-003	1.2525	0.3309	4.5600e-003	0.3355		923.5726	923.5726	0.0236	0.0244	931.4244
Total	**0.4433**	**3.5467**	**3.9034**	**0.0214**	**1.6932**	**0.0223**	**1.7155**	**0.4592**	**0.0212**	**0.4803**		**2,290.2606**	**2,290.2606**	**0.0567**	**0.2269**	**2,359.2936**

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	1.4897	12.0233	14.0072	0.0250		0.4700	0.4700		0.4498	0.4498	0.0000	2,289.8898	2,289.8898	0.4200		2,300.3887
Total	**1.4897**	**12.0233**	**14.0072**	**0.0250**		**0.4700**	**0.4700**		**0.4498**	**0.4498**	**0.0000**	**2,289.8898**	**2,289.8898**	**0.4200**		**2,300.3887**

Mitigated Construction Off-Site

CSUS The Hub Construction Phase 2 - Sacramento County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule 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					
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	0.0793	3.3480	1.0011	0.0127	0.4170	0.0174	0.4344	0.1212	0.0166	0.1378		1,366.6880	1,366.6880	0.0331	0.2025	1,427.8692
Worker	0.3640	0.1987	2.9023	8.6600e-003	1.1500	4.9600e-003	1.1549	0.3070	4.5600e-003	0.3115		923.5726	923.5726	0.0236	0.0244	931.4244
Total	**0.4433**	**3.5467**	**3.9034**	**0.0214**	**1.5670**	**0.0223**	**1.5893**	**0.4282**	**0.0212**	**0.4494**		**2,290.2606**	**2,290.2606**	**0.0567**	**0.2269**	**2,359.2936**

3.6 Paving - 2028

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	0.7854	7.4371	11.6737	0.0179		0.3503	0.3503		0.3234	0.3234		1,710.0067	1,710.0067	0.5420		1,723.5556
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.7854**	**7.4371**	**11.6737**	**0.0179**		**0.3503**	**0.3503**		**0.3234**	**0.3234**		**1,710.0067**	**1,710.0067**	**0.5420**		**1,723.5556**

CSUS The Hub Construction Phase 2 - Sacramento County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	0.0333	0.0182	0.2655	7.9000e-004	0.1141	4.5000e-004	0.1146	0.0303	4.2000e-004	0.0307		84.4731	84.4731	2.1600e-003	2.2300e-003	85.1913
Total	**0.0333**	**0.0182**	**0.2655**	**7.9000e-004**	**0.1141**	**4.5000e-004**	**0.1146**	**0.0303**	**4.2000e-004**	**0.0307**		**84.4731**	**84.4731**	**2.1600e-003**	**2.2300e-003**	**85.1913**

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	0.7854	7.4371	11.6737	0.0179		0.3503	0.3503		0.3234	0.3234	0.0000	1,710.0067	1,710.0067	0.5420		1,723.5556
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.7854**	**7.4371**	**11.6737**	**0.0179**		**0.3503**	**0.3503**		**0.3234**	**0.3234**	**0.0000**	**1,710.0067**	**1,710.0067**	**0.5420**		**1,723.5556**

CSUS The Hub Construction Phase 2 - Sacramento County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	0.0333	0.0182	0.2655	7.9000e-004	0.1052	4.5000e-004	0.1056	0.0281	4.2000e-004	0.0285		84.4731	84.4731	2.1600e-003	2.2300e-003	85.1913
Total	**0.0333**	**0.0182**	**0.2655**	**7.9000e-004**	**0.1052**	**4.5000e-004**	**0.1056**	**0.0281**	**4.2000e-004**	**0.0285**		**84.4731**	**84.4731**	**2.1600e-003**	**2.2300e-003**	**85.1913**

3.7 Architectural Coating - 2028

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	135.1468					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1709	1.1455	1.8091	2.9700e-003		0.0515	0.0515		0.0515	0.0515		281.4481	281.4481	0.0154		281.8319
Total	**135.3177**	**1.1455**	**1.8091**	**2.9700e-003**		**0.0515**	**0.0515**		**0.0515**	**0.0515**		**281.4481**	**281.4481**	**0.0154**		**281.8319**

CSUS The Hub Construction Phase 2 - Sacramento County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	0.0733	0.0400	0.5840	1.7400e-003	0.2510	1.0000e-003	0.2520	0.0666	9.2000e-004	0.0675		185.8408	185.8408	4.7500e-003	4.9000e-003	187.4208
Total	**0.0733**	**0.0400**	**0.5840**	**1.7400e-003**	**0.2510**	**1.0000e-003**	**0.2520**	**0.0666**	**9.2000e-004**	**0.0675**		**185.8408**	**185.8408**	**4.7500e-003**	**4.9000e-003**	**187.4208**

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	135.1468					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1709	1.1455	1.8091	2.9700e-003		0.0515	0.0515		0.0515	0.0515	0.0000	281.4481	281.4481	0.0154		281.8319
Total	**135.3177**	**1.1455**	**1.8091**	**2.9700e-003**		**0.0515**	**0.0515**		**0.0515**	**0.0515**	**0.0000**	**281.4481**	**281.4481**	**0.0154**		**281.8319**

CSUS The Hub Construction Phase 2 - Sacramento County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	0.0733	0.0400	0.5840	1.7400e-003	0.2314	1.0000e-003	0.2324	0.0618	9.2000e-004	0.0627		185.8408	185.8408	4.7500e-003	4.9000e-003	187.4208
Total	**0.0733**	**0.0400**	**0.5840**	**1.7400e-003**	**0.2314**	**1.0000e-003**	**0.2324**	**0.0618**	**9.2000e-004**	**0.0627**		**185.8408**	**185.8408**	**4.7500e-003**	**4.9000e-003**	**187.4208**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

CSUS The Hub Operations

Sacramento County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	273.90	1000sqft	1.09	273,900.00	0
Research & Development	250.00	1000sqft	1.15	250,000.00	0
Manufacturing	134.40	1000sqft	3.09	134,400.00	0
Enclosed Parking with Elevator	180.00	1000sqft	1.47	180,000.00	0
Other Asphalt Surfaces	3.00	Acre	3.00	130,680.00	0
Parking Lot	238.00	1000sqft	7.54	238,000.00	0
City Park	9.47	Acre	9.47	412,513.20	0
Strip Mall	14.50	1000sqft	0.00	14,500.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2028
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	93.04	**CH4 Intensity (lb/MWhr)**	0.01	**N2O Intensity (lb/MWhr)**	0

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Intensity Factors adjusted to meet RPS

Land Use - Lot acreage adjusted according to FGSF

Construction Phase - Operational model run - construction emissions evaluated in separate model.

CSUS The Hub Operations - Sacramento County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Vehicle Trips - Adjusted trips to meet 78,765 annual VMT

Energy Use - Electricity estimated off-model; Natural gas estimated in seperate model run

Stationary Sources - Emergency Generators and Fire Pumps -

Table Name	Column Name	Default Value	New Value
tblEnergyUse	LightingElect	1.75	0.00
tblEnergyUse	LightingElect	3.71	0.00
tblEnergyUse	LightingElect	4.57	0.00
tblEnergyUse	LightingElect	0.35	0.00
tblEnergyUse	LightingElect	4.57	0.00
tblEnergyUse	LightingElect	5.33	0.00
tblEnergyUse	NT24E	0.19	0.00
tblEnergyUse	NT24E	5.75	0.00
tblEnergyUse	NT24E	7.20	0.00
tblEnergyUse	NT24E	7.20	0.00
tblEnergyUse	NT24E	2.98	0.00
tblEnergyUse	NT24NG	0.68	0.00
tblEnergyUse	NT24NG	12.42	0.00
tblEnergyUse	NT24NG	12.42	0.00
tblEnergyUse	NT24NG	0.93	0.00
tblEnergyUse	T24E	3.50	0.00
tblEnergyUse	T24E	4.44	0.00
tblEnergyUse	T24E	3.05	0.00
tblEnergyUse	T24E	3.05	0.00
tblEnergyUse	T24E	2.91	0.00
tblEnergyUse	T24NG	12.30	0.00
tblEnergyUse	T24NG	23.15	0.00
tblEnergyUse	T24NG	23.15	0.00

CSUS The Hub Operations - Sacramento County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblEnergyUse	T24NG	4.44	0.00
tblLandUse	LotAcreage	6.29	1.09
tblLandUse	LotAcreage	5.74	1.15
tblLandUse	LotAcreage	4.13	1.47
tblLandUse	LotAcreage	5.46	7.54
tblLandUse	LotAcreage	0.33	0.00
tblProjectCharacteristics	CH4IntensityFactor	0.033	0.01
tblProjectCharacteristics	CO2IntensityFactor	357.98	93.04
tblProjectCharacteristics	N2OIntensityFactor	0.004	0
tblVehicleTrips	CC_TL	5.00	10.00
tblVehicleTrips	CNW_TL	6.50	10.30
tblVehicleTrips	CW_TL	10.00	11.00
tblVehicleTrips	DV_TP	19.00	0.00
tblVehicleTrips	PB_TP	4.00	0.00
tblVehicleTrips	PR_TP	77.00	100.00
tblVehicleTrips	ST_TR	1.96	0.00
tblVehicleTrips	ST_TR	2.21	0.00
tblVehicleTrips	ST_TR	6.42	0.00
tblVehicleTrips	ST_TR	1.90	0.00
tblVehicleTrips	ST_TR	42.04	0.00
tblVehicleTrips	SU_TR	2.19	0.00
tblVehicleTrips	SU_TR	0.70	0.00
tblVehicleTrips	SU_TR	5.09	0.00
tblVehicleTrips	SU_TR	1.11	0.00
tblVehicleTrips	SU_TR	20.43	0.00
tblVehicleTrips	WD_TR	0.78	0.00
tblVehicleTrips	WD_TR	9.74	31.50

tblVehicleTrips	WD_TR	3.93	0.00
tblVehicleTrips	WD_TR	11.26	0.00
tblVehicleTrips	WD_TR	44.32	0.00

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	2.9877	1.3000e-004	0.0140	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.0274	0.0274	7.0000e-005	0.0000	0.0292
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	3.0825	4.2206	31.9256	0.0730	8.6305	0.0532	8.6836	2.3065	0.0497	2.3561	0.0000	7,059.7321	7,059.7321	0.4182	0.3131	7,163.4985
Waste						0.0000	0.0000		0.0000	0.0000	92.6512	0.0000	92.6512	5.4755	0.0000	229.5393
Water						0.0000	0.0000		0.0000	0.0000	72.0902	49.0168	121.1070	0.2534	0.1568	174.1601
Total	**6.0702**	**4.2207**	**31.9396**	**0.0730**	**8.6305**	**0.0532**	**8.6837**	**2.3065**	**0.0497**	**2.3562**	**164.7414**	**7,108.7763**	**7,273.5176**	**6.1472**	**0.4699**	**7,567.2271**

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

CSUS The Hub Operations - Sacramento County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Category	tons/yr										MT/yr					
Area	2.9877	1.3000e-004	0.0140	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.0274	0.0274	7.0000e-005	0.0000	0.0292
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	3.0825	4.2206	31.9256	0.0730	8.6305	0.0532	8.6836	2.3065	0.0497	2.3561	0.0000	7,059.7321	7,059.7321	0.4182	0.3131	7,163.4985
Waste						0.0000	0.0000		0.0000	0.0000	92.6512	0.0000	92.6512	5.4755	0.0000	229.5393
Water						0.0000	0.0000		0.0000	0.0000	72.0902	49.0168	121.1070	0.2534	0.1568	174.1601
Total	**6.0702**	**4.2207**	**31.9396**	**0.0730**	**8.6305**	**0.0532**	**8.6837**	**2.3065**	**0.0497**	**2.3562**	**164.7414**	**7,108.7763**	**7,273.5176**	**6.1472**	**0.4699**	**7,567.2271**

	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**

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	tons/yr										MT/yr					
Mitigated	3.0825	4.2206	31.9256	0.0730	8.6305	0.0532	8.6836	2.3065	0.0497	2.3561	0.0000	7,059.7321	7,059.7321	0.4182	0.3131	7,163.4985

CSUS The Hub Operations - Sacramento County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Unmitigated	3.0825	4.2206	31.9256	0.0730	8.6305	0.0532	8.6836	2.3065	0.0497	2.3561	0.0000	7,059.7321	7,059.7321	0.4182	0.3131	7,163.4985

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Enclosed Parking with Elevator	0.00	0.00	0.00		
General Office Building	8,627.85	0.00	0.00	23,300,544	23,300,544
Manufacturing	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Research & Development	0.00	0.00	0.00		
Strip Mall	0.00	0.00	0.00		
Total	8,627.85	0.00	0.00	23,300,544	23,300,544

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
City Park	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
Enclosed Parking with Elevator	10.00	5.00	6.50	0.00	0.00	0.00	0	0	0
General Office Building	11.00	10.00	10.30	33.00	48.00	19.00	100	0	0
Manufacturing	10.00	5.00	6.50	59.00	28.00	13.00	92	5	3
Other Asphalt Surfaces	10.00	5.00	6.50	0.00	0.00	0.00	0	0	0
Parking Lot	10.00	5.00	6.50	0.00	0.00	0.00	0	0	0
Research & Development	10.00	5.00	6.50	33.00	48.00	19.00	82	15	3
Strip Mall	10.00	5.00	6.50	16.60	64.40	19.00	45	40	15

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.556441	0.056316	0.182404	0.123746	0.022308	0.005587	0.013387	0.009520	0.000843	0.000625	0.025098	0.000893	0.0028
Enclosed Parking with Elevator	0.556441	0.056316	0.182404	0.123746	0.022308	0.005587	0.013387	0.009520	0.000843	0.000625	0.025098	0.000893	0.0028

CSUS The Hub Operations - Sacramento County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

General Office Building	0.556441	0.056316	0.182404	0.123746	0.022308	0.005587	0.013387	0.009520	0.000843	0.000625	0.025098	0.000893	0.0028
Manufacturing	0.556441	0.056316	0.182404	0.123746	0.022308	0.005587	0.013387	0.009520	0.000843	0.000625	0.025098	0.000893	0.0028
Other Asphalt Surfaces	0.556441	0.056316	0.182404	0.123746	0.022308	0.005587	0.013387	0.009520	0.000843	0.000625	0.025098	0.000893	0.0028
Parking Lot	0.556441	0.056316	0.182404	0.123746	0.022308	0.005587	0.013387	0.009520	0.000843	0.000625	0.025098	0.000893	0.0028
Research & Development	0.556441	0.056316	0.182404	0.123746	0.022308	0.005587	0.013387	0.009520	0.000843	0.000625	0.025098	0.000893	0.0028
Strip Mall	0.556441	0.056316	0.182404	0.123746	0.022308	0.005587	0.013387	0.009520	0.000843	0.000625	0.025098	0.000893	0.0028

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	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas 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
NaturalGas 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

5.2 Energy by Land Use - NaturalGas

CSUS The Hub Operations - Sacramento County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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					
City Park	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
Enclosed Parking with Elevator	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
General Office Building	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
Manufacturing	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
Other 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
Parking Lot	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
Research & Development	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
Strip Mall	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		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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					

CSUS The Hub Operations - Sacramento County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

City Park	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
Enclosed Parking with Elevator	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
General Office Building	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
Manufacturing	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
Other 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
Parking Lot	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
Research & Development	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
Strip Mall	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		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
General Office Building	0	0.0000	0.0000	0.0000	0.0000
Manufacturing	0	0.0000	0.0000	0.0000	0.0000

Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Research & Development	0	0.0000	0.0000	0.0000	0.0000
Strip Mall	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
General Office Building	0	0.0000	0.0000	0.0000	0.0000
Manufacturing	0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Research & Development	0	0.0000	0.0000	0.0000	0.0000
Strip Mall	0	0.0000	0.0000	0.0000	0.0000

CSUS The Hub Operations - Sacramento County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	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	2.9877	1.3000e-004	0.0140	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.0274	0.0274	7.0000e-005	0.0000	0.0292
Unmitigated	2.9877	1.3000e-004	0.0140	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.0274	0.0274	7.0000e-005	0.0000	0.0292

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	0.3195					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Consumer Products	2.6670					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.2900e-003	1.3000e-004	0.0140	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.0274	0.0274	7.0000e-005	0.0000	0.0292
Total	**2.9877**	**1.3000e-004**	**0.0140**	**0.0000**		**5.0000e-005**	**5.0000e-005**		**5.0000e-005**	**5.0000e-005**	**0.0000**	**0.0274**	**0.0274**	**7.0000e-005**	**0.0000**	**0.0292**

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	0.3195					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.6670					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.2900e-003	1.3000e-004	0.0140	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.0274	0.0274	7.0000e-005	0.0000	0.0292
Total	**2.9877**	**1.3000e-004**	**0.0140**	**0.0000**		**5.0000e-005**	**5.0000e-005**		**5.0000e-005**	**5.0000e-005**	**0.0000**	**0.0274**	**0.0274**	**7.0000e-005**	**0.0000**	**0.0292**

7.0 Water Detail

7.1 Mitigation Measures Water

CSUS The Hub Operations - Sacramento County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	121.1070	0.2534	0.1568	174.1601
Unmitigated	121.1070	0.2534	0.1568	174.1601

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 11.2833	1.6666	1.8000e-004	0.0000	1.6711
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
General Office Building	48.6813 / 29.8369	31.8672	0.0609	0.0375	44.5503
Manufacturing	31.08 / 0	17.5316	0.0386	0.0239	25.6214
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000

Research & Development	122.923 / 0	69.3385	0.1525	0.0946	101.3343
Strip Mall	1.07405 / 0.65829	0.7031	1.3400e-003	8.3000e-004	0.9829
Total		**121.1070**	**0.2534**	**0.1568**	**174.1601**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 11.2833	1.6666	1.8000e-004	0.0000	1.6711
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
General Office Building	48.6813 / 29.8369	31.8672	0.0609	0.0375	44.5503
Manufacturing	31.08 / 0	17.5316	0.0386	0.0239	25.6214
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Research & Development	122.923 / 0	69.3385	0.1525	0.0946	101.3343
Strip Mall	1.07405 / 0.65829	0.7031	1.3400e-003	8.3000e-004	0.9829
Total		**121.1070**	**0.2534**	**0.1568**	**174.1601**

CSUS The Hub Operations - Sacramento County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	92.6512	5.4755	0.0000	229.5393
Unmitigated	92.6512	5.4755	0.0000	229.5393

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.81	0.1644	9.7200e-003	0.0000	0.4074
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
General Office Building	254.73	51.7079	3.0559	0.0000	128.1041

CSUS The Hub Operations - Sacramento County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Manufacturing	166.66	33.8305	1.9993	0.0000	83.8136
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Research & Development	19	3.8568	0.2279	0.0000	9.5551
Strip Mall	15.23	3.0916	0.1827	0.0000	7.6592
Total		**92.6512**	**5.4755**	**0.0000**	**229.5393**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.81	0.1644	9.7200e-003	0.0000	0.4074
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
General Office Building	254.73	51.7079	3.0559	0.0000	128.1041
Manufacturing	166.66	33.8305	1.9993	0.0000	83.8136
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Research & Development	19	3.8568	0.2279	0.0000	9.5551

CSUS The Hub Operations - Sacramento County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Strip Mall	15.23	3.0916	0.1827	0.0000	7.6592
Total		**92.6512**	**5.4755**	**0.0000**	**229.5393**

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 Applied

CSUS The Hub Operations

Sacramento County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	273.90	1000sqft	1.09	273,900.00	0
Research & Development	250.00	1000sqft	1.15	250,000.00	0
Manufacturing	134.40	1000sqft	3.09	134,400.00	0
Enclosed Parking with Elevator	180.00	1000sqft	1.47	180,000.00	0
Other Asphalt Surfaces	3.00	Acre	3.00	130,680.00	0
Parking Lot	238.00	1000sqft	7.54	238,000.00	0
City Park	9.47	Acre	9.47	412,513.20	0
Strip Mall	14.50	1000sqft	0.00	14,500.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2028
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	93.04	**CH4 Intensity (lb/MWhr)**	0.01	**N2O Intensity (lb/MWhr)**	0

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Intensity Factors adjusted to meet RPS

Land Use - Lot acreage adjusted according to FGSF

Construction Phase - Operational model run - construction emissions evaluated in separate model.

CSUS The Hub Operations - Sacramento County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Vehicle Trips - Adjusted trips to meet 78,765 annual VMT

Energy Use - Electricity estimated off-model; Natural gas estimated in seperate model run

Stationary Sources - Emergency Generators and Fire Pumps -

Table Name	Column Name	Default Value	New Value
tblEnergyUse	LightingElect	1.75	0.00
tblEnergyUse	LightingElect	3.71	0.00
tblEnergyUse	LightingElect	4.57	0.00
tblEnergyUse	LightingElect	0.35	0.00
tblEnergyUse	LightingElect	4.57	0.00
tblEnergyUse	LightingElect	5.33	0.00
tblEnergyUse	NT24E	0.19	0.00
tblEnergyUse	NT24E	5.75	0.00
tblEnergyUse	NT24E	7.20	0.00
tblEnergyUse	NT24E	7.20	0.00
tblEnergyUse	NT24E	2.98	0.00
tblEnergyUse	NT24NG	0.68	0.00
tblEnergyUse	NT24NG	12.42	0.00
tblEnergyUse	NT24NG	12.42	0.00
tblEnergyUse	NT24NG	0.93	0.00
tblEnergyUse	T24E	3.50	0.00
tblEnergyUse	T24E	4.44	0.00
tblEnergyUse	T24E	3.05	0.00
tblEnergyUse	T24E	3.05	0.00
tblEnergyUse	T24E	2.91	0.00
tblEnergyUse	T24NG	12.30	0.00
tblEnergyUse	T24NG	23.15	0.00
tblEnergyUse	T24NG	23.15	0.00

CSUS The Hub Operations - Sacramento County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblEnergyUse	T24NG	4.44	0.00
tblLandUse	LotAcreage	6.29	1.09
tblLandUse	LotAcreage	5.74	1.15
tblLandUse	LotAcreage	4.13	1.47
tblLandUse	LotAcreage	5.46	7.54
tblLandUse	LotAcreage	0.33	0.00
tblProjectCharacteristics	CH4IntensityFactor	0.033	0.01
tblProjectCharacteristics	CO2IntensityFactor	357.98	93.04
tblProjectCharacteristics	N2OIntensityFactor	0.004	0
tblVehicleTrips	CC_TL	5.00	10.00
tblVehicleTrips	CNW_TL	6.50	10.30
tblVehicleTrips	CW_TL	10.00	11.00
tblVehicleTrips	DV_TP	19.00	0.00
tblVehicleTrips	PB_TP	4.00	0.00
tblVehicleTrips	PR_TP	77.00	100.00
tblVehicleTrips	ST_TR	1.96	0.00
tblVehicleTrips	ST_TR	2.21	0.00
tblVehicleTrips	ST_TR	6.42	0.00
tblVehicleTrips	ST_TR	1.90	0.00
tblVehicleTrips	ST_TR	42.04	0.00
tblVehicleTrips	SU_TR	2.19	0.00
tblVehicleTrips	SU_TR	0.70	0.00
tblVehicleTrips	SU_TR	5.09	0.00
tblVehicleTrips	SU_TR	1.11	0.00
tblVehicleTrips	SU_TR	20.43	0.00
tblVehicleTrips	WD_TR	0.78	0.00
tblVehicleTrips	WD_TR	9.74	31.50

CSUS The Hub Operations - Sacramento County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblVehicleTrips	WD_TR	3.93	0.00
tblVehicleTrips	WD_TR	11.26	0.00
tblVehicleTrips	WD_TR	44.32	0.00

2.0 Emissions Summary

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	16.3744	1.0200e-003	0.1124	1.0000e-005		4.0000e-004	4.0000e-004		4.0000e-004	4.0000e-004		0.2415	0.2415	6.3000e-004		0.2572
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	28.3670	29.7997	268.2615	0.6041	68.7417	0.4092	69.1509	18.3196	0.3823	18.7019		64,367.1839	64,367.1839	3.4411	2.5526	65,213.8843
Total	**44.7414**	**29.8008**	**268.3739**	**0.6041**	**68.7417**	**0.4096**	**69.1513**	**18.3196**	**0.3827**	**18.7023**		**64,367.4253**	**64,367.4253**	**3.4418**	**2.5526**	**65,214.1414**

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					

CSUS The Hub Operations - Sacramento County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Area	16.3744	1.0200e-003	0.1124	1.0000e-005		4.0000e-004	4.0000e-004		4.0000e-004	4.0000e-004		0.2415	0.2415	6.3000e-004		0.2572
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	28.3670	29.7997	268.2615	0.6041	68.7417	0.4092	69.1509	18.3196	0.3823	18.7019		64,367.1839	64,367.1839	3.4411	2.5526	65,213.8843
Total	**44.7414**	**29.8008**	**268.3739**	**0.6041**	**68.7417**	**0.4096**	**69.1513**	**18.3196**	**0.3827**	**18.7023**		**64,367.4253**	**64,367.4253**	**3.4418**	**2.5526**	**65,214.1414**

	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

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	28.3670	29.7997	268.2615	0.6041	68.7417	0.4092	69.1509	18.3196	0.3823	18.7019		64,367.1839	64,367.1839	3.4411	2.5526	65,213.8843
Unmitigated	28.3670	29.7997	268.2615	0.6041	68.7417	0.4092	69.1509	18.3196	0.3823	18.7019		64,367.1839	64,367.1839	3.4411	2.5526	65,213.8843

4.2 Trip Summary Information

	Average Daily Trip Rate	Unmitigated	Mitigated

CSUS The Hub Operations - Sacramento County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Enclosed Parking with Elevator	0.00	0.00	0.00		
General Office Building	8,627.85	0.00	0.00	23,300,544	23,300,544
Manufacturing	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Research & Development	0.00	0.00	0.00		
Strip Mall	0.00	0.00	0.00		
Total	8,627.85	0.00	0.00	23,300,544	23,300,544

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
City Park	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
Enclosed Parking with Elevator	10.00	5.00	6.50	0.00	0.00	0.00	0	0	0
General Office Building	11.00	10.00	10.30	33.00	48.00	19.00	100	0	0
Manufacturing	10.00	5.00	6.50	59.00	28.00	13.00	92	5	3
Other Asphalt Surfaces	10.00	5.00	6.50	0.00	0.00	0.00	0	0	0
Parking Lot	10.00	5.00	6.50	0.00	0.00	0.00	0	0	0
Research & Development	10.00	5.00	6.50	33.00	48.00	19.00	82	15	3
Strip Mall	10.00	5.00	6.50	16.60	64.40	19.00	45	40	15

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.556441	0.056316	0.182404	0.123746	0.022308	0.005587	0.013387	0.009520	0.000843	0.000625	0.025098	0.000893	0.0028
Enclosed Parking with Elevator	0.556441	0.056316	0.182404	0.123746	0.022308	0.005587	0.013387	0.009520	0.000843	0.000625	0.025098	0.000893	0.0028
General Office Building	0.556441	0.056316	0.182404	0.123746	0.022308	0.005587	0.013387	0.009520	0.000843	0.000625	0.025098	0.000893	0.0028
Manufacturing	0.556441	0.056316	0.182404	0.123746	0.022308	0.005587	0.013387	0.009520	0.000843	0.000625	0.025098	0.000893	0.0028
Other Asphalt Surfaces	0.556441	0.056316	0.182404	0.123746	0.022308	0.005587	0.013387	0.009520	0.000843	0.000625	0.025098	0.000893	0.0028
Parking Lot	0.556441	0.056316	0.182404	0.123746	0.022308	0.005587	0.013387	0.009520	0.000843	0.000625	0.025098	0.000893	0.0028
Research & Development	0.556441	0.056316	0.182404	0.123746	0.022308	0.005587	0.013387	0.009520	0.000843	0.000625	0.025098	0.000893	0.0028

CSUS The Hub Operations - Sacramento County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Strip Mall	0.556441	0.056316	0.182404	0.123746	0.022308	0.005587	0.013387	0.009520	0.000843	0.000625	0.025098	0.000893	0.0028

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	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas 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

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					
City Park	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

CSUS The Hub Operations - Sacramento County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Enclosed Parking with Elevator	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
General Office Building	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
Manufacturing	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
Other 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
Parking Lot	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
Research & Development	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
Strip Mall	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		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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					
City Park	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
Enclosed Parking with Elevator	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
General Office Building	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
Manufacturing	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
Other 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

CSUS The Hub Operations - Sacramento County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Parking Lot	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
Research & Development	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
Strip Mall	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		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	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	16.3744	1.0200e-003	0.1124	1.0000e-005		4.0000e-004	4.0000e-004		4.0000e-004	4.0000e-004		0.2415	0.2415	6.3000e-004		0.2572
Unmitigated	16.3744	1.0200e-003	0.1124	1.0000e-005		4.0000e-004	4.0000e-004		4.0000e-004	4.0000e-004		0.2415	0.2415	6.3000e-004		0.2572

6.2 Area by SubCategory

Unmitigated

CSUS The Hub Operations - Sacramento County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule 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
SubCategory	lb/day										lb/day					
Architectural Coating	1.7505					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	14.6135					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0103	1.0200e-003	0.1124	1.0000e-005		4.0000e-004	4.0000e-004		4.0000e-004	4.0000e-004		0.2415	0.2415	6.3000e-004		0.2572
Total	**16.3744**	**1.0200e-003**	**0.1124**	**1.0000e-005**		**4.0000e-004**	**4.0000e-004**		**4.0000e-004**	**4.0000e-004**		**0.2415**	**0.2415**	**6.3000e-004**		**0.2572**

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	1.7505					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	14.6135					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0103	1.0200e-003	0.1124	1.0000e-005		4.0000e-004	4.0000e-004		4.0000e-004	4.0000e-004		0.2415	0.2415	6.3000e-004		0.2572
Total	**16.3744**	**1.0200e-003**	**0.1124**	**1.0000e-005**		**4.0000e-004**	**4.0000e-004**		**4.0000e-004**	**4.0000e-004**		**0.2415**	**0.2415**	**6.3000e-004**		**0.2572**

7.0 Water Detail

CSUS The Hub Operations - Sacramento County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

7.1 Mitigation Measures Water

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

CSUS The Hub Operations - Sacramento County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

CSUS The Hub Operations

Sacramento County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	273.90	1000sqft	1.09	273,900.00	0
Research & Development	250.00	1000sqft	1.15	250,000.00	0
Manufacturing	134.40	1000sqft	3.09	134,400.00	0
Enclosed Parking with Elevator	180.00	1000sqft	1.47	180,000.00	0
Other Asphalt Surfaces	3.00	Acre	3.00	130,680.00	0
Parking Lot	238.00	1000sqft	7.54	238,000.00	0
City Park	9.47	Acre	9.47	412,513.20	0
Strip Mall	14.50	1000sqft	0.00	14,500.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2028
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	93.04	**CH4 Intensity (lb/MWhr)**	0.01	**N2O Intensity (lb/MWhr)**	0

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Intensity Factors adjusted to meet RPS

Land Use - Lot acreage adjusted according to FGSF

Construction Phase - Operational model run - construction emissions evaluated in separate model.

CSUS The Hub Operations - Sacramento County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Vehicle Trips - Adjusted trips to meet 78,765 annual VMT

Energy Use - Electricity estimated off-model; Natural gas estimated in seperate model run

Stationary Sources - Emergency Generators and Fire Pumps -

Table Name	Column Name	Default Value	New Value
tblEnergyUse	LightingElect	1.75	0.00
tblEnergyUse	LightingElect	3.71	0.00
tblEnergyUse	LightingElect	4.57	0.00
tblEnergyUse	LightingElect	0.35	0.00
tblEnergyUse	LightingElect	4.57	0.00
tblEnergyUse	LightingElect	5.33	0.00
tblEnergyUse	NT24E	0.19	0.00
tblEnergyUse	NT24E	5.75	0.00
tblEnergyUse	NT24E	7.20	0.00
tblEnergyUse	NT24E	7.20	0.00
tblEnergyUse	NT24E	2.98	0.00
tblEnergyUse	NT24NG	0.68	0.00
tblEnergyUse	NT24NG	12.42	0.00
tblEnergyUse	NT24NG	12.42	0.00
tblEnergyUse	NT24NG	0.93	0.00
tblEnergyUse	T24E	3.50	0.00
tblEnergyUse	T24E	4.44	0.00
tblEnergyUse	T24E	3.05	0.00
tblEnergyUse	T24E	3.05	0.00
tblEnergyUse	T24E	2.91	0.00
tblEnergyUse	T24NG	12.30	0.00
tblEnergyUse	T24NG	23.15	0.00
tblEnergyUse	T24NG	23.15	0.00

CSUS The Hub Operations - Sacramento County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblEnergyUse	T24NG	4.44	0.00
tblLandUse	LotAcreage	6.29	1.09
tblLandUse	LotAcreage	5.74	1.15
tblLandUse	LotAcreage	4.13	1.47
tblLandUse	LotAcreage	5.46	7.54
tblLandUse	LotAcreage	0.33	0.00
tblProjectCharacteristics	CH4IntensityFactor	0.033	0.01
tblProjectCharacteristics	CO2IntensityFactor	357.98	93.04
tblProjectCharacteristics	N2OIntensityFactor	0.004	0
tblVehicleTrips	CC_TL	5.00	10.00
tblVehicleTrips	CNW_TL	6.50	10.30
tblVehicleTrips	CW_TL	10.00	11.00
tblVehicleTrips	DV_TP	19.00	0.00
tblVehicleTrips	PB_TP	4.00	0.00
tblVehicleTrips	PR_TP	77.00	100.00
tblVehicleTrips	ST_TR	1.96	0.00
tblVehicleTrips	ST_TR	2.21	0.00
tblVehicleTrips	ST_TR	6.42	0.00
tblVehicleTrips	ST_TR	1.90	0.00
tblVehicleTrips	ST_TR	42.04	0.00
tblVehicleTrips	SU_TR	2.19	0.00
tblVehicleTrips	SU_TR	0.70	0.00
tblVehicleTrips	SU_TR	5.09	0.00
tblVehicleTrips	SU_TR	1.11	0.00
tblVehicleTrips	SU_TR	20.43	0.00
tblVehicleTrips	WD_TR	0.78	0.00
tblVehicleTrips	WD_TR	9.74	31.50

CSUS The Hub Operations - Sacramento County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblVehicleTrips	WD_TR	3.93	0.00
tblVehicleTrips	WD_TR	11.26	0.00
tblVehicleTrips	WD_TR	44.32	0.00

2.0 Emissions Summary

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	16.3744	1.0200e-003	0.1124	1.0000e-005		4.0000e-004	4.0000e-004		4.0000e-004	4.0000e-004		0.2415	0.2415	6.3000e-004		0.2572
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	23.0444	34.4978	259.0978	0.5518	68.7417	0.4095	69.1513	18.3196	0.3826	18.7022		58,783.4823	58,783.4823	3.7477	2.7707	59,702.8277
Total	**39.4188**	**34.4988**	**259.2102**	**0.5518**	**68.7417**	**0.4099**	**69.1517**	**18.3196**	**0.3830**	**18.7026**		**58,783.7237**	**58,783.7237**	**3.7483**	**2.7707**	**59,703.0848**

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

CSUS The Hub Operations - Sacramento County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Category	lb/day										lb/day					
Area	16.3744	1.0200e-003	0.1124	1.0000e-005		4.0000e-004	4.0000e-004		4.0000e-004	4.0000e-004		0.2415	0.2415	6.3000e-004		0.2572
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	23.0444	34.4978	259.0978	0.5518	68.7417	0.4095	69.1513	18.3196	0.3826	18.7022		58,783.4823	58,783.4823	3.7477	2.7707	59,702.8277
Total	**39.4188**	**34.4988**	**259.2102**	**0.5518**	**68.7417**	**0.4099**	**69.1517**	**18.3196**	**0.3830**	**18.7026**		**58,783.7237**	**58,783.7237**	**3.7483**	**2.7707**	**59,703.0848**

	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**

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	23.0444	34.4978	259.0978	0.5518	68.7417	0.4095	69.1513	18.3196	0.3826	18.7022		58,783.4823	58,783.4823	3.7477	2.7707	59,702.8277
Unmitigated	23.0444	34.4978	259.0978	0.5518	68.7417	0.4095	69.1513	18.3196	0.3826	18.7022		58,783.4823	58,783.4823	3.7477	2.7707	59,702.8277

CSUS The Hub Operations - Sacramento County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Enclosed Parking with Elevator	0.00	0.00	0.00		
General Office Building	8,627.85	0.00	0.00	23,300,544	23,300,544
Manufacturing	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Research & Development	0.00	0.00	0.00		
Strip Mall	0.00	0.00	0.00		
Total	8,627.85	0.00	0.00	23,300,544	23,300,544

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
City Park	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
Enclosed Parking with Elevator	10.00	5.00	6.50	0.00	0.00	0.00	0	0	0
General Office Building	11.00	10.00	10.30	33.00	48.00	19.00	100	0	0
Manufacturing	10.00	5.00	6.50	59.00	28.00	13.00	92	5	3
Other Asphalt Surfaces	10.00	5.00	6.50	0.00	0.00	0.00	0	0	0
Parking Lot	10.00	5.00	6.50	0.00	0.00	0.00	0	0	0
Research & Development	10.00	5.00	6.50	33.00	48.00	19.00	82	15	3
Strip Mall	10.00	5.00	6.50	16.60	64.40	19.00	45	40	15

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.556441	0.056316	0.182404	0.123746	0.022308	0.005587	0.013387	0.009520	0.000843	0.000625	0.025098	0.000893	0.0028
Enclosed Parking with Elevator	0.556441	0.056316	0.182404	0.123746	0.022308	0.005587	0.013387	0.009520	0.000843	0.000625	0.025098	0.000893	0.0028
General Office Building	0.556441	0.056316	0.182404	0.123746	0.022308	0.005587	0.013387	0.009520	0.000843	0.000625	0.025098	0.000893	0.0028
Manufacturing	0.556441	0.056316	0.182404	0.123746	0.022308	0.005587	0.013387	0.009520	0.000843	0.000625	0.025098	0.000893	0.0028
Other Asphalt Surfaces	0.556441	0.056316	0.182404	0.123746	0.022308	0.005587	0.013387	0.009520	0.000843	0.000625	0.025098	0.000893	0.0028

CSUS The Hub Operations - Sacramento County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Parking Lot	0.556441	0.056316	0.182404	0.123746	0.022308	0.005587	0.013387	0.009520	0.000843	0.000625	0.025098	0.000893	0.0028
Research & Development	0.556441	0.056316	0.182404	0.123746	0.022308	0.005587	0.013387	0.009520	0.000843	0.000625	0.025098	0.000893	0.0028
Strip Mall	0.556441	0.056316	0.182404	0.123746	0.022308	0.005587	0.013387	0.009520	0.000843	0.000625	0.025098	0.000893	0.0028

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	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas 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

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

CSUS The Hub Operations - Sacramento County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Land Use	kBTU/yr	lb/day										lb/day					
City Park	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
Enclosed Parking with Elevator	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
General Office Building	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
Manufacturing	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
Other 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
Parking Lot	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
Research & Development	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
Strip Mall	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		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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					
City Park	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
Enclosed Parking with Elevator	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
General Office Building	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

CSUS The Hub Operations - Sacramento County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Manufacturing	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
Other 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
Parking Lot	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
Research & Development	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
Strip Mall	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		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	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	16.3744	1.0200e-003	0.1124	1.0000e-005		4.0000e-004	4.0000e-004		4.0000e-004	4.0000e-004		0.2415	0.2415	6.3000e-004		0.2572
Unmitigated	16.3744	1.0200e-003	0.1124	1.0000e-005		4.0000e-004	4.0000e-004		4.0000e-004	4.0000e-004		0.2415	0.2415	6.3000e-004		0.2572

6.2 Area by SubCategory

Unmitigated

CSUS The Hub Operations - Sacramento County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule 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
SubCategory	lb/day										lb/day					
Architectural Coating	1.7505					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	14.6135					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0103	1.0200e-003	0.1124	1.0000e-005		4.0000e-004	4.0000e-004		4.0000e-004	4.0000e-004		0.2415	0.2415	6.3000e-004		0.2572
Total	**16.3744**	**1.0200e-003**	**0.1124**	**1.0000e-005**		**4.0000e-004**	**4.0000e-004**		**4.0000e-004**	**4.0000e-004**		**0.2415**	**0.2415**	**6.3000e-004**		**0.2572**

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	1.7505					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	14.6135					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0103	1.0200e-003	0.1124	1.0000e-005		4.0000e-004	4.0000e-004		4.0000e-004	4.0000e-004		0.2415	0.2415	6.3000e-004		0.2572
Total	**16.3744**	**1.0200e-003**	**0.1124**	**1.0000e-005**		**4.0000e-004**	**4.0000e-004**		**4.0000e-004**	**4.0000e-004**		**0.2415**	**0.2415**	**6.3000e-004**		**0.2572**

CSUS The Hub Operations - Sacramento County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

7.0 Water Detail

7.1 Mitigation Measures Water

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 Applied

The Hub - Energy Use

Sacramento County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Research & Development	125.00	1000sqft	0.50	125,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2028
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	93.04	**CH4 Intensity (lb/MWhr)**	0.01	**N2O Intensity (lb/MWhr)**	0

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Intensity Factors adjusted to meet RPS

Land Use - Assume half of DOJ facility would use natural gas

Construction Phase - no construction

Grading - no construction

Vehicle Trips - no vehicle trips

Consumer Products - no area sources

Area Coating - no area sources

Landscape Equipment - no area sources

Energy Use - Building electricity is estimated off-model. Default Nontitle 24 natural gas use for the CA DOJ building has been maintaned. To be conservative, the lab is assumed to be half of the total building SF

Water And Wastewater - no water use

The Hub - Energy Use - Sacramento County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Solid Waste - no solid waste

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_EF_Nonresidential_Exterior	100	0
tblAreaCoating	Area_EF_Nonresidential_Interior	100	0
tblAreaCoating	Area_EF_Parking	100	0
tblAreaCoating	Area_EF_Residential_Exterior	100	0
tblAreaCoating	Area_EF_Residential_Interior	100	0
tblConstructionPhase	NumDays	5.00	0.00
tblConstructionPhase	NumDays	100.00	0.00
tblConstructionPhase	NumDays	10.00	0.00
tblConstructionPhase	NumDays	2.00	0.00
tblConstructionPhase	NumDays	5.00	0.00
tblConstructionPhase	NumDays	1.00	0.00
tblConstructionPhase	PhaseEndDate	6/16/2022	6/9/2022
tblConstructionPhase	PhaseEndDate	6/2/2022	1/13/2022
tblConstructionPhase	PhaseEndDate	1/10/2022	12/27/2021
tblConstructionPhase	PhaseEndDate	1/13/2022	1/11/2022
tblConstructionPhase	PhaseEndDate	6/9/2022	6/2/2022
tblConstructionPhase	PhaseEndDate	1/11/2022	1/10/2022
tblConsumerProducts	ROG_EF	2.14E-05	0
tblConsumerProducts	ROG_EF_Degreaser	3.542E-07	0
tblConsumerProducts	ROG_EF_PesticidesFertilizers	5.152E-08	0
tblEnergyUse	LightingElect	4.57	0.00
tblEnergyUse	NT24E	7.20	0.00
tblEnergyUse	T24E	3.05	0.00
tblEnergyUse	T24NG	23.15	0.00
tblLandscapeEquipment	NumberSummerDays	250	0

The Hub - Energy Use - Sacramento County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblLandUse	LotAcreage	2.87	0.50
tblProjectCharacteristics	CH4IntensityFactor	0.033	0.01
tblProjectCharacteristics	CO2IntensityFactor	357.98	93.04
tblProjectCharacteristics	N2OIntensityFactor	0.004	0
tblSolidWaste	SolidWasteGenerationRate	9.50	0.00
tblVehicleTrips	ST_TR	1.90	0.00
tblVehicleTrips	SU_TR	1.11	0.00
tblVehicleTrips	WD_TR	11.26	0.00
tblWater	IndoorWaterUseRate	61,461,743.40	0.00

2.0 Emissions Summary

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	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Energy	8.3700e-003	0.0761	0.0639	4.6000e-004		5.7800e-003	5.7800e-003		5.7800e-003	5.7800e-003	0.0000	82.8473	82.8473	1.5900e-003	1.5200e-003	83.3396
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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**8.3700e-003**	**0.0761**	**0.0639**	**4.6000e-004**	**0.0000**	**5.7800e-003**	**5.7800e-003**	**0.0000**	**5.7800e-003**	**5.7800e-003**	**0.0000**	**82.8473**	**82.8473**	**1.5900e-003**	**1.5200e-003**	**83.3396**

The Hub - Energy Use - Sacramento County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Energy	8.3700e-003	0.0761	0.0639	4.6000e-004		5.7800e-003	5.7800e-003		5.7800e-003	5.7800e-003	0.0000	82.8473	82.8473	1.5900e-003	1.5200e-003	83.3396
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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**8.3700e-003**	**0.0761**	**0.0639**	**4.6000e-004**	**0.0000**	**5.7800e-003**	**5.7800e-003**	**0.0000**	**5.7800e-003**	**5.7800e-003**	**0.0000**	**82.8473**	**82.8473**	**1.5900e-003**	**1.5200e-003**	**83.3396**

	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

5.2 Energy by Land Use - NaturalGas

Unmitigated

The Hub - Energy Use - Sacramento County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	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					
Research & Development	1.5525e+006	8.3700e-003	0.0761	0.0639	4.6000e-004		5.7800e-003	5.7800e-003		5.7800e-003	5.7800e-003	0.0000	82.8473	82.8473	1.5900e-003	1.5200e-003	83.3396
Total		**8.3700e-003**	**0.0761**	**0.0639**	**4.6000e-004**		**5.7800e-003**	**5.7800e-003**		**5.7800e-003**	**5.7800e-003**	**0.0000**	**82.8473**	**82.8473**	**1.5900e-003**	**1.5200e-003**	**83.3396**

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					
Research & Development	1.5525e+006	8.3700e-003	0.0761	0.0639	4.6000e-004		5.7800e-003	5.7800e-003		5.7800e-003	5.7800e-003	0.0000	82.8473	82.8473	1.5900e-003	1.5200e-003	83.3396
Total		**8.3700e-003**	**0.0761**	**0.0639**	**4.6000e-004**		**5.7800e-003**	**5.7800e-003**		**5.7800e-003**	**5.7800e-003**	**0.0000**	**82.8473**	**82.8473**	**1.5900e-003**	**1.5200e-003**	**83.3396**

The Hub - Energy Use - Sacramento County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

The Hub - Energy Use

Sacramento County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Research & Development	125.00	1000sqft	0.50	125,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2028
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	93.04	**CH4 Intensity (lb/MWhr)**	0.01	**N2O Intensity (lb/MWhr)**	0

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Intensity Factors adjusted to meet RPS

Land Use - Assume half of DOJ facility would use natural gas

Construction Phase - no construction

Grading - no construction

Vehicle Trips - no vehicle trips

Consumer Products - no area sources

Area Coating - no area sources

Landscape Equipment - no area sources

Energy Use - Building electricity is estimated off-model. Default Nontitle 24 natural gas use for the CA DOJ building has been maintaned. To be conservative, the lab is assumed to be half of the total building SF

Water And Wastewater - no water use

The Hub - Energy Use - Sacramento County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Solid Waste - no solid waste

Architectural Coating - no construction

Trips and VMT - no construction

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	62,500.00	0.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	187,500.00	0.00
tblArchitecturalCoating	EF_Nonresidential_Exterior	100.00	0.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	0.00
tblArchitecturalCoating	EF_Parking	100.00	0.00
tblArchitecturalCoating	EF_Residential_Exterior	100.00	0.00
tblArchitecturalCoating	EF_Residential_Interior	100.00	0.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	100	0
tblAreaCoating	Area_EF_Nonresidential_Interior	100	0
tblAreaCoating	Area_EF_Parking	100	0
tblAreaCoating	Area_EF_Residential_Exterior	100	0
tblAreaCoating	Area_EF_Residential_Interior	100	0
tblAreaCoating	Area_Nonresidential_Exterior	62500	0
tblAreaCoating	Area_Nonresidential_Interior	187500	0
tblAreaCoating	ReapplicationRatePercent	10	0
tblConstructionPhase	NumDays	5.00	0.00
tblConstructionPhase	NumDays	100.00	0.00
tblConstructionPhase	NumDays	10.00	0.00
tblConstructionPhase	NumDays	2.00	0.00
tblConstructionPhase	NumDays	5.00	0.00
tblConstructionPhase	NumDays	1.00	0.00
tblConstructionPhase	PhaseEndDate	6/16/2022	6/9/2022
tblConstructionPhase	PhaseEndDate	6/2/2022	1/13/2022

The Hub - Energy Use - Sacramento County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblConstructionPhase	PhaseEndDate	1/10/2022	12/27/2021
tblConstructionPhase	PhaseEndDate	1/13/2022	1/11/2022
tblConstructionPhase	PhaseEndDate	6/9/2022	6/2/2022
tblConstructionPhase	PhaseEndDate	1/11/2022	1/10/2022
tblConsumerProducts	ROG_EF	2.14E-05	0
tblConsumerProducts	ROG_EF_Degreaser	3.542E-07	0
tblConsumerProducts	ROG_EF_PesticidesFertilizers	5.152E-08	0
tblEnergyUse	LightingElect	4.57	0.00
tblEnergyUse	NT24E	7.20	0.00
tblEnergyUse	T24E	3.05	0.00
tblEnergyUse	T24NG	23.15	0.00
tblLandscapeEquipment	NumberSummerDays	250	0
tblLandUse	LotAcreage	2.87	0.50
tblProjectCharacteristics	CH4IntensityFactor	0.033	0.01
tblProjectCharacteristics	CO2IntensityFactor	357.98	93.04
tblProjectCharacteristics	N2OIntensityFactor	0.004	0
tblSolidWaste	SolidWasteGenerationRate	9.50	0.00
tblTripsAndVMT	VendorTripNumber	20.00	0.00
tblTripsAndVMT	WorkerTripNumber	8.00	0.00
tblTripsAndVMT	WorkerTripNumber	40.00	0.00
tblTripsAndVMT	WorkerTripNumber	10.00	0.00
tblTripsAndVMT	WorkerTripNumber	8.00	0.00
tblTripsAndVMT	WorkerTripNumber	18.00	0.00
tblTripsAndVMT	WorkerTripNumber	5.00	0.00
tblVehicleTrips	ST_TR	1.90	0.00
tblVehicleTrips	SU_TR	1.11	0.00
tblVehicleTrips	WD_TR	11.26	0.00

The Hub - Energy Use - Sacramento County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblWater	IndoorWaterUseRate	61,461,743.40	0.00

2.0 Emissions Summary

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	1.1700e-003	1.2000e-004	0.0127	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0274	0.0274	7.0000e-005		0.0291
Energy	0.0459	0.4170	0.3503	2.5000e-003		0.0317	0.0317		0.0317	0.0317		500.4029	500.4029	9.5900e-003	9.1700e-003	503.3766
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	**0.0470**	**0.4171**	**0.3630**	**2.5000e-003**	**0.0000**	**0.0317**	**0.0317**	**0.0000**	**0.0317**	**0.0317**		**500.4303**	**500.4303**	**9.6600e-003**	**9.1700e-003**	**503.4057**

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	1.1700e-003	1.2000e-004	0.0127	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0274	0.0274	7.0000e-005		0.0291

The Hub - Energy Use - Sacramento County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Energy	0.0459	0.4170	0.3503	2.5000e-003		0.0317	0.0317		0.0317	0.0317		500.4029	500.4029	9.5900e-003	9.1700e-003	503.3766
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	**0.0470**	**0.4171**	**0.3630**	**2.5000e-003**	**0.0000**	**0.0317**	**0.0317**	**0.0000**	**0.0317**	**0.0317**		**500.4303**	**500.4303**	**9.6600e-003**	**9.1700e-003**	**503.4057**

	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**

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					
Research & Development	4253.42	0.0459	0.4170	0.3503	2.5000e-003		0.0317	0.0317		0.0317	0.0317		500.4029	500.4029	9.5900e-003	9.1700e-003	503.3766
Total		**0.0459**	**0.4170**	**0.3503**	**2.5000e-003**		**0.0317**	**0.0317**		**0.0317**	**0.0317**		**500.4029**	**500.4029**	**9.5900e-003**	**9.1700e-003**	**503.3766**

Mitigated

The Hub - Energy Use - Sacramento County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	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					
Research & Development	4.25342	0.0459	0.4170	0.3503	2.5000e-003		0.0317	0.0317		0.0317	0.0317		500.4029	500.4029	9.5900e-003	9.1700e-003	503.3766
Total		**0.0459**	**0.4170**	**0.3503**	**2.5000e-003**		**0.0317**	**0.0317**		**0.0317**	**0.0317**		**500.4029**	**500.4029**	**9.5900e-003**	**9.1700e-003**	**503.3766**

The Hub - Energy Use - Sacramento County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

The Hub - Energy Use

Sacramento County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Research & Development	125.00	1000sqft	0.50	125,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2028
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	93.04	**CH4 Intensity (lb/MWhr)**	0.01	**N2O Intensity (lb/MWhr)**	0

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Intensity Factors adjusted to meet RPS

Land Use - Assume half of DOJ facility would use natural gas

Construction Phase - no construction

Grading - no construction

Vehicle Trips - no vehicle trips

Consumer Products - no area sources

Area Coating - no area sources

Landscape Equipment - no area sources

Energy Use - Building electricity is estimated off-model. Default Nontitle 24 natural gas use for the CA DOJ building has been maintaned. To be conservative, the lab is assumed to be half of the total building SF

Water And Wastewater - no water use

The Hub - Energy Use - Sacramento County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Solid Waste - no solid waste

Architectural Coating - no construction

Trips and VMT - no construction

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	62,500.00	0.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	187,500.00	0.00
tblArchitecturalCoating	EF_Nonresidential_Exterior	100.00	0.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	0.00
tblArchitecturalCoating	EF_Parking	100.00	0.00
tblArchitecturalCoating	EF_Residential_Exterior	100.00	0.00
tblArchitecturalCoating	EF_Residential_Interior	100.00	0.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	100	0
tblAreaCoating	Area_EF_Nonresidential_Interior	100	0
tblAreaCoating	Area_EF_Parking	100	0
tblAreaCoating	Area_EF_Residential_Exterior	100	0
tblAreaCoating	Area_EF_Residential_Interior	100	0
tblAreaCoating	Area_Nonresidential_Exterior	62500	0
tblAreaCoating	Area_Nonresidential_Interior	187500	0
tblAreaCoating	ReapplicationRatePercent	10	0
tblConstructionPhase	NumDays	5.00	0.00
tblConstructionPhase	NumDays	100.00	0.00
tblConstructionPhase	NumDays	10.00	0.00
tblConstructionPhase	NumDays	2.00	0.00
tblConstructionPhase	NumDays	5.00	0.00
tblConstructionPhase	NumDays	1.00	0.00
tblConstructionPhase	PhaseEndDate	6/16/2022	6/9/2022
tblConstructionPhase	PhaseEndDate	6/2/2022	1/13/2022

The Hub - Energy Use - Sacramento County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblConstructionPhase	PhaseEndDate	1/10/2022	12/27/2021
tblConstructionPhase	PhaseEndDate	1/13/2022	1/11/2022
tblConstructionPhase	PhaseEndDate	6/9/2022	6/2/2022
tblConstructionPhase	PhaseEndDate	1/11/2022	1/10/2022
tblConsumerProducts	ROG_EF	2.14E-05	0
tblConsumerProducts	ROG_EF_Degreaser	3.542E-07	0
tblConsumerProducts	ROG_EF_PesticidesFertilizers	5.152E-08	0
tblEnergyUse	LightingElect	4.57	0.00
tblEnergyUse	NT24E	7.20	0.00
tblEnergyUse	T24E	3.05	0.00
tblEnergyUse	T24NG	23.15	0.00
tblLandscapeEquipment	NumberSummerDays	250	0
tblLandUse	LotAcreage	2.87	0.50
tblProjectCharacteristics	CH4IntensityFactor	0.033	0.01
tblProjectCharacteristics	CO2IntensityFactor	357.98	93.04
tblProjectCharacteristics	N2OIntensityFactor	0.004	0
tblSolidWaste	SolidWasteGenerationRate	9.50	0.00
tblTripsAndVMT	VendorTripNumber	20.00	0.00
tblTripsAndVMT	WorkerTripNumber	8.00	0.00
tblTripsAndVMT	WorkerTripNumber	40.00	0.00
tblTripsAndVMT	WorkerTripNumber	10.00	0.00
tblTripsAndVMT	WorkerTripNumber	8.00	0.00
tblTripsAndVMT	WorkerTripNumber	18.00	0.00
tblTripsAndVMT	WorkerTripNumber	5.00	0.00
tblVehicleTrips	ST_TR	1.90	0.00
tblVehicleTrips	SU_TR	1.11	0.00
tblVehicleTrips	WD_TR	11.26	0.00

The Hub - Energy Use - Sacramento County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblWater	IndoorWaterUseRate	61,461,743.40	0.00

2.0 Emissions Summary

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	1.1700e-003	1.2000e-004	0.0127	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0274	0.0274	7.0000e-005		0.0291
Energy	0.0459	0.4170	0.3503	2.5000e-003		0.0317	0.0317		0.0317	0.0317		500.4029	500.4029	9.5900e-003	9.1700e-003	503.3766
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	**0.0470**	**0.4171**	**0.3630**	**2.5000e-003**	**0.0000**	**0.0317**	**0.0317**	**0.0000**	**0.0317**	**0.0317**		**500.4303**	**500.4303**	**9.6600e-003**	**9.1700e-003**	**503.4057**

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	1.1700e-003	1.2000e-004	0.0127	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0274	0.0274	7.0000e-005		0.0291

The Hub - Energy Use - Sacramento County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Energy	0.0459	0.4170	0.3503	2.5000e-003		0.0317	0.0317		0.0317	0.0317		500.4029	500.4029	9.5900e-003	9.1700e-003	503.3766
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	**0.0470**	**0.4171**	**0.3630**	**2.5000e-003**	**0.0000**	**0.0317**	**0.0317**	**0.0000**	**0.0317**	**0.0317**		**500.4303**	**500.4303**	**9.6600e-003**	**9.1700e-003**	**503.4057**

	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**

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					
Research & Development	4253.42	0.0459	0.4170	0.3503	2.5000e-003		0.0317	0.0317		0.0317	0.0317		500.4029	500.4029	9.5900e-003	9.1700e-003	503.3766
Total		**0.0459**	**0.4170**	**0.3503**	**2.5000e-003**		**0.0317**	**0.0317**		**0.0317**	**0.0317**		**500.4029**	**500.4029**	**9.5900e-003**	**9.1700e-003**	**503.3766**

Mitigated

The Hub - Energy Use - Sacramento County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	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					
Research & Development	4.25342	0.0459	0.4170	0.3503	2.5000e-003		0.0317	0.0317		0.0317	0.0317		500.4029	500.4029	9.5900e-003	9.1700e-003	503.3766
Total		**0.0459**	**0.4170**	**0.3503**	**2.5000e-003**		**0.0317**	**0.0317**		**0.0317**	**0.0317**		**500.4029**	**500.4029**	**9.5900e-003**	**9.1700e-003**	**503.3766**

Operational Energy Summary

Land Use	Electricity kWh/year	Electricity MWh/year	Natural Gas kBTU/year	Natural Gas therm/year		
					therm/kbtu	100.000000
California Mobility Center			0	0	kBTU/MMBT	1000
Showcase Building	380,059	380	0	0	kwh/mwh	1000
Factory	1,300,645	1,301	0	0		
Surface Parking	141,853	142	0	0		
CA Department of Justice			0	0		
CA DOJ Consolidated Facility Building	4,032,258	4,032	1,552,500	15,525		
Future User #1						
Office/Academic	2,392,962	2,393	0	0		
Retail (strip mall in CalEEMod)**	185,511	186				
Structured Parking **	469794.7214	469.7947214				
Future User #2						
Office/Academic	609,971	609.9706745				
Site						
Surface Parking	22111.43695	22.11143695				
TOTAL	**9,535,165**	**9,535**	**1,552,500**	**15,525**		
Solar Generation	-2,647,071	-2,647				
With Solar* **	**6,888,094**	**6,888**				

Energy Calculations Summary

Operational Fuel Use Summary

Fuel Type	Fleet Mix (%)	Gallons per Mile	Annual VMT	Gallons
Gasoline	98.81%	0.04	23,288,460	910,388
Diesel	1.19%	0.12		32,172

Notes:

1. Fleet mix calculated from CalEEMod default values.
2. Gallons per mile calculated from EMFAC 2021.
3. Annual VMT obtained from CalEEMod output file.

Source: EMFAC2021 (v1.0.1) Emissions Inventory
Region Type: County
Region: Sacramento
Calendar Year: 2028
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, kWh/day for Energy Consumption, tons/day for Emissions, 1000 gallons/day for Fuel Consumption

Region	CalYr	VehClass	MdlYr	Speed miles/hr	Fuel	Population vehicles	VMT miles/day	Trips trips/day	Gasoline Fuel Consumption 1,000 gallons/day	Diesel Fuel Consumption 1,000 gallons/day
Sacrament	2028	All Other Buses	Aggregate	Aggregate	Diesel	485.9239591	24999.68837	4324.723236		2.73742375
Sacrament	2028	LDA	Aggregate	Aggregate	Gasoline	490168.1273	17967218.11	2251477.259	584.5945249	
Sacrament	2028	LDA	Aggregate	Aggregate	Diesel	1162.295927	30714.13158	4805.610233		0.688626399
Sacrament	2028	LDT1	Aggregate	Aggregate	Gasoline	44959.46674	1420412.946	195437.0041	55.55676255	
Sacrament	2028	LDT1	Aggregate	Aggregate	Diesel	3.80781528	40.57065225	11.08988502		0.001626367
Sacrament	2028	LDT2	Aggregate	Aggregate	Gasoline	249195.6027	9276498.938	1151664.488	372.2669513	
Sacrament	2028	LDT2	Aggregate	Aggregate	Diesel	825.6901458	32391.9091	3897.084261		0.952766297
Sacrament	2028	LHD1	Aggregate	Aggregate	Gasoline	19547.60282	699123.4566	291230.1561	70.13270056	
Sacrament	2028	LHD1	Aggregate	Aggregate	Diesel	13131.43325	464412.1145	165176.911		28.8019549
Sacrament	2028	LHD2	Aggregate	Aggregate	Gasoline	2693.110936	95186.85863	40123.34022	10.67727854	
Sacrament	2028	LHD2	Aggregate	Aggregate	Diesel	5299.078818	194724.1605	66655.74529		14.41896929
Sacrament	2028	MCY	Aggregate	Aggregate	Gasoline	26721.97771	141939.4496	53443.95543	3.501410947	
Sacrament	2028	MDV	Aggregate	Aggregate	Gasoline	153063.5365	5339114.491	694864.838	262.1592035	
Sacrament	2028	MDV	Aggregate	Aggregate	Diesel	2458.378389	86281.17396	11246.8921		3.41654962
Sacrament	2028	MH	Aggregate	Aggregate	Gasoline	2312.09966	20964.58295	231.30245	4.749203177	
Sacrament	2028	MH	Aggregate	Aggregate	Diesel	1061.491178	9474.313914	106.1491178		1.009658833
Sacrament	2028	Motor Coach	Aggregate	Aggregate	Diesel	107.5842684	13094.37912	2472.286487		2.284884309
Sacrament	2028	OBUS	Aggregate	Aggregate	Gasoline	451.3776517	17710.34129	9031.164054	3.641351285	
Sacrament	2028	PTO	Aggregate	Aggregate	Diesel	0	24115.6873	0		4.647982671
Sacrament	2028	SBUS	Aggregate	Aggregate	Gasoline	130.9634768	6912.292085	523.8539073	0.67455706	
Sacrament	2028	SBUS	Aggregate	Aggregate	Diesel	969.1504564	21023.26263	14033.29861		2.554280652
Sacrament	2028	T6 CAIRP heavy	Aggregate	Aggregate	Diesel	88.35660784	17738.86121	2030.434848		1.733786607
Sacrament	2028	T6 CAIRP small	Aggregate	Aggregate	Diesel	81.55642155	4562.889288	1874.166567		0.492501015
Sacrament	2028	T6 instate heavy	Aggregate	Aggregate	Diesel	1987.474025	96208.19711	23544.30732		10.6765779
Sacrament	2028	T6 instate small	Aggregate	Aggregate	Diesel	8818.502825	345684.6463	108933.9923		40.00240788
Sacrament	2028	T6 OOS heavy	Aggregate	Aggregate	Diesel	42.13935276	10865.84243	968.3623263		1.04159768
Sacrament	2028	T6 OOS small	Aggregate	Aggregate	Diesel	44.25080395	2483.127854	1016.883475		0.257634997
Sacrament	2028	T6 Public	Aggregate	Aggregate	Diesel	4202.451971	172929.9887	21558.57861		21.37956829
Sacrament	2028	T6 Utility	Aggregate	Aggregate	Diesel	55.22045853	2296.384428	706.8218692		0.253548191
Sacrament	2028	T6TS	Aggregate	Aggregate	Gasoline	1727.598755	79748.5943	34565.7959	16.67346805	
Sacrament	2028	T7 CAIRP	Aggregate	Aggregate	Diesel	965.0297221	194225.1698	22176.38301		29.78155166
Sacrament	2028	T7 NNOOS	Aggregate	Aggregate	Diesel	866.699487	238473.8659	19916.75421		34.64137382
Sacrament	2028	T7 NOOS	Aggregate	Aggregate	Diesel	374.1814793	86710.85712	8598.690395		13.0386905
Sacrament	2028	T7 Other Port	Aggregate	Aggregate	Diesel	10.9100043	2272.608705	178.4876704		0.365943854
Sacrament	2028	T7 POAK	Aggregate	Aggregate	Diesel	36.4726957	3818.784364	596.6933017		0.633114606
Sacrament	2028	T7 Public	Aggregate	Aggregate	Diesel	4124.615392	175875.7106	21159.27696		32.55728623
Sacrament	2028	T7 Single	Aggregate	Aggregate	Diesel	2235.131612	118142.3182	21054.93978		19.73174128
Sacrament	2028	T7 SWCV	Aggregate	Aggregate	Diesel	223.6676262	14507.82888	1028.87108		6.095040974
Sacrament	2028	T7 Tractor	Aggregate	Aggregate	Diesel	1167.343921	81014.79543	16961.50717		12.82691179
Sacrament	2028	T7 Utility	Aggregate	Aggregate	Diesel	30.3777326	1301.972234	388.8349773		0.219497232
Sacrament	2028	T7IS	Aggregate	Aggregate	Gasoline	4.022204413	157.0822675	80.4762659	0.040669919	
Sacrament	2028	UBUS	Aggregate	Aggregate	Gasoline	195.2350744	14818.02266	780.9402977	3.153958837	
Sacrament	2028	UBUS	Aggregate	Aggregate	Diesel	6.050057269	282.0517609	24.20022908		0.030099922
									1387.82	**287.27**

TOTAL	37,550,472	22.4	0.04
Total (Gas)	35,079,805	25.3	0.04
Total (Diesel)	2,470,667	8.6	0.12

Annual VMT
23,288,460

	Mix (%)	Miles	Gallons
Gas	98.8%	23,011,770	910,388
Diesel	1.2%	276,690	32,172

Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
All Project Land Uses	0.556441	0.056316	0.182404	0.123746	0.022308	0.005587	0.013387	0.00952	0.000843	0.000625	0.025098	0.000893	0.002832

Gas	98.8%
Diesel	1.2%

Minor Project Health Effects Tool

Latitude	38.54669	<-- Step 1: Input latitude (Please chose a value between 38.0 and 39.7)
Longitude	-121.41299	<-- Step 2: Input longitude (Please chose a value between -122.5 and -120.0)

PM2.5 Health Endpoint	Age Range[1]	Incidences Across the Reduced Sacramento 4-km Modeling Domain Resulting from Project Emissions (per year)[2,5]	Incidences Across the 5-Air-District Region Resulting from Project Emissions (per year)[2]	Percent of Background Health Incidences Across the 5-Air-District Region[3]	Total Number of Health Incidences Across the 5-Air-District Region (per year)[4]
		(Mean)	(Mean)		
Respiratory					
Emergency Room Visits, Asthma	0 - 99	1.2	1.1	0.0059%	18419
Hospital Admissions, Asthma	0 - 64	0.078	0.072	0.0039%	1846
Hospital Admissions, All Respiratory	65 - 99	0.35	0.31	0.0016%	19644
Cardiovascular					
Hospital Admissions, All Cardiovascular (less Myocardial Infarctions)	65 - 99	0.19	0.18	0.00074%	24037
Acute Myocardial Infarction, Nonfatal	18 - 24	0.00010	0.000093	0.0025%	4
Acute Myocardial Infarction, Nonfatal	25 - 44	0.0091	0.0086	0.0028%	308
Acute Myocardial Infarction, Nonfatal	45 - 54	0.021	0.020	0.0027%	741
Acute Myocardial Infarction, Nonfatal	55 - 64	0.035	0.033	0.0027%	1239
Acute Myocardial Infarction, Nonfatal	65 - 99	0.12	0.11	0.0023%	5052
Mortality					
Mortality, All Cause	30 - 99	2.3	2.1	0.0048%	44766

Ozone Health Endpoint	Age Range[1]	Incidences Across the Reduced Sacramento 4-km Modeling Domain Resulting from Project Emissions (per year)[2,5]	Incidences Across the 5-Air-District Region Resulting from Project Emissions (per year)[2]	Percent of Background Health Incidences Across the 5-Air-District Region[3]	Total Number of Health Incidences Across the 5-Air-District Region (per year)[4]
		(Mean)	(Mean)		
Respiratory					
Hospital Admissions, All Respiratory	65 - 99	0.085	0.069	0.00035%	19644
Emergency Room Visits, Asthma	0 - 17	0.44	0.38	0.0064%	5859
Emergency Room Visits, Asthma	18 - 99	0.69	0.60	0.0048%	12560
Mortality					
Mortality, Non-Accidental	0 - 99	0.053	0.045	0.00015%	30386

1. Affected age ranges are shown. Other age ranges are available, but the endpoints and age ranges shown here are the ones used by the USEPA in their health assessments. The age ranges are consistent with the epidemiological study that is the basis of the health function.

2. Health effects are shown in terms of incidences of each health endpoint and how it compares to the base (2035 base year health effect incidences, or "background health incidence") values. Health effects are shown for the Reduced Sacramento 4-km Modeling Domain and the 5-Air-District Region.

3. The percent of background health incidence uses the mean incidence. The background health incidence is an estimate of the average number of people that are affected by the health endpoint in a given population over a given period of time. In this case, the background incidence rates cover the 5-Air-District Region (estimated 2035 population of 3,271,451 persons). Health incidence rates and other health data are typically collected by the government as well as the World Health Organization. The background incidence rates used here are obtained from BenMAP.

4. The total number of health incidences across the 5-Air-District Region is calculated based on the modeling data. The information is presented to assist in providing overall health context.

5. The technical specifications and map for the Reduced Sacramento 4-km Modeling Domain are included in Appendix A, Table A-1 and Appendix B, Figure B-2 of the *Guidance to Address the Friant Ranch Ruling for CEQA Projects in the Sac Metro Air District.*

Sac Metro Air District Minor Project Health Effects Tool, version 2, published June 2020

Construction Energy Summary

Construction Fuel Usage Summary

	Diesel	Diesel	Diesel	Gasoline
Construction Year	**Off-road Equipment (gallons)**	**On-road (gallons)**	**Off-road & On-road (gallons)**	**On-road (gallons)**
Phase 1				
2023	15,837	224	16,061	13,699
2024	18,178	222	18,400	50,681
2025	1,252	221	1,473	47,935
2026	1,337	0	1,337	814
Sub Total	36,604	667	37,271	113,129
Phase 2				
2027	15,788	1,503	17,291	12,417
2028	1,058	1,503	2,560	12,743
Sub Total	16,846	3,006	19,852	25,160

Total Gasoline	**138,289**	**gallons**
Total Diesel	**57,122**	**gallons**

Phase 1 Construction Offroad Equipment

2023

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor	Number of days	Average Daily Factor	Diesel Fuel Usage
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40	16	0.6	1,138
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37	16	0.6	551
Grading	Excavators	2	8.00	158	0.38	55	0.6	1,585
Grading	Graders	1	8.00	187	0.41	55	0.6	1,012
Grading	Rubber Tired Dozers	1	8.00	247	0.40	55	0.6	1,304
Grading	Scrapers	2	8.00	367	0.48	55	0.6	4,651
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37	55	0.6	947
Building Construction	Cranes	1	7.00	231	0.29	67	0.6	943
Building Construction	Forklifts	3	8.00	89	0.20	67	0.6	859
Building Construction	Generator Sets	1	8.00	84	0.74	67	0.6	1,000
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37	67	0.6	1,515
Building Construction	Welders	1	8.00	46	0.45	67	0.6	333
							Sub TOTAL	**15,837**

2024

Building Construction	Cranes	1	7.00	231	0.29	262	0.6	3,686
Building Construction	Forklifts	3	8.00	89	0.20	262	0.6	3,358
Building Construction	Generator Sets	1	8.00	84	0.74	262	0.6	3,909
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37	262	0.6	5,924
Building Construction	Welders	1	8.00	46	0.45	262	0.6	1,302
							Sub TOTAL	**18,178**

2025

Building Construction	Cranes	1	7.00	231	0.29	252	0.6	3,545
Building Construction	Forklifts	3	8.00	89	0.20	252	0.6	3,230
Building Construction	Generator Sets	1	8.00	84	0.74	252	0.6	3,759
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37	252	0.6	5,698
Building Construction	Welders	1	8.00	46	0.45	252	0.6	1,252
							Sub TOTAL	**17,484**

	Year	**Start Date**	**End Date**	**Network Days**
Phase 1				
Site Preparation	2023	6/21/2023	7/12/2023	16
Grading	2023	7/13/2023	9/27/2023	55
Building Construction	2023	9/28/2023	12/31/2023	67
	2024	1/1/2024	12/31/2024	262
	2025	1/1/2025	12/18/2025	252
Paving	2026	12/19/2025	1/30/2026	31
Architectural Coating	2026	2/2/2026	3/16/2026	31
Phase 2				
Demolition	2027	1/1/2027	2/24/2027	39
Site Preparation	2027	2/25/2027	3/4/2027	6
Grading	2027	3/5/2027	3/22/2027	12
Building Construction	2027	3/23/2027	12/31/2027	204
	2028	1/1/2028	11/6/2028	221
Paving	2028	11/7/2028	12/1/2028	19
Architectural Coating	2028	12/2/2028	12/28/2028	19

2026

Paving	Pavers	2	8.00	130	0.42	19	0.6	498
Paving	Paving Equipment	2	8.00	132	0.36	19	0.6	433
Paving	Rollers	2	8.00	80	0.38	19	0.6	277
Architectural Coating	Air Compressors	1	6.00	78	0.48	19	0.6	128
							Sub TOTAL	**1,337**
							Phase 1 TOTAL	**52,836**

Phase 2 Construction Offroad Equipment

2027

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor	Number of days	Average Daily Factor	Diesel Fuel Usage
Demolition	Concrete/Industrial Saws	1	8	81	0.73	39	0.6	553
Demolition	Rubber Tired Dozers	1	8	247	0.4	39	0.6	925
Demolition	Tractors/Loaders/Backhoes	3	8	97	0.37	39	0.6	1,008
Site Preparation	Graders	1	8	187	0.41	6	0.6	110
Site Preparation	Scrapers	1	8	367	0.48	6	0.6	254
Site Preparation	Tractors/Loaders/Backhoes	1	7	97	0.37	6	0.6	45
Grading	Graders	1	8	187	0.41	12	0.6	221
Grading	Rubber Tired Dozers	1	8	247	0.4	12	0.6	285
Grading	Tractors/Loaders/Backhoes	2	7	97	0.37	12	0.6	181
Building Construction	Cranes	1	8	231	0.29	204	0.6	3,280
Building Construction	Forklifts	2	7	89	0.2	204	0.6	1,525
Building Construction	Generator Sets	1	8	84	0.74	204	0.6	3,043
Building Construction	Tractors/Loaders/Backhoes	1	6	97	0.37	204	0.6	1,318
Building Construction	Welders	3	8	46	0.45	204	0.6	3,040
							Sub TOTAL	**15,788**

2028

Paving	Cement and Mortar Mixers	1	8	9	0.56	19	0.6	23
Paving	Pavers	1	8	130	0.42	19	0.6	249
Paving	Paving Equipment	1	8	132	0.36	19	0.6	217
Paving	Rollers	2	8	80	0.38	19	0.6	277
Paving	Tractors/Loaders/Backhoes	1	8	97	0.37	19	0.6	164
Architectural Coating	Air Compressors	1	6	78	0.48	19	0.6	128
							Sub TOTAL	**1,058**
							Phase 1 TOTAL	**16,846**

Trips and VMT

Phase 1

2023

Phase Name	Daily Worker Trip	Days per Year	Total Worker Trips	Total Vendor Trips	Total Hauling Trips	Worker Trip Length (miles)	Vendor Trip Length (miles)	Haul Trip Length (miles)	Total Worker Trip Length (miles)	Total Vendor Trip Length (miles)	Total Haul Trip Length (miles)	**Total gallons of gasoline**	**Total gallons of diesel**
Site Preparation	18	16	288	0	0	10.00	6.50	20.00	2880	0	0	**112**	**0**
Grading	20	55	1100	0	0	10.00	6.50	20.00	11000	0	0	**427**	**0**
Building Construction	506	67	33902	209	0	10.00	6.50	20.00	339020	1358.5	0	**13,160**	**224**
											Sub TOTAL	**13,699**	**224**

2024

Phase Name	Daily Worker Trip	Days per Year	Total Worker Trips	Total Vendor Trips	Total Hauling Trips	Worker Trip Length (miles)	Vendor Trip Length (miles)	Haul Trip Length (miles)	Total Worker Trip Length (miles)	Total Vendor Trip Length (miles)	Total Haul Trip Length (miles)	**Total gallons of gasoline**	**Total gallons of diesel**
Building Construction	506	262	132572	209	0	10.00	6.50	20.00	1325720	1358.5	0	**50,681**	**222**
											Sub TOTAL	**50,681**	**222**

2025

Phase Name	Daily Worker Trip	Days per Year	Total Worker Trips	Total Vendor Trips	Total Hauling Trips	Worker Trip Length (miles)	Vendor Trip Length (miles)	Haul Trip Length (miles)	Total Worker Trip Length (miles)	Total Vendor Trip Length (miles)	Total Haul Trip Length (miles)	**Total gallons of gasoline**	**Total gallons of diesel**
Building Construction	506	252	127512	209	0	10.00	6.50	20.00	1275120	1358.5	0	**47,935**	**221**
											Sub TOTAL	**47,935**	**221**

2026

Phase Name	Daily Worker Trip	Days per Year	Total Worker Trips	Total Vendor Trips	Total Hauling Trips	Worker Trip Length (miles)	Vendor Trip Length (miles)	Haul Trip Length (miles)	Total Worker Trip Length (miles)	Total Vendor Trip Length (miles)	Total Haul Trip Length (miles)	**Total gallons of gasoline**	**Total gallons of diesel**
Paving	15	19	285	0	0	10.00	6.50	20.00	2850	0	0	**105**	**0**
Arch Coating	101	19	1919	0	0	10.00	6.50	20.00	19190	0	0	**709**	**0**
											Sub TOTAL	**814**	**0**
											Phase 1 TOTAL	**113,129**	**667**

Phase 2

2027

Phase Name	Daily Worker Trip	Days per Year	Total Worker Trips	Total Vendor Trips	Total Hauling Trips	Worker Trip Length (miles)	Vendor Trip Length (miles)	Haul Trip Length (miles)	Total Worker Trip Length (miles)	Total Vendor Trip Length (miles)	Total Haul Trip Length (miles)	**Total gallons of gasoline**	**Total gallons of diesel**
Demolition	13	39	507	0	446	10.00	6.50	20.00	5070	0	8920	**184**	**1,426**
Site Preparation	8	6	48	0	0	10.00	6.50	20.00	480	0	0	**17**	**0**
Grading	10	12	120	0	0	10.00	6.50	20.00	1200	0	0	**44**	**0**
Building Construction	164	204	33456	74	0	10.00	6.50	20.00	334560	481	0	**12,171**	**77**
											Sub TOTAL	**12,417**	**1,503**

2028

Phase Name	Daily Worker Trip	Days per Year	Total Worker Trips	Total Vendor Trips	Total Hauling Trips	Worker Trip Length (miles)	Vendor Trip Length (miles)	Haul Trip Length (miles)	Total Worker Trip Length (miles)	Total Vendor Trip Length (miles)	Total Haul Trip Length (miles)	**Total gallons of gasoline**	**Total gallons of diesel**
Paving	15	19	285	0	0	10.00	6.50	20.00	2850	0	0	**102**	**0**
Arch Coating	33	19	627	0	0	10.00	6.50	20.00	6270	0	0	**224**	**0**
											Sub TOTAL	**326**	**0**
											Phase 2 TOTAL	**12,743**	**1,503**

Notes: Consistent with CalEEMod, worker vehicles assumed to be gasoline and 50% LDA, 25% LDT1, and 25% LDT2. Vendor and haul trips are assumed to be 100% diesel Heavy-Duty Trucks (T7).

Source: EMFAC2021 (v1.0.1) Emissions Inventory
Region Type: County
Region: Sacramento
Calendar Year: 2023
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, kWh/day for Energy Consumption, tons/day for Emissions, 1000 gallons/day for Fuel Consumption

Region	CalYr	VehClass	MdlYr	Speed miles/hr	Fuel	Population vehicles	VMT miles/day	Trips trips/day	Fuel gas 1,000 gallons/day	Diesel gas 1,000 gallons/day	Miles per gallon	Gasoline miles per gallon	Diesel miles per gallon
Sacrament	2023	LDA	Aggregate	Aggregate	Gasoline	495444.1701	18039887.07	2281180.251	638.6074247	0.00	28.25	25.76	6.07
Sacrament	2023	LDT1	Aggregate	Aggregate	Gasoline	51757.60145	1638073.93	226418.361	68.8387086	0.00	23.80		
Sacrament	2023	LDT2	Aggregate	Aggregate	Gasoline	228403.2253	8495404.827	1060056.933	373.3642939	0.00	22.75		
Sacrament	2023	T7 Tractor	Aggregate	Aggregate	Diesel	917.7542763	74396.80266	13334.96964	0.00	12.25004566	6.07		

Notes: Consistent with CalEEMod, worker vehicles assumed to be gasoline and 50% LDA, 25% LDT1, and 25% LDT2. Vendor and haul trips are assumed to be 100% diesel Heavy-Duty Trucks (T7).

Source: EMFAC2021 (v1.0.1) Emissions Inventory
Region Type: County
Region: Sacramento
Calendar Year: 2024
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, kWh/day for Energy Consumption, tons/day for Emissions, 1000 gallons/day for Fuel Consumption

Region	CalYr	VehClass	MdlYr	Speed miles/hr	Fuel	Population vehicles	VMT miles/day	Trips trips/day	Fuel gas 1,000 gallons/day	Diesel gas 1,000 gallons/day	Miles per gallon	Gasoline miles per gallon	Diesel miles per gallon
Sacrament	2024	LDA	Aggregate	Aggregate	Gasoline	493200.1993	18074528.65	2269233.534	630.0875563	0.00	28.69	26.16	6.11
Sacrament	2024	LDT1	Aggregate	Aggregate	Gasoline	50226.44621	1595989.731	219342.9065	66.24563327	0.00	24.09		
Sacrament	2024	LDT2	Aggregate	Aggregate	Gasoline	232779.326	8714872.614	1079554.899	376.1530767	0.00	23.17		
Sacrament	2024	T7 Tractor	Aggregate	Aggregate	Diesel	974.1598058	75896.02217	14154.54198	0.00	12.42667686	6.11		

Notes: Consistent with CalEEMod, worker vehicles assumed to be gasoline and 50% LDA, 25% LDT1, and 25% LDT2. Vendor and haul trips are assumed to be 100% diesel Heavy-Duty Trucks (T7).

Source: EMFAC2021 (v1.0.1) Emissions Inventory
Region Type: County
Region: Sacramento
Calendar Year: 2025
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, kWh/day for Energy Consumption, tons/day for Emissions, 1000 gallons/day for Fuel Consumption

Region	CalYr	VehClass	MdlYr	Speed miles/hr	Fuel	Population vehicles	VMT miles/day	Trips trips/day	Fuel gas 1,000 gallons/day	Diesel gas 1,000 gallons/day	Miles per gallon	Gasoline miles per gallon	Diesel miles per gallon
Sacramen	2025	LDA	Aggregate	Aggregate	Gasoline	491398.2875	18017006.84	2259539.787	617.4841021	0.00	29.18	26.60	6.15
Sacramen	2025	LDT1	Aggregate	Aggregate	Gasoline	48785.93501	1547597.8	212712.1866	63.33573387	0.00	24.43		
Sacramen	2025	LDT2	Aggregate	Aggregate	Gasoline	237055.1324	8875175.116	1098484.37	375.8620765	0.00	23.61		
Sacramen	2025	T7 Tractor	Aggregate	Aggregate	Diesel	1028.071352	77318.93006	14937.87675	0.00	12.56836859	6.15		

Notes: Consistent with CalEEMod, worker vehicles assumed to be gasoline and 50% LDA, 25% LDT1, and 25% LDT2. Vendor and haul trips are assumed to be 100% diesel Heavy-Duty Trucks (T7).

Source: EMFAC2021 (v1.0.1) Emissions Inventory
Region Type: County
Region: Sacramento
Calendar Year: 2026
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, kWh/day for Energy Consumption, tons/day for Emissions, 1000 gallons/day for Fuel Consumption

Region	CalYr	VehClass	MdlYr	Speed miles/hr	Fuel	Population vehicles	VMT miles/day	Trips trips/day	Fuel gas 1,000 gallons/day	Diesel gas 1,000 gallons/day	Miles per gallon	Gasoline miles per gallon	Diesel miles per gallon
Sacramen	2026	LDA	Aggregate	Aggregate	Gasoline	490520.664	17966701.5	2254615.988	604.9983217	0.00	29.70	27.06	6.20
Sacramen	2026	LDT1	Aggregate	Aggregate	Gasoline	47430.07468	1500520.957	206539.2245	60.50798247	0.00	24.80		
Sacramen	2026	LDT2	Aggregate	Aggregate	Gasoline	241263.535	9009804.273	1117072.271	374.4565018	0.00	24.06		
Sacramen	2026	T7 Tractor	Aggregate	Aggregate	Diesel	1078.537414	78676.08575	15671.14863	0.00	12.68992142	6.20		

Notes: Consistent with CalEEMod, worker vehicles assumed to be gasoline and 50% LDA, 25% LDT1, and 25% LDT2. Vendor and haul trips are assumed to be 100% diesel Heavy-Duty Trucks (T7).

Source: EMFAC2021 (v1.0.1) Emissions Inventory
Region Type: County
Region: Sacramento
Calendar Year: 2027
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, kWh/day for Energy Consumption, tons/day for Emissions, 1000 gallons/day for Fuel Consumption

Region	CalYr	VehClass	MdlYr	Speed miles/hr	Fuel	Population vehicles	VMT miles/day	Trips trips/day	Fuel gas 1,000 gallons/day	Diesel gas 1,000 gallons/day	Miles per gallon	Gasoline miles per gallon	Diesel miles per gallon
Sacramen	2027	LDA	Aggregate	Aggregate	Gasoline	490113.3762	17964906.32	2251991.096	595.3709727	0.00	30.17	27.49	6.26
Sacramen	2027	LDT1	Aggregate	Aggregate	Gasoline	46145.10231	1459168.518	200762.7979	58.04038407	0.00	25.14		
Sacramen	2027	LDT2	Aggregate	Aggregate	Gasoline	245296.243	9150148.358	1134720.736	374.0690019	0.00	24.46		
Sacramen	2027	T7 Tractor	Aggregate	Aggregate	Diesel	1125.059595	79910.70976	16347.11592	0.00	12.77488159	6.26		

Notes: Consistent with CalEEMod, worker vehicles assumed to be gasoline and 50% LDA, 25% LDT1, and 25% LDT2. Vendor and haul trips are assumed to be 100% diesel Heavy-Duty Trucks (T7).

Source: EMFAC2021 (v1.0.1) Emissions Inventory
Region Type: County
Region: Sacramento
Calendar Year: 2028
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, kWh/day for Energy Consumption, tons/day for Emissions, 1000 gallons/day for Fuel Consumption

Region	CalYr	VehClass	MdlYr	Speed miles/hr	Fuel	Population vehicles	VMT miles/day	Trips trips/day	Fuel gas 1,000 gallons/day	Diesel gas 1,000 gallons/day	Miles per gallon	Gasoline miles per gallon	Diesel miles per gallon
Sacramen	2028	LDA	Aggregate	Aggregate	Gasoline	490168.1273	17967218.11	2251477.259	584.5945249	0.00	30.73	27.99	6.32
Sacramen	2028	LDT1	Aggregate	Aggregate	Gasoline	44959.46674	1420412.946	195437.0041	55.55676255	0.00	25.57		
Sacramen	2028	LDT2	Aggregate	Aggregate	Gasoline	249195.6027	9276498.938	1151664.488	372.2669513	0.00	24.92		
Sacramen	2028	T7 Tractor	Aggregate	Aggregate	Diesel	1167.343921	81014.79543	16961.50717	0.00	12.82691179	6.32		

Notes: Consistent with CalEEMod, worker vehicles assumed to be gasoline and 50% LDA, 25% LDT1, and 25% LDT2. Vendor and haul trips are assumed to be 100% diesel Heavy-Duty Trucks (T7).

Appendix C

Noise Measurement Data and
Modeling Calculations

Construction Source Noise Prediction Model

Location	Distance to Nearest Receptor in feet	Combined Predicted Noise Level (L_{eq} dBA)
Residences to the northwest	970	58.9
Residences to the east	1800	53.5

Equipment	Reference Noise Levels (L_{max}) at 50 feet[1]	Usage Factor[1]
Dozer	85	0.4
Front End Loader	80	0.4
Excavator	85	0.4

Ground Type	hard
Source Height	8
Receiver Height	5
Ground Factor[2]	0.00

Predicted Noise Level	L_{eq} dBA at 50 feet[3]
Dozer	81.0
Front End Loader	76.0
Excavator	81.0

Combined Predicted Noise Level (L_{eq} dBA at 50 feet)
84.7

Sources:

[1] Obtained from the FHWA Roadway Construction Noise Model, January 2006. Table 1.

[2] Based on Table 4-26 from the Federal Transit Noise and Vibration Impact Assessment, 2018 (pg 86).

[3] Based on the following from the Federal Transit Noise and Vibration Impact Assessment, 2018 (pg 176 and 177).

L_{eq}(equip) = E.L.+10*log (U.F.) - 20*log (D/50) - 10*G*log (D/50)

Where: E.L. = Emission Level;

U.F.= Usage Factor;

G = Constant that accounts for topography and ground effects (FTA 2018: pg 86); and

D = Distance from source to receiver.

This sheet used to calculate HVAC Leq from Lmax

Location	Distance to Nearest Receptor in feet	Combined Predicted Noise Level (L_{eq} dBA)
Residences to the west	1100	48.1
Phoenix Sacramento	1800	43.9

Equipment	Reference Noise Levels (L_{max}) at 50 feet[1]	Usage Factor[1]
Dozer	78	0.5

Ground Type	hard
Source Height	8
Receiver Height	5
Ground Factor[2]	0.00

Predicted Noise Level	L_{eq} dBA at 50 feet[3]
Dozer	75.0

Combined Predicted Noise Level (L_{eq} dBA at 50 feet)
75.0

Sources:

[1] Obtained from the FHWA Roadway Construction Noise Model, January 2006. Table 1.

[2] Based on Table 4-26 from the Federal Transit Noise and Vibration Impact Assessment, 2018 (pg 86).

[3] Based on the following from the Federal Transit Noise and Vibration Impact Assessment, 2018 (pg 176 and 177).

L_{eq}(equip) = E.L.+10*log (U.F.) - 20*log (D/50) - 10*G*log (D/50)

Where: E.L. = Emission Level;

U.F.= Usage Factor;

G = Constant that accounts for topography and ground effects (FTA 2018: pg 86); and

D = Distance from source to receiver.

Equipment Description	Acoustical Usage Factor (%)	Spec 721.560 Lmax @ 50ft (dBA slow)	Actual Measured Lmax @ 50ft (dBA slow)	No. of Actual Data Samples (count)	Spec 721.560 LmaxCalc	Spec 721.560 Leq	Distance	Actual Measured LmaxCalc	Actual Measured Leq
Auger Drill Rig	20	85	84	36	79.0	72.0	100	78.0	71.0
Backhoe	40	80	78	372	74.0	70.0	100	72.0	68.0
Bar Bender	20	80	na	0	74.0	67.0	100		
Blasting	na	94	na	0	88.0		100		
Boring Jack Power Unit	50	80	83	1	74.0	71.0	100	77.0	74.0
Chain Saw	20	85	84	46	79.0	72.0	100	78.0	71.0
Clam Shovel (dropping)	20	93	87	4	87.0	80.0	100	81.0	74.0
Compactor (ground)	20	80	83	57	74.0	67.0	100	77.0	70.0
Compressor (air)	40	80	78	18	74.0	70.0	100	72.0	68.0
Concrete Batch Plant	15	83	na	0	77.0	68.7	100		
Concrete Mixer Truck	40	85	79	40	79.0	75.0	100	73.0	69.0
Concrete Pump Truck	20	82	81	30	76.0	69.0	100	75.0	68.0
Concrete Saw	20	90	90	55	84.0	77.0	100	84.0	77.0
Crane	16	85	81	405	79.0	71.0	100	75.0	67.0
Dozer	40	85	82	55	79.0	75.0	100	76.0	72.0
Drill Rig Truck	20	84	79	22	78.0	71.0	100	73.0	66.0
Drum Mixer	50	80	80	1	74.0	71.0	100	74.0	71.0
Dump Truck	40	84	76	31	78.0	74.0	100	70.0	66.0
Excavator	40	85	81	170	79.0	75.0	100	75.0	71.0
Flat Bed Truck	40	84	74	4	78.0	74.0	100	68.0	64.0
Front End Loader	40	80	79	96	74.0	70.0	100	73.0	69.0
Generator	50	82	81	19	76.0	73.0	100	75.0	72.0
Generator (<25KVA, VMS si	50	70	73	74	64.0	61.0	100	67.0	64.0
Gradall	40	85	83	70	79.0	75.0	100	77.0	73.0
Grader	40	85	na	0	79.0	75.0	100		
Grapple (on Backhoe)	40	85	87	1	79.0	75.0	100	81.0	77.0
Horizontal Boring Hydr. Jac	25	80	82	6	74.0	68.0	100	76.0	70.0
Hydra Break Ram	10	90	na	0	84.0	74.0	100		
Impact Pile Driver	20	95	101	11	89.0	82.0	100	95.0	88.0
Jackhammer	20	85	89	133	79.0	72.0	100	83.0	76.0
Man Lift	20	85	75	23	79.0	72.0	100	69.0	62.0
Mounted Impact Hammer (	20	90	90	212	84.0	77.0	100	84.0	77.0
Pavement Scarafier	20	85	90	2	79.0	72.0	100	84.0	77.0
Paver	50	85	77	9	79.0	76.0	100	71.0	68.0
Pickup Truck	40	55	75	1	49.0	45.0	100	69.0	65.0
Pneumatic Tools	50	85	85	90	79.0	76.0	100	79.0	76.0
Pumps	50	77	81	17	71.0	68.0	100	75.0	72.0
Refrigerator Unit	100	82	73	3	76.0	76.0	100	67.0	67.0
Rivit Buster/chipping gun	20	85	79	19	79.0	72.0	100	73.0	66.0
Rock Drill	20	85	81	3	79.0	72.0	100	75.0	68.0
Roller	20	85	80	16	79.0	72.0	100	74.0	67.0
Sand Blasting (Single Nozzl	20	85	96	9	79.0	72.0	100	90.0	83.0
Scraper	40	85	84	12	79.0	75.0	100	78.0	74.0
Shears (on backhoe)	40	85	96	5	79.0	75.0	100	90.0	86.0
Slurry Plant	100	78	78	1	72.0	72.0	100	72.0	72.0
Slurry Trenching Machine	50	82	80	75	76.0	73.0	100	74.0	71.0
Soil Mix Drill Rig	50	80	na	0	74.0	71.0	100		
Tractor	40	84	na	0	78.0	74.0	100		
Vacuum Excavator (Vac-tru	40	85	85	149	79.0	75.0	100	79.0	75.0
Vacuum Street Sweeper	10	80	82	19	74.0	64.0	100	76.0	66.0
Ventilation Fan	100	85	79	13	79.0	79.0	100	73.0	73.0
Vibrating Hopper	50	85	87	1	79.0	76.0	100	81.0	78.0
Vibratory Concrete Mixer	20	80	80	1	74.0	67.0	100	74.0	67.0
Vibratory Pile Driver	20	95	101	44	89.0	82.0	100	95.0	88.0
Warning Horn	5	85	83	12	79.0	66.0	100	77.0	64.0
Welder / Torch	40	73	74	5	67.0	63.0	100	68.0	64.0

Source:
FHWA Roadway Construction Noise Model, January 2006. Table 9.1
U.S. Department of Transportation
CA/T Construction Spec. 721.560

Distance Propagation Calculations for Stationary Sources of Ground Vibration

ASCENT ENVIRONMENTAL

KEY: Orange cells are for input.

Grey cells are intermediate calculations performed by the model.

Green cells are data to present in a written analysis (output).

STEP 1: Determine units in which to perform calculation.

— If vibration decibels (VdB), then use Table A and proceed to Steps 2A and 3A.
— If peak particle velocity (PPV), then use Table B and proceed to Steps 2B and 3B.

STEP 2A: Identify the vibration source and enter the reference vibration level (VdB) and distance.

STEP 3A: Select the distance to the receiver.

Table A. Propagation of vibration decibels (VdB) with distance

Noise Source/ID	Reference Noise Level			Attenuated Noise Level at Receptor		
	vibration level (VdB)	@	distance (ft)	vibration level (VdB)	@	distance (ft)
Caisson drilling	87	@	25	79.9	@	43

The Lv metric (VdB) is used to assess the likelihood for vibration to result in human annoyance.

STEP 2B: Identify the vibration source and enter the reference peak particle velocity (PPV) and distance.

STEP 3B: Select the distance to the receiver.

Table B. Propagation of peak particle velocity (PPV) with distance

Noise Source/ID	Reference Noise Level			Attenuated Noise Level at Receptor		
	vibration level (PPV)	@	distance (ft)	vibration level (PPV)	@	distance (ft)
Caisson drilling	0.089	@	25	0.492	@	8

The PPV metric (in/sec) is used for assessing the likelihood for the potential of structural damage.

Notes:

Computation of propagated vibration levels is based on the equations presented on pg. 185 of FTA 2018. Estimates of attenuated vibration levels do not account for reductions from intervening underground barriers or other underground structures of any type, or changes in soil type.

Federal Transit Association (FTA). 2018 (September). Transit Noise and Vibration Impact Assessment Manual. FTA Report No. 0123. Washington, D.C. Accessed: December 20, 2020. Page Available:

https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf

Attenuation Calculations for Stationary Noise Sources

KEY:

- Orange cells are for input.
- Grey cells are intermediate calculations performed by the model.
- Green cells are data to present in a written analysis (output).

STEP 1: Identify the noise source and enter the reference noise level (dBA and distance).

STEP 2: Select the ground type (hard or soft), and enter the source and receiver heights.

STEP 3: Select the distance to the receiver.

Noise Source/ID	Receptor	Reference Noise Level			Attenuation Characteristics				Exterior Noise Level at Receptor		
		noise level (dBA)	@	distance (ft)	Ground Type (soft/hard)	Source Height (ft)	Receiver Height (ft)	Ground Factor	noise level (dBA)	@	distance (ft)
Truck releasing air brakes	City's daytime standard (75 Lmax)	86.0	@	50	hard	4	5	0.00	74.9	@	180
Truck releasing air brakes	City's daytime standard (70 Lmax)	86.0	@	50	hard	4	5	0.00	69.9	@	320
HVAC	Daytime Leq (55)	75.0	@	3	hard	4	5	0.00	24.8		970
HVAC	Night time leq (50)	75.0	@	3	hard	4	5	0.00	24.8	@	970

Notes:

Estimates of attenuated noise levels do not account for reductions from intervening barriers, including walls, trees, vegetation, or structures of any type.

Computation of the attenuated noise level is based on the equation presented on pg. 176 and 177 of FTA 2018.

Computation of the ground factor is based on the equation presentd in Table 4-26 on pg. 86 of FTA 2018, where the distance of the reference noise leve can be adjusted and the usage factor is not applied (i.e., the usage factor is equal to 1).

Calculation uses the distance value rather than reciever height to calculate varying noise levels at each building story.

Sources:

Federal Transit Association (FTA). 2018 (September). Transit Noise and Vibration Impact Assessment. Washington, D.C. Available: <http://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf>Accessed: March 5, 2020.

Traffic Noise Spreadsheet Calculator
Existing Conditions

Project: **West Broadway SP**

Noise Level Descriptor: CNEL
Site Conditions: Hard
Traffic Input: ADT
Traffic K-Factor:

Number	Name	From	To	ADT	Speed (mph)	Distance to Directional Centerline, (feet)4 Near	Far	% Auto	% Medium	% Heavy	% Day	% Eve	% Night	CNEL, (dBA)5,6,7	75 dBA	70 dBA	65 dBA	60 dBA
	Segment Description and Location			Input				Traffic Distribution Characteristics						Output	Distance to Contour, (feet)3			
#REF!																		
1	Elvas Avenue	J Street	Folsom Boulevard	18,988	25	108.7	142.29	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	60.2	4	13	41	131
2	Folsom Boulevard	47th Street	65th Street	18,426	35	108.7	130	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	63.6	9	27	87	275
3	Folsom Boulevard	Howe Avenue	Jackson Highway	38,544	40	108.7	142.29	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	68.3	26	83	264	834
4	Power Inn Road	US 50	14th Avenue	62,511	45	111	173	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	71.4	61	193	610	1929
5	Hornet Drive	US 50	Folsom Boulevard	19,139	35	110.5	136.5	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	63.7	9	29	90	286
6	14th Avenue	65th Street	Power Inn Road	12,848	40	118	142.29	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	63.3	9	28	88	277
7	Power Inn Road	14th Avenue	Fruitridge Road	37,908	45	108.7	142.29	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	69.7	36	115	364	1152

Traffic Noise Spreadsheet Calculator
Existing Plus Project Conditions

Project: **West Broadway Specific Plan**

Noise Level Descriptor: CNEL
Site Conditions: Hard
Traffic Input: ADT
Traffic K-Factor:

Segment Description and Location				Input											Output				
						Distance to Directional Centerline, (feet)$_4$		Traffic Distribution Characteristics								Distance to Contour, (feet)$_3$			
Number	Name	From	To	ADT	Speed (mph)	Near	Far	% Auto	% Medium	% Heavy	% Day	% Eve	% Night	CNEL, (dBA)$_{5,6,7}$		70 dBA	65 dBA	60 dBA	55 dBA
#REF!																			
1	Elvas Avenue	J Street	Folsom Boulevard	19,140	25	108.7	142.29	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	60.3		13	42	132	418
2	Folsom Boulevard	47th Street	65th Street	18,615	35	108.7	130	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	63.7		28	88	278	878
3	Folsom Boulevard	Howe Avenue	Jackson Highway	38,640	40	108.7	142.29	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	68.3		84	265	836	2645
4	Power Inn Road	US 50	14th Avenue	64,574	45	111	173	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	71.6		199	630	1992	6300
5	Hornet Drive	US 50	Folsom Boulevard	19,513	35	110.5	136.5	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	63.8		29	92	292	922
6	14th Avenue	65th Street	Power Inn Road	12,963	40	118	142.29	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	63.3		28	88	279	883
7	Power Inn Road	14th Avenue	Fruitridge Road	38,421	45	108.7	142.29	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	69.7		117	369	1167	3691

Increase in Noise

#	Segment	From	To	Exist	Plus Project	Change
1	Elvas Avenue	J Street	Folsom Boulevard	60.2	60.3	0.0
2	Folsom Boulevard	47th Street	65th Street	63.6	63.7	0.0
3	Folsom Boulevard	Howe Avenue	Jackson Highway	68.3	68.3	0.0
4	Power Inn Road	US 50	14th Avenue	71.4	71.6	0.1
5	Hornet Drive	US 50	Folsom Boulevard	63.7	63.8	0.1
6	14th Avenue	65th Street	Power Inn Road	63.3	63.3	0.0
7	Power Inn Road	14th Avenue	Fruitridge Road	69.7	69.7	0.1

Raw Traffic Data

	Street	From	to	speed limit	Existing PM Peak	Existing ADT	+ Project PM Peak	+ Project ADT
1	3rd street	V Street	W Street	30	708	7,080	780	7,800
2	3rd street	W Street	X Street	30	718	7,180	780	7,800
3	3rd street	X Street	Broadway	30	410	4,100	770	7,700
4	W Street	3rd street	5th street	35	50	500	60	600
5	W Street	5th street	11th street	35	1843	18,430	1845	18,450
6	W Street	11th street	12th street	35	1378	13,780	1650	16,500
7	X Street	I-5	3rd Street	35	197	1,970	250	2,500
8	X Street	3rd Street	5th street	35	569	5,690	840	8,400
9	X Street	5th street	Riverside Boulevard	35	1390	13,900	1560	15,600
10	X Street	Riverside Boulevard	13th street	35	1521	15,210	1630	16,300
11	5th street	V Street	W Street	30	139	1,390	165	1,650
12	5th street	W Street	X Street	30	2519	25,190	2805	28,050
13	5th street	X Street	Broadway	30	641	6,410	1035	10,350
14	5th street	Broadway	1st Avenue	30	563	5,630	775	7,750
15	5th street	1st Avenue	Mcclatchy Way	25	558	5,580	680	6,800
16	5th street	Mcclatchy Way	Vallejo Way	25	366	3,660	440	4,400
17	5th street	Vallejo Way	4th Avenue	25	51	510	65	650
18	8th street	X Street	Broadway	30	170	1,700	550	5,500
19	9th street	X Street	Broadway	30	506	5,060	655	6,550
20	11th street	V street	W Street	15	499	4,990	540	5,400
21	11th street	W Street	X Street	15	715	7,150	730	7,300
22	11th street	X Street	Broadway	30	808	8,080	900	9,000
23	Riverside Boulevard	Broadway	Vallejo Way	30	1257	12,570	1250	12,500
24	Riverside Boulevard	Vallejo Way	3rd Avenue	30	1128	11,280	1185	11,850
25	Vallejo Way	River Beard Circle	5th Street	15	98	980	150	1,500
26	Vallejo Way	5th Street	Muir Way	25	254	2,540	220	2,200
27	Vallejo Way	Muir Way	Riverside Boulevard	25	168	1,680	195	1,950
28	Vallejo Way	Riverside Boulevard	3rd Avenue	25	148	1,480	225	2,250
29	Muir Way	Broadway	Vallejo Way	30	459	4,590	630	6,300
30	Muir Way	Vallejo Way	3rd Avenue	30	263	2,630	265	2,650
31	Broadway	American River	Front Street	25	135	1,350	145	1,450
32	Broadway	Front Street	I-5	25	373	3,730	1400	14,000
33	Broadway	I-5	3rd Street	30	617	6,170	1790	17,900
34	Broadway	3rd Street	5th Street	30	891	8,910	1640	16,400
35	Broadway	5th Street	8th street	30	1115	11,150	1560	15,600
36	Broadway	8th street	9th Street	30	1408	14,080	2015	20,150
37	Broadway	9th Street	Riverside Boulevard	30	1832	18,320	2070	20,700
38	Broadway	Riverside Boulevard	13th street	30	1314	13,140	1640	16,400
39	Mcclatchy Way	I-5	5th Street	25	105	1,050	120	1,200
40	1st Avenue	3rd street	5th street	25	40	400	250	2,500

Notes

1. Segments and PM peak hour volumes derived from Figures 4A, 4B, 11A, and 11B in the Traffic Impact Study prepared by Fehr and Peers (2019)
2. ADT volumes were derived by applying a k-factor of 10 to the peak hour volumes.

Citation #	Citations	
1	Caltrans Technical Noise Supplement. 2009 (November). Table (5-11), Pg 5-60.	Caltrans Technical Noise Supplement. 2013 (September). Table (4-2), Pg 4-17.
2	Caltrans Technical Noise Supplement. 2009 (November). Equation (5-26), Pg 5-60.	Caltrans Technical Noise Supplement. 2013 (September). Equation (4-5), Pg 4-17.
3	Caltrans Technical Noise Supplement. 2009 (November). Equation (2-16), Pg 2-32.	FHWA 2004 TNM Version 2.5
4	Caltrans Technical Noise Supplement. 2009 (November). Equation (5-11), Pg 5-47, 48.	FHWA 2004 TNM Version 2.5
5	Caltrans Technical Noise Supplement. 2009 (November). Equation (2-26), Pg 2-55, 56.	Caltrans Technical Noise Supplement. 2013 (September). Equation (2-23), Pg 2-51, 52.
6	Caltrans Technical Noise Supplement. 2009 (November). Equation (2-27), Pg 2-57.	Caltrans Technical Noise Supplement. 2013 (September). Equation (2-24), Pg 2-53.
7	Caltrans Technical Noise Supplement. 2009 (November). Pg 2-53.	Caltrans Technical Noise Supplement. 2013 (September). Pg 2-57.
8	Caltrans Technical Noise Supplement. 2009 (November). Equation (5-7), Pg 5-45.	FHWA 2004 TNM Version 2.5
9	Caltrans Technical Noise Supplement. 2009 (November). Equation (5-8), Pg 5-45.	FHWA 2004 TNM Version 2.5
10	Caltrans Technical Noise Supplement. 2009 (November). Equation (5-9), Pg 5-45.	FHWA 2004 TNM Version 2.5
11	Caltrans Technical Noise Supplement. 2009 (November). Equation (5-13), Pg 5-49.	FHWA 2004 TNM Version 2.5
12	Caltrans Technical Noise Supplement. 2009 (November). Equation (5-14), Pg 5-49.	FHWA 2004 TNM Version 2.5
13	Federal Highway Administration Traffic Noise Model Technical Manual. Report No. FHWA-PD-96-010. 1998 (January). Equation (16), Pg 67	
14	Federal Highway Administration Traffic Noise Model Technical Manual. Report No. FHWA-PD-96-010. 1998 (January). Equation (20), Pg 69	
15	Federal Highway Administration Traffic Noise Model Technical Manual. Report No. FHWA-PD-96-010. 1998 (January). Equation (18), Pg 69	

References

California Department of Transportation (Caltrans). 2009 (November). Technical Noise Supplement. Available: http://www.dot.ca.gov/hq/env/noise/pub/tens_complete.pdf. Accessed August 17, 2017.

California Department of Transportation (Caltrans). 2013 (September). Technical Noise Supplement. Available: http://www.dot.ca.gov/hq/env/noise/pub/TeNS_Sept_2013A.pdf. Accessed August 17, 2017.

Federal Highway Administration. 2004. Traffic Noise Model Version 2.5. Available: https://www.fhwa.dot.gov/environment/noise/traffic_noise_model/tnm_v25/. Accessed August 17, 2017.

Appendix D

Transportation Modeling

The SACSIM Model, as developed and maintained by SACOG, represents the best available and most accurate tool for the estimation of vehicle miles traveled (VMT) within the Sacramento region. That said, it is a projections model that is dependent on the availability of data and the information/planning considerations made to the model. The following discussion provides some additional context regarding the information provided by the model.

Additional VMT Considerations

Emerging Trends and SACSIM Model Limitations

The VMT analysis concludes that the project would have a less-than-significant impact on VMT based on the recommended screening analysis methodology presented in the State CEQA Guidelines and the Technical Advisory. This includes reliance on VMT screening maps prepared by SACOG based on data from the SACSIM travel forecasting model. While the SACSIM model represents state of the practice or advance practice, travel behavior and the transportation systems are changing quickly in response to emerging trends, new technologies, and different preferences, as noted in the Environmental Setting section. These changes combined with the current effects of the COVID-19 pandemic increase uncertainty about how VMT generation rates may change by the time the Project would be constructed and occupied.

The trajectory of deployment, market acceptance, and government regulation of these new travel options and technologies is difficult to predict, and these elements directly influence the inputs and algorithms for the SACSIM model. As such, SACSIM as a travel forecasting model has limitations in the ability to capture the full range of potential travel effects from emerging travel options and technologies.

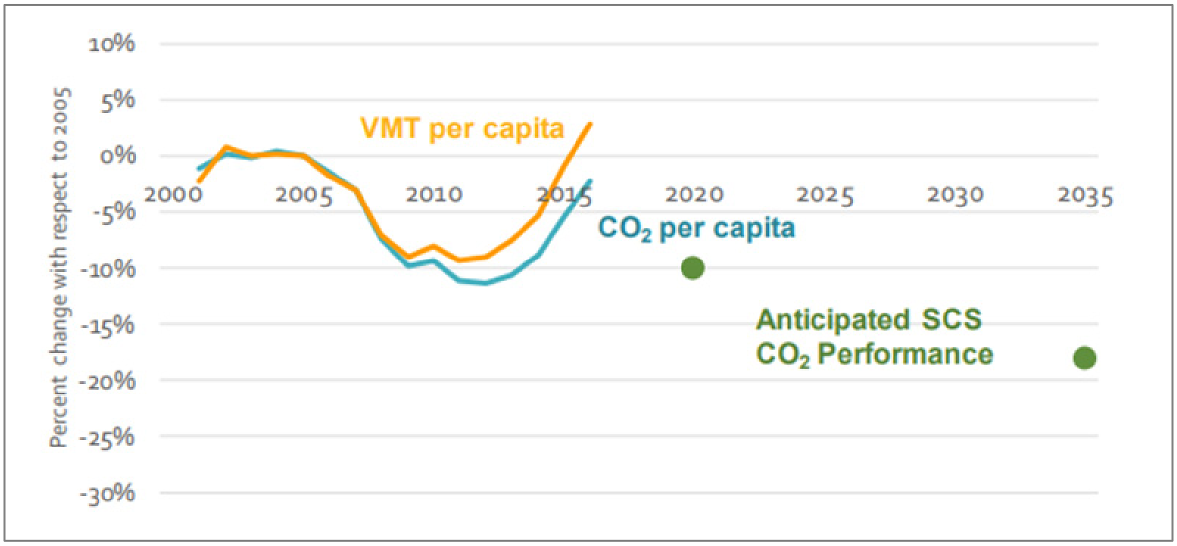
The SACSIM model does include some scenario testing capabilities that can begin to test different hypotheses of these impacts, but until more research is done about the likely behavioral responses to new modes and technologies is completed, travel models cannot fully capture these changes in a reliable way. Initial testing of automated vehicles effects using SACSIM, such as lowering costs to use vehicles and making them more convenient by eliminating parking at trip ends, does generate increases in overall vehicle travel and reductions in transit ridership with all else being equal. The information suggests the model is sensitive to how cost and convenience influence travel behavior but within the limits of the observed data used to develop the model.

Historical VMT Trends

When making a final VMT impact determination, other available evidence related to VMT trends should be considered. This analysis identified the following two relevant studies.

- 2018 Progress Report, California's Sustainable Communities and Climate Protection Act, California Air Resources Board, November 2018 (Progress Report).
- California Air Resources Board Improved Program Measurement Would Help California Work More Strategically to Meet Its Climate Change Goals, Auditor of the State of California, February 2021 (Audit Report).

The Progress Report measures the effect of SB 375 revealing that VMT and GHG per capita increased in California between 2010 and 2016 and are trending upward (Figure 1).



* CO_2 and VMT calculated based on California Department of Tax and Fee Administration gasoline fuel sales data.
Source: CDTFA, US EIA, US EPA, CARB

Figure 1 Statewide CO_2 and Vehicle Miles Traveled (VMT) per Capita Trend with Respect to Anticipated Performance of Current SB 375 SCSs*

The Audit Report is an assessment of CARB's GHG reduction programs, which also found that VMT and its associated GHG emissions were trending upward through 2018. Per the audit, the state is not on track to achieve 2030 GHG reduction goals, and emissions from transportation have not been declining.

The evidence from these two reports does not refute the project's VMT impact finding but does suggest greater action on the part of the state may be needed to achieve the state's GHG reduction goals. The project contributes to the basic objectives of SB 743 for local agencies such as adding development in a land use efficient area where the short-trip lengths to destinations allows for more multi-modal choices and low VMT generation. The monitoring of state performance indicates that the state may need to take further action to discourage vehicle travel (i.e., increasing the cost of driving) while reducing the barriers or constraints that prevent more efficient use of vehicles and greater use of transit, walking, and bicycling. If these types of actions are taken, employees, students, and visitors of the proposed project would have multiple travel options to further reduce their vehicle use because of the proximity to existing complementary uses on the main Sacramento State campus and the project's central location within the greater Sacramento region.

Vehicle Miles Traveled Effects of COVID-19 Pandemic

Initially, government orders that curtailed mobility and suppressed economic activity due to the COVID-19 pandemic decreased VMT. Following this sudden decline in VMT, it appears that VMT in many locations have returned to their pre-lockdown values. However, it is uncertain what long-term effects the COVID-19 pandemic will have on travel behavior. By necessity, sizable portions of the public adapted to a notable increase in teleworking, distance learning, telemedicine, internet shopping, and home delivery. The current physical distancing recommendations have also reduced demand for mass transit and shared mobility options. The combination of these effects could result in increased or decreased VMT per capita levels in the future, depending on how permanent these behavioral changes become. Since the VMT effects of emerging trends and the COVID-19 pandemic are uncertain, and because the COVID-19 pandemic has disrupted the VMT trends documented in the 2018 Progress Report, any definitive conclusions for how these other VMT considerations will affect project VMT-generation is speculative.

Table 1 Three-Year Injury Collision History Near Project Site

Location	Parties[1]	Type	Primary Collision Factor	Date
Hornet Drive north of Folsom Boulevard	**Vehicle**, Vehicle	Sideswipe	Traffic Signals and Signs	May-18
Howe Avenue at US 50	**Vehicle**, Vehicle	Rear End	Unsafe Speed	Mar-16
Howe Avenue at US 50	**Bicycle**, Vehicle	Broadside	Wrong Side of Road	Apr-17
Howe Avenue at US 50	**Vehicle**, Vehicle	Sideswipe	Improper Turning	Aug-17
Howe Avenue at US 50	**Vehicle**, Vehicle, Vehicle, Vehicle	Rear End	Unsafe Speed	Nov-17
Howe Avenue at US 50	**Vehicle**, Vehicle, Vehicle	Sideswipe	Unsafe Speed	Nov-17
Howe Avenue at US 50	**Vehicle**, Vehicle	Rear End	Driving Under the Influence of Alcohol or Drug	Nov-17
Howe Avenue at US 50	**Vehicle**	Broadside	Other	Jul-18
Howe Avenue north of US 50	**Vehicle**	Hit Object	Driving Under the Influence of Alcohol or Drug	Oct-17
Howe Avenue north of US 50	**Vehicle**, Vehicle, Vehicle	Rear End	Unsafe Speed	Mar-17
Howe Avenue south of US 50	**Vehicle**, Vehicle, Vehicle, Vehicle	Rear End	Unsafe Speed	Jul-17
Howe Avenue south of US 50	**Vehicle**, Vehicle	Broadside	Traffic signals and Signs	Jul-17
Howe Avenue at Folsom Boulevard	**Vehicle**, Vehicle	Broadside	Traffic Signals and Signs	Aug-18
Howe Avenue north of Folsom Boulevard	**Vehicle**, Vehicle	Rear End	Driving Under the Influence of Alcohol or Drug	Jan-16
Howe Avenue north of Folsom Boulevard	**Vehicle**, Vehicle	Sideswipe	Driving Under the Influence of Alcohol or Drug	Jun-16
Howe Avenue north of Folsom Boulevard	**Pedestrian**, Vehicle	Auto/Ped	Pedestrian Violation	Sep-16
Howe Avenue north of Folsom Boulevard	**Vehicle**, Vehicle	Rear End	Unsafe Speed	Feb-18
Folsom Boulevard at Hornet Drive	**Vehicle**	Hit Object	Unsafe Speed	Jul-17
Folsom Boulevard west of Hornet Drive	**Vehicle**, Vehicle, Vehicle, Vehicle	Rear End	Unsafe Speed	Nov-18
Folsom Boulevard west of Hornet Drive	**Vehicle**, Vehicle	Broadside	Unsafe Speed	Nov-17
Folsom Boulevard at Howe Avenue	**Vehicle**, Bicycle	Broadside	Traffic Signals and Signs – Hit & Run	Apr-16
Folsom Boulevard at Howe Avenue	**Vehicle**, Vehicle	Unknown	Improper Turning – Hit & Run	May-16
Folsom Boulevard at Howe Avenue	**Vehicle**, Vehicle	Sideswipe	Improper Turning – Hit & Run	Sep-16
Folsom Boulevard at Howe Avenue	**Vehicle**, Vehicle	Rear End	Unsafe Speed	Sep-16
Folsom Boulevard at Howe Avenue	**Vehicle**	Hit Object	Unsafe Speed	Oct-16
Folsom Boulevard at Howe Avenue	**Vehicle**, Vehicle	Sideswipe	Unsafe Lane Change	Dec-17
Folsom Boulevard west of Howe Avenue	**Vehicle**, Vehicle	Broadside	Improper Turning	Sep-17
Folsom Boulevard west of Howe Avenue	**Vehicle**, Vehicle	Sideswipe	Improper Turning	Feb-18
Folsom Boulevard west of Howe Avenue	**Vehicle**, Vehicle	Broadside	Automobile Right of Way	Sep-18
Folsom Boulevard east of Howe Avenue	**Vehicle**, Vehicle	Rear End	Unsafe Speed	Nov-16
Folsom Boulevard east of Howe Avenue	**Vehicle**, Vehicle	Rear End	Unsafe Speed	Dec-18
Folsom Boulevard east of Power Inn Road	**Pedestrian**, Vehicle	Auto/Ped	Pedestrian Violation	Jan-18
Folsom Boulevard east of Power Inn Road	**Vehicle**, Vehicle	Broadside	Driving Under the Influence of Alcohol or Drug	Jan-18
Folsom Boulevard at State University Drive	**Vehicle**, Vehicle	Sideswipe	Unsafe Speed	Feb-16
Folsom Boulevard at State University Drive	**Vehicle**, Vehicle, Vehicle	Rear End	Unsafe Speed	Feb-16

Location	Parties[1]	Type	Primary Collision Factor	Date
Folsom Boulevard at State University Drive	**Vehicle**, Vehicle	Broadside	Traffic Signals and Signs	Oct-17
Folsom Boulevard at State University Drive	**Vehicle**, Vehicle	Broadside	Traffic Signals and Signs	Mar-18
Folsom Boulevard east of State University Drive	**Vehicle**, Vehicle	Rear End	Unsafe Speed	Mar-17
Folsom Boulevard east of State University Drive	**Vehicle**, Vehicle, Vehicle	Rear End	Unsafe Speed	Aug-17
Folsom Boulevard east of State University Drive	**Vehicle**, Vehicle	Rear End	Unsafe Speed	Jan-18
Folsom Boulevard west of State University Drive	**Vehicle**, Vehicle, Vehicle	Rear End	Unsafe Speed	Mar-16
Folsom Boulevard west of State University Drive	**Vehicle**, Vehicle	Broadside	Improper Turning	Feb-17
Power Inn Road at Ramona Avenue	**Vehicle**, Vehicle	Broadside	Automobile Right of Way	Feb-16
Power Inn Road at Ramona Avenue	Vehicle, **Bicycle**	Broadside	Wrong Side	May-16
Power Inn Road at Ramona Avenue	**Vehicle**, Vehicle	Broadside	Automobile Right of Way	Nov-16
Power Inn Road at Ramona Avenue	**Vehicle**, Vehicle	Broadside	Improper Turning	Dec-17
Power Inn Road north of Ramona Avenue	**Vehicle**, Vehicle, Vehicle	Rear End	Unsafe Speed	Jul-18
Power Inn Road south of Ramona Avenue	**Vehicle**	Hit Object	Improper Turning	Nov-16
Power Inn Road south of Ramona Avenue	**Vehicle**, Vehicle	Rear End	Unsafe Speed	Aug-16
Power Inn Road south of Ramona Avenue	**Vehicle**, Vehicle	Rear End	Unsafe Speed	May-17
Power Inn Road at Folsom Boulevard	**Vehicle**, Vehicle	Rear End	Unknown	Oct-16
Power Inn Road at Folsom Boulevard	**Vehicle**, Vehicle, Vehicle	Broadside	Traffic Signals and Signs	Oct-16
Power Inn Road at Folsom Boulevard	**Vehicle**, Vehicle	Broadside	Driving Under the Influence of Alcohol or Drug	Dec-16
Power Inn Road at Folsom Boulevard	**Vehicle**, Vehicle, Vehicle	Broadside	Traffic Signals and Signs	Jul-17
Power Inn Road at Folsom Boulevard	**Vehicle**, Vehicle, Vehicle	Rear End	Unsafe Speed	Jan-17
Power Inn Road at Folsom Boulevard	**Vehicle**, Vehicle, Vehicle	Broadside	Driving Under the Influence of Alcohol or Drug	Apr-18
Power Inn Road at Folsom Boulevard	**Vehicle**, Vehicle	Rear End	Unsafe Speed	Dec-18
Power Inn Road north of Folsom Boulevard	**Vehicle**, Bicycle	Broadside	Improper Turning	Aug-18
Power Inn Road south of Folsom Boulevard	Vehicle, **Bicycle**	Broadside	Wrong Side of Road	May-16
Power Inn Road south of Folsom Boulevard	**Vehicle**, Bicycle	Broadside	Automobile Right of Way – Hit & Run	Sep-16
Power Inn Road south of Folsom Boulevard	**Vehicle**	Hit Object	Unsafe Speed	Oct-16
Power Inn Road south of Folsom Boulevard	Vehicle, **Vehicle**, Vehicle	Rear End	Improper Turning	Nov-16
Power Inn Road at Cucamonga Avenue	**Vehicle**, Vehicle	Rear End	Traffic Signals and Signs	Nov-17
Power Inn Road at Cucamonga Avenue	**Vehicle**, Vehicle	Broadside	Automobile Right of Way	May-18
Power Inn Road at Cucamonga Avenue	**Vehicle**, Vehicle	Broadside	Traffic Signals and Signs	Oct-18
Power Inn Road north of Cucamonga Avenue	**Vehicle**, Vehicle	Broadside	Automobile Right of Way	Dec-16
Power Inn Road north of Cucamonga Avenue	**Vehicle**, Vehicle	Rear End	Driving Under the Influence of Alcohol or Drug	Oct-17
Power Inn Road south of Cucamonga Avenue	**Vehicle**, Vehicle	Rear End	Unsafe Speed	Apr-17
Power Inn Road south of Cucamonga Avenue	**Vehicle**, Vehicle	Sideswipe	Improper Turning	Nov-18
Ramona Avenue north of Cucamonga Avenue	**Vehicle**, Parked Vehicle	Overturned	Unsafe Speed	Sep-18
Ramona Avenue east of Power Inn Road	**Vehicle**, Vehicle	Rear End	Unsafe Speed	Jan-16

Notes: [1]Bold party identified as party at-fault.
Source: Statewide Integrated Traffic Records Database, 2021.

Appendix E

Water Supply Form

☑ Press to clear form

City of Sacramento
SB 610/SB 221 Water Supply Assessment and Certification Form

This form may be used to complete water supply assessments for projects located in an area covered by the City's most recent Urban Water Management Plan.

Note: Please do not use this form if the projected water demand for your project area was not included in the City's latest Urban Water Management Plan. To review the City's Urban Water Management Plan, please visit: http://www.cityofsacramento.org/Utilities/Resources/Reports

Project: The Hub, Sacramento State Research Park Project

Date: 8/26/21

Project Applicant (Name of Company): California State University, Sacramento

Applicant Contact (Name of Individual): Kirsten Burrowes (on behalf of Sac State)

Phone Number: (916) 661-7338

E-mail: Kirsten.Burrowes@ascentenvironmental.com

Address: 455 Capitol Mall, Suite 300, Sacramento, California 95814

Project Applicant to fill in the following:

1. Does the project include:

Type of Development	Yes	No
A proposed residential development of 500 or more dwelling units		✔
A shopping Center employing more than 1,000 persons or having more than 500,000 square feet?		✔
A Commercial Office building employing more than 1,000 persons or having more than 250,000 square feet?	✔	
A proposed hotel or motel, or both, having more than 500 rooms		✔
A proposed industrial, manufacturing, or processing plant or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area		✔
A mixed use project that includes one or more of the projects specified above	✔	
A project that would demand an amount of water equivalent to, or greater than, the water required by a 500 dwelling unit project	✔	

If the answer is no to all of the above, a water supply assessment is not required for the project.

2. Is the projected water demand for the project location included in the City's 2020 Urban Water Management Plan, adopted June 29, 2021?

Yes: ☑ No: ☐

If the answer is no, you cannot use this form. Please refer to the requirements of SB 610 for preparing a water supply assessment.

3. Please fill in the project demands below:

<table>
<tr><th rowspan="2">Type of Development</th><th rowspan="2">Land Use Category</th><th colspan="2">Demand Factor</th><th colspan="3">Proposed Development</th><th colspan="3">Current Zoning</th></tr>
<tr><th>Residential Water Use Factor, afy/dwelling unit</th><th>Non-Residential Water Use Factor, afy/employee</th><th>Number Dwelling Units</th><th>Number Employees</th><th>Total Demand</th><th>Number Dwelling Units</th><th>Number Employees</th><th>Total Demand</th></tr>
<tr><td rowspan="3">Residential - Low</td><td>Rural Residential (RR)</td><td rowspan="3">.61</td><td rowspan="3">.09</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>Suburban Neighborhood Low Density (SNLD)</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>Traditional Neighborhood Low Density (TLDR)</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td rowspan="2">Residential - Medium</td><td>Suburban Neighborhood Medium Density (SMDR)</td><td rowspan="2">.39</td><td rowspan="2">.09</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>Urban Neighborhood Low Density (ULDR)</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td rowspan="4">Residential - High</td><td>Suburban Neighborhood High Density (SHDR)</td><td rowspan="4">.12</td><td rowspan="4">.04</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>Traditional Neighborhood Medium Density (TMDR)</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>Urban Neighborhood Medium Density (UMDR)</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>Traditional Neighborhood High Density (THDR)</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td rowspan="4">Mixed Use</td><td>Employment Center Mid Rise (ECMR)</td><td rowspan="4">.19</td><td rowspan="4">.09</td><td></td><td>1820</td><td>163.8</td><td></td><td></td><td></td></tr>
<tr><td>Suburban Center (SCnt)</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>Suburban Corridor (Scor)</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>Traditional Center (TCnt)</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
</table>

Mixed Use - Higher Density	Urban Center High (UCntHigh)	.15	.04						
	Urban Center Low (UcntLow)								
	Urban Corridor High (UCorHigh)								
	Urban Corridor Low (UCorLow)								
Central Business District	Central Business District (CBD)	.15	.02						
	Urban Neighborhood High Density (UHDR)								
Commercial	Regional Commercial (RC)	.15	.09						
	Employment Center Low Rise (ECLR)								
Industrial	Industrial (IND)	NA	.14		203	28.42			
Public	Public/Quasi-Public (PUB)	.37	.17		224	38.08			
Park	Parks and Recreation (PRK)	.37	.17						
Open Space	Open Space (OS)	0	0						
Other									
Other									
Other									
Total Demand (AFY)						230.3			

4. Required Elements of Water Supply Assessment (Water Code § 10910)

A. Water supply entitlements, water rights or water service contracts (Water Code § 10910(d)):

The City's water supply entitlements, water rights and water service contract are identified and discussed in the Urban Water Management Plan, Chapters 3, 6 and 7.

All infrastructure necessary to deliver a water supply to the project is in place, excepting any distribution facilities required to be constructed and financed by the project applicant: Yes: ✔ No: ☐

B. Identification of other sources of water supply if no water has been received under City's existing entitlements, water rights or water service contracts (Water Code § 10910(e)):

Not applicable.

C. Information and analysis pertaining to groundwater supply (Water Code § 10910(f)):

Addressed by Urban Water Management Plan, Chapters 3, 6 and 7.

Verification of Water Supply
(for residential development of more than 500 dwelling units)

Based on the City's most recent Urban Water Management Plan, are there sufficient water supplies for the project during normal, single dry and multiple dry years over a 20 year period?

Yes: ✔ No: ☐

By: Brett Ewart

Title: Senior Engineer

Date: 12/8/2021

This box to be filled in by the City

Distribution:

Applicant
Development Services Department (Org: 4913) – Assigned Planner:______________
Utilities Department (Org: 3334) - Development Review (Tony Bertrand)
Utilities Department (Org: 3332) - Capital Improvements (Brett Ewart)

Appendix F

Draft EIR Comment Letters

Letter S1

California Department of Transportation

DISTRICT 3
703 B STREET | MARYSVILLE, CA 95901-5556
(530) 741-4233 | FAX (530) 741-4245 TTY 711
www.dot.ca.gov

February 28, 2022

Tania Nunez
Project Manager
California State University, Sacramento,
Planning, Design, & Construction
6000 J Street
Sacramento, CA 95819

GTS# 03-SAC-2022-01049
State Clearinghouse #2021030485

The Hub, Sacramento State Research Park Project

Dear Ms. Nunez:

Thank you for including the California Department of Transportation (Caltrans) in the review process for the project referenced above. We reviewed this local development for impacts to the State Highway System (SHS) in keeping with our mission, vision, and goals, some of which include addressing equity, climate change, and safety, as outlined in our statewide plans such as the California Transportation Plan 2050, Caltrans Strategic Plan, and Climate Action Plan for Transportation Infrastructure.

The California State University, Sacramento (CSUS) has released the Draft Environmental Impact Report (DEIR) for The Hub, Sacramento State Research Park Project Master Plan. The Master Plan area is an infill redevelopment site located within the City of Sacramento, south of CSUS and east of Tahoe Park. The development is located in a heavily industrialized neighborhood wherein surrounding development, including nearby rail lines, limit access to the development parcel. The project will include up to 750,000 square feet of office, laboratory, testing, manufacturing, and mixed-use development space for public and quasi-public clients the California Mobility Center and the California Department of Justice, as well as CSUS. Tenant activities will integrate with CSUS instructional programs, providing learning opportunities to students. Phase I of the project will be constructed with approximately 500 parking spaces, some of which may be removed as phase II buildings are added to surface parking lots in the future. While the project is only approximately 1,400 feet from the SHS, access to the SHS requires an almost one-mile drive to the Howe Avenue / United States Highway 50 ramps, and a 1.7-mile drive to an unrelinquished portion of State Route 16. The project is likely to create the following significant and unavoidable environmental impacts: generation of increased greenhouse gas emissions (GHG) and increased Vehicle Miles Traveled (VMT). The applicant has proposed mitigations for these impacts in the DEIR. Required entitlements for this project include the adoption of a Final Environmental Impact Report for the project master plan. Based on the materials provided, Caltrans provides the following comments.

Forecasting and Modeling / Planning / Traffic Operations

- CSUS determined their project would generate total VMT per service population at a rate that exceeds the threshold of 15 percent below the existing City or regional average and that the VMT impact will be significant and unavoidable. Caltrans appreciates CSUS' stance of clearly representing this project's VMT impact, and for identifying mitigation measures to reduce the total VMT impact.
- The mitigation concepts on page 3.9-5 and the Mitigation Measures on page 3.9-24 all appear to be viable measures. Caltrans understands that diverting travelers to transit and sustainable modes can often require complex partnerships with other agencies. Some of the listed mitigation measures may need to be implemented with local and state agency partners such as the City of Sacramento, Sacramento Regional Transit, Caltrans, and other agencies. **S1-1**
    - How will CSUS coordinate with external partners to build these improvements?
    - Please expand the discussion to include how partnerships would work to implement the following Transportation Demand Management (TDM) measures: **S1-2**
        - Adding bike and ped amenities to roadway segments outside of the property.
        - Improving transit access for pedestrians.
        - Enhancing service to 65th Street Light Rail Station
- Has CSUS considered the potential for a light rail station between Power Inn and 65th Street as a VMT mitigation measure for this project? **S1-3**

Please provide our office with copies of any further actions regarding the project. We would appreciate the opportunity to review and comment on any changes related to this development.

If you have questions regarding these comments or require additional information, please contact Alex Kenefick, City of Sacramento Intergovernmental Review Coordinator, by phone at (530) 565-3972 or via email at Alex.Kenefick@dot.ca.gov. **S1-4**

Sincerely,

Alex Padilla

Alex Padilla, Branch Chief
Office of Transportation Planning
Regional Planning Branch – South

SACRAMENTO METROPOLITAN
AIR QUALITY
MANAGEMENT DISTRICT

Letter
L1

February 28, 2022

Tania Nunez
Project Manager
California State University, Sacramento
Planning, Design, & Construction
6000 J Street
Sacramento, CA 95819
tania.nunez@csus.edu

Subject: The Hub Research Park Project Draft Environmental Impact Report
State Clearinghouse # 2021030485

Dear Tania Nunez:

The Sacramento Metropolitan Air Quality Management District (Sac Metro Air District) thanks California State University Sacramento (CSUS) for the opportunity to review the Draft Environmental Impact Report (EIR) for The Hub Research Park Project (The Hub) under the California Environmental Quality Act (CEQA). This project is a proposal to develop 25 acres in the City of Sacramento with academic, research, and office space that support CSUS academic programming. Please accept the following recommendations on project implementation and modifications to the Draft EIR, to benefit air quality and public health, to reduce greenhouse gas (GHG) emissions, and to ensure full public disclosure of project air quality and climate impacts.

Operations: Criteria Pollutant Emissions

The Draft EIR analysis of Criteria Pollutants, pollutants regulated by the Clean Air Act, identifies environmental impacts resulting from project operations as less than significant because they do not exceed Sac Metro Air District thresholds of significance. Please note that the non-zero thresholds of significance for Particulate Matter (PM) require implementation of Best Management Practices for land development projects (Operational BMPs), as identified in Sac Metro Air District's guidance on reviewing projects under CEQA, The Guide to Air Quality Assessment in Sacramento County (CEQA Guide), available on our website. L1-1

- Sac Metro Air District recommends that the EIR describe how the project will comply with the Operational BMPs, to ensure appropriate use of the non-zero PM thresholds.

Sac Metro Air District commends the Draft EIR's use of our Guidance to Address the Friant Ranch Ruling for CEQA Projects in the Sac Metro Air District (Friant Guidance) to analyze health effects pursuant to the Friant Ranch California Supreme Court decision, where the Court held that CEQA air quality analysis should include a reasonable effort to connect a project's air quality impacts to likely health consequences or explain in meaningful detail why it is not feasible to do so. Draft EIR analysis utilized the Friant Guidance's Minor Project Health Effects tool. L1-2

- For full public disclosure of ozone-related public health risk, please consider including the Minor Project Health Effects tool model run in the final text. L1-2 cont.

Operations: Greenhouse Gas Emissions

The Draft EIR analysis of GHG emissions finds that the environmental impacts of GHG emissions from project operations are significant and unavoidable after mitigation. Under Sac Metro Air District's GHG CEQA thresholds, if a project is consistent with a qualified Climate Action Plan (CAP), it is less than significant for GHG emissions impacts. The Draft EIR indicates that the CSUS CAP has a carbon neutral by 2040 goal, and that the proposed project is consistent with the CAP because it "would implement sustainable design features" that would put the university on track toward meeting that goal.

- Sac Metro Air District recommends that the EIR describe the CSUS CAP, whether that CAP is qualified (consistent with CEQA Section 15183.5), and document how the project is consistent with that CAP. L1-3

- Consistent with CEQA Appendix G Question VII b), on applicable plans for reducing GHG emissions, we also recommend that the EIR address whether the project would conflict with the City of Sacramento Climate Action Plan.

The Draft EIR further indicates that "Potential additional mitigation included the purchase of [carbon] offsets, however, due to uncertainties surrounding the availability, feasibility (e.g., due to per-credit cost variability), and verifiability of carbon credits, this is not considered feasible mitigation for the purposes of this project."

- Sac Metro Air District recommends that the EIR explain specifically why carbon offsets are not considered feasible, for example what uncertainties exist surrounding the availability and verifiability of carbon credits, and fully explain other feasibility concerns such as the per-credit cost variability. L1-4

Providing an explanation about offset feasibility, so that is fully clear to the reader, will help ensure that the EIR's claim of significant and unavoidable GHG emissions impacts is adequately defended.

The Draft EIR includes mitigation to reduce project vehicle miles traveled (VMT). Mitigation measure (MM) 3.6-1b consists of measures to reduce VMT, with emissions reduction quantification.

- Sac Metro Air District recommends that the EIR provide clear information on how the MM 3.6-1b emissions reduction quantifications were determined. This information should include a clear description of how measures within MM 3.6-1b will be implemented. For example, what emissions reduction can be expected from each of the bicycle and pedestrian connections proposed? What expanded transit service is provided, and what reductions can be expected from components of the expanded service? L1-5

- To ensure that the project includes all feasible mitigation for operational GHG emissions impacts, Sac Metro Air District recommends adding the following measures into that mitigation:
    - Provide future project employees and students with Sacramento Regional Transit passes.

- Provide an employee commute shuttle from the nearby Sacramento Regional Transit Power Inn light rail station.

- Implement a paid parking program for all project employment uses, whereby the employees receive a commute subsidy for transit, pedestrian, and bicycle commute, and are required to pay for single occupancy motor vehicle parking spaces. **L1-5 cont.**

- Utilize technology such as hydrogen fuel cells, and additional solar panels and/or battery storage, to reduce the number of diesel generators needed. Please contact Sac Metro Air District staff member Raef Porter at 916-588-0175 or rporter@airquality.org. for information on funding opportunities for this technology.

The Draft EIR indicates that the project's electric vehicle (EV) infrastructure would offset project GHG emissions with a reduction of 240 metric tons of carbon dioxide equivalent (MTCO2e) (Draft EIR page 3.6-15). It indicates that modeling inputs and assumptions used to estimate GHG offsets are detailed in Appendix B, although it is not clear in Appendix B how the modeling yielded the 240 MTCO2e. For example, the table entitled "GHG Emissions Inventory" shows a reduction of 285 MTCO2e yearly from EV infrastructure, whereas the Draft EIR text indicates that 240 MTCO2e is achieved from EV infrastructure reductions over a 20-year period. The Draft EIR text indicates that "The project commitment to EVSE would both achieve and exceed the reduction needed to offset the project's construction mass emissions of 164 MTCO2e (Table 3.6-3), and would more than offset the energy-related emissions from natural gas."

- Sac Metro Air District recommends that the EIR include a summary table in its Appendix B that demonstrates how the 240 MTCO2e number was determined, and how it relates to the 285 MTCO2e number identified in the "GHG Emissions Inventory" table. This summary table should also identify how the 240 MTCO2e offsets the project's natural gas emissions, which are identified as 83 MTCO2e yearly in Table 3.6-4. **L1-6**

Further, the Draft EIR indicates that Sacramento Municipal Utility District (SMUD) intensity factors are adjusted for the Renewable Portfolio Standard (RPS) in project modeling inputs, with an intensity factor of 93.04.

- Sac Metro Air District recommends that the EIR Appendix B include documentation for this RPS adjustment.

Permitting Requirements
The Draft EIR indicates that for the Hub project "Each building would be equipped with an emergency generator, which were assessed [in the Draft EIR] qualitatively," and that "Stationary source emissions from the back-up emergency generator would result in long-term operational emissions, however, the project is subject to the permitting requirements set forth by SMAQMD and would ensure that all emissions standards are met." **L1-7**

The project's generators will require an Authority to Construct and Permit to Operate from the Sac Metro Air District. Please contact the Sac Metro Air District at 800-880-9025 or permitting@airquality.org with comments or questions on permit or registration requirements. For permit application forms and instructions, please visit the following page on the Sac Metro Air District website: http://www.airquality.org/Businesses/Permits-Registration-Programs.

Please note that the Sac Metro Air District will conduct a health risk assessment (HRA) that will evaluate the impact to sensitive receptors from all stationary emission sources combined that are a part of this project, which could help provide further public disclosure on possible operational health risk.

- Sac Metro Air District recommends that the EIR reference the forthcoming Sac Metro Air District HRA. We recommend that the EIR include a link to Sac Metro Air District's website, for public access to the HRA when it is complete. **L1-7 cont.**

For information on Sac Metro Air District HRA timing and public website access, please contact Steve Mosunic, Program Supervisor with the Sac Metro Air District Permitting Section, at 279-207-1137 or smosunic@airquality.org.

Urban Heat Island Effect

The Sac Metro Air District participated in the 2020 Capital Region Transportation Sector Urban Heat Island Mitigation Project (UHI Project), producing a report on urban heat island effect impacts on the Sacramento region, and mitigation strategies for these impacts. The urban heat island effect already presents a serious challenge for our region, according to the report. Developed areas in Sacramento range 3 to 9 degrees Fahrenheit warmer than surrounding areas, which results in decreased air quality and associated public health impacts. The urban heat island results from the conversion of undeveloped land to developed land.

The Draft EIR references City of Sacramento 2035 General Plan Policy ER 3.1.6 on the Urban Heat Island Effect as relevant to its analysis of Biological Resources. Please note that City General Plan Policy LU 2.6.8, which stipulates that "The City shall reduce the 'heat island effect' by promoting and requiring, where appropriate, such features as reflective roofing, green roofs, light-colored pavement, and urban shade trees and by reducing the unshaded extent of parking lots," is relevant to its air quality and climate analyses. Consistent with these policies, and mitigation strategies identified in the UHI Project report, Sac Metro Air District recommends the following project measures:

L1-8

- Utilize "cool pavement" for new outdoor pavement, with the highest albedo possible, but no less than 0.25. For guidance on cool pavement strategies, please visit Sac Metro Air District's Recommended Cool Pavement Strategies.

- Utilize certified cool roofs for all project structures. The 2019 California Building Energy Efficiency Standards suggests an aged solar reflectance of at least 0.63 for low-sloped roofs and at least 0.20 for steep-sloped roofs, and minimum thermal emittance of 0.75. The Cool Roof Rating Council provides a product directory of roofs.

- Landscaping incorporates new trees to shade new and existing pavements and structures to the full extent feasible, so that parking lots have at least 50% tree shade coverage, and shade trees line pedestrian paths to provide continuous shade coverage there. Specifically, we recommend planting air-quality supportive tree species, with approximately 35-foot wide canopies, planted no more than 40 feet apart, along all project pedestrian routes to provide continuous shading there to the full extent feasible.

For air-quality supportive tree species, please reference the Sacramento Tree Foundation's Shady Eighty guide. The Shady Eighty guide provides a directory of air-quality supportive trees with information for each species on shade canopy, necessary distance between plantings, and more. Finally, Sac Metro Air District commends MM 3.3-2 which stipulates consistence with the City of Sacramento's Tree Preservation Ordinance. **L1-8 cont.**

Construction
Finally, as a reminder, all projects are subject to Sac Metro Air District rules and regulations at the time of construction. Please visit our website to find a list of the most common rules that apply at the construction phase of projects. **L1-9**

Conclusion
Thank you for your attention to our comments. If you have questions about them, please contact me at mwright@airquality.org or 279-207-1157. **L1-10**

Sincerely,

Molly Wright

Molly Wright, AICP
Air Quality Planner / Analyst

cc: Paul Philley, AICP, CEQA & Land Use Program Supervisor, Sac Metro Air District
Steve Mosunic, Permitting Program Supervisor, Sac Metro Air District
Raef Porter, Transportation & Climate Change Division Program Manager, Sac Metro Air District

Ascent Environmental
455 Capitol Mall, Suite 300
Sacramento, CA 95814

ascentenvironmental.com