Classroom and Office Building III Project

Final Addendum

Prepared for:

University of California, Merced
5200 Lake Road
Merced, CA 95343

Prepared by:

HELIX Environmental Planning, Inc.
1180 Iron Point Road, Suite 130
Folsom, CA 95630

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TABLE OF CONTENTS

TABLE OF CONTENTS (cont.)

LIST OF TABLES

LIST OF APPENDICES

ACRONYMS AND ABBREVIATIONS

°F	Fahrenheit
µg/m3	micrograms per cubic meter
A-2	Exclusive Agricultural
AB	Assembly Bill
AFY	Acre-feet per year
amsl	above mean sea level
AOA	Academic Office Annex
BAAQMD	Bay Area Air Quality Management District
Bcf/year	billion cubic feet per year
BMP	Best Management Practice
BPS	Best Performance Standards
BRA	Biological Resources Assessment
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
CAL FIRE	California Department of Forestry
CAP	Climate Action Plan
CAPCOA	California Air Pollution Control Officers Association
CAPE	Center for Analytic Political Engagement
CARB	California Air Resources Board
CBC	California Building Code
CBSC	California Building Standards Commission
CDFW	California Department of Fish and Wildlife
CESA	California Environmental Species Act
CEQA	California Environmental Quality Act
CGP	Construction General Permit
CGS	California Geological Survey
CH_4	methane
City	City of Merced
CMU	Campus Mixed Use
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
COB	Classroom and Office Building
County	Merced County
CRHR	California Register of Historical Resources
CRPR	California Rare Plant Rank
CY	Cubic yard
dB	decibels

ACRONYMS AND ABBREVIATIONS (cont.)

DOC	California Department of Conservation
DOT	U.S. Department of Transportation
DPM	Diesel particulate matter
DTSC	Department of Toxic Substance Control
EDR	Environmental Data Resources
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EMT	Emergency Medical Technician
FEMA	Federal Emergency Management Agency
FESA	Federal Environmental Species Act
FHSA	Fire Hazard Severity Zone
FIRM	Flood Insurance Rate Maps
FMMP	Farmland Mapping and Monitoring Program
FRAP	Fire and Resource Assessment Program
FTE	Full-time equivalent
GHG	Greenhouse Gas
GMO	Genetically modified organisms
gpm	gallons per minute
GSP	Groundwater Sustainability Program
GWP	global warming potential
HFC	hydrofluorocarbons
HVAC	heating, ventilation, air conditioning
Hz	Hertz
I-	Interstate-
ILF	In-lieu fee
In/sec	inches per second
IPaC	Information for Planning and Consultation
IPCC	Intergovernmental Panel on Climate Change
LCFS	Low Carbon Fuel Standard
L_{DN}	Day Night sound level
L_{EQ}	Time average noise levels of one hour
LEED	Leadership in Energy and Environmental Design
LID	Low-impact development
L_{MAX}	Maximum noise levels
LRA	Local Responsibility Area
LOS	Level of Service
LRDP	Long Range Development Plan
LV	vibration velocity level

ACRONYMS AND ABBREVIATIONS (cont.)

MBTA	Migratory Bird Treaty Act
MCAG	Merced County Association of Governments
MCFD	Merced County Fire Department
MCRWMA	Merced County Regional Waste Management Authority
MCSD	Merced County School District
mgd	million gallons per day
MID	Merced Irrigation District
MM	Mitigation Measure
MND	Mitigated Negative Declaration
MUHSD	Merced Union High School District
MT	metric tons
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NO_X	nitrogen oxides
NO_2	nitrogen dioxide
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NSLU	noise-sensitive land use
OEHHA	Office of Environmental Health Hazard Assessment
OPR	Office of Planning and Research (now Office of Land Use and Climate Innovation)
PFC	perfluorocarbons
PG&E	Pacific Gas and Electric
PM	particulate matter
PM_{10}	Coarse PM, 10 microns or less in diameter
$PM_{2.5}$	Fine PM, 2.5 microns or less in diameter
PPV	peak particle velocity
PRC	Public Resources Code
PTO	Potential to Occur
R&D	Research and Development
ROG	reactive organic gases
RRC	Rural Residential Center
RTP/SCS	Merced County 2022 Regional Transportation Plan/Sustainable Communities Strategy
RWQCB	Regional Water Quality Control Board
SEIR	Subsequent Environmental Impact Report
SF_6	sulfur hexafluoride
SHPO	State Historic Preservation Officer

ACRONYMS AND ABBREVIATIONS (cont.)

SJVAB	San Joaquin Valley Air Basin
SJVAPCD	San Joaquin Valley Air Pollution Control District
SO_X	sulfur oxides
SOI	Sphere of Influence
SR	State Route
SRA	State Responsibility Area
SSC	Species of Special Concern
SSHA	School of Social Sciences, Humanities and Arts
SUV	Sport Utility Vehicle
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAC	Toxic Air Contaminants
TAZ	Traffic Analysis Zone
TCR	Tribal Cultural Resources
The Regents	The Regents of the University of California
TIA	Transportation Impact Assessment
UCLC	University of California Learning Center
UC Merced	University of California, Merced
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USPS	U.S. Postal Service
UST	Underground storage tank
UWMP	Urban Water Management Plan
VMT	Vehicle Miles Traveled
WUSD	Weaver Union School District
WWTP	Wastewater Treatment Plant

INITIAL STUDY INFORMATION SHEET

1.	Project title:	Classroom and Office Building (COB) III Project
2.	Lead agency name and address:	The Regents of the University of California 111 Franklin Street Oakland, CA 94607
3.	Contact person and phone number:	Phillip Woods, AICP Director of Physical and Environmental Planning (209) 349-2561
4.	Project location:	University of California (UC), Merced Campus Ansel Adams Road Merced, CA 95343
5.	LRDP designation:	Campus Mixed Use (CMU)
6.	Zoning:	Public Facility

7. Description of project:

The proposed COB III project (project) would be constructed on the current site of the Academic Office Annex (AOA) modular trailers. The project would include demolition of the existing AOA modular trailers and construction of an up to 61,640-square-foot (sf) classroom and office building. The project would provide versatile classroom and public assembly venues, student academic and advising support and administrative spaces for the School of Social Sciences, Humanities, and the Arts (SSHA), and house faculty and research space for the Department of Political Sciences to support the Center for Analytic Political Engagement (CAPE). The total assignable square footage of the building would be up to 41,932 sf. A proposed fire access lane would be located on the southeastern side of the project site, off Ansel Adams Road, and the project would be served by existing water, wastewater, stormwater, and electrical infrastructure.

8. Surrounding land uses and setting:

The project site is surrounded by open space to the north, UC Merced classroom and office buildings to the west and south, and UC Merced student services building to the east. Yosemite Lake is located further north of the project site.

1.0 INTRODUCTION

1.1 UNIVERSITY OF MERCED LONG RANGE DEVELOPMENT PLANS

The University of California (UC) Merced prepared a Long Range Development Plan (LRDP) in 2009 that addressed the development of the campus to support an enrollment level of 25,000 students by the year 2030 on an 815-acre site. In March 2009, the Board of Regents of the University of California ("Regents") certified a joint Environmental Impact Statement/Environmental Impact Report (EIS/EIR; State Clearinghouse No. 2008041009) that analyzed and disclosed the significant environmental impacts from the implementation of an LRDP for the UC Merced campus and approved the UC Merced 2009 LRDP as a guide for physical development to accommodate growth projected through 2030 and beyond. Since then, UC Merced has revised its enrollment projections through 2030 down substantially and has also acquired more land for campus development as a result of the transfer of a portion of the adjoining University Community Land Company (UCLC) property to its former partner, the Virginia Smith Trust. Furthermore, UC Merced plans to accommodate the projected enrollment growth on a smaller developed footprint within the larger campus site.

The UC Merced 2020 LRDP is an updated, comprehensive land use plan that guides physical development on the UC Merced campus to accommodate projected campus population and expanded and new program initiatives. The UC Merced 2020 LRDP Subsequent EIR (SEIR; State Clearinghouse No. 2018041010) was prepared in accordance with Section 15168 of the State California Environmental Quality Act (CEQA) Guidelines and Public Resources Code Section 21094 and provides a programmatic analysis of the overall proposed development and campus population projections in the 2020 LRDP.

Following the certification of the 2020 LRDP SEIR in 2020, UC Merced prepared and circulated an updated supplemental program-level transportation impact analysis of campus growth through 2030 under the 2020 LRDP based on current vehicle miles traveled (VMT) metrics consistent with State CEQA Guidelines Section 15064.3, subdivision (b). The program-level VMT analysis was published in the UC Merced Medical Education Building Project Draft EIR in August 2022, and the Final EIR, including the supplemental VMT transportation analysis, was certified by the University on November 17, 2022. The updated LRDP transportation impact analysis in the UC Merced Medical Education Building Project EIR replaces in full the prior level of service (LOS)-based LRDP transportation impact analysis that was included in the 2020 LRDP SEIR.

1.2 2020 LRDP SUBSEQUENT EIR AND 2009 LRDP EIS/EIR

The 2020 LRDP SEIR is a First Tier/Program SEIR that evaluates the effects of LRDP implementation at a program level for the following environmental topics:

- Air Quality
- Biological Resources
- Energy
- Greenhouse Gas Emissions
- Hydrology and Water Quality
- Noise
- Population and Housing
- Public Services and Recreation
- Transportation (*Supplemented in 2022*)
- Tribal Cultural Resources
- Utilities and Service Systems

Therefore, this Addendum evaluates the impacts from the UC Merced COB III project (proposed project) with respect to the determinations in the 2020 LRDP SEIR for the environmental topics listed above. The following environmental topics were adequately addressed in the 2009 LRDP EIS/EIR and determined to not require further analysis in the 2020 LRDP SEIR:

- Aesthetics
- Agricultural Resources
- Cultural Resources
- Geology and Soils
- Hazards and Hazardous Materials
- Land Use and Planning
- Mineral Resources

Therefore, this Addendum evaluates the impacts from the proposed project with respect to the determinations in the 2009 LRDP EIS/EIR for the environmental topics listed above.

The 2020 LRDP SEIR, as supplemented in the 2022 UC Merced Medical Education Building Project Draft EIR to address program-level transportation impacts based on VMT metrics, and 2009 LRDP EIS/EIR comprehensively addressed the potential environmental effects of campus growth and development due to implementation of future projects and activities proposed under the 2020 LRDP. Additionally, CEQA included guidelines for addressing wildfire impacts in 2019 which were not discussed in either the 2020 LRDP SEIR or 2009 LRDP EIS/EIR. However, an analysis of wildfire impacts from implementation of the proposed project are addressed in this Addendum.

1.3 PROJECT OVERVIEW

The proposed project would provide academic space to accommodate the increase in undergraduate and graduate enrollment. The project is intended to provide a consolidating hub for the School of Social Sciences, Humanities, and Arts (SSHA) faculty and student support programs as well as provide space for anticipated future growth. The project would be critical in facilitating the planned, future growth on the UC Merced campus.

The project site is designated as CMU in the 2020 LRDP. The CMU designation includes areas of the campus that are either currently developed with campus land uses or would be developed in the future. The allowed uses include academic, instructional and research laboratories, library and learning facilities, research archive facilities, student housing including both undergraduate and graduate students, student support services, university affiliated dining and retail, athletic and recreational facilities, administrative, childcare, service facilities, warehouse/storage facilities, and parking facilities. Ancillary support facilities include administrative facilities, performance and cultural facilities, clinical facilities, research institutes, conference facilities, services supporting academic operations, and alumni and conference centers (UC Merced 2020). The proposed project would include classrooms, offices, and supporting uses, which would be consistent with the CMU land use designation for the project site in the 2020 LRDP. Therefore, the proposed project is covered under the 2020 LRDP SEIR.

1.4 PURPOSE OF AN ADDENDUM

This Addendum has been prepared to document that the proposed project is consistent with the objectives, land use plans, and development and population forecasts contained in the 2020 UC Merced

LRDP SEIR and 2009 UC Merced LRDP EIS/EIR pursuant to Section 15168(c) of the State CEQA Guidelines, which states, "subsequent activities in the program must be examined in the light of the program EIR to determine whether an additional environmental document must be prepared." Pursuant to Section 15168(c)(4), a lead agency should use "…a written checklist or similar device to document the evaluation of the site and the activity to determine whether the environmental effects of the operation were covered in the program EIR." This Addendum also documents that none of the conditions described in Public Resources Code Section 21166 or CEQA Guidelines Section 15162 or 15163 calling for the preparation of a subsequent or supplemental EIR have occurred.

Environmental Procedures

Pursuant to CEQA Section 21166 and CEQA Guidelines Section 15162, when an EIR has been certified for a project, no subsequent or supplemental EIR shall be prepared for that project unless the lead agency determines, based on substantial evidence in light of the whole record, one or more of the following:

- Substantial changes are proposed in the project which will require major revisions of the previous EIR due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified effects;
- Substantial changes occur with respect to the circumstances under which the project is undertaken which will require major revisions of the previous EIR due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or
- New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was certified as complete, shows any of the following:
    - The project will have one or more significant effects not discussed in the previous EIR;
    - Significant effects previously examined will be substantially more severe than shown in the previous EIR;
    - Mitigation measures or alternatives previously found not to be feasible would in fact be feasible, and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measures or alternatives; or
    - Mitigation measures or alternatives which are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative.

Where none of the conditions specified in Section 15162[1] are present, the lead agency must determine whether to prepare an Addendum or whether no further CEQA documentation is required (CEQA Guidelines Section 15162[b]). An Addendum is appropriate where some minor technical changes or additions to the project or the previously certified EIR are necessary, but there are no new or substantially more severe significant impacts than those identified in the previously certified EIR (CEQA Guidelines Section 15164).

[1] See also Section 15163 of the State CEQA Guidelines, which applies the requirements of Section 15162 to supplemental EIRs.

2.0 PROJECT LOCATION AND ENVIRONMENTAL SETTING

2.1 Regional Location and Setting

The UC Merced campus is located within the City of Merced in Merced County (County), California. The UC Merced campus, located on Lake Road near its intersection with Bellevue Road, consisted of approximately 815 acres when first established. In 2017, additional land was added to the campus site and currently the campus encompasses approximately 1,117 gross acres and 1,026 net acres (excluding canal easements). UC Merced also owns the adjoining approximately 6,428-acre Merced Vernal Pools and Grassland Reserve. The campus is situated south-southeast of Lake Yosemite Regional Park, which includes a regulating reservoir owned and operated by the Merced Irrigation District (MID). Two irrigation canals, also owned by MID—Le Grand Canal and Fairfield Canal—convey water from the lake to agricultural areas to the south (UC Merced 2019).

2.2 Project Location

The proposed project would be located in the northern portion of the UC Merced campus, at the intersection of Ansel Adams Road and New Ranchers Road on a 1.64-acre site. The project site is currently developed with the Academic Office Annex (AOA) modular trailers and located in Township 6 South, Range 14 East, Section 34 of the U.S. Geological Survey (USGS) *Merced, California* 7.5-minute quadrangle map with an approximate center at latitude 37.3675662 and longitude -120.4236855. Refer to Figure 1 for the Site and Vicinity Map and Figure 2 for the Aerial Map (Appendix A).

The land use designation for the project site in the 2020 LRDP is CMU. The CMU designation includes academic, research, student housing, student and support services, athletic and recreational facilities, administrative offices, service facilities, and parking (UC Merced 2019).

2.3 Project Setting

The proposed project would be constructed on the current site of the AOA modular trailers. The project site is surrounded by open space to the north, UC Merced Classroom and Office Building I and II to the west and south, and UC Merced Student Services Building to the east. The project site is relatively flat with an elevation that ranges from 255 feet (ft) to 262-ft above mean sea level (amsl).

3.0 PROJECT DESCRIPTION

The proposed project would include removal of the existing AOA modular trailers and construction of an up to 61,640-sf building. The project would provide versatile classroom and public assembly venues, student academic and advising support and administrative spaces for the SSHA, and house faculty and research space for the Department of Political Sciences and CAPE. The total assignable square footage of the proposed project would be up to 41,932 sf. The project would be required to earn a Leadership in Energy and Environmental Design (LEED) Platinum certification and exceed California Building Code (CBC) Title 24 Part 6 Building Energy Standards by 20 percent or better as part of LEED Platinum certification.

3.1 BUILDING CHARACTERISTICS

The proposed project would include construction of a three-story building. The first floor would include primarily student-centric spaces, the second floor would include spaces to support the SSHA, and the third floor would provide additional faculty space. A shade structure is anticipated at the top of the building. A loading area would also be provided to facilitate the sharing of back of house access between the existing COB I and proposed COB III. The specific elements of each floor are described below and are shown in Appendix B, Conceptual Design Plans.

The first floor of the project would include a 5,100-sf large lecture hall intended to seat 292 students, a 4,675-sf medium lecture hall intended to seat 250 students, and a 7,500-sf auditorium. The first floor would also include a center plaza and may include a paseo, student spaces, restrooms and storage space. The entire SSHA program would be congregated on the second floor and would include second floor access to the auditorium, as well as shared advising offices, undergraduate and graduate student academic space, faculty and research space, SSHA faculty labs, conference rooms, and restrooms. The SSHA administrative suite would include offices, workstations, a small conference room, offices, and support space. In addition to the SSHA administrative suite, the second floor would include two 400-sf conference rooms. The third floor of the building would be primarily used by the Department of Political Science and would include administrative space, a large 800-sf conference room, restrooms, and storage space.

In total, the up to 61,640-sf with up to 41,932 sf of assignable space would serve 1,110 students and 126 faculty and staff.

3.2 ACCESS AND CIRCULATION

Students and faculty would access the project through entrances on the eastern and western sides of the building. New Ranchers Road would include improvements for an emergency access land and loading zone, while Ansel Adams and an existing fire access lane will continue to serve the site.

No parking would be constructed as part of the project. However, long-term bicycle storage would be included.

3.3 LANDSCAPING AND BIORETENTION

Landscaping would be located around the entire building and within the terrace courtyard. The project site would feature self-treating and/or self-retaining landscaping, which is landscaping designed to manage stormwater naturally by capturing, filtering, and absorbing runoff without requiring external drainage infrastructure. Landscape plantings surrounding the building are proposed to include accent, screen, and biofiltration plantings, as well as no-mow grass. The proposed landscaping would match existing streetscaping along New Ranchers Road and Ansel Adams Road, and would consist of the following plant types:

- Accent Plantings: Bush anemone (*Carpenteria californica*), Evergreen fountain grass (*Pennisetum 'Fairy Tails'*), and Autumn sage (*Salvia greggii*)

- Screen Plantings: Manzanita (*Arctostaphylos sp.),* Toyon (*Heteromeles arbutifolia*), Small Leaf Mountain Lilac 'Julia Phelps' (*Ceonothus 'Julia Phelps'*), and Maidenhair tree (*Gingko biloba*)

- Match Existing Streetscape: Blue oat grass (*Helictotrichon sempervirens*), Deer grass (*Muhlenbergia rigens*), and Manzanita 'Pacific Mist' (*Arctostaphylos 'Pacific Mist'*)
- Biofiltration Planting: California Field Sedge (*Carex praegracilis*) and Juncus (*Juncus xiphioides*)
- No-Mow Grass: Buffalo grass (*Bouteloua dactyloides*)

A diagram of the proposed landscape palette is included in Appendix B, Conceptual Design Plans.

Two bioretention basins would be located in the southeastern portion of the project site, and four self-treating and/or self-retaining landscape areas would surround the project site. Additionally, an underground stormwater detention vault would be located in the southeastern portion of the proposed project site, north of the bioretention basins.

3.4 UTILITIES

The proposed project would be served by existing water, wastewater, stormwater, and electrical infrastructure. The project would be served by existing Pacific Gas and Electric (PG&E) infrastructure and connect to the existing UC Merced chilled and hot water system in underground vaults at the site. Existing electrical transformers are located in areas surrounding the project site.

3.5 PROJECT CONSTRUCTION

It is anticipated that project construction would commence in late 2025 and would be completed by December of 2027. Construction activities would include demolition of the AOA modular trailers, site preparation, underground utilities (trenching), grading, building construction, architectural coatings, and paving. The proposed project also includes removing and replacing the existing curb on the southeastern side of New Ranchers Road to allow road widening for the proposed fire access lane. Per aerial imagery of the project site and data provided by the project engineer, approximately 358 tons of building materials, asphalt pavement, and concrete pavement would be demolished and hauled to a location on the UC Merced campus. Per the University of California (UC) Sustainable Practices Policy, demolished materials would be recycled, as appropriate (University of California 2024). It is estimated that 250 cubic yards (CY) of debris and vegetation from site preparation would be exported to a location on the UC Merced campus. Construction equipment would be staged northwest of the project site on the disturbed median between Ranchers Road and New Ranchers Road.

3.6 PROJECT APPROVAL

The Regents will act as the lead agency as defined by CEQA and will have authority to determine if the environmental document is adequate under CEQA and the State CEQA Guidelines and be responsible for approving the proposed project.

4.0 COVERAGE UNDER THE 2020 LRDP

The UC Merced 2020 LRDP is an updated, comprehensive land use plan that guides physical development on the UC Merced campus to accommodate projected campus population and expanded and new program initiatives. To determine the project's coverage under the 2020 LRDP, the following questions must be answered:

- Are the objectives of the project consistent with the objectives adopted for the 2020 LRDP?
- Are the changes to campus population associated with the project included within the scope of the 2020 LRDP's population projections?
- Is the proposed location of the project in an area designated for this type of use in the 2020 LRDP?
- Is the project included in the amount of development projected in the 2020 LRDP?

4.1 2020 LRDP OBJECTIVES

The overall goal of the 2020 LRDP is to continue the growth of UC Merced as a premier research university, consistent with the UC's mission of teaching, research, and service excellence. The overarching objective of the 2020 LRDP is to provide an up-to-date land use plan to guide the physical planning and development of the next phase of campus growth from about 10,000 to 15,000 students, as well as to establish a paradigm for the campus' character.

The proposed project would support the following 2020 LRDP project objectives:

- Plan and develop the campus to facilitate faculty-student interaction, ease and enjoyment of use of academic facilities, and an environment conducive to learning.
- Provide opportunities for on-campus academic field research.
- To the extent practicable, plan and develop the campus with sustainable design by incorporating energy efficiency, water conservation, protection of biological resources, waste reduction and minimization, on-site stormwater management and reduced dependence on automobiles.

4.2 2020 LRDP CAMPUS POPULATION

UC Merced opened in 2005 with 865 students, 67 faculty, and about 450 staff. The 2020 LRDP SEIR estimated that between 2020 and 2030, the student population would increase from 9,700 full-time equivalent (FTE) students to 15,000 students, an increase of about 5,300 students. Over the same period, faculty and staff would increase from 1,280 to 2,411, an increase of 1,131 persons. Overall, the campus population would increase by 6,431 persons (5,300 FTE students and 1,131 staff/faculty personnel) (Table 1, *Campus Student Population and Employees Under the 2020 LRDP*). As such, by 2030, the UC Merced campus is projected to have a total population of 17,411 students, faculty, and staff.

Table 1: Campus Student Population and Employees Under the 2020 LRDP

	2020 (Projected)	2030	Projected Increase (2020-2030)
Commuting Students	4,900	7,800	2,900
Resident Students	4,800	7,200	2,400
Subtotal	**9,700**	**15,000**	**5,300**
Faculty	440	786	346
Staff (on-campus)	840	1,625	785
Subtotal	**1,280**	**2,411**	**1,131**
Total Population (excluding dependents)	**10,980**	**17,411**	**6,431**

Source: UC Merced 2019

As described in Chapter 3.0, the project would provide versatile classroom and public assembly venues, student academic and advising support and administrative spaces for the SSHA, and house faculty and research space for the Department of Political Sciences to support the CAPE. The proposed project would serve a total of 1,100 students and 126 faculty and staff (Fehr & Peers 2025). With this projected occupancy, the proposed project would not result in an exceedance of students or employees beyond what was projected under the 2020 LRDP.

4.3 2020 LRDP LAND USE DESIGNATION

The project site is designated as CMU in the 2020 LRDP. The CMU designation includes areas of the campus that are either currently developed with campus land uses or would be developed in the future. The allowed uses include academic, instructional and research laboratories, library and learning facilities, research archive facilities, student housing including both undergraduate and graduate students, student support services, university affiliated dining and retail, athletic and recreational facilities, administrative, childcare, service facilities, warehouse/storage facilities, and parking facilities. Ancillary support facilities include administrative facilities, performance and cultural facilities, clinical facilities, research institutes, conference facilities, services supporting academic operations, and alumni and conference centers (UC Merced 2020).

The proposed project would include construction of an up to 61,640-sf academic building. The project would provide versatile classroom and public assembly venues, student academic and advising support and administrative spaces for the SSHA, and house faculty and research space for the Department of Political Sciences to support the CAPE. Therefore, the project would be consistent with the land use designation in the 2020 LRDP.

4.4 2020 LRDP ACADEMIC BUILDING SPACE

The 2020 LRDP was designed to guide the physical development of the campus to accommodate a projected enrollment level of 15,000 students by 2030. The 2020 LRDP planned for the addition of up to 1.83 million square feet of additional academic space, housing, student life and athletics, and campus operations space to the campus to serve this projected enrollment growth (UC Merced 2020).

The project would support UC Merced's effort to provide additional capacity to accommodate potential teaching and research initiatives and would not exceed the academic building space contemplated in the 2020 LRDP. As described in Chapter 3.0, the proposed project would include construction of an up to 61,640-sf building for additional academic space, and the total assignable square footage of the building

would be up to 41,932 sf. In 2023, UC Merced had a population of 9,000 students and 1,269 staff (Fehr & Peers 2025).

The proposed project would serve 1,110 off-campus students at full buildout of the project, which would not exceed the projected enrollment level of 15,000 students by 2030. Therefore, the proposed project would be consistent with the student enrollment level projected in the 2020 LRDP, and the proposed 61,640-sf academic building would be within the 1.83 million sf area anticipated for expansion under the 2020 LRDP.

5.0 ENVIRONMENTAL CHECKLIST

On the basis of the tiering and subsequent review concepts identified in the State CEQA Guidelines, the following categories in the environmental checklist are defined below and used in this Addendum. The categories rely on the relevant analyses in the 2020 LRDP SEIR and 2009 LRDP EIS/EIR:

A. "New or Substantially More Severe Significant Impact" applies if there is a new or substantially more severe significant impact on the environment that was not adequately addressed in the previous 2020 LRDP SEIR or 2009 LRDP EIS/EIR, and there may not be feasible mitigation which would reduce the new significant effect to a less than significant level. If there are one or more "New Significant Impact" entries when the determination is made, a subsequent or supplement EIR is required.

B. "Less Than Significant with Mitigation Incorporated" applies if there is a new or substantially more severe significant impact on the environment that was not adequately addressed in the previous 2020 LRDP SEIR or 2009 LRDP EIS/EIR, and there are new project-specific mitigation measures have been identified that would reduce the effects to a less than significant level. All project-specific mitigation measures are described, including a brief explanation of how the measures reduce the effect to a less than significant level. Mitigation measures from earlier analyses may be cross-referenced.

C. "Less Than Significant Impact" applies if there is a new less than significant impact on the environment that was not adequately addressed in the previous 2020 LRDP SEIR or 2009 LRDP EIS/EIR.

D. "No New or Substantially More Severe Impact" applies where a project does not create a new impact in that category compared to the determinations made for that category in the 2020 LRDP SEIR or 2009 LRDP EIS/EIR.

The explanation of each issue identifies the significance criteria or threshold used to evaluate each question; and the mitigation measure identified, if any, to reduce the impact to less than significance. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration [CEQA Guidelines Section 15063(c)(3)(D)]. Where appropriate, the discussion identifies the following:

a) Earlier Analyses Used. Identifies that the 2020 LRDP SEIR, as supplemented in the 2022 UC Merced Medical Education Building Project Draft EIR to address program-level transportation impacts based on VMT metrics, and 2009 LRDP EIS/EIR comprehensively addressed the potential

environmental effects of campus growth and development due to implementation of future projects and activities proposed under the 2020 LRDP which includes the proposed project..

b) Impacts Adequately Addressed. Identifies which effects from the checklist were within the scope of and adequately analyzed in the 2020 LRDP SEIR, as supplemented in the 2022 UC Merced Medical Education Building Project Draft EIR to address program-level transportation impacts based on VMT metrics, and 2009 LRDP EIS/EIR pursuant to applicable legal standards, and states whether such effects were addressed by mitigation measures based on the earlier analysis.

c) Mitigation Measures. For effects that are "Less Than Significant with Mitigation Incorporated," describes the mitigation measures which were incorporated or refined from the 2020 LRDP SEIR, as supplemented in the 2022 UC Merced Medical Education Building Project Draft EIR to address program-level transportation impacts based on VMT metrics, and 2009 LRDP EIS/EIR and the extent to which they address site-specific conditions for the project.

I. AESTHETICS

	New or Substantially More Severe Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No New or Substantially More Severe Impact
Except as provided in Public Resources Code Section 21099, would the project:				
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c) Substantially degrade the existing visual character or quality of public views of the site and its surroundings?	☐	☐	☐	☒
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☐	☒

Environmental Setting

The project site is located in the northern portion of the UC Merced campus. The closest officially designated State Scenic Highways to the project site are Interstate 40 (I-40), located approximately 27 miles northeast, and Interstate 5 (I-5), located approximately 37 miles west. State Route (SR) 49 is located approximately 23 miles east of the project site and is eligible for designation as a State Scenic Highway (Caltrans 2024).

As noted in the 2009 LRDP EIS/EIR, the Merced County General Plan considers major scenic vistas to be views of the Coastal and Sierra Mountain ranges. Generally, scenic views from the project site include views of open rangeland and agricultural fields in the foreground and middle ground and rolling foothills and the Sierra Nevada range in the far background. Long-range views of the Sierra Nevada are currently available from locations on Lake Road west of the southern portion of the UC Merced campus and from Lake Yosemite Regional Park, north of the project site (UC Merced 2008).

Impacts and Mitigation Measures from the UC Merced 2020 LRDP SEIR and 2009 LRDP EIS/EIR

Aesthetic impacts were not discussed in the UC Merced 2020 LRDP SEIR but were analyzed in Section 4.1, Aesthetics, of the 2009 LRDP EIS/EIR. The 2009 LRDP EIS/EIR concluded that development of the UC Merced 2009 LRDP would result in a potentially significant impact on scenic vistas; however, with implementation of 2009 LRDP Mitigation Measure (MM) AES-1a, which requires the university to plant tall trees along the campus' western boundary to screen views of the campus facilities from Lake Yosemite Regional Park, 2009 LRDP MM AES-1b, which requires that major vehicular and pedestrian transportation corridors on the campus shall be located and designed to provide views of the Sierra Nevada range where possible, the impact on scenic vistas would be reduced to less than significant with mitigation (UC Merced 2008).

The 2009 LRDP EIS/EIR went on to determine that under the LRDP, the visual characteristics of the campus site would change from largely undeveloped grasslands and irrigated pasture to a fully urbanized area developed with buildings, sidewalks, paved parking lots, and landscaping. The EIS/EIR concluded that implementation of the LRDP would substantially alter the visual quality and character of the site and its surroundings, and that this impact would remain significant and unavoidable even after implementation of MMs. The EIS/EIR included 2009 LRDP MM AES-3a to help reduce this impact by providing design standards for above ground infrastructure on campus but ultimately concluded that implementation of the LRDP would have a significant and unavoidable impact even with mitigation incorporated.

Discussion of Impacts

The following significance criteria in this impact discussion were identified in Section 4.1, Aesthetics, of Volume I of the 2009 LRDP EIS/EIR:

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

No new or substantially more severe impact. The 2009 LRDP EIS/EIR concluded that development under the UC Merced 2009 LRDP would result in a less than significant impact on scenic vistas with 2009 LRDP MM AES-1a and 1b incorporated. Long-range views of the Sierra Nevada are currently available from locations on Lake Road west of the southern portion of the campus and from Lake Yosemite Regional Park (Regional Park). The project site is surrounded by open space to the north, UC Merced classroom and office buildings to the west and south, and UC Merced student services building to the east; the existing surrounding buildings range from three to four stories in height.

The proposed project would be located in the northern portion of the campus site, approximately 0.4 mile south of the Lake Yosemite Regional Park. The proposed project would include construction of a three-story, up to 61,640 sf building, and the project site is currently developed with one-story AOA modular trailers. Due to the distance from the Regional Park, the project would not be prominently visible, and the impact on views from the Regional Park would be less than significant without mitigation. Additionally, construction of the proposed project would not result in a substantial adverse effect on scenic vistas in the area, as it would be constructed within an area of the UC Merced campus that is already developed with buildings of similar scale. Thus, the proposed project would have a less than significant impact on scenic vistas and would not result in a *new or substantially more severe impact* compared to the 2009 LRDP EIS/EIR. No mitigation would be required.

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

No new or substantially more severe impact. The UC Merced campus is not located near any State-designated scenic highways, and there are no officially listed or eligible State Scenic Highways within the vicinity of the proposed project site. The closest officially designated State Scenic Highways to the project site are I-40, located approximately 27 miles northeast, and I-5, located approximately 37 miles west. SR 49 is located approximately 23 miles east of the project site and is eligible for designation as a State Scenic Highway (Caltrans 2024). Due to distance and intervening structures, the proposed project would not be visible from I-40, I-5, or SR 49; therefore, implementation of the project would not damage scenic resources within a State Scenic Highway. Therefore, no impact would occur. There would be *no new or substantially more severe impact* compared to what was evaluated in the 2009 LRDP EIS/EIR.

c) Substantially degrade the existing visual character or quality of public views of the site and its surroundings?

No new or substantially more severe impact. The 2009 LRDP EIS/EIR concluded that development under the UC Merced 2009 LRDP would substantially alter the visual quality and character of the site and its surroundings, and the impact would remain significant and unavoidable after implementation of mitigation.

The proposed project site is currently developed with one-story AOA modular trailers and is surrounded by open space to the north, UC Merced classroom and office buildings to the west and south, and UC Merced student services building to the east. The existing adjacent UC Merced buildings range from three to four stories in height. Construction of the proposed project includes the demolition of the existing AOA modular trailers and construction of the three-story 61,640-sf building. Staging of construction equipment would temporarily alter the visual character of the site and surrounding areas; however, the construction staging area would be located in the previously disturbed median between Ranchers Road and New Ranchers Road and would be limited to the short-term construction period. As previously discussed in question a) above, the proposed project would be constructed within an area of the UC Merced campus that is already developed with buildings of similar scale. Further, the height of the proposed building would be similar to or shorter than the height of the existing surrounding UC Merced buildings; as such, the proposed project would not substantially alter the existing visual character or quality of public views of the project site and its surroundings. However, although the proposed project has been carefully designed and would be required to comply with campus design guidelines, implementation of 2009 LRDP MM AES-3a, which identifies design standards for all new aboveground infrastructure on the campus, would reduce potential impacts by placing restrictions on the type, placement, and design of aboveground infrastructure that would contribute to this impact. Therefore, the impact would be less than significant with mitigation incorporated, and there would be *no new or substantially more severe impact* compared to what was evaluated in the 2009 LRDP EIS/EIR.

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

No new or substantially more severe impact. The 2009 LRDP EIS/EIR concluded that development under the UC Merced 2009 LRDP would create a new source of light and glare in the vicinity, and the impact would remain significant and unavoidable after implementation of mitigation. Lighting could be required during construction; however, this lighting would be temporary in nature and would only occur during construction hours. Following construction, the proposed project could include additional street lighting along adjacent pedestrian walkways, interior lighting, and surfaces and windows that may reflect and cause glare. As previously discussed in questions a) and c), the proposed project would be constructed within an area of the UC Merced campus that is already developed with buildings of similar scale; these existing buildings are considered sources of lighting and glare. Although the proposed project would create new sources of light or glare, the project would be consistent with the existing conditions of the project site and surrounding buildings. Further, the proposed project would be required to be designed in accordance with the UC Merced campus standards for site lighting, which would reduce the impact related to light spill and glare. The campus standards applicable to the proposed project include the following:

- Pedestrian pathways along high activity roadways will be illuminated for safety, but pathways that are not along high activity roadways will not be illuminated.

- Lighting will be located so as to illuminate both pedestrian pathways and the roadways where possible.

- To preserve the dark skies, all site lighting equipment will not emit light at angles greater than 90 degrees above nadir.

- Light fixtures adjacent to the boundaries of the campus will be equipped with house side shields to avoid unwanted spillage (UC Merced 2008).

Therefore, the impact would be less than significant, and there would be *no new or substantially more severe impact* compared to what was evaluated in the 2009 LRDP EIS/EIR. No mitigation would be required.

II. AGRICULTURAL RESOURCES

		New or Substantially More Severe Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No New or Substantially More Severe Impact
Would the project:					
a)	Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b)	Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c)	Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	☐	☐	☐	☒
d)	Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e)	Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non- forest use?	☐	☐	☐	☒

Environmental Setting

The Farmland Mapping and Monitoring Program (FMMP), administered by the California Department of Conservation (DOC), produces maps and statistical data for use in analyzing impacts on California's agricultural resources. FMMP rates and classifies agricultural land according to soil quality, irrigation status, and other criteria. According to the FMMP, the project site is mapped as Urban and Built-Up Land. Land bordering the project site is mapped as Grazing Land to northwest and northeast, and Urban and Built-Up Land to the east, southeast, and southwest (DOC 2024a). The project site is currently developed with AOA modular trailers and is surrounded by open space and existing UC Merced classroom, office, and student services buildings. The land use designation for the project site in the 2020 LRDP is CMU.

Impacts and Mitigation Measures from the UC Merced 2020 LRDP SEIR and 2009 LRDP EIS/EIR

Impacts to agricultural resources were analyzed in Section 4.2, Agricultural Resources, of the 2009 LRDP EIS/EIR. The 2009 LRDP EIS/EIR concluded that implementation of the 2009 LRDP would not substantially conflict with existing zoning for agricultural use or involve other changes that could result

in the conversion of Important Farmland to non-agricultural uses. No portion of the campus is under a Williamson Act Contract. Further, the 2009 LRDP determined that the portions of the campus that are adjacent to land in agricultural use would be used primarily for open space and recreational purposes. Therefore, since the surrounding agricultural land uses would be compatible with these land uses on the proposed campus, the surrounding agricultural land uses would not be converted to non-agricultural use.

The 2009 LRDP EIS/EIR concluded that implementation of the UC Merced 2009 LRDP would convert approximately 24.1 acres of Important Farmland to urban uses. However, since an adequate acreage of important farmland had already been placed under conservation easements at the time the 2009 LRDP EIS/EIR was drafted, the EIR concluded that development under the UC Merced 2009 LRDP would have a less than significant impact on agricultural resources, and no mitigation would be required.

Discussion of Impacts

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

No new or substantially more severe impact. The proposed project is located in the northern portion of the UC Merced campus on land classified by the DOC as Urban and Built-Up Land. The project site is currently developed with the AOA modular trailers, which would be demolished and recycled off-site during project construction. Operation of the project would include use as academic and office uses, and would not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use. Therefore, no impact would occur, and there would be *no new or substantially more severe impact* compared to what was evaluated in the 2009 LRDP EIS/EIR.

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

No new or substantially more severe impact. The land use designation for the project site in the 2020 LRDP is CMU. The project site is currently developed with the AOA modular trailers and does not currently support agricultural uses. Additionally, the project site is not under a Williamson Act contract. For these reasons, the proposed project would not conflict with existing zoning for agricultural use or a Williamson Act contract. Therefore, the impact would be less than significant, and there would be *no new or substantially more severe impact* compared to what was evaluated in the 2009 LRDP EIS/EIR.

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

No new or substantially more severe impact. The UC Merced campus, including the project site, is not zoned for/as forest land, timberland, or timberland zoned Timberland Production. As such, implementation of the project would not conflict with existing forestland/timberland zoning

designations/uses. Therefore, no impact would occur, and there would be *no new or substantially more severe impact* compared to what was evaluated in the 2009 LRDP EIS/EIR.

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

No new or substantially more severe impact. The project site is currently developed with the AOA modular trailers and is surrounded by open space and existing UC Merced buildings. There is no forest land on the UC Merced campus nor on the project site, and implementation of the proposed project would not result in the loss of forest land or conversion of forest land to non-forest uses. Therefore, no impact would occur, and there would be *no new or substantially more severe impact* compared to what was analyzed in the 2009 LRDP EIS/EIR.

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

No new or substantially more severe impact. The 2009 LRDP determined that the portions of the campus that are adjacent to land in agricultural use would be used primarily for open space and recreational purposes. Therefore, since the surrounding agricultural land uses would be compatible with these land uses on the proposed campus, the surrounding agricultural land uses would not be converted to non-agricultural use. The proposed project would be used primarily for classroom and office space. The project site is not located adjacent to land in agricultural use, therefore implementation and construction of the proposed academic building would not result in changes to the existing environment which, due to their location or nature, could result in conversion of farmland to non-agricultural use. There would be *no new or substantially more severe impact* compared to what was analyzed in the 2009 LRDP EIS/EIR.

III. AIR QUALITY

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

The discussion below is based on the Air Quality and Greenhouse Gas Emissions Technical Report prepared by HELIX and included as Appendix C (HELIX 2025a).

Environmental Setting

The project site is located within the Merced County portion of the San Joaquin Valley Air Basin (SJVAB). Air quality in the San Joaquin County is regulated by the U.S. Environmental Protection Agency (USEPA) at the federal level, by the California Air Resources Board (CARB) at the State level, and by the San Joaquin Valley Air Pollution Control District (SJVAPCD) at the regional level.

The SJVAB enjoys an inland Mediterranean climate, averaging more than 260 sunny days per year. The valley floor is characterized by warm, dry summers and cooler winters. Average daily temperatures in the basin range from 44.6 degrees °F in January to 76.7°F in July. Summer highs often exceed 100°F, averaging in the low 90s in the northern valley and high 90s to the south. Maximum temperatures of 90°F or greater occur about 88 days per year. Although the SJVAB enjoys a high frequency of sunshine, a reduction in sunshine occurs during December and January because of fog and intermittent stormy weather. Temperatures of 32°F and below occur about 22 days per year. Nearly 90 percent of the annual precipitation falls in the six months between November and April (UC Merced 2020).

Sensitive Receptors

CARB and the Office of Environmental Health Hazard Assessment (OEHHA) have identified the following groups of individuals as the most likely to be affected by air pollution: adults over 65, children under 14, infants (including in utero in the third trimester of pregnancy), and persons with cardiovascular and

chronic respiratory diseases such as asthma, emphysema, and bronchitis, known as sensitive receptors (CARB 2005; OEHHA 2015). Some land uses are considered more sensitive to air pollution than others due to the types of population groups or activities involved and are referred to as sensitive receptor locations. Examples of these sensitive receptor locations are residences, schools, hospitals, and daycare centers.

The closest existing sensitive receptor locations to the project site are UC Merced student housing buildings located 1,125 feet west of the project site. There are no off-campus residences, schools, hospitals, or daycare centers within a quarter mile of the project site.

Methodology and Significance Criteria

Criteria pollutant and precursor emissions, and greenhouse gas (GHG) emissions for the project construction activities and long-term operation were calculated using the California Emissions Estimator Model (CalEEMod), Version 2022.1. CalEEMod is a Statewide land use emissions computer model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant emissions associated with both construction and operations from a variety of land use projects. The model was developed for the California Air Pollution Control Officers Association (CAPCOA) in collaboration with the California air districts. CalEEMod allows for the use of default data (e.g., emission factors, trip lengths, meteorology, source inventory) provided by the various California air districts to account for local requirements and conditions, and/or user-defined inputs. The model calculates emissions of criteria pollutants, Ozone precursors, and GHGs. The calculation methodology and input data used in CalEEMod can be found in the CalEEMod User's Guide Appendices A, C, and D (CAPCOA 2025).

Impacts to air quality were analyzed in Section 4.1, Air Quality, of the 2020 LRDP SEIR. The 2020 LRDP SEIR uses significance criteria derived from Appendix G of the State CEQA Guidelines and noted that a project would have a significant air quality environmental impact if it would:

1. Conflict with or obstruct implementation of the applicable air quality plan; or

2. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or State ambient air quality standard; or

3. Expose sensitive receptors to substantial pollutant concentrations; or

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

The proposed project would have a significant air quality impact if the project resulted in new or more severe impact beyond what was evaluated in the 2020 LRDP SEIR.

The SJVAPCD has established significant thresholds to assess the impacts of project-related air pollutant emissions. The significance thresholds are updated, as needed, to appropriately represent the most current technical information and attainment status in the SJVAB. Table 2, *SJVAPCD Air Quality Significance Thresholds*, presents the most current significance thresholds, including thresholds for construction and operational emissions and maximum incremental cancer risk and hazard indices for TACs. A project with emission rates and risk values below these thresholds is generally considered to have a less than significant impact on air quality.

Table 2: SJVAPCD Air Quality Significance Thresholds

Mass Daily Thresholds (tons per year)		
Pollutant	**Construction**	**Operation**
ROG	10	10
NO_X	10	10
CO	100	100
PM_{10}	15	15
$PM_{2.5}$	15	15
SO_X	27	27
Toxic Air Contaminants		
TACs	Maximum Incremental Cancer Risk ≥ 10 in 1 million Chronic & Acute Hazard Index ≥ 1.0 (project increment)	

Source: SJVAPCD 2015
ROG = reactive organic gas; NO_X = nitrogen oxides; CO = carbon monoxide; PM_{10} = coarse particulate matter with a diameter of 10 microns or less; $PM_{2.5}$ = fine particulate matter with a diameter of 2.5 microns or less; SO_X = sulfur oxides; TACs = toxic air contaminants; NO_2 = nitrogen dioxide; ppm = parts per million; µg/m^3 = micrograms per cubic meter

As set forth in the SJVAPCD *Guidance for Assessing and Mitigating Air Quality Impacts*, any proposed project that would individually have a significant air quality impact would also be considered to have a significant cumulative air quality impact. Impacts of local pollutants (CO, TACs) are cumulatively significant when modeling shows that the combined emissions from the project and other existing and planned projects would exceed air quality standards.

Impacts and Mitigation Measures from the UC Merced 2020 LRDP SEIR and 2009 LRDP EIS/EIR

Impacts to air quality were analyzed in Section 4.1, Air Quality, of the 2020 LRDP SEIR. The 2020 LRDP SEIR concluded that because a higher level of growth at the campus has been accounted for and included in the air quality planning efforts of the region, implementation of the 2020 LRDP would not conflict with or obstruct implementation of the applicable air quality plan. Although the emissions associated with campus operation at full development under the 2020 LRDP would result in a significant and unavoidable impact, the effect of campus buildout under the 2020 LRDP with respect to the regional air quality management plan would, of itself, be less than significant.

The 2020 LRDP SEIR concluded that SJVAPCD thresholds are not anticipated to be exceeded; however, should a number of projects be constructed concurrently on campus, it is possible that the SJVAPCD threshold for NO_X could be exceeded. The 2020 LRDP MM AQ-1a would be implemented during construction to minimize NO_X emissions. Additionally, 2020 LRDP MM AQ-1b would be implemented to reduce emissions of dust during construction of projects on campus. The impact from construction under the 2020 LRDP would be less than significant with implementation of 2020 LRDP MMs AQ-1a and AQ-1b. The 2020 LRDP SEIR also concluded that the projects operational ROG and NO_X emissions would exceed the SJVAPCD thresholds. The 2020 LRDP MMs AQ-2a and AQ-2b would be implemented to reduce the increase in the campus' operational emissions of ROG and NO_X. With the implementation of 2020 LRDP MMs AQ-2a and AQ-2b, campus operations would still result in annual emissions that exceed the SJVAPCD threshold for NO_X and the impact from operation under the 2020 LRDP would remain significant and unavoidable.

The 2020 LRDP SEIR concluded that although campus development under the 2020 LRDP would include sources that would result in TAC emissions, adequate information with respect to these sources was not available to allow for the quantification and evaluation or potential human health risk. Human health risk from TAC emissions were not discussed further in the 2020 LRDP SEIR. The 2020 LRDP SEIR also concluded the project would not result in the violation of the CO standards and would not expose sensitive receptors to substantial CO concentrations. The impact would be less than significant. Lastly, the 2020 LRDP SEIR concluded that construction and operation of the 2020 LRDP would not result in odors adversely affecting a substantial number of people and the impact would be less than significant.

Discussion of Impacts

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

No new or substantially more severe impact. The 2020 LRDP SEIR concluded that because a higher level of growth at the campus has been accounted for and included in the air quality planning efforts of the region, implementation of the 2020 LRDP would not conflict with or obstruct implementation of the applicable air quality plan. Although the emissions associated with campus operation at full development under the 2020 LRDP would result in a significant and unavoidable impact, the effect of campus buildout under the 2020 LRDP with respect to the regional air quality management plan would, of itself, be less than significant.

The SJVAPCD has adopted several attainment plans that outline long-term strategies designed to achieve compliance with the State and federal ambient air quality standards. SJVAPCD has established thresholds of significance for a project's criteria pollutant and precursor emissions for both temporary construction-related emissions and long-term operational-related emissions. These significance thresholds have been established to assist lead agencies in determining whether a project may have a significant air quality impact. A project with emissions lower than the thresholds would not conflict with or obstruct implementation of the district's air quality plans for attainment of the applicable National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS). As discussed under question b) below, the project would not exceed the temporary construction-related or long-term operational-related thresholds of significance for criteria pollutants and precursor emissions.

As outlined in the 2020 LRDP SEIR, if a new project is consistent with the planned land use designation that was considered in the development of an air quality management plan, the proposed project would not conflict and would not obstruct implementation of the applicable air quality management plan. The project site is designated as CMU in the 2020 LRDP land use plan. The CMU designation includes areas of the campus that are either currently developed with campus land uses or would be developed in the future. The proposed project would be consistent with the land use designation in the 2020 LRDP.

The 2020 LRDP SEIR estimated that between 2020 and 2030, the student population would increase from 9,700 FTE students to 15,000 students, an increase of about 5,300 students. Over the same period, faculty and staff would increase from 1,280 to 2,411, an increase of 1,131 persons. Based on the TIA prepared for the project, included as Appendix E, the proposed project would serve a total of 1,100 students and 126 faculty and staff (Fehr & Peers 2025). However, the proposed project would accommodate the projected growth conditions in the 2020 LRDP and would not induce new, unplanned growth.

Additionally, the 2020 LRDP was designed to guide the physical development of the campus to accommodate a projected enrollment level of 15,000 students by 2030. The 2020 LRDP planned for the addition of up to 1.83 million sf of additional academic space, housing, student life/athletics, and campus operations space to the campus to serve this projected enrollment growth (UC Merced 2020). The project would support UC Merced's effort to provide additional capacity to accommodate potential teaching and research initiatives and is within the academic building space contemplated in the 2020 LRDP. As described in Chapter 3.0, the proposed project would include construction of a three-story, 61,640 sf building with office, classroom, and research uses. In 2023, UC Merced had a population of 9,000 students and 1,269 staff. The proposed project would serve 1,110 off-campus students at full buildout of the project; however, the proposed project would accommodate the projected growth conditions in the 2020 LRDP and would not induce new, unplanned growth. Therefore, the project would be consistent with the student enrollment level projected in the 2020 LRDP, and the proposed building would be within the 1.83 million sf area anticipated for expansion under the 2020 LRDP.

Overall, the growth associated with the project has been accounted for and included in the air quality planning efforts of the region and implementation of the project would not conflict with or obstruct implementation of the applicable air quality plan. The impact would be less than significant, and *no new or substantially more severe impact* would occur compared to what was evaluated in the 2020 LRDP SEIR.

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

No new or substantially more severe impact. By its very nature, air pollution is largely a cumulative impact. The nonattainment status of regional pollutants is a result of past and present development within the region. The project would generate criteria pollutants and precursors in the short term during construction and in the long term during operation. To determine whether a project would result in cumulatively considerable emissions that would violate an air quality standard or contribute substantially to an existing or projected air quality violation, a project's emissions are evaluated based on the quantitative emission thresholds established by the SJVAPCD.

Construction Emissions

The 2020 LRDP SEIR concluded that SJVAPCD thresholds are not anticipated to be exceeded; however, should a number of projects be constructed concurrently on campus, it is possible that the SJVAPCD threshold for NO_X could be exceeded.

The project construction emissions were estimated using the CalEEMod model. The emissions generated from construction activities include:

- Dust (including PM_{10} and $PM_{2.5}$), primarily from fugitive sources such as soil disturbance and vehicle travel over paved and unpaved surfaces; and

- Combustion emissions of air pollutants (including ROG, NO_X, PM_{10}, $PM_{2.5}$, CO, and sulfur oxides [SO_X]), primarily from operation of heavy off-road equipment and haul trucks.

Although the scope of the project is within what was anticipated in the 2020 LRDP EIR, annual construction emissions were calculated for informational purposes. The results of the calculations for

project construction are shown below in Table 3, *Annual Construction Criteria Pollutant and Precursor Emissions*. The data shown assumes application of water on exposed surfaces a minimum of two times per day in compliance with SJVAPCD Rule 8021, *Construction, Demolition, Excavation, Extraction, and other Earth Moving Activities*. As shown in Table 3, the project's individual construction emissions would not exceed SJVAPCD thresholds.

Table 3: Annual Construction Criteria Pollutant and Precursor Emissions

Year	Pollutant Emissions (tons per year)					
	ROG	**NO_X**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
2025	0.1	0.8	0.9	<0.1	0.1	0.1
2026	0.2	1.2	1.5	<0.1	0.1	0.1
2027	0.3	1.2	1.6	<0.1	0.1	0.1
2028	0.1	0.3	0.4	<0.1	<0.1	<0.1
Maximum Annual Emissions	**0.3**	**1.2**	**1.6**	**<0.1**	**0.1**	**0.1**
SJVAPCD Threshold	*10*	*10*	*100*	*27*	*15*	*15*
Significant Impact?	***No***	***No***	***No***	***No***	***No***	***No***

Source: CalEEMod (output data is provided in Appendix C); Threshold: SJVAPCD 2015
ROG = reactive organic gas; NO_X = nitrogen oxides; CO = carbon monoxide; SO_X = sulfur oxides;
PM_{10} = particulate matter 10 microns or less in diameter; $PM_{2.5}$ = particulate matter 2.5 microns or less in diameter; SJVAPCD = San Joaquin Valley Air Pollution Control District

However, as required by the 2020 LRDP SEIR, 2020 LRDP MM AQ-1a would be implemented to ensure construction equipment rated by the USEPA as meeting Tier 4 (model year 2008 or newer) emission limits for engines between 50 and 750 horsepower is used by the construction contractor. Additionally, 2020 LRDP MM AQ-1b would be implemented to ensure compliance with SJVAPCD Regulation VIII, *Fugitive PM_{10} Prohibitions* and to reduce fugitive dust impacts. With implementation of 2020 LRDP MMs AQ-1a and AQ-1b, the impact would be less than significant, and *no new or substantially more severe impact* would occur compared to what was evaluated in the 2020 LRDP SEIR.

Operational Emissions

The 2020 LRDP SEIR concluded that the projects operational ROG and NO_X emissions would exceed the SJVAPCD thresholds.

Although the scope of the project is within what was anticipated in the 2020 LRDP EIR, annual operational emissions were calculated for informational purposes. The project operational emissions were estimated using CalEEMod. Table 4, *Annual Operational Criteria Pollutant and Precursor Emissions*, shows the calculated operational emissions in the first full year of operation, 2029. As shown in Table 4, the project's individual operational emissions would not exceed SJVAPCD thresholds and would not result in a long-term increase in air pollutant emissions.

Table 4: Annual Operational Criteria Pollutant and Precursor Emissions

Source	Pollutant Emissions (tons per year)					
	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Mobile	0.0	0.0	0.0	0.0	0.0	0.0
Area	0.3	<0.1	0.3	<0.1	<0.1	<0.1
Energy	0.0	0.0	0.0	0.0	0.0	0.0
Total Maximum Daily Emissions[1]	**0.3**	**<0.1**	**0.3**	**<0.1**	**<0.1**	**<0.1**
SJVAPCD Threshold	*10*	*10*	*100*	*27*	*15*	*15*
Exceed Threshold?	***No***	***No***	***No***	***No***	***No***	***No***

Source: CalEEMod (output data is provided in Appendix C); Threshold: SJVAPCD 2015

[1] Total may not sum due to rounding.

lb/day = pounds per day; ROG = reactive organic gas; NO_X = nitrogen oxides; CO = carbon monoxide; SO_2 = sulfur dioxide; PM_{10} = particulate matter 10 microns or less in diameter; $PM_{2.5}$ = particulate matter 2.5 microns or less in diameter

However, as required by the 2020 LRDP EIR, UC Merced would continue to implement 2020 LRDP MMs AQ-2a and AQ-2b to further reduce emissions from vehicles and from area and energy sources, such as improving traffic control, encouraging transit, pedestrian, and bicycle use, installing low maintenance landscaping, and using electric vehicles in their fleet. With implementation of 2020 LRDP MMs AQ-2a and AQ-2b, the impact would be less than significant, and *no new or substantially more severe impact* would occur compared to what was evaluated in the 2020 LRDP SEIR.

c) Expose sensitive receptors to substantial pollutant concentrations?

No new or substantially more severe impact.

Construction Activities

Fugitive Dust

Construction of the project would not result in emissions of PM in excess of the SJVAPCD thresholds. However, as discussed under question b) above, 2020 LRDP MM AQ-1a would be implemented to ensure construction equipment rated by the USEPA as meeting Tier 4 (model year 2008 or newer) emission limits for engines between 50 and 750 horsepower is used by the construction contractor. The 2020 LRDP MM AQ-1b would also be implemented to ensure compliance with SJVAPCD Regulation VIII, *Fugitive PM_{10} Prohibitions* and to reduce fugitive dust impacts. Per SJVAPCD Rule 8021, *Construction, Demolition, Excavation, Extraction*, *and other Earth Moving Activities*, fugitive dust emissions calculations assumed application of water on exposed surfaces a minimum of two times per day. With implementation of 2020 LRDP MMs AQ-1a and AQ-1b, the impact would be less than significant, and *no new impact* would occur compared to what was evaluated in the 2020 LRDP SEIR.

Toxic Air Contaminants (DPM)

Implementation of the project would result in the use of heavy-duty construction equipment, haul trucks, and construction worker vehicles. These vehicles and equipment could generate the TAC Diesel Particulate Matter (DPM). Generation of DPM from construction projects typically occurs in a localized area (e.g., at the project site) for a short period of time. Because construction activities and subsequent emissions vary depending on the phase of construction (e.g., grading, building construction), the construction-related emissions to which nearby receptors are exposed would also vary throughout the

construction period. During some equipment-intensive phases, such as grading, construction-related emissions would be higher than other less equipment-intensive phases such as building construction. Concentrations of mobile-source DPM emissions are typically reduced by 70 percent at approximately 500 feet (CARB 2005).

Considering this information, the short duration of construction activity, the highly dispersive nature of DPM, and the fact that construction activities would occur at various locations throughout the project site, construction of the project would expose off-site sensitive receptors to substantial DPM concentrations. Therefore, the impact would be less than significant, and *no new or substantially more severe impact* would occur compared to what was evaluated in the 2020 LRDP SEIR.

Operational Activities

CO Hotspots

Vehicle exhaust is the primary source of CO in California. In an urban setting, the highest CO concentrations are generally found near congested intersections. BAAQMD provides screening guidance in their CEQA Guidelines concerning the volume of traffic which could result in a CO Hotspot: intersections which carry more than 44,000 vehicles per hour; or intersections which carry more than 24,000 vehicles per hour and where vertical and/or horizontal mixing is substantially limited (e.g., tunnel, parking garage, bridge underpass, natural or urban street canyon, below-grade roadway; BAAQMD 2022).

The 2020 LRDP SEIR included a TIA which concluded that buildout under the 2020 LRDP would generate a relatively small amount of new traffic: 8,406 total daily trips or 739 AM peak hour trips and 808 PM peak hour trips. Cumulative traffic volumes, including the traffic due to the LRDP, at all intersections affected by the 2020 LRDP would be less than 44,000 vehicles per hour. Per data provided in the TIA, included as Appendix E, the project would serve a total of 1,100 students and 126 faculty and staff (Fehr & Peers 2025). However, the proposed project would accommodate the projected growth conditions in the 2020 LRDP and would not induce new, unplanned growth. As development is within the scope of the 2020 LRDP, the project would not cause any project affected intersection to exceed the 44,000 vehicles per hour screening level for CO hotspots suggested by the BAAQMD, as analyzed in the 2020 LRDP SEIR. Therefore, the long-term operation of the project would not result in the violation of the CO standards and would not expose sensitive receptors to substantial CO concentrations. Therefore, the impact would be less than significant, and *no new or substantially more severe impact* would occur compared to what was evaluated in the 2020 LRDP SEIR.

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

No new or substantially more severe impact. Emissions from construction equipment, such as diesel exhaust, may generate odors; however, these odors would be temporary, intermittent, and not expected to affect a substantial number of people. Additionally, noxious odors would be confined to the immediate vicinity of construction equipment and would cease when construction activity ends.

The proposed project would include construction of offices and classrooms and would not include any land uses identified as common sources of operational odors (SJVAPCD 2015), nor are there any of these

land uses in the project vicinity. The impact would be less than significant, and *no new or substantially more severe impact* would occur compared to what was evaluated in the 2020 LRDP SEIR.

IV. BIOLOGICAL RESOURCES

	New or Substantially More Severe Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No New or Substantially More Severe Impact
Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☐	☐	☒
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or US Fish and Wildlife Service?	☐	☐	☐	☒
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☒
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☐	☒

The discussion below is based on the Biological Resources Assessment (BRA) prepared by HELIX and included as Appendix D (HELIX 2025b).

Environmental Setting

Vegetation communities that occur within the project site include Developed and Ruderal. Ruderal areas have been subject to past or on-going human disturbance but retain a soil substrate. Ruderal and disturbed areas include weedy open areas where the natural vegetation has been removed. The ruderal areas are located along the northwestern portion of the project site and are associated with areas that experience frequent disturbance such as utility rights-of-way and vegetated roadsides. Developed lands are often comprised of little to no vegetation and typically contain built structures and/or maintained surfaces such as roads, graveled areas, solar arrays, or parking lots. Vegetation that does occur within this habitat type is often ornamental, rather than invasive or noxious weeds such as in ruderal habitat types. A total of 1.23 acres of developed lands occur within the project site and are made up of paved surfaces, modular buildings, and graveled/cobbled or disturbed surfaces that lack native plant assemblages (see Figure 5 in Appendix D for the Biological Communities map).

Methodology

Biological studies conducted for the project site consisted of a special-status species evaluation that included a desktop review and database searches to identify known biological resources in the project site and vicinity as well as a reconnaissance-level biological field survey.

Biological Surveys

A field survey of the project site was conducted on November 12, 2024. All plant and animal species observed on-site during the surveys were recorded (Appendix C of the BRA), and all biological communities occurring on-site were characterized. Following the field survey, the potential for each species identified in the database query to occur within the project site was determined based on the site survey, soils, habitats present within the project site, and species-specific information.**Error! Reference source not found.**

Impacts and Mitigation Measures from the UC Merced 2020 LRDP SEIR and 2009 LRDP EIS/EIR

Biological resources are discussed in the 2009 LRDP EIS/EIR and in Section 4.2, Biological Resources, of the 2020 LRDP SEIR. The SEIR concluded that implementation of the LRDP would have a less than significant impact on State or federally protected wetlands, vernal pool wetlands or other seasonal wetlands, special-status plant species, special-status amphibians, western pond turtle, San Joaquin kit fox, special-status avian species, or special-status invertebrate species.

The SEIR determined that UC Merced has already provided 35.6 acres of compensatory vernal pool mitigation, and that should campus development under the 2020 LRDP affect any wetlands for which adequate compensatory mitigation has not been provided, UC Merced would mitigate the loss via purchase of vernal pool credits under the In Lieu Fee (ILF) program, and there would be a less than significant impact. The SEIR also determined that campus development under the 2020 LRDP could have potentially significant impacts on Crotch's bumble bee, but with implementation of 2020 LRDP MM BIO-4, pre-construction surveys, impacts would be less than significant. The campus, Community North sites, and adjacent lands contain suitable nesting habitat for numerous non-special-status migratory birds, and whose nests are protected under the Migratory Bird Treaty Act and CDFG Code Sections 3503 and 3503.5. The SEIR concluded that destruction of active nests would be a potentially significant impact, but with implementation of 2020 LRDP MM BIO-9a and MM BIO-9b, impacts would be reduced to less than significant through pre-construction surveys, nest buffers, bird-safe design practices, and more.

Discussion of Impacts

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

No new or substantially more severe impact. The 2020 LRDP SEIR determined that, based on the preservation of existing occurrences and suitable habitat for succulent owl's clover, shining navarretia, and dwarf downingia, as well as compliance with UC Merced's Incidental Take Permit and resource-sensitive design of future small-scale projects, implementation of the 2020 LRDP would have a less than significant impact on special-status plant species. For special-status wildlife species, the 2020 LRDP SEIR determined that implementation of the LRDP could have potential impacts on Crotch's bumble bee and nesting birds or birds in flight. However, the SEIR concluded that with implementation of 2020 LRDP MM

BIO-4, requiring surveys for Crotch's bumble bee, and 2020 LRDP MMs BIO-9a and 9b, requiring pre-construction bird surveys and implementation of bird-safe design features for new buildings, potential impacts to special-status wildlife species from implementation of the 2020 LRDP would be reduced to a less than significant level.

Special-Status Plants

According to the BRA, 32 listed and/or special-status plants have the potential to occur in the vicinity of the project site (CDFW 2024; CNPS 2024). Based on field observations, published information, and literature review, none of the potentially occurring special-status plant species are considered to have potential to occur within the project site due to the lack of suitable soils and habitat conditions for the species. The project site is generally developed. Ruderal areas of the project site are regularly mowed or otherwise disturbed, which further reduces the potential for sensitive plant species to occur within the project site. Therefore, the project site does not provide suitable habitat for special-status plant species known to occur in the region. Most special-status plants included in the PTO table included as an appendix to the BRA occur in relatively undisturbed grasslands, saline scrub, or wetland habitats that do not occur in the project site. Construction and implementation of the proposed project would have a less than significant impact on special-status plants, and there would be *no new or substantially more severe impact* compared to what was previously analyzed in the 2020 LRDP SEIR.

Special-Status Wildlife

According to the BRA, 12 listed and/or special-status wildlife species have the potential to occur on-site or in the vicinity of the project site (CDFW 2024; USFWS 2024a). Based on field observations, published information, and literature review, one special-status wildlife species has the potential to occur within the project site: tricolored blackbird (*Agelaius tricolor*). However, this species would only be expected to forage and would not nest within the project site due to lack of suitable nesting habitat. The foraging habitat within the project site is marginal as the site is predominantly ruderal and urban habitat and the possibility for tricolored blackbird to occur was determined to be low. The BRA also determined that redevelopment of the site and of the proposed project would not significantly affect this species, and it was not addressed further in the assessment.

A total of 1.23 acres of developed lands occur within the project site and is made up of paved surfaces, modular buildings, and graveled/cobbled or disturbed surfaces that lack native plant assemblages. Urban habitat generally does not provide habitat for native plants and wildlife, however, structures may provide nesting habitat for avian species such as rock pigeon (*Columba livia*), European starlings (*Sturnus vulgaris*), and black phoebe (*Sayornis nigricans*). Several special-status species of migratory birds also have the potential to forage in the project site, including black phoebe, mourning dove, American crow, and house finch. Active nests are protected by the California Fish and Game Code Section 3503.5 and the MBTA, and construction activities could result in disturbance of nest sites through temporary increases in ambient noise levels and increased human activity. In addition, vegetation clearing operations, including pruning or the removal of trees and shrubs, could impact nesting birds if these activities occur during the nesting season (February 15 to September 15). Vegetation clearing, including removal of trees and shrubs, should be completed between September 16 and February 14, if feasible, and mitigation measure BIO-9a from the 2020 LRDP SEIR would be required to address potential impacts to nesting birds during project construction. Note that while a component of 2020 LRDP MM BIO-9a includes measures to minimize impacts to burrowing owls, impacts to this species are not expected due to lack of suitable habitat for that species within the project site.

Implementation of 2020 LRDP MM BIO-9a would require preconstruction surveys to avoid and minimize impacts on special-status and non-special-status migratory birds and raptors, and potential impacts would be reduced to less than significant. Implementation of 2020 LRDP MM BIO-9b would require that new buildings developed under the 2020 LRDP include bird-safe design features to minimize bird strike risks and reduce potential impacts to less than significant. Therefore, with implementation of 2020 LRDP MMs BIO-9a and 9b, there would be *no new or substantially more severe impact* compared to what was previously analyzed in the 2020 LRDP SEIR.

Trees

There are a total of 29 planted landscape trees within the project site consisting of 14 cottonwood (*Populus fremontii*) trees, three redwoods (*Sequoia sempervirens*), eight ginkgos (*Ginkgo biloba*), one callery pear (*Pyrus calleryana*), and three crape myrtles (*Lagerstroemia indica*). These trees provide suitable habitat for nesting birds, and an unoccupied small bird nest was observed in almost every tree. With implementation of 2020 LRDP MM BIO-9a, requiring preconstruction surveys for special-status and non-special-status migratory birds and raptors, impacts would be reduced to a less than significant level. There would be *no new or substantially more severe impact* compared to what has been previously analyzed in the 2020 LRDP SEIR.

b) 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 the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

No new or substantially more severe impact. The 2020 LRDP SEIR determined that historically, the LRDP study area contained riparian habitat along the edges of the Little Lake, and that nearly all riparian vegetarian was removed during construction of a previous project in 2020. Since UC Merced was required to replace the riparian habitat that was removed, the SEIR determined that over time, riparian habitat will establish along the sides of the canals and storm water detention basins. As it exists, there is little riparian area within the LRDP study area. Thus, the 2020 LRDP SEIR determined that implementation of the LRDP would have a less than significant impact on riparian habitat.

According to the BRA, no aquatic resources, riparian habitat, or other sensitive natural community is located within the project site. As seen in Figure 6 of the BRA, Impacts to Biological Communities, the majority of the project site (1.23 acres) is located on developed land, while the remaining 0.41 acre are located on ruderal land. Since no riparian habitat or other sensitive natural community is located on the project site, construction and implementation of the proposed project would have no impact, and there would be *no new or substantially more severe impact* compared to what was previously analyzed in the 2020 LRDP SEIR.

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

No new or substantially more severe impact. The 2020 LRDP SEIR determined that the impacts of campus development on State and federally protected wetlands were fully evaluated in the 2009 LRDP EIS/EIR, and that all seasonal wetlands, which include the canal and irrigation wetlands located on the project site, have been fully mitigated consistent with UC Merced's existing permit requirements. Thus, the 2020 LRDP SEIR concluded that although UC Merced has filled less than half of the permitted

wetlands acreage on the campus and University Community North sites, it has provided compensatory mitigation for all of the seasonal wetland acreage that is allowed to be filled under the permits from the U.S. Army Corps of Engineers (USACE) and Regional Water Quality Control Board (RWQCB), and development of the LRDP would have a less than significant impact.

As determined by the BRA and discussed under question b) above, no aquatic resources or State or federally protected wetlands are located on the project site. Development and implementation of the proposed project would have no impact, and there would be *no new or substantially more severe impact* compared to what was previously analyzed in the 2020 LRDP SEIR.

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

No new or substantially more severe impact. The 2020 LRDP SEIR determined that the impacts of campus development on wildlife movement were fully evaluated in the 2009 LRDP EIS/EIR and incorporated them by reference. The 2020 LRDP SEIR concluded that development of the LRDP could have direct impacts to wildlife corridors, but that since the LRDP would be designed with conservation lands in place to provide movement corridors, there would be a less than significant impact.

The proposed project site is located in a developed area within the UC Merced campus surrounded by roadways and campus development. The BRA determined that no migratory wildlife corridors or native wildlife nursery sites exist within the project footprint, and that implementation of the proposed project would not affect any wildlife migration corridors. Thus, the proposed project would have no impact, and there would be *no new or substantially more severe impact* compared to what was previously analyzed in the 2020 LRDP SEIR or 2009 LRDP EIS/EIR.

V. CULTURAL RESOURCES

	New or Substantially More Severe Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No New or Substantially More Severe Impact
Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	☐	☐	☐	☒
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☐	☐	☒
c) Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☐	☐	☒
d) Have the potential to disturb or destroy paleontological resources?	☐	☐	☐	☒

Environmental Setting

This section is based on information provided in Volume I of the 2009 LRDP EIS/EIR (UC Merced 2008).

Prehistory

Although few archaeological sites demonstrate evidence of human occupation of the San Joaquin Valley during the late Pleistocene and early Holocene epochs (12,000–6000 B.C.), this is likely a product of the archaeological record itself rather than lack of human habitation in the valley. The closest-available prehistoric chronology for the project area comes from the west side of the San Joaquin Valley as a result of the excavations at several sites during archaeological efforts for reservoir construction of the San Luis, Los Banos, and Little Panoches Reservoirs.

The following four cultural complexes were identified in the archaeological data collected during these excavations:

- The Positas Complex (5200-4600 B.P.) is characterized by small, shaped mortars; cylindrical pestles; millingstones; perforated flat cobbles; small flake scrapers; handstones; and spire-lopped *Olivella* beads. To date, archaeologists have not identified burials or structures associated with the Positas Complex (Mikkelsen and Hildebrandt 1990).

- The Pacheco Complex (4600-1600 B.P.) consists of two subcomplexes: Pacheco Complex A (3600–1600 B.P.) and Pacheco Complex B (4600–3600 B.P.). Pacheco Complex B is characterized by foliate bifaces, rectangular shell ornaments, flexed burials, and thick rectangular *Olivella* beads. Sites attributed to Pacheco Complex A exhibit spire-ground *Olivella* beads, perforated canine teeth, bone awls, whistles, grass saws, large stemmed and side-notched points, flexed burials, millingstones, mortars, and pestles. Domestic structure remnants attributed to Pacheco

Complex A were probably circular in outline and 10-12 feet in diameter (Mikkelsen and Hildebrandt 1990; Olsen and Payen 1969).

- The Gonzaga Complex (1600–1000 B.P.) is characterized by extended and flexed burials; bowl mortars; shaped pestles; squared and tapered-stem points; few bone awls; distinctive shell ornaments; and thin rectangular, split-punched, and oval *Olivella* beads (Mikkelsen and Hildebrandt 1990; Olsen and Payen 1969). Archaeologists hypothesize that the Gonzaga Complex marks the arrival of the Yokuts in the San Joaquin Valley (Mikkelsen and Hildebrandt 1990).

- The Panoche Complex (400–200 B.P.) is recognized by large circular structures (pits), flexed burials and primary and secondary cremations, varied mortars and pestles, bone awls, whistles, small side-notched points, clamshell disk beads, and other bead types. The Panoche Complex appears to represent Yokuts occupation of the valley (Mikkelsen and Hildebrandt 1990; Olsen and Payen 1969).

Ethnography

The aboriginal inhabitants of the area in which the Area of Potential Effect is located are known as the Northern Valley Yokuts. “Yokuts” is a term applied to a large and diverse number of peoples inhabiting the San Joaquin Valley and Sierra Nevada foothills of central California.

There was no Yokuts tribal organization that encompassed the whole of the peoples speaking Yokutsan languages, or even a tribal organization that encompassed an entire primary division, such as Foothill Yokuts. Similar to most Native American groups in California, the largest political entity among the Yokuts was that of the tribelet. A tribelet consisted of a large village and a few smaller surrounding villages. Larger villages and tribelets had a chief or headman – an advisory position that was passed from father to son (Wallace 1978).

In general, the Yokuts were seasonally mobile hunter-gathers with semi-permanent villages. Principal settlements were located on the tops of low mounds, on or near the banks of the larger watercourses. Settlements were composed of single-family dwellings, sweathouses, and ceremonial assembly chambers. Dwellings were small and lightly constructed, semi-subterranean and oval. The public structures were large and earth covered. Sedentism was fostered by the abundance of riverine resources in the area (Wallace 1978).

The Yokuts first came into contact with Europeans when Spanish explorers visited the area in the late 1700s, possibly followed by expeditions to recover Native Americans who had escaped from the missions. The North Valley Yokuts were far more affected by the missions than were other groups. The loss of individuals to the missions, the influence of runaway neophytes, various epidemics in the 1800s, and the arrival of settlers and miners all contributed to the disintegration of Yokuts culture (Wallace 1978). Although nearly obliterated, the descendants of the Northern Valley Yokuts still live in Merced County today and continue to rebuild their cultural identity.

Paleoenvironmental Setting

Since paleontological resources most commonly are buried in the substrate, surface examination often cannot reveal whether the paleontological resources are present at a specific project location. As

discussed in the UC Merced 2009 LRDP EIS/EIR, the San Joaquin Valley region has been subjected to the combined influences of sporadic subsidence of the valley floor, uplift in the area of the Sierra Nevada Range and worldwide sea level changes (UC Merced 2008).

No known paleontological resources occur within the project site or within its vicinity. Furthermore, the majority of the UC Merced campus areas are overlain by vegetation and visual detection of fossils would be possible only in those areas where erosion has removed the grassland vegetation cover. A limited field survey of the UC Merced campus area was conducted by a qualified paleontologist in 2001 in conjunction with the preparation of the UC Merced 2002 LRDP EIR. That survey found no paleontological deposits in the area surveyed (UC Merced 2008). The closest paleontological resource is located approximately 3 miles from the UC Merced campus. However, one of the geologic formations underlying the UC Merced campus, North Merced Gravels, is considered moderate and two, Mehrten Formation and Riverbank Formation, are considered highly sensitive for paleontological resources.

Impacts and Mitigation Measures from the UC Merced 2020 LRDP SEIR and 2009 LRDP EIS/EIR

Cultural resources were not discussed in the 2020 LRDP SEIR but were analyzed in the 2009 LRDP EIS/EIR in Section 4.5, Cultural Resources. The EIS/EIR concluded that implementation of the LRDP would not damage or destroy significant historic resources located within the project footprint as none are present within the UC Merced campus impact area, and identified 2009 LRDP MM CUL-2, which includes requirements for if buried cultural resources are inadvertently discovered. The EIS/EIR also determined that implementation of the LRDP could potentially inadvertently unearth and damage buried human remains that were not identified during pedestrian field surveys of the campus. However, the EIS/EIR ultimately concluded that implementation of 2009 LRDP MM CUL-3, requiring compliance with State law in the case human remains of Native American origin are discovered, would reduce potential impacts to a less than significant level. The EIS/EIR included 2009 LRDP MM CUL-1b, requiring that resources which were previously recommended to be found ineligible for listing under the National Register of Historic Places (NRHP) and California Register of Historic Resources (CRHR) be formally evaluated and reviewed by the State Historic Preservation Officer (SHPO). It also included 2009 LRDP MM CUL-4a and 4b, requiring cultural personnel to be informed of the potential for encountering significant paleontological resources and requiring the presence of a qualified paleontologist during construction operations to ensure that paleontological resources are not destroyed by project construction. Overall, the 2009 LRDP EIS/EIR determined that impacts to cultural resources due to the construction and implementation of the UC Merced LRDP would be less than significant with mitigation incorporated.

Discussion of Impacts

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

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

No new or substantially more severe impact. The previous cultural resources investigations conducted for the 2009 LRDP EIS/EIR identified nine historic resources within the boundary of the UC Merced campus and University Community North. These resources were formally evaluated and recommended as not eligible for listing in either the NRHP or CRHR, and SHPO concurred with the finding. The 2009 LRDP EIS/EIR included an evaluation of impacts on archaeological resources from the development of

the UC Merced campus and determined that two prehistoric sites with dark midden-like soil and a historic isolate are located within the footprint of the University Community North site, the 633-acre UCLC property south of the UC Merced campus. The 2009 LRDP EIS/EIR additionally determined that no prehistoric sites are located within the footprint of the UC Merced campus itself.

The project site is developed, no previously identified historic resources are located on the project site, and the project site is not located in an area of the campus where prehistoric sites were previously recorded. However, construction of the proposed project could inadvertently unearth and damage buried archaeological or historical resources that were not identified during prior pedestrian field surveys, and ground-disturbing construction activities could result in substantial damage to potentially significant archaeological or historical resources. In the event that archaeological or historical resources are discovered during project construction, UC Merced would implement 2009 LRDP MM CUL-2, which requires construction activities within the project site to address the treatment of unanticipated buried archaeological or historical resources. With implementation of this measure, currently undiscovered historical or archaeological resources would be avoided, recorded, or otherwise treated appropriately in accordance with pertinent laws and regulations, and impacts would be consistent with the analysis in the 2009 LRDP EIS/EIR. Therefore, the project would have a less than significant impact with mitigation for questions a) and b), and *no new or substantially more severe impact* would occur from project construction or implementation that has not already been previously analyzed.

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

No new or substantially more severe impact. The 2009 LRDP EIS/EIR evaluated impacts on human remains from the development of the UC Merced campus and determined that none of the areas of the campus, including the location of the proposed project, contained previously discovered human remains. The EIR went on to determine that while no human remains have been previously identified, ground-disturbing activities within the LRDP area could impact undiscovered human remains. The 2009 LRDP EIS/EIR included 2009 LRDP MM CUL-3, requiring compliance with state laws relating to the disposition of Native American burials, which falls within the jurisdiction of the California Native American Heritage Commission (Public Resources Code Section 5097) if human remains of Native American origin are discovered. The measure also requires the stoppage of work if human remains are discovered, and consultation with the coroner of Merced County. The 2009 LRDP EIS/EIR concluded that with implementation of this measure, potential impacts due to the construction and implementation of the LRDP would be less than significant.

While the 2009 LRDP EIS/EIR determined that no human remains have previously been discovered on the campus site, construction of the proposed project would involve ground disturbance that could reveal previously undiscovered human remains. Since the project site is located within the LRDP study area, the proposed project would be required to include 2009 LRDP MM CUL-3 which, as described above, would reduce potential impacts due to construction and implementation of the proposed project to a less than significant level. There would be *no new or substantially more severe impact* compared to what was previously analyzed in the 2009 LRDP EIS/EIR.

d) Have the potential to disturb or destroy paleontological resources?

No new or substantially more severe impact. The 2009 LRDP EIS/EIR determined that while the campus site was found not to contain any paleontological resources within its boundaries, three of the geologic formations underlying the campus and university community site south of the campus are considered

moderate to highly sensitive for paleontological resources and could be impacted by construction activities for the LRDP. The 2009 LRDP EIS/EIR included 2009 LRDP MM CUL-4a and 4b, requiring intermittent inspections by a qualified paleontologist during construction operations and informing construction personnel of the potential for encountering significant paleontological resources. The EIR concluded that with implementation of this mitigation measure, impacts would be reduced to a less than significant level.

Construction of the proposed project would include ground disturbing activities which, if occurring on areas considered moderate to highly sensitive for paleontological resources, could have a potentially significant impact. According to Figure 4.6-1, Geology of the Proposed Action Site, of the 2009 LRDP EIS/EIR, the proposed project site would be located on geologic unit Tm – Mehrten Foundation. This geologic unit is early to middle Pleistocene in age and has been identified as potentially fossiliferous with a high sensitivity for paleontological resources. However, the project site is currently developed, and the heavy ground disturbance incurred during prior construction did not reveal any paleontological resources. Therefore, no paleontological impacts are anticipated from construction and implementation of the proposed project, and there would be *no new or substantially more severe impact* compared to what was previously analyzed in the 2009 LRDP EIS/EIR.

VI. ENERGY

	New or Substantially More Severe Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No New or Substantially More Severe Impact
Would the project:				
a) Involve wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☐	☒
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☐	☒

Environmental Setting

California's electricity needs are satisfied by a variety of entities, including investor-owned utilities, publicly owned utilities, electric service providers and community choice aggregators. In 2020, the California power mix totaled 272,576 gigawatt hours. In-state generation accounted for 51 percent of the state's power mix. The remaining electricity came from out-of-state imports (CEC 2025a). Table 5, *California Electricity Sources 2020*, provides a summary of California's electricity sources as of 2020.

Table 5: California Electricity Sources 2020

Fuel Type	Percent of California Power
Coal	2.74
Large Hydro	12.21
Natural Gas	37.06
Nuclear	9.33
Oil	0.01
Other (Petroleum Coke/Waste Heat)	0.19
Renewables (Excluding Large Hydro)	33.09
Unspecified	5.36

Source: CEC 2025a

Natural gas provides the largest portion of the total in-state capacity and electricity generation in California, with nearly 45 percent of the natural gas burned in California used for electricity generation in a typical year. Much of the remainder is consumed in the residential, industrial, and commercial sectors for uses such as cooking, space heating, and as an alternative transportation fuel. In 2012, total natural gas demand in California for industrial, residential, commercial, and electric power generation was 2,313 billion cubic feet per year (bcf/year), up from 2,196 bcf/year in 2010 (CEC 2025b).

Transportation accounts for a major portion of California's energy budget. Automobiles and trucks consume gasoline and diesel fuel, which are nonrenewable energy products derived from crude oil. Gasoline is the most used transportation fuel in California, with 97 percent of all gasoline being consumed by light-duty cars, pickup trucks, and sport utility vehicles (SUVs). In 2015, 15.1 billion gallons of gasoline were sold in California (CEC 2025c). Diesel fuel is the second most consumed fuel in

California, used by heavy-duty trucks, delivery vehicles, buses, trains, ships, boats, and farm and construction equipment. In 2015, 4.2-billion gallons of diesel were sold in California (CEC 2025d).

The proposed project would be served by existing PG&E infrastructure and connect to existing UC Merced chilled and hot water system in underground vaults at the site.

Impacts and Mitigation Measures from the UC Merced 2020 LRDP SEIR and 2009 LRDP EIS/EIR

Impacts to energy resources were not included in the 2009 LRDP EIS/EIR but were analyzed in Section 4.11, Energy, of the 2020 LRDP SEIR. The 2020 LRDP SEIR determined that construction activities under the 2020 LRDP would not involve the wasteful, inefficient, and unnecessary use of energy. The impact would be less than significant. The 2020 LRDP SEIR also concluded that with compliance with Title 24 and the UC Sustainable Practices Policy, electricity and natural gas use on the campus would not be inefficient, wasteful, or unnecessary. The impact would be less than significant.

The SEIR also determined that while implementation of the 2020 LRDP would result in the consumption of petroleum fuel related to vehicular travel to and from the project site, the use of energy by the campus would not be wasteful or inefficient. Therefore, the 2020 LRDP SEIR concluded that implementation of the 2020 LRDP would not conflict with or obstruct a state or local plan, nor would it involve wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation, and the impact would be less than significant.

Discussion of Impacts

a) Involve wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

No new or substantially more severe impact.

Construction

The 2020 LRDP SEIR determined that construction activities under the 2020 LRDP would not involve the wasteful, inefficient, and unnecessary use of energy. Energy consumed for project construction primarily consists of fuels in the form of diesel and gasoline. Fuel consumption would result from: the use of on-road trucks for the transportation of construction materials and water; construction worker vehicles traveling to and from the project site; and from the use of off-road construction equipment. While construction activities would consume petroleum-based fuels, consumption of such resources would be temporary and would cease upon the completion of construction. Additionally, construction equipment rated by the USEPA as meeting Tier 4 (model year 2008 or newer) emission limits for engines between 50 and 750 horsepower would be used by the construction contractor. Therefore, project construction would not involve the wasteful, inefficient, and unnecessary use of energy. The impact would be less than significant, and *no new or substantially more severe impact* would occur compared to what was evaluated in the 2020 LRDP SEIR.

Operation

During long-term operation of the project, energy would be consumed in the form of diesel and gasoline used by vehicles traveling to and from the project site; building heating and cooling; and electricity used to power the building. As outlined in Section 7.XVI, Transportation, according to the TIA prepared by

Fehr & Peers and included as Appendix E to this document, the VMT for campus faculty, staff, and students at full buildout of the project and at 2030 was projected to be at 9.7 and 8.3, which are both at least 15 percent below the countywide average of 16.0 (Fehr & Peers 2025). Additionally, as noted in Section 3.6, Project Operation, the proposed project would comply with the UC Sustainable Practices Policy which established goals for green building, clean energy, transportation, climate protection, facilities operations, zero waste, procurement, food service, and water systems. The proposed project would be served by existing PG&E infrastructure and would connect to existing UC Merced chilled and hot water system in underground vaults at the site. The project would exceed CBC Title 24 Part 6 Building Energy Standards by 20 percent or better and earn a LEED Platinum certification. Therefore, project operation would not involve the wasteful, inefficient, and unnecessary use of energy. The impact would be less than significant, and *no new or substantially more severe impact* would occur compared to what was evaluated in the 2020 LRDP SEIR.

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

No new or substantially more severe impact. The 2020 LRDP SEIR concluded that implementation of the 2020 LRDP would not conflict with or obstruct a state or local plan, nor would it involve wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation.

As outlined in question a), the proposed project would comply with the UC Sustainable Practices Policy which established goals for green building, clean energy, transportation, climate protection, facilities operations, zero waste, procurement, food service, and water systems. The proposed project would also comply with other UC Merced requirements related to energy reduction as outlined in the UC Merced Sustainability Strategic Plan and the UC Merced Climate Action Plan (CAP; UC Merced 2017, 2018). Additionally, the project would exceed CBC Title 24 Part 6 Building Energy Standards by 20 percent or better and earn a LEED Platinum certification. Therefore, the proposed project would not conflict with or obstruct a State or local plan for renewable energy or energy efficiency. The impact would be less than significant, and *no new or substantially more severe impact* would occur compared to what was evaluated in the 2020 LRDP SEIR.

VII. GEOLOGY AND SOILS

	New or Substantially More Severe Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No New or Substantially More Severe Impact
Would the project:				
a) Expose people or structures to increased risk from:				
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	☒
ii. Strong seismic ground shaking?	☐	☐	☐	☒
iii. Seismically induced ground failure, including liquefaction?	☐	☐	☐	☒
iv. Landslides or other slope failure?	☐	☐	☐	☒
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☐	☒
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☐	☒
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	☐	☐	☐	☒
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒

Environmental Setting

The entire UC Merced campus has been described by the Soil Conservation Service as consisting of low to high terraces, with some areas in alluvial fans and floodplains (UC Merced 2009). The topography of the UC Merced campus consists of gently rolling flatland that rarely reaches 10 percent slopes. The major geologic formations in Merced County are the Basement Complex, Ione Formation, Valley Springs Formation, and Mehrten Formation. The Basement Complex consists of igneous and metamorphic rock. The Ione Formation consists of sandstone and conglomerate, and the Valley Springs Formation is mainly rhyolitic sandstone, siltstone, and claystone. The Mehrten Formation consists of sands, clays,

conglomerate, sandstone, siltstone, and claystone. Soils within the UC Merced campus are generally alluvial, forming a thin layer over bedrock units beneath. The soils generally consist of poorly sorted gravel, sand, silt, and clay. These soil types are generally gravelly and acidic, and have low fertility. The soils have a moderate shrink-swell potential, with a granular, clayey, and relatively consolidated and cemented nature.

The project site is relatively flat, with elevations ranging from 255 ft to 262 ft amsl. According to the Department of Conservation – California Geological Survey (CGS) Earthquake Zones of Required Investigation Map, the project site is not located within a mapped earthquake fault zone, landslide, or liquefaction zone (DOC 2024b). The nearest active fault to the project site, as delineated by the Alquist Priolo Earthquake Fault Zoning Act, is the Ortigalita fault, which is located in the western quarter of Merced County approximately 56 miles southwest of the project site. The Ortigalita Fault has not been active within historic times (1,800 years ago to present); however, surface rupture had occurred within the Holocene period (11,000 years before present). The northwest-trending Foothills fault system terminates approximately 15 miles northeast of the campus; however, this fault system is inactive and does not meet the criteria for building restrictions under the Alquist-Priolo Earthquake Fault Zoning Act.

The United States Department of Agriculture – Natural Resources Conservation Service (NRCS) maps the soils on the project site as Raynor cobbly clay, which is characterized as well drained with a moderate shrink-swell potential (USDA 2024).

Impacts and Mitigation Measures from the UC Merced 2020 LRDP SEIR and 2009 LRDP EIS/EIR

Geology and soils were not discussed in the 2020 LRDP SEIR and were determined to be analyzed sufficiently in Section 4.6, Geology and Soils, of the 2009 LRDP EIS/EIR. The 2009 LRDP EIS/EIR concluded that the campus is not subject to significant seismic hazards associated with active faults and all new facilities and structures, including those constructed as part of the 2009 LRDP, would be constructed in compliance with the current CBSC standards and UC Seismic Policy, which establish requirements for the seismic and structural safety of all structures. Therefore, the 2009 LRDP EIS/EIR concluded that the campus would not expose people or structures to risk of injury or structural damage from fault rupture, and the impact would be less than significant.

The 2009 LRDP EIS/EIR concluded that new facilities and structures within the proposed campus would be constructed according to current CBSC standards. Geotechnical investigations would ensure that subsurface soil characteristics are properly identified to safely design foundations and structures to reduce the potential impacts associated with slope failure. Therefore, the potential impacts associated with landslides or other slope failure would be less than significant. Additionally, all future construction projects on the campus that would disturb one acre or more would be required to comply with the National Pollutant Discharge Elimination System (NPDES) requirements to control discharges from construction sites and would implement Stormwater Pollution Prevention Plans (SWPPP). Compliance with NPDES regulations for control of pollutant discharge during construction would reduce the potential for significant soil erosion or sedimentation due to construction on the Campus. Therefore, the impact was determined to be less than significant.

The 2009 LRDP EIS/EIR determined that the soils present on the project site have a moderate to high shrink-swell potential; however, new facilities and structures within the campus developed under the UC Merced 2009 LRDP would be constructed using the current CBSC standards. Therefore, the EIR concluded that the impact would be less than significant. Additionally, the 2009 LRDP EIS/EIR

determined that since the campus would not include the use of septic tanks or alternative wastewater disposal systems that would require percolation of treated effluent, no impact would occur.

Lastly, the 2009 LRDP EIS/EIR determined that while project facilities developed under the 2009 LRDP are not expected to expose people or structures to the risk of injury or structural damage from ground shaking and relate hazards, areas of unconsolidated sediments and a high-water table could be present within the project site. These areas would have the potential for liquefaction and slope stability, and construction on such sites could expose structures or people to risk of damage or injury, which is a potentially significant impact.

While the LRDP area is underlain by a hardpan layer of soil within 3 feet of the surface, which serves to significantly reduce liquefaction hazards, the 2009 LRDP EIS/EIR concluded that construction of buildings on the campus site could still pose a risk to public safety and property by exposing people, property, and infrastructure to potentially adverse effects including seismic-related ground failure and liquefaction. The 2009 LRDP EIS/EIR included MM GEO-2, which requires that a site-specific geotechnical investigation be prepared by a certified engineering geologist or licensed geotechnical engineer during project-specific building design, and that any recommendations be followed. With implementation of mitigation, impacts associated with liquefaction and/or structural issues would be reduced to less than significant. The 2009 LRDP EIS/EIR also analyzed potential adverse effects of seismic shaking on the Fairfield Canal and Le Grand Canal that traverse the project site. While the canals are currently unlined, the EIR concluded that the clay-like nature of the soil and the proposed grading plan to have proposed buildings be higher than the canals would ensure that impacts associated with levee failure be considered less than significant.

Discussion of Impacts

a) Expose people or structures to increased risk from:

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

No new or substantially more severe impact. The 2009 LRDP EIS/EIR determined that the campus is not subject to significant seismic hazards associated with active faults and all new facilities and structures, including those constructed as part of the 2009 LRDP, would be constructed in compliance with the current CBSC standards and UC Seismic Policy, which establishes requirements for the seismic and structural safety of all structures. Therefore, the EIS/EIR concluded that there would be a less than significant impact. According to the Department of Conservation – CGS Earthquake Zones of Required Investigation Map, the project site is not located within a mapped earthquake fault zone, landslide, or liquefaction zone (DOC 2024b). The nearest active fault to the project site, as delineated by the Alquist Priolo Earthquake Fault Zoning Act, is the Ortigalita fault, which is located in the western quarter of Merced County approximately 56 miles southwest of the project site. The northwest-trending Foothills fault system terminates approximately 15 miles northeast of the campus; however, this fault system is inactive and does not meet the criteria for building restrictions under the Alquist-Priolo Earthquake Fault Zoning Act. Additionally, the proposed project would be constructed in compliance with the current CBSC standards and UC Seismic Policy, which include structural design requirements and criteria to ensure the safety of people or structures. There would be a less than significant impact on people or

structures from rupture of a known earthquake fault as a result of construction and implementation of the proposed project, and there would be *no new or substantially more severe impact* compared to what was analyzed in the 2009 LRDP EIS/EIR.

ii. Strong seismic ground shaking?

No new or substantially more severe impact. The 2009 LRDP EIS/EIR determined that while construction of the facilities included in the LRDP is not generally expected to expose people or structures to the risk or injury from strong seismic ground shaking, sites where unconsolidated sediments and a high-water table coincide could be present within the UC Merced campus. These areas would have the potential for liquefaction, slope stability issues, or other structural issues that could be aggravated during seismic events, and construction on such sites could expose structures or people to risk of damage or injury causing a significant impact. However, the EIS/EIR concluded that implementation of 2009 LRDP MM GEO-2, requiring preparation of a site-specific Geotechnical Report and implementation of geotechnical recommendations, would reduce potential impacts to a less than significant level.

While the project site is located in a region of the State that is characterized by a low level of seismic activity and, as such, has low ground-shaking hazard, construction of the proposed project could still result in the exposure of people or structures to excessive risk from ground shaking and could have a potentially significant impact. Implementation of 2009 LRDP MM GEO-2 would be required and would reduce potential impacts to a less than significant level. Thus, there would be a less than significant impact with mitigation incorporated, and *no new or substantially more severe impact* compared to what was previously analyzed in the 2009 LRDP EIS/EIR.

iii. Seismic-related ground failure, including liquefaction?

No new or substantially more severe impact. The 2009 LRDP EIS/EIR analyzed that there are no areas on or adjacent to the UC Merced campus or the project site that are at significant risk of seismically induced ground failure. However, the EIS/EIR went on to determine that while the LRDP area is underlain by a hardpan layer of soil within 3 feet of the surface, reducing impacts related to liquefaction, construction of buildings on the campus could still pose a risk to public safety and property by exposing people, property, and infrastructure to potentially adverse effects including seismic-related ground failure and liquefaction. The EIS/EIR concluded that with 2009 LRDP MM GEO-2, requiring the preparation of a site-specific Geotechnical Report and implementation of geotechnical recommendations, potential impacts would be reduced to a less than significant level. Thus, project-specific impacts related to seismically induced ground failure or liquefaction would be less than significant with mitigation incorporated, and there would be *no new or substantially more severe impact* to what has been previously analyzed in the 2009 LRDP EIS/EIR.

iv. Landslides?

No new or substantially more severe impact. The 2009 LRDP EIS/EIR determined that although construction is generally not expected to expose people or structures to the risk of injury or structural damage from ground shaking and related hazards such as liquefaction, sites where unconsolidated sediments and a high-water table coincide could be present within the LRDP project site and would have the potential for liquefaction, slope stability issues, or other structural issues that could be aggravated during seismic events. The EIS/EIR concluded that since new facilities and structures within the proposed campus would be constructed according to current CBSC standards, and with implementation of 2009

LRDP MM GEO-2 described above, potential impacts associated with slope failure would be reduced to a less than significant level.

The project site, and the UC Merced campus, is located on and surrounded by relatively flat topography, with the foothills of the Sierra Nevada Mountain Range located approximately 10 miles to the east. Since sites where unconsolidated sediments and a high-water table with the potential for liquefaction, slope stability issues, or other structural issues could be present on the project site and could be aggravated during seismic events, construction of the project could result in significant impacts related to landslides. However, since 2009 LRDP MM GEO-2 requires the preparation of a site-specific geotechnical report and implementation of geotechnical recommendations which would ensure that subsurface soil characteristics are properly identified to safely design foundations and structures to reduce the potential impacts associated with slope failure to a less than significant level. Construction and implementation of the proposed project would have a less than significant impact with mitigation incorporated, and there would be *no new or substantially more severe impact* compared to what was previously analyzed in the 2009 LRDP EIS/EIR.

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

No new or substantially more severe impact. The 2009 LRDP EIS/EIR concluded that while the construction of new buildings on the campus, such as the proposed project, could temporarily increase erosion and sedimentation or result in soil compaction and wind erosion effects that could adversely affect soils and reduce the revegetation potential at the construction sites and staging areas, implementation of the LRDP would not result in substantial erosion or the loss of topsoil from grading activities as any building project greater than one acre in size would be required to prepare and implement a SWPPP during construction.

The proposed project would include construction of an up to 61,640-sf (1.42-acre) building, and grading, excavation, removal of vegetation cover, and loading activities associated with construction activities could temporarily increase erosion and sedimentation. Construction activities could also result in soil compaction and wind erosion effects that could adversely affect soils and reduce the revegetation potential at the construction sites and staging areas. Since the proposed project footprint is greater than one acre in size, the proposed project would be subject to NPDES stormwater regulations which would require the preparation and implementation of a SWPPP during construction. The objectives of the SWPPP are to: (1) identify pollutant sources that may affect the quality of stormwater associated with construction activity; and (2) identify, construct, and implement stormwater pollution prevention measures to reduce pollutants in stormwater discharges during and after construction. The SWPPP is required to include a description of potential pollutants and the manner in which sediments and hazardous materials present on site during construction (including vehicle and equipment fuels) would be managed. The SWPPP must also include details of how the sediment and erosion control best management practices (BMPs) would be implemented. Thus, compliance with NPDES regulation for control of pollutant discharge during construction as well as obtaining a grading permit would reduce impacts related to soil erosion or sedimentation due to construction of the project to a less than significant level, and there would be *no new or substantially more severe impact* compared to what was already analyzed in the 2009 LRDP EIS/EIR.

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

No new or substantially more severe impact. The 2009 LRDP EIS/EIR analyzed that there are soils present on campus with a moderate to high shrink-swell potential that could result in differential ground movement. The EIS/EIR went on to determine that should structures be constructed in these areas, structural damage could occur and could, on a site-specific basis, have the potential to create risk for life or property. However, the EIS/EIR ultimately concluded that with implementation of 2009 LRDP MM GEO-2, which requires that all construction sites be evaluated for potential geologic hazards including presence of expansive soils, impacts from implementation of the LRDP would be reduced to a less than significant level.

Since there are soils present on campus with a moderate to high shrink-swell potential that could result in differential ground movement and potential structural damage, impacts due to construction of the proposed project could be significant. The project would be required to incorporate and comply with 2009 LRDP MM GEO-2, which would evaluate the construction site for potential geologic hazards and provide recommendations. Additionally, the new structure would be constructed using current CBSC standards, which establish requirements for the structural safety of all buildings. Thus, the proposed project would have a less than significant impact with implementation of 2009 LRDP MM GEO-2, and there would be *no new or substantially more severe impact* compared to what was previously analyzed in the 2009 LRDP EIS/EIR.

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

No new or substantially more severe impact. The 2009 LRDP EIS/EIR analyzed that the soils present on the LRDP project site have a moderate to high shrink-swell potential, causing a risk for post-construction heave and cracking of concrete slabs as well as lightly loaded foundations and pavements. The EIS/EIR determined that while these soils could, on a site-specific basis, have the potential to create risk for life or property, implementation of 2009 LRDP MM GEO-2 would be required to evaluate the construction site for presence of expansive soils and reduce potential impacts to a less than significant level.

The United States Department of Agriculture – Natural Resources Conservation Service (NRCS) maps the soils on the project site as Raynor cobbly clay, which is characterized as well drained with a moderate shrink-swell potential (i.e., soil expansiveness). This shrinking and swelling could result in differential ground movement, which could have a significant impact on structures constructed in areas with expansive soils. The project would be required to implement 2009 LRDP MM GEO-2 to ensure design features are included in construction to avoid and reduce damage associated with potential expansive soils. Therefore, there would be a less than significant impact with mitigation incorporated, and there would be *no new or substantially more severe impact* compared to what was previously analyzed in the 2009 LRDP EIS/EIR.

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

No new or substantially more severe impact. The proposed project would tie into existing wastewater utilities and would not require the construction of a septic tank or alternative wastewater disposal

system. Therefore, there would be no impact, and there would be *no new or substantially more severe impact* compared to what was previously analyzed in the 2009 LRDP EIS/EIR.

VIII. GREENHOUSE GAS EMISSIONS

	New or Substantially More Severe Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No New or Substantially More Severe Impact
Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☐	☒
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☐	☒

The discussion below is based on the Air Quality and GHG Emissions Technical Report prepared by HELIX (HELIX 2025a) and included as Appendix C.

Environmental Setting

The GHGs defined under California's Assembly Bill (AB) 32, include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). Each GHG differs in its ability to absorb heat in the atmosphere based on the lifetime, or persistence, of the gas molecule in the atmosphere. Estimates of GHG emissions are commonly presented in carbon dioxide equivalents (CO_2e), which weigh each gas by its global warming potential (GWP).

Methodology

Criteria pollutant and precursor emissions, and GHG emissions for the project construction activities and long-term operation were calculated using the CalEEMod, Version 2022.1.

UC Merced developed an updated CAP which builds on the previous CAP and extends out to 2025. UC Merced is working on an updated CAP that is anticipated to be approved by 2026 with interim targets for GHG reduction. The UC Merced CAP provides steps towards clarifying UC Merced's commitments and plans to mitigate climate effects; however, it does not provide campus-specific GHG emissions thresholds.

As noted in the 2020 LRDP SEIR, campus-specific GHG thresholds were developed using emissions reduction goals set forth in AB 32 and SB 32 and the UC Merced's 2005 GHG emissions as a baseline. Two approaches were used: the first one involving a total emissions threshold (3,300 MT CO_2e/year), and the second one involving an efficiency threshold based on per capita emissions (2.44 MT CO_2e per capita/year for 2030). For further details, refer to the technical report (Appendix C).

Impacts and Mitigation Measures from the UC Merced 2020 LRDP SEIR and 2009 LRDP EIS/EIR

Impacts to GHG emissions were not discussed in the 2009 LRDP EIS/EIR, but were analyzed in Section 4.3, Greenhouse Gas Emissions, of the 2020 LRDP SEIR. The 2020 LRDP SEIR concluded that approximately 6,118 MT CO_2e of GHG emissions would be emitted during the approximately 10-year project construction period, which is about 612 MT CO_2e/year. Neither UC Merced nor any of the air districts, including SJVAPCD, has set forth quantitative thresholds for the evaluation of construction-phase GHG emissions. Construction GHG estimates are presented for informational purposes only. The 2020 LRDP SEIR also concluded that operational emissions would exceed the targeted emission level of 3,300 MT CO_2e/year, which would result in the 2020 LRDP having a significant and unavoidable impact on GHG emissions. However, with implementation of 2020 LRDP MMs GHG-1a through GHG-1c, the impact would be less than significant. Additionally, with the implementation of 2020 LRDP MM GHG-2, which implements 2020 LRDP MMs GHG-1a through GHG-1c, campus development under the 2020 LRDP would not conflict with the State laws and regulations related to GHG emissions, the UC Sustainable Practices Policy, or the UC Merced plans adopted to reduce GHG emissions. The impact would be less than significant with implementation of 2020 LRDP MM GHG-2.

Discussion of Impacts

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

No new or substantially more severe impact.

Construction Emissions

Project construction GHG emissions were estimated using CalEEMod. The modeling shows that short-term construction of the project would result in a total of 172 MT of CO_2e during 2025, a total of 270 MT of CO_2e during 2026, a total of 285 MT of CO_2e during 2027, and a total of 72.3 MT CO_2e during 2028.

Operational Emissions

The 2020 LRDP SEIR concluded that operational emissions would exceed the targeted emission level of 3,300 MT CO_2e/year, which would result in the 2020 LRDP having a significant and unavoidable impact related to GHG emissions. However, with implementation of 2020 LRDP MMs GHG-1a through GHG-1c, the impact would be less than significant.

Project operational GHG emissions were estimated using CalEEMod. The project operational GHG emissions for the anticipated first full year of operation (2029) are compared to the 2030 target for the campus, which is 2.44 MT CO_2e per capita/year in Table 6*, Annual Operational GHG Emissions*. The proposed project would serve a total of 1,100 students and 126 faculty and staff (Fehr & Peers 2025). However, the proposed project would accommodate the projected growth considered in the 2020 LRDP and would not induce new, unplanned growth.

Table 6: Annual Operational GHG Emissions

Emission Source	2029 Emissions (MT CO_2e per year)
Mobile	0.00
Area	0.92
Energy	0.00
Water	3.95
Waste	62.70
Refrigerants	0.04
Total	**67.60**
Total per capita (1,226 people)	**0.06**
Campus 2030 Emissions Target	**2.44**
Exceed Target?	**No**

Source: CalEEMod (output data is provided in Appendix C); Thresholds: UC Merced 2020
GHG = greenhouse gas; MT = metric tons; CO_2e = carbon dioxide equivalent

As shown in Table 6, project operational GHG emissions would not exceed the UC Merced campus 2030 emissions target of 2.44 MT CO_2e per capita/year. Therefore, the impact would be less than significant, and *no new or substantially more severe impact* would occur compared to what was evaluated in the 2020 LRDP SEIR.

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

No new or substantially more severe impact. The 2020 LRDP SEIR concluded that with implementation of 2020 LRDP MM GHG-2, which implements 2020 LRDP MMs GHG-1a through 1-c, campus development under the 2020 LRDP would not conflict with the State laws and regulations related to GHG emissions, the UC Sustainable Practices Policy, or the UC Merced plans adopted to reduce GHG emissions.

There are numerous State plans, policies, and regulations adopted for the purpose of reducing GHG emissions. Statewide plans and regulations such as GHG emissions standards for vehicles (AB 1493), the Low Carbon Fuel Standard (LCFS), and regulations requiring an increasing fraction of electricity to be generated from renewable sources are being implemented at the Statewide level; as such, compliance at the project level is not addressed. Therefore, the project would not conflict with those plans and regulations. As discussed under question a) above, project operational GHG emissions would not exceed the UC Merced campus 2030 emissions target of 2.44 MT CO_2e per capita/year. It should be noted that the UC Merced campus 2030 emissions target of 2.44 MT CO_2e per capita/year and 3,300 MT CO_2e/year is based on the 2020 LRDP SEIR and 2018 UC Sustainable Practices Policy which was the guiding Sustainable Policy Plan at the time the 2020 LRDP SEIR was certified. However, this target is the appropriate methodology for this Addendum to ensure that impacts of the proposed project were considered and addressed in prior EIRs and UC Sustainable Practices Policy in effect at the time of the certification of the 2020 LRDP SEIR. Additionally, the project would also include multiple design features that would reduce its overall contribution to campus-wide GHG emissions. The project would exceed CBC Title 24 Part 6 Building Energy Standards by 20 percent or better and would earn a LEED Platinum certification. Therefore, the impact would be less than significant, no mitigation measures are necessary, and *no new or substantially more severe impact* would occur compared to what was evaluated in the 2020 LRDP SEIR.

IX. HAZARDS AND HAZARDOUS MATERIALS

	New or Substantially More Severe Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No New or Substantially More Severe Impact
Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☐	☒
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☐	☒
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25-mile of an existing or proposed school?	☐	☐	☐	☒
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e) 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?	☐	☐	☐	☒
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☐	☐	☒

Environmental Setting

Hazardous Material

Numerous hazardous materials, including non-radioactive hazardous chemicals (solvents, organic compounds, reagents) and radioactive materials, are used in research activities on university campuses and in business parks that include research and development (R&D) uses. Hazardous materials are used

in facility operations and maintenance, including vehicle and landscape maintenance. Hazardous material use in turn generates hazardous and mixed wastes (i.e., radioactive wastes with hazardous waste components).

Fire Hazards

The California Department of Forestry (CAL FIRE) is responsible for handling wildland fires whereas the City of Merced fire department is responsible for protection to structures within unincorporated areas. According to the CAL FIRE website, the campus, including the project site, is not located in a State Responsibility Area (SRA) or Local Responsibility Area (LRA) Very High Fire Hazard Severity Zone (FHSZ; CAL FIRE 2024)

Adopted Emergency Response Plans

UC Merced has adopted both an Emergency Operations Plan and a Crisis Communications Plan for the campus. The purpose of the Emergency Operations Plan is to establish policies, procedures, and an organizational structure for response to a major emergency. The plan incorporates operating procedures from the "Incident Command System" for handling emergencies resulting from fires, floods, storms, hazardous materials, criminal incidents affecting a broad spectrum of the community, and other potential disasters and emergencies.

The UC Merced Emergency Operations Plan utilizes the Standardized Emergency Management System in compliance with the National Incident Command System for managing response to multi-agency and multi-jurisdiction emergencies in California. The plan and UC Merced are subordinate to State or Federal plans during a disaster declaration by those authorities.

Impacts and Mitigation Measures from the UC Merced 2020 LRDP SEIR and 2009 LRDP EIS/EIR

Hazards and hazardous materials were analyzed in Section 4.7, Hazards and Hazardous Materials, of the 2009 LRDP EIS/EIR, and no further analysis was required for the purposes of the 2020 LRDP SEIR. The 2009 LRDP EIS/EIR analyzed that it is possible that environmental conditions such as non-permitted disposal sites, trash burn pits, wells, or other underground storage devices that have not been reported or identified may exist in the LRDP project development area. Additionally, the EIS/EIR analyzed that because a portion of the LRDP project site has been historically used for agricultural purposes, there is the potential that soil and groundwater has been contaminated by the application of pesticides, herbicides, and other agricultural chemicals, or by illegal debris disposal in the past. These conditions could be hazardous and encountering them would result in a significant and unavoidable impact. The 2009 LRDP EIS/EIR determined that implementation of 2009 LRDP MM HAZ-4 requires that construction activities cease in the event that unknown hazardous materials are encountered until all contaminated areas are identified, remediated, and/or removed. The EIS/EIR ultimately concluded that implementation of this measure would reduce potential impacts to a less than significant level.

Discussion of Impacts

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

No new or substantially more severe impact. The 2020 LRDP SEIR incorporated by reference information from the 2009 LRDP EIS/EIR, which is also included in the analysis for the proposed project.

The 2009 LRDP EIS/EIR determined that construction and operation of the UC Merced campus and Community project would comply with all applicable regulations regarding the transport, use, or disposal of hazardous materials; all movement and use of any hazardous materials on the project site would be conducted with proper controls; and that all employees, staff, and researchers handling hazardous materials would be properly trained to safely use, dispose, and label all hazardous materials to avoid any mishandling of hazardous materials. The applicable regulations discussed above would also require containment control measures against potential spills, such as filtering of air ducts, proper materials packaging, and sterilization of any apparatus that has contacted potentially hazardous animal tissue. The 2009 LRDP EIS/EIR concluded that these containment measures would minimize impacts resulting from a potential release. Additionally, the EIS/EIR determined that since the LRDP would developed in full compliance with federal, State, and local standards and regulations would reduce potential impacts on the public through transport, use, or disposal of hazardous materials, the impact would be less than significant.

The proposed project includes office, classroom, and research uses, and would not house laboratory equipment, biohazardous materials, animal care facilities, radioactive substances, or other hazardous materials on-site.

Construction of the proposed project could involve the use of standard hazardous materials, such as fuels (gasoline and diesel), oils and lubricants, paints and paint thinners, glues, cleaners (which could include solvents and corrosives in addition to soaps and detergents), and pesticides and herbicides. Since construction activities are required to comply with all applicable regulations and codes, including, but not limited to, Titles 8 and 22 of the Code of California Regulations, Uniform Fire Code, Division 20 of the California Health and Safety Code, U.S. Department of Transportation (U.S. DOT), and Caltrans regulations any construction and maintenance-related hazardous materials impacts that could occur as a result of construction of the project would be reduced to a less than significant level. There would be *no new or substantially more severe impact* compared to what was previously analyzed in the 2009 LRDP EIS/EIR.

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

No new or substantially more severe impact. The 2009 LRDP EIS/EIR determined that transportation of hazardous materials around the campus as a result of construction and implementation of the LRDP could increase the possibility of accidents, potentially exposing people on and off campus to hazardous materials. The EIS/EIR went on to determine that suppliers and transporters are and would continue to be required to follow stringent U.S. DOT and USPS regulations for packaging and handling to minimize the potential for accidental spills of hazardous materials during transit, and that due to the relatively small amounts of hazardous materials involved and compliance with applicable transport regulations, the potential impact would be less than significant.

As discussed above, construction of the proposed project could involve the use of hazardous materials, such as fuels (gasoline and diesel), oils and lubricants, paints and paint thinners, glues, cleaners (which could include solvents and corrosives in addition to soaps and detergents), and pesticides and herbicides. The transport of hazardous materials during project construction and operation would be conducted in accordance with all applicable State and federal laws, the Hazardous Materials Transportation Act, and other State and federal requirements. Additionally, to minimize the potential for accidental spills of hazardous materials during transit, suppliers and transporters for the project

would continue to be required to follow stringent U.S. DOT regulations for packaging and handling. Thus, due to the relatively small amounts of hazardous materials involved and compliance with applicable transport regulations, there would be a less than significant impact with construction and implementation of the proposed project, and *no new or substantially more severe impact* would occur compared to what was previously analyzed in the 2009 LRDP EIS/EIR or 2020 LRDP SEIR.

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

No new or substantially more severe impact. The 2009 LRDP EIS/EIR determined that while there are no existing schools within 0.25 mile of the proposed campus, development of the campus and the University Community under the LRDP could include the construction of K-12 schools for future residents. Since the siting of a proposed school would be required to comply with all applicable Education Codes regarding hazardous materials, and since current Public Resources Code and Education Code require that an EIR not be certified if any reasonably foreseeable hazardous air emissions would occur within 0.25-mile of a school unless consultation or notification has been conducted, the 2009 LRDP EIS/EIR determined that there would be a less than significant impact.

The nearest K-12 school to the proposed project site is El Capitan High School, located approximately 2.5 miles northwest at 100 Farmland Avenue, Merced, CA 95343. No hazardous emissions or hazardous waste would be handled or emitted by the project within 0.25-mile of an existing school, and there would be no impact. Construction and implementation of the proposed project would have *no new or substantially more severe impact* compared to what was previously analyzed in the 2009 LRDP EIS/EIR.

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

No new or substantially more severe impact. To support the 2009 LRDP EIS/EIR, Environmental Data Resources (EDR) conducted a government records search for the LRDP project site which includes the proposed project site. Four underground storage tanks (USTs) were identified on the project site with one of the tanks on the campus site. According to the 2009 LRDP EIS/EIR, the EDR report verified that these USTs were either not leaking or not active anymore and any other known hazardous material sites on campus were found to have no recorded violations. There are no known areas of soil or groundwater contamination within the campus site. The 2009 LRDP EIS/EIR determined that although development of the LRDP would not create a significant hazard to the public or the environment through a site included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5, impacts related to unreported hazardous material sites within the campus could be potentially significant. The EIS/EIR included 2009 LRDP MM HAZ-4, requiring construction activities to cease in the event that non-permitted disposal sites, trash burn pits, wells, underground storage devices, or unknown hazardous materials are encountered until all contaminated areas are identified, and remediated or removed in coordination with the Merced County Division of Environmental Health. The 2009 LRDP EIS/EIR concluded that with this measure incorporated, impacts would be less than significant.

The proposed project site has been subject to prior disturbance, and no hazardous materials sites have been found within the footprint of the proposed project area. According to the California Department of Toxic Substance Control EnviroStor website, there are no known hazardous waste sites located within 1,000 feet of the project site (DTSC 2025). While no known hazardous sites exist on the project site,

implementation of 2009 LRDP MM HAZ-4 would minimize risks from encountering unknown hazardous materials during construction activities to a less than significant level. Thus, the proposed project would have a less than significant impact with mitigation incorporated, and *no new or substantially more severe impact* compared to what was previously analyzed in the 2009 LRDP EIS/EIR.

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

No new or substantially more severe impact. The 2009 LRDP EIS/EIR determined that the UC Merced campus is not located within an airport land use plan or within 2 miles of a public or public use airport, and that implementation of the LRDP would have no impact.

The proposed project site is located within the UC Merced campus and therefore there would be no impact, and construction and implementation of the proposed project would have *no new or substantially more severe impact* compared to what was previously analyzed in the 2009 LRDP EIS/EIR or 2020 LRDP SEIR.

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

No new or substantially more severe impact. The 2009 LRDP EIS/EIR determined that development of the campus and University Community project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. The EIS/EIR concluded that since emergency response plans and emergency evacuation plans would be established for all proposed buildings on the campus, and since emergency and evacuation plans would be coordinated between campus buildings to ensure proper procedures in the case of a massive emergency or evacuation, the potential impact would be considered less than significant and no additional analysis would be required for the 2020 LRDP.

As described in the 2020 LRDP SEIR, UC Merced has adopted an Emergency Operations Plan and a Crisis Communications Plan for all buildings on campus. The UC Merced campus emergency response team is trained and equipped to respond to hazardous materials emergencies, and in the event of such an emergency at the proposed project site, UC Merced would provide sufficient resources to respond to the most hazardous level hazardous materials incident, in coordination with the County of Merced. By adhering to the requirements of the Emergency Operations Plan and Crisis Communications Plan, and since the proposed project was accounted for in the 2020 LRDP, there would be a less than significant impact due to construction and implementation of the project. There would be *no new or substantially more severe impact* compared to what was previously analyzed in the 2009 LRDP EIS/EIR.

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

No new or substantially more severe impact. The 2009 LRDP EIS/EIR determined that although implementation of the UC Merced and University Community Project would, by its nature, expose a greater number of people to wildland fire risk, development of the LRDP would be complemented by sufficient fire control measures. In addition, the EIS/EIR determined that proper emergency response emergency evacuation plans would be established to provide efficient and comprehensive support in

the case of an emergency. The UC Merced campus would also use the 2008 Management Plan for Conservations Lands and the Adjacent campus Buildout Lands as a guide, which provides four distinct goals regarding fire protection and management that the 2009 LRDP EIS/EIR determined would be applicable to the LRDP: (1) develop fire protection that emphasizes public safety and protection of university properties, especially in the interface areas; (2) prevent a substantial increase in fire frequency from "pre-university" (i.e., before development of the campus) conditions to maintain the natural habitat; (3) minimize ground-disturbing fire prevention and suppression methods (e.g., fuel breaks); and (4) use prescribed fire as a management tool to control invasive weeds that threaten biodiversity. Additionally, the UC Merced campus has been designed to minimize human intrusion into the adjacent conservation lands by way of landscaping and fencing. Thus, the 2009 LRDP EIS/EIR concluded that implementation of the UC Merced and University Community Project would not expose people or structures to a significant risk of loss, injury, or death involving wildland fires and there would be a less than significant impact.

The proposed project would be located on developed land and is surrounded by open space to the north, UC Merced classroom and office buildings to the west and south, and UC Merced student services building to the east. The proposed project would also include the addition of two fire hydrants and would construct a fire access lane leading to Ansel Adams Road along the eastern border of the proposed project site. Thus, the proposed project would not expose people or structures to a significant risk of loss, injury, or death involving wildland fires, and there would be a less than significant impact. There would be *no new or substantially more severe impact* compared to what was previously evaluated in the 2009 LRDP EIS/EIR.

X. HYDROLOGY AND WATER QUALITY

	New or Substantially More Severe Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No New or Substantially More Severe Impact
Would the project:				
a) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☐	☒
b) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would result in:				
i. Result in substantial erosion or siltation on- or off-site?	☐	☐	☐	☒
ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off- site?	☐	☐	☐	☒
iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional resources of polluted runoff?	☐	☐	☐	☒
iv. Impede or redirect flood flows?	☐	☐	☐	☒
c) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☐	☒

Environmental Setting

The San Joaquin Valley is surrounded on the on the east by the Sierra Nevada, on the south by the San Emigdio and Tehachapi Mountains, west by the Coast Ranges, and on the north by the Sacramento-San Joaquin Delta and Sacramento Valley. The UC Merced campus is located in the City of Merced in the eastern portion of Merced County. The land surrounding the campus consists of gentle rolling hills and flat land primarily used for agriculture.

Regional Drainage Basin and Surface Water Resources

The San Joaquin Valley drainage basin is a long trough that is approximately 11,000 square miles in area and is approximately 110 miles long and 95 miles wide (City 2012). The drainage basin extends from

near the City of Stockton to the north to near the City of Fresno to the south, and from the Sierra Nevada on the east to the Coastal Ranges on the west.

The UC Merced campus and proposed project site are located within the northerly San Joaquin subbasin. Merced County is further divided into two subbasins. One subbasin drains into the Merced River and the other drains into the San Joaquin River, the principal river within the UC Merced campus region. The San Joaquin River originates in the Sierra Nevada mountains and flows southwesterly to the vicinity of Mendota before flowing northwesterly to its mouth in the Suisun Bay. Principal tributaries to the San Joaquin River include the Stanislaus, Tuolumne, and Merced Rivers. In addition to the rivers and streams, there are many reservoirs, agricultural canals, laterals, and drains that also convey runoff and irrigation water through San Joaquin Valley. Canals in the project vicinity include the Main Canal, Le Grand Canal, the Fairfield Canal, and Yosemite Lateral. The Main Canal diverts water from the Merced River and discharges it into Lake Yosemite, which is located to the north of the campus.

The project site is located on relatively flat land with slightly sloped terrain along the southeastern portion, and with elevation ranging from 255 to 262 feet amsl. The campus is situated south-southeast of Lake Yosemite, which is a regulating reservoir owned and operated by the MID. Le Grand Canal and Fairfield Canal convey water from the lake to agricultural areas to the south (UC Merced 2019). The project site slopes toward Fairfield Canal to the south and is in the Middle San Joaquin-Lower Chowchilla Watershed (USGS Hydrologic Unit Code [HUC8] 18040001).

Flooding

The Federal Emergency Management Agency (FEMA) provides information on flood hazard and frequency for cities and counties on its Flood Insurance Rate Maps (FIRM) and identifies designated zones to indicate flood hazard potential. The proposed project would be located on flood zone X, which is defined by FEMA as being outside the floodplain with a 0.2 percent annual chance of flooding.

Impacts and Mitigation Measures from the UC Merced 2020 LRDP SEIR and 2009 LRDP EIS/EIR

Hydrology and water quality were analyzed in Section 4.8, Hydrology and Water Quality, of the 2009 LRDP EIS/EIR and in Section 4.4, Hydrology and Water Quality, of the 2020 LRDP SEIR. The 2020 LRDP SEIR analyzed that implementation of the LRDP would not substantially interfere with groundwater recharge nor substantially decrease groundwater supplies due to a variety of factors, including the presence of substantial amounts of clay in campus site soils that inhibits the potential of surface water to infiltrate down to the groundwater aquifer. Additionally, the campus' Water Action Plan sets forth near- and long-term actions including incorporating green infrastructure, retention basins, and low-impact development strategies with the goal of managing runoff on-site, and to capture 100 percent of campus stormwater under normal precipitation conditions. Therefore, the SEIR concluded that implementation of the LRDP would have a less than significant impact to aquifer recharge and to groundwater supplies without mitigation.

The 2020 LRDP SEIR went on to analyze potential impacts to the existing drainage pattern of the campus site through alteration of a water course or through the addition of impervious surfaces such that it would result in substantial erosion or siltation on or off site, result in flooding on or off site, contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems, or impede or redirect flood flows. The SEIR concluded that since new development on the campus would comply with UC Sustainable Practices Policy and the UC Merced Water Action Plan requiring that the integrity of the local watershed be protected and restored, the incorporation of retention and detention

basins as well as other stormwater features into site design, and no portion of the campus site is within a 100-year flood hazard area, the impact from changes in storm water runoff from implementation of the LRDP would be less than significant.

Finally, the SEIR analyzed potential impacts to implementation of a water quality control plan or sustainable groundwater management plan. The SEIR determined that the Merced subbasin being in critical overdraft status, and because a substantial increase in groundwater withdrawal is anticipated in the next 20 years due to regional growth, implementation of the LRDP could result in a significant cumulative impact on the subbasin. The 2020 LRDP Cumulative MM C-HYD-2 was included in the SEIR and requires that UC Merced work with the regional water agencies, including the City of Merced and MID, to develop programs to expand conjunctive use capabilities, increase recharge, and reduce groundwater demand. However, even with this measure, the SEIR ultimately concluded that the LRDP would have a significant and unavoidable cumulative impact.

Discussion of Impacts

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

No new or substantially more severe impact. The 2020 LRDP SEIR determined that the development of additional impervious surfaces such as new buildings, roads, paths and parking lots, would occur on the campus under the 2020 LRDP, which would normally have the potential to reduce recharge of the underlying aquifer. However, the SEIR analyzed that campus development under the 2020 LRDP would not substantially reduce recharge compared to existing conditions due to the soil not being conducive to percolation and due to the Campus' Water Action Plan. The Water Action Plan sets forth a number of near- and long-term actions that include: (1) incorporating green infrastructure and low-impact development (LID) strategies into site design in order to manage 30 to 50 percent of total volume runoff on-site, and (2) continue incorporating retention basins into site design and development to capture 100 percent of campus stormwater under normal precipitation conditions. Thus, the 2020 LRDP SEIR concluded that development of the LRDP would have a less than significant impact on groundwater supplies or recharge.

The proposed project could increase demand for potable water, which would be drawn from the Merced Subbasin by the City and supplied to the campus. However, the population served by the proposed project is within the projected campus population increase that was analyzed in the 2020 LRDP SEIR. Therefore, the proposed project would not increase the demand for potable water or require extraction of groundwater in excess of what was previously analyzed in the 2020 LRDP SEIR. Additionally, the proposed project would earn a LEED Platinum certification, which could include reducing runoff volume through site design, incorporating low impact development techniques such as bioswales and permeable paving, and reduction of potable water consumption for landscaping needs. The campus' Water Action Plan also sets forth a number of near- and long-term actions related to groundwater recharge that would be reflected in the proposed project design. Thus, the proposed project would have a less than significant impact on groundwater supplies, and there would be *no new or substantially more severe impact* compared to what was previously analyzed in the 2020 LRDP SEIR.

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

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

No new or substantially more severe impact. The 2020 LRDP SEIR determined that campus development under 2020 LRDP would generate increased storm water runoff, but with the implementation of LID strategies and green infrastructure as well as the provision of storm water detention and retention facilities, UC Merced would control both the peak flows and the total volume of storm water runoff before discharge into any receiving waters and would avoid potential flooding and erosion/siltation impacts in downstream areas. Additionally, because construction associated with the 2020 LRDP would disturb greater than 1 acre of soil, the 2020 LRDP SEIR determined that construction activities would be subject to the requirements of the SWRCB's NPDES permit Waste Discharge Requirements for Discharges of Storm Water Runoff Associated with Construction and Land Disturbance Activities (Order No. 2009-0009-DWQ, NPDES No. CAS000002, as amended by Orders No. 2010-0014-DWQ and 2012-0006-DWQ) (Construction General Permit). The Construction General Permit (CGP) requires preparation of a SWPPP and implementation of construction BMPs during construction activities. Construction BMPs would include, but not be limited to, erosion control and sediment control BMPs designed to minimize erosion and retain sediment on site and good housekeeping BMPs to prevent spills, leaks, and discharge of construction debris and waste into receiving waters. The SEIR concluded that compliance with the CGP and preparation of a SWPPP that would specify construction BMPs to be implemented to target pollutants of concern would ensure construction impacts from the LRDP related to surface water quality standards, waste discharge requirements, and surface water quality would be less than significant.

The proposed project would be constructed on previously disturbed, currently developed land and could increase the impervious surface area resulting in an increase in runoff from the project site. Since the proposed project site is greater than 1-acre in size, construction of the proposed project would be subject to the requirements of the SWRCB's NPDES permit Waste Discharge Requirements for Discharges of Storm Water Runoff Associated with Construction and Land Disturbance Activities, consistent with the analysis in the 2020 LRDP SEIR. With the preparation of a SWPPP that would identify construction BMPs to minimize erosion or siltation on- or off-site, impacts would be less than significant, and there would be *no new or substantially more severe impact* compared to what was previously analyzed in the 2020 LRDP SEIR.

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

No new or substantially more severe impact. The 2020 LRDP SEIR determined that new construction associated with the LRDP would have the potential to increase the rate and amount of runoff, and if the runoff were to be discharged uncontrolled to surface waters, it could result in (or exacerbate) flooding as well as potential hydromodification (i.e., erosion and scour) in downstream drainages. However, the SEIR determined that such downstream impacts would be avoided since new development on the campus would comply with UC Sustainable Practices Policy and the UC Merced Water Action Plan which requires that the integrity of the local watershed be protected and restored, and sets forth a number of short-term, intermediate-term and long-term actions for the campus to implement. Additionally, the SEIR determined that campus development under the LRDP would implement LID strategies and green

infrastructure to control both the peak flow and the total volume of storm water runoff before discharge into any receiving waters. Lastly, the SEIR determined that no portion of the campus site is within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map. Thus, the SEIR concluded that there would be a less than significant impact.

The proposed project site would include construction that could have the potential to increase the rate and amount of runoff. However, the project site would feature self-treating and/or self-retaining landscaping, which is landscaping designed to manage stormwater naturally by capturing, filtering, and absorbing runoff without requiring external drainage infrastructure. Two bioretention basins would be located in the southeastern portion of the project site, and four self-treating and/or self-retaining landscape areas would surround the project site. Additionally, an underground stormwater detention vault would be located in the southeastern portion of the proposed project site, north of the bioretention basins. In addition to the proposed on-site bioretention features described above, the proposed project would tie into existing stormwater infrastructure and would earn a LEED Platinum certification. Thus, the proposed project would have a less than significant impact, and there would be *no new or substantially more severe impact* compared to what was previously analyzed in the 2020 LRDP SEIR.

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

No new or substantially more severe impact. The 2020 LRDP SEIR determined that development on the campus would incorporate a variety of measures to minimize impacts, such as incorporating green infrastructure and LID strategies and incorporating of retention and detention basins and other stormwater features into site design and development. Thus, the SEIR determined that although increased stormwater runoff would be generated, implementation of LID strategies and green infrastructure as well as the provision of stormwater detention and retention facilities would control the peak flow and volume of stormwater runoff so that the drainage system capacities would not be exceeded. Additionally, the SEIR determined that NPDES regulations require the development and implementation of a SWPPP that includes BMPs aimed at addressing runoff pollutants. Thus, the SEIR concluded that impacts from the development of the 2020 LRDP would be less than significant.

As discussed above, the project site would feature self-treating and/or self-retaining landscaping, which is landscaping designed to manage stormwater naturally by capturing, filtering, and absorbing runoff without requiring external drainage infrastructure. Two bioretention basins would be located in the southeastern portion of the project site, and four self-treating and/or self-retaining landscape areas would surround the project site. Additionally, an underground stormwater detention vault would be located in the southeastern portion of the proposed project site, north of the bioretention basins. Additionally, the development of the proposed project was accounted for in the analysis conducted for the 2020 LRDP and would be served by existing campus stormwater infrastructure. Thus, the proposed project would have a less than significant impact, and there would be *no new or substantially more severe impact* compared to what was previously analyzed in the 2020 LRDP SEIR.

iv. Impede or redirect flood flows?

No new or substantially more severe impact. The 2020 LRDP SEIR determined that no portion of the campus site is within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or

Flood Insurance Rate Map. Thus, the SEIR concluded that there would be a less than significant impact on flood flows

As part of the UC Merced campus, the proposed project is located on flood zone X, defined by FEMA as being outside the floodplain with a 0.2 percent annual chance of flooding. Further, there are no water courses that would be developed with implementation of the proposed project as the project site is already developed. Therefore, construction of the proposed project would have no impact related to impeding or redirecting flood flows, and there would be *no new or substantially more severe impact* compared to what was previously analyzed in the 2020 LRDP SEIR.

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

No new or substantially more severe impact. The 2020 LRDP SEIR determined that the projected UC Merced water demand by 2030 is currently estimated to be approximately 623 AFY, and that this projected water demand is 56 percent lower than the projected water demand for the campus included in the City's 2015 Urban Water Management Plan (UWMP). Therefore, on both a per capita basis and total demand basis, the campus has reduced its demand substantially from previous levels and the reductions are significantly more than the required 10 percent water demand reduction identified in the Groundwater Sustainability Plan (GSP) to bring the groundwater subbasin into balance. Additionally, the SEIR determined that UC Merced would implement its Water Action Plan to reduce water demand and facilitate recharge. Thus, the SEIR concluded that there would be a less than significant impact.

Per the GSP, current agricultural and urban groundwater demand in the Merced Subbasin would need to be reduced by approximately 10 percent in order to balance out the change in groundwater storage over a long-term average condition. As discussed in the 2020 LRDP SEIR, on both a per capita basis and total demand basis, UC Merced has reduced its demand substantially from previous levels and the reductions are significantly more than the required 10 percent water demand reduction identified in the GSP to bring the groundwater subbasin into balance. The proposed project would earn a LEED Platinum certification, which could include infrastructure elements designed to reduce the use of potable water. Additionally, as part of the UC Merced campus and thus accounted for in the 2020 LRDP campus projections, the proposed project would not substantially increase groundwater demand and would have a less than significant impact. There would be *no new or substantially more severe impact* compared to what was previously analyzed in the 2020 LRDP SEIR.

XI. LAND USE AND PLANNING

	New or Substantially More Severe Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No New or Substantially More Severe Impact
Would the project:				
a) Cause significant environmental impact due to a conflict with any land use plan, policy, or regulation or an agency with jurisdiction over the project (including, but not limited to, the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒
b) Result in land use designations that could result in incompatible land uses?	☐	☐	☐	☒

Environmental Setting

The overall UC Merced campus site, including the proposed project site, is located adjacent to large open spaces comprising grazing lands with scattered rural residences, a planned residential community, agricultural lands, and a rural residential area. Lake Yosemite Regional Park and a large residential area with a golf course lie to the northwest of the UC Merced campus.

The project site is located in the northern portion of the UC Merced campus, at the intersection of Ansel Adams Road and New Ranchers Road. The land use designation for the project site in the 2020 LRDP is CMU. The CMU designation includes academic, research, student housing, student and support services, athletic and recreational facilities, administrative offices, service facilities, and parking (UC Merced 2019).

Impacts and Mitigation Measures from the UC Merced 2020 LRDP SEIR and 2009 LRDP EIS/EIR

Impacts to land use and planning were not discussed in the 2020 LRDP SEIR, but were analyzed in Section 4.9, Land Use and Planning, of the 2009 LRDP EIS/EIR. Volume 2 of the 2009 Draft EIS/EIR includes a program-level analysis of land use and planning for the UC Merced and University Community Project, of which the LRDP is a part. Section 4.9, Land Use and Planning, of Volume 2 of the EIS/EIR found that implementation of the UC Merced and University Community Project would not conflict with the 2000 Merced County General Plan, nor would it conflict with the City of Merced General Plan. Additionally, as a constitutionally-created entity, the UC Merced campus is not subject to local land use regulations or plans, including the City of Merced 2015 Vision General Plan, when using property under its control in furtherance of its educational mission. Ultimately, the 2009 LRDP EIS/EIR concluded that implementation of the LRDP would have a less than significant impact on land use and planning.

Discussion of Impacts

a) Cause significant environmental impact due to a conflict with any land use plan, policy, or regulation or an agency with jurisdiction over the project (including, but not limited to, the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?

No new or substantially more severe impact. The 2009 LRDP EIS/EIR determined that as the campus site is owned or will be owned by The Regents, the LRDP is the plan that regulates the campus. Since the revised development plan for the campus is the subject of the 2009 LRDP EIS/EIR, it determined that any environmental consequences of the revisions to the LRDP are sufficiently addressed in the other sections of the document. Additionally, the EIS/EIR determined that the campus site was located within the unincorporated part of the County, with the northern part of the campus site being located within the City's Sphere of Influence. The campus has since been annexed into the City of Merced (July 2024). Because The Regents is a constitutionally-created entity, local land use regulations and plans do not apply to the UC Merced campus when it is using property under its control to further its educational mission. Nevertheless, The Regents reviewed the County's land use plans and determined that the campus would be in substantial conformance with the County general plan, since the plan anticipates the future development of the campus. In summary, the 2009 LRDP EIS/EIR concluded that development of the campus and LRDP would not conflict with any applicable land use plan, and that the impact would be less than significant. The City of Merced also prepared an addendum to the General Plan EIR, which evaluated the annexation of the campus into the City and found that the annexation would not result in any new or substantially severe environmental impacts from those identified in the City's General Plan EIR.

The proposed project would expand research and event capabilities on the campus and would be integrated into the overall campus development plan specified in the LRDP. The project site is currently occupied with AOA modular trailers that are used by students, staff, and faculty, and the proposed academic building is intended to provide a permanent and expanded facility for the students, staff, and faculty currently operating out of the AOA trailers. Therefore, existing building occupants would not be permanently displaced as a result of construction or implementation of the proposed project. Thus, implementation of the proposed project would not physically divide an established community, and there would be a less than significant impact. Construction and implementation of the proposed project would have *no new or substantially more severe impact* compared to what was previously analyzed in the 2009 LRDP EIS/EIR.

b) Result in land use designations that could result in incompatible land uses?

No new or substantially more severe impact. The 2009 LRDP EIS/EIR determined that because The Regents is a constitutionally-created entity, there is no municipal jurisdiction over the campus, and impacts related to incompatible land uses would be less than significant.

The proposed project would be located in the northern portion of the UC Merced campus, at the intersection of Ansel Adams Road and New Ranchers Road. The project site is surrounded by open space to the north, UC Merced classroom and office buildings to the west and south, and UC Merced student services building to the east. The land use designation for the project site in the 2020 LRDP is CMU, which includes academic, research, student housing, student and support services, athletic and recreational facilities, administrative offices, service facilities, and parking. The proposed project would

be constructed with the intent to provide versatile classroom and public assembly venues, student academic and advising support and administrative spaces for the SSHA, and house faculty and research space for the Department of Political Sciences to support the CAPE. Thus, the proposed project would be consistent with the land use designation for the project site as well as with surrounding uses, and there would be no impact. The proposed project would have *no new or substantially more severe impact* compared to what was previously analyzed in the 2009 LRDP EIS/EIR.

XII. MINERAL RESOURCES

	New or Substantially More Severe Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No New or Substantially More Severe Impact
Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

Environmental Setting

According to the Merced County 2030 General Plan Draft Program EIR, the County's primary mineral resources are sand and gravel mining operations with significant aggregate deposits concentrated along the San Joaquin River and its tributaries, including the Merced River, within the Los Banos Alluvium, the Modesto Formation, and the San Luis Ranch, Patterson and Dos Palos alluviums. Approximately 38 square miles or 24,320 acres of aggregate resource areas have been identified in 10 aggregate resource areas within the County by the California Division of Mines and Geology (County 2012). These 10 resources areas contain an estimated 1.18 billion tons of concrete resources overall, and include Garzas Creek, Los Banos Valley, Los Banos Creek Fan, Lower Merced River, Upper Merced River, Kelsey Ranch, Bear Creek, Mariposa Creek, and Basalt Hill. None of these resource areas include the UC Merced campus or the project site.

Impacts and Mitigation Measures from the UC Merced 2020 LRDP SEIR and 2009 LRDP EIS/EIR

Mineral Resources were discussed in Section 4.15, Other CEQA Considerations, of the 2009 LRDP EIS/EIR, and were not discussed in the 2020 LRDP SEIR. The 2009 LRDP EIS/EIR concluded that there are no mineral resource zones (MRZs), delineated mineral recovery sites, or locally important mineral resource recovery sites on the UC Merced campus. As such, implementation of the 2009 LRDP would not result in loss of availability of known mineral resources that would be of value to the region or residents of the State, and no impact would occur. Appendix 1.0 of the 2020 LRDP SEIR, 2018 LRDP Initial Study, determined that no additional analysis would be required for mineral resources in the 2020 LRDP SEIR, and so mineral resources were not further discussed or analyzed in the 2020 LRDP SEIR. No mitigation measures were suggested.

Discussion of Impacts

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

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

No new or substantially more severe impact. As determined in the 2018 LRDP Initial Study included as Appendix 1.0 to the 2020 LRDP SEIR, no mineral resource zones or mineral resource recovery sites exist on the campus or its environs, with the nearest resource zone located near Bear Creek, approximately 8.25 miles southeast of the project site. The proposed project would be located in the northern portion of the UC Merced campus and would not be located on land designated as a mineral resource zone. No impact would occur with construction and implementation of the proposed project, and there would be *no new or substantially more severe impact* for questions a) and b).

XIII. NOISE

	New or Substantially More Severe Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No New or Substantially More Severe Impact
Would the project result in:				
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☐	☒
b) Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☐	☒

Environmental Setting

Noise-sensitive land uses (NSLUs) are land uses that may be subject to stress and/or interference from excessive noise, including residences, hospitals, schools, hotels, resorts, libraries, sensitive wildlife habitat, or similar facilities where quiet is an important attribute of the environment. Noise receptors (receivers) are individual locations that may be affected by noise. The nearest off-campus NSLU to the project site are single-family residential homes located at the intersection of Bellevue and Lake Road, located approximately 0.7 mile west of the project site. The nearest on-site NSLU are COB I and COB II located immediately southeast and southwest of the project site.

Noise Metrics

All noise-level and sound-level values presented herein are expressed in terms of decibels (dB), with A weighting, abbreviated "dBA," to approximate the hearing sensitivity of humans. Time averaged noise levels of one hour are expressed by the symbol "L_{EQ}" unless a different time period is specified. Maximum noise levels are expressed by the symbol "L_{MAX}." Some of the data also may be presented as octave-band-filtered and/or A-octave band-filtered data, which are a series of sound spectra centered on each stated frequency, with half of the bandwidth above and half of the bandwidth below, the stated frequency. These data are typically used for machinery noise analysis and barrier-effectiveness calculations. The Community Noise Equivalent Level (CNEL) is a 24-hour average, where noise levels during the evening hours of 7:00 p.m. to 10:00 p.m. have an added 5 dBA weighting, and sound levels during the nighttime hours of 10:00 p.m. to 7:00 a.m. have an added 10 dBA weighting. This is similar to the Day Night sound level (L_{DN}), which is a 24-hour average with an added 10 dBA weighting on the same nighttime hours but no added weighting on the evening hours.

Because decibels are logarithmic units, S_{PL} cannot be added or subtracted through standard arithmetic. Under the decibel scale, a doubling of sound energy corresponds to a 3 dBA increase. In other words, when two identical sources are each producing sound of the same loudness, the resulting sound level at a given distance would be 3 dBA higher than from one source under the same conditions. For example, if one automobile produces an S_{PL} of 70 dBA when it passes an observer, two cars passing simultaneously would not produce 140 dBA—rather, they would combine to produce 73 dBA. Under the

decibel scale, three sources of equal loudness together produce a sound level 5 dBA louder than one source.

Under controlled conditions in an acoustic laboratory, the trained, healthy human ear is able to discern 1 dBA changes in sound levels, when exposed to steady, single-frequency ("pure-tone") signals in the mid-frequency (1,000 Hertz [Hz]–8,000 Hz) range. In typical noisy environments, changes in noise of 1 to 2 dBA are generally not perceptible. It is widely accepted, however, that people begin to detect sound level increases of 3 dB in typical noisy environments. Further, a 5 dBA increase is generally perceived as a distinctly noticeable increase, and a 10 dBA increase is generally perceived as a doubling of loudness.

Vibration Metrics

Groundborne vibration consists of rapidly fluctuating motions or waves transmitted through the ground with an average motion of zero. Sources of groundborne vibrations include natural phenomena and anthropogenic causes (e.g., explosions, machinery, traffic, trains, construction equipment). Vibration sources may be continuous (e.g., factory machinery) or transient (e.g., explosions). Peak particle velocity (PPV) is commonly used to quantify vibration amplitude. The PPV, with units of inches per second (in/sec), is defined as the maximum instantaneous positive or negative peak of the vibration wave. Decibels are also used compress the range of numbers required to describe vibration. Vibration velocity level (LV) with units of VdB are commonly used in evaluating human reactions to vibrations.

Impacts and Mitigation Measures from the UC Merced 2020 LRDP SEIR and 2009 LRDP EIS/EIR

Noise impacts were analyzed in Section 4.10, Noise, of the 2009 LRDP EIS/EIR and in Section 4.5, Noise, of the 2020 LRDP SEIR. The 2020 LRDP SEIR revised the noise analysis that was previously completed for the 2009 LRDP EIS/EIR. The 2020 LRDP SEIR determined that campus development under the 2020 LRDP would increase traffic volumes on the local roadway network including Bellevue and Lake Road that provide access to the campus and would experience the greatest increases in LRDP related traffic. Existing residential receptors are located along Bellevue and Lake Road that would be exposed to noise from traffic on the two roadways. Although the project would cause a noise increase, the 2020 LRDP SEIR determined that traffic generated from the 2020 LRDP would disperse with distance from the campus, would not result in a noise increase of 3 dBA or more along these roadways. Therefore, the 2020 LRDP SEIR concluded that implementation of the 2020 LRDP would not substantially increase ambient traffic noise levels at noise-sensitive uses and the impact would be less than significant.

The 2020 LRDP SEIR concluded that noise generated by daily campus activities is not expected to exceed the noise standard of 65 dBA Ldn exterior and 45 dBA Ldn interior at off-site residential locations. Therefore, the 2020 LRDP SEIR concluded that existing off-site receptors, including the residential homes along Bellevue and Lake Road, and on-site sensitive receptors, including student housing and academic buildings, would not be substantially affected by noise generated by on-site noise sources. This impact would be less than significant.

The 2020 LRDP SEIR concluded that daytime construction noise would be exempt from the County's Noise Ordinance and would result in a less than significant impact. However, construction activities occurring on the campus between the hours of 6:00 PM and 7:00 AM would result in significant noise impacts. The 2020 LRDP MM NOI-3 would be implemented to reduce the noise impact from nighttime construction and to further minimize the less than significant impact from daytime construction. With implementation of 2020 LRDP MM NOI-3 construction noise impacts would be less than significant.

The 2020 LRDP SEIR determined that pile driving is not anticipated for the proposed project due to the geology that is typical for Merced County. However, in the event that pile driving is required during construction, it could produce groundborne vibration levels that might be perceptible to nearby sensitive receptors. Impact pile driving within 50 feet of structures could cause structural damage to typical building structures and could cause annoyance to persons. Furthermore, for a few future campus facilities, such as laboratories, vibrations could have the potential to disrupt experiments, which is a potentially significant impact. The 2020 LRDP MMs NOI-4a and NOI-4b would be implemented that requires UC Merced to describe and commit to a mitigation plan to minimize construction vibration damage and to apply additional measures as feasible for construction adjacent to highly sensitive uses such as laboratories to protect ongoing activities from vibration effects. With implementation of 2020 LRDP MMs NOI-4a and NOI-4b, the impact would be less than significant.

Discussion of Impacts

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

No new or substantially more severe impact.

Construction Noise

The 2020 LRDP SEIR concluded that daytime construction noise would be exempt from the County's Noise Ordinance and would result in a less than significant impact. However, construction activities occurring on the campus between the hours of 6:00 PM and 7:00 AM would result in significant noise impacts. The 2020 LRDP MM NOI-3 would be implemented to reduce the noise impact from nighttime construction and to further minimize the less than significant impact from daytime construction. With implementation of 2020 LRDP MM NOI-3 construction noise impacts would be less than significant.

Construction activities associated with the proposed project would temporarily increase noise levels in the vicinity of the project site. The nearest off-site NSLU to the project site are single-family residential homes located at the intersection of Bellevue and Lake Road, located approximately 0.7 mile west of the project site. The nearest on-site NSLU are COB I and COB II located immediately southeast and southwest of the project site.

Although UC Merced is not subject to local standards and ordinances, UC Merced has elected to use the County's noise standards and construction noise ordinance to evaluate the potential for campus development under the proposed LRDP to adversely affect ambient noise levels in the vicinity of the campus. Therefore, as described in the 2020 LRDP SEIR, daytime construction noise, including the hours between 7:00 AM and 6:00 PM, would be exempt from the County's Noise Ordinance 10.60.0303. However, per the 2020 LRDP SEIR, a significant noise impact would occur if nighttime construction activity is predicted to result in: (1) maximum noise levels exceeding 75 dBA Lmax at any residential property or 80 dBA Lmax at any non-residential property between the hours of 6:00 PM and 7:00 AM; (2) an hourly average sound level that is more than 10 dBA Leq above the ambient sound level between the hours of 6:00 PM and 10:00 PM; or (3) an hourly sound level more than 5 dBA Leq above the ambient sound level between the hours of 10:00 PM and 7:00 AM.

It is anticipated that construction of the proposed project would be limited to daytime construction hours, 7:00 AM and 6:00 PM. However, if nighttime construction, between the hours of 6:00 PM and 7:00 AM, is required to eliminate daytime conflicts or other necessary reasons, a potentially significant noise impact would occur. The 2020 LRDP MM NOI-3, would be implemented to reduce impacts from nighttime construction. With implementation of 2020 LRDP MM NOI-3, the impact would be less than significant, and there would be *no new or substantially more severe impact* to what has been previously analyzed in the 2020 LRDP SEIR.

Operational Noise

The project's operational noise sources would be associated with mechanical equipment (HVAC systems), on-site gatherings, landscaping and maintenance activities, and off-site traffic noise.

Off-Site Traffic Noise

The 2020 LRDP SEIR determined that campus development under the 2020 LRDP would increase traffic volumes on the local roadway network including Bellevue and Lake Road that provide access to the campus and would experience the greatest increases in LRDP related traffic. Existing residential receptors are located along Bellevue and Lake Road that would be exposed to noise from traffic on the two roadways. Although the project would cause a noise increase, the 2020 LRDP SEIR determined that traffic generated from the 2020 LRDP would disperse with distance from the campus, would not result in a noise increase of 3 dBA or more along these roadways. Therefore, the 2020 LRDP SEIR concluded that implementation of the 2020 LRDP would not substantially increase ambient traffic noise levels at noise-sensitive uses and the impact would be less than significant.

As noted above, the nearest off-site NSLU to the project site are single-family residential homes located at the intersection of Bellevue and Lake Road, located approximately 0.7 mile west of the project site. The nearest on-site NSLU are COB I and COB II located immediately southeast and southwest of the project site.

The 2020 LRDP SEIR estimated that between 2020 and 2030, the student population would increase from 9,700 FTE students to 15,000 students, an increase of about 5,300 students. Over the same period, faculty and staff would increase from 1,280 to 2,411, an increase of 1,131 persons. As such, by 2030 the UC Merced campus is projected to have a total population of 17,411 students, faculty, and staff. However, even with this projected increase in population, the 2020 SEIR concluded that the 2020 LRDP would not substantially increase ambient traffic noise at the existing off-site residential NSLU. Based on the TIA prepared for this project, and included as Appendix E, the proposed project would serve a total of 1,100 students and 126 faculty and staff (Fehr & Peers 2025). With this projected occupancy, the proposed project would not result in an exceedance of students or employees beyond what was projected under the 2020 LRDP. As the proposed project is within the projected buildout of the 2020 LRDP, it is assumed that the proposed project would not substantially increase ambient traffic noise at the existing off-site residential NSLU. Therefore, the impact would be less than significant, and there would be *no new or substantially more severe impact* to what has been previously analyzed in the 2020 LRDP SEIR.

On-Site Noise

The 2020 SEIR concluded that noise generated by daily campus activities is not expected to exceed the noise standard of 65 dBA Ldn exterior and 45 dBA Ldn interior at off-site residential locations. Therefore, the 2020 SEIR concluded that existing off-site receptors, including the residential homes along Bellevue and Lake Road, and on-site sensitive receptors, including student housing and academic buildings, would not be substantially affected by noise generated by on-site noise sources. This impact would be less than significant.

As noted above, the nearest off-site NSLU to the project site are single-family residential homes located at the intersection of Bellevue and Lake Road, located approximately 0.7 mile west of the project site. As a result of the intervening distance between the residential homes located along Bellevue and Lake Road and the project site, noise generated by the proposed project is not expected to exceed the noise standard of 65 dBA Ldn exterior and 45 dBA Ldn interior at the off-site residential homes. Therefore, off-site receptors are not expected to be exposed to noise levels in excess of the standards for noise-sensitive uses.

The nearest on-site NSLU are COB I and COB II located immediately southeast and southwest of the project site. These on-site NSLU could be exposed to excessive noise from other land uses developed within the campus. The proposed project would have an underfloor air distribution system for the auditorium and lecture halls which would optimize acoustics. As noted in the 2020 LRDP SEIR, noise levels associated with typical commercial grade HVAC systems can be reduced to below the noise standard for residences at a distance of less than 50 feet from the source with the use of standard attenuation barriers. As a result, on-site receptors are not expected to be exposed to noise levels in excess of the standards for noise-sensitive uses.

Therefore, the impact from off-site traffic noise and on-site noise would be less than significant, and there would be *no new or substantially more severe impact* to what has been previously analyzed in the 2020 LRDP SEIR.

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

No new or substantially more severe impact. The 2020 LRDP SEIR concluded that groundborne vibration from pile driving within 50 feet of structures could cause structural damage to typical buildings, cause annoyance to persons, or disrupt experiences, and the impact would be potentially significant. However, 2020 LRDP MMs NOI-4a and NOI-4b would be implemented to reduce impacts to a less than significant level.

Per the project manager, project construction would not require blasting or pile driving. Additionally, the use of heavy equipment that would generate substantial vibration, including a vibratory roller, would not be required for project construction. Additionally, no substantial vibration sources would be installed and associated with project operation. Therefore, the impact related to groundborne vibration or groundborne noise levels would be less than significant, and there would be *no new or substantially more severe impact* to what has been previously analyzed in the 2020 LRDP SEIR.

XIV. POPULATION AND HOUSING

	New or Substantially More Severe Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No New or Substantially More Severe Impact
Would the project:				
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒

Environmental Setting

According to Section 4.6, Population and Housing, of the 2020 LRDP SEIR, between 2018 and 2030, the County population (including unincorporated areas) is forecast to increase by 19.4 percent to 334,443 residents; the population of the unincorporated areas is forecast to increase by 21.2 percent to 115,315 residents; and the population of Merced, Atwater, and other cities is anticipated to increase by 18.7 percent, 17.8 percent and 18.7 percent, respectively, over the same period (MCAG 2018). These forecasts prepared by MCAG incorporate the most up to date background data from the U.S. Census Bureau, the Internal Revenue Service and the California Vital Statistics Query System. They incorporate feedback from Merced County along with the incorporated cities within the County.

Campus Population

UC Merced opened in 2005 with 865 students, 67 faculty, and about 450 staff. The 2020 LRDP SEIR estimated that between 2020 and 2030, the student population would increase from 9,700 FTE students to 15,000 students, an increase of about 5,300 students. Over the same period, faculty and staff would increase from 1,280 to 2,411, an increase of 1,131 persons. Overall, the campus population would increase by 6,431 persons (5,300 FTE students and 1,131 staff/faculty personnel) (Table 1**,** available in Section 4.2 and reproduced below). As such, by 2030 the UC Merced campus is projected to have a total population of 17,411 students, faculty, and staff.

Table 1: Campus Student Population and Employees Under the 2020 LRDP

	2020 (Projected)	2030	Projected Increase (2020-2030)
Commuting Students	4,900	7,800	2,900
Resident Students	4,800	7,200	2,400
Subtotal	**9,700**	**15,000**	**5,300**
Faculty	440	786	346
Staff (on-campus)	840	1,625	785
Subtotal	**1,280**	**2,411**	**1,131**
Total Population (excluding dependents)	**10,980**	**17,411**	**6,431**

Source: UC Merced 2019

As described in Chapter 3.0, the project would provide versatile classroom and public assembly venues, student academic and advising support and administrative spaces for the SSHA, and house faculty and

research space for the Department of Political Sciences to support the CAPE. Based on the TIA prepared for this project, the proposed project would serve a total of 1,100 students and 126 faculty and staff (Fehr & Peers 2025).

Impacts and Mitigation Measures from the UC Merced 2020 LRDP SEIR and 2009 LRDP EIS/EIR

Population and housing impacts were discussed in Section 4.12, Socioeconomics/Environmental Justice, of the 2009 LRDP EIS/EIR and analyzed in Section 4.6, Population and Housing, of the 2020 LRDP SEIR. The SEIR determined that since the population increase due to the implementation of the 2020 LRDP would be substantially lower than the growth that has been accounted for in the general plans of the City of Merced and County of Merced, it would not represent substantial unplanned growth, and the impact related to population growth would be less than significant. The City of Merced prepared an addendum to the General Plan EIR, which evaluated the annexation of the campus into the City and found that the annexation would not result in any new or substantially severe environmental impacts from those identified in the City's General Plan EIR. Additionally, the annexation does not affect the campus' projected population numbers. Impacts on the displacement of people or housing from development of the campus and University Community North sites were evaluated in the 2009 LRDP EIS/EIR, and no impacts were found related to the displacement of substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere. Except for student housing on campus, no dwelling units or businesses were situated on the campus site, and thus no housing units, residents or employees would be displaced. This impact was determined to be adequately addressed in the 2009 LRDP EIS/EIR, and thus was not included for analysis in the 2020 LRDP SEIR. No mitigation measures for population and housing were included in the 2020 LRDP SEIR or 2009 LRDP EIS/EIR.

Discussion of Impacts

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

No new or substantially more severe impact. As described in Section 4.2, 2020 LRDP Campus Population, the 2020 LRDP SEIR estimated that between 2020 and 2030 the student population would increase from 9,700 FTE students to 15,000 students, an increase of about 5,300 students. Over the same period, faculty and staff would increase from 1,280 to 2,411, an increase of 1,131 persons. Overall, the campus population would increase by 6,431 persons (5,300 FTE students and 1,131 staff/faculty personnel) (Table 1). As such, by 2030 the UC Merced campus is projected to have a total population of 17,411 students, faculty, and staff. The 2020 LRDP SEIR determined that the UC Merced campus would be developed with additional housing to accommodate 50 percent of the 2030 student population. The remaining balance of students would be accommodated by housing within the City of Merced or in communities within a 40-mile radius of the campus. The SEIR also noted that all of the new employees would live off campus, and that enough housing is available and planned in the City of Merced and in communities within the 40-mile radius of the campus to house the new students and employees who would live off campus. The SEIR concluded that there would be a less than significant impact.

As discussed in the TIA prepared by Fehr & Peers and included as Appendix E, the proposed project would support 1,236 campus faculty, staff, and students. The proposed project is part of the population growth projected under the 2020 LRDP and is accounted for in the analysis of population and housing

impacts of campus growth by 2030 as presented in the 2020 LRDP SEIR. Therefore, as enough housing is available and planned in the City of Merced and in communities within the 40-mile radius study area to house additional employees and dependents that would relocate as a result of construction and implementation of the proposed project, the impact on population growth and housing would be less than significant. Additionally, the proposed project would be constructed on land that does not include existing residential units or housing that would necessitate the construction of replacement housing elsewhere. There would be *no new or substantially more severe impact* compared to what was previously analyzed in the 2020 LRDP SEIR or 2009 LRDP EIS/EIR.

XV. PUBLIC SERVICES AND RECREATION

		New or Substantially More Severe Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No New or Substantially More Severe Impact
Would the project:					
a)	Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for:				
	i. Fire Protection?	☐	☐	☐	☒
	ii. Police protection?	☐	☐	☐	☒
	iii. Schools?	☐	☐	☐	☒
	iv. Parks?	☐	☐	☐	☒
	v. Other public facilities such as libraries?	☐	☐	☐	☒
b)	Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
c)	Include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?	☐	☐	☐	☒

Environmental Setting

Law enforcement services to the UC Merced campus are provided by the UC Merced Police Department stationed at a police station located on the campus. The UC Merced Police Department is responsible for providing 24-hour service for on-campus calls. The UC Merced Police Department has a mutual aid agreement with the Merced County Sheriff's Department and the City of Merced Police Department.

The UC Merced campus is served by the City of Merced Fire Department (MFD). MFD responds to incidents at UC Merced using their established response model, which is to send the closes engine to an incident location. MFD's closest fire station is Fire Station 55, located at 3520 North Parsons Ave. MFD is a full-service municipal fire department with 87 active fire fighters, five support staff, and an array of urban fire response equipment and vehicles, including ladder trucks. MFD's minimum staffing per day is 24 personnel with one battalion chief. MFD service response is expected to meet or exceed a response time of six minutes from the time of call receipt (UC Merced 2024).The project site is located within the boundaries of the Merced City School District (MCSD), the Weaver Union School District (WUSD), and

the Merced Union High School District (MUHSD). The MCSD and WUSD provide education for kindergarten through eighth grade. The MUHSD serves students in grades 9 through 12.

UC Merced provides extensive library resources through its Leo & Dottie Kolligian Library, located on the campus at 5200 N. Lake Road. The resources are primarily for the research and educational needs of students, faculty and staff; however, there is some public access.

County-owned recreational facilities are managed by the Merced County Parks and Recreation Office. Lake Yosemite Regional Park is an important regional recreation facility serving thousands of area residents annually. The Merced Irrigation District owns the 486-acre lake and surrounding shoreline, which has been a regional recreational site since the late 1930s. The County operates the lake and shoreline for recreational uses under a 50-year lease. The City of Merced Parks and Community Services Department maintains City parks and recreational facilities. Both active and passive recreational areas, which include a variety of park types, are available to residents, as well as an extensive off-street bicycle path system. The City maintains approximately 84 acres of community parks, 64 acres of neighborhood parks, 4 acres of mini-parks, 120 acres of linear parks, and 57 acres of other parks and recreational sites. Nearby community and neighborhood parks include Elmer Murchie Park, Fahrens Park, Bob Carpenter Neighborhood Park, Merino Park, Rahilly Park, and Burbank Park.

Impacts and Mitigation Measures from the UC Merced 2020 LRDP SEIR and 2009 LRDP EIS/EIR

The 2020 LRDP SEIR concluded that development under the UC Merced 2020 LRDP would result in less than significant impacts on police services and facilities, fire protection facilities and services, schools, and City library system. The 2020 LRDP EIR concluded that, to the extent a small project would add employees to the campus, those new employees would be accounted for in the campus population increase projected in the UC Merced 2020 LRDP. The 2020 LRDP EIR concluded that development under the UC Merced 2020 LRDP would result in an increased demand for parks and recreational facilities but would not require the construction of new facilities offsite; therefore, the impact would be less than significant. The 2020 LRDP SEIR also concluded that the 2020 LRDP would increase the use of Lake Yosemite Regional Park, which could accelerate physical deterioration of park facilities; however, implementation of 2020 LRDP MM PUB-6a through PUB-6c would reduce the impact to less than significant with mitigation.

Discussion of Impacts

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

    i. Fire protection?

No new or substantially more severe impact. The 2020 LRDP SEIR projected that as campus enrollment increases to 15,000 students between 2020 and 2030, there would be an accompanying increase in building space on the campus, which the 2020 LRDP projects will be on the order of about 1.83 million gsf of additional space, and more mid-rise buildings would be added to the campus. The growth in both enrollment and building space would occur incrementally over the planning horizon of the 2020 LRDP, so the SEIR determined that there would not be an immediate need for increased fire service or

additional resources from the fire department. The SEIR went on to analyze that as building space and campus population increase over time, there would be an incremental increase in fire and EMT-related emergencies and need for campus fire service to be expanded. The SEIR concluded that any additional demand for equipment and staffing to serve the campus growth to comply with the performance standards would not, in itself, represent an environmental impact of the project. However, if the demand for staff and equipment results in the need for new or modified fire station facilities to house the additional staff and/or equipment, the environmental impacts from fire station construction would need to be evaluated and disclosed.

For planning purposes, the MFD has a deployment goal for areas of the community to be within a 1.5-mile radius for engine companies and a 2.5-mile radius for ladder companies. The two closest stations to the campus with engine companies are Station 55, located at 3520 North Parsons Avenue, and Station 53, located at 800 Loughborough Drive. These two stations are located approximately 3.2 miles and 5.4 miles, respectively, from the campus. The closest station with a ladder truck is Station 51, located at 99 East 16th Street, approximately 6.6 miles from the campus. As a result, the campus would be outside the MFD's coverage goal given these distances, however MFD service response is expected to meet or exceed a response time of six minutes from the time of call receipt.

There are plans to construct two new fire stations in the vicinity of the UC Merced campus to serve future growth on campus and in nearby areas. One station would be located on the nearby Virginia Smith Trust property, approximately 0.7 mile southeast of the campus, while the other station would be located within the Bellevue Ranch subdivision on the northwest corner of Bellevue Road and Barclay Way, approximately 1.2 miles west of the campus. With construction of the two new stations, the MFD would be able to meet its deployment goal with respect to the proposed project. Construction of the new fire stations would be subject to CEQA requirements for environmental assessment, which would allow for the identification and consideration of potential impacts and mitigation. As a result, potential impacts associated with the construction of new fire facilities would be analyzed as part of separate environmental review efforts and minimized to the maximum extent feasible in accordance with CEQA. Based on the analysis in the City's General Plan EIR, the City concluded that the provision of fire facilities would be less than significant (City of Merced 2012).

Additionally, the proposed project would add an approximately 61,640-sf (or 1.42-acre) three-story building to the campus that would accommodate approximately 1,236 campus faculty, staff, and students. The proposed project would increase the amount of building space on the campus compared to existing conditions, but the increase would be a small portion of the projected increase in building space under the 2020 LRDP (61,640 square feet of 1,830,000 square feet under the 2020 LRDP, or 3.37 percent of the additional building space projected to be developed under the 2020 LRDP). The additional building space associated with the proposed project would represent a negligible portion of the anticipated growth covered under the 2020 LRDP and would not result in a substantial increase in the need for fire services. There would be a less than significant impact, and there would be *no new or substantially more severe impact* compared to what was previously analyzed in the 2020 LRDP SEIR.

ii. Police protection?

No new or substantially more severe impact. The 2020 LRDP SEIR provided a revised analysis of the LRDP's impact on law enforcement from the 2009 LRDP EIS/EIR, and determined that to maintain the right staffing level, about 30 sworn officers would be required at full campus development. Additionally, the 2020 LRDP land use plan includes adequate land for the expansion of the campus police station as

needed, and the environmental consequences of developing campus facilities, including additional police facilities, on land designated CMU in the 2020 LRDP are evaluated in other sections of the SEIR and would be mitigated to the greatest extent feasible. Ultimately, the SEIR concluded that implementation of the LRDP would have a less than significant impact on police protection.

The proposed project would increase the amount of building space on the campus compared to existing conditions, but the increase was included within the anticipated growth covered under the 2020 LRDP, and the campus faculty, staff, and students associated with the proposed project would be well within the population growth projected under the 2020 LRDP. Therefore, the project is not anticipated to project a greater need for these services beyond what was reported in the 2020 LRDP SEIR. Thus, construction and implementation of the proposed project would result in a less than significant impact, and there would be *no new or substantially more severe impact* compared to what was previously analyzed in the 2020 LRDP SEIR.

iii. Schools?

No new or substantially more severe impact. The 2020 LRDP SEIR provided a revised analysis of the potential for campus development to result in an increase in enrollment in the local public schools and determined that implementation of the LRDP would conservatively bring 530 student households and 739 new employees from outside the area, whose families may generate the need for additional K-12 schools. The SEIR also determined that students would be dispersed throughout the City of Merced, as well as in other Merced County communities and neighboring counties, and that school impact fees and property taxes would be considered full and complete mitigation for school impacts. The SEIR ultimately concluded that there would be a less than significant impact on schools as a result of the development of the LRDP.

Pursuant to SB 50, developers will be required to pay school impact fees as single-family homes or multi-family units are constructed. Students, faculty and staff associated with the proposed project that are homeowners would also pay property taxes, a portion of which would go towards the funding of local K-12 public schools. Therefore, there would be a less than significant impact, and *no new or substantially more severe impact* compared to what was previously analyzed in the 2020 LRDP SEIR.

iv. Parks?

No new or substantially more severe impact. The 2020 LRDP SEIR concluded that implementation of the 2020 LRDP would not trigger the construction of new parks or expansion of existing parks in areas outside of the campus, but that the due to the proximity of the Lake Yosemite Regional Park to the campus, it is anticipated that new students as well as faculty and staff would use the regional park. The SEIR included 2020 LRDP MM PUB-6a, 6b, and 6c requiring UC Merced to work with the County to avoid physical deterioration of existing Lake Yosemite Regional Park facilities, develop a program for joint use of on campus recreational facilities, and for UC Merced to pay its fair share of the cost of any necessary improvements to the Lake Yosemite Regional Park. With implementation of these mitigation measures, the SEIR determined that impacts from development of the 2020 LRDP would be less than significant.

As discussed in the TIA prepared by Fehr & Peers and included as Appendix E, the proposed project would support 1,236 campus faculty, staff, and students. However, the proposed project is part of the population growth projected under the 2020 LRDP. Therefore, construction and implementation of the

proposed project would have a less than significant impact, and there would be *no new or substantially more severe impact* compared to what was previously analyzed in the 2020 LRDP SEIR.

v. Other public facilities such as libraries?

No new or substantially more severe impact. The 2020 LRDP SEIR determined that the increased population associated with the 2020 LRDP would result in increased demand for public library services compared to existing conditions, but that the library system of the campus would continue to meet the needs of a modern research and teaching institution, and would continue to be available to students, staff, and faculty of the campus, as well as the general public on a limited basis. Therefore, the SEIR concluded that the impact on the City library system associated with implementation of the 2020 LRDP would be less than significant.

The proposed project is part of the population growth projected under the 2020 LRDP. The existing campus library system would continue to meet the needs of a modern research and teaching institution, and there would be a less than significant impact on the City library system due to construction and implementation of the proposed project. There would be *no new or substantially more severe impact* compared to what was analyzed in the 2020 LRDP SEIR.

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

No new or substantially more severe impact. The 2020 LRDP SEIR determined that the deterioration of existing park facilities could be accelerated by development of the LRDP and included 2020 LRDP MM PUB-6a through PUB-6c, as discussed under question a.iv). With implementation of these measures, the SEIR determined that impacts from development of the LRDP would be less than significant.

Due to the proximity of Lake Yosemite Regional Park to the campus, as well as the proposed project site, and the range of unique water-related recreational amenities offered at the regional park that would not be available on campus, it is assumed the students, staff, and faculty generated by the project would use the amenities at Lake Yosemite Regional Park. While the proposed project is part of the population growth projected under the 2020 LRDP, the proposed project would also be required to implement 2020 LRDP MM PUB-6a through 6c to reduce any potential impacts to the Lake Yosemite Regional Park. The proposed project would have a less than significant impact with mitigation incorporated, and there would be *no new or substantially more severe impact* compared to what was previously analyzed in the 2020 LRDP SEIR.

c) Include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?

No new or substantially more severe impact. The 2020 LRDP SEIR determined that approximately 29 percent of the 1,026 net acres (excluding canal easements) on campus are planned as active and passive space and would also be available to the general population of the surrounding area. The SEIR also determined that these recreational facilities and open space would adequately serve the needs of the residential population, as well as the daytime population of the campus, and that the population increase would not result in demand for the construction of off-site recreational facilities. The SEIR concluded that implementation of the 2020 LRDP would not trigger the construction of new parks or

expansion of existing parks in areas outside of the campus, and there would be no environmental impacts from the construction of new parks or expansion of existing parks off site.

The proposed project would not include recreational facilities or require the construction or expansion of recreational facilities that may have an impact on the environment. Impacts would be less than significant, and there would be *no new or substantially more severe impact* compared to what was previously analyzed in the 2020 LRDP SEIR.

XVI. TRANSPORTATION

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

The discussion below is based on the Transportation Impact Assessment (TIA) prepared by Fehr &Peers and included as Appendix E (Fehr & Peers 2025).

Methodology

The 2025 transportation analysis prepared by Fehr & Peers leveraged the methodology used as part of the UC Merced 2020 LRDP EIR, which demonstrated the relative VMT efficiency of the campus compared to other uses in the County and is consistent with the OPR Technical Advisory. The latest 2022 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) Merced County Association of Governments Model (MCAG Model) was used as the basis of estimating regional and project total VMT and VMT per capita. The MCAG Model includes a base year of 2023 and multiple forecast years, including 2024, 2025, 2026, 2029, 2031, 2037, and 2046. The MCAG Model contains land use, roadway network, and travel characteristics information for Merced County, and divides the county into several traffic analysis zones (TAZs). The 2023 Base Year model was used as the Baseline model for this analysis. The forecast years are consistent with the expected build-out of the 2020 LRDP.

The model allows calculation of VMT based on the trip generation of each land use and trip lengths for each trip. The models were reviewed and adjusted to facilitate the VMT analysis for the proposed project. The campus populations for the Baseline Year (2023), buildout of the proposed project, and buildout of the LRDP are shown in Table 1 of Appendix E. The proposed project is assumed to serve a total of 1,110 students and 126 faculty and staff. According to the TIA, the full development of the LRDP would result in 15,000 students, including 7,200 residents, and 2,411 faculty and staff.

To evaluate the transportation impacts of the campus, all new faculty, staff, and students added to the campus as a result of the project or LRDP were considered workers, and their transportation effect was

assessed relative to Metric 1 and Metric 2 of the MCAG Model. This is because the campus functions as a workplace not only for faculty and staff, but for students who attend class, study, and conduct research on-site.

Impacts and Mitigation Measures from the UC Merced 2020 LRDP SEIR and 2009 LRDP EIS/EIR

Transportation impacts were analyzed in both the 2009 LRDP EIS/EIR and 2020 LRDP SEIR and Medical Education Building Supplemental EIR. A TIA was prepared to support the 2020 LRDP SEIR, and updated the traffic analysis previously conducted as part of the 2009 LRDP EIS/EIR to more accurately reflect predicted campus growth by 2030. The 2020 LRDP SEIR analyzed traffic generated by campus growth based on an analysis of level of service (LOS) impacts at a number of study intersections to determine potential impacts to roadway systems, and determined that based on LOS significance thresholds, nine intersections would be significantly affected by the traffic added by the 2020 LRDP resulting in a significant and unavoidable impact. The 2020 LRDP MM TRANS-1, requiring the generation of a Campus Traffic Mitigation Program, was included, but the 2020 LRDP SEIR concluded that impacts would remain significant and unavoidable. The 2020 LRDP SEIR went on to analyze impacts on freeway segments, determining that due to the roadway capacities being greater than the projected traffic volume, impacts due to the development of the LRDP would be less than significant. Additionally, the 2020 LRDP SEIR analyzed potential impacts to transit, bicycle, pedestrian, and emergency vehicle access. The 2020 LRDP SEIR ultimately concluded that since the 2020 LRDP does not propose any infrastructure changes outside the campus and thus would not disrupt existing off-campus facilities, there would be a less than significant impact.

Discussion of Impacts

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

No new or substantially more severe impact. The 2020 LRDP SEIR determined that the 2020 LRDP does not propose any changes to transit service or infrastructure provided by non-UC Merced operators, nor does it propose any infrastructure changes outside the campus. Thus, the 2020 LRDP SEIR concluded that implementation of the 2020 LRDP would not interfere with existing or planned transit, pedestrian, and bicycle facilities, nor conflict with adopted plans, and there would be a less than significant impact.

Pedestrian Facilities

There are existing sidewalks near the block where the project site is located, along both New Ranchers Road and Ansel Adams Road, leading to the project site. However, the sidewalk terminates at the project site, indicating that there are no existing sidewalk facilities directly adjacent to the project frontage. The project conceptual site plans provided in Appendix B show that the project would maintain the existing pedestrian facilities. It also shows that the project would construct sidewalks along the project frontage. The proposed sidewalks would improve the pedestrian network by connecting the sidewalks on New Ranchers Road and Ansel Adams Road. The sidewalks, curb, gutter, and lighting would be consistent with General Plan policies and UC Merced design standards, where needed to accommodate new building construction or renovations.

Additionally, pedestrian connection to the existing sidewalk facilities would be supported by the project. As illustrated in the conceptual site plans, pedestrian connections would provided between the project

and surrounding campus facilities including other COBs and the UC Merced Library. It also connects the project to existing pedestrian facilities at Carol Tomlinson-Keasey Quad, Scholars Lane, New Ranchers Road, and Ansel Adams Road. The two primary connections include the path between the UC Merced Library and the proposed project as well as the path between the UC Merced Library and another COB.

In summary, the project would provide new pedestrian facilities that connect to the existing pedestrian network, linking to campus buildings, bicycle and vehicle parking, and transit stops. It would not include the construction of any off-campus pedestrian facilities, disrupt or interfere with any existing or planned pedestrian improvements, or result in a physical change that would be inconsistent with any pedestrian-related policies in the 2020 LRDP. Therefore, the project would result in a less than significant pedestrian impact, and *no new or substantially more severe impact* would occur compared to what was previously analyzed in the 2020 LRDP SEIR.

Bicycle Facilities

The nearest existing bicycle facility is located near the UC Merced Library, which is approximately 750 feet southwest of the project site. A Class IV Bikeway is present along Scholars Lane between UC Merced Library and Emigrant Pass Road. It terminates at Emigrant Pass Road as well as at the driveway leading to the parking lot for the library. As such, there are no existing bicycle facilities present along the project frontage. Meanwhile, as illustrated in the conceptual site plans, the project proposes a connection between the project site and Scholars Lane through the plaza area that would support bicycle usage and connect the project to existing bicycle facilities at Scholars Lane.

Figure 3.4 Bicycle Circulation Map in the 2020 LRDP envisions a variety of Class I, II and IV bikeways throughout campus. The four types of bikeways, including Class III bike routes, are defined as follows:

- Class I - Typically called a “bike path,” a Class I bikeway provides bicycle travel on a paved right-of-way completely separated from any street or highway.

- Class II - Often referred to as a “bike lane,” a Class II bikeway provides a striped and stenciled lane for one-way travel on a street or highway.

- Class III - Generally referred to as a “bike route,” a Class III bikeway provides for shared use with pedestrian or motor vehicle traffic and is identified only by signing.

- Class IV - Cycle tracks or separated bikeways provide a right-of-way designated exclusively for bicycle travel adjacent to a roadway and which are protected from vehicular traffic.

Specifically, the Bicycle Circulation Map indicates the following bicycle facilities adjacent to the project site:

- Class IV Bikeway along Ranchers Road between Ansel Adam Road and Emigrant Pass Road

- Class I Bike Path along Ansel Adams Road between Ranchers Road and Mineral King Road, transitioning into a Class II Bike Lane along Loop Road, before connecting to a Class I Bike Path along Bellevue Road

While the envisioned bicycle facilities would support the 2020 LRDP’s goal of expanding and enhancing the campus multi-model circulation network, the LRDP also states that the maps are intended to serve

as a tool to inform future decisions. Immediate construction of bicycle facilities along the project frontage would create gaps in the bicycle network, as the bicycle facilities at the adjacent parcels' frontage both west and south of the project are currently undeveloped. For this reason, the project would dedicate the necessary right-of-way for future construction of the bicycle facilities along the project frontage once specific details become available and provide long-term on-site bicycle storage and parking.

The project would not disrupt or interfere with the existing or planned bicycle facilities, would not construct bicycle facilities off-campus, and would not result in any physical change that would be inconsistent with bicycle-related policies identified in the General Plans and the 2020 LRDP. Therefore, the proposed project would result in a less than significant bicycle impact, and *no new or substantially more severe impact* would occur compared to what was previously analyzed in the 2020 LRDP SEIR.

Transit Facilities

CatTracks provides bus service between UC Merced and local destinations in the City of Merced. The campus is currently served by Route C1, C2, E1, FastCat, FastCat 2, G Route, Yosemite Express and BobCat Express. Additionally, Merced's Regional Transit System "The Bus" provides bus service between UC Merced and the City through Route UC Merced. All routes include a single stop on the UC Merced campus at the University Transit Center. It is approximately 0.5 mile southwest of the project site and is accessible via existing bicycle and pedestrian infrastructure.

The project would not disrupt or interfere with existing or planned transit services and would not result in a physical change that would be inconsistent with any transit-related policies identified in the General Plans and the 2020 LRDP. Therefore, the project would result in a less than significant transit impact, and *no new or substantially more severe impact* would occur compared to what was previously analyzed in the 2020 LRDP SEIR.

b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?

No new or substantially more severe impact. The 2020 LRDP SEIR analyzed traffic generated by campus growth based on an analysis of LOS impacts at a number of study intersections to determine potential impacts to roadway systems and determined impacts due to the development of the LRDP would be significant and unavoidable. As of July 1, 2020, CEQA documents must evaluate transportation impacts based on VMT, consistent with Senate Bill 743. Following the certification of the 2020 LRDP SEIR in 2020, UC Merced prepared and circulated an updated supplemental program-level transportation impact analysis of campus growth through 2030 under the 2020 LRDP based on current (at the time) VMT metrics consistent with State CEQA Guidelines Section 15064.3, subdivision (b). The program-level VMT analysis was published in the UC Merced Medical Education Building Project Draft EIR in August 2022, and the Final EIR, including the supplemental VMT transportation analysis, was certified by the University on November 17, 2022. The updated LRDP transportation impact analysis in the UC Merced Medical Education Building Project EIR replaces in full the prior LOS-based LRDP transportation impact analysis that was included in the 2020 LRDP SEIR.

According to the project's TIA, the VMT for campus faculty, staff, and students at full buildout of the project and by 2030 was projected to be at 9.7 miles and 8.3 miles, which are both at least 15% below the Countywide average of 16.0 miles (Fehr & Peers 2025). Thus, construction and implementation of the proposed project would not conflict or be inconsistent with CEQA Guidelines section 15064.3,

subdivision (b) and there would be a less than significant impact. Thus, development of the proposed project would have *no new or substantially more severe impact* compared to what was previously analyzed in the supplemental VMT analysis to the 2020 LRDP SEIR.

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

No new or substantially more severe impact. The 2020 LRDP SEIR analyzed that transportation facilities anticipated under the 2020 LRDP would be constructed according to State design standards for roadway and intersection design and operations. Thus, the 2020 LRDP SEIR determined that development of the LRDP would not substantially increase hazards due to a design feature or incompatible use, nor would it result in inadequate emergency access, and that there would be a less than significant impact.

The proposed project is an academic development proposed in a CMU area as identified in the 2020 LRDP, so the volume, speed, and mix of vehicles generated by the project would be similar to the existing volume, speed, and mix of vehicles in the study area. As shown in Figures 1 and 2, the project is located at the corner of Ansel Adams Road and New Ranchers Road. The proposed project does not include any driveways to and from the building, except for a service drive off Ansel Adams Road, as shown in the conceptual site plans in Appendix B. A service drive is a designated driveway that provides access for operational and logistical purposes, rather than general public use. As such, modification to the existing public roadway system is expected to be minor. Ansel Adams Road has a posted speed limit of 5 miles per hour. The width of the driveway is approximately 20 feet. The throat length of the driveway, when measured from the roadway to the first conflict point, is approximately 90 feet. The length when measured from the back of sidewalk is approximately 70 feet. The throat length and width would be adequate for service vehicles entering and exiting.

Stopping sight distance is a critical factor that ensures drivers have enough time and space to stop to avoid hazards. According to Table 201.1 of the Caltrans *Highway Design Manual*, the stopping sight distance at 10 miles per hour is 50 feet, indicating that the sight distance at 5 miles per hour would be lower than 50 feet. The sight distance entering the project site at the service driveway appears to be more than 50 feet, indicating that the sight distance should be adequate. It is strongly recommended that the final site plans be reviewed for potential sight distance impediments including new signs, above ground utility boxes, or landscaping proposed in the sight triangle.

Overall, the proposed project does not introduce incompatible uses to the roadway system, nor would it introduce geometric features that would result in hazardous conditions. Thus, implementation of the project would result in a less than significant vehicle system hazard impact, and *no new or substantially more severe impact* would occur compared to what was previously analyzed in the 2020 LRDP SEIR.

d) Result in inadequate emergency access?

No new or substantially more severe impact. The 2020 LRDP SEIR analyzed the campus road network system anticipated under the LRDP and determined that transportation facilities would be constructed according to State design standards for roadway and intersection design and operations. Thus, the 2020 LRDP SEIR concluded that the campus road network system would be adequately sized and designed to facilitate emergency access vehicles, and that development of the 2020 LRDP would have a less than significant impact.

While the project does not include any internal vehicular circulation system, it proposes a service driveway which would support operational and logistics purposes as well as support fire access. The width of the driveway is approximately 20 feet wide, which is sufficient for emergency vehicle access. The driveway would be constructed according to State of California design standards for roadway and intersection design and operations. Therefore, implementation of the project would be consistent with an applicable design standard and the proposed project would result in a less than significant emergency access impact, and *no new or substantially more severe impact* would occur compared to what was previously analyzed in the 2020 LRDP SEIR.

XVII. TRIBAL CULTURAL RESOURCES

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

Environmental Setting

According to Public Resources Code (PRC) Section 21074, a resource is a tribal cultural resource if it is either:

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; or

    b. Included in a local register of historical resources as defined in PRC Section 5020.1(k).

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 PRC Section 5024.1(c). In applying the criteria set forth in PRC Section 5024.1(c), the lead agency shall consider the significance of the resource to a California Native American tribe.

3) A cultural landscape that meets the criteria of PRC Section 21074(a) to the extent that the landscape is geographically defined in terms of the size and scope of the landscape.

4) A historical resource described in PRC Section 21084.1, a unique archaeological resource as defined in PRC Section 21083.2(g), or a "non-unique archaeological resource" as defined in PRC Section 21083.2(h), if it conforms with the criteria of PRC Section 21074(a).

In accordance with PRC Section 21084.2, lead agencies are required to consider Tribal Cultural Resources (TCR) including a site feature, place, cultural landscape, sacred place or object, of cultural value to the tribe and is listed on the California Register of Historic Resources (CRHR) or a local register, or the lead agency, at its discretion, chooses to treat resources as such.

Assembly Bill (AB) 52 Consultations

Although AB 52 requires the Native American tribes to request notification of projects that involve an EIR or a Mitigated Negative Declaration (MND), the University proactively reached out to the Native American Heritage Commission (NAHC) and requested a list of Native American tribes with traditional lands or cultural places located within the region of each campus. Using the list of tribes identified by the NAHC for the campus, UC Merced sent out eight letters to representatives of the identified tribes on September 17, 2018, informing them of the commencement of CEQA review of the proposed 2020 LRDP and asking them if they wished to consult regarding this proposed project pursuant to AB 52. Pursuant to AB 52, the tribes have 30 days from the receipt of the letter to request consultation with UC Merced. No requests for formal consultation were received by UC Merced from the tribes as of the publication of the 2020 LRDP SEIR.

California Register of Historical Resources

The State Historical Resources Commission has designed this program for use by state and local agencies, private groups and citizens to identify, evaluate, register and protect California's historical resources. The Register is the authoritative guide to the state's significant historical and archeological resources.

The California Register program encourages public recognition and protection of resources of architectural, historical, archeological and cultural significance, identifies historical resources for state and local planning purposes, determines eligibility for state historic preservation grant funding and affords certain protections under the California Environmental Quality Act. The criteria for designation include:

- 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 1)

- Associated with the lives of persons important to local, California or national history (Criterion 2)

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

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

Impacts and Mitigation Measures from the UC Merced 2020 LRDP SEIR and 2009 LRDP EIS/EIR

Tribal cultural resources were not discussed in the 2009 LRDP EIS/EIR, but were analyzed in Section 4.9, Tribal Cultural Resources, of the 2020 LRDP SEIR. The SEIR determined that based on surveys conducted prior to and in conjunction with the preparation of the 2009 LRDP EIS/EIR, no known prehistoric sites are located within the campus site and two are located on the Community North site located south of the UC Merced campus. Furthermore, no cultural resources were encountered during grading and excavation conducted on the campus site since 2002 when the construction of the campus was commenced. Therefore, the SEIR concluded that the UC Merced campus is not expected to contain any tribal cultural resources. The SEIR went on to determine that should specific development projects occur under the 2020 LRDP SEIR, 2009 LRDP MM CUL-2, requiring stoppage of work in the case of inadvertent discoveries, and 2009 LRDP MM CUL-3, requiring compliance with state laws relating to the disposition of Native American burials if human remains of Native American origin are discovered during ground-disturbing activities, would reduce potential impacts to tribal cultural resources to a less than significant level.

Discussion of Impacts

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

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

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

No new or substantially more severe impact. AB 52 was conducted on September 17, 2018, by sending letters to eight tribal contacts, and the 2020 LRDP SEIR concluded that the UC Merced campus is not expected to contain any tribal cultural resources. The 2020 LRDP SEIR went on to determine that should specific development projects occur under the 2020 LRDP SEIR, 2009 LRDP MM CUL-2, requiring stoppage of work in the case of inadvertent discoveries, and 2009 LRDP MM CUL-3, requiring compliance with state laws relating to the disposition of Native American burials if human remains of Native American origin are discovered during ground-disturbing activities, would reduce potential impacts from the LRDP to tribal cultural resources to a less than significant level. Additionally, no requests for formal AB 52 consultation were received by UC Merced from the tribes.

While the 2020 LRDP SEIR did not identify any previously known tribal cultural resource on the UC Merced campus site, construction activities for the proposed project would consist of ground disturbing activities that could potentially uncover previously unknown tribal cultural resources. The 2020 LRDP SEIR included 2009 LRDP MM CUL-2 and CUL-3, described above and in Section 7.V, Cultural Resources, which would be implemented as part of the proposed project to bring potential impacts to a less than significant level. The proposed project would, with this mitigation incorporated, have a less than

significant impact to tribal cultural resources, and there would be *no new or substantially more severe impact* compared to what was previously analyzed in the 2020 LRDP SEIR.

XVIII. UTILITIES AND SERVICE SYSTEMS

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

Environmental Setting

The environmental setting information in this section is derived from the 2009 LRDP EIS/EIR, 2020 LRDP SEIR, the City of Merced's Wastewater Collection System Master Plan (City 2017), and the City's Wastewater Collection System Master Plan Draft Environmental Impact Report (City 2020).

Wastewater Capacity and Conveyance

The proposed project is located on the UC Merced campus, which is located within the City of Merced. Prior to annexation, the UC Merced campus received wastewater services from the City under an extraterritorial Urban Services agreement. The campus will continue to receive wastewater services from the City of Merced now that it is within City boundaries. The City owns and operates a municipal wastewater collection and treatment system and provides service to all areas within City limits and to some unincorporated areas outside the City limits, including the campus, which includes the project site. The City's system consists of wastewater conveyance pipelines and a wastewater treatment plant (WWTP) located approximately 3 miles south of the City and approximately 10 miles southwest of the

project site, which currently has the capacity to treat up to 12 million gallons per day (mgd) with an approval to expand the capacity to 20 mgd.

For wastewater conveyance, the campus is connected to the City's wastewater collection and treatment system. The 27-inch Bellevue Road trunk main was constructed to convey wastewater flows from the UC Merced campus based on projected wastewater flows from a 25,000-student campus as well as provide additional capacity for planned development along the Bellevue Road corridor between G Street and Lake Road. The 2009 LRDP EIS/EIR projected a buildout population of 25,000 students, requiring an estimated 1.13 mgd of conveyance capacity. The Bellevue Road trunk main has the capacity to convey approximately 6.5 million gpd under peak conditions. The Bellevue Road trunk main connects the campus to the City's sewer system via a connection to the G Street trunk main. The *Wastewater Master Plan* indicates that the existing G Street trunk main is 21 to 30 inches in diameter and has capacity to convey approximately 4.14 mgd of wastewater under peak wet weather conditions. The *Wastewater Master Plan* determined that the available capacity of the G Street trunk is not sufficient to convey flow from the entitled properties expected to utilize this facility and recommended that a portion of the G Street trunk main be upgraded to a 24-inch pipe.

Water Supply

The City of Merced's water supply is drawn from 20 active production wells with a combined capacity of 54,100 gallons per minute (gpm) and provides potable water to the campus via its distribution system. The water is primarily supplied by a 16-inch water line that was constructed within the roadway alignment of Bellevue Road. The City also produces potable water used to serve the campus from Well 17, which is located on the UC Merced campus and is capable of producing 2,500 gpm. UC Merced also owns a pump station and a large aboveground 250,000-gallon water storage tank near Well 17 that provides operational and emergency water storage for the campus.

Solid Waste

Merced County Regional Waste Management Authority (MCRWMA) oversees solid waste transportation and disposal operations of Class III municipal solid waste in Merced County. There are two landfills in the county, and waste from the campus is sent to the Merced County Highway 59 Landfill, located approximately 4.9 miles northwest of the project site.

Impacts and Mitigation Measures from the UC Merced 2020 LRDP SEIR and 2009 LRDP EIS/EIR

Utilities and service systems were analyzed in Section 4.10, Utilities and Service Systems, of the 2020 LRDP SEIR. The SEIR determined that since the 2015 UWMP concluded that the City of Merced has an adequate groundwater supply to meet water demands in its service area through 2035, including the UC Merced water demand, during normal, single-dry, and multi-dry years, there would be sufficient water supplies to serve the LRDP's demand, and the impact of implementation of the LRDP on water supply would be less than significant.

The SEIR went on to analyze potential impacts related to construction of new water supply and conveyance facilities and determined that while the existing water main and well are expected to adequately serve campus needs through 2030, additional storage tanks may be constructed on the campus as needed to serve the growing campus' fire flow requirements under the 2020 LRDP. The SEIR ultimately concluded that the environmental impacts from the development of on-site water infrastructure that may be needed are evaluated in other sections of the SEIR, and that impacts found to

be significant would be mitigated by the mitigation measures included in those sections. In summary, the SEIR determined that the environmental impacts related to construction of water infrastructure as part of the LRDP would be less than significant.

For wastewater utilities, the SEIR determined that the existing sewer line on G Street would not be adequate to handle campus flows through 2030, and the installation of a new line or an upgrade to the existing line on G Street would be needed. These improvements would likely take place within roadway shoulders or under the pavement consistent with current City practice. Thus, the 2020 LRDP SEIR concluded that although expansion of conveyance capacity would eventually be needed along G Street, the impact related to wastewater conveyance and treatment facilities would be less than significant. Impacts to storm water drainage facilities were discussed in Section 4.4, Hydrology and Water Quality, of the 2020 LRDP SEIR.

For solid waste, the 2020 LRDP SEIR determined that the campus would dispose of about 515 tons of waste per year at the Highway 59 landfill by 2030. The SEIR analyzed that with its capacity of 459,000 tons per year, the Highway 59 Landfill would adequately serve the needs of the campus, and an expansion would not be required. The SEIR concluded that implementation of the LRDP would have a less than significant impact to solid waste utilities.

For electric transmission lines and natural gas pipelines, the SEIR determined that power that will be needed by the campus at buildout will be obtained from a number of renewable and alternative technologies, including wind turbines, fuel cells, and photovoltaic systems, and that no-site improvements such as additional transmission lines nor off-site improvements to provide natural gas to the campus would be required. Therefore, the SEIR concluded that there would be no significant environmental effects and that the impact related to electricity and natural gas would be less than significant without mitigation incorporated.

Discussion of Impacts

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

No new or substantially more severe impact. The 2020 LRDP SEIR determined that while the existing campus water main and well are expected to adequately serve campus needs through 2030, additional storage tanks may be constructed on the campus as needed to serve the growing campus' fire flow requirements under the 2020 LRDP. The 2020 LRDP SEIR ultimately concluded that the environmental impacts from the development of on-site water infrastructure that may be needed are evaluated in other sections of the 2020 LRDP SEIR, and that impacts found to be significant would be mitigated by the mitigation measures included in those sections. In summary, the 2020 LRDP SEIR determined that the environmental impacts related to construction of water and wastewater infrastructure as part of the 2020 LRDP would be less than significant. For electric transmission lines and natural gas pipelines, the 2020 LRDP SEIR determined that power that will be needed by the campus at buildout will be obtained from a number of renewable and alternative technologies, including wind turbines, fuel cells, and photovoltaic systems, and that no-site improvements such as additional transmission lines nor off-site improvements to provide natural gas to the campus would be required. Therefore, the 2020 LRDP SEIR concluded that there would be no significant environmental effects and that the impact related to electricity and natural gas would be less than significant without mitigation incorporated.

The proposed project would be served by existing water, wastewater, stormwater, and electrical infrastructure. Existing electrical transformers are located just outside the project site, in all directions, and would not be relocated or expanded as part of the proposed project. The proposed project would connect to existing UC Merced chilled and hot water system in underground vaults at the site, and thus, would not require construction or relocation of new or expanded natural gas facilities. Therefore, impacts would be less than significant, and *no new or substantially more severe impacts* would occur that have not already been addressed in the 2020 LRDP SEIR. No mitigation would be required.

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

No new or substantially more severe impact. As discussed in the 2020 LRDP SEIR, the City of Merced provides potable water to the campus drawn from 20 active production wells, including Well Number 17 which is located on the campus. Potable water to the campus is provided via the City's distribution system, a 16-inch water line that was constructed within the roadway alignment of Bellevue Road. The 2020 LRDP SEIR determined that by 2040, the water demand for the UC Merced campus would be 612 AFY and would have a less than significant impact on water supply.

The proposed project could increase demand for potable water, which would be drawn from the Merced Subbasin by the City and supplied to the campus. In its 2020 Urban Water Management Plan, the City of Merced concluded that it has an adequate groundwater supply to meet water demands in its service area through 2040 including during normal, single-dry, and multi-dry years. Additionally, the population served by the proposed project is within the projected campus population increase that was analyzed in the 2020 LRDP SEIR. Therefore, the proposed project would not increase the demand for potable water or require extraction of groundwater in excess of what was previously analyzed in the 2020 LRDP SEIR. The proposed project would earn a LEED Platinum certification, which requires the inclusion of water efficiency strategies such as efficient irrigation systems, installation of submeters to monitor water use, and use of alternative water sources for non-potable needs wherever possible. Since both the 2020 LRDP and the proposed project are included in the service area and the proposed project is within the scope of the projections for the 2020 LRDP SEIR, the impact would be less than significant, and there would be *no new or substantially more severe impact* on water supplies compared to what was evaluated in the 2020 LRDP SEIR.

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

No new or substantially more severe impact. The 2020 LRDP SEIR determined that the City's Wastewater Treatment Plant (WWTP) would have sufficient capacity to serve campus needs in addition to City demands, and that implementation of the 2020 LRDP EIR would have a less than significant impact to wastewater systems. If the projected wastewater flows from the campus development under the 2020 LRDP are added to the existing flows, the WWTP would be required to treat approximately 8.47 million gallons per day (mgd). The City's WWTP is currently has the capacity to treat up to 12 mgd and the City has approved the expansion of the capacity to 20 mgd, which is adequate to serve the project's projected demand in addition to the provider's existing commitments.

The proposed project was included in the 2020 LRDP projected wastewater flow and would not result in a determination by the City's WWTP of inadequate capacity. There would be *no new or substantially more severe impact* compared to what was analyzed in the 2020 LRDP SEIR.

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

No new or substantially more severe impact. The 2020 LRDP SEIR determined that the campus would dispose of about 515 tons of waste per year at the Highway 59 landfill by 2030. The SEIR analyzed that with its current maximum capacity of 459,000 tons per year, the Highway 59 Landfill would adequately serve the needs of the campus and there would be a less than significant impact.

Construction activities would include demolition of the AOA modular trailers, site preparation, underground utilities (trenching), grading, building construction, architectural coatings, and paving. The proposed project also includes removing and replacing the existing curb on the southeastern side of New Ranchers Road to allow road widening for the proposed fire access lane. Per aerial imagery of the project site and data provided by the project engineer, approximately 358 tons of building materials, asphalt pavement, and concrete pavement would be demolished and hauled to a location on the UC Merced campus. Per the Sustainable Practices Policy, demolished materials would be recycled, as appropriate. Based on aerial imagery, it was estimated that 250 CY of debris and vegetation from site preparation would be exported to a location on the UC Merced campus. Construction of the proposed project was included in the 2020 LRDP projections and thus would be adequately served by the Highway 59 Landfill. Additionally, the Landfill is projected to increase in maximum tonnage allowed from 1,500 tons per day to 3,000 tons per day by 2035, which would increase its maximum capacity to be approximately 1,095,000 tons per year. There would be *no new or substantially more severe impact* from the proposed project compared to what was analyzed in the 2020 LRDP SEIR.

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

No new or substantially more severe impact. The 2020 LRDP SEIR determined that the proposed 2020 LRDP would provide facilities to accommodate an increase of 5,300 students between 2020 and 2030. Based on existing disposal rates, the additional on-campus population in 2030 would generate about 424 tons of additional solid waste per year for a total of about 1,197 tons by 2030, of which about 43 percent would require disposal at Highway 59 Landfill. The UC Sustainable Practices Policy sets a goal of zero waste by 2020 for UC campuses (meeting zero waste goal means that 90 percent of the waste will be diverted from landfills). The Sustainable Practices Policy also encourages recycling of construction waste. The 2020 LRDP SEIR concluded that while it is unlikely that the campus would reach the zero waste goal by 2020, the campus would continue to make improvements to its recycling and reuse programs to minimize the amount of solid waste that would go to the County landfill as the campus works to fulfill these goals, and there would be a less than significant impact.

The proposed project would be constructed in compliance with the Sustainable Practices Policy and would earn a LEED Platinum certification. Achieving LEED Platinum certification involves meeting stringent sustainability criteria across multiple categories, including solid waste management. These requirements include tracking and documenting waste diversion efforts, minimizing the generation of construction and demolition waste through efficient design or prefabrication, development of a construction and operational solid waste management plan, provision of recycling bins and facilities

with proper signage, implementation of a composting program, and more with the goal of demonstrating a commitment to reducing the environmental impact of solid waste. Thus, construction and operation of the proposed project would have a less than significant impact, and there would be *no new or substantially more severe impact* compared to what was previously analyzed in the 2020 LRDP SEIR.

XIX. WILDFIRE

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

Environmental Setting

According to the California Department of Forest and Fire Protection (CAL FIRE), the campus, including the project site, is not located in a State Responsibility Area (SRA) or Local Responsibility Area (LRA) Very High Fire Hazard Severity Zone (FHSZ; CAL FIRE 2024). CAL FIRE has a legal responsibility to provide fire protection on all SRA lands, which are defined based on land ownership, population density, and land use. Local cities and jurisdictions are responsible for fire protection on all land designated as LRAs. An SRA Moderate Fire Hazard Severity Zone is designated adjacent to the northeast boundary of the campus within the Campus Natural Reserve of the Merced Vernal Pools and Grassland Reserve, northeast of the proposed project site (CAL FIRE 2024).

Impacts and Mitigation Measures from the UC Merced 2020 LRDP SEIR and 2009 LRDP EIS/EIR

CEQA included guidelines for addressing wildfire impacts in 2019. However, wildfire impacts were not discussed in either the 2020 LRDP SEIR or 2009 LRDP EIS/EIR .

Discussion of Impacts

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

No impact. UC Merced has adopted both an Emergency Operations Plan and a Crisis Communications Plan. The Campus Emergency Response Team is trained and equipped to respond to campus emergencies including fires. UC Merced provides sufficient resources to respond to campus

emergencies, in coordination with the County of Merced, if necessary. The campus would also prepare and implement a building-specific emergency response plan for the project that would provide evacuation procedures in the event of a fire or wildfire in the area. Further, the project would be landscaped with drought-tolerant, low water use, and low fire fuel volume plant materials (mostly grasses) to minimize fire hazard. Thus, there would *no impact* to the emergency response or evacuation plan.

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

Less than significant impact. The proposed project would be designed to comply with the most current California Fire Code requirements and would include such features as fire sprinkler systems. The proposed project is located on land that is relatively flat, and as the UC Merced campus is located on the floor of the Central Valley, smoke from nearby fires has the potential to accumulate in the valley dependent on the wind pattern and inversion layer associated with local weather events. However, as described above, implementation of the proposed project would not impair an existing adopted emergency response or evacuation plan or exacerbate wildfire risks, and thereby, would not expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire. Therefore, construction and implementation of the proposed project would have a *less than significant impact*.

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

Less than significant impact. The proposed project would include the development of a fire access road as well as two fire hydrants, one along the western edge of Ansel Adams Road and the other along the southern edge of the building. However, construction of this access road would be temporary and would not exacerbate fire risk as the road and any potential utility connections would be designed according to the most up to date California Building Codes, including the California Fire Code. Additionally, the proposed fire access road would result in increased emergency access, and the proposed project would be designed to incorporate additional fire protection features that could include a sprinkler system, smoke and heat detectors, fire alarm system with automatic voice evacuation capabilities, and fire-rated construction materials. Therefore, there would be a *less than significant impact*.

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

Less than significant impact. The project site, similar to the majority of the UC Merced campus, is located on relatively flat land. The foothills of the Sierra Nevada Mountain range are located approximately 10 miles east of the project site (the nearest sloped topography to UC Merced and the project site); as such, the project site has a low susceptibility to downslope or downstream flooding or landslides as a result of runoff or post-fire slope instability. Thus, construction and implementation of the proposed project would have a *less than significant impact* and would not expose people or structures to significant risks as a result of runoff, post-fire slope instability, or drainage changes.

6.0 APPLICABLE 2020 LRDP SEIR AND 2009 LRDP EIS/EIR MITIGATION MEASURES

Mitigation measures that were adopted upon certification of the 2020 LRDP SEIR and 2009 LRDP EIS/EIR and are applicable to the proposed Classroom and Office Building III project are provided in Appendix F, Applicable Mitigation Measures.

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8.0 PREPARERS

UC Merced

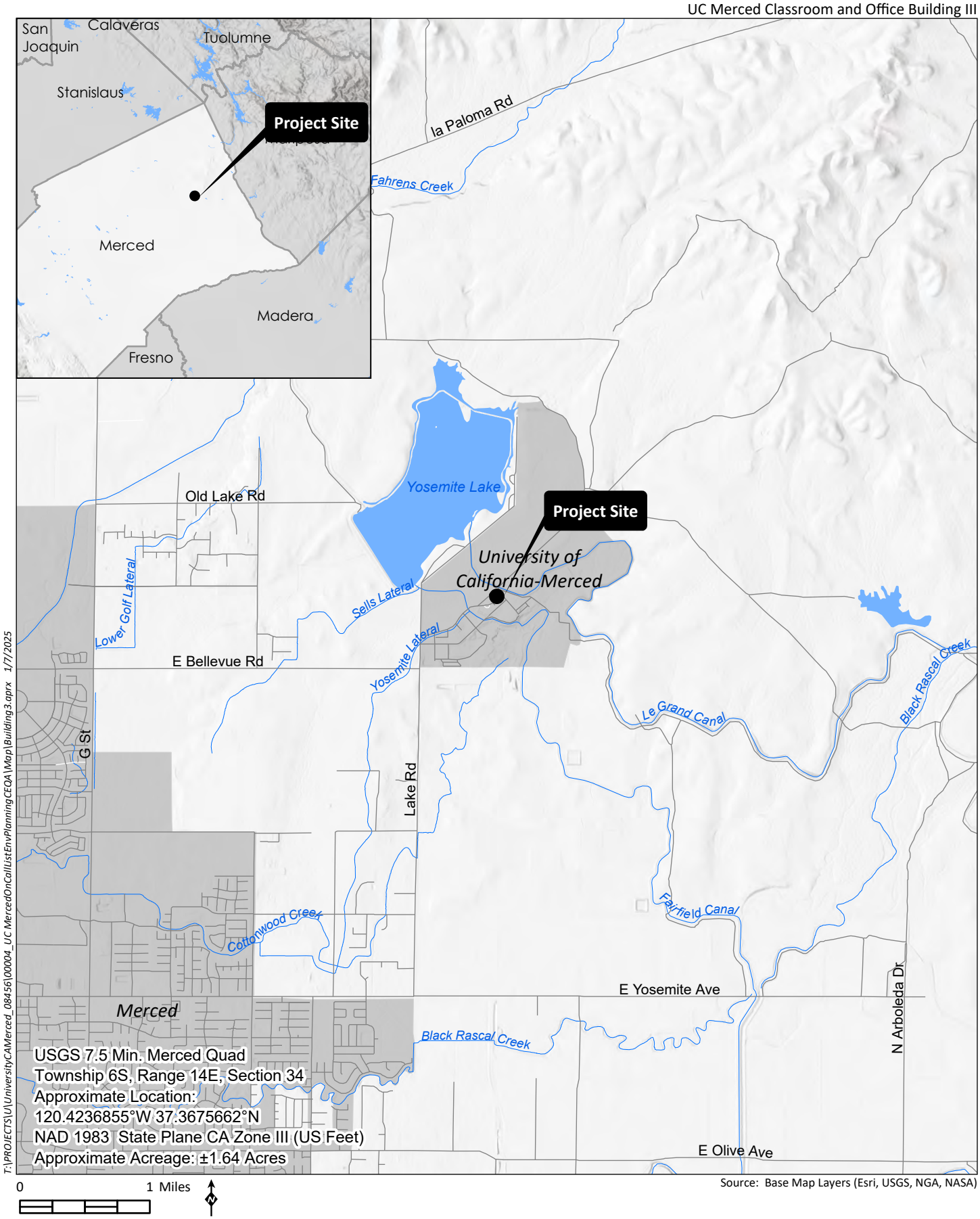
Phillip Woods, Director of Physical and Environmental Planning
Alvaro Arias, Principal Planner

HELIX Environmental Planning, Inc.

Joanne M. Dramko, AICP, Principal Planner
Lesley Owning, Project Manager
Julia Pano, Environmental Planner
Anviti Singh, Environmental Planner
Martin Rolph, Senior Air Quality/Noise Specialist
Victor Ortiz, Principal Air Quality/Climate Change Specialist
John DeMartino, GIS Specialist

Appendix A

Figures



Source: Base Map Layers (Esri, USGS, NGA, NASA)

HELIX Environmental Planning

Site and Vicinity Map

Figure 1

T:\PROJECTS\U\UniversityCAMerced_08456\00004_UC MercedOnCallListEnvPlanningCEQA\Map\Building3.aprx 2/17/2025

0 75 Feet

Source: Aerial (DigitalGlobe, 11/23/2023)

HELIX Environmental Planning

Aerial Map

Figure 2

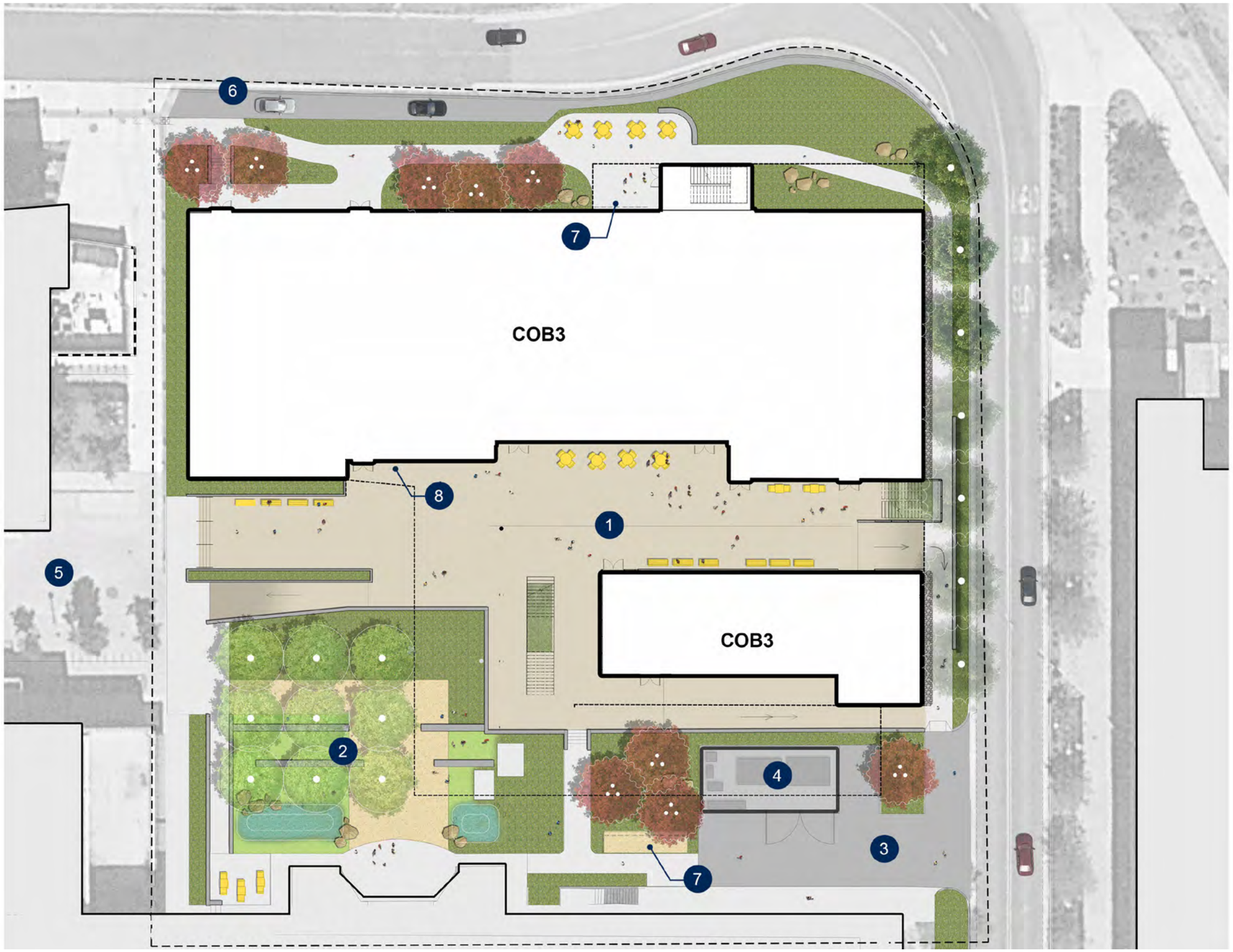
Appendix B

Conceptual Design Plans

Conceptual Site Plan

LEGEND

1. Exterior Walkway
2. Outdoor Amphitheater - Alternate
3. Service Vehicle Access
4. Utility Yard
5. Existing Social Justice Plaza
6. Loading Zone
7. Long Term Bike Storage
8. Outdoor Ticket Booth



Program Stacking Diagram

3

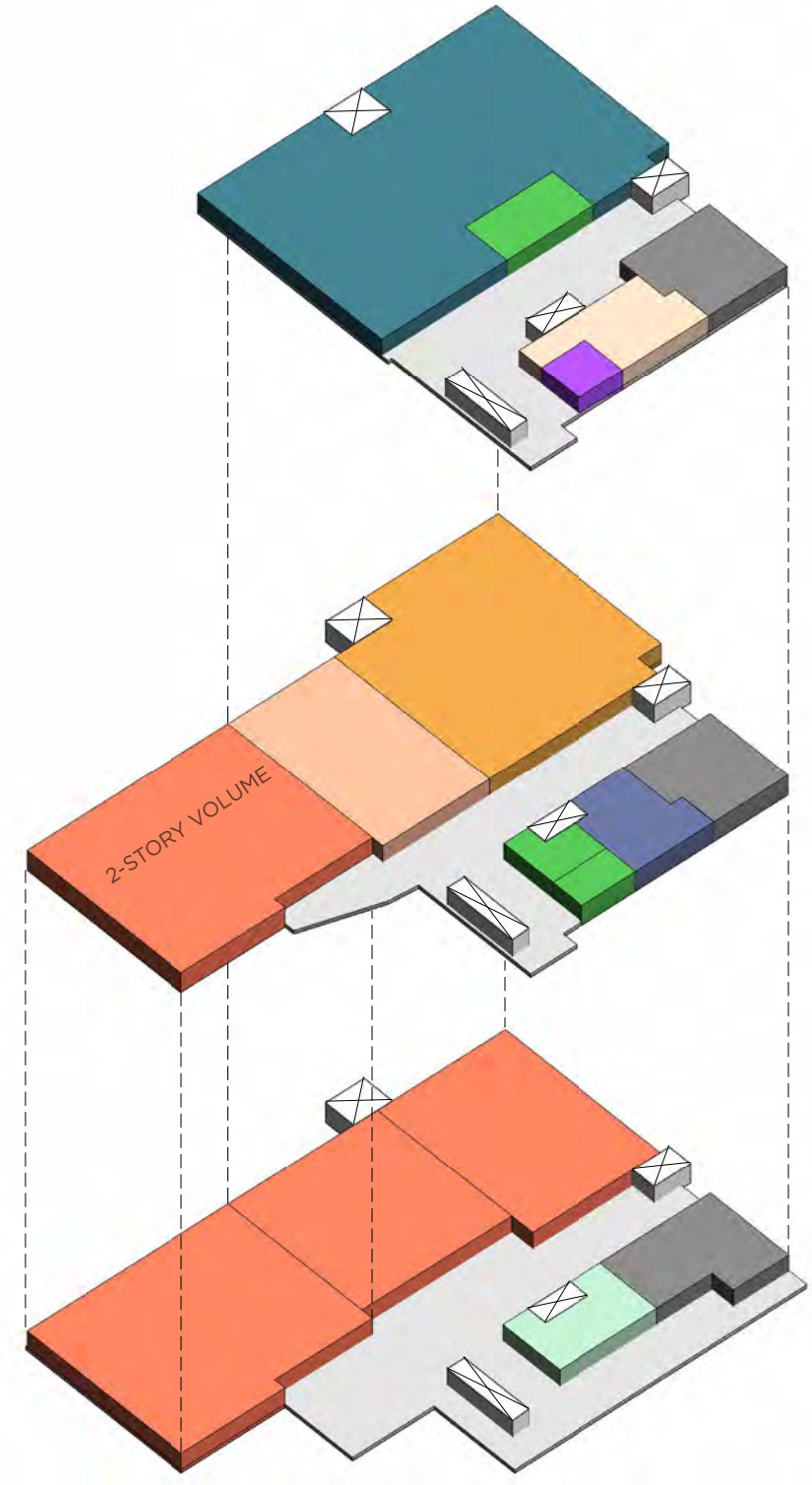
- Department of Political Science
- Honors Suite - Alternate
- Conference Rooms
- Breakroom
- Building Support / Restrooms

2

- Instructional Space
- Student Academic Support
- SSHA Student Services
- Research Center Suite - Alternate
- Conference Rooms
- Building Support / Restrooms

1

- Instructional Space
- CAPE
- Building Support / Restrooms

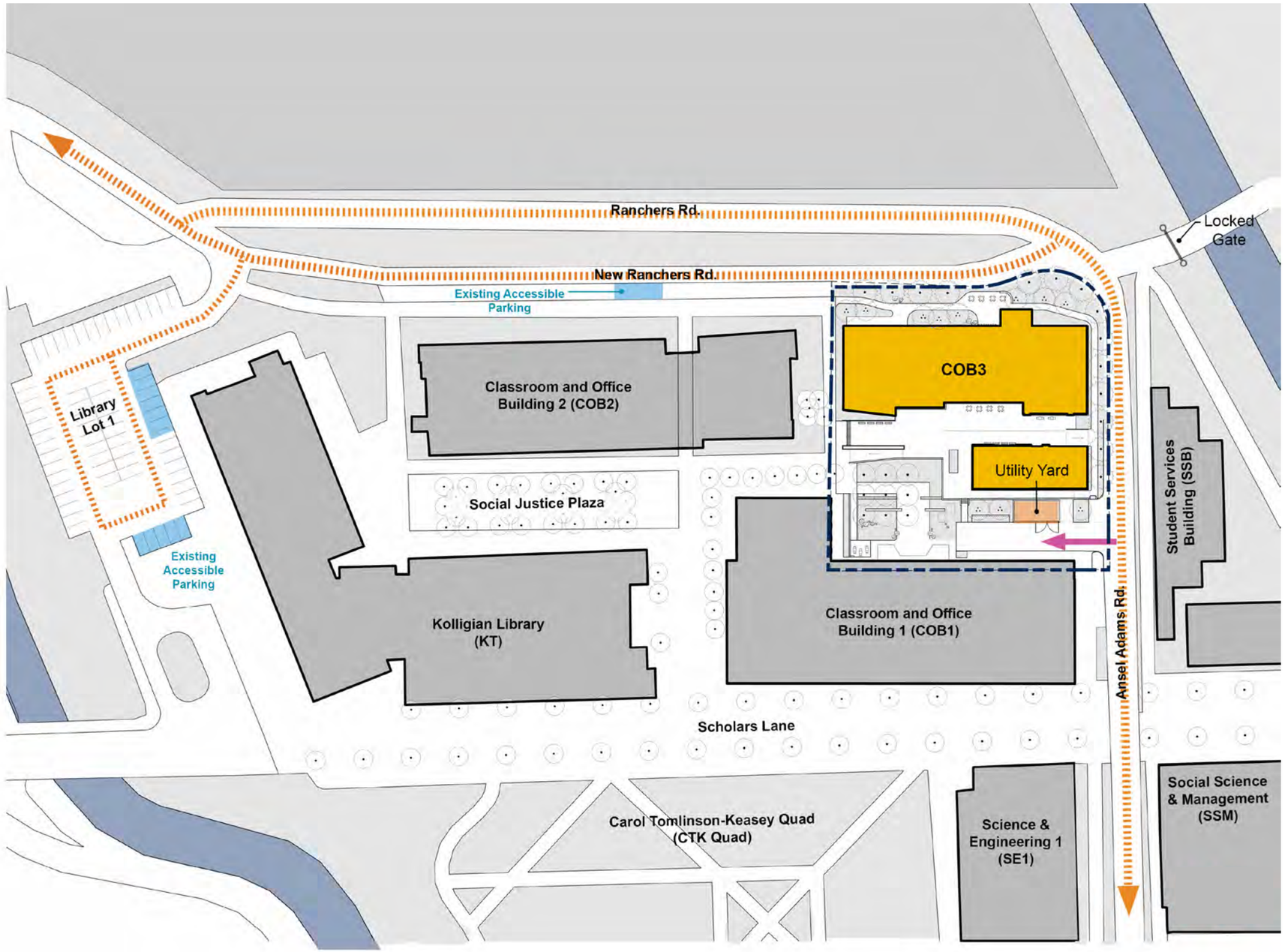


Conceptual Rendering

Vehicular Circulation Plan

LEGEND

- Vehicular Circulation
- New Service Access
- COB3 Limit of Work



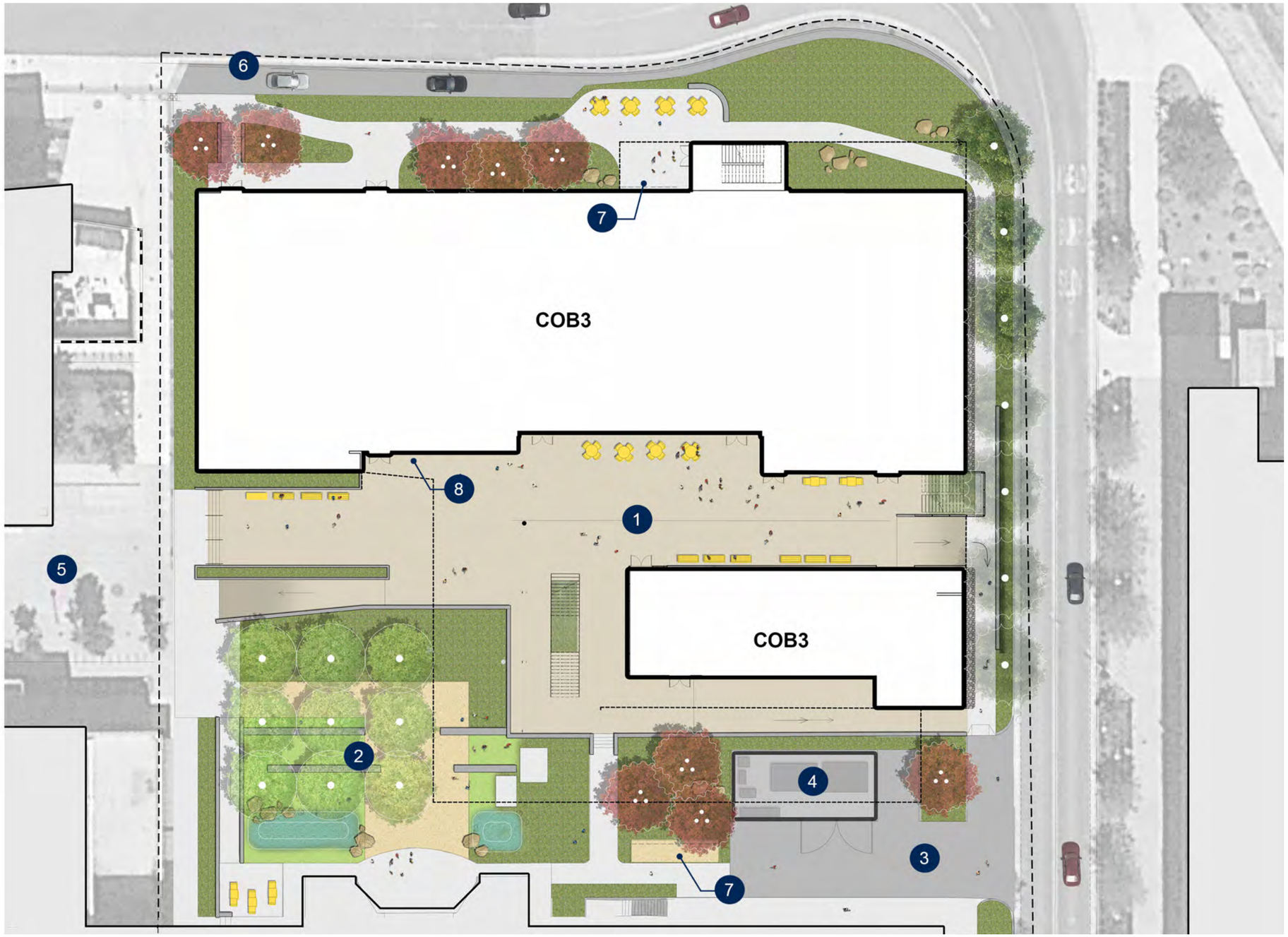
For graphical reference only. Verify with reference documents provided.

0' 15' 30'

Proposed Site Plan

LEGEND

1. Exterior Walkway
2. Outdoor Amphitheater - Alternate
3. Service Vehicle Access
4. Utility Yard
5. Existing Social Justice Plaza
6. Loading Zone
7. Long Term Bike Storage
8. Outdoor Ticket Booth

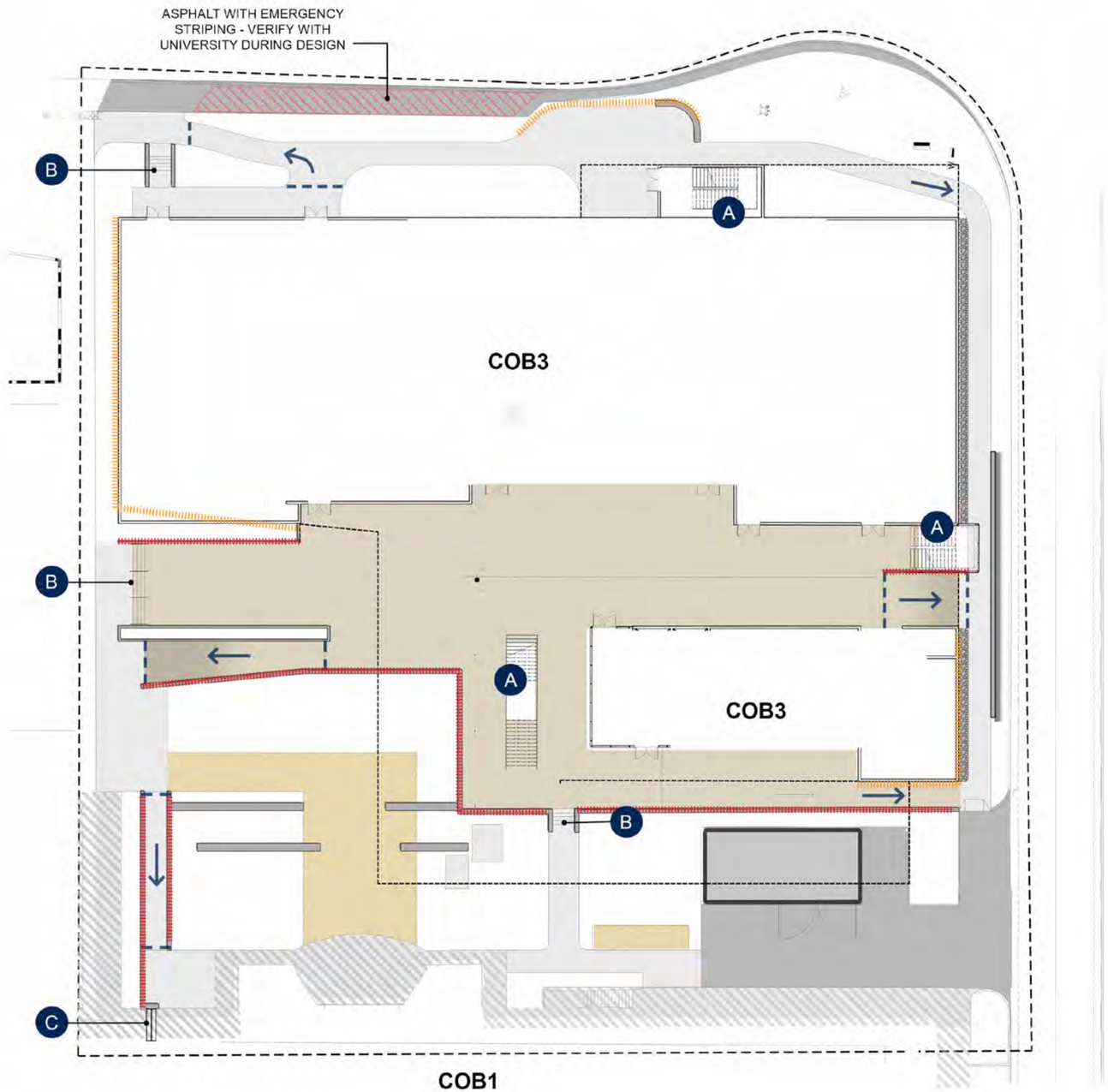


Proposed Hardscape Plan

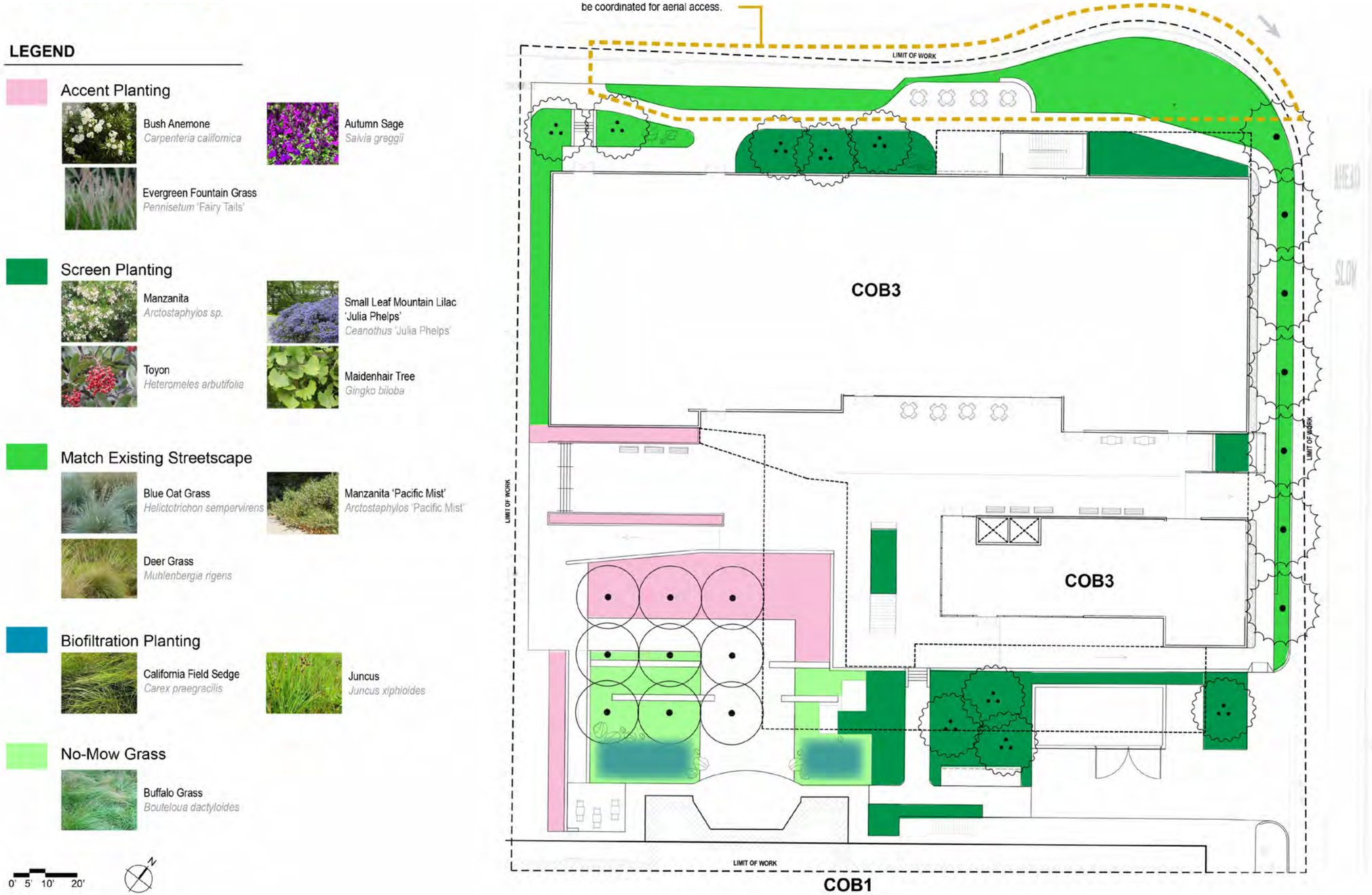
LEGEND

- Natural gray concrete to match existing
- Existing concrete to protect in place
- Integral color concrete with enhanced finishes
- Asphalt
- Decomposed granite
- River rock along building edge
- Seat wall
- Retaining wall
- Retaining wall with railing
- Inclined walkway
- A — Architectural stairs
- B — Site stairs
- C — Existing stairs to protect in place

0' 5' 10' 20'



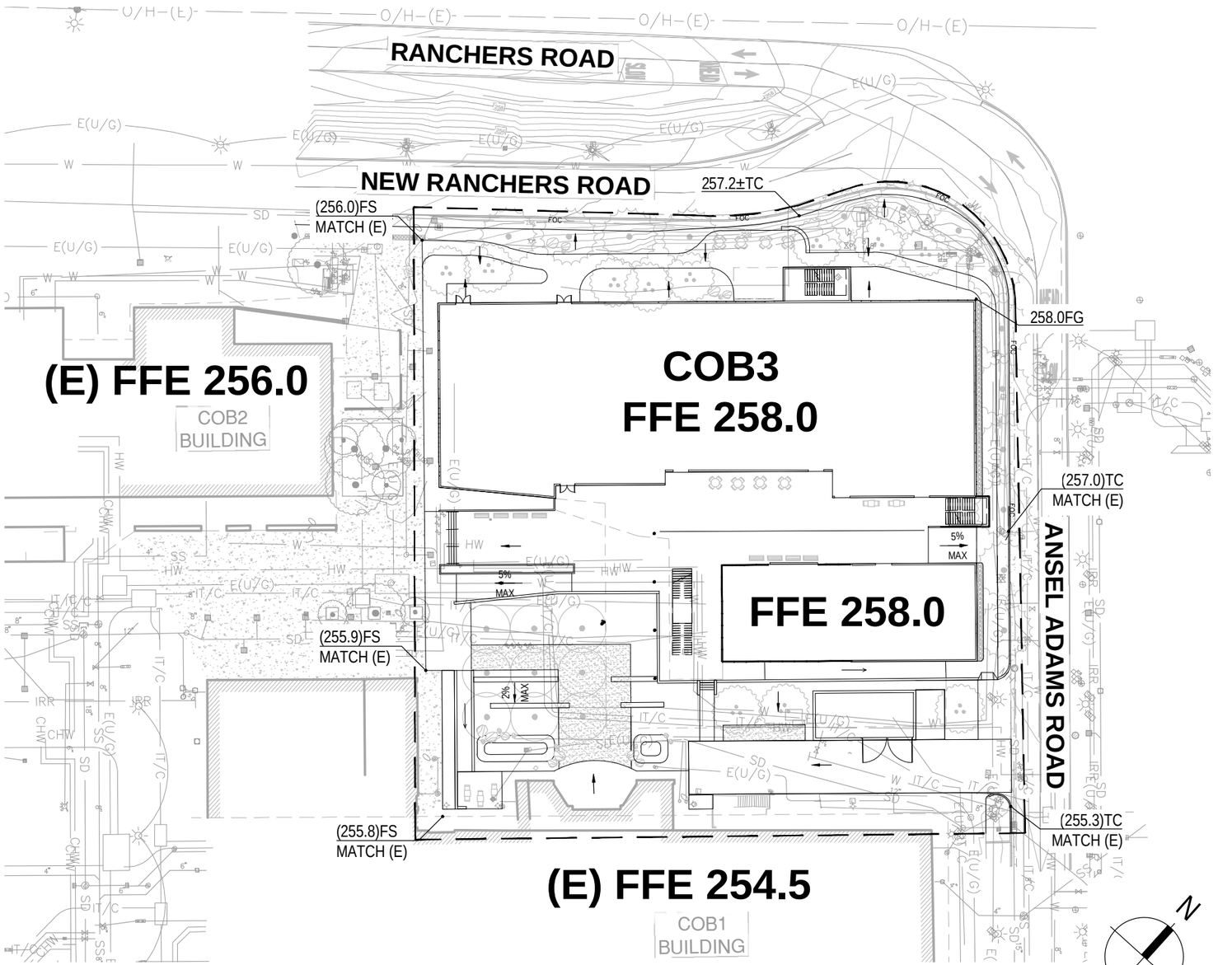
Proposed Planting Typologies



Conceptual Grading and Drainage Plan

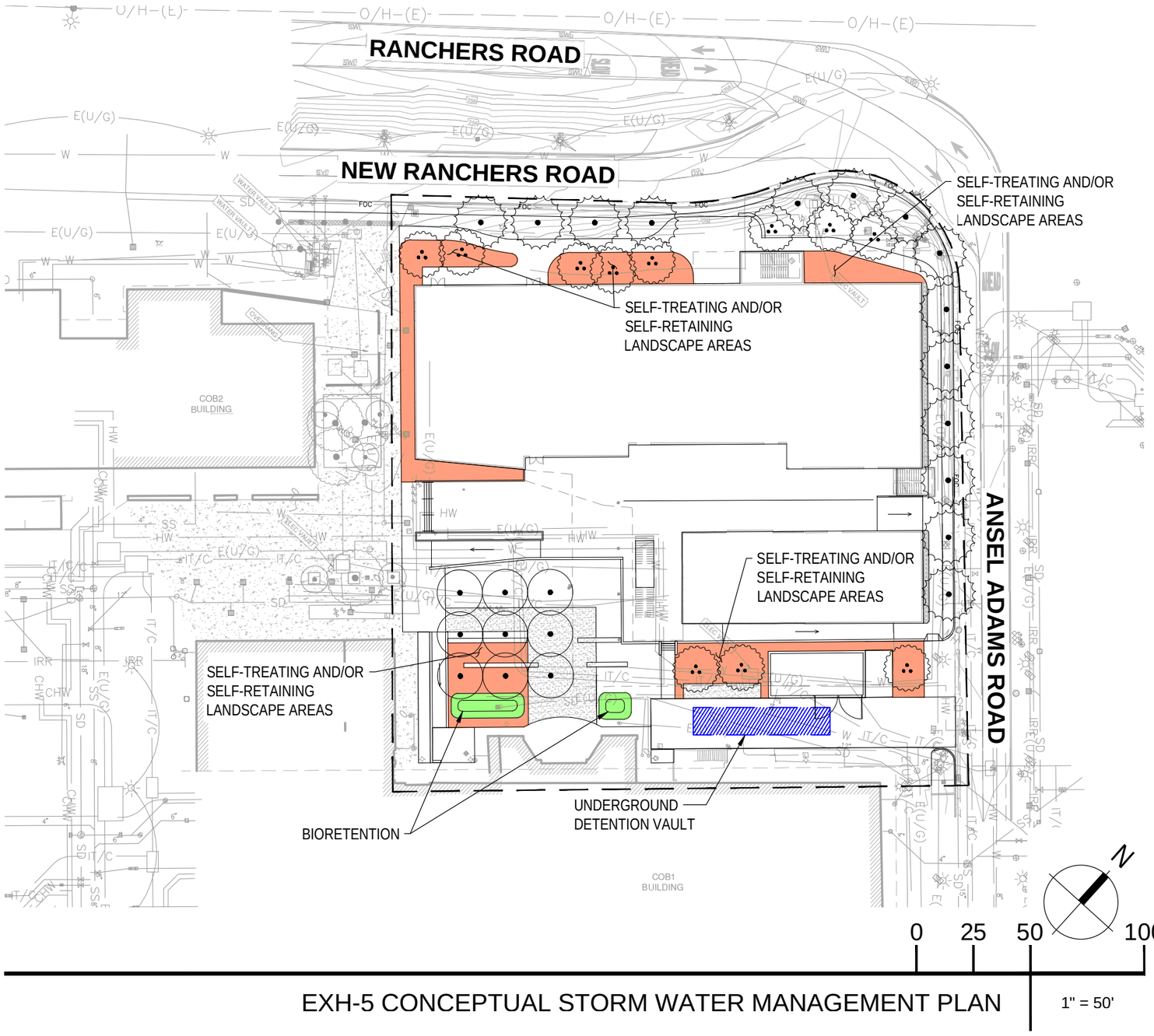
GENERAL NOTES

1. RUNOFF FROM ROOF AND HARDSCAPE AREAS SHALL BE DIRECTED TO STORM WATER DESIGN MEASURES.



EXH-3 CONCEPTUAL GRADING AND DRAINAGE PLAN 1" = 50'

Conceptual Storm Water Management Plan



EXH-5 CONCEPTUAL STORM WATER MANAGEMENT PLAN 1" = 50'

Appendix C

Air Quality and Greenhouse Gas Emissions Technical Report

Classroom and Office Building III Project

Air Quality and Greenhouse Gas Emissions Technical Report

Prepared for:

University of California, Merced
5200 Lake Road
Merced, CA 95343

Prepared by:

HELIX Environmental Planning, Inc.
1180 Iron Point Road, Suite 130
Folsom, CA 95630

February 2025 | 08456.00004.001

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TABLE OF CONTENTS

TABLE OF CONTENTS (cont.)

TABLE OF CONTENTS (cont.)

LIST OF APPENDICES

LIST OF TABLES

ACRONYMS AND ABBREVIATIONS

°F	Fahrenheit
µg/m3	micrograms per cubic meter
AAM	Annual Arithmetic Mean
AAQS	Ambient Air Quality Standards
AASHTO	American Association of State Highway and Transportation Officials
AB	Assembly Bill
ACUPCC	American College and University Presidents Climate Commitment
ADT	average daily trips
AIA	Air Impact Assessment
amsl	above mean sea level
AOA	Academic Office Annex
APS	alternative planning strategy
AR2	Second Assessment Report
AR4	Fourth Assessment Report
AR5	Fifth Assessment Report
AR6	Sixth Assessment Report
ATC	Authority to Construct
BAAQMD	Bay Area Air Quality Management District
BPS	Best Performance Standards
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CAFE	Corporate Average Fuel Economy
CalEEMod	California Emissions Estimator Model
CalEPA	California Environmental Protection Agency
CALGreen	California Green Building Standards Code
CAP	Climate Action Plan
CAPCOA	California Air Pollution Control Officers Association
CAPE	Center for Analytic Political Engagement
CARB	California Air Resources Board
CBC	California Building Code
CBSC	California Building Standards Commission
CCAA	California Clean Air Act
CCAP	Climate Change Action Plan
CCR	California Code of Regulations
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CFC	chlorofluorocarbons
CFR	Code of Federal Regulations
CH_4	methane
City	City of Merced
CO	carbon monoxide

ACRONYMS AND ABBREVIATIONS (cont.)

CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
COB	classroom and office building
County	Merced County
CY	cubic yards
DPM	Diesel particulate matter
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EO	Executive Order
ft	feet
FTE	full-time equivalent
g/L	grams per liter
GHG	Greenhouse Gas
GWP	global warming potential
HAP	hazardous air pollutant
HFC	hydrofluorocarbons
IPCC	Intergovernmental Panel on Climate Change
LEED	Leadership in Energy and Environmental Design
LOS	Level-of-Service
LRDP	Long Range Development Plan
mg/m^3	milligrams per cubic meter
MID	Merced Irrigation District
MMBtu/hr	million British thermal units per hour
MMT	million metric tons
MPO	metropolitan planning organizations
MT	metric tons
MW	megawatt
MWELO	Model Water Efficient Landscape Ordinance
N_20	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NASA	National Aeronautics and Space Administration
NEO	New Employee Orientations
NHTSA	National Highway Traffic Safety Administration
NO_2	nitrogen dioxide
NOAA	National Oceanic and Atmospheric Administration

ACRONYMS AND ABBREVIATIONS (cont.)

NO_X	nitrogen oxides
NSO	New Student Orientations
O_3	ozone
OEHHA	Office of Environmental Health Hazard Assessment
Pb	lead
PFC	perfluorocarbons
PG&E	Pacific Gas and Electric
PM	particulate matter
PM_{10}	Coarse PM, 10 microns or less in diameter
$PM_{2.5}$	Fine PM, 2.5 microns or less in diameter
ppm	parts per million
PTO	Permit to Operate
ROG	reactive organic gases
RTP	regional transportation plan
SB	Senate Bill
SCS	Sustainable Communities Strategy
SEIR	Subsequent Environmental Impact Report
sf	square feet
SF_6	sulfur hexafluoride
SIP	State Implementation Plans
SJVAB	San Joaquin Valley Air Basin
SJVAPCD	San Joaquin Valley Air Pollution Control District
SLCP	short-lived climate pollutants
SO_2	sulfur dioxide
SOC	Single Occupancy Vehicles
SSHA	School of Social Sciences, Humanities, and Arts
TAC	Toxic air contaminants
TDM	transportation demand management
The Regents	Board of Regents of the University of California
tpy	tons per year
UC Merced	University of California, Merced
UCLC	University Community Land Company
UNFCC	United National Framework Convention on Climate Change
USEPA	U.S. Environmental Protection Agency
VDE	Visible Dust Emissions
VMT	Vehicle Miles Traveled
VOC	volatile organic compounds

WPP	Wholesale Power Plan

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EXECUTIVE SUMMARY

This report presents an assessment of potential air quality and greenhouse gas (GHG) emissions impacts during construction and operation of the Classroom and Office Building (COB) III Project (project). This report also compares the potential air quality and GHG emissions impacts from the project with those analyzed in the environmental impact evaluation in the 2020 University of California (UC) Merced Long Range Development Plan (LRDP) Subsequent Environmental Impact Report (SEIR) and the 2009 LRDP Environmental Impact Statement (EIS)/Environmental Impact Report (EIR), pursuant to Section 15168(c) of the State California Environmental Quality Act (CEQA) Guidelines.

The proposed project would include construction of a 61,640 square foot (sf) classroom and office building on the UC Merced campus. The project would provide versatile classroom and public assembly venues, student academic and advising support and administrative spaces for the School of Social Sciences, Humanities, and Arts (SSHA) and would house faculty and research space for the Department of Political Sciences to support the Center for Analytic Political Engagement (CAPE). The total assignable square footage of the proposed building would be 41,932 sf.

AIR QUALITY IMPACTS

As discussed in Section 7.0 of this report, impacts related to conflicts with the applicable air quality plan would be less than significant, and *no new or substantially more severe impact* would occur compared to what was evaluated in the 2020 LRDP SEIR.

As shown in Tables 10 and 11, the proposed project's construction and operational emissions would be below the SJVAPCD thresholds of significance. Although construction impacts from the project itself would be less than significant, as part of the development under the 2020 LRDP, the impact would be potentially significant. With implementation of LRDP Mitigation Measure AQ-1a and AQ-1b, the impact from construction under the proposed project would be less than significant, and *no new or substantially more severe impact* would occur compared to what was evaluated in the 2020 LRDP SEIR.

Additionally, although the project on its own would not result in a significant impact, as part of the development under the 2020 LRDP, the operational impact would be significant and unavoidable with implementation of LRDP Mitigation Measures AQ-2a and AQ-2b, and *no new or substantially more severe impact* would occur compared to what was evaluated in the 2020 LRDP SEIR.

Implementation of the project would not expose sensitive receptors to substantial pollutant concentrations or result in other emissions (such as those leading to odors) adversely affecting a substantial number of people. The impact would be less than significant with implementation of LRDP Mitigation Measures AQ-1a and AQ-1b, and *no new or substantially more severe impact* would occur compared to what was evaluated in the 2020 LRDP SEIR.

GHG EMISSIONS IMPACTS

As shown in Table 12, project operational GHG emissions would not exceed the UC Merced campus 2030 emissions target of 2.44 MT CO_2e per capita/year. The impact would be less than significant and *no new or substantially more severe impact* would occur compared to what was evaluated in the 2020 LRDP SEIR.

The project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. The impact would be less than significant, and *no new or substantially more severe impact* would occur compared to what was evaluated in the 2020 LRDP SEIR.

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1.0 INTRODUCTION

This report presents an assessment of potential air quality and greenhouse gas (GHG) emissions impacts during construction and operation of the proposed Classroom and Office Building (COB) III Project (project). This report compares the potential air quality and GHG emissions impacts from the project with those analyzed in the environmental impact evaluation in the 2020 University of California (UC) Merced Long Range Development Plan (LRDP) Subsequent Environmental Impact Report (SEIR) and the 2009 LRDP Environmental Impact Statement (EIS)/Environmental Impact Report (EIR), pursuant to Section 15168(c) of the State California Environmental Quality Act (CEQA) Guidelines.

1.1 APPLICABLE PRIOR PROGRAM LEVEL ENVIRONMENTAL ANALYSIS

1.1.1 University of California Merced Long Range Development Plans

The UC Merced prepared an LRDP in 2009 that addressed the development of the campus to support an enrollment level of 25,000 students by the year 2030 on an 815-acre site. In March 2009, the Board of Regents of the University of California ("Regents") certified a joint Environmental Impact Statement/Environmental Impact Report (State Clearinghouse No. 2008041009) that analyzed and disclosed the significant environmental impacts from the implementation of an LRDP for the UC Merced campus and approved the UC Merced 2009 LRDP as a guide for physical development to accommodate growth projected through 2030 and beyond. Since then, UC Merced has revised its enrollment projections through 2030 down substantially and has also acquired more land for campus development as a result of the transfer of a portion of the adjoining University Community Land Company (UCLC) property to its former partner, the Virginia Smith Trust. Furthermore, UC Merced plans to accommodate the projected enrollment growth on a smaller developed footprint within the larger campus site.

The UC Merced 2020 LRDP is an updated, comprehensive land use plan that guides physical development on the UC Merced campus to accommodate projected campus population and expanded and new program initiatives. The UC Merced 2020 LRDP SEIR (State Clearinghouse No. 2018041010) was prepared in accordance with Section 15168 of the State CEQA Guidelines and Public Resources Code Section 21094 and provides a programmatic analysis of the overall proposed development and campus population projections in the 2020 LRDP.

Following the certification of the 2020 LRDP SEIR in 2020, UC Merced prepared and circulated an updated supplemental program-level transportation impact analysis of campus growth through 2030 under the 2020 LRDP based on current vehicle miles traveled (VMT) metrics consistent with State CEQA Guidelines Section 15064.3, subdivision (b). The program-level VMT analysis was published in the UC Merced Medical Education Building Project Draft EIR in August 2022, and the Final EIR, including the supplemental VMT transportation analysis, was certified by the University on November 17, 2022. The updated LRDP transportation impact analysis in the UC Merced Medical Education Building Project EIR replaces in full the prior level of service (LOS)-based LRDP transportation impact analysis that was included in the 2020 LRDP SEIR.

2.0 PROJECT SETTING AND LOCATION

2.1 REGIONAL LOCATION

The UC Merced campus is located in the City of Merced in Merced County (County), California. The UC Merced campus, located on Lake Road near its intersection with Bellevue Road, consisted of approximately 815 acres when first established. In 2017, additional land was added to the campus site such that now, the campus encompasses approximately 1,117 gross acres and 1,026 net acres (excluding canal easements). UC Merced also owns the adjoining approximately 6,428-acre Merced Vernal Pools and Grassland Reserve. The campus is situated south-southeast of Lake Yosemite, which is a regulating reservoir owned and operated by the Merced Irrigation District (MID). Two irrigation canals, also owned by MID—the Le Grand Canal and the Fairfield Canal—convey water from the lake to agricultural areas to the south (UC Merced 2020).

2.2 PROJECT LOCATION

The project site would be located on the northern portion of the UC Merced campus, at the intersection of Ansel Adams Road and New Ranchers Road. The land use designation for the project site in the 2020 LRDP is Campus Mixed Use. The Campus Mixed Use designation includes academic, research, student housing, student and support services, athletic and recreational facilities, administrative offices, service facilities, and parking (UC Merced 2020). See Figure 1, Site and Vicinity Map, and Figure 2, Aerial Map (Note: All figures are included as Appendix A to this report).

2.3 PROJECT SETTING

The proposed project would be constructed on the current site of the Academic Office Annex (AOA) modular trailers. The project site is surrounded by open space to the north, UC Merced Classroom and Office Building I and II to the west and south, and UC Merced Student Services Building to the east. The project site is relatively flat with an elevation that ranges from 255 feet (ft) to 262-ft above mean sea level (amsl).

3.0 PROJECT DESCRIPTION

The proposed project would include construction of an up to 61,640 square foot (sf) classroom and office building. The COB III project would provide versatile classroom and public assembly venues, student academic and advising support and administrative spaces for the School of Social Sciences, Humanities, and Arts (SSHA) and would house faculty and research space for the Department of Political Sciences and the Center for Analytic Political Engagement (CAPE). The total assignable square footage of the proposed building would be 41,932 sf. The project would be required to earn a Leadership in Energy and Environmental Design (LEED) Platinum certification and exceed California Building Code (CBC) Title 24 Part 6 Building Energy Standards by 20 percent or better as part of LEED Platinum certification.

3.1 BUILDING CHARACTERISTICS

The proposed project would include construction of a three-story building. The first floor would include primarily student-centric spaces, the second floor would include spaces to support the SSHA, and the

third floor would provide additional faculty space. A shade structure is anticipated at the top of the building. A loading area would also be provided to facilitate the sharing of back of house access between the existing COB I and proposed COB III.

The first floor of the project would include a 5,100-sf large lecture hall intended to seat 292 students, a 4,675-sf medium lecture hall intended to seat 250 students, and a 7,500-sf auditorium. The first floor would also include a center plaza and may include a paseo, student spaces, restrooms and storage space. The entire SSHA program would be congregated on the second floor and would include second floor access to the auditorium, as well as shared advising offices, undergraduate and graduate student academic space, faculty and research space, SSHA faculty labs, conference rooms, and restrooms. The SSHA administrative suite would include offices, workstations, a small conference room, offices, , and support space. In addition to the SSHA administrative suite, the second floor would include two 400-sf conference rooms. The third floor of the building would be primarily used by the Department of Political Science and would include administrative space, a large 800-sf conference room, restrooms, and storage space.

In total, the up to 61,640-sf with up to 41,932 sf of assignable space would serve 1,110 students and 126 faculty and staff.

3.2 ACCESS AND CIRCULATION

Students and faculty would access the project through entrances on the eastern and western sides of the building. New Ranchers Road would include improvements for an emergency access land and loading zone, while Ansel Adams and an existing fire access lane will continue to serve the site.

No parking would be constructed as part of the project. However, long-term bicycle storage would be included.

3.3 LANDSCAPING AND BIORETENTION

Landscaping would be located around the entire building and within the terrace courtyard. The project site would feature self-treating and/or self-retaining landscaping, which is landscaping designed to manage stormwater naturally by capturing, filtering, and absorbing runoff without requiring external drainage infrastructure. Landscape plantings surrounding the building are proposed to include accent, screen, and biofiltration plantings, as well as no-mow grass. The proposed landscaping would match existing streetscaping along New Ranchers Road and Ansel Adams Road, and would consist of the following plant types:

- Accent Plantings: Bush anemone (*Carpenteria californica*), Evergreen fountain grass (*Pennisetum 'Fairy Tails'*), and Autumn sage (*Salvia greggii*)
- Screen Plantings: Manzanita (*Arctostaphylos sp.),* Toyon (*Heteromeles arbutifolia*), Small Leaf Mountain Lilac 'Julia Phelps' (*Ceonothus 'Julia Phelps'*), and Maidenhair tree (*Gingko biloba*)
- Match Existing Streetscape: Blue oat grass (*Helictotrichon sempervirens*), Deer grass (*Muhlenbergia rigens*), and Manzanita 'Pacific Mist' (*Arctostaphylos 'Pacific Mist'*)
- Biofiltration Planting: California Field Sedge (*Carex praegracilis*) and Juncus (*Juncus xiphioides*)
- No-Mow Grass: Buffalo grass (*Bouteloua dactyloides*)

Two bioretention basins would be located in the southeastern portion of the project site, and four self-treating and/or self-retaining landscape areas would surround the project site. Additionally, an underground stormwater detention vault would be located in the southeastern portion of the proposed project site, north of the bioretention basins.

3.4 UTILITIES

The proposed project would be served by existing water, wastewater, stormwater, and electrical infrastructure. The project would be all electric and would be served by existing Pacific Gas and Electric (PG&E) infrastructure and connect to existing UC Merced chilled and hot water system in underground vaults at the site. Existing electrical transformers are located just outside the proposed building.

3.5 PROJECT CONSTRUCTION

Construction Schedule and Staging

At the time this report was prepared, it was anticipated that project construction would commence in August of 2025 and would be completed by March of 2028. Construction activities would include demolition, site preparation, underground utilities (trenching), grading, building construction, architectural coatings, and paving. Per aerial imagery of the project site and data provided by the project engineer, approximately 358 tons of building materials, asphalt pavement, and concrete pavement would be demolished and hauled to a location on the UC Merced campus. Per the University of California Policy on Sustainable Practices, demolished materials would be recycled, if feasible. Based on aerial imagery, it was estimated that 250 cubic yards (CY) of debris and vegetation from site preparation would be exported to a location on the UC Merced campus. Construction equipment would be staged northwest of the project site on the disturbed median between Ranchers Road and New Ranchers Road. See Section 6.1.1 of this report for more information on project construction.

4.0 REGULATORY SETTING

4.1 AIR QUALITY

The project site is located within the Merced County portion of the San Joaquin Valley Air Basin (SJVAB). Air quality in the San Joaquin County is regulated by the U.S. Environmental Protection Agency (USEPA) at the federal level, by the California Air Resources Board (CARB) at the State level, and by the San Joaquin Valley Air Pollution Control District (SJVAPCD) at the regional level.

4.1.1 Air Pollutants of Concern

4.1.1.1 Criteria Pollutants

Criteria pollutants are defined by State and federal law as a risk to the health and welfare of the public. In general, criteria air pollutants include the following compounds:

- Ozone (O_3)
- Carbon monoxide (CO)

- Nitrogen dioxide (NO_2)
- Particulate matter (PM), which is further subdivided:
  - Coarse PM, 10 microns or less in diameter (PM_{10})
  - Fine PM, 2.5 microns or less in diameter ($PM_{2.5}$)
- Sulfur dioxide (SO_2)
- Lead (Pb)

Criteria pollutants can be emitted directly from sources (primary pollutants, e.g., CO, SO_2, PM_{10}, $PM_{2.5}$, and lead), or they may be formed through chemical and photochemical reactions of precursor pollutants in the atmosphere (secondary pollutants, e.g., ozone, NO_2, PM_{10}, and $PM_{2.5}$). PM_{10} and $PM_{2.5}$ can be both primary and secondary pollutants. The principal precursor pollutants of concern are reactive organic gases ([ROGs] also known as volatile organic compounds [VOCs])[1] and nitrogen oxides (NO_X).

The descriptions of sources and general health effects for each of the criteria air pollutants are shown in Table 1, *Common Sources and Human Health Effects of Criteria Air Pollutants*. Specific adverse health effects on individuals or population groups induced by criteria pollutant emissions are highly dependent on a multitude of interconnected variables such as cumulative concentrations, local meteorology and atmospheric conditions, and the number and characteristics of exposed individuals (e.g., age, gender). Criteria pollutant precursors (ROG and NO_X) affect air quality on a regional scale, typically after significant delay and distance from the pollutant source emissions. Health effects related to ozone and NO_2 are, therefore, the product of emissions generated by numerous sources throughout a region.

Emissions of criteria pollutants from vehicles traveling to or from the project site (mobile emissions) are distributed nonuniformly in location and time throughout the region, wherever the vehicles may travel. As such, specific health effects from these criteria of pollutant emissions cannot be meaningfully correlated to the incremental contribution from the project.

Table 1: Common Sources And Human Health Effects Of Criteria Air Pollutants

Pollutant	Major Man-Made Sources	Human Health Effects
Carbon Monoxide (CO)	An odorless, colorless gas formed when carbon in fuel is not burned completely; a component of motor vehicle exhaust.	Reduces the ability of blood to deliver oxygen to vital tissues, affecting the cardiovascular and nervous system. Impairs vision, causes dizziness, and can lead to unconsciousness or death.
Nitrogen Dioxide (NO_2)	A reddish-brown gas formed during fuel combustion for motor vehicles and industrial sources. Sources include motor vehicles, electric utilities, and other sources that burn fuel.	Respiratory irritant; aggravates lung and heart problems. Precursor to ozone and acid rain. Contributes to climate change and nutrient overloading, which deteriorates water quality. Causes brown discoloration of the atmosphere.
Ozone (O_3)	Formed by a chemical reaction between reactive organic gases (ROGs) and nitrogen oxides (NO_X) in the presence of sunlight. Common sources of these precursor	Irritates and causes inflammation of the mucous membranes and lung airways; causes wheezing, coughing, and pain when inhaling deeply; decreases lung capacity;

[1] CARB defines and uses the term ROGs while the USEPA defines and uses the term VOCs. The compounds included in the lists of ROGs and VOCs and the methods of calculation are slightly different. However, for the purposes of estimating criteria pollutant precursor emissions, the two terms are often used interchangeably.

Pollutant	Major Man-Made Sources	Human Health Effects
	pollutants include motor vehicle exhaust, industrial emissions, gasoline storage and transport, solvents, paints, and landfills.	aggravates lung and heart problems. Damages plants; reduces crop yield. Damages rubber, some textiles, and dyes.
Particulate Matter (PM_{10} and $PM_{2.5}$)	Produced by power plants, steel mills, chemical plants, unpaved roads and parking lots, wood-burning stoves and fireplaces, automobiles, and other sources.	Increased respiratory symptoms, such as irritation of the airways, coughing, or difficulty breathing; aggravated asthma; development of chronic bronchitis; irregular heartbeat; nonfatal heart attacks; and premature death in people with heart or lung disease. Impairs visibility (haze).
Sulfur Dioxide (SO_2)	A colorless, nonflammable gas formed when fuel containing sulfur is burned, when gasoline is extracted from oil, or when metal is extracted from ore. Examples are petroleum refineries, cement manufacturing, metal processing facilities, locomotives, and ships.	Respiratory irritant. Aggravates lung and heart problems. In the presence of moisture and oxygen, sulfur dioxide converts to sulfuric acid, which can damage marble, iron, and steel. Damages crops and natural vegetation. Impairs visibility. Precursor to acid rain.
Lead	Metallic element emitted from metal refineries, smelters, battery manufacturers, iron and steel producers, use of leaded fuels by racing and aircraft industries.	Anemia, high blood pressure, brain and kidney damage, neurological disorders, cancer, lowered IQ. Affects animals, plants, and aquatic ecosystems.

Source: CARB 2025a; USEPA 2024a

4.1.1.2 Toxic Air Contaminants

Toxic air contaminants (TAC) are a diverse group of air pollutants that may cause or contribute to an increase in deaths or in serious illness, or that may pose a present or potential hazard to human health. TACs can cause long-term chronic health effects such as cancer, birth defects, neurological damage, asthma, bronchitis, or genetic damage, or short-term acute effects such as eye-watering, respiratory irritation (a cough), runny nose, throat pain, and headaches. TACs are considered either carcinogenic or noncarcinogenic based on the nature of the health effects associated with exposure to the pollutant. For carcinogenic TACs, there is no level of exposure that is considered safe, and impacts are evaluated in terms of overall relative risk expressed as excess cancer cases per one million exposed individuals. Noncarcinogenic TACs differ in that there is generally assumed to be a safe level of exposure below which no negative health impact is believed to occur. These levels are determined on a pollutant-by-pollutant basis.

The Health and Safety Code (§39655[a]) defines TAC as "an air pollutant which may cause or contribute to an increase in mortality or in serious illness, or which may pose a present or potential hazard to human health." All substances that are listed as hazardous air pollutants pursuant to subsection(b) of Section 112 of the Clean Air Act (CAA; 42 United States Code Sec. 7412[b]) are designated as TACs. Under State law, the California Environmental Protection Agency (CalEPA), acting through CARB, is authorized to identify a substance as a TAC if it determines the substance is an air pollutant that may cause or contribute to an increase in mortality or an increase in serious illness, or that may pose a present or potential hazard to human health.

Diesel Particulate Matter

Diesel engines emit a complex mixture of air pollutants, including both gaseous and solid material. The solid material in diesel exhaust is referred to as diesel particulate matter (DPM). Almost all DPM is 10 microns or less in diameter, and 90 percent of DPM is 2.5 microns or less in diameter (CARB 2025b). Because of their extremely small size, these particles can be inhaled and eventually trapped in the bronchial and alveolar regions of the lung. In 1998, CARB identified DPM as a TAC based on published evidence of a relationship between diesel exhaust exposure and lung cancer and other adverse health effects. DPM has a notable effect on California's population—it is estimated that about 70 percent of the total known cancer risk related to air toxins in California is attributable to DPM (CARB 2025b).

4.1.2 Federal Air Quality Regulations

4.1.2.1 Federal Clean Air Act

Air quality is defined by ambient air concentrations of specific pollutants identified by the USEPA to be of concern with respect to health and welfare of the public. The USEPA is responsible for enforcing the CAA of 1970 and its 1977 and 1990 Amendments. The CAA required the USEPA to establish National Ambient Air Quality Standards (NAAQS), which identify concentrations of pollutants in the ambient air below which no adverse effects on the public health and welfare are anticipated. In response, the USEPA established both primary and secondary standards for several criteria pollutants. On February 7, 2024, the USEPA announced a final rule to lower the annual arithmetic mean (AAM) primary NAAQS for $PM_{2.5}$ from 12 micrograms per cubic meter ($\mu g/m^3$) to 9 $\mu g/m^3$. The new final rule retains the existing 24-hour primary NAAQS for $PM_{2.5}$ of 35 $\mu g/m^3$ and the existing AAM secondary NAAQS for $PM_{2.5}$ of 15 $\mu g/m^3$ (USEPA 2024b). Table 2, *Ambient Air Quality Standards*, shows the federal and State ambient air quality standards for these pollutants.

Table 2: Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards	Federal Standards Primary[1,2]	Federal Standards Secondary[3]
O_3	1 Hour	0.09 ppm (180 $\mu g/m^3$)	–	–
	8 Hour	0.070 ppm (137 $\mu g/m^3$)	0.070 ppm (137 $\mu g/m^3$)	Same as Primary
PM_{10}	24 Hour	50 $\mu g/m^3$	150 $\mu g/m^3$	Same as Primary
	AAM	20 $\mu g/m^3$	–	Same as Primary
$PM_{2.5}$	24 Hour	–	35 $\mu g/m^3$	Same as Primary
	AAM	12 $\mu g/m^3$	9 $\mu g/m^3$	15 $\mu g/m^3$
CO	1 Hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)	–
	8 Hour	9.0 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)	–
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m^3)	–	–
NO_2	1 Hour	0.18 ppm (339 $\mu g/m^3$)	0.100 ppm (188 $\mu g/m^3$)	–
	AAM	0.030 ppm (57 $\mu g/m^3$)	0.053 ppm (100 $\mu g/m^3$)	Same as Primary
SO_2	1 Hour	0.25 ppm (655 $\mu g/m^3$)	0.075 ppm (196 $\mu g/m^3$)	–
	3 Hour	–	–	0.5 ppm (1,300 $\mu g/m^3$)
	24 Hour	0.04 ppm (105 $\mu g/m^3$)	–	–
Lead	30-day Avg.	1.5 $\mu g/m^3$	–	–
	Calendar	–	1.5 $\mu g/m^3$	Same as Primary

Pollutant	Averaging Time	California Standards	Federal Standards Primary[1,2]	Federal Standards Secondary[3]
	Quarter			
	Rolling 3-month Avg.	–	0.15 µg/m^3	Same as Primary
Visibility Reducing Particles	8 Hour	Extinction coefficient of 0.23 per km – visibility ≥ 10 miles (0.07 per km – ≥30 miles for Lake Tahoe)	No Federal Standards	No Federal Standards
Sulfates	24 Hour	25 µg/m^3	No Federal Standards	No Federal Standards
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m^3)	No Federal Standards	No Federal Standards
Vinyl Chloride	24 Hour	0.01 ppm (26 µg/m^3)	No Federal Standards	No Federal Standards

Source: CARB 2016, USEPA 2024b

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

3 The AAM primary NAAQS for $PM_{2.5}$ was reduced from 12 µg/m^3 to 9 µg/m^3 by a USEPA final rule issued on February 7, 2024.

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

O_3 = ozone; ppm: parts per million; µg/m^3 = micrograms per cubic meter; PM_{10} = particulate matter with an aerodynamic diameter of 10 microns or less; AAM = Annual Arithmetic Mean; $PM_{2.5}$ = fine particulate matter; CO = carbon monoxide; mg/m^3 = milligrams per cubic meter; NO_2 = nitrogen dioxide; SO_2 = sulfur dioxide; km = kilometer; – = No Standard

The USEPA has classified air basins (or portions thereof) as being in "attainment," "nonattainment," "maintenance," or "unclassified" for each criteria air pollutant, based on whether the NAAQS have been achieved. Upon attainment of a standard for which an area was previously designated nonattainment, the area will be classified as a maintenance area. If an area is designated unclassified, it is because inadequate air quality data were available as a basis for nonattainment or attainment designation. The project site is located within the SJVAB and, as such, is in an area designated as "nonattainment" for certain pollutants that are regulated under the CAA. Table 3, *San Joaquin Valley Air Basin – Attainment Status,* lists the federal and State attainment status of the SJVAB (including Merced County and the project site) for the NAAQS and the California Ambient Air Quality Standards (CCAQS). As shown in Table 3, the SJVAB is designated as attainment for PM_{10}; attainment/unclassified for CO, NO_2, SO_2; no designation/classification for lead; and in nonattainment for 8-hour ozone and $PM_{2.5}$ with respect to NAAQS. The SJVAB is designated as nonattainment for 1-hour and 8-hour ozone, $PM_{2.5}$, and PM_{10} with respect to CAAQS (SJVAPCD 2025).

Table 3: San Joaquin Valley Air Basin – Attainment Status

Pollutant	Federal Standards	State Standards
Ozone – One hour	No Federal Standard	Nonattainment/Severe
Ozone – Eight hour	Nonattainment/Extreme	Nonattainment
PM_{10}	Attainment	Nonattainment
$PM_{2.5}$	Nonattainment	Nonattainment
Carbon Monoxide	Attainment/Unclassified	Attainment/Unclassified
Nitrogen Dioxide	Attainment/Unclassified	Attainment
Sulfur Dioxide	Attainment/Unclassified	Attainment
Lead (Particulate)	No Designation/Unclassified	Attainment
Hydrogen Sulfide	No Federal Standard	Unclassified

Sulfates	No Federal Standard	Attainment
Visibility Reducing Particles	No Federal Standard	Unclassified
Vinyl Chloride	No Federal Standard	Attainment

Source: SJVAPCD 2025

4.1.3 California Air Quality Regulations

4.1.3.1 California Clean Air Act

The federal CAA allows states to adopt ambient air quality standards and other regulations if they are at least as stringent as federal standards. CARB, a part of the CalEPA, is responsible for the coordination and administration of both federal and State air pollution control programs within California, including setting the CAAQS. CARB also conducts research, compiles emission inventories, develops suggested control measures, and provides oversight of local programs. CARB establishes emissions standards for motor vehicles sold in California, consumer products (such as hairspray, aerosol paints, and barbecue lighter fluid), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions.

In addition to primary and secondary Ambient Air Quality Standards (AAQS), the State has established a set of episode criteria for ozone, CO, NO_2, SO_2, and PM. These criteria refer to episode levels representing periods of short-term exposure to air pollutants that actually threaten public health. As shown in Table 3, the SJVAB is designated as nonattainment for 1-hour and 8-hour ozone, $PM_{2.5}$, and PM_{10} with respect to CAAQS (SJVAPCD 2025).

4.1.3.2 State Implementation Plan

The CAA requires areas with unhealthy levels of ozone, inhalable particulate matter, carbon monoxide, nitrogen dioxide, and sulfur dioxide to develop plans, known as State Implementation Plans (SIPs). SIPs are comprehensive plans that describe how an area will attain the NAAQS. The 1990 amendments to the CAA set deadlines for attainment based on the severity of an area's air pollution problem.

SIPs are not single documents—they are a compilation of new and previously submitted plans, programs (e.g., monitoring, modeling, permitting), district rules, state regulations and federal controls. Many of California's SIPs rely on a core set of control strategies, including emission standards for cars and heavy trucks, fuel regulations and limits on emissions from consumer products. State law makes CARB the lead agency for all purposes related to the SIP. Local air districts and other agencies prepare SIP elements and submit them to CARB for review and approval. CARB forwards the SIP revisions to the USEPA for approval and publication in the Federal Register. The Code of Federal Regulations (CFR) Title 40, Chapter I, Part 52, Subpart F, Section 52.220 lists all of the items that are included in the California SIP. At any one time, several California submittals are pending USEPA approval (CARB 2009).

4.1.3.3 California Energy Code

California Code of Regulations (CCR) Title 24 Part 6, California's Energy Efficiency Standards for Residential and Nonresidential Buildings, were first established in 1978 in response to a legislative mandate to reduce California's energy consumption. Energy-efficient buildings require less electricity, natural gas, and other fuels. Electricity production from fossil fuels and on-site fuel combustion (typically for space and water heating) results primarily in GHG emissions. The California Energy Code is discussed in further detail in Section 4.2.4 of this report.

4.1.4 Regional Regulations

4.1.4.1 San Joaquin Valley Air Pollution Control District

The SJVAPCD has jurisdiction over most air quality matters within the SJVAB, which includes San Joaquin, Stanislaus, Merced, Madera, Fresno, Kings, and Tulare Counties and the valley portion of Kern County. The SJVAPCD regulates most air pollutant sources in the air basin, maintains ambient air quality monitoring stations at numerous locations throughout the air basin, and prepares the air quality management/attainment plans for the SJVAB that are required under the CAA and the California Clean Air Act (CCAA).

Air Quality Plans

The SJVAPCD has developed plans to attain State and federal standards for ozone and particulate matter. The SJVAPCD's air quality plans include emissions inventories to measure the sources of air pollutants, to evaluate how well different control methods have worked, and to show how air pollution will be reduced. The plans also use computer modeling to estimate future levels of pollution and make sure that the San Joaquin Valley will meet air quality goals.

1-Hour Ozone Plan – Although the USEPA revoked its 1979 1-hour ozone standard in June 2005, many planning requirements remain in place, and the SJVAB must still attain this standard before it can rescind CAA Section 185 fees. The SJVAPCD's *2013 Plan for the Revoked 1-hour Ozone Standard* demonstrated attainment of the 1-hour ozone standard by 2017 (SJVAPCD 2015). On July 18, 2016, the USEPA published in the Federal Register the final action to determine that the SJVAB has attained the 1-hour ozone standard. On June 15, 2023, the SJVAPCD adopted the *2023 Maintenance Plan and Redesignation Request for the Revoked 1-hour Ozone Standard* that includes provisions for a maintenance plan and requirements for meeting all five criteria of Section 107(d)(3)(E) of the CAA (SJVAPCD 2023).

8-Hour Ozone Plan – The SJVAPCD's *2007 Ozone Plan* demonstrates attainment of the 1997 NAAQS 8-hour ozone standard by 2023. The USEPA approved the 2007 Ozone Plan effective April 30, 2012. (SJVAPCD 2015). In June 2016, the SJVAPCD adopted the *2016 Plan for the 2008 8-Hour Ozone Standard* to map strategies for attainment of the updated NAAQS 8-hour ozone standard (SJVAPCD 2016a). The SJVAPCD adopted the *2022 Plan for the 2015 8-Hour Ozone Standard* in December 2022. This Plan satisfies Clean Air Act requirements and ensures expeditious attainment of the 70 parts per billion 8-hour ozone standard (SJVAPCD 2022). On April 24, 2024, the SJVAPCD adopted the *Ozone Contingency State Implementation Plan Revision for the 2008 and 2015 8-Hour Ozone Standards* to address the contingency provisions for the 2008 and 2015 8-hour ozone standards (SJVAPCD 2024a).

PM_{10} Plan – Based on PM_{10} measurements from 2003-2006, USEPA found that the SJVAB has reached federal PM_{10} standards. On September 21, 2007, the SJVAPCD adopted the *2007 PM_{10} Maintenance Plan and Request for Redesignation*. On September 25, 2008, the SJVAB was redesignated to attainment/maintenance (SJVAPCD 2015).

$PM_{2.5}$ Plan – The SJVAPCD's *2008 $PM_{2.5}$ Plan* demonstrated 2014 attainment of USEPA's first $PM_{2.5}$ standard, set in 1997. The USEPA lowered the $PM_{2.5}$ standard in 2006, and the SJVAPCD's *2012 $PM_{2.5}$ Plan* showed attainment of this standard by 2019, with the majority of the SJVAB seeing attainment much sooner (SJVAPCD 2015). The SJVAPCD adopted the *2016 Moderate Area Plan for the 2012 $PM_{2.5}$*

Standard on September 15, 2016. This plan addresses the updated NAAQS 2012 annual $PM_{2.5}$ standard and includes an attainment impracticability demonstration and request for reclassification of the SJVAB from moderate nonattainment to serious nonattainment (SJVAPCD 2016b). These plans came together when the SJVAPCD adopted the *2018 Plan for the 1997, 2006, and 2012 $PM_{2.5}$ Standards* on November 15, 2018. This plan addresses the federal standards for each of those years (SJVAPCD 2018).

The SJVAPCD adopted the *2024 Plan for the 2012 Annual $PM_{2.5}$ Standard* on June 20, 2024, to fulfill the remaining CAA requirements, including the final modeling analysis, attainment strategy and emission reduction commitments, reasonable further progress/quantitative milestones, and contingency measures. This Plan demonstrates expeditious attainment of the 2012 $PM_{2.5}$ standard by 2030 (SJVAPCD 2024b).

SJVAPCD Rules and Regulations

SJVAPCD's primary means of implementing its attainment plans is through its adopted rules and regulations. The project would be subject to the following rules adopted by the SJVAPCD that are designed to reduce and control pollutant emissions throughout the SJVAB.

- **Regulation VIII (Fugitive PM_{10} Prohibitions)** – This regulation implements Rules 8011, 8021, 8031, 8041, 8051, 8061, 8071, and 8081.

- **Rule 3135 (Dust Control Plan Fee)** – This rule recovers District costs for reviewing Dust Control Plan and conducting site inspections. Should a Dust Control Plan be deemed necessary to minimize air quality impacts, the campus could be subject to this rule.

- **Rule 3180 (Administrative Fees for Indirect Source Review)** – This rule applies to development projects subject to Rule 9510 regarding Indirect Source review. When the developer submits an Air Impact Assessment, in accordance with Rule 9510, an application fee, and potentially an evaluation fee, must be paid to recover District's costs for administering Rule 9510.

- **Rule 4102 (Nuisance)** – This rule applies to any source operation that emits or may emit air contaminants or other materials. In the event that the project or construction of the project creates a public nuisance, it could be in violation and subject to district enforcement action.

- **Rule 4601 (Architectural Coatings)** – This rule limits VOCs from architectural coatings by specifying architectural coatings storage, cleanup, and labeling requirements and applies to any person who supplies, sells, offers for sale, applies, or solicits the application of any architectural coating.

- **Rule 4641 (Cutback, Slow Cure, and Emulsified Asphalt, Paving, and Maintenance Operations)** – Asphalt paving operations are subject to Rule 4641. This rule applies to the manufacture and use of rapid and medium cure cutback asphalt, slow cure asphalt, and emulsified asphalt for paving and maintenance operations. The user or manufacturer of cutback, slow cure, and emulsified asphalt must comply with the recordkeeping requirements specified in Rule 4641.

- **Rule 4702 (Internal Combustion Engines – Phase 2)** – This rule limits the emissions of NO_X, CO, and VOCs emitted from internal combustion engines. The rule is applicable to any internal combustion engine with a rated brake horsepower greater than 50 horsepower. Emission

standards for the three pollutants are specified for each category of engine along with compliance dates for each standard. The source must also comply with the monitoring methods and other requirements specified in the rule.

- **Rule 8021 (Construction, Demolition, Excavation, Extraction, and Other Earthmoving Activities)** – This rule limits fugitive dust emissions from construction, demolition, excavation, extraction, and other earthmoving activities.

- **Rule 8031 (Bulk Materials)** – This rule details steps to be followed when handling bulk materials, such as utilizing wind barriers, applying water or stabilizers to limit Visible Dust Emissions (VDE), and covering materials when storing. This rule is intended to limit fugitive dust emissions from the outdoor handling, storage, and transport of bulk materials.

- **Rule 8041 (Carryout and Trackout)** – This rule applies to sites where carryout and trackout will occur. Earthmoving activities, moving bulk materials, and unpaved roads/and traffic areas subjects the project to this rule, which limits vehicle trips and mandates cleanup of carryout and a Dust Control Plan.

- **Rule 8051 (Open Areas)** – This rule applies to any open area having 0.5 acres or more in urban areas or 3.0 or more acres in rural areas, and therefore applies to campus development under the 2020 LRDP. To limit fugitive dust emissions, the rule mandates at least one of the following: the application of water or dust suppressants, the establishment of vegetation on disturbed areas, and/or the paving, graveling, or application of stabilizers to unvegetated areas.

- **Rule 8061 (Paved and Unpaved Roads)** – This rule limits fugitive dust in relation to roads, requiring compliance with the American Association of State Highway and Transportation Officials (AASHTO) guidelines.

- **Rule 8071 (Unpaved Vehicle/Equipment Traffic Areas)** – In order to limit fugitive dust emissions from unpaved areas, this rule requires compliance with Regulation VIII to limit VDE. The rule also mandates restricted access on disturbed surfaces and reducing such surfaces through vegetative materials, watering, graveling, paving, etc.

- **Rule 9510 (Indirect Source Review)** – This rule fulfills SJVAPCD's emission reduction commitments in the PM_{10} and O_3 attainment plans. Applicants developing property over the limits specified in the rule (e.g., 50 or more residential units) or nonresidential projects emitting more than 2 tons per year (tpy) of operational NO_X or PM_{10} are subject to this rule and must file an Air Impact Assessment (AIA) application prior to applying for final discretionary approval from a lead agency (e.g., tentative tract map).

  The purpose of Rule 9510 is to reduce NO_X and PM_{10} emissions from new development projects. The rule applies to projects that, upon full buildout, will include any one of the following:

  - 50 residential units
  - 2,000 square feet of commercial space
  - 25,000 square feet of light industrial space
  - 20,000 square feet of medical or recreational space

- 39,000 square feet of general office space
- 100,000 square feet of heavy industrial space
- 9,000 square feet of educational space
- 10,000 square feet of government space
- 9,000 square feet of any land use not identified above

4.2 GREENHOUSE GASES

4.2.1 Climate Change Overview

Global climate change refers to changes in average climatic conditions on Earth including temperature, wind patterns, precipitation, and storms. Global temperatures are moderated by atmospheric gases. These gases are commonly referred to as GHGs because they function like a greenhouse by letting sunlight in but preventing heat from escaping, thus warming the Earth's atmosphere.

GHGs are emitted by natural processes and human (anthropogenic) activities. Anthropogenic GHG emissions are primarily associated with: (1) the burning of fossil fuels during motorized transport, electricity generation, natural gas consumption, industrial activity, manufacturing, and other activities; (2) deforestation; (3) agricultural activity; and (4) solid waste decomposition.

The GHGs defined under California's Assembly Bill (AB) 32, described below, include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). Each GHG differs in its ability to absorb heat in the atmosphere based on the lifetime, or persistence, of the gas molecule in the atmosphere. Estimates of GHG emissions are commonly presented in carbon dioxide equivalents (CO_2e), which weigh each gas by its global warming potential (GWP). Expressing GHG emissions in CO_2e takes the contribution of all GHG emissions to the greenhouse effect and converts them to a single unit equivalent to the effect that would occur if only CO_2 were being emitted. GHG emissions quantities in this analysis are presented in metric tons (MT) of CO_2e. For consistency with United Nations Standards, modeling, and reporting of GHGs in California and the U.S. use the GWPs defined in the Intergovernmental Panel on Climate Change's (IPCC) Fourth Assessment Report (IPCC 2007): CO_2 – 1; CH_4 – 25; N_2O – 298.

4.2.2 Types of Greenhouse Gases

Carbon Dioxide. CO_2 is the most important and common anthropogenic GHG. CO_2 is an odorless, colorless GHG. Natural sources include the decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungi; evaporation from oceans; and volcanic outgassing. Anthropogenic sources of CO_2 include burning fuels, such as coal, oil, natural gas, and wood. Data from ice cores indicate that CO_2 concentrations remained steady prior to the current period for approximately 10,000 years. The atmospheric CO_2 concentration in 2010 was 390 ppm, 39 percent above concentration at the start of the Industrial Revolution (about 280 ppm in 1750). As of December 2024, the CO_2 concentration exceeded 425.40 ppm, a 52 percent increase since 1750 (National Oceanic and Atmospheric Administration [NOAA] 2025).

Methane. CH_4 is the main component of natural gas used in homes. A natural source of methane is from the decay of organic matter. Geological deposits known as natural gas fields contain methane, which is extracted for fuel. Other sources are from decay of organic material in landfills, fermentation of manure, and cattle digestion.

Nitrous Oxide. N_2O is produced by both natural and human-related sources. N_2O is emitted during agricultural and industrial activities, as well as during the combustion of fossil fuels and solid waste. Primary human-related sources of N_2O are agricultural soil management, animal manure management, sewage treatment, mobile and stationary combustion of fossil fuel, adipic (fatty) acid production, and nitric acid production.

Hydrofluorocarbons. Fluorocarbons are gases formed synthetically by replacing all hydrogen atoms in methane or ethane with chlorine and/or fluorine atoms. Chlorofluorocarbons (CFCs) are nontoxic, nonflammable, insoluble, and chemically nonreactive in the troposphere (the level of air at Earth's surface). CFCs were first synthesized in 1928 for use as refrigerants, aerosol propellants, and cleaning solvents. They destroy stratospheric ozone; therefore, their production was stopped as required by the 1989 Montreal Protocol.

Sulfur Hexafluoride. SF_6 is an inorganic, odorless, colorless, nontoxic, nonflammable gas. SF_6 is used for insulation in electric power transmission and distribution equipment, in the magnesium industry, in semi-conductor manufacturing, and as a tracer gas for leak detection.

GHGs have long atmospheric lifetimes that range from one year to several thousand years. Long atmospheric lifetimes allow for GHG emissions to disperse around the globe. Because GHG emissions vary widely in the power of their climatic effects, climate scientists have established a unit called global warming potential (GWP). The GWP of gas is a measure of both potency and lifespan in the atmosphere as compared to CO_2. For example, a gas with a GWP of 10 is 10 times more potent than CO_2 over 100 years. CO_2e is a quantity that enables all GHG emissions to be considered as a group despite their varying GWP. The GWP of each GHG is multiplied by the prevalence of that gas to produce CO_2e.

Historically, GHG emission inventories have been calculated using the GWPs from the IPCC's Second Assessment Report (AR2). In 2007, IPCC updated the GWP values based on the latest science at the time in its Fourth Assessment Report (AR4). In 2013, IPCC again updated the GWP values based on the latest science at the time in its Fifth Assessment Report (AR5) (IPCC 2013). In 2021, IPCC again updated the GWP values based on the latest science in the Sixth Assessment Report (IPCC 2021). However, the United Nations Framework Convention on Climate Change (UNFCCC) reporting guidelines for national inventories require the use of GWP values from the AR5. To comply with international reporting standards under the UNFCCC, official emission estimates for California and the U.S. are reported using AR5 GWP values, as statewide and national GHG inventories have not yet updated their GWP values to the AR6 values. GHG emissions in this analysis are reported using the AR5 GWP values.

By applying the GWP ratios, CO_2e emissions can be tabulated in metric tons (MT) per year. Typically, the GWP ratio corresponding to the warming potential of CO_2 over a 100-year period is used as a baseline. The atmospheric lifetime and GWP of selected GHGs are summarized in Table 4, *Global Warming Potentials and Atmospheric Lifetimes*.

Table 4: Global Warming Potentials And Atmospheric Lifetimes

Greenhouse Gas	Atmospheric Lifetime (years)	IPCC SAR GWP	IPCC AR4 GWP	IPCC AR5 GWP	IPCC AR6 GWP
Carbon Dioxide (CO_2)	50-200	1	1	1	1
Methane (CH_4)	12	21	25	28	27
Nitrous Oxide (N_2O)	114	310	298	265	273
HFC-134a	14	1,300	1,430	1,300	1,530
PFC: Tetrafluoromethane (CF_4)	50,000	6,500	7,390	6,630	7,380
PFC: Hexafluoroethane (C_2F_6)	10,000	9,200	12,200	11,100	12,400
Sulfur Hexafluoride (SF_6)	3,200	23,900	22,800	23,500	24,300

Source: IPCC 2021
IPCC = Intergovernmental Panel on Climate Change; GWP = global warming potential; HFC = hydrofluorocarbon; PFC = perfluorocarbon

4.2.3 Federal Greenhouse Gas Regulations

4.2.3.1 Federal Clean Air Act

The U.S. Supreme Court ruled on April 2, 2007, in *Massachusetts v. U.S. Environmental Protection Agency* that CO_2 is an air pollutant, as defined under the CAA, and that the USEPA has the authority to regulate emissions of GHGs. The USEPA announced that GHGs (including CO_2, CH_4, N_2O, HFC, PFC, and SF_6) threaten the public health and welfare of the American people (USEPA 2024c). This action was a prerequisite to finalizing the USEPA's GHG emissions standards for light-duty vehicles, which were jointly proposed by the USEPA and the United States Department of Transportation's National Highway Traffic Safety Administration (NHTSA).

4.2.3.2 Light-Duty Vehicle Greenhouse Gas Emissions Standards and Corporate Average Fuel Economy Standards

The USEPA and the NHTSA worked together on developing a national program of regulations to reduce GHG emissions and improve the fuel economy of light-duty vehicles. The USEPA established the first-ever national GHG emissions standards under the CAA, and the NHTSA established Corporate Average Fuel Economy (CAFE) standards under the Energy Policy and Conservation Act. On June 7, 2024, the NHSTA announced the most recent Final Rule for model years 2027 through 2031 CAFE standards which requires an industry-wide fleet average of approximately 50.4 miles per gallon in model year 2031 for passenger cars and light trucks (USEPA and NHSTA 2024).

4.2.4 California Greenhouse Gas Regulations

4.2.4.1 California Code of Regulations, Title 24, Part 6

CCR Title 24 Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings were first established in 1978 in response to a legislative mandate to reduce California's energy consumption. Energy-efficient buildings require less electricity, natural gas, and other fuels. Electricity production from fossil fuels and on-site fuel combustion (typically for space or water heating) results in GHG emissions. The Title 24 standards are updated approximately every three years to allow consideration and possible incorporation of new energy efficiency technologies and methods. The 2022 Title 24 standards became effective on January 1, 2023. The 2022 update to the Building Energy Efficiency Standards focuses on several key areas to improve the energy efficiency of newly constructed

buildings and additions and alterations to existing buildings. New for the 2022 Title 24 standards are non-residential on-site photovoltaic (solar panels) electricity generation requirements (California Energy Commission [CEC] 2022).

The standards are divided into three basic sets. First, there is a basic set of mandatory requirements that apply to all buildings. Second, there is a set of performance standards—the energy budgets—that vary by climate zone (of which there are 16 in California) and building type; thus, the standards are tailored to local conditions. Finally, the third set constitutes an alternative to the performance standards, which is a set of prescriptive packages that are basically a recipe or a checklist compliance approach.

4.2.4.2 California Green Building Standards Code

The California Green Building Standards Code (CALGreen; CCR Title 24, Part 11) is a code with mandatory requirements for all nonresidential buildings (including industrial buildings) and residential buildings for which no other state agency has the authority to adopt green building standards. CALGreen also contains voluntary measures (i.e., Tier 1, Tier 2) which exceed minimum regulatory requirements. The 2022 Standards for new construction of, and additions and alterations to, residential and nonresidential buildings became effective on January 1, 2023 (California Building Standards Commission [CBSC] 2022).

The development of CALGreen is intended to (1) cause a reduction in GHG emissions from buildings; (2) promote environmentally responsible, cost-effective, healthier places to live and work; (3) reduce energy and water consumption; and (4) respond to the directives by the Governor. In short, the code is established to reduce construction waste; make buildings more efficient in the use of materials and energy; and reduce environmental impact during and after construction.

CALGreen contains requirements for storm water control during construction; construction waste reduction; indoor water use reduction; material selection; natural resource conservation; site irrigation conservation; and more. The code provides design options allowing the designer to determine how best to achieve compliance for a given site or building condition. The code also requires building commissioning, which is a process for the verification that all building systems, like heating and cooling equipment and lighting systems, are functioning at their maximum efficiency.

4.2.4.3 Executive Order S-3-05

On June 1, 2005, Executive Order (EO) S-3-05 proclaimed that California is vulnerable to climate change impacts. It declared that increased temperatures could reduce snowpack in the Sierra Nevada, further exacerbate California's air quality problems, and potentially cause a rise in sea levels. To avoid or reduce climate change impacts, EO S-3-05 calls for a reduction in GHG emissions to the year 2000 level by 2010, to the year 1990 levels by 2020, and to 80 percent below 1990 levels by 2050.

4.2.4.4 Assembly Bill 32 – Global Warming Solution Act of 2006

The California Global Warming Solutions Act of 2006, widely known as AB 32, requires that CARB develop and enforce regulations for the reporting and verification of statewide GHG emissions. CARB is directed by AB 32 to set a GHG emission limit, based on 1990 levels, to be achieved by 2020. The bill requires CARB to adopt rules and regulations in an open public process to achieve the maximum technologically feasible and cost-effective GHG emission reductions.

4.2.4.5 Executive Order B-30-15

On April 29, 2015, EO B-30-15 established a California GHG emission reduction target of 40 percent below 1990 levels by 2030. The EO aligns California's GHG emission reduction targets with those of leading international governments, including the 28 nation European Union. California is on track to meet or exceed the target of reducing GHGs emissions to 1990 levels by 2020, as established in AB 32. California's new emission reduction target of 40 percent below 1990 levels by 2030 will make it possible to reach the goal established by EO S-3-05 of reducing emissions 80 percent under 1990 levels by 2050.

4.2.4.6 Senate Bill 32

Senate Bill (SB) 32 (Amendments to the California Global Warming Solutions Action of 2006) extends 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 continuing efforts to pursue the long-term target expressed in EO B-30-15 of 80 percent below 1990 emissions levels by 2050.

4.2.4.7 Assembly Bill 197

A condition of approval for SB 32 was the passage of AB 197. AB 197 requires that CARB consider the social costs of GHG emissions and prioritize direct reductions in GHG emissions at mobile sources and large stationary sources. AB 197 also gives the California legislature more oversight over CARB through the addition of two legislatively appointed members to the CARB Board and the establishment of a legislative committee to make recommendations about CARB programs to the legislature.

4.2.4.8 Assembly Bill 1493 – Vehicular Emissions of Greenhouse Gases

AB 1493 (Pavley) requires that CARB develop and adopt regulations that achieve "the maximum feasible reduction of GHGs emitted by passenger vehicles and light-duty truck and other vehicles determined by CARB to be vehicles whose primary use is noncommercial personal transportation in the State." On September 24, 2009, CARB adopted amendments to the Pavley regulations that intend to reduce GHG emissions in new passenger vehicles from 2009 through 2016. The amendments bind California's enforcement of AB 1493 (starting in 2009), while providing vehicle manufacturers with new compliance flexibility. In January 2012, CARB approved a new emissions-control program for model years 2017 through 2025. The program combines the control of smog, soot, and global warming gases and requirements for greater numbers of zero-emission vehicles into a single packet of standards called Advanced Clean Cars (CARB 2025c).

4.2.4.9 Senate Bill 350

Approved by Governor Brown on October 7, 2015, SB 350 increases California's renewable electricity procurement goal from 33 percent by 2020 to 50 percent by 2030. This will increase the use of Renewables Portfolio Standard eligible resources, including solar, wind, biomass, and geothermal. In addition, large utilities are required to develop and submit Integrated Resource Plans to detail how each entity will meet their customers resource needs, reduce GHG emissions, and increase the use of clean energy.

4.2.4.10 Senate Bill 375

SB 375, the Sustainable Communities and Climate Protection Act of 2008, supports the State's climate action goals to reduce GHG emissions through coordinated transportation and land use planning with the goal of more sustainable communities. Under the Sustainable Communities Act, CARB sets regional targets for GHG emissions reductions from passenger vehicle use. In 2010, CARB established these targets for 2020 and 2035 for each region covered by one of the State's metropolitan planning organizations (MPOs). CARB periodically reviews and updates the targets, as needed.

Each of California's MPOs must prepare a Sustainable Communities Strategy (SCS) as an integral part of its regional transportation plan (RTP). The SCS contains land use, housing, and transportation strategies that, if implemented, would allow the region to meet its GHG emission reduction targets. Once adopted by the MPO, the RTP/SCS guides the transportation policies and investments for the region. CARB must review the adopted SCS to confirm and accept the MPO's determination that the SCS, if implemented, would meet the regional GHG targets. If the combination of measures in the SCS would not meet the regional targets, the MPO must prepare a separate alternative planning strategy (APS) to meet the targets. The APS is not a part of the RTP. Qualified projects consistent with an approved SCS or Alternative Planning Strategy categorized as "transit priority projects" would receive incentives to streamline CEQA processing.

4.2.4.11 Senate Bill 100

Approved by Governor Brown on September 10, 2018, SB 100 extends the renewable electricity procurement goals and requirements of SB 350. SB 100 requires that all retail sales of electricity to California end-use customers be procured from 100 percent eligible renewable energy resources and zero-carbon resources by the end of 2045.

4.2.4.12 Assembly Bill 1279

Approved by Governor Newsom on September 16, 2022, AB 1279, the California Climate Crisis Act declares the policy of the State to achieve net zero GHG emissions as soon as possible, but no later than 2045, and achieve and maintain net negative GHG emissions thereafter, and to ensure that by 2045, statewide anthropogenic GHG emissions are reduced to at least 85 percent below the 1990 levels. AB 1279 anticipates achieving these policies through direct GHG emissions reductions, removal of CO_2 from the atmosphere (carbon capture), and an almost complete transition away from fossil fuels.

4.2.4.13 California Air Resources Board: Scoping Plan

The Scoping Plan is a strategy CARB develops and updates at least once every five years, as required by AB 32. It lays out the transformations needed across our society and economy to reduce emissions and reach our climate targets. The current 2022 Scoping Plan is the third update to the original plan that was adopted in 2008. The initial 2008 Scoping Plan laid out a path to achieve the AB 32 mandate of returning to 1990 levels of GHG emissions by 2020, a reduction of approximately 15 percent below business as usual. The 2008 Scoping Plan included a mix of incentives, regulations, and carbon pricing, laying out the portfolio approach to addressing climate change and clearly making the case for using multiple tools to meet California's GHG targets. The 2013 Scoping Plan assessed progress toward achieving the 2020 mandate and made the case for addressing short-lived climate pollutants (SLCPs). The 2017 Scoping Plan also assessed progress toward achieving the 2020 limit and provided a technologically feasible and cost-

effective path to achieving the SB 32 mandate of reducing GHGs by at least 40 percent below 1990 levels by 2030.

On December 15, 2022, CARB approved the 2022 Scoping Plan for Achieving Carbon Neutrality (2022 Scoping Plan). The 2022 Scoping Plan lays out a path to achieve targets for carbon neutrality and reduce anthropogenic GHG emissions by 85 percent below 1990 levels no later than 2045, as directed by AB 1279. The actions and outcomes in the plan will achieve significant reductions in fossil fuel combustion by deploying clean technologies and fuels; further reductions in SLCPs; support for sustainable development; increased action on natural and working lands to reduce emissions and sequester carbon; and the capture and storage of carbon (CARB 2022).

4.2.5 Regulations GHG Policies and Plans

4.2.5.1 San Joaquin Valley Air Pollution Control District

In December 2009, SJVAPCD adopted the following guidance documents applicable to the project:

- Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA (SJVAPCD 2009a), and

- District Policy: Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA When Serving as the Lead Agency (SJVAPCD 2009b).

This guidance and policy are the documents referenced in the SJVAPCD's *Guidance for Assessing and Mitigating Air Quality Impacts,* adopted in March 2015 (SJVAPCD 2015). Consistent with the District Guidance and District Policy above, SJVAPCD acknowledges the current absence of numerical thresholds, and recommends a tiered approach to establish the significance of the GHG impacts on the environment:

1. If a project complies with an approved GHG emission reduction plan or GHG mitigation program which avoids or substantially reduces GHG emissions within the geographic area in which the project is located, then the project would be determined to have a less than significant individual and cumulative impact for GHG emissions;

2. If a project does not comply with an approved GHG emission reduction plan or mitigation program, then it would be required to implement best performance standards (BPS); and

3. If a project is not implementing BPS, then it should demonstrate that its GHG emissions would be reduced or mitigated by at least 29 percent, compared to business-as-usual.

SJVAPCD adopted a Climate Change Action Plan (CCAP) in 2008 and issued guidance for development project compliance with the plan in 2009. The guidance adopted an approach that relies on the use of BPS to reduce GHG emissions. Projects implementing BPS would be determined to have a less than cumulatively significant impact. For projects not implementing BPS, demonstration of a 29 percent reduction in project-specific (i.e., operational) GHG emissions from business-as-usual conditions is required to determine that a project would have a less than cumulatively significant impact (SJVAPCD 2009a). Both the SJVAPCD CAP and the guidance for development project compliance are limited to achieving the State 2020 GHG reduction goals mandated by AB 32. The SJVAPCD CAP and the guidance for development project compliance do not address California's post-2020 GHG reduction goals.

4.2.6 Local Regulations

4.2.6.1 University of California Sustainable Practices Policy

The UC Sustainable Practices Policy, being most recently updated in April of 2024, guides sustainability efforts across the 10 campuses, five academic health centers and other university facilities in thirteen areas of sustainable practice. The UC Sustainable Practices Policy established goals in 13 areas of sustainable practices: green building, clean energy, climate action, transportation, sustainable operations, zero waste, procurement, foodservice, water, health care, performance assessment, health and well-being, and diversity, equity, inclusion and justice (University of California 2024).

After the certification of the 2020 LRDP SEIR in November of 2020, the UC Office of the President updated its Sustainable Practices Policy. On March 10, 2022, the UC Sustainable Practices Policy was revised to update the following sections with new goals, procedures, and clarifications: Green Building Design, Climate Protection, Sustainable Transportation, Sustainable Water Systems, and Sustainability at UC Health. The 2022 UC Sustainable Practices Policy also added a Health and Well-Being Policy section and made minor clarifications to water and procurement sections.

On May 16, 2023, the UC Sustainable Practices Policy revised the Clean Energy section to indicate that the UC Clean Power Program is already achieving the Clean Electricity goals and to update the goals and timelines around centrally purchased biomethane to reflect current plans. The 2023 UC Sustainable Practices Policy also replaced the former goal of achieving carbon neutrality for Scope 1 emissions (area sources, fleet vehicles, and fugitive emissions) and Scope 2 emissions (electricity) by 2025 with a goal that is aligned with State goals in the most recent 2022 Scoping Plan of achieving carbon neutrality for all scopes, but at a minimum Scope 3 emissions (commuting, water, wastewater, solid waste), by 2045. The 2023 UC Sustainable Practices Policy set a new long-term reduction target of 90 percent below 2019 levels by 2045 for all scopes of emissions, which is more aggressive than the reduction targets established in AB 1279. After 2045, the 2023 UC Sustainable Practices Policy requires that any residual emissions beyond the 90 percent reduction will be negated by carbon removal to achieve complete carbon neutrality in alignment with the State's goals and the 2022 Scoping Plan. The 2023 UC Sustainable Practices Policy reflected the UC's desire to prioritize direct, total emissions reductions to support the achievement of the State's updated reduction targets established in AB 1279, signed into law in September 2022, that requires that statewide anthropogenic GHG emissions be reduced to at least 85 percent below 1990 levels. As part of the update to the 2023 UC Sustainable Practices Policy, UC Merced is required to prepare a decarbonization study by January 1, 2025, that will be used to establish new interim GHG emissions reduction targets for 2030, 2035, and 2040. These planning efforts are still currently underway.

On April 10, 2024, the UC Sustainable Practices Policy was updated to remove references to carbon offset purchases that are no longer used for policy compliance.

4.2.6.2 American College and University Presidents Climate Commitment

The University of California has also signed the American College and University Presidents Climate Commitment (ACUPCC). Each signatory commits to completing an inventory of GHG emissions within one year, and to developing, within two years, an institutional plan to achieve climate neutrality as soon as possible. The commitment also includes specific interim actions, including requiring that new campus construction will be built to at least the U.S. Green Building Council's LEED Silver standard or equivalent;

purchasing Energy Star appliances; offsetting GHG emissions generated by institutional air travel; encouraging and providing access to public transportation; purchasing or producing at least 15 percent of the institution's electricity consumption from renewable sources; supporting climate and sustainability shareholder proposals at companies where the institution's endowment is invested; and adopting measures to reduce waste.

4.2.6.3 UC Merced Sustainability Strategic Plan 2017-2022

In 2017, UC Merced released a Sustainability Strategic Plan to describe its approach to achieving its sustainability goals (UC Merced 2017). The ambitious central focus of the plan is the achievement of zero net energy usage, zero landfill waste, and zero net GHG emissions by 2020. Not only does the plan provide campus principles related to sustainability, but it also provides insight into the specific actions that will allow UC Merced to maintain its principles and meet its goals, even as the campus rapidly expands. Many of the actions laid out in the plan indirectly benefit GHG reduction efforts but the action items listed below focus specifically on GHG reduction on the campus.

- Goal Transportation: Increase alternative modes of transportation usage among campus constituency and reduce the carbon footprint of transportation, parking, and fleet services.
    - Action 3: GHG Reduction: Develop GHG emission reduction goals for campus fleet.
- Goal Climate Protection: Achieve carbon neutrality by 2020.
    - Action 2: Renewables: Utilize renewable power options to mitigate and reduce GHG impact.

4.2.6.4 UC Merced Climate Action Plan

The first UC Merced Climate Action Plan (CAP) was adopted in 2009 to promote two long-term campus goals: (1) to reach zero net energy by 2020; and (2) to be climate neutral, with respect to on- and off-campus emissions. In 2018, UC Merced developed an updated CAP which builds on the previous CAP and extends out to 2025. The 2018 CAP notes that UC Merced's' approach to mitigating its climate effects is to:

- Save as much energy as is economically feasible
- Generate from on-site renewable sources as much energy as is consumed annually (net zero energy)
- Continue participating in the University's Wholesale Power Program which will bring the campus 97 percent clean energy through the grid by 2020
- Offset remaining GHG emissions, prioritizing onsite and regional offsets (climate neutrality)

The 2018 CAP describes the current energy saving infrastructure at the campus, which consists of central cooling, thermal energy storage, and central heating for primary academic buildings, and notes that UC Merced intends to continue this basic strategy to provide heating and cooling to future campus development. Regarding the new building design, the 2018 CAP notes that UC Merced has committed to

energy efficient design (that all new buildings will be designed to consume half the energy and demand of other University buildings in California, surpass Title 24 by 20 percent, and achieve all LEED credits for optimizing energy efficiency). UC Merced also implements a number of programs to inform and sensitize building occupants to energy consumption and conservation and implements a building maintenance program to optimize building operations. UC Merced is also pursuing a small number of building energy efficiency projects to further reduce energy use.

In view of its goal to achieve Net Zero Energy by 2020 for on-campus facilities, UC Merced developed a 1 megawatt (MW) solar photovoltaic array. The array produces about 12 percent of the total annual campus electricity consumed and 22 percent of the peak load. A second 4.2 MW solar array project was completed and became operational in January 2019. UC Merced is also pursuing a landfill gas-to-energy project with Merced County Regional Waste Management Authority whereby landfill gas that is currently burnt off at the Highway 59 landfill would be piped to the campus and used in microturbines to generate electricity and for hot water generation that would serve a portion of the campus; the project would allow UC Merced to discontinue its use of three hot water boilers that operate on natural gas. UC Merced is one of 10 campuses that is provided electricity by the University under its Wholesale Power Program (WPP). In furtherance of its commitment to be net zero by 2020, by 2021, 100 percent of the electricity provided to the campus via the grid under the WPP will be clean renewable energy (UC Merced 2018). UC Merced is working on an updated CAP to be approved by 2026 with interim targets for GHG reduction.

4.2.6.5 UC Merced Transportation Demand Management Program

The Campus implements a number of transportation demand management (TDM) measures to minimize vehicle trips and associated air emissions, including GHG emissions. Existing and future TDM measures are listed below (UC Merced 2020).

Existing TDM programs

- Subsidized transit
- Ridesharing and Carsharing opportunities
- Carpool and vanpool incentives
- Emergency Ride Home Program (for employees)
- Bicycle incentives
- Marketing/Educational campaigns focused on alternative transportation options
- Increased the number of clean air commuter permits for eligible carpools to promote ridesharing
- Secured grants to fund purchase of fuel efficient and low emission fleet vehicles
- Electric charging stations in the North Bowl, LeGrand and Library Lots

- Annual surveying of campus community commuting patterns
- Information table at both New Student Orientations (NSO) and New Employee Orientations (NEO)
- ZipCar self-service, on-demand car sharing & Zimride rideshare and commute programs

Programs Under Development

- Bicycle program
- Refinement of marketing and advertising campaign of "UC Merced Commuter Club" to increase participation in alternative transportation initiatives
- Increase the number of electric charging stations for electric carts

Future Goals

- Expansion of hybrid and/or battery-operated fleet
- Reduction of Single Occupancy Vehicle (SOC) VMT rates through aggressive marketing and development of incentives to participate in alternative transportation programs (i.e. message boards, departmental competitions)
- Adapt a clean-fleet procurement policy
- Standardize fleet ordering cycles
- Zero-emission vehicle incentives

5.0 EXISTING CONDITIONS

5.1 CLIMATE AND METEROLOGY

The project site is located within the Merced County portion of the SJVAB. The SJVAB enjoys an inland Mediterranean climate, averaging more than 260 sunny days per year. The valley floor is characterized by warm, dry summers and cooler winters. Average daily temperatures in the basin range from 44.6 degrees °F in January to 76.7°F in July. Summer highs often exceed 100°F, averaging in the low 90s in the northern valley and high 90s to the south. Maximum temperatures of 90°F or greater occur about 88 days per year. Although the SJVAB enjoys a high frequency of sunshine, a reduction in sunshine occurs during December and January because of fog and intermittent stormy weather. Temperatures of 32°F and below occur about 22 days per year. Nearly 90 percent of the annual precipitation falls in the six months between November and April (UC Merced 2020).

5.2 SENSITIVE RECEPTORS

CARB and the Office of Environmental Health Hazard Assessment (OEHHA) have identified the following groups of individuals as the most likely to be affected by air pollution: adults over 65, children under 14, infants (including in utero in the third trimester of pregnancy), and persons with cardiovascular and chronic respiratory diseases such as asthma, emphysema, and bronchitis, known as sensitive receptors (CARB 2005; OEHHA 2015). Some land uses are considered more sensitive to air pollution than others due to the types of population groups or activities involved and are referred to as sensitive receptor locations. Examples of these sensitive receptor locations are residences, schools, hospitals, and daycare centers.

The closest existing sensitive receptor locations to the project site are UC Merced student housing buildings located 1,125 feet west of the project site. There are no off-campus residences, schools, hospitals, or daycare centers within a quarter mile of the project site.

5.3 EXISTING AIR QUALITY

5.3.1 Criteria Pollutants

5.3.1.1 Attainment Designations

As shown in Table 3, the SJVAB is designated as nonattainment for 8-hour ozone and $PM_{2.5}$ with respect to NAAQS. The SJVAB is designated as nonattainment for 1-hour and 8-hour ozone, $PM_{2.5}$, and PM_{10} with respect to CAAQS (SJVAPCD 2025).

5.3.1.2 Monitored Air Quality

The SJVAPCD maintains monitoring stations to measure ambient concentrations of pollutants in Merced County. The closest monitoring station to the project is located at 2334 M Street in the City of Merced, approximately 4.5 miles southwest of the project site. This station monitors ambient pollutant concentrations of PM_{10} and $PM_{2.5}$. The next nearest monitoring station to the site is located at 385 South Coffee Avenue in the City of Merced, approximately 4.5 miles south of the project site. This station monitors ambient pollutant concentrations of O_3 and NO_2. Neither CO nor SO_2 monitoring data is available for the range of years (2021 through 2023) listed below. Table 5, *Air Quality Monitoring Data*, presents a summary of the ambient pollutant concentrations monitored at the two air quality monitoring stations during the most recent three years (2021 through 2023) for which the SJVAPCD has reported data (CARB 2025d).

Table 5: Air Quality Monitoring Data

Pollutant Standard	2021	2022	2023
Ozone (O_3) – 385 South Coffee Avenue Station			
Maximum concentration 1-hour period (ppm)	0.099	0.096	0.096
Maximum concentration 8-hour period (ppm)	0.089	0.083	0.079
Days above 1-hour state standard (>0.09 ppm)	2	3	1
Days above 8-hour state/federal standard (>0.070 ppm)	21	9	13
Coarse Particulate Matter (PM_{10}) – 2334 M Street Station			
Maximum 24-hour concentration (µg/m^3)	86.9	100.5	109.3
Measured Days above 24-hr state standard (>50 µg/m^3)	10	60	50

Pollutant Standard	2021	2022	2023
Measured Days above 24-hr federal standard (>150 µg/m^3)	0	0	0
Annual average (µg/m^3)	*	*	32.0
Exceed state annual standard (20 µg/m^3)	*	*	Yes
Fine Particulate Matter ($PM_{2.5}$) – 2334 M Street Station			
Maximum 24-hour concentration (µg/m^3)	72.9	43.7	38.5
Measured Days above 24-hour federal standard (>35 µg/m^3)	14	4	2
Annual average (µg/m^3)	11.1	10.5	9.6
Exceed state and federal annual standard (12 µg/m^3)	No	No	No
Nitrogen Dioxide (NO_2) – 385 South Coffee Avenue Station			
Maximum 1-hour concentration (ppm)	0.038	0.039	0.037
Days above state 1-hour standard (0.18 ppm)	0	0	0
Days above federal 1-hour standard (0.100 ppm)	0	0	0
Annual average (ppm)	*	0.007	0.006
Exceed annual federal standard (0.053 ppm)	*	No	No
Exceed annual state standard (0.030 ppm)	*	No	No

Source: CARB 2025d

ppb = parts per billion; ppm = parts per million; µg/m^3 = micrograms per cubic meter, * = insufficient data available.

As shown in Table 5, the 1- and 8-hour ozone, and PM_{10}, standards exceeded numerous times in each of the sample years. Data for $PM_{2.5}$ and NO_2 showed no exceedance.

5.3.2 Greenhouse Gases

5.3.2.1 Worldwide GHG Inventory

In 2020, total GHG emissions worldwide were estimated at 50,510 million metric tons (MMT) of CO_2e emissions (Climate Watch 2025). By country, the U.S. contributed the second largest portion (11.3 percent) of global GHG emissions, behind the largest contributor, China (with 24.4 percent of global emissions). The total U.S. GHG emissions were 5,289 MMT CO_2e in 2021 (Climate Watch 2025). On a national level, approximately 90 percent of GHG emissions were associated with energy, including transportation energy (Climate Watch 2025).

5.3.2.2 California GHG Inventory

CARB performed Statewide inventories for the years 2000-2022, as shown in Table 6, *California Greenhouse Gas Emissions by Sector*. The inventory is divided into five broad sectors of economic activity: agriculture, commercial and residential, electricity generation, industrial, and transportation. Emissions are quantified in MMT CO_2e.

Table 6: California Greenhouse Gas Emissions By Sector

Sector	Emissions (MMT CO_2e)			
	1990	2000	2020	2022
Agriculture and Forestry	18.9 (4%)	30.8 (7%)	31.4 (9%)	29.8 (8%)
Commercial and Residential	44.1 (10%)	44.3 (10%)	39.0 (11%)	39.5 (11%)
Electricity Generation	110.5 (26%)	104.7 (22%)	59.5 (16%)	59.8 (16%)
High Global Warming Potential	-	6.6 (1%)	21.3 (6%)	21.3 (6%)
Industrial	105.3 (24%)	92.8 (20%)	73.6 (20%)	72.7 (20%)
Recycling and Waste	-	7.0 (2%)	8.5 (2%)	8.2 (2%)
Transportation	150.6 (35%)	176.7 (38%)	135.2 (37%)	139.9 (38%)
Unspecified Remaining	1.3 (<1%)	0.0 (0%)	0.0 (0%)	0.0 (0%)
Total	**430.7**	**462.9**	**368.5**	**371.1**

Source: CARB 2007 and CARB 2025e
MMT = million metric tons; CO_2e = carbon dioxide equivalent

As shown in Table 6, Statewide GHG source emissions totaled 430.7 MMT CO_2e in 1990, 462.9 MMT CO_2e in 2000, 368.5 MMT CO_2e in 2020, and 371.1 MMT CO_2e in 2022. Transportation-related emissions consistently contribute the most GHG emissions, followed by electricity generation and industrial emissions (CARB 2007 and CARB 2025e).

6.0 METHODOLOGY AND SIGNIFICANCE CRITERIA

6.1 METHODOLOGY

Criteria pollutant and precursor emissions, and GHG emissions for the project construction activities and long-term operation were calculated using the California Emissions Estimator Model (CalEEMod), Version 2022.1. CalEEMod is a Statewide land use emissions computer model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant emissions associated with both construction and operations from a variety of land use projects. The model was developed for the California Air Pollution Control Officers Association (CAPCOA) in collaboration with the California air districts. CalEEMod allows for the use of default data (e.g., emission factors, trip lengths, meteorology, source inventory) provided by the various California air districts to account for local requirements and conditions, and/or user-defined inputs. The model calculates emissions of criteria pollutants, Ozone precursors, and GHGs. The calculation methodology and input data used in CalEEMod can be found in the CalEEMod User's Guide Appendices A, C, and D (CAPCOA 2025). The input data and subsequent construction and operation emission estimates for the proposed project are discussed below.

6.1.1 Construction Emissions

CalEEMod has the capability to calculate reductions in construction emissions from the effects of dust control, diesel-engine classifications, and other selected emissions reduction measures. In compliance with SJVAPCD Rule 8021, *Construction, Demolition, Excavation, Extraction, and other Earth Moving Activities*, fugitive dust emissions calculations assume application of water on exposed surfaces a minimum of two times per day. CalEEMod estimates construction emissions for each year of

construction activity based on the annual construction equipment profile and other factors determined as needed to complete all phases of construction by the target completion year. As such, each year of construction activity has varying quantities of GHG emissions.

6.1.1.1 Construction Activities

At the time this report was prepared, it was anticipated that construction would begin in August of 2025 and be completed in March of 2028. As such, the emission forecasts provided herein reflect a specific set of conservative assumptions based on the expected construction scenario wherein a relatively large amount of construction activity is occurring in a relatively intensive manner. Because of this conservative assumption, actual emissions could be less than those forecasted. If construction is delayed or occurs over a longer time period, emissions could be reduced because of (1) a more modern and cleaner-burning construction equipment fleet mix than assumed in the modeling; and/or (2) a less intensive buildout schedule (i.e., fewer daily emissions occurring over a longer time interval).

Construction activities would include demolition, site preparation, underground utilities (trenching), grading, building construction, architectural coatings, and paving. Construction was assumed to occur five days per week with equipment operating for up to eight hours per day. The construction activity schedule was estimated using data provided by the project engineer and is outlined in Table 7, *Project Construction Schedule*, below.

Table 7: Project Construction Schedule

Construction Activity	Construction Start Date	Construction End Date	Number of Working Days
Demolition	8/1/2025	9/11/2025	30
Site Preparation	9/12/2025	10/23/2025	30
Underground Utilities (Trenching)	9/12/2025	11/20/2025	50
Grading	10/24/1025	11/20/2025	20
Building Construction	11/21/2025	3/19/2028	606
Architectural Coating	3/20/2027	3/19/2028	260
Paving	2/20/2028	3/19/2028	20

Source: CalEEMod Output (Appendix B)

Per aerial imagery of the project site and data provided by the project engineer, approximately 358 tons of building materials, asphalt pavement, and concrete pavement would be demolished and hauled to a location on the UC Merced campus. Per the UC Sustainable Practices Policy, demolished materials would be recycled, if feasible. Based on aerial imagery, it was estimated that 250 CY of debris and vegetation from site preparation would be exported to a location on the UC Merced campus.

6.1.1.2 Construction Off-Road Equipment

Construction equipment for each construction activity was estimated based on CalEEMod default values and the anticipated construction activities. An excavator and backhoe were assumed for underground utilities (trenching). Construction equipment would be staged northwest of the project site on the disturbed median between Ranchers Road and New Ranchers Road. Table 8, *Project Construction Equipment*, below presents a summary of the assumed equipment that would be involved in each activity of construction. Off-highway trucks included in the modeling would be water trucks.

Table 8: Project Construction Equipment

Construction Activity	Equipment	Number
Demolition	Concrete/Industrial Saws	1
	Rubber Tired Dozers	1
	Tractors/Loaders/Backhoes	3
	Off-Highway Trucks	1
Site Preparation	Graders	1
	Rubber Tired Dozers	1
	Tractors/Loaders/Backhoes	1
	Off-Highway Trucks	1
Underground Utilities (Trenching)	Excavators	1
	Tractors/Loaders/Backhoes	1
Grading	Graders	1
	Rubber Tired Dozers	1
	Tractors/Loaders/Backhoes	2
	Off-Highway Trucks	1
Building Construction	Cranes	1
	Forklifts	1
	Generator Sets	1
	Tractors/Loaders/Backhoes	1
	Welders	3
Architectural Coating	Air Compressors	1
Paving	Cement and Mortar Mixes	1
	Pavers	1
	Paving Equipment	1
	Rollers	1
	Tractors/Loaders/Backhoes	1

Source: CalEEMod Output (Appendix B)

6.1.1.3 Construction On-Road Trips

Worker, vendor, and hauling trips and trip lengths were estimated using CalEEMod default values.

6.1.1.4 Construction Architectural Coatings

Architectural coatings applied during construction were assumed to be interior and exterior building coatings and pavement marking. Per CalEEMod default values for Merced County all interior coatings would have a maximum VOC content of 50 grams per liter (g/L) and all exterior costing and pavement marking would have a maximum VOC content of 50 g/L.

6.1.2 Operational Emissions

Operational impacts were estimated using CalEEMod. Operational sources of emissions include mobile (transportation); area, energy, water/wastewater, solid waste, and refrigerants. The COB III project would strive to earn a LEED Platinum certification.

6.1.2.1 Area Sources

Area sources (or Scope 1 emissions from the UC Sustainable Practices Policy) include emissions from landscaping equipment, the use of consumer products, and the reapplication of architectural coatings for maintenance. The proposed project would not include fireplaces or wood stoves. Emissions associated with area sources were estimated using the CalEEMod default values.

6.1.2.2 Energy Sources

The COB III project would be all electric and would be served by existing PG&E infrastructure. Electricity generation (or Scope 2 emissions from the UC Sustainable Practices Policy) typically entails the combustion of fossil fuels, including natural gas and coal, which is then transmitted to end users. A building's electricity use is thus associated with the off-site or indirect emission of GHGs at the source of electricity generation (power plant). The project would strive to earn a LEED Platinum certification, minimizing building energy use.

CalEEMod Measure E-1, *Buildings Exceed 2019 Title 24 Building Envelope Energy Efficiency Standards*, was applied as the project would exceed CBC Title 24 Part 6 Building Energy Standards by 20 percent or better, per the UC Sustainable Practices Policy. It is assumed the project would not have any new natural gas and would have 100 percent renewable electricity; therefore, energy source emissions were set to zero.

6.1.2.3 Mobile (Transportation) Sources

Operational emissions from mobile source emissions (or Scope 3 emissions from the UC Sustainable Practices Policy) are associated with project related VMT (calculated in the model from trip generation and trip lengths). As the proposed project would accommodate the projected growth conditions in the 2020 LRDP, the project would not induce new, unplanned growth. Therefore, mobile emissions were set to zero.

6.1.2.4 Solid Waste Sources

The disposal of solid waste (or Scope 3 emissions from the UC Sustainable Practices Policy) produces GHG emissions from anaerobic decomposition in landfills, incineration, and transportation of waste. CalEEMod determines the GHG emissions associated with disposal of solid waste into landfills. Portions of these emissions are biogenic. CalEEMod methods for quantifying GHG emissions from solid waste are based on the IPCC method using the degradable organic content of waste. Per the project engineer, solid waste would be taken to Merced County Highway 59 Landfill, located approximately 4.9 miles northwest of the project site. Solid waste was modeled using CalEEMod defaults.

6.1.2.5 Water Sources

Water-related GHG emissions (or Scope 3 emissions from the UC Sustainable Practices Policy) are from the conveyance and treatment of water and wastewater. Per the project engineer, the COB III project would strive to earn a LEED Platinum certification. The proposed project would be required to meet LEED indoor water efficiency requirements. Additionally, the project would be required to meet the Model Water Efficient Landscape Ordinance (MWELO) requirements and would be designed with landscape features such as water-efficient landscaping, native and adaptive plantings, habitat restoration, etc. Per the project engineer, the LEED Outdoor Water Use Reduction Credit (WEc1) would

be included as part of the project design. Indoor and outdoor water use (and wastewater generation) was modeled using CalEEMod default values.

6.1.2.6 Refrigerants

CalEEMod calculates GHG emissions associated with refrigerants (or Scope 1 emissions from the UC Sustainable Practices Policy; typically, HFCs or blends of gases containing HFCs) which are emitted through leakage or maintenance from project refrigeration systems, freezers, and air conditioning systems. Refrigerant emissions were calculated using CalEEMod defaults.

6.2 SIGNIFICANCE CRITERIA

6.2.1 Air Quality

Impacts to air quality were analyzed in Chapter 4.1, *Air Quality,* of the 2020 LRDP SEIR. The 2020 LRDP SEIR uses significance criteria derived from Appendix G of the State CEQA Guidelines and noted that a project would have a significant air quality environmental impact if it would:

1. Conflict with or obstruct implementation of the applicable air quality plan; or

2. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or State ambient air quality standard; or

3. Expose sensitive receptors to substantial pollutant concentrations; or

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

The proposed project would have a significant air quality impact if the project resulted in new or substantially more severe impact beyond what was evaluated in the 2020 LRDP SEIR.

The SJVAPCD has established significant thresholds to assess the impacts of project-related air pollutant emissions. The significance thresholds are updated, as needed, to appropriately represent the most current technical information and attainment status in the SJVAB. Table 9, *SJVAPCD Air Quality Significance Thresholds*, presents the most current significance thresholds, including thresholds for construction and operational emissions and maximum incremental cancer risk and hazard indices for TACs. A project with emission rates and risk values below these thresholds is generally considered to have a less than significant impact on air quality.

Table 9: SJVAPCD Air Quality Significance Thresholds

Mass Daily Thresholds (tons per year)		
Pollutant	**Construction**	**Operation**
ROG	10	10
NO_X	10	10
CO	100	100
PM_{10}	15	15
$PM_{2.5}$	15	15
SO_X	27	27

Toxic Air Contaminants	
TACs	Maximum Incremental Cancer Risk ≥ 10 in 1 million Chronic & Acute Hazard Index ≥ 1.0 (project increment)

Source: SJVAPCD 2015
ROG = reactive organic gas; NO_X = nitrogen oxides; CO = carbon monoxide; PM_{10} = coarse particulate matter with a diameter of 10 microns or less; $PM_{2.5}$ = fine particulate matter with a diameter of 2.5 microns or less; SO_X = sulfur oxides; TACs = toxic air contaminants; NO_2 = nitrogen dioxide; ppm = parts per million; $\mu g/m^3$ = micrograms per cubic meter

As set forth in the SJVAPCD *Guidance for Assessing and Mitigating Air Quality Impacts*, any proposed project that would individually have a significant air quality impact would also be considered to have a significant cumulative air quality impact. Impacts of local pollutants (CO, TACs) are cumulatively significant when modeling shows that the combined emissions from the project and other existing and planned projects would exceed air quality standards.

6.2.2 Greenhouse Gases

Given the relatively small levels of emissions generated by a project in relationship to the total amount of GHG emissions generated on a national or global basis, individual projects are not expected to result in significant, direct impacts with respect to climate change. However, given the magnitude of the impact of GHG emissions on the global climate, GHG emissions from new development could result in significant, cumulative impacts with respect to climate change. Thus, the potential for a significant GHG impact is limited to cumulative impacts.

Impacts from GHG emissions were analyzed in Chapter 4.3, *Greenhouse Gas Emissions,* of the 2020 LRDP SEIR. The 2020 LRDP SEIR uses significance criteria derived from Appendix G of the State CEQA Guidelines and noted that a project would have a significant GHG emissions impact if it would:

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

2. Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs?

Is it assumed that the proposed project would have a significant GHG emissions impact if the project resulted in new or substantially more severe impact beyond what was evaluated in the 2020 LRDP SEIR.

The SJVAPCD has adopted the *Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA* and the policy *Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA When Serving as the Lead Agency* in 2009. The guidance and policy rely on the use of Best Performance Standards (BPS) to assess the significance of project-specific GHG emissions on global climate change during the environmental review process. SJVAPCD's adopted BPS are specifically directed at reducing GHG emissions from stationary sources; therefore, the adopted BPS would not generally be applicable to the proposed project as construction of the classroom and office building would not be a stationary source of emissions. The SJVAPCD guidance does not limit a lead agency's authority in establishing its own process and guidance for determining significance of project-related impacts on global climate change.

As noted in Section 4.2.6 of this report, in 2018, UC Merced developed an updated CAP which builds on the previous CAP and extends out to 2025. UC Merced is working on an updated CAP to be approved by 2026 with interim targets for GHG reduction. The UC Merced CAP provides steps towards clarifying UC Merced's commitments and plans to mitigate climate effects; however, it does not provide campus-specific GHG emissions thresholds.

As noted in the 2020 LRDP SEIR, campus-specific GHG thresholds were developed using emissions reduction goals set forth in AB 32 and SB 32 and the UC Merced's 2005 GHG emissions as a baseline. Two approaches were used: the first one involving a total emissions threshold, and the second one involving an efficiency threshold based on per capita emissions, as described below.

6.2.2.1 Total Emissions Threshold

According to AB 32 and SB 32, the State's 2020 emissions must be reduced to be equal to 1990 emissions, and by 2030 to be 40 percent below 1990 emissions. These cannot be applied directly to UC Merced as the campus did not become operational until 2005. To estimate the 2020 target emissions for UC Merced, the campus' 2005 emissions were reduced by 15 percent. This was done based on the Statewide guidance that in order to ensure that 2020 emissions equal 1990 emissions, between 1990 and 2020, the State's emissions must be reduced by about 30 percent. From that it follows that between 2005 and 2020, a 15 percent reduction must be achieved to attain the 2020 target.

Having calculated the 2020 target for the campus, that number was reduced by 40 percent to arrive at the 2030 target for the campus, which is 3,299 MT CO_2e/year. This target level, rounded to 3,300 MT CO_2e/year, is used as a threshold to evaluate whether the increased campus emissions with the implementation of the 2020 LRDP would result in a significant GHG impact.

6.2.2.2 Per Capita Threshold

A per capita rate or efficiency factor was calculated for the campus population (students and employees). Using the campus' 2005 GHG emissions and the campus population at that time, a per capita emissions rate or efficiency factor of 4.78 MT CO_2e per capita/year was calculated for 2005. Next, the calculated 2005 efficiency factor was reduced by 15 percent to obtain the 2020 efficiency factor. Finally, an efficiency factor for 2030 was calculated by reducing the calculated 2020 efficiency factor by 40 percent. A target rate of 2.44 MT CO_2e per capita/year was developed for 2030.

7.0 AIR QUALITY IMPACT ANALYSIS

This section evaluates potential impacts related to air pollutant emissions resulting from implementation of the project. Is it assumed that the proposed project would have a significant air quality impact if the project resulted in new, additional impacts beyond what was evaluated in the 2020 LRDP SEIR. Project-level air quality modeling was completed as part of this analysis. Complete modeling results are included in Appendix B of this report.

7.1 ISSUE 1: CONSISTENCY WITH AIR QUALITY PLANS

7.1.1 Analysis in the Previously Adopted 2020 LRDP SEIR

Impacts to air quality were analyzed in Section 4.1, *Air Quality*, of the 2020 LRDP SEIR. The 2020 LRDP SEIR noted that for air quality planning purposes, the SJVAPCD creates emission inventories based on existing and foreseeable future land uses within its jurisdiction. If a new project is consistent with the planned land use designation that was considered in the development of an air quality management plan, the proposed project would not conflict and would not obstruct implementation of the applicable air quality management plan.

The 2020 LRDP SEIR also concluded that because a higher level of growth at the campus has been accounted for and included in the air quality planning efforts of the region, implementation of the 2020 LRDP would not conflict with or obstruct implementation of the applicable air quality plan. Although the emissions associated with campus operation at full development under the 2020 LRDP would result in a significant and unavoidable impact as discussed under Issue 2, the effect of campus buildout under the 2020 LRDP with respect to the regional air quality management plan would, of itself, be less than significant.

7.1.2 Impacts

As discussed in Section 4.1.4 of this report, the SJVAPCD has adopted several attainment plans that outline long-term strategies designed to achieve compliance with the State and federal ambient air quality standards. SJVAPCD has established thresholds of significance for a project's criteria pollutant and precursor emissions for both temporary construction-related emissions and long-term operational-related emissions. These significance thresholds have been established to assist lead agencies in determining whether a project may have a significant air quality impact. A project with emissions lower than the thresholds would not conflict with or obstruct implementation of the district's air quality plans for attainment of the applicable NAAQS and CAAQS. As discussed under Issue 2 below, the project would not exceed the temporary construction-related or long-term operational-related thresholds of significance for criteria pollutants and precursor emissions.

As outlined in the 2020 LRDP SEIR, if a new project is consistent with the planned land use designation that was considered in the development of an air quality management plan, the proposed project would not conflict and would not obstruct implementation of the applicable air quality management plan. The project site is designated as Campus Mixed Use in the 2020 LRDP land use diagram. The Campus Mixed Use designation includes areas of the campus that are either currently developed with campus land uses or would be developed in the future. The proposed project would be consistent with the land use designation in the 2020 LRDP.

The 2020 LRDP SEIR estimated that between 2020 and 2030, the student population would increase from 9,700 full-time equivalent (FTE) students to 15,000 students, an increase of about 5,300 students. Over the same period, faculty and staff would increase from 1,280 to 2,411, an increase of 1,131 persons. Based on the Transportation Impact Analysis prepared for the project, included as Appendix C to this report, the proposed project would serve a total of 1,100 students and 126 faculty and staff (Fehr & Peers 2025). However, it is assumed that the proposed project would accommodate projected growth conditions in the 2020 LRDP and would not induce new, unplanned growth.

Additionally, the 2020 LRDP was designed to guide the physical development of the campus to accommodate a projected enrollment level of 15,000 students by 2030. The 2020 LRDP planned for the addition of up to 1.83 million square feet of additional academic space, housing, student life and athletics, and campus operations space to the campus to serve this projected enrollment growth (UC Merced 2020). The project would support UC Merced's effort to provide additional capacity to accommodate potential teaching and research initiatives and would not exceed the academic building space contemplated in the 2020 LRDP. As described in Chapter 3.0, the proposed project would include construction of a three-story 61,640-sf building with office, classroom, and research uses. In 2023, UC Merced had a population of 9,000 students and 1,269 staff. The proposed project would serve 1,110 off-campus students at full buildout of the project; however, it is assumed that the proposed project would accommodate projected growth conditions in the 2020 LRDP and would not induce new, unplanned growth.. Therefore, the project would be consistent with the student enrollment level projected in the 2020 LRDP, and the proposed building would be within the 1.83 million sf area anticipated for expansion under the 2020 LRDP.

Overall, the growth associated with the project has been accounted for and included in the air quality planning efforts of the region and implementation of the project would not conflict with or obstruct implementation of the applicable air quality plan.

7.1.3 Significance of Impacts

As discussed under Issue 2 below, the project would not exceed the temporary construction-related or long-term operational-related thresholds of significance for criteria pollutants and precursor emissions. Additionally, the growth and capacity associated with the project has been accounted for and included in the air quality planning efforts of the region and implementation of the proposed project would not conflict with or obstruct implementation of the applicable air quality plan. The impact would be less than significant, and *no new or substantially more severe impact* would occur compared to what was evaluated in the 2020 LRDP SEIR.

7.1.4 Mitigation Framework

Impacts would be less than significant; therefore, no mitigation measures would be required.

7.1.5 Significance After Mitigation

Impacts related to conflicts with the applicable air quality plan would be less than significant, and *no new or substantially more severe impact* would occur compared to what was evaluated in the 2020 LRDP SEIR.

7.2 ISSUE 2: CUMULATIVELY CONSIDERABLE NET INCREASE OF NONATTAINMENT CRITERIA POLLUTANTS

7.2.1 Analysis in the Previously Adopted 2020 LRDP SEIR

7.2.1.1 Construction Emissions

Impacts to air quality were analyzed in Section 4.1, *Air Quality*, of the 2020 LRDP SEIR. The 2020 LRDP SEIR concluded that based on the construction schedule for the 2020 LRDP, SJVAPCD thresholds are not

anticipated to be exceeded; however, should a number of projects be constructed concurrently on campus, it is possible that the SJVAPCD threshold for NO_X could be exceeded. LRDP Mitigation Measure AQ-1a, requiring Tier 4 equipment reduced exhaust emissions, would be implemented during construction to minimize NO_X emissions. Additionally, LRDP Mitigation Measure AQ-1b, requiring reduced fugitive dust emissions, would be implemented to reduce emissions of dust during construction of projects on campus. The impact from construction under the 2020 LRDP would be less than significant with implementation of LRDP Mitigation Measures AQ-1a and AQ-1b.

Campus construction under the 2020 LRDP would occur between 2021 and 2030, and construction activities would be located in the central portions of the campus site in the area designated CMU on the land use diagram. At this time, there are no foreseeable construction projects that would be under construction near the campus between 2021 and 2030. Therefore, there is no potential for campus construction emissions, especially of pollutants such as PM_{10} and $PM_{2.5}$, and construction TACs to combine with emissions of these pollutants from other nearby construction projects. There would be no cumulative impact related to construction emissions.

7.2.1.2 Operational Emissions

The 2020 LRDP SEIR concluded that the projects operational ROG and NO_X emissions would exceed the SJVAPCD thresholds. LRDP Mitigation Measures AQ-2a and AQ-2b would be implemented to reduce the increase in the campus' operational emissions of ROG and NO_X. LRDP Mitigation Measure AQ-2a would require UC Merced to promote the use of alternative transportation, alternative fuel vehicles, and to improve traffic flow; however, the reduction from this mitigation measure is not quantifiable and it is unlikely it would reduce emissions below the SJVAPCD threshold. LRDP Mitigation Measure AQ-2b includes measures to reduce ROG emissions and recommends the use of solar water heating systems to reduce the combustion of natural gas for water heating. With the implementation of LRDP Mitigation Measures AQ-2a and AQ-2b, campus operations would still result in annual emissions that exceed the SJVAPCD threshold for NO_X and the impact from operation under the 2020 LRDP would remain significant and unavoidable.

As noted above, campus operation would result in annual emissions that exceed the SJVAPCD threshold for NO_X with implementation of LRDP Mitigation Measures AQ-2a and AQ-2b. Other developments under the City's General Plan would also result in new trips that would increase vehicle emissions. Therefore, cumulative operational emissions would be significant and the project's contribution to the impact would be cumulatively considerable.

7.2.2 Impacts

By its very nature, air pollution is largely a cumulative impact. The nonattainment status of regional pollutants is a result of past and present development within the region. The project would generate criteria pollutants and precursors in the short term during construction and in the long-term during operation. To determine whether a project would result in cumulatively considerable emissions that would violate an air quality standard or contribute substantially to an existing or projected air quality violation, a project's emissions are evaluated based on the quantitative emission thresholds established by the SJVAPCD.

7.2.2.1 Construction Emissions

The project construction emissions were estimated using the CalEEMod model as described in Section 6.1.1 of this report. The complete CalEEMod output files are included in Appendix B of this report. The emissions generated from construction activities include:

- Dust (including PM_{10} and $PM_{2.5}$), primarily from fugitive sources such as soil disturbance and vehicle travel over paved and unpaved surfaces; and

- Combustion emissions of air pollutants (including ROG, NO_X, PM_{10}, $PM_{2.5}$, CO, and sulfur oxides [SO_X]), primarily from operation of heavy off-road equipment and haul trucks.

Although the scope of the project is within what was anticipated in the 2020 LRDP EIR, annual construction emissions were calculated for informational purposes. The results of the calculations for project construction are shown below in Table 10, *Annual Construction Criteria Pollutant and Precursor Emissions*. The data shown assumes application of water on exposed surfaces a minimum of two times per day in compliance with SJVAPCD Rule 8021, *Construction, Demolition, Excavation, Extraction, and other Earth Moving Activities*. As shown in Table 10, the project's individual construction emissions would not exceed SJVAPCD thresholds.

Table 10: Annual Construction Criteria Pollutant and Precursor Emissions

Year	Pollutant Emissions (tons per year)					
	ROG	**NO_X**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
2025	0.1	0.8	0.9	<0.1	0.1	0.1
2026	0.2	1.2	1.5	<0.1	0.1	0.1
2027	0.3	1.2	1.6	<0.1	0.1	0.1
2028	0.1	0.3	0.4	<0.1	<0.1	<0.1
Maximum Annual Emissions	**0.3**	**1.2**	**1.6**	**<0.1**	**0.1**	**0.1**
SJVAPCD Threshold	*10*	*10*	*100*	*27*	*15*	*15*
Significant Impact?	***No***	***No***	***No***	***No***	***No***	***No***

Source: CalEEMod (output data is provided in Appendix B); Threshold: SJVAPCD 2015
ROG = reactive organic gas; NO_X = nitrogen oxides; CO = carbon monoxide; SO_X = sulfur oxides;
PM_{10} = particulate matter 10 microns or less in diameter; $PM_{2.5}$ = particulate matter 2.5 microns or less in diameter; SJVAPCD = San Joaquin Valley Air Pollution Control District

However, as required by the 2020 LRDP SEIR, LRDP Mitigation Measure AQ-1a would be implemented to ensure construction equipment rated by the USEPA as meeting Tier 4 (model year 2008 or newer) emission limits for engines between 50 and 750 horsepower is used by the construction contractor. Additionally, LRDP Mitigation Measure AQ-1b would be implemented to ensure compliance with SJVAPCD Regulation VIII, *Fugitive PM_{10} Prohibitions* and to reduce fugitive dust impacts.

7.2.2.2 Operational Emissions

Although the scope of the project is within what was anticipated in the 2020 LRDP EIR, annual operational emissions were calculated for informational purposes. The project operational emissions were estimated using CalEEMod as described in Section 6.1.2 of this report. Model output is provided in Appendix B of this report. Table 11, *Annual Operational Criteria Pollutant and Precursor Emissions*, shows the calculated operational emissions in the first full year of operation, 2029. As shown in Table

11, the project's individual operational emissions would not exceed SJVAPCD thresholds and would not result in a long-term increase in air pollutant emissions.

Table 11: Annual Operational Criteria Pollutant and Precursor Emissions

Source	Pollutant Emissions (tons per year)					
	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Mobile	0.0	0.0	0.0	0.0	0.0	0.0
Area	0.3	<0.1	0.3	<0.1	<0.1	<0.1
Energy	0.0	0.0	0.0	0.0	0.0	0.0
Total Maximum Daily Emissions[1]	**0.3**	**<0.1**	**0.3**	**<0.1**	**<0.1**	**<0.1**
SJVAPCD Threshold	*10*	*10*	*100*	*27*	*15*	*15*
Exceed Threshold?	***No***	***No***	***No***	***No***	***No***	***No***

Source: CalEEMod (output data is provided in Appendix B); Threshold: SJVAPCD 2015

[1] Total may not sum due to rounding.

lb/day = pounds per day; ROG = reactive organic gas; NO_X = nitrogen oxides; CO = carbon monoxide; SO_2 = sulfur dioxide; PM_{10} = particulate matter 10 microns or less in diameter; $PM_{2.5}$ = particulate matter 2.5 microns or less in diameter

However, as required by the 2020 LRDP EIR, UC Merced would continue to implement 2020 LRDP Mitigation Measures AQ-2a and AQ-2b to further reduce emissions from vehicles and from area and energy sources, such as improving traffic control, encouraging transit, pedestrian, and bicycle use, installing low maintenance landscaping, and using electric vehicles in their fleet.

7.2.3 Significance of Impacts

7.2.3.1 Construction Emissions

As shown in Table 10, above, the proposed project's construction emissions would be below the SJVAPCD thresholds of significance and impacts would be less than significant. There would be *no new or substantially more severe impact* compared to what was evaluated in the 2020 LRDP SEIR.

7.2.3.2 Operational Emissions

As shown in Table 11, above, the proposed project's operational emissions would be below the SJVAPCD thresholds of significance. There would be *no new or substantially more severe impact* compared to what was evaluated in the 2020 LRDP SEIR.

7.2.4 Mitigation Framework

The following mitigation measures from the 2020 SEIR are required to be implemented on projects constructed as part of the 2020 LRDP:

2020 LRDP MM AQ-1a: The construction contractors shall be required via contract specifications to use construction equipment rated by the USEPA as meeting Tier 4 (model year 2008 or newer) emission limits for engines between 50 and 750 horsepower.

LRDP MM AQ-1b: UC Merced shall include in all construction contracts the measures specified in SJVAPCD Regulation VIII (as it may be amended for application to all construction projects generally) to reduce fugitive dust impacts, including but not limited to the following:

- All disturbed areas, including storage piles, which are not being actively utilized for construction purpose, shall be effectively stabilized of dust emissions using water, chemical stabilizer/suppressant, or vegetative ground cover.

- All on-site unpaved roads and off-site unpaved access roads shall be effectively stabilized of dust emissions using water or chemical stabilizer/suppressant.

- All land clearing, grubbing, scraping, excavation, land leveling, grading, cut and fill, and demolition activities shall be effectively controlled of fugitive dust emissions using application of water or by presoaking.

- When materials are transported off-site, all material shall be covered, effectively wetted to limit visible dust emissions, or at least 6 inches of freeboard space from the top of the container shall be maintained.

- All operations shall limit or expeditiously remove the accumulation of mud or dirt from adjacent public streets at least once every 24 hours when operations are occurring. (The use of dry rotary rushes is expressly prohibited except where preceded or accompanied by sufficient wetting to limit visible dust emissions. Use of blower devices is expressly forbidden.)

- Following the addition of materials to, or the removal of materials from, the surface of outdoor storage piles, storage piles shall be effectively stabilized of fugitive dust emissions by using sufficient water or chemical stabilizer/ suppressant.

LRDP MM AQ-2a: UC Merced shall implement the following measures to reduce emissions from vehicles:

- Provide pedestrian-enhancing infrastructure to encourage pedestrian activity and discourage vehicle use.

- Provide bicycle facilities to encourage bicycle use instead of driving, such as bicycle parking, bicycle lanes, bicycle lockers, and showers and changing facilities for employees.

- Provide preferential carpool and vanpool parking for non-residential uses.

- Provide transit-enhancing infrastructure to promote the use of public transportation, such as covered bus stops and information kiosks.

- Provide facilities such as electric car charging stations and a CNG refueling station to encourage the use of alternative-fuel vehicles.

- Improve traffic flows and congestion by timing of traffic signals at intersections adjacent to the campus to facilitate uninterrupted travel.

- Work with campus transit provider to replace CatTracks buses with either electric buses or buses operated on alternative fuels.
- Work with the City of Merced to establish park and ride lots and provide enhanced transit service between the park and ride lots and the campus.
- Replace campus fleet vehicles with electric vehicles or vehicles that operate on alternative fuels.
- Reduce the number of daily vehicle trips by providing more housing on campus.

LRDP MM AQ-2b: UC Merced shall implement the following measures to reduce emissions from area and energy sources, as feasible:

- Utilize low-VOC cleaning supplies and low-VOC paints (100 grams/liter or less) in building maintenance.
- Utilize electric equipment for landscape maintenance.
- Plant low maintenance landscaping.
- Implement a public information program for resident students to minimize the use of personal consumer products that result in ROG emissions, including information on alternate products.
- Instead of natural gas water heaters, install solar water heating systems.

7.2.5 Significance After Mitigation

Although construction impacts from the project itself would be less than significant, as part of the development under the 2020 LRDP, the impact would be potentially significant. With implementation of LRDP Mitigation Measure AQ-1a and AQ-1b, the impact from construction under the proposed project would be less than significant, and *no new or substantially more severe impact* would occur compared to what was evaluated in the 2020 LRDP SEIR.

Although the project on its own would not result in a significant impact, as part of the development under the 2020 LRDP, the operational impact would be significant and unavoidable with implementation of LRDP Mitigation Measures AQ-2a and AQ-2b, and *no new or substantially more severe impact* would occur compared to what was evaluated in the 2020 LRDP SEIR.

7.3 ISSUE 3: IMPACTS TO SENSITIVE RECEPTORS

7.3.1 Analysis in the Previously Adopted 2020 LRDP SEIR

Impacts to air quality were analyzed in Section 4.1, *Air Quality*, of the 2020 LRDP SEIR. The 2020 LRDP SEIR concluded that although campus development under the 2020 LRDP would include sources that would result in TAC emissions, adequate information with respect to these sources was not available to allow for the quantification and evaluation or potential human health risk. However, based on data from other UC campuses such as UC Davis, it is anticipated that the human health risk from the development of the campus under the 2020 LRDP would not result in a significant human health risk on or off site. Human health risk from TAC emissions were not discussed further in the 2020 LRDP SEIR.

The 2020 LRDP SEIR also concluded that CO emitted by traffic generated under the 2020 LRDP is the criteria pollutant that would have the potential to result in substantial concentrations. To analyze the potential for the project to cause or contribute to high CO concentrations, a CO screening guidance provided by the Bay Area Air Quality Management District (BAAQMD) was used. This guidance provides that a project would have a less than significant impact with respect to CO levels if the addition of project traffic would not increase the total traffic at any affected intersection to more than 44,000 vehicles per hour. Buildout under 2020 LRDP would generate a relatively small amount of new traffic: 8,406 total daily trips or 739 AM peak hour trips and 808 PM peak hour trips. The Traffic Impact Assessment prepared for the 2020 LRDP showed that the cumulative traffic volumes at all intersections affected by the project would be less than 44,000 vehicles per hour. Therefore, the project would not result in the violation of the CO standards and would not expose sensitive receptors to substantial CO concentrations. The impact would be less than significant.

7.3.2 Impacts

7.3.2.1 Construction Activities

Fugitive Dust

As discussed in Section 7.2.2 of this report, construction of the project would not result in emissions of PM in excess of the SJVAPCD thresholds. However, as discussed under Issue 2, LRDP Mitigation Measure AQ-1a would be implemented to ensure construction equipment rated by the USEPA as meeting Tier 4 (model year 2008 or newer) emission limits for engines between 50 and 750 horsepower is used by the construction contractor. LRDP Mitigation Measure AQ-1b would also be implemented to ensure compliance with SJVAPCD Regulation VIII, *Fugitive PM_{10} Prohibitions* and to reduce fugitive dust impacts. Per SJVAPCD Rule 8021, *Construction, Demolition, Excavation, Extraction*, *and other Earth Moving Activities*, fugitive dust emissions calculations assumed application of water on exposed surfaces a minimum of two times per day.

Toxic Air Contaminants (DPM)

Implementation of the project would result in the use of heavy-duty construction equipment, haul trucks, and construction worker vehicles. These vehicles and equipment could generate the TAC DPM. Generation of DPM from construction projects typically occurs in a localized area (e.g., at the project site) for a short period of time. Because construction activities and subsequent emissions vary depending on the phase of construction (e.g., grading, building construction), the construction-related emissions to which nearby receptors are exposed would also vary throughout the construction period. During some equipment-intensive phases, such as grading, construction-related emissions would be higher than other less equipment-intensive phases such as building construction. Concentrations of mobile-source DPM emissions are typically reduced by 70 percent at approximately 500 feet (CARB 2005).

Considering this information, the short duration of construction activity, the highly dispersive nature of DPM, and the fact that construction activities would occur at various locations throughout the project site, construction of the project would expose off-site sensitive receptors to substantial DPM concentrations.

7.3.2.2 Operational Activities

CO Hotspots

Vehicle exhaust is the primary source of CO in California. In an urban setting, the highest CO concentrations are generally found near congested intersections. Under typical meteorological conditions, CO concentrations tend to decrease as distance from the emissions source (i.e., congested intersection) increases. Project-generated traffic has the potential of contributing to localized "hot spots" of CO off-site. Because CO is a byproduct of incomplete combustion, exhaust emissions are worse when fossil-fueled vehicles are operated inefficiently, such as in stop-and-go traffic or through heavily congested intersections. However, the volume of traffic required for CO concentrations to exceed the NAAQS and CAAQS is very high. BAAQMD provided screening guidance in their CEQA Guidelines concerning the volume of traffic which could result in a CO Hotspot: intersections which carry more than 44,000 vehicles per hour; or intersections which carry more than 24,000 vehicles per hour and where vertical and/or horizontal mixing is substantially limited (e.g., tunnel, parking garage, bridge underpass, natural or urban street canyon, below-grade roadway; BAAQMD 2022).

A local transportation study with an analysis of intersection volumes for the project was not available at the time of this analysis. The 2020 LRDP SEIR included a Traffic Impact Assessment which concluded that buildout under 2020 LRDP would generate a relatively small amount of new traffic: 8,406 total daily trips or 739 AM peak hour trips and 808 PM peak hour trips. Traffic Impact Assessment prepared for the 2020 LRDP shows that the cumulative traffic volumes, including the traffic due to the LRDP, at all intersections affected by the 2020 LRDP would be less than 44,000 vehicles per hour. Per data provided in the Transportation Analysis, the proposed project would serve a total of 1,100 students and 126 faculty and staff (Fehr & Peers 2025). However, the proposed project would accommodate the projected growth conditions in the 2020 LRDP and would not induce new, unplanned growth. As development is within the scope of the 2020 LRDP, the project would not cause any project affected intersection to exceed the 44,000 vehicles per hour screening level for CO hotspots suggested by the BAAQMD, as analyzed in the 2020 LRD SEIR. Therefore, the long-term operation of the project would not result in the violation of the CO standards and would not expose sensitive receptors to substantial CO concentrations.

7.3.3 Significance of Impacts

Implementation of the project would not expose sensitive receptors to substantial pollutant concentrations, including short term construction emission of DPM and long-term operational localized CO concentrations.

To reduce fugitive dust emissions, LRDP Mitigation Measure AQ-1a would be implemented to ensure construction equipment rated by the USEPA as meeting Tier 4 (model year 2008 or newer) emission limits for engines between 50 and 750 horsepower is used by the construction contractor. Additionally, LRDP Mitigation Measure AQ-1b would be implemented to ensure compliance with SJVAPCD Regulation VIII, *Fugitive PM_{10} Prohibitions* and to reduce fugitive dust impacts. With implementation of LRDP Mitigation Measures AQ-1a and AQ-1b, the impact would be less than significant, and *no new or substantially more severe impact* would occur compared to what was evaluated in the 2020 LRDP SEIR.

7.3.4 Mitigation Framework

Impacts would be less than significant with implementation of LRDP Mitigation Measures AQ-1a and AQ-1b, AQ-2a; no new mitigation measures would be required.

7.3.5 Significance After Mitigation

Implementation of the project would not expose sensitive receptors to substantial pollutant concentrations. The impact would be less than significant with implementation of LRDP Mitigation Measures AQ-1a and AQ-1b, and *no new or substantially more severe impact* would occur compared to what was evaluated in the 2020 LRDP SEIR.

7.4 ISSUE 4: OTHER EMISSIONS (SUCH AS THOSE LEADING TO ODORS)

7.4.1 Analysis in the Previously Adopted 2020 LRDP SEIR

Impacts to air quality were analyzed in Section 4.1, *Air Quality*, of the 2020 LRDP SEIR. The 2020 LRDP SEIR concluded that construction activities under the 2020 LRDP would require the use of diesel-fueled equipment which has associated odors; however, the odors are not pervasive enough to cause objectionable odors adversely affecting a substantial number of people. The 2020 LRDP SEIR also concluded that operation of facilities under the 2020 LRDP are not considered a significant source of odors. Therefore, construction and operation of the 2020 LRDP would not result in odors adversely affecting a substantial number of people and the impact would be less than significant.

7.4.2 Impacts

Emissions from construction equipment, such as diesel exhaust, may generate odors; however, these odors would be temporary, intermittent, and not expected to affect a substantial number of people. Additionally, noxious odors would be confined to the immediate vicinity of construction equipment and would cease when construction activity ends.

The SJVAPCD has developed screening distances for common sources of operational odors, including Wastewater Treatment Facility; Sanitary Landfill; Transfer Station; Composting Facility; Petroleum Refinery; Asphalt Batch Plant; Chemical Manufacturing; Fiberglass Manufacturing; Painting/Coating Operations (e.g., auto body shops); Food Processing Facility; Feed Lot/Dairy; and Rendering Plant (SJVAPCD 2015). The proposed project would include construction of a 61,640 sf classroom and office building and would not include any of these uses nor are there any of these land uses in the project vicinity.

7.4.3 Significance of Impacts

Implementation of the project would not result in other emissions (such as those leading to odors) adversely affecting a substantial number of people. The impact would be less than significant, and *no new or substantially more severe impact* would occur compared to what was evaluated in the 2020 LRDP SEIR.

7.4.4 Mitigation Framework

Impacts would be less than significant; therefore, no mitigation measures would be required.

7.4.5 Significance After Mitigation

Implementation of the project would not result in other emissions (such as those leading to odors) adversely affecting a substantial number of people. The impact would be less than significant and *no new or substantially more severe impact* would occur compared to what was evaluated in the 2020 LRDP SEIR.

8.0 GREENHOUSE GAS IMPACT ANALYSIS

This section evaluates potential impacts related to GHG emissions resulting from implementation of the project. Is it assumed that the proposed project would have a significant impact from GHG emissions if the project resulted in new, additional impacts beyond what was evaluated in the 2020 LRDP SEIR. Project-level GHG modeling was completed as part of this analysis. Complete modeling results are included in Appendix B of this report.

8.1 ISSUE 1: GREENHOUSE GAS EMISSIONS

8.1.1 Analysis in the Previously Adopted 2020 LRDP SEIR

8.1.1.1 Construction Emissions

GHG emissions impacts were analyzed in Section 4.3, *Greenhouse Gas Emissions*, of the 2020 LRDP SEIR. The 2020 LRDP SEIR concluded that approximately 6,118 MT CO_2e of GHG emissions would be emitted during the approximately 10-year project construction period, which is about 612 MT CO_2e/year. Neither UC Merced nor any of the air districts, including SJVAPCD, has set forth quantitative thresholds for the evaluation of construction-phase GHG emissions. Construction GHG estimates were presented for informational purposes only.

8.1.1.2 Operational Emissions

The 2020 LRDP SEIR concluded that area sources and commuting are the top two sources of GHG emissions at the campus. The 2020 LRDP SEIR also concluded that compliance with the UC Sustainable Practices Policy will have the effect of reducing UC Merced's total emissions. Further, the Campus' Sustainability Strategic Plan and the CAP, which are aligned with the UC Sustainable Practices Policy, include numerous provisions that will substantially reduce the increase in the campus' GHG emissions, as the campus grows.

- The plans encourage the use of transit and alternative transportation modes, which has helped and will continue to reduce transportation-related GHG emissions, relative to the emissions that would occur without these plans.
- Individual projects under the 2020 LRDP would implement GHG emission reduction strategies consistent with the applicable provisions of the UC Sustainable Practices Policy, which include green building design, sustainable building operations, sustainable transportation, and sustainable water systems.
- UC Merced will also implement other campus-wide energy saving programs.

The 2020 LRDP SEIR reports UC Merced historic, existing and projected 2020 and 2030 emissions both in terms of both total emissions as well as per capita emissions. It also reports UC Merced's 2030 targets both in terms of a total emissions target and a per capita target; these targets are used in this SEIR as thresholds of significance. The campus' per capita emissions in 2030 would be well below the per capita target for 2030. However, if the campus' total emissions in 2030 are compared to the corresponding total emissions target, the emissions would exceed the target. The campus' total emissions in 2030 would be about 10,137 MT CO_2e/year. To be compliant with SB 32, the campus' 2030 emissions would

need to be about 3,300 MT CO_2e/year. As the campus' emissions would exceed this target, this represents a significant impact.

LRDP Mitigation Measure GHG-1a would be implemented which requires UC Merced to implement additional measures to reduce its emissions, and if adequate reductions are not achieved, the mitigation measure requires UC Merced to purchase GHG offsets. UC Merced would also implement LRDP Mitigation Measure GHG-2b, which requires the implementation of LRDP Mitigation Measure AQ-2a and LRDP Mitigation Measure AQ-2b. Both measures would reduce GHG emissions. LRDP Mitigation Measure GHG-1c would also be implemented which commits UC Merced to continue to evaluate and implement new technologies that would reduce its emissions. With implementation of LRDP Mitigation Measures GHG-1a through GHG-1c, the impact would be less than significant.

8.1.2 Impacts

8.1.2.1 Construction Emissions

Project construction GHG emissions were estimated using CalEEMod as described in Section 6.1.1 of this report. The complete CalEEMod output files are included in Appendix B of this report. The modeling shows that short-term construction of the project would result in a total of 172 MT of CO_2e during 2025, a total of 270 MT of CO_2e during 2026, a total of 285 MT of CO_2e during 2027, and a total of 72.3 MT CO_2e during 2028. Neither UC Merced nor any of the air districts, including SJVAPCD, has set forth quantitative thresholds for the evaluation of construction-phase GHG emissions. Construction GHG estimates are presented for informational purposes only.

8.1.2.2 Operational Emissions

Project operational GHG emissions were estimated using CalEEMod as described in Section 6.1.2 of this report. The project operational GHG emissions for the anticipated first full year of operation (2029) are compared to the 2030 target for the campus, which is 2.44 MT CO_2e per capita/year in Table 12*, Annual Operational GHG Emissions*. The proposed project would serve a total of 1,100 students and 126 faculty and staff (Fehr & Peers 2025). However, the proposed project would accommodate the projected growth considered in the 2020 LRDP and would not induce new, unplanned growth.

Table 12: Annual Operational GHG Emissions

Emission Source	2029 Emissions (MT CO_2e per year)
Mobile	0.00
Area	0.92
Energy	0.00
Water	3.95
Waste	62.70
Refrigerants	0.04
Total	**67.60**
Total per capita (1,226 people)	**0.06**
Campus 2030 Emissions Target	**2.44**
Exceed Target?	**No**

Source: CalEEMod (output data is provided in Appendix B); Thresholds: UC Merced 2020
GHG = greenhouse gas; MT = metric tons; CO_2e = carbon dioxide equivalent

As shown in Table 12, the project would not exceed the UC Merced campus 2030 emissions target of 2.44 MT CO_2e per capita/year.

8.1.3 Significance of Impacts

Project construction GHG emissions were estimated using CalEEMod. The modeling shows that short-term construction of the project would result in a total of 172 MT of CO_2e during 2025, a total of 270 MT of CO_2e during 2026, a total of 285 MT of CO_2e during 2027, and a total of 72.3 MT CO_2e during 2028. Neither UC Merced nor any of the air districts, including SJVAPCD, has set forth quantitative thresholds for the evaluation of construction-phase GHG emissions. Construction GHG estimates are presented for informational purposes only.

As shown in Table 12, project operational GHG emissions would not exceed the UC Merced campus 2030 emissions target of 2.44 MT CO_2e per capita/year. Therefore, the impact would be less than significant, and *no new or substantially more severe impact* would occur compared to what was evaluated in the 2020 LRDP SEIR.

8.1.4 Mitigation Framework

Impacts would be less than significant; therefore, no mitigation measures would be required.

8.1.5 Significance After Mitigation

The impact would be less than significant and *no new or substantially more severe impact* would occur compared to what was evaluated in the 2020 LRDP SEIR.

8.2 ISSUE 2: CONFLICT WITH APPLICABLE PLANS ADOPTED FOR THE PURPOSE OF REDUCING GHG EMISSIONS

8.2.1 Analysis in the Previously Adopted 2020 LRDP SEIR

8.2.1.1 State Laws

GHG emissions impacts were analyzed in Chapter 4.3, *Greenhouse Gas Emissions*, of the 2020 LRDP SEIR. The 2020 LRDP SEIR concluded that UC Merced would implement LRDP Mitigation Measures GHG-1a, 1b, and 1c to reduce its total emissions such that they are below 3,300 MT CO_2e/year, a target emissions level that is 40 percent less than the campus' 2020 emissions target. Therefore, with the implementation of LRDP Mitigation Measure GHG-2, which implements Mitigation Measures GHG-1a through 1-c, campus development under the 2020 LRDP would not conflict with the State laws and regulations related to GHG emissions. The impact would be less than significant with implementation of LRDP Mitigation Measure GHG-2.

8.2.1.2 UC Plans and Policies

The 2020 LRDP is a projected development program for the Merced campus for the years 2020 through 2030. Under the plan, the campus is anticipated to add about 1.83 million square feet of building space by 2030. The campus population is projected to increase to about 17,400 persons by 2030. The addition of building space would increase the use of energy on the campus and the additional population would

result in more persons commuting to the campus. Increased on-campus population would also increase water use, wastewater generation and solid waste generation. All of these changes would have the potential to increase the campus' GHG emissions. However, as under existing conditions, campus development under the 2020 LRDP would continue to be completed in a manner that it is compliant with the UC Sustainable Practices Policy, UC Merced Sustainability Strategic Plan, and the UC Merced CAP.

The 2020 LRDP SEIR concluded campus projects under the 2020 LRDP would continue to achieve a minimum of a Silver rating under the LEED Green Building Rating System. UC Merced would continue to develop on-site renewable energy sources, procure clean energy, and obtain offsets as necessary, in compliance with LRDP Mitigation Measure GHG-1a. It would also continue to implement and expand TDM programs to minimize the increase in commuting and other emissions in compliance with LRDP Mitigation Measures AQ-2a and -2b, and evaluate and implement new technologies that reduce emissions, pursuant to LRDP Mitigation Measure GHG-1c. Therefore, with implementation of LRDP Mitigation Measure GHG-2, which implements LRDP Mitigation Measures GHG-1a through GHG-1c, the 2020 LRDP would not conflict with the UC Sustainable Practices Policy, or the UC Merced plans adopted to reduce GHG emissions. The impact would be less than significant with implementation of LRDP Mitigation Measure GHG-2.

8.2.2 Impacts

There are numerous State plans, policies, and regulations adopted for the purpose of reducing GHG emissions. Statewide plans and regulations such as GHG emissions standards for vehicles (AB 1493), the LCFS, and regulations requiring an increasing fraction of electricity to be generated from renewable sources are being implemented at the Statewide level; as such, compliance at the project level is not addressed. Therefore, the project would not conflict with those plans and regulations.

As discussed under Issue 1, above, the project's operational GHG emissions would not exceed the UC Merced campus-wide 2030 emissions target of 2.44 MT CO2e/year. It should be noted that the UC Merced campus 2030 emissions target of 2.44 MT CO_2e per capita/year and 3,300 MT CO_2e/year is based on the previous 2018 UC Sustainable Practices Policy and the 2020 LRDP SEIR. However, this target is the appropriate methodology to ensure that the impacts from the proposed project were considered and addressed in prior EIRs and UC Sustainable Practices Policy in effect at the time of the certification of the 2020 LRDP SEIR. Additionally, the project would also include multiple design features that would reduce its overall contribution to campus-wide GHG emissions. The project would exceed CBC Title 24 Part 6 Building Energy Standards by 20 percent or better and would earn a LEED Platinum certification.

8.2.3 Significance of Impacts

The project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. The impact would be less than significant, and *no new or substantially more severe impact* would occur compared to what was evaluated in the 2020 LRDP SEIR.

8.2.4 Mitigation Framework

Impacts would be less than significant; therefore, no mitigation measures would be required.

8.2.5 Significance After Mitigation

The project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. The impact would be less than significant, and *no new or substantially more severe impact* would occur compared to what was evaluated in the 2020 LRDP SEIR.

9.0 LIST OF PREPARERS

Julia Pano, Air Quality Specialist
Martin Rolph, Senior Air Quality/Noise Specialist
Victor Ortiz, Principal Air Quality/Climate Change Specialist
Lesley Owning, Principal Planner, Project Manager

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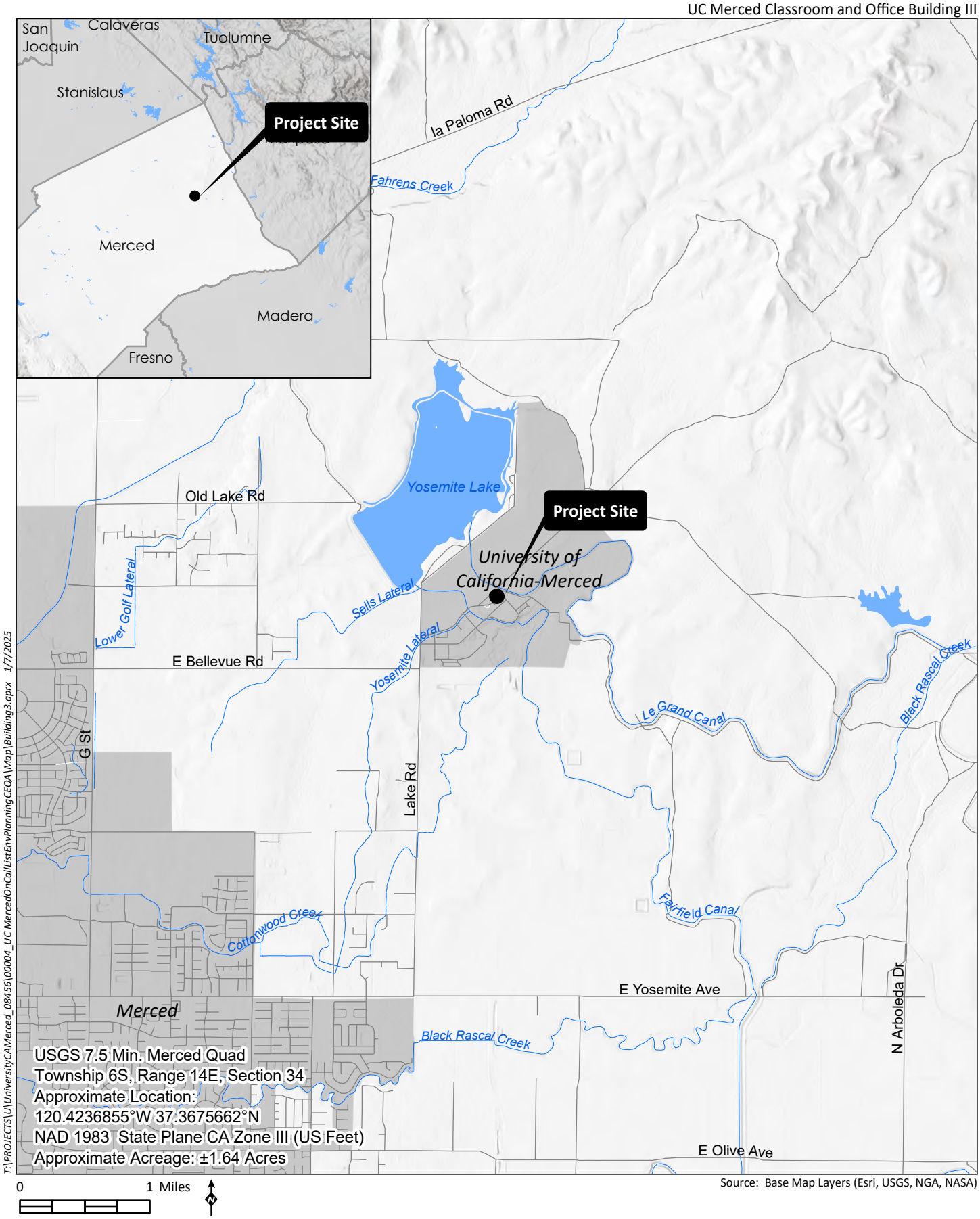
Appendix A

Figures



HELIX Environmental Planning

Site and Vicinity Map

Figure 1

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0 75 Feet

Source: Aerial (DigitalGlobe, 11/23/2023)

HELIX Environmental Planning

Aerial Map

Figure 2

Appendix B

CalEEMod Output

UC Merced Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	UC Merced
Construction Start Date	8/1/2025
Operational Year	2029
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.80
Precipitation (days)	23.4
Location	37.36773308535193, -120.42371506716583
County	Merced
City	Unincorporated
Air District	San Joaquin Valley APCD
Air Basin	San Joaquin Valley
TAZ	2307
EDFZ	5
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.29

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
University/College (4yr)	1,100	Student	0.77	62,770	12,500	0.00	—	—

Other Asphalt Surfaces	20.8	1000sqft	0.48	0.00	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Energy	E-1	Buildings Exceed 2019 Title 24 Building Envelope Energy Efficiency Standards

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

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

Un/Mit.	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.39	17.1	17.3	0.04	0.66	2.58	3.23	0.60	1.20	1.81	5,133
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.80	16.8	19.2	0.03	0.74	2.90	3.63	0.68	1.37	2.04	3,516
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.50	6.68	8.72	0.02	0.21	0.58	0.76	0.20	0.21	0.37	1,724
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.27	1.22	1.59	< 0.005	0.04	0.11	0.14	0.04	0.04	0.07	285

2.2. Construction Emissions by Year, Unmitigated

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

Year	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e

Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
2025	1.71	17.1	17.3	0.04	0.66	2.58	3.23	0.60	1.20	1.81	5,133
2026	1.16	9.00	11.6	0.02	0.30	0.27	0.57	0.27	0.07	0.34	2,305
2027	2.39	9.50	12.8	0.02	0.28	0.31	0.60	0.26	0.08	0.34	2,471
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
2025	1.92	16.8	19.0	0.03	0.74	2.90	3.63	0.68	1.37	2.04	3,366
2026	1.14	9.04	11.3	0.02	0.30	0.27	0.57	0.27	0.07	0.34	2,280
2027	2.37	9.55	12.4	0.02	0.28	0.31	0.60	0.26	0.08	0.34	2,442
2028	2.80	13.3	19.2	0.03	0.40	0.41	0.81	0.36	0.10	0.46	3,516
Average Daily	—	—	—	—	—	—	—	—	—	—	—
2025	0.48	4.31	4.74	0.01	0.17	0.58	0.76	0.16	0.21	0.37	1,039
2026	0.82	6.44	8.07	0.02	0.21	0.19	0.40	0.20	0.05	0.24	1,633
2027	1.50	6.68	8.72	0.02	0.20	0.21	0.41	0.18	0.05	0.24	1,724
2028	0.38	1.64	2.29	< 0.005	0.05	0.05	0.10	0.04	0.01	0.06	437
Annual	—	—	—	—	—	—	—	—	—	—	—
2025	0.09	0.79	0.86	< 0.005	0.03	0.11	0.14	0.03	0.04	0.07	172
2026	0.15	1.18	1.47	< 0.005	0.04	0.04	0.07	0.04	0.01	0.04	270
2027	0.27	1.22	1.59	< 0.005	0.04	0.04	0.08	0.03	0.01	0.04	285
2028	0.07	0.30	0.42	< 0.005	0.01	0.01	0.02	0.01	< 0.005	0.01	72.3

2.3. Construction Emissions by Year, Mitigated

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

Year	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
2025	1.71	17.1	17.3	0.04	0.66	2.58	3.23	0.60	1.20	1.81	5,133

2026	1.16	9.00	11.6	0.02	0.30	0.27	0.57	0.27	0.07	0.34	2,305
2027	2.39	9.50	12.8	0.02	0.28	0.31	0.60	0.26	0.08	0.34	2,471
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
2025	1.92	16.8	19.0	0.03	0.74	2.90	3.63	0.68	1.37	2.04	3,366
2026	1.14	9.04	11.3	0.02	0.30	0.27	0.57	0.27	0.07	0.34	2,280
2027	2.37	9.55	12.4	0.02	0.28	0.31	0.60	0.26	0.08	0.34	2,442
2028	2.80	13.3	19.2	0.03	0.40	0.41	0.81	0.36	0.10	0.46	3,516
Average Daily	—	—	—	—	—	—	—	—	—	—	—
2025	0.48	4.31	4.74	0.01	0.17	0.58	0.76	0.16	0.21	0.37	1,039
2026	0.82	6.44	8.07	0.02	0.21	0.19	0.40	0.20	0.05	0.24	1,633
2027	1.50	6.68	8.72	0.02	0.20	0.21	0.41	0.18	0.05	0.24	1,724
2028	0.38	1.64	2.29	< 0.005	0.05	0.05	0.10	0.04	0.01	0.06	437
Annual	—	—	—	—	—	—	—	—	—	—	—
2025	0.09	0.79	0.86	< 0.005	0.03	0.11	0.14	0.03	0.04	0.07	172
2026	0.15	1.18	1.47	< 0.005	0.04	0.04	0.07	0.04	0.01	0.04	270
2027	0.27	1.22	1.59	< 0.005	0.04	0.04	0.08	0.03	0.01	0.04	285
2028	0.07	0.30	0.42	< 0.005	0.01	0.01	0.02	0.01	< 0.005	0.01	72.3

2.4. Operations Emissions Compared Against Thresholds

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

Un/Mit.	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.87	0.02	2.73	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	414
Mit.	1.87	0.02	2.73	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	414
% Reduced	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—

Unmit.	1.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	403
Mit.	1.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	403
% Reduced	—	—	—	—	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.65	0.01	1.35	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	408
Mit.	1.65	0.01	1.35	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	408
% Reduced	—	—	—	—	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.30	< 0.005	0.25	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	67.6
Mit.	0.30	< 0.005	0.25	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	67.6
% Reduced	—	—	—	—	—	—	—	—	—	—	—

2.5. Operations Emissions by Sector, Unmitigated

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

Sector	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Area	1.87	0.02	2.73	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	11.3
Energy	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Water	—	—	—	—	—	—	—	—	—	—	23.9
Waste	—	—	—	—	—	—	—	—	—	—	379
Refrig.	—	—	—	—	—	—	—	—	—	—	0.24
Total	1.87	0.02	2.73	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	414
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Area	1.43	—	—	—	—	—	—	—	—	—	—

Energy	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Water	—	—	—	—	—	—	—	—	—	—	23.9
Waste	—	—	—	—	—	—	—	—	—	—	379
Refrig.	—	—	—	—	—	—	—	—	—	—	0.24
Total	1.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	403
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Area	1.65	0.01	1.35	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	5.56
Energy	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Water	—	—	—	—	—	—	—	—	—	—	23.9
Waste	—	—	—	—	—	—	—	—	—	—	379
Refrig.	—	—	—	—	—	—	—	—	—	—	0.24
Total	1.65	0.01	1.35	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	408
Annual	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Area	0.30	< 0.005	0.25	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.92
Energy	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Water	—	—	—	—	—	—	—	—	—	—	3.95
Waste	—	—	—	—	—	—	—	—	—	—	62.7
Refrig.	—	—	—	—	—	—	—	—	—	—	0.04
Total	0.30	< 0.005	0.25	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	67.6

2.6. Operations Emissions by Sector, Mitigated

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

Sector	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Area	1.87	0.02	2.73	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	11.3
Energy	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Water	—	—	—	—	—	—	—	—	—	—	23.9
Waste	—	—	—	—	—	—	—	—	—	—	379
Refrig.	—	—	—	—	—	—	—	—	—	—	0.24
Total	1.87	0.02	2.73	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	414
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Area	1.43	—	—	—	—	—	—	—	—	—	—
Energy	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Water	—	—	—	—	—	—	—	—	—	—	23.9
Waste	—	—	—	—	—	—	—	—	—	—	379
Refrig.	—	—	—	—	—	—	—	—	—	—	0.24
Total	1.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	403
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Area	1.65	0.01	1.35	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	5.56
Energy	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Water	—	—	—	—	—	—	—	—	—	—	23.9
Waste	—	—	—	—	—	—	—	—	—	—	379
Refrig.	—	—	—	—	—	—	—	—	—	—	0.24
Total	1.65	0.01	1.35	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	408
Annual	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Area	0.30	< 0.005	0.25	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.92
Energy	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Water	—	—	—	—	—	—	—	—	—	—	3.95
Waste	—	—	—	—	—	—	—	—	—	—	62.7

Refrig.	—	—	—	—	—	—	—	—	—	—	0.04
Total	0.30	< 0.005	0.25	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	67.6

3. Construction Emissions Details

3.1. Demolition (2025) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.58	14.6	15.8	0.03	0.59	—	0.59	0.55	—	0.55	2,836
Demolition	—	—	—	—	—	1.67	1.67	—	0.25	0.25	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	1.20	1.30	< 0.005	0.05	—	0.05	0.04	—	0.04	233
Demolition	—	—	—	—	—	0.14	0.14	—	0.02	0.02	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.22	0.24	< 0.005	0.01	—	0.01	0.01	—	0.01	38.6
Demolition	—	—	—	—	—	0.03	0.03	—	< 0.005	< 0.005	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—

Worker	0.08	0.06	0.95	0.00	0.00	0.11	0.11	0.00	0.03	0.03	130
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	2.46	0.53	0.01	0.04	0.55	0.59	0.04	0.15	0.19	2,167
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	9.82
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.21	0.04	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	178
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	1.63
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.04	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	29.5

3.2. Demolition (2025) - Mitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.58	14.6	15.8	0.03	0.59	—	0.59	0.55	—	0.55	2,836
Demolition	—	—	—	—	—	1.67	1.67	—	0.25	0.25	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	1.20	1.30	< 0.005	0.05	—	0.05	0.04	—	0.04	233
Demolition	—	—	—	—	—	0.14	0.14	—	0.02	0.02	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.22	0.24	< 0.005	0.01	—	0.01	0.01	—	0.01	38.6
Demolition	—	—	—	—	—	0.03	0.03	—	< 0.005	< 0.005	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.06	0.95	0.00	0.00	0.11	0.11	0.00	0.03	0.03	130
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	2.46	0.53	0.01	0.04	0.55	0.59	0.04	0.15	0.19	2,167
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	9.82
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.21	0.04	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	178
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	1.63
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.04	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	29.5

3.3. Site Preparation (2025) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	1.42	12.8	12.9	0.02	0.59	—	0.59	0.54	—	0.54	2,406
Dust From Material Movement	—	—	—	—	—	2.44	2.44	—	1.17	1.17	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.42	12.8	12.9	0.02	0.59	—	0.59	0.54	—	0.54	2,406
Dust From Material Movement	—	—	—	—	—	2.44	2.44	—	1.17	1.17	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	1.05	1.06	< 0.005	0.05	—	0.05	0.04	—	0.04	198
Dust From Material Movement	—	—	—	—	—	0.20	0.20	—	0.10	0.10	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.19	0.19	< 0.005	0.01	—	0.01	0.01	—	0.01	32.7
Dust From Material Movement	—	—	—	—	—	0.04	0.04	—	0.02	0.02	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.04	0.63	0.00	0.00	0.08	0.08	0.00	0.02	0.02	86.7
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.09	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	77.3

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.48	0.00	0.00	0.08	0.08	0.00	0.02	0.02	77.2
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.09	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	77.2
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	6.55
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	6.35
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	1.08
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	1.05

3.4. Site Preparation (2025) - Mitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.42	12.8	12.9	0.02	0.59	—	0.59	0.54	—	0.54	2,406
Dust From Material Movement	—	—	—	—	—	2.44	2.44	—	1.17	1.17	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.42	12.8	12.9	0.02	0.59	—	0.59	0.54	—	0.54	2,406

Dust From Material Movement	—	—	—	—	—	2.44	2.44	—	1.17	1.17	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	1.05	1.06	< 0.005	0.05	—	0.05	0.04	—	0.04	198
Dust From Material Movement	—	—	—	—	—	0.20	0.20	—	0.10	0.10	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.19	0.19	< 0.005	0.01	—	0.01	0.01	—	0.01	32.7
Dust From Material Movement	—	—	—	—	—	0.04	0.04	—	0.02	0.02	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.04	0.63	0.00	0.00	0.08	0.08	0.00	0.02	0.02	86.7
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.09	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	77.3
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.48	0.00	0.00	0.08	0.08	0.00	0.02	0.02	77.2
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.09	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	77.2
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	6.55
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	6.35
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	1.08
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	1.05

3.5. Grading (2025) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.62	14.7	15.3	0.03	0.67	—	0.67	0.61	—	0.61	2,797
Dust From Material Movement	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.81	0.84	< 0.005	0.04	—	0.04	0.03	—	0.03	153
Dust From Material Movement	—	—	—	—	—	0.15	0.15	—	0.07	0.07	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.15	0.15	< 0.005	0.01	—	0.01	0.01	—	0.01	25.4

Dust From Material Movement	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.60	0.00	0.00	0.10	0.10	0.00	0.02	0.02	96.5
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	5.46
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.90
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.6. Grading (2025) - Mitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.62	14.7	15.3	0.03	0.67	—	0.67	0.61	—	0.61	2,797

Dust From Material Movement	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.81	0.84	< 0.005	0.04	—	0.04	0.03	—	0.03	153
Dust From Material Movement	—	—	—	—	—	0.15	0.15	—	0.07	0.07	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.15	0.15	< 0.005	0.01	—	0.01	0.01	—	0.01	25.4
Dust From Material Movement	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.60	0.00	0.00	0.10	0.10	0.00	0.02	0.02	96.5
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	5.46
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.90

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.7. Building Construction (2025) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.07	8.95	10.0	0.02	0.33	—	0.33	0.30	—	0.30	1,807
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.72	0.81	< 0.005	0.03	—	0.03	0.02	—	0.02	145
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.13	0.15	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	24.0
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.13	1.27	0.00	0.00	0.20	0.20	0.00	0.05	0.05	203
Vendor	0.01	0.38	0.14	< 0.005	< 0.005	0.07	0.08	< 0.005	0.02	0.02	279
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—

Worker	0.01	0.01	0.11	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	16.9
Vendor	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	22.4
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	2.79
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	3.71
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.8. Building Construction (2025) - Mitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.07	8.95	10.0	0.02	0.33	—	0.33	0.30	—	0.30	1,807
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.72	0.81	< 0.005	0.03	—	0.03	0.02	—	0.02	145
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.13	0.15	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	24.0
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.13	1.27	0.00	0.00	0.20	0.20	0.00	0.05	0.05	203
Vendor	0.01	0.38	0.14	< 0.005	< 0.005	0.07	0.08	< 0.005	0.02	0.02	279
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.11	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	16.9
Vendor	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	22.4
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	2.79
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	3.71
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.9. Building Construction (2026) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.01	8.57	9.96	0.02	0.29	—	0.29	0.27	—	0.27	1,807
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.01	8.57	9.96	0.02	0.29	—	0.29	0.27	—	0.27	1,807
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.72	6.12	7.11	0.01	0.21	—	0.21	0.19	—	0.19	1,291
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	1.12	1.30	< 0.005	0.04	—	0.04	0.04	—	0.04	214
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.14	0.09	1.53	0.00	0.00	0.20	0.20	0.00	0.05	0.05	224
Vendor	0.01	0.34	0.13	< 0.005	< 0.005	0.07	0.08	< 0.005	0.02	0.02	274
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.11	1.17	0.00	0.00	0.20	0.20	0.00	0.05	0.05	199
Vendor	0.01	0.36	0.13	< 0.005	< 0.005	0.07	0.08	< 0.005	0.02	0.02	274
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.07	0.87	0.00	0.00	0.14	0.14	0.00	0.03	0.03	147
Vendor	0.01	0.25	0.09	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	196
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.01	0.16	0.00	0.00	0.03	0.03	0.00	0.01	0.01	24.3
Vendor	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	32.4
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.10. Building Construction (2026) - Mitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.01	8.57	9.96	0.02	0.29	—	0.29	0.27	—	0.27	1,807
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.01	8.57	9.96	0.02	0.29	—	0.29	0.27	—	0.27	1,807
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.72	6.12	7.11	0.01	0.21	—	0.21	0.19	—	0.19	1,291
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	1.12	1.30	< 0.005	0.04	—	0.04	0.04	—	0.04	214
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.14	0.09	1.53	0.00	0.00	0.20	0.20	0.00	0.05	0.05	224
Vendor	0.01	0.34	0.13	< 0.005	< 0.005	0.07	0.08	< 0.005	0.02	0.02	274
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.11	1.17	0.00	0.00	0.20	0.20	0.00	0.05	0.05	199
Vendor	0.01	0.36	0.13	< 0.005	< 0.005	0.07	0.08	< 0.005	0.02	0.02	274
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.07	0.87	0.00	0.00	0.14	0.14	0.00	0.03	0.03	147
Vendor	0.01	0.25	0.09	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	196
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.01	0.16	0.00	0.00	0.03	0.03	0.00	0.01	0.01	24.3
Vendor	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	32.4
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.11. Building Construction (2027) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.97	8.25	9.91	0.02	0.26	—	0.26	0.24	—	0.24	1,807
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.97	8.25	9.91	0.02	0.26	—	0.26	0.24	—	0.24	1,807
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.69	5.90	7.08	0.01	0.19	—	0.19	0.17	—	0.17	1,291
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	1.08	1.29	< 0.005	0.03	—	0.03	0.03	—	0.03	214

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.08	1.41	0.00	0.00	0.20	0.20	0.00	0.05	0.05	218
Vendor	0.01	0.32	0.12	< 0.005	< 0.005	0.07	0.08	< 0.005	0.02	0.02	269
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.10	1.08	0.00	0.00	0.20	0.20	0.00	0.05	0.05	194
Vendor	0.01	0.34	0.12	< 0.005	< 0.005	0.07	0.08	< 0.005	0.02	0.02	268
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.06	0.80	0.00	0.00	0.14	0.14	0.00	0.03	0.03	143
Vendor	0.01	0.24	0.09	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	192
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.15	0.00	0.00	0.03	0.03	0.00	0.01	0.01	23.7
Vendor	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	31.7
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.12. Building Construction (2027) - Mitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.97	8.25	9.91	0.02	0.26	—	0.26	0.24	—	0.24	1,807

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.97	8.25	9.91	0.02	0.26	—	0.26	0.24	—	0.24	1,807
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.69	5.90	7.08	0.01	0.19	—	0.19	0.17	—	0.17	1,291
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	1.08	1.29	< 0.005	0.03	—	0.03	0.03	—	0.03	214
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.08	1.41	0.00	0.00	0.20	0.20	0.00	0.05	0.05	218
Vendor	0.01	0.32	0.12	< 0.005	< 0.005	0.07	0.08	< 0.005	0.02	0.02	269
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.10	1.08	0.00	0.00	0.20	0.20	0.00	0.05	0.05	194
Vendor	0.01	0.34	0.12	< 0.005	< 0.005	0.07	0.08	< 0.005	0.02	0.02	268
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.06	0.80	0.00	0.00	0.14	0.14	0.00	0.03	0.03	143
Vendor	0.01	0.24	0.09	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	192
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.15	0.00	0.00	0.03	0.03	0.00	0.01	0.01	23.7

Vendor	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	31.7
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.13. Building Construction (2028) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.93	7.89	9.88	0.02	0.23	—	0.23	0.21	—	0.21	1,807
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	1.22	1.53	< 0.005	0.04	—	0.04	0.03	—	0.03	279
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.22	0.28	< 0.005	0.01	—	0.01	0.01	—	0.01	46.3
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.09	0.99	0.00	0.00	0.20	0.20	0.00	0.05	0.05	190
Vendor	0.01	0.33	0.12	< 0.005	< 0.005	0.07	0.08	< 0.005	0.02	0.02	262
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—

Worker	0.02	0.01	0.16	0.00	0.00	0.03	0.03	0.00	0.01	0.01	30.4
Vendor	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	40.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	5.03
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	6.70
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.14. Building Construction (2028) - Mitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.93	7.89	9.88	0.02	0.23	—	0.23	0.21	—	0.21	1,807
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	1.22	1.53	< 0.005	0.04	—	0.04	0.03	—	0.03	279
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.22	0.28	< 0.005	0.01	—	0.01	0.01	—	0.01	46.3
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.09	0.99	0.00	0.00	0.20	0.20	0.00	0.05	0.05	190
Vendor	0.01	0.33	0.12	< 0.005	< 0.005	0.07	0.08	< 0.005	0.02	0.02	262
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.01	0.16	0.00	0.00	0.03	0.03	0.00	0.01	0.01	30.4
Vendor	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	40.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	5.03
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	6.70
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.15. Paving (2028) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.43	4.13	6.47	0.01	0.15	—	0.15	0.13	—	0.13	995
Paving	0.01	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.23	0.35	< 0.005	0.01	—	0.01	0.01	—	0.01	54.5
Paving	< 0.005	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.04	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	9.03
Paving	< 0.005	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.47	0.00	0.00	0.10	0.10	0.00	0.02	0.02	90.2
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	5.10
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.84
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.16. Paving (2028) - Mitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.43	4.13	6.47	0.01	0.15	—	0.15	0.13	—	0.13	995
Paving	0.01	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.23	0.35	< 0.005	0.01	—	0.01	0.01	—	0.01	54.5
Paving	< 0.005	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.04	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	9.03
Paving	< 0.005	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.47	0.00	0.00	0.10	0.10	0.00	0.02	0.02	90.2
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	5.10
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.84
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.17. Architectural Coating (2027) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.83	1.13	< 0.005	0.02	—	0.02	0.02	—	0.02	134
Architectural Coatings	1.14	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.83	1.13	< 0.005	0.02	—	0.02	0.02	—	0.02	134
Architectural Coatings	1.14	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.47	0.63	< 0.005	0.01	—	0.01	0.01	—	0.01	75.2
Architectural Coatings	0.64	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.09	0.12	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	12.5
Architectural Coatings	0.12	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.28	0.00	0.00	0.04	0.04	0.00	0.01	0.01	43.6
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.22	0.00	0.00	0.04	0.04	0.00	0.01	0.01	38.8
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.13	0.00	0.00	0.02	0.02	0.00	0.01	0.01	22.5
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	3.73
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.18. Architectural Coating (2027) - Mitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.83	1.13	< 0.005	0.02	—	0.02	0.02	—	0.02	134
Architectural Coatings	1.14	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.83	1.13	< 0.005	0.02	—	0.02	0.02	—	0.02	134
Architectural Coatings	1.14	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.47	0.63	< 0.005	0.01	—	0.01	0.01	—	0.01	75.2
Architectural Coatings	0.64	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.09	0.12	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	12.5
Architectural Coatings	0.12	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.28	0.00	0.00	0.04	0.04	0.00	0.01	0.01	43.6
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.22	0.00	0.00	0.04	0.04	0.00	0.01	0.01	38.8
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—

Worker	0.01	0.01	0.13	0.00	0.00	0.02	0.02	0.00	0.01	0.01	22.5
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	3.73
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.19. Architectural Coating (2028) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.81	1.12	< 0.005	0.02	—	0.02	0.01	—	0.01	134
Architectural Coatings	1.14	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.12	0.17	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	20.7
Architectural Coatings	0.18	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.02	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	3.43

Architectural Coatings	0.03	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.20	0.00	0.00	0.04	0.04	0.00	0.01	0.01	38.1
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	6.07
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	1.01
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.20. Architectural Coating (2028) - Mitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.81	1.12	< 0.005	0.02	—	0.02	0.01	—	0.01	134

Architectural Coatings	1.14	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.12	0.17	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	20.7
Architectural Coatings	0.18	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.02	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	3.43
Architectural Coatings	0.03	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.20	0.00	0.00	0.04	0.04	0.00	0.01	0.01	38.1
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	6.07
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	1.01
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.21. Underground Utilities (2025) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.20	1.93	2.92	< 0.005	0.07	—	0.07	0.06	—	0.06	434
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.20	1.93	2.92	< 0.005	0.07	—	0.07	0.06	—	0.06	434
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.26	0.40	< 0.005	0.01	—	0.01	0.01	—	0.01	59.4
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.05	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	9.83
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.32	0.00	0.00	0.04	0.04	0.00	0.01	0.01	43.3
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.24	0.00	0.00	0.04	0.04	0.00	0.01	0.01	38.6

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	5.46
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.90
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.22. Underground Utilities (2025) - Mitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.20	1.93	2.92	< 0.005	0.07	—	0.07	0.06	—	0.06	434
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.20	1.93	2.92	< 0.005	0.07	—	0.07	0.06	—	0.06	434
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.26	0.40	< 0.005	0.01	—	0.01	0.01	—	0.01	59.4
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.01	0.05	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	9.83
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.32	0.00	0.00	0.04	0.04	0.00	0.01	0.01	43.3
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.24	0.00	0.00	0.04	0.04	0.00	0.01	0.01	38.6
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	5.46
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.90
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

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

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
University/College (4yr)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
University/College (4yr)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
University/College (4yr)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

4.1.2. Mitigated

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

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
University/College (4yr)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
University/College (4yr)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
University/College (4yr)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

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

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
University/College (4yr)	—	—	—	—	—	—	—	—	—	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
University/College (4yr)	—	—	—	—	—	—	—	—	—	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
University/College (4yr)	—	—	—	—	—	—	—	—	—	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	0.00

4.2.2. Electricity Emissions By Land Use - Mitigated

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

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
University/College (4yr)	—	—	—	—	—	—	—	—	—	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
University/College (4yr)	—	—	—	—	—	—	—	—	—	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00

Total	—	—	—	—	—	—	—	—	—	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
University/College (4yr)	—	—	—	—	—	—	—	—	—	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	0.00

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

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

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
University/College (4yr)	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
University/College (4yr)	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
University/College (4yr)	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00

Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00

4.2.4. Natural Gas Emissions By Land Use - Mitigated

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

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
University/College (4yr)	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
University/College (4yr)	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
University/College (4yr)	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00

4.3. Area Emissions by Source

4.3.1. Unmitigated

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

Source	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	1.34	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.08	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.45	0.02	2.73	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	11.3
Total	1.87	0.02	2.73	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	11.3
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	1.34	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.08	—	—	—	—	—	—	—	—	—	—
Total	1.43	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.25	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.01	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.04	< 0.005	0.25	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.92
Total	0.30	< 0.005	0.25	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.92

4.3.2. Mitigated

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

Source	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	1.34	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.08	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.45	0.02	2.73	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	11.3
Total	1.87	0.02	2.73	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	11.3
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	1.34	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.08	—	—	—	—	—	—	—	—	—	—
Total	1.43	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.25	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.01	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.04	< 0.005	0.25	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.92
Total	0.30	< 0.005	0.25	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.92

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

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

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—

University/Coll (4yr)	—	—	—	—	—	—	—	—	—	—	23.9
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	23.9
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
University/College (4yr)	—	—	—	—	—	—	—	—	—	—	23.9
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	23.9
Annual	—	—	—	—	—	—	—	—	—	—	—
University/College (4yr)	—	—	—	—	—	—	—	—	—	—	3.95
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	3.95

4.4.2. Mitigated

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

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
University/College (4yr)	—	—	—	—	—	—	—	—	—	—	23.9
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	23.9

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
University/College (4yr)	—	—	—	—	—	—	—	—	—	—	23.9
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	23.9
Annual	—	—	—	—	—	—	—	—	—	—	—
University/College (4yr)	—	—	—	—	—	—	—	—	—	—	3.95
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	3.95

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

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

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
University/College (4yr)	—	—	—	—	—	—	—	—	—	—	379
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	379
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
University/College (4yr)	—	—	—	—	—	—	—	—	—	—	379

Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	379
Annual	—	—	—	—	—	—	—	—	—	—	—
University/College (4yr)	—	—	—	—	—	—	—	—	—	—	62.7
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	62.7

4.5.2. Mitigated

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

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
University/College (4yr)	—	—	—	—	—	—	—	—	—	—	379
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	379
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
University/College (4yr)	—	—	—	—	—	—	—	—	—	—	379
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	379
Annual	—	—	—	—	—	—	—	—	—	—	—

University/College (4yr)	—	—	—	—	—	—	—	—	—	—	62.7
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	62.7

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

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

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
University/College (4yr)	—	—	—	—	—	—	—	—	—	—	0.24
Total	—	—	—	—	—	—	—	—	—	—	0.24
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
University/College (4yr)	—	—	—	—	—	—	—	—	—	—	0.24
Total	—	—	—	—	—	—	—	—	—	—	0.24
Annual	—	—	—	—	—	—	—	—	—	—	—
University/College (4yr)	—	—	—	—	—	—	—	—	—	—	0.04
Total	—	—	—	—	—	—	—	—	—	—	0.04

4.6.2. Mitigated

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

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
University/College (4yr)	—	—	—	—	—	—	—	—	—	—	0.24
Total	—	—	—	—	—	—	—	—	—	—	0.24
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
University/College (4yr)	—	—	—	—	—	—	—	—	—	—	0.24
Total	—	—	—	—	—	—	—	—	—	—	0.24
Annual	—	—	—	—	—	—	—	—	—	—	—
University/College (4yr)	—	—	—	—	—	—	—	—	—	—	0.04
Total	—	—	—	—	—	—	—	—	—	—	0.04

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

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

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—

4.7.2. Mitigated

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

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

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

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—

4.8.2. Mitigated

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

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

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

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—

4.9.2. Mitigated

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

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

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

Vegetation	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

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

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

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

Species	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—

Avoided	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

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

Vegetation	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

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

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—

Annual	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

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

Species	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—

Removed	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Demolition	Demolition	8/1/2025	9/11/2025	5.00	30.0	—
Site Preparation	Site Preparation	9/12/2025	10/23/2025	5.00	30.0	—
Grading	Grading	10/24/2025	11/20/2025	5.00	20.0	—
Building Construction	Building Construction	11/21/2025	3/19/2028	5.00	606	—
Paving	Paving	2/20/2028	3/19/2028	5.00	20.0	—
Architectural Coating	Architectural Coating	3/20/2027	3/19/2028	5.00	260	—
Underground Utilities	Trenching	9/12/2025	11/20/2025	5.00	50.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Demolition	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Demolition	Tractors/Loaders/Backhoes	Diesel	Average	3.00	8.00	84.0	0.37
Demolition	Off-Highway Trucks	Diesel	Average	1.00	2.00	376	0.38
Site Preparation	Graders	Diesel	Average	1.00	8.00	148	0.41
Site Preparation	Rubber Tired Dozers	Diesel	Average	1.00	7.00	367	0.40

Site Preparation	Tractors/Loaders/Back	Diesel	Average	1.00	8.00	84.0	0.37
Site Preparation	Off-Highway Trucks	Diesel	Average	1.00	2.00	376	0.38
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Back hoes	Diesel	Average	2.00	7.00	84.0	0.37
Grading	Off-Highway Trucks	Diesel	Average	1.00	2.00	376	0.38
Building Construction	Cranes	Diesel	Average	1.00	6.00	367	0.29
Building Construction	Forklifts	Diesel	Average	1.00	6.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Back hoes	Diesel	Average	1.00	6.00	84.0	0.37
Building Construction	Welders	Diesel	Average	3.00	8.00	46.0	0.45
Paving	Cement and Mortar Mixers	Diesel	Average	1.00	6.00	10.0	0.56
Paving	Pavers	Diesel	Average	1.00	6.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	1.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	1.00	7.00	36.0	0.38
Paving	Tractors/Loaders/Back hoes	Diesel	Average	1.00	8.00	84.0	0.37
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48
Underground Utilities	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
Underground Utilities	Tractors/Loaders/Back hoes	Diesel	Average	1.00	8.00	84.0	0.37

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Demolition	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40

Demolition	Tractors/Loaders/Back	Diesel	Average	3.00	8.00	84.0	0.37
Demolition	Off-Highway Trucks	Diesel	Average	1.00	2.00	376	0.38
Site Preparation	Graders	Diesel	Average	1.00	8.00	148	0.41
Site Preparation	Rubber Tired Dozers	Diesel	Average	1.00	7.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Site Preparation	Off-Highway Trucks	Diesel	Average	1.00	2.00	376	0.38
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00	7.00	84.0	0.37
Grading	Off-Highway Trucks	Diesel	Average	1.00	2.00	376	0.38
Building Construction	Cranes	Diesel	Average	1.00	6.00	367	0.29
Building Construction	Forklifts	Diesel	Average	1.00	6.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	1.00	6.00	84.0	0.37
Building Construction	Welders	Diesel	Average	3.00	8.00	46.0	0.45
Paving	Cement and Mortar Mixers	Diesel	Average	1.00	6.00	10.0	0.56
Paving	Pavers	Diesel	Average	1.00	6.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	1.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	1.00	7.00	36.0	0.38
Paving	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48
Underground Utilities	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
Underground Utilities	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	15.0	10.9	LDA,LDT1,LDT2
Demolition	Vendor	—	8.27	HHDT,MHDT
Demolition	Hauling	29.9	20.0	HHDT
Demolition	Onsite truck	—	—	HHDT
Site Preparation	—	—	—	—
Site Preparation	Worker	10.0	10.9	LDA,LDT1,LDT2
Site Preparation	Vendor	—	8.27	HHDT,MHDT
Site Preparation	Hauling	1.07	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	12.5	10.9	LDA,LDT1,LDT2
Grading	Vendor	—	8.27	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	26.4	10.9	LDA,LDT1,LDT2
Building Construction	Vendor	10.3	8.27	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	12.5	10.9	LDA,LDT1,LDT2
Paving	Vendor	—	8.27	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT

Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	5.27	10.9	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	8.27	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT
Underground Utilities	—	—	—	—
Underground Utilities	Worker	5.00	10.9	LDA,LDT1,LDT2
Underground Utilities	Vendor	—	8.27	HHDT,MHDT
Underground Utilities	Hauling	0.00	20.0	HHDT
Underground Utilities	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	15.0	10.9	LDA,LDT1,LDT2
Demolition	Vendor	—	8.27	HHDT,MHDT
Demolition	Hauling	29.9	20.0	HHDT
Demolition	Onsite truck	—	—	HHDT
Site Preparation	—	—	—	—
Site Preparation	Worker	10.0	10.9	LDA,LDT1,LDT2
Site Preparation	Vendor	—	8.27	HHDT,MHDT
Site Preparation	Hauling	1.07	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	12.5	10.9	LDA,LDT1,LDT2
Grading	Vendor	—	8.27	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT

Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	26.4	10.9	LDA,LDT1,LDT2
Building Construction	Vendor	10.3	8.27	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	12.5	10.9	LDA,LDT1,LDT2
Paving	Vendor	—	8.27	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	5.27	10.9	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	8.27	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT
Underground Utilities	—	—	—	—
Underground Utilities	Worker	5.00	10.9	LDA,LDT1,LDT2
Underground Utilities	Vendor	—	8.27	HHDT,MHDT
Underground Utilities	Hauling	0.00	20.0	HHDT
Underground Utilities	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	0.00	0.00	94,155	31,385	1,247

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (Ton of Debris)	Acres Paved (acres)
Demolition	0.00	0.00	0.00	3,586	—
Site Preparation	—	250	28.1	0.00	—
Grading	—	—	20.0	0.00	—
Paving	0.00	0.00	0.00	0.00	0.48

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	2	61%	61%
Water Demolished Area	2	36%	36%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
University/College (4yr)	0.00	0%
Other Asphalt Surfaces	0.48	16%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2025	0.00	204	0.03	< 0.005

2026	0.00	204	0.03	< 0.005
2027	0.00	204	0.03	< 0.005
2028	0.00	204	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
University/College (4yr)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
University/College (4yr)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.1.2. Mitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)

0	0.00	94,155	31,385	1,247

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.10.4. Landscape Equipment - Mitigated

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
University/College (4yr)	0.00	204	0.0330	0.0040	0.00
Other Asphalt Surfaces	0.00	204	0.0330	0.0040	0.00

5.11.2. Mitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
University/College (4yr)	0.00	204	0.0330	0.0040	0.00
Other Asphalt Surfaces	0.00	204	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
University/College (4yr)	2,355,210	180,336
Other Asphalt Surfaces	0.00	0.00

5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
University/College (4yr)	2,355,210	180,336
Other Asphalt Surfaces	0.00	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
University/College (4yr)	201	—
Other Asphalt Surfaces	0.00	—

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
University/College (4yr)	201	—
Other Asphalt Surfaces	0.00	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced

University/College (4yr)	Household refrigerators and/or freezers	R-134a	1,430	0.02	0.60	0.00	1.00
University/College (4yr)	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
University/College (4yr)	Stand-alone retail refrigerators and freezers	R-134a	1,430	< 0.005	1.00	0.00	1.00
University/College (4yr)	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0

5.14.2. Mitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
University/College (4yr)	Household refrigerators and/or freezers	R-134a	1,430	0.02	0.60	0.00	1.00
University/College (4yr)	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
University/College (4yr)	Stand-alone retail refrigerators and freezers	R-134a	1,430	< 0.005	1.00	0.00	1.00
University/College (4yr)	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

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

5.15.2. Mitigated

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

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	28.8	annual days of extreme heat
Extreme Precipitation	1.80	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	26.3	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	3	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	0	0	0	N/A
Drought	0	0	0	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	3	1	1	3
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	1	1	1	2
Drought	1	1	1	2
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	74.1
AQ-PM	59.7
AQ-DPM	16.1
Drinking Water	71.6
Lead Risk Housing	71.0
Pesticides	78.8
Toxic Releases	17.5
Traffic	3.09
Effect Indicators	—
CleanUp Sites	5.64
Groundwater	76.6
Haz Waste Facilities/Generators	0.00
Impaired Water Bodies	33.2
Solid Waste	52.9
Sensitive Population	—
Asthma	82.6
Cardio-vascular	52.9
Low Birth Weights	37.6

Socioeconomic Factor Indicators	—
Education	97.9
Housing	34.8
Linguistic	97.4
Poverty	88.4
Unemployment	95.9

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	7.506736815
Employed	7.750545361
Median HI	9.842166046
Education	—
Bachelor's or higher	13.1271654
High school enrollment	23.00782754
Preschool enrollment	76.63287566
Transportation	—
Auto Access	40.90850764
Active commuting	35.86552034
Social	—
2-parent households	49.18516617
Voting	14.52585654
Neighborhood	—
Alcohol availability	59.52778134
Park access	27.39638137
Retail density	2.669061979

Supermarket access	2.399589375
Tree canopy	54.21532144
Housing	—
Homeownership	45.79751059
Housing habitability	36.84075452
Low-inc homeowner severe housing cost burden	42.38419094
Low-inc renter severe housing cost burden	62.8127807
Uncrowded housing	24.18837418
Health Outcomes	—
Insured adults	20.69806236
Arthritis	0.0
Asthma ER Admissions	1.5
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	75.4
Cognitively Disabled	8.5
Physically Disabled	9.6
Heart Attack ER Admissions	0.0
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	68.8
Physical Health Not Good	0.0
Stroke	0.0

Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	26.6
Elderly	63.3
English Speaking	7.6
Foreign-born	83.3
Outdoor Workers	1.4
Climate Change Adaptive Capacity	—
Impervious Surface Cover	88.5
Traffic Density	3.5
Traffic Access	0.0
Other Indices	—
Hardship	96.0
Other Decision Support	—
2016 Voting	45.9

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	74.0
Healthy Places Index Score for Project Location (b)	14.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Land Use	Land use sizes estimated from project engineer and the conceptual design plan. Student size estimated by the traffic engineer.
Construction: Construction Phases	Construction schedule estimated based on input from project engineer.
Construction: Off-Road Equipment	Off-highway truck = water truck. Excavator and backhoe added for underground utilities.
Construction: Paving	Percent asphalt estimated per project engineer.
Operations: Vehicle Data	Mobile sources set to zero because the project would accommodate the projected growth considered in the 2020 LRDP and would not result in new, unplanned growth.
Operations: Energy Use	The project will not have any new natural gas and would have 100% renewable electricity.

Appendix C

Transportation Impact Analysis

FEHR PEERS

Memorandum

Date: January 23, 2025

To: Lesley Owning and Julia Pano, HELIX Environmental Planning, Inc.

From: Gillian Zhao, Grace Chen, and Ian Barnes, PE, Fehr & Peers

Subject: UC Merced COB3 CEQA Transportation Analysis

WC24-4141.00

This technical memorandum documents the California Environmental Quality Act (CEQA) transportation analysis results for the proposed UC Merced Classroom and Office Building 3 (COB3) Project (Project). The analysis is consistent with the requirements of California Senate Bill 743 (2013) and the State Office of Planning and Research's *Technical Advisory on Evaluating Transportation Impacts in CEQA* (OPR Technical Advisory). This memorandum also presents VMT estimates for Future (2046) scenarios and includes a site plan review that are supplementary to the CEQA transportation analysis.

Project Description

The Project, located at New Ranchers Road and Ansel Adams Road, proposes to construct a 61,640 square foot (sf) Classroom and Office Building. It would be constructed on the current site of the Academic Office Annex (AOA) modular trailers, and it is assumed that the AOA modular trailers would be demolished and recycled off-site. The total assignable square footage of COB3 would be 41,932 sf. The conceptual site plans and detailed program relevant to this analysis for the Project are in **Appendix A** of this memorandum.

VMT Methodology

The VMT analysis leverages the methodology used as part of the UC Merced 2020 Long Range Development Plan (LRDP) Environmental Impact Report (EIR), which demonstrated the relative VMT efficiency of the campus compared to other uses in the County and is consistent with the OPR Technical Advisory. The metrics were also used to environmentally clear other Projects such as the Medical Educational building (the 2021 Medical Education Building Study).[1]

The latest 2022 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) Merced County Association of Governments Model (MCAG Model) was used as the basis of estimating regional

[1] VMT Impact Analysis for the UC Merced Medical Education Building Project and 2020 LRDP (Fehr & Peers, June 30, 2021)

and Project total VMT and VMT per capita. The MCAG Model includes a base year of 2023 and multiple forecast years, including 2024, 2025, 2026, 2029, 2031, 2037, and 2046. The MCAG Model contains land use, roadway network, and travel characteristics information for Merced County, and divides the county into several traffic analysis zones (TAZs). The 2023 Base Year model was used as the Baseline model for this analysis. The forecast years are consistent with the expected build-out of the 2020 LRDP.

The model allows calculation of VMT based on the trip generation of each land use and the trip lengths for each trip. The models were reviewed and adjusted as described below to facilitate the VMT analysis.

MCAG Model Adjustments

Land Use

The MCAG Model land uses reflect the Merced County Association of Governments (MCAG) 2022 RTP/SCS for the land uses and roadway network outside of the UC Merced campus. However, an examination of the land use files in the model revealed that the model does not contain the correct Baseline and projected campus employees and student populations. Therefore, TAZs that contain the campus were updated to reflect the correct campus populations under Baseline conditions (year 2023) and under future scenarios. Since the model does not include specific student housing land use, the trip generation characteristics of on-campus housing were modified to reflect on-campus housing trip generation characteristics.

The MCAG Model does not include any development on the Virginia Smith Trust (VST) property to the south of the campus. In the event that new housing is constructed on the VST property by 2030, it is reasonable to assume that some of the students, faculty, and staff would choose to live on the VST property in close proximity to the campus, rather than in other housing more distant from the campus. This would have the effect of lowering the VMT of the campus population. Therefore, additional analysis scenarios were prepared that include the VST property located south of the campus.[2] It is assumed that phase 1 will be constructed by 2030 and phase 2 (full build-out) will be constructed by 2046.

The 2023 Baseline, 2030 Forecast, and 2046 LRDP housing, population, and employment for Merced County and the City of Merced, as included in the updated MCAG Model, are summarized in **Table 1**. The land use for the VST development south of the campus is shown in **Table 2.**

[2] Peck Planning and Development LLC, 'Building with Phasing Dates', transmitted to UC Merced on February 26, 2021.

Table 1: Housing, Population, and Employment in the Updated MCAG Model

Area	Households	Population	Employees
2023 Baseline			
City of Merced	30,240	99,788	35,883
Merced County	88,419	290,865	92,435
2030 Forecast			
City of Merced	35,572	117,716	38,681
Merced County	100,533	331,665	98,380
2046 Forecast (LRDP)			
City of Merced	40,900	142,682	45,076
Merced County	114,022	384,148	110,751

Note: The values for the County include those within the City of Merced.
Source: MCAG Travel Demand Model, 2024; Fehr & Peers, 2025

Table 2: VST Land Use (Phases 1 and 2)

	Single Family	Multi-Family	Retail Employees[1]	Office Employees[2]
Phase 1	343	1,726	650	908
Phase 2	1,298	2,619	1,174	2,998

Notes:
1. Retail employees estimated by Fehr & Peers using 3.3 employees per thousand square feet.
2. Office employees estimated by Fehr & Peers using 2 employees per thousand square feet.

Source: Peck Planning, March 2021

Roadway Network

The roadway networks in the MCAG Model are consistent with the 2022 MCAG RTP/SCS. The Network for the 2030 and 2046 with VST Development scenarios have been updated to reflect connectivity between the VST Development south of the campus and the existing roadway network.

Analysis Scenarios

The campus populations for the Baseline Year (2023), the COB3 Project, and Build-Out of the LRDP are shown in **Table 3**. The campus populations for the Baseline Year and for the LRDP Build-Out are consistent with the populations used for the 2021 Medical Education Building Study. Based on the detailed program (see **Appendix A**) proposed for the COB3 Project, the building is assumed to serve a total of 1,110 students and 126 faculty and staff. The full development of the 2046 LRDP would result in 15,000 students, including 7,200 residents, and 2,411 faculty and staff.

Table 3: Campus Populations by Scenario

Scenario	On-Campus Students	Off-Campus Students	Total Students	Faculty and Staff
Baseline	3,667	5,333	9,000	1,269
COB3 (Addition)	0	1,110	1,110	126
LRDP Build-Out	7,200	7,800	15,000	2,411

Source: UC Merced, 2024

The following scenarios were analyzed, and their results are included in the **Evaluation of VMT Impacts section** of this memorandum:

- Base Year (2023) No Project (Baseline)
- Base Year (2023) Plus Project
- Future (2030) No Project
- Future (2030) Plus Project
- Future (2030) No Project with VST Development
- Future (2030) Plus Project with VST Development

In addition, VMT estimates for the following scenarios were calculated and are included in the **Future (2046) VMT estimates section** of this memorandum:

- Future (2046) with LRDP Build-Out
- Future (2046) with LRDP Build-Out with VST Development

VMT Metrics and Significance Thresholds

This analysis uses VMT metrics and thresholds of significance consistent with the recommendations presented in the Technical Advisory, guidance from the University and the Project team, as well as the 2021 Medical Education Building Study. **Table 4** presents the metrics and significance thresholds.

Table 4: VMT Metrics and Significance Threshold

Metric	Significance Threshold
1. Project home-work VMT per worker	Impact would be less than significant if the campus home-work VMT per worker is at least 15 percent below the existing regional (Merced County) average home-work VMT per worker
2. Regional (countywide) average home-work VMT per worker	Impact would be less than significant if there is no increase in the forecasted regional (Merced County) average home-work VMT per worker due to the Project

Note: For this analysis, all campus faculty, staff, and students are considered workers. This is because the campus functions as a workplace not only for faculty and staff, but for students who attend class, study, and conduct research on-site.
Source: MCAG Travel Demand Model, 2024; Fehr & Peers, 2025

To evaluate the transportation impacts of the campus, all new faculty, staff and students added to the campus as a result of the Project or the 2046 LRDP were considered workers and their transportation effect was assessed relative to Metric 1 and Metric 2. This is because the campus functions as a workplace not only for faculty and staff, but for students who attend class, study and conduct research on-site.

Metric 1 is recommended in the Technical Advisory for use in evaluating the transportation impacts of Projects involving employment land uses. The concept underlying is to compare the Project's transportation efficiency (Project VMT per worker), with the existing regional efficiency (regional VMT per worker) and to determine whether the Project would be more or less efficient than the existing region. If the Project is sufficiently more efficient, it would result in a less than significant transportation impact. As noted earlier and in the table above, in order to be considered more efficient and result in a less than significant impact, the Project's VMT per capita must be at least 15 percent below the existing regional VMT per capita.

The regional average is defined as the Merced Countywide average. Since the campus is located in Merced County and most students and staff live in Merced County (about 90 percent and 60 percent, respectively), Merced County was chosen as the regional comparison metric. The average VMT per worker includes all home-work trips, i.e., all trips made between the home and the workplace.

With regard to cumulative impacts, the Technical Advisory notes that "[a] Project that falls below an efficiency-based threshold that is aligned with long-term environmental goals and relevant plans would have no cumulative impact distinct from the Project impact. Accordingly, a finding of a less-than-significant Project impact would imply a less than significant cumulative impact, and vice versa. This is similar to the analysis typically conducted for greenhouse gas emissions, air quality impacts, and impacts that utilize plan compliance as a threshold of significance." As this analysis uses efficiency-based metrics listed in **Table 4** above (i.e., Metric 1), VMT metrics that analyze cumulative impacts are not required. Nevertheless, for the 2021 Medical Education Building Study, the University has developed Metric 2 to evaluate whether the addition of worker population to the study area as a result of campus growth would have the potential to cause the forecasted regional VMT per capita to increase compared to the no Project conditions.

Metric 2 is designed to estimate whether the addition of new workers (defined to include not just new faculty and staff who would work at the campus but also all additional students who would travel to the campus for classes or to jobs on or off campus) to the region due to the proposed Project would result in a change in the forecasted (2030) regional average VMT per worker. Any increase in the forecasted regional average VMT per worker due to the addition of the campus population would be considered a significant cumulative impact. Conversely, if there is no increase in the forecasted regional average VMT per worker due to the Project, the cumulative impact would be less than significant.

CEQA VMT Analysis Results

This section presents the CEQA VMT impact analysis results for the Project. This analysis below is related to CEQA Guidelines Transportation Checklist Question A.

Baseline VMT Metrics

Table 5 presents the Baseline VMT metrics based on the current (2023) populations of the campus and the region (Merced County). For the Baseline Year, the campus generates substantially lower home-work VMT per worker than the county as a whole: 9.6 total home-work VMT per campus worker versus 16.0 total home-work VMT per worker regional average. Factors that underlie these results include the following:

- Students (listed as part of workers in the table as noted) tend to have lower auto ownership than typical county residents.
- Students living on campus generate nearly zero VMT for their home-work trips between campus housing and campus class/study/research locations.
- The campus is located near Merced County's largest population center, providing greater opportunities for off-campus residents to live relatively close to the campus.

Table 5: Baseline Year (2023) VMT Results

Metric	Regional	Campus
Workers	113,779	10,269
Total Home-Work VMT	1,821,591	98,829
Home-Work VMT per Worker	**16.0**	**9.6**

Note: For this analysis, all campus faculty, staff, and students are considered workers. This is because the campus functions as a workplace not only for faculty and staff, but for students who attend class, study, and conduct research on-site. Source: MCAG Travel Demand Model, 2024; Fehr & Peers, 2025

COB3 Project VMT Impact

Table 6 presents the VMT results for the COB3 Project development relative to Metric 1. As **Table 6** shows, Project home-work VMT per campus worker for the Plus Project scenarios would be 9.7, 8.3, and 8.2, for Base Year (2023) Plus Project, Future (2030) Plus Project, and Future (2030) Plus Project with VST Development, respectively. They are substantially less than the Metric 1 threshold value of 13.6. Therefore, the implementation of the COB3 Project would result in a ***less-than-significant*** Project VMT impact under all study scenarios.

Table 7 presents the VMT results for the COB3 Project development relative to Metric 2. As **Table 7** shows, countywide home-work VMT per worker for the Plus Project scenarios would be 15.9, 11.5, and 11.4, for Base Year (2023) Plus Project, Future (2030) Plus Project, and Future (2030) Plus Project with VST Development, respectively. They are either identical or less than the Metric 2 threshold values of 16.0, 11.5, and 11.4. Thus, implementation of the Project would not contribute to an increase in the forecasted regional (countywide) average VMT metric and therefore would result in a ***less-than-significant*** cumulative impact under all study scenarios.

Table 6: COB3 Project VMT Impact – Metric 1

Metric	Base Year (2023) No Project	Base Year (2023) Plus Project	Future (2030) No Project	Future (2030) Plus Project	Future (2030) No Project with VST Development	Future (2030) Plus Project with VST Development
Workers (Campus)	10,269	11,505	10,269	11,505	10,269	11,505
Total home-work VMT (Campus)	98,829	112,082	83,492	95,045	82,848	94,328
Project home-work VMT per worker (Campus)	**9.6**	**9.7**	**8.1**	**8.3**	**8.1**	**8.2**
Regional average home-work VMT per worker (County)	16.0	15.9	11.5	11.5	11.4	11.4
Metric 1 threshold: Project home-work VMT per worker is 15% below countywide average	13.6	---	---	---	---	---
Is the Project home-work VMT per worker at least 15% below countywide average?	---	Yes	---	Yes	---	Yes
Significant CEQA Impact Requiring Mitigation?	**---**	***No***	**---**	***No***	**---**	***No***

Note: For this analysis, all campus faculty, staff, and students are considered workers. This is because the campus functions as a workplace not only for faculty and staff, but for students who attend class, study, and conduct research on-site.
Source: MCAG Travel Demand Model, 2024; Fehr & Peers, 2025

Table 7: COB3 Project VMT Impact – Metric 2

Metric	Base Year (2023) No Project	Base Year (2023) Plus Project	Future (2030) No Project	Future (2030) Plus Project	Future (2030) No Project with VST Development	Future (2030) Plus Project with VST Development
Workers (County)	113,779	115,015	120,853	122,089	122,411	123,647
Total home-work VMT (County)	1,821,591	1,830,845	1,391,199	1,397,956	1,400,467	1,407,231
Home-work VMT per worker (County)	**16.0**	**15.9**	**11.5**	**11.5**	**11.4**	**11.4**
Metric 2 threshold: Does the forecasted home-work VMT per worker increase with the Project?	---	No	---	No	---	No
Significant CEQA Impact Requiring Mitigation?	**---**	***No***	**---**	***No***	**---**	***No***

Note: For this analysis, all campus faculty, staff, and students are considered workers. This is because the campus functions as a workplace not only for faculty and staff, but for students who attend class, study, and conduct research on-site.
Source: MCAG Travel Demand Model, 2024; Fehr & Peers, 2025

Future (2046) VMT estimates

Table 8 includes the Future (2046) VMT estimates calculated for the with LRDP Build-Out scenario and the with LRDP Build-Out with VST Development scenario. The Project is part of the overall LRDP and has been cleared through the LRDP EIR; thus, this information is provided only for consistency purposes.

Table 8: Future (2046) VMT Estimates

Metric	Future (2046) with LRDP Build-Out		Future (2046) with LRDP Build-Out with VST Development	
	Regional	Campus	Regional	Campus
Workers	140,385	17,411	144,557	17,411
Total home-work VMT	1,561,847	142,277	1,573,558	140,058
Home-work VMT per worker	**11.1**	**8.2**	**10.9**	**8.0**

Note: For this analysis, all campus faculty, staff, and students are considered workers. This is because the campus functions as a workplace not only for faculty and staff, but for students who attend class, study, and conduct research on-site. Source: MCAG Travel Demand Model, 2024; Fehr & Peers, 2025

Other Required CEQA Transportation Topics

Evaluation of Bicycle, Pedestrian, and Transit Impacts

A Project would result in a significant bicycle, pedestrian, or transit impact if it would disrupt or interfere with any existing or planned bicycle, pedestrian, or transit facilities, or if the proposed Project would result in a physical change that would be inconsistent with policies in the City of Merced's *Merced Vision 2030,* Merced County *2030 Merced County General Plan,* or the University of California, Merced *2020 Long Range Development Plan* (LRDP). These analyses are related to CEQA Guidelines Transportation Checklist Question A.

Pedestrian Facilities

There are existing sidewalks near the block where the Project site is located, along both New Ranchers Road and Ansel Adams Road, leading to the Project site. However, the sidewalk terminates at the Project site, indicating that there are no existing sidewalk facilities directly adjacent to the Project frontage. The attached conceptual site plans indicate that the Project would maintain the existing pedestrian facilities. It also indicates that the Project would construct sidewalks along the Project frontage. The proposed sidewalks would improve the pedestrian network by connecting the sidewalks on New Ranchers Road and Ansel Adams Road. The sidewalks, curb, gutter, and lighting would be consistent with General Plan policies and UC Merced design standards, where needed to accommodate new building construction or renovations.

Additionally, pedestrian connection to the existing sidewalk facilities would be supported by a proposed paseo on the first floor of the Project. As illustrated in the conceptual site plans, the paseo along with the

plaza areas would provide connection between the Project and surrounding campus facilities including the COB, the COB2, and the UC Merced Library. It also connects the Project to existing pedestrian facilities at Carol Tomlinson-Keasey Quad, Scholars Lane, New Ranchers Road, and Ansel Adams Road. The two primary connections include the path between the UC Merced Library and the COB as well as the path between the UC Merced Library and the COB2.

In summary, the Project would provide new pedestrian facilities that connect to the existing pedestrian network, linking to campus buildings, bicycle and vehicle parking, and transit stops. It would not disrupt or interfere with any existing or planned pedestrian improvements or result in a physical change that would be inconsistent with any pedestrian-related policies in the 2020 LRDP. Therefore, the Project would result in a ***less-than-significant*** pedestrian impact.

Bicycle Facilities

The nearest existing bicycle facilities is located near the UC Merced Library, which is approximately 750 feet southwest of the Project site. A Class IV Bikeway is present along Scholars Lane between UC Merced Library and Emigrant Pass Road. It terminates at Emigrant Pass Road as well as at the driveway leading to the parking lot for the library. As such, there are no existing bicycle facilities present along the Project frontage. Meanwhile, as illustrated in the conceptual site plans, the Project proposes a connection between the Project site and Scholars Lane through the plaza area that would support bicycle usage and connect the Project to existing bicycle facilities at Scholars Lane.

Figure 3.4 Bicycle Circulation Map in the 2020 LRDP envisions a variety of Class I, II and IV bikeways throughout campus. The four types of bikeways, including Class III bike routes, are defined as follows:

- Class I - Typically called a "bike path," a Class I bikeway provides bicycle travel on a paved right-of-way completely separated from any street or highway.
- Class II - Often referred to as a "bike lane," a Class II bikeway provides a striped and stenciled lane for one-way travel on a street or highway.
- Class III - Generally referred to as a "bike route," a Class III bikeway provides for shared use with pedestrian or motor vehicle traffic and is identified only by signing.
- Class IV - Cycle tracks or separated bikeways provide a right-of-way designated exclusively for bicycle travel adjacent to a roadway and which are protected from vehicular traffic.

Specifically, the Bicycle Circulation Map indicates the following bicycle facilities adjacent to the Project site:

- Class IV Bikeway along Ranchers Road between Ansel Adam Road and Emigrant Pass Road
- Class I Bike Path along Ansel Adams Road between Ranchers Road and Mineral King Road, transitioning into a Class II Bike Lane along Loop Road, before connecting to until a Class I Bike Path along Bellevue Road

While the envisioned bicycle facilities would support the 2020 LRDP's goal of expanding and enhancing the campus multi-model circulation network, the LRDP also states that the maps are intended to serve as a tool to inform future decisions. Immediate construction of bicycle facilities along the Project frontage would create gaps in the bicycle network, as the bicycle facilities at the adjacent parcels' frontage both west and south of the Project are currently undeveloped. For this reason, the Project would dedicate the necessary right-of-way for future construction of the bicycle facilities along the Project frontage once specific details become available.

The Project would not disrupt or interfere with the existing or planned bicycle facilities and would not result in any physical change that would be inconsistent with bicycle-related policies identified in the General Plans and the 2020 LRDP. Therefore, the proposed Project would result in a ***less-than-significant*** bicycle impact.

Transit Facilities

CatTracks provides bus service between UC Merced and local destinations in the City of Merced. The campus is currently served by Route C1, C2, E1, FastCat, FastCat 2, G Route, Yosemite Express and BobCat Express. Additionally, Merced's Regional Transit System "The Bus" provides bus service between UC Merced and the City through Route UC Merced. All routes include a single stop on the UC Merced campus at the University Transit Center. It is approximately 0.5 miles southwest of the Project site and is accessible via existing bicycle and pedestrian infrastructure.

The Project would not disrupt or interfere with existing or planned transit services and would not result in a physical change that would be inconsistent with any transit-related policies identified in the General Plans and the 2020 LRDP. Therefore, the Project would result in a ***less-than-significant*** transit impact.

Evaluation of Vehicle System Hazard Impacts

The following analyses are related to CEQA Guidelines Transportation Checklist Question C.

The Project is an academic development proposed in a Campus Mixed Use area as identified in the 2020 LRDP, so the volume, speed, and mix of vehicles generated by the Project would be similar to the existing volume, speed, and mix of vehicles in the study area.

According to the conceptual site plans, the Project is located at the corner of Ansel Adams Road and New Ranchers Road. It does not propose any driveways to and from the building, except for a service drive off Ansel Adams Road, as shown in the conceptual site plans in **Appendix A**. A service drive is a designated driveway that provides access for operational and logistical purposes, rather than general public use. As such, modification to the existing public roadway system is expected to be minor. Ansel Adams Road has a posted speed limit of 5 miles per hour. The width of the driveway is approximately 20 feet. The throat length of the driveway, when measured from the roadway to the first conflict point, is approximately 90 feet. The length when measured from the back of sidewalk is approximately 70 feet. The throat length and width would be adequate for service vehicles entering and exiting.

Stopping sight distance is a critical factor that ensures drivers have enough time and space to stop to avoid hazards. According to Table 201.1 of the Caltrans *Highway Design Manual*, the stopping sight distance at 10 miles per hour is 50 feet, indicating that the sight distance at 5 miles per hour would be lower than 50 feet. The sight distance entering the Project site at the service driveway appears to be more than 50 feet, indicating that the sight distance should be adequate. It is strongly recommended that the final site plans be reviewed for potential sight distance impediments including new signs, above ground utility boxes, or landscaping proposed in the sight triangle.

Overall, the Project does not introduce incompatible uses to the roadway system, nor would it introduce geometric features that would result in hazardous conditions. Thus, implementation of the Project would result in a ***less-than-significant*** vehicle system hazard impact.

Evaluation of Emergency Access Impacts

The following analyses are related to CEQA Guidelines Transportation Checklist Question D.

While the Project does not include any internal vehicular circulation system, it proposes a service driveway which would support operational and logistics purposes as well as support fire access. The width of the driveway is approximately 20-feet wide, which is sufficient for emergency vehicle access. The driveway would be constructed according to State of California design standards for roadway and intersection design and operations. It is strongly recommended that the final conceptual site plans be subject reviewed and approved by UC Merced's Physical & Environmental Planning department. The review and approval process would also include the Fire Department, which would include a review of the proposed Project's consistency with the City and Campus's design criteria to ensure that viable emergency vehicles movements are provided. Therefore, implementation of the Project would be consistent with an applicable design standard and the proposed Project would result in a ***less-than-significant*** emergency access impact.

Site Plan Review

This section provides recommendations for site access and circulation for vehicles, pedestrians, and cyclists that are additional to the CEQA compliance analysis. The recommendations provided in this section are not CEQA mitigation measures and are provided for informational purposes only.

There is no existing on-street parking directly in front of the Project site, and the conceptual site plans do not propose any on-street parking. The nearest parking access to the Project site is located at Library Lot 1 and Le Grand Faculty/Staff Lot, both approximately 750 feet from the Project site to the southwest and east, respectively.

The Project proposes new sidewalks that connect existing sidewalks along Ansel Adams Road and New Ranchers Road. It also proposes the construction of a paseo which would provide pedestrian connectivity and circulation through the COB3 between the plaza and Ansel Adams Road. The plaza area also indicates bicycle access to and from the Project site, as it is paved and sufficiently wide to accommodate both pedestrian and bicyclists.

The following recommendations aim to enhance wayfinding, improve pedestrian and bicycle mobility, and promote active transportation:

- Use prominent signs and pavement markings to explicitly indicate how bicyclists and pedestrians are expected to use the plaza area
- Add signage and informational maps to provide better wayfinding for pedestrians and bicyclists to circulate around/through the Project site
- Add wayfinding signage to different parking areas (Library parking, faculty and staff parking, bike parking) and to the transit stop
- Provide secure bicycle parking such as bike lockers and bike rooms

Conclusion

This completes our CEQA Transportation assessment for the proposed UC Merced COB3 Project. While this memorandum also includes a site plan review and presents VMT estimates for Future (2046) scenarios, they are supplementary to the CEQA Transportation assessment.

Results of the CEQA Transportation assessment indicate that Project CEQA Transportation impacts, including VMT, roadway system hazards/geometric features, pedestrian facilities, bicycle facilities, transit facilities, and emergency access are ***less-than-significant***.

Appendix A: Conceptual Site Plan and Detailed Program

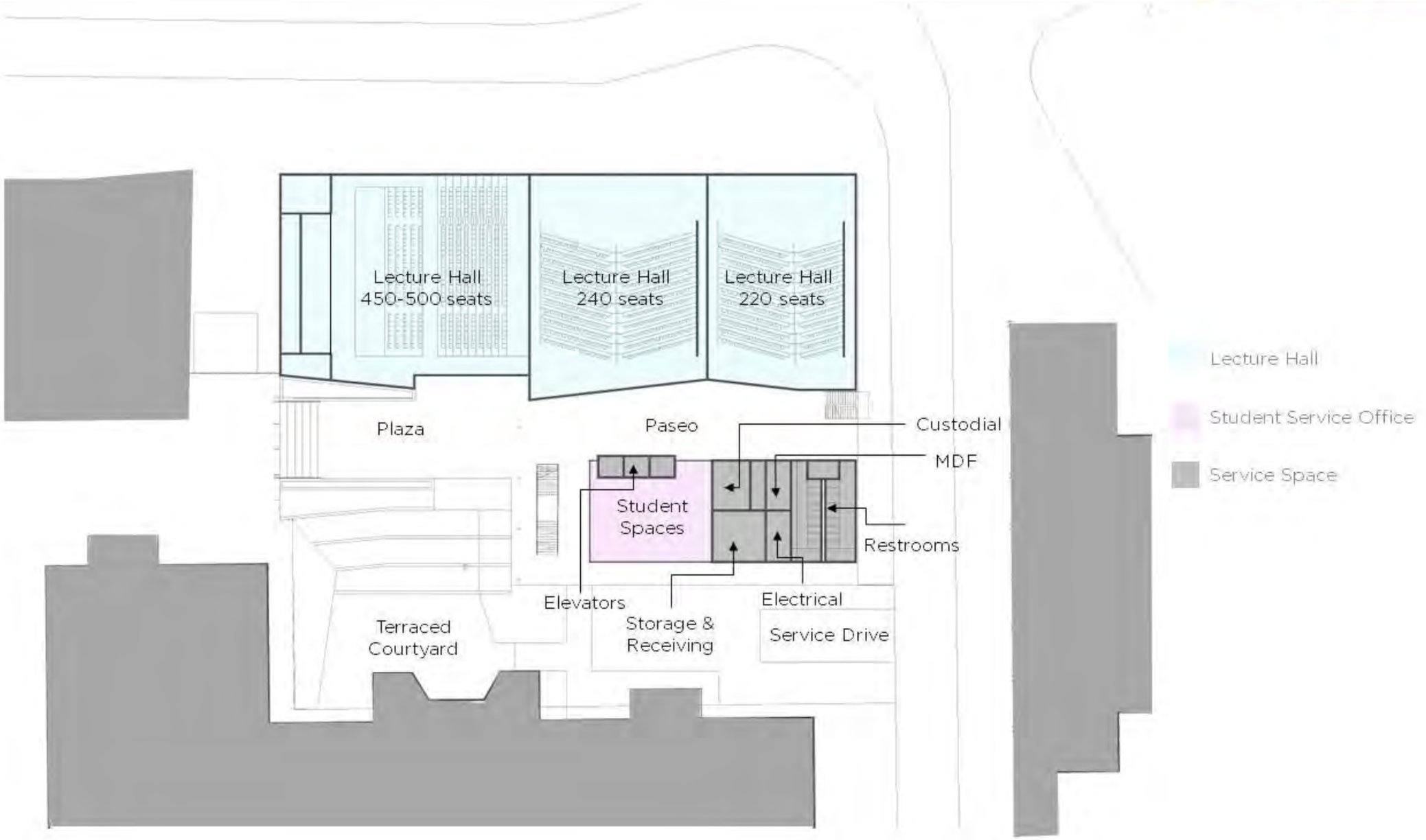
Classroom and Office Building 3 (COB3)

Appendix I - Full Detailed Program **9/19/2024**

Program Element:	Qty:	Sq Ft:	Extended Sq Ft:	Notes:	Stakeholder Contact:
Department of Political Science					
Ladder Ranked Faculty Offices	18	118	2124	individual space	Courtenay Monroe
Non-Senate Faculty Office Space	1	160	160	3 per space	
Post Doc Office Space	2	118	236	2 per space	
Graduate Student Workstations	21	48	1008	2 per workstation	
Social Science Labs	6	500	3000	research labs	
TA Offices	2	118	236	Small desk and a table for 2-3	
Administrative & Program Offices	2	118	236	shared office space/includes printer area	
CAPE Primary Collaborative Area	1	750	750	(CAPE Suite on the 1st floor)	Nathan Monroe
CAPE Offices	2	118	236	One individual/one shared	
CAPE Workstations	2	48	96		
CAPE Storage / Kitchen Nook	1	150	150		
SSHA Administrative Office Suite					
Administrative Offices	4	118	472	shared offices	Megan Topete
Administrative Workstations	6	65	390		
Small Conference Room	1	325	325	Seats 12-14, Zoom capable	
Huddle Room	1	140	140	Seats 4-6, Zoom capable	
Kitchenette Alcove	1	100	100		
Waiting area	1	160	160	includes printer/mailroom alcove	
Manager, Graduate Student Services	1	118	118		
Graduate Student Service Specialists	3	118	354		
Graduate Student Support Workstations	2	65	130		
Graduate Student area Huddle Room	1	140	140	Seats 4-6, Zoom capable	
Waiting Area	1	160	160	includes printer alcove	
Undergraduate SSHA Advising Offices	8	118	944	Desk & a table for 2-3	Brenda Maldonado-Rosas
Health Advising Office	1	118	118		
Manager & Asst Manager Offices	2	118	236	Desk & a table for 2-3	
Navigator Spaces	3	118	354		
Huddle Rooms	2	140	280	Seats 4-6, Zoom capable	
Degree Completion Advisors	2	118	236	Desk & a table for 2-3	
Advising Office Waiting Area	1	250	250		
Breakroom/Storage/Printer area	1	260	260		
Advising Area Workstations	2	48	96		
Student Academic Support Space					
Tutoring (large)	2	700	1400	tables/chairs	Alisha Kimble/Amy Bergerson
Tutoring (medium sized)	2	600	1200		
Tutoring Student Commons	1	600	600	Lounge/Kitchenette/Microwave	
Tutoring Offices	2	118	236	shared office	
Honor's Suite - waiting/common area	1	200	200		Alisha Kimble/Amy Bergerson
Honor's Administrative Offices	2	118	236	one individual/one shared	
Honor's workstations	2	65	130		
Honor's Small Meeting Room	1	200	200	Seats 6-8, Zoom capable	
Honor's Storage/Kitchenette	1	150	150		
Student Common Space					
Student Lounge/Kitchenette	1	700	700	Standing height kitchen counter/bar kitchen /soft seating/tables/chairs	Megan Topete
Student Study Space/Alcoves	1	250	250		
Student Storage Space	1	150	150		
CREATE Space					
Director's Office	1	118	118	individual space	Laura Martin
Asst Director/Program Coordinator	2	118	236	shared space	
Workstations	2	65	130		
Huddle Room	1	140	140	seats 4-6, Zoom capable	
Storage	1	80	80		
Common Space					
Lobby	1	1000	1000	Including space for artwork	
Large Conference Room	1	800	800	Seats 30-32, Zoom capable	
Medium Conference Rooms	2	400	800	Seats 15-16, Zoom capable	
Collaborative/Breakroom	1	650	650	Standing height kitchen counter/bar kitchen/soft seating/table chairs	

Program Element:	Qty:	Sq Ft:	Extended Sq Ft:	Notes:	Stakeholder Contact:
Instructional Space					
Auditorium w/stage	1	7,500	7500	Goal: auditorium should have as much "performance capability" as can be provided but should have seats that allow for a surface for note/exam taking	Amy Bergerson Josh Reinhold Jodon Bellofatto Rachel Leigh Bellofatto
Control Room	1	150	150		
Green Room	1	200	200	Mirrors, Soft Seating, Sink, Refrigerator	
Gender Inclusive Restrooms	2	63	126		
Large Lecture Hall	1	5100	5100	Circular - seats 292	
Control Room	1	150	150		
Medium Lecture Hall	1	4675	4675	Case Style - fixed tables/swivel chairs - seats 250	
Control Room	1	150	150		
Storage / Receiving Area	1	250	250		
Lactation Room	1	100	100	sink	
Shower/Gender Neutral Restroom	1	180	180	4-6 day lockers	
Custodial Storage	1	150	150	metro shelving	
Custodial Rooms	3	100	300	include corner floor sink/drain	
		Total Assignable Sq Ft:	41,932		
		Total Gross Sq Ft:	61,640		

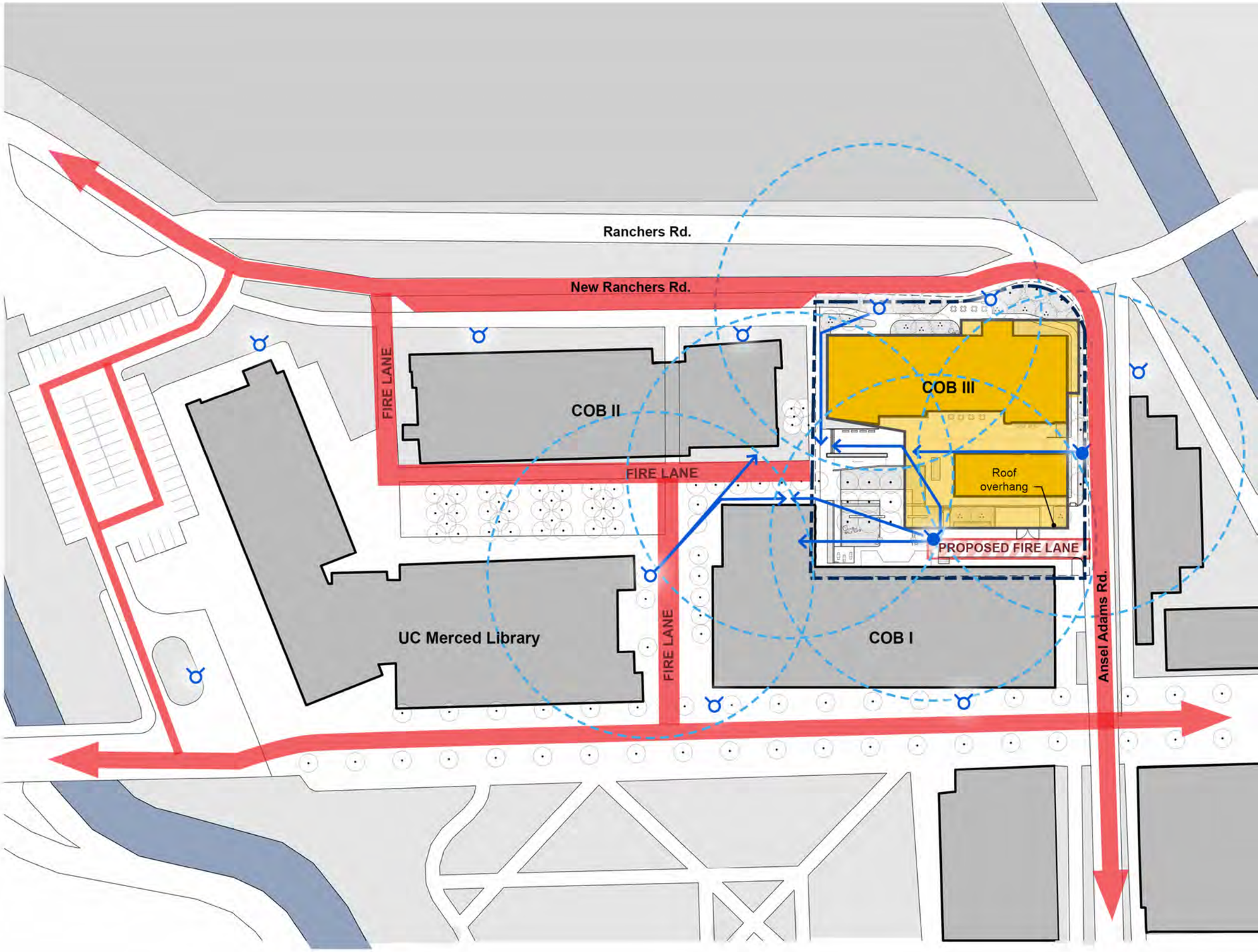
COB III | First Floor Plan



Fire Access

LEGEND

- Fire Access
- 150’ Hose Pull
- 150’ Hose Radius
- Proposed Fire Hydrant
- Existing Fire Hydrant
- COB 3 Limit of Work



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Appendix D

Biological Resources Assessment

University of California, Merced Classroom and Office Building III Project

Biological Resources Assessment

Prepared for:

University of California, Merced
5200 Lake Road
Merced, CA 95343

Prepared by:

HELIX Environmental Planning, Inc.
1180 Iron Point Road, Suite 130
Folsom, CA 95630

January 2025 | 08456.00004.001

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TABLE OF CONTENTS

Section **Page**

TABLE OF CONTENTS (cont.)

LIST OF FIGURES

LIST OF TABLES

LIST OF APPENDICES

ACRONYMS AND ABBREVIATIONS

AOA	Academic Office Annex
BRA	Biological Resources Assessment
CAPE	Center for Analytic Political Engagement
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
COB	Classroom and Office Building
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CRPR	California Rare Plant Rank
CSA	California Special Animal
CWA	Clean Water Act
DBH	Diameter at Breast Height
EIR	Environmental Impact Report
EPA	Environmental Protection Agency
FESA	Federal Endangered Species Act
FGC	Fish and Game Code
GPS	Global Positioning System
HELIX	HELIX Environmental Planning, Inc.
HCP	Habitat Conservation Plan
HUC	Hydrologic Unit Code
IPaC	Information for Planning and Consultation
LRDP	Long-Range Development Plan
MBTA	Migratory Bird Treaty Act
MM	Mitigation Measure
MSL	Mean Sea Level
NCCP	Natural Community Conservation Plan
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NPDES	National Pollution Discharge Elimination System
NPPA	Native Plant Protection Act
NRCS	Natural Resources Conservation Service

ACRONYMS AND ABBREVIATIONS (cont.)

RWQCB	Regional Water Quality Control Board
SAA	Streambed Alteration Agreement
Sf	Square feet
SSC	Species of Special Concern
SSHA	School of Social Sciences, Humanities, and Arts
SWRCB	State Water Resources Control Board
UC	University of California
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

EXECUTIVE SUMMARY

HELIX Environmental Planning, Inc. (HELIX) conducted a Biological Resources Assessment (BRA) for the University of California (UC), Merced Classroom and Office Building (COB) III Project (proposed project). The proposed project site (Study Area) encompasses 1.64 acres and is located in the northern portion of the UC Merced campus, at the intersection of Ansel Adams Road and New Ranchers Road.

The purpose of this BRA is to assess general biological resources that occur within the Study Area, suitability of habitats to support special-status plant and wildlife species, presence of sensitive vegetation communities and/or habitats, analyze any potential impacts to biological resources that could occur as a result of the proposed project, and provide suggested mitigation measures to avoid and/or reduce any such impacts to less than significant.

Vegetation communities present within the Study Area include developed and ruderal. Surrounding land uses include an irrigation canal and grazing/grassland to the north, UC Merced student services building to the east, and UC Merced classroom and office buildings to the south and west.

Known or potential sensitive biological resources in the Study Area include potential nesting habitat for special-status and migratory birds.

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1.0 INTRODUCTION

This report summarizes the findings of a Biological Resources Assessment (BRA) completed by HELIX Environmental Planning, Inc. (HELIX) for the University of California (UC), Merced Classroom and Office Building (COB) III Project (proposed project) located on an urban infill lot on the UC Merced campus. This document addresses physical features, plant communities present, and common plant and wildlife species occurring or potentially occurring in the 1.64-acre project site (Study Area). Habitats within the Study Area are assessed for their suitability to support special-status species, sensitive habitats are identified and quantified, and mitigation measures are identified to avoid and/or reduce any such impacts to less than significant.

1.1 PROJECT LOCATION

The 1.64-acre Study Area is located in the northern portion of the UC Merced campus, at the intersection of Ansel Adams Road and New Ranchers Road. The Study Area is located in Township 6 South, Range 14 East, Section 34 of the U.S. Geological Survey (USGS) *Merced, California* 7.5-minute quadrangle map. The approximate center of the Study Area is at latitude 37.3675662 and longitude -120.4236855.

A site and vicinity map of the Study Area is included as Figure 1; a topographic map of the Study Area is included as Figure 2; and an aerial image of the Study Area is included as Figure 3.

1.2 PROJECT DESCRIPTION

The proposed project includes the demolition of the existing modular trailers on-site and construction of a 61,640-square-foot (sf) classroom and office building (hereafter referred to as COB III). The COB III would be constructed on the current site of the Academic Office Annex (AOA) modular trailers, and it is assumed that the AOA modular trailers would be demolished and recycled off-site. The COB III would provide versatile classroom and public assembly venues, student academic and advising support and administrative spaces for the School of Social Sciences, Humanities, and Arts (SSHA), and would house faculty and research space for the Department of Political Sciences to support the Center for Analytic Political Engagement (CAPE). The total assignable square footage of COB III would be 41,932 sf.

2.0 REGULATORY SETTING

Federal, State, and local environmental laws, regulations, and policies relevant to the California Environmental Quality Act (CEQA) review process are summarized below. The applicable CEQA significance criteria are also included in this section.

2.1 FEDERAL REGULATIONS

2.1.1 Federal Endangered Species Act

The U.S. Congress passed the Federal Endangered Species Act (FESA) in 1973 to protect those species that are endangered or threatened with extinction. FESA is intended to operate in conjunction with the

National Environmental Policy Act (NEPA) to help protect the ecosystems upon which endangered and threatened species depend.

FESA prohibits the "take" of endangered or threatened wildlife species. "Take" is defined to include harassing, harming, pursuing, hunting, shooting, wounding, killing, trapping, capturing, or collecting wildlife species or any attempt to engage in such conduct (FESA Section 3 [(3) (19)]). Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns (50 CFR §17.3). Harass is defined as actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns (50 CFR §17.3). Actions that result in take can result in civil or criminal penalties.

In the context of the proposed project, FESA consultation with the U.S. Fish and Wildlife Service (USFWS) or the National Marine Fisheries Service (NMFS) would be initiated if development resulted in take of a threatened or endangered species or if issuance of a Section 404 permit or other federal agency action could result in take of an endangered species or adversely modify critical habitat of such a species.

2.1.2 Migratory Bird Treaty Act

Raptors (birds of prey), migratory birds, and other avian species are protected by several state and federal laws. The federal Migratory Bird Treaty Act (MBTA) prohibits the killing, possessing, or trading of migratory birds except in accordance with regulations prescribed by the Secretary of Interior.

2.1.3 The Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (Eagle Act) prohibits the taking or possession of and commerce in bald and golden eagles with limited exceptions. Under the Eagle Act, it is a violation to "*take, possess, sell, purchase, barter, offer to sell, transport, export or import, at any time or in any manner, any bald eagle commonly known as the American eagle, or golden eagle, alive or dead, or any part, nest, or egg, thereof.*" Take is defined to include pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, destroy, molest, and disturb. Disturb is further defined in 50 CFR Part 22.3 as "*to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available (1) injury to an eagle, (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior.*"

2.2 STATE JURISDICTION

2.2.1 California Endangered Species Act

The State of California enacted the California Endangered Species Act (CESA) in 1984. CESA is similar to the FESA but pertains to State-listed endangered and threatened species. CESA requires state agencies to consult with the California Department of Fish and Wildlife (CDFW), when preparing CEQA documents. The purpose is to ensure that the State lead agency actions do not jeopardize the continued existence of a listed species or result in the destruction, or adverse modification of habitat essential to the continued existence of those species, if there are reasonable and prudent alternatives available (Fish and Game Code (FGC) §2080). CESA directs agencies to consult with CDFW on projects or actions that could affect listed species, directs CDFW to determine whether jeopardy would occur, and allows CDFW to identify "reasonable and prudent alternatives" to the project consistent with conserving the species.

CESA allows CDFW to authorize exceptions to the State's prohibition against take of a listed species if the "take" of a listed species is incidental to carrying out an otherwise lawful project that has been approved under CEQA (Fish & Game Code § 2081).

2.2.2 California Department of Fish and Game Codes

California Fish and Game Code Sections 3503 and 3800 prohibit the possession, take, or needless destruction of birds, their nests, and eggs, and the salvage of dead nongame birds. California Fish and Game Code Subsection 3503.5 protects all birds in the orders of Falconiformes and Strigiformes (birds of prey). Fish and Game Code Section 3513 states that it is unlawful to take or possess any migratory nongame bird as designated in the Migratory Bird Treaty Act or any part of such migratory nongame bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the Migratory Bird Treaty Act. The Attorney General of California has released an opinion that the Fish and Game Code prohibits incidental take.

2.2.3 Native Plant Protection Act

The Native Plant Protection Act (NPPA), enacted in 1977, allows the Fish and Game Commission to designate plants as rare or endangered. There are 64 species, subspecies, and varieties of plants protected under the NPPA. The NPPA prohibits take of endangered or rare native plants, with some exceptions for agricultural and nursery operations and emergencies. Vegetation removal from canals, roads, and other sites, changes in land use, and certain other situations require proper advance notification to CDFW.

2.2.4 California Environmental Quality Act

Under the California Environmental Quality Act of 1970 (CEQA; Public Resources Code Section 21000 et seq.), lead agencies analyze whether projects would have a substantial adverse effect on a candidate, sensitive, or special-status species (Public Resources Code Section 21001(c)). These "special-status" species generally include those listed under FESA and CESA, and species that are not currently protected by statute or regulation but would be considered rare, threatened, or endangered under the criteria included in CEQA Guidelines Section 15380. Therefore, species that are considered rare are addressed under CEQA regardless of whether they are afforded protection through any other statute or regulation. The California Native Plant Society (CNPS) inventories the native flora of California and ranks species according to rarity; plants ranked as 1A, 1B, 2A, 2B, and 3 are generally considered special-status species under CEQA.[1]

Although threatened and endangered species are protected by specific federal and state statutes, CEQA Guidelines Section 15380(d) provides that a species not listed on the federal or state list of protected species may be considered rare if it can be shown to meet certain specified criteria. These criteria have been modeled after the definition in FESA and the section of the California Fish and Game Code dealing with rare or endangered plants and animals.

[1] The California Rare Plant Rank system can be found at: http://www.cnps.org/cnps/rareplants/ranking.php.

2.2.5 Nesting Birds

California Fish and Game Code Sections 3503 and 3800 prohibit the possession, take, or needless destruction of birds, their nests, and eggs, and the salvage of dead nongame birds. California Fish and Game Code Subsection 3503.5 protects all birds in the orders of Falconiformes and Strigiformes (birds of prey). Fish and Game Code Section 3513 states that it is unlawful to take or possess any migratory nongame bird as designated in the Migratory Bird Treaty Act or any part of such migratory nongame bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the Migratory Bird Treaty Act. The Attorney General of California has released an opinion that the Fish and Game Code prohibits incidental take.

2.3 JURISDICTIONAL WATERS

2.3.1 Federal Jurisdiction

On May 25, 2023, the United States (U.S.) Supreme Court issued a decision in the case of Sackett v. Environmental Protection Agency (Supreme Court of the United States 2023), which will ultimately influence how federal waters are defined. The May 25, 2023, Supreme Court decision in Sackett v. Environmental Protection Agency determined that "the CWA extends to only those 'wetlands with a continuous surface connection to bodies that are "waters of the U.S." in their own right,' so that they are 'indistinguishable' from those waters." The U.S. Environmental Protection Agency (USEPA) and the U.S. Army Corps of Engineers (USACE) after review of the decision issued a final rule to replace the 2023 rule that amends the "Revised Definition of "Waters of the U.S." to conform key aspects of the regulatory text to the U.S. Supreme Court's May 25, 2023 decision in the case of *Sackett v. Environmental Protection Agency*.

Unless considered an exempt activity under Section 404(f) of the Federal Clean Water Act, any person, firm, or agency planning to alter or work in "waters of the U.S.," including the discharge of dredged or fill material, must first obtain authorization from the USACE under Section 404 of the Clean Water Act (CWA; 33 USC 1344). Permits, licenses, variances, or similar authorization may also be required by other federal, state, and local statutes. Section 10 of the Rivers and Harbors Act prohibits the obstruction or alteration of navigable waters of the U.S. without a permit from USACE (33 USC 403). Activities exempted under Section 404(f) are not exempted within navigable waters under Section 10.

The Clean Water Act (33 United States Code [USC] 1251-1376) provides guidance for the restoration and maintenance of the chemical, physical, and biological integrity of the nation's waters.

Section 401 requires that an applicant for a federal license or permit that allows activities resulting in a discharge to waters of the U.S. obtain a state certification that the discharge complies with other provisions of CWA. The Regional Water Quality Control Board (RWQCB) administers the certification program in California and may require State Water Quality Certification before other permits are issued.

Section 402 establishes a permitting system for the discharge of any pollutant (except dredged or fill material) into waters of the U.S.

Section 404 establishes a permit program administered by USACE that regulates the discharge of dredged or fill material into waters of the U.S. (including wetlands). Implementing regulations by USACE are found at 33 CFR Parts 320-332. The Section 404 (b)(1) Guidelines were developed by the USEPA in

conjunction with USACE (40 CFR Part 230), allowing the discharge of dredged or fill material for non-water dependent uses into special aquatic sites only if there were no practicable alternative that would have less adverse impacts.

2.3.2 State Jurisdiction

2.3.2.1 Regional Water Quality Control Board

Any action requiring a CWA Section 404 permit, or a Rivers and Harbors Act Section 10 permit, must also obtain a CWA Section 401 Water Quality Certification. The State of California Water Quality Certification (WQC) Program was formally initiated by the State Water Resources Control Board (SWRCB) in 1990 under the requirements stipulated by section 401 of the Federal CWA. Although the CWA is a Federal law, Section 401 of the CWA recognizes that states have the primary authority and responsibility for setting water quality standards. In California, under Section 401, the State and Regional Water Boards are the authorities that certify that the issuance of a federal license or permit does not violate California's water quality standards (i.e., that they do not violate Porter-Cologne and the Water Code). The WQC Program currently issues the WQC for discharges requiring USACE's permits for fill and dredge discharges within waters of the U.S. and now also implements the State's wetland protection and hydromodification regulation program under the Porter-Cologne Water Quality Control Act.

On May 28, 2020, the SWRCB implemented the State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State (Procedures) for inclusion in the forthcoming Water Quality Control Plan for Inland Surface Waters and Enclosed Bays and Estuaries and Ocean Waters of California (SWRCB 2019). The Procedures consist of four major elements:

I. A wetland definition;

II. A framework for determining if a feature that meets the wetland definition is a water of the State;

III. Wetland delineation procedures; and

IV. Procedures for the submittal, review, and approval of applications for Water Quality Certifications and Waste Discharge Requirements for dredge or fill activities.

Under the Procedures and the State Water Code (Water Code §13050(e)), "waters of the State" are defined as "any surface water or groundwater, including saline waters, within the boundaries of the State." Unless excluded by the Procedures, any activity that could result in discharge of dredged or fill material to waters of the State, which includes waters of the U.S. and non-federal waters of the State, requires filing of an application under the Procedures.

More specifically, a wetland is defined as: "*An area is wetland if, under normal circumstances, (1) the area has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and (3) the area's vegetation is dominated by hydrophytes or the area lacks vegetation*." The wetland definition encompasses the full range of wetland types commonly recognized in California, including some features not protected under federal law, and reflects current scientific understanding of the formation and functioning of wetlands (SWRCB 2019).

The Porter-Cologne Water Quality Control Act (Porter-Cologne Act, Water Code Section 13000 *et seq*.) is California's statutory authority for the protection of water quality in conjunction with the federal CWA. The Porter-Cologne Act requires the SWRCB and RWQCBs under CWA to adopt and periodically update water quality control plans or basin plans. Basin plans are plans in which beneficial uses, water quality objectives, and implementation programs are established for each of the nine regions in California. The Porter-Cologne Act also requires dischargers of pollutants or dredged or fill material to notify the RWQCBs of such activities by filing Reports of Waste Discharge and authorizes the SWRCB and RWQCBs to issue and enforce waste discharge requirements, National Pollution Discharge Elimination System (NPDES) permits, Section 401 water quality certifications, or other approvals.

2.3.2.2 California Department of Fish and Wildlife

CDFW is a trustee agency that has jurisdiction under Section 1600 *et seq.* of the California FGC. Under Sections 1602 and 1603, a private party must notify CDFW if a proposed project will "*substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake designated by the department, or use any material from the streambeds…except when the department has been notified pursuant to Section 1601.*" Additionally, CDFW asserts jurisdiction over native riparian habitat adjacent to aquatic features, including native trees over four inches in diameter at breast height (DBH). If an existing fish or wildlife resource may be substantially adversely affected by the activity, CDFW may propose reasonable measures that will allow the protection of those resources. If these measures are agreeable to the parties involved, they may enter into an agreement with CDFW identifying the approved activities and associated mitigation measures. Generally, CDFW recommends submitting an application for a Streambed Alteration Agreement (SAA) for any work done within the lateral limit of water flow or the edge of riparian vegetation, whichever is greater.

2.4 CEQA SIGNIFICANCE

Section 15064.7 of the State CEQA Guidelines encourages local agencies to develop and publish the thresholds that the agency uses in determining the significance of environmental effects caused by projects under its review. However, agencies may also rely on the guidance provided by the expanded Initial Study Checklist, contained in Appendix G of the State CEQA Guidelines. Appendix G provides examples of impacts that would normally be considered significant. Based on these examples, impacts to biological resources would normally be considered significant if the project would:

- 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, 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

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

An evaluation of whether or not an impact on biological resources would be substantial must consider both the resource itself and how that resource fits into a regional or local context. Substantial impacts would be those that would diminish, or result in the loss of an important biological resource, or those that would obviously, conflict with local, state, or federal resource conservation plans, goals, or regulations. Impacts are sometimes locally important but not significant, according to CEQA. The reason for this is that although the impacts would result in an adverse alteration of existing conditions, they would not substantially diminish, or result in the permanent loss of, an important resource on a population-wide or region-wide basis.

2.4.1 California Native Plant Society

The California Native Plant Society (CNPS) maintains a rank of plant species native to California that have low population numbers, limited distribution, or are otherwise threatened with extinction. This information is published in the *Inventory of Rare and Endangered Vascular Plants of California*. Potential impacts to populations of CNPS-ranked plants receive consideration under CEQA review. The following identifies the definitions of the CNPS Rare Plant Ranking System:

Rank 1A: Plants presumed Extinct in California and either rare or extinct elsewhere

Rank 1B: Plants Rare, Threatened, or Endangered in California and elsewhere

Rank 2A: Plants presumed extirpated in California but common elsewhere

Rank 2B: Plants Rare, Threatened, or Endangered in California, but more common elsewhere

Rank 3: Plants about which we need more information – A Review List

Rank 4: Plants of limited distribution – A Watch List

All plants appearing on CNPS Rank 1 or 2 are considered to meet CEQA Guidelines Section 15380 criteria. While only some of the plants ranked 3 and 4 meet the definitions of threatened or endangered species, the CNPS recommends that all Rank 3 and Rank 4 plants be evaluated for consideration under CEQA. Furthermore, the CNPS Rare Plant Rankings include levels of threat for each species. These threat ranks include the following:

0.1 -Seriously threatened in California (over 80 percent of occurrences threatened/high degree and immediacy of threat);

0.2 - Moderately threatened in California (20 to 80 percent occurrences threatened/moderate degree and immediacy of threat); and

0.3 - Not very threatened in California (less than 20 percent of occurrences threatened/low degree and immediacy of threat or no current threats known).

Threat ranks do not designate a change of environmental protections, so that each species (i.e., CRPR 1B.1, CRPR 1B.2, CRPR 1B.3, etc.) should be fully considered during preparation of environmental documents under the CEQA process.

2.4.2 California Department of Fish and Wildlife Species of Concern

Some additional fish, amphibian, reptile, bird, and mammal species may receive consideration by CDFW and lead agencies during the CEQA process, in addition to species that are formally listed under FESA and CESA or are fully protected. These species are included on the *Special Animals List*, which is maintained by CDFW. This list tracks species in California whose numbers, reproductive success, or habitat may be in decline. In addition to "Species of Special Concern" (SSC), the *Special Animals List* includes species that are tracked in the California Natural Diversity Database (CNDDB) but warrant no legal protection. These species are identified as "California Special Animals" (CSA).

2.5 LOCAL POLICIES AND REGULATIONS

2.5.1 UC Merced 2020 Long-Range Development Plan

UC Merced updated their earlier, 2009 Long-Range Development Plan (LRDP) in 2020 with further clarification of the administration's plans for ongoing growth and development of the campus community. Development of the COB III facility is anticipated under the 2020 LRDP.

3.0 METHODS

3.1 DATABASE AND LITERATURE REVIEW

Before conducting the field survey, background research was conducted to inform and create target species lists to focus the survey efforts. Accessible information in public databases pertaining to natural resources in the region of the Study Area were queried. The following site-specific published information was reviewed for this BRA:

- California Department of Fish and Wildlife (CDFW). 2024. *California Natural Diversity Database* (CNDDB). [Accessed December 13, 2024];
- California Native Plant Society (CNPS). 2024. *Inventory of Rare and Endangered Plants* (online edition, v8-03 0.39) For *Merced, Atwater, Winton, Yosemite Lake, Haystack Mtn., Planada, Plainsburg, El Nido,* and *Sandy Mush* USGS 7.5-minute series quadrangles, Sacramento, CA. [Accessed December 13, 2024];
- USDA, NRCS. 2024. *Web Soil Survey*. Available online at: http://websoilsurvey.sc.egov.usda.gov. [Accessed December 13, 2024];
- U.S. Fish and Wildlife Service (USFWS). 2024. *Information for Planning and Consultation* (IPaC) for *the UC Merced COB III Project.* [Accessed December 13, 2024];

Before the biological field survey, information obtained from the queries (Appendix A) were reviewed and compiled into a table (Appendix B) to provide target lists to inform the field survey efforts and evaluate the potential for each special-status species to occur.

Special-status species are plant and wildlife species that have been afforded special recognition by federal, State, or local resource agencies or organizations. They are generally of relatively limited distribution and may require specialized habitat conditions. Special-status species are defined as meeting one or more of the following criteria:

- Listed or proposed for listing under CESA or FESA;
- Protected under other regulations (e.g., Migratory Bird Treaty Act);
- Included on the CDFW Special Animals List;
- Identified as Rare Plant Rank 1 to 4 by CNPS;
- Receive consideration during environmental review under CEQA.

3.2 BIOLOGICAL SURVEYS

A field survey of the Study Area was conducted on November 12, 2024. The Study Area was systematically surveyed on foot and aided by binoculars to ensure complete coverage, with special attention given to identifying those portions of the Study Area with the potential for supporting special-status species and sensitive habitats. During the field surveys, the biologist recorded plant and animal species observed (Appendix C) and characterized biological communities occurring within the Study Area. Following the field survey, the potential for each species identified in the database queries to occur in the Study Area was determined as described in the following section. **Error! Reference source not found.**

4.0 RESULTS

4.1 SITE DESCRIPTION

The 1.64-acre Study Area is located in a developed portion of campus with modular classroom buildings and several areas featuring paved surfaces covering the site. The site is surrounded by permanent University buildings to the east, south, and west.

4.2 PHYSICAL FEATURES

4.2.1 Topography and Drainage

The terrain in the Study Area is slightly sloped along the southeastern portion of the Study Area. Study Area elevation ranges from 255 to 262 feet above mean sea level (msl).

The Study Area is in the Middle San Joaquin-Lower Chowchilla Watershed (USGS Hydrologic Unit Code [HUC8] 18040001). The Study Area slopes toward Fairfield Canal to the south of the Study Area. Fairfield Canal is hydrologically connected to Yosemite Lake located to the north of the Study Area.

4.2.2 Soils

One soil map unit is mapped within the Study Area: Raynor cobbly clay, 0 to 3 percent slopes (see Figure 4, *Soils Map*). This soil unit has a parent material of residuum weathered from sedimentary rock. A general soil profile is cobbly clay (0-12 inches), clay (12-42 inches), and bedrock (42-59 inches). It is well drained, has a high runoff class, and has no frequency of flooding or ponding. Minor components of this soil are not considered hydric (NRCS 2024).

4.2.3 Climate

The climate of Merced County is Mediterranean, characterized by wet, cool winters and dry, hot summers. The nearest weather station in proximity to the Study Area is in Merced, California. Average daily maximum and minimum temperatures are 96° and 62° Fahrenheit (F) in July and 54° and 37° F in January (NRCS 2024). The average annual precipitation is 13.04 inches, with the vast majority occurring as rainfall from October through May. The weather station received approximately 15.17 inches of rainfall for this rain season through May 19, 2024, starting in October 2023 (NRCS 2024), which is 116 percent of an average rain year. In the previous year, the weather station received 20.61 inches, which is approximately 158 percent of normal (NRCS 2024).

4.3 VEGETATION COMMUNITIES

Vegetation communities that occur within the Study Area include Developed and Ruderal (Figure 5). These habitat types are discussed below. A comprehensive list of all plant and wildlife species observed within the Study Area is provided in Appendix C. Representative site photographs are included in Appendix D.

4.3.1 Developed

A total of 1.23 acres of developed lands occur within the Study Area and is made up of modular buildings, paved surfaces, and graveled/cobbled or disturbed surfaces that lack native plant assemblages. Developed lands are often comprised of little to no vegetation and typically contain built structures and/or maintained surfaces such as roads, graveled areas, or parking lots. Vegetation that does occur within this habitat type is often ornamental, rather than invasive or noxious weeds such as in ruderal habitat types. Developed habitat generally does not provide habitat for native plants and wildlife, however, structures may provide nesting habitat for avian species such as rock pigeon (*Columba livia*), European starlings (*Sturnus vulgaris*), and black phoebe (*Sayornis nigricans*).

4.3.2 Ruderal

Approximately 0.41 acre of ruderal land occur in the Study Area. Ruderal areas have been subject to past or on-going human disturbance but retain a soil substrate. If vegetated, there is no recognizable plant community, and the species assemblage depends on local colonization potential. Ruderal and disturbed areas include weedy open areas where the natural vegetation has been removed. Ruderal and disturbed areas are not described in treatments of plant communities.

The ruderal areas are located along the northwestern portion of the Study Area and are associated with areas that experience frequent disturbance such as utility rights-of-way and vegetated roadsides.

4.4 SPECIAL-STATUS SPECIES

Sensitive plant and wildlife species identified during database queries were evaluated for their potential to occur within the Study Area based on the results of the field survey and criteria described below.

The likelihood for a species to occur was classified as having either no, low, moderate, or high potential to occur within the Study Area by evaluating criteria based on the distance of the nearest documented occurrence, presence and condition of suitable habitat, age of the most recent documented occurrence, and presence of mapped critical habitat.

No Potential:

- The Study Area is outside the known distribution of the species; or,
- There is no suitable habitat present for the species; or,
- The species is not known to occur within five miles of the Study Area boundary, and its dispersal capability is less than five miles.

Low Potential:

- There are no documented occurrences within five miles of the Study Area boundary, and the existing habitat is of low or marginal quality, or
- All documented occurrences within five miles of the Study Area line are believed to be extirpated, and existing habitat is of low or marginal quality, or
- Extant occurrences are documented within five miles of the Study Area, and the most recent occurrence is greater than or equal to 25 years old.

Moderate Potential:

- Documented occurrences are reported within five miles of the Study Area, the most recent occurrence is less than 25 but greater than 10 years old, and suitable habitat is present; or
- Critical habitat is mapped within the Study Area, all PCEs are present within the Study Area, and suitable habitat is present.

High Potential:

- There are extant occurrences within one mile of the Study Area, the most recent occurrence is less than 10 years old, and there is suitable habitat within the Study Area; or
- Critical habitat is mapped within the Study Area, documented occurrences are present within one mile of the Study Area, suitable habitat is present, and all PCEs are present within the Study Area.

The potential for each species to occur was determined and is summarized in Appendix B. Detailed descriptions of the species for which a high or moderate potential to occur was assigned are discussed in greater detail below.

4.4.1 Listed and Special-Status Plants

According to the database queries, 32 listed and/or special-status plants have the potential to occur in the vicinity of the Study Area (CDFW 2024; CNPS 2024). Based on field observations, published information, and literature review, none of the potentially occurring special-status plant species are considered to have potential to occur within the Study Area due to the lack of suitable soils and habitat conditions for the species. The Study Area is generally developed. Ruderal areas of the Study Area are regularly mowed or otherwise disturbed, which further reduces the potential for sensitive plant species to occur within the Study Area. Therefore, the Study Area does not provide suitable habitat for special-status plant species known to occur in the region. Most special-status plants included in Appendix B occur in relatively undisturbed grasslands, saline scrub, or wetland habitats that do not occur in the Study Area.

4.4.2 Listed and Special-Status Wildlife

According to the database queries, 12 listed and/or special-status wildlife species have the potential to occur on-site or in the vicinity of the Study Area (CDFW 2024; USFWS 2024a). Based on field observations, published information, and literature review, one special-status wildlife species has the potential to occur within the Study Area: tricolored blackbird (*Agelaius tricolor*). However, this species would only be expected to forage within the Study Area and would not nest within the Study Area due to lack of suitable nesting habitat. The foraging habitat within the Study Area is marginal, and the possibility for it to occur is low. Redevelopment of the site would not significantly affect this species, and it is not addressed further in this document. In addition to this special-status wildlife species, other migratory birds and raptors protected under federal, State, and local laws/policies also have the potential to occur within the Study Area.

4.4.2.1 Birds

Nesting Migratory Birds and Raptors

Migratory birds are protected under the MBTA of 1918 (16 U.S.C. 703-711). The MBTA makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed under 50 CFR 10; this also includes feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 CFR 21). Additionally, 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 specifically states that it is unlawful to take, possess, or destroy any raptors (i.e., hawks, owls, eagles, and falcons), including their nests or eggs; Section 3513 specifically states that it is unlawful to take or possess any migratory nongame bird as designated in the MBTA or any part of such migratory nongame bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the MBTA.

A number of migratory birds and raptors have the potential to nest in or adjacent to the Study Area. Suitable nest locations within and adjacent to the Study Area include trees, grass, artificial structures, and bare ground. Nesting birds could potentially be impacted by project construction including removal of nesting habitat, increases in construction noise, human activity, and vibration that could result in impacts to active nests or nest abandonment. The LRDP Supplemental Environmental Impact Report (EIR) contained a mitigation measure (MM BIO-9a) to avoid impacts to active nesting birds which is

included in Section 5.1. With implementation of MM BIO-9a, impacts to nesting birds is expected to be less than significant.

4.5 SENSITIVE HABITATS

Sensitive habitats include those that are of special concern to resource agencies or those that are protected under CEQA, Section 1600 of the FGC (i.e., riparian areas) and/or Sections 401 and 404 of the CWA, which include wetlands and other waters of the U.S. Sensitive habitats identified within the Study Area are discussed below.

4.5.1 Aquatic Resources

Aquatic resources were not observed in the Study Area.

4.5.2 Wildlife Migration Corridors

Wildlife corridors link areas of suitable wildlife habitat that are otherwise separated by rugged terrain, changes in vegetation, or human disturbance. This fragmentation of habitat can also occur when a portion of one or more habitats is converted into another habitat; for instance, when woodland or scrub habitat is altered or converted into grasslands after a disturbance such as fire, mudslide, or construction activities. Wildlife corridors mitigate the effects of this fragmentation by (1) allowing animals to move between remaining habitats thereby permitting depleted populations to be replenished and promoting genetic exchange; (2) providing escape routes from fire, predators, and human disturbances, thus reducing the risk of catastrophic events (such as fire or disease) on population or local species extinction; and (3) serving as travel routes for individual animals as they move within their home ranges in search of food, water, mates, and other needs.

The Study Area is located within a developed area of the UC Merced campus surrounded by roadways and campus development. Implementation of the proposed project would not affect any wildlife migration corridors.

4.5.3 Trees

There are a total of 29 planted landscape trees within the Study Area consisting of 14 cottonwood (*Populus fremontii*) trees, three redwoods (*Sequoia sempervirens*), eight ginkgos (*Ginkgo biloba*), one callery pear (*Pyrus calleryana*), and three crape myrtles (*Lagerstroemia indica*). Since these trees were planted during previous development of the site, their removal for construction of the COB III is not expected to require mitigation. These trees provide suitable habitat for nesting birds, and an unoccupied small bird nest was observed in almost every tree. Therefore, a preconstruction survey is recommended for nesting birds prior to tree removal during the nesting season (approximately February 15 to September 15). See Section 5.1 of this report for a summary of the recommended nesting bird survey parameters.

5.0 CONCLUSIONS AND RECOMMENDATIONS

The Study Area consists of developed and ruderal habitats. **Error! Reference source not found.**, *Impacts to Vegetation Communities*, below provides a summary of permanent impacts to vegetation

communities that will occur as a result of the project. See Figure 6*, Impacts to Biological Communities* for a breakdown of project footprint impacts and habitats by location. The Study Area is composed of developed and ruderal areas that generally do not support suitable habitat for special-status plant and wildlife species. However, the Study Area could support nesting bird species protected by the federal MBTA and California Fish and Game Codes. Therefore, avoidance measures outlined in Section 5.1 below should be implemented for construction to occur during the nesting bird season (February 15 to September 15).

Table 1
IMPACTS TO VEGETATION COMMUNITIES

Biological Community	Land Cover Permanently Impacted by Project (Acres)	Total (Acres)
Ruderal	0.41	0.41
Developed	1.23	1.23
TOTAL	**1.64**	**1.64**

5.1 MITIGATION FOR POTENTIAL IMPACTS TO MIGRATORY BIRDS

Several special-status species of migratory birds have the potential to forage and nest in the Study Area, including black phoebe, mourning dove, American crow, and house finch. Active nests are protected by the California Fish and Game Code Section 3503.5 and MBTA. Construction activities could result in disturbance of nest sites through temporary increases in ambient noise levels and increased human activity. In addition, vegetation clearing operations, including pruning or the removal of trees and shrubs, could impact nesting birds if these activities occur during the nesting season (February 15 to September 15). All vegetation clearing, including removal of trees and shrubs, should be completed between September 16 and February 14, if feasible. MM BIO-9a from the 2020 Supplemental EIR for the UC Merced LRDP has been incorporated in this document to address potential impacts to nesting birds during project construction. It should be noted that while the entirety of MM BIO-9a is included here, part (b) of this MM related to impacts to burrowing owls is not applicable due to lack of suitable habitat for that species within the Study Area.

LRDP MM BIO-9a: Avoid and minimize impacts on native birds protected under the MBTA, including listed species, fully protected species, special-status species of concern, and raptors and passerines.

(a) Limit ground disturbance activities to the non-breeding season and remove potential unoccupied breeding habitat during the non-breeding season if possible. If breeding season work is required, conduct take avoidance (tree, shrub, and ground) nest surveys to identify and avoid active nests.

- If feasible, UC Merced shall conduct all project-related activities including (but not limited to) tree and shrub removal, other vegetation clearing, grading, or other ground disturbing activities during the non-breeding season (typically between September 16 and February 14).

- If activities are scheduled to occur during the breeding season (typically between February 15 through September 15), applicable CDFW and/or USFWS permit conditions in the permits issued to the University related to bird surveys must be followed. In addition, a UC Merced-approved qualified avian biologist, with knowledge of the species to be surveyed, shall conduct focused nesting surveys within 15 days prior to the start of project or ground-disturbing activities and within the appropriate habitat. The qualified avian biologist shall determine the exact survey

duration and location (typically 500 feet around the work area) based on the work conditions and shall take into account existing applicable CDFW or USFWS permit conditions.

- If an unoccupied nest (without birds or eggs) of a non-listed or fully protected species (as determined by the qualified avian biologist) is found, the nest shall be removed under the direction of the qualified avian biologist.

- If an active nest is located, the qualified avian biologist shall establish an appropriate no-disturbance buffer around the nest making sure that any buffer width required by the University's permit obligations is followed. A 500-foot buffer is recommended for listed or fully protected nesting birds (or another buffer determined in consultation with CDFW and/or USFWS), a 250-foot buffer around raptors, and a 75-foot buffer around passerines. If work activities cause or contribute to a bird being flushed from a nest, the buffer width shall be adjusted to avoid and minimize impacts to nesting birds.

- A qualified avian biologist shall monitor the nest site regularly during work activities to ensure that the nest site is not disturbed, the buffer is maintained and the success or failure of the nest is documented.

- If UC Merced elects to remove a nest tree, nest trees may only be removed after the qualified avian biologist has determined that the nests are unoccupied.

- If an active nest is causing a safety hazard, CDFW shall be contacted to determine if the nest can be removed.

(b) Minimize impacts to burrowing owl and compensate for habitat loss.

CDFW (2012) recommends that take-avoidance (preconstruction) surveys be conducted to locate active burrowing owl burrows in the construction work area and within an approximately 500-foot buffer zone around the construction area. A qualified avian biologist shall conduct take avoidance surveys for active burrows according to the CDFW's Staff Report on Burrowing Owl Mitigation (2012 Staff Report). Surveys shall be conducted no less than 14 days prior to initiating ground disturbance activities and surveillance surveys should be conducted as frequently as recommended in the 2012 Staff Report. If ground-disturbing activities are delayed or suspended for more than 30 days after the take avoidance survey, the area shall be resurveyed. If no burrowing owls are detected, no further mitigation is required. If active burrowing owls are detected, the following additional measures are required:

- Project implementation shall seasonally and spatially avoid negative impacts and disturbances that could result in the take of burrowing owls, nest or eggs.

- If burrowing owls and their habitat can be protected in place or adjacent to a construction site, buffer zones, visual screens or other measures shall be used to minimize disturbance impacts while project activities are occurring. To use these minimization measures, a qualified avian biologist shall determine the exact measures following the guidance described in the 2012 Staff Report.

- If owls must be moved away from the project site during the nonbreeding season, passive relocation techniques (e.g., installing one- way doors at burrow entrances) shall be used instead

of trapping, as described in CDFW guidelines. At least 1 week will be necessary to complete passive relocation and allow owls to acclimate to alternate burrows.

- When destruction of occupied burrows is unavoidable during the nonbreeding season (September 1 to January 31), unsuitable burrows shall be enhanced (enlarged or cleared of debris) or new burrows created (by installing artificial burrows) at a ratio of 2:1 on protected lands approved by the CDFW. Newly created burrows shall follow guidelines established by the CDFW.

6.0 REFERENCES

California Department of Fish and Wildlife (CDFW) 2024. California Natural Diversity Database (For: *Merced, Atwater, Winton, Yosemite Lake, Haystack Mtn., Planada, Plainsburg, El Nido, and Sandy Mush* USGS 7.5-minute series quadrangles), Sacramento, CA. Accessed on December 13, 2024.

California Native Plant Society (CNPS). 2024. Inventory of Rare and Endangered Plants (online edition, v8-03 0.39) For: *Merced, Atwater, Winton, Yosemite Lake, Haystack Mtn., Planada, Plainsburg, El Nido, and Sandy Mush* USGS 7.5-minute series quadrangles. Accessed on December 13, 2024.

U.S. Department of Agriculture (USDA), Natural Resource Conservation Service (NRCS). 2024. Web Soil Survey: Area of Interest (AOI). Available online at: http://websoilsurvey.sc.egov.usda.gov.

U.S. Fish and Wildlife Service (USFWS). 2024. *Information for Planning and Consultation* (IPaC) for *the UC Merced COB 3 Project*. Accessed on December 13, 2024.

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Zeiner, D.C., W.F. Laudenslayer, Jr., K.E. Mayer, and M. White, eds. 1988-1990. *California's Wildlife: California Wildlife Habitat Relationships*. Volumes I-III. Wildlife and Habitat Data Analysis Branch, California Department of Fish and Game. Available online at: http://www.dfg.ca.gov/whdab/html/cawildlife.html.

Appendix A

CNDDB, CNPS, and USFWS Lists of Regionally Occurring Special-Status Species

CALIFORNIA DEPARTMENT OF FISH and WILDLIFE **RareFind**

Query Summary:
Quad IS (Merced (3712034) OR Atwater (3712035) OR Winton (3712045) OR Yosemite Lake (3712044) OR Haystack Mtn. (3712043) OR Planada (3712033) OR Plainsburg (3712023) OR El Nido (3712024) OR Sandy Mush (3712025))

Print Close

CNDDB Element Query Results

Scientific Name	Common Name	Taxonomic Group	Element Code	Total Occs	Returned Occs	Federal Status	State Status	Global Rank	State Rank	CA Rare Plant Rank	Other Status	Habitats
Actinemys marmorata	northwestern pond turtle	Reptiles	ARAAD02031	1160	5	Proposed Threatened	None	G2	SNR	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_VU-Vulnerable, USFS_S-Sensitive	null
Agelaius tricolor	tricolored blackbird	Birds	ABPBXB0020	960	25	None	Threatened	G1G2	S2	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_EN-Endangered, USFWS_BCC-Birds of Conservation Concern	Freshwater marsh, Marsh & swamp, Swamp, Wetland
Agrostis hendersonii	Henderson's bent grass	Monocots	PMPOA040K0	26	4	None	None	G2Q	S2	3.2	null	Valley & foothill grassland, Vernal pool, Wetland
Ambystoma californiense pop. 1	California tiger salamander - central California DPS	Amphibians	AAAAA01181	1329	51	Threatened	Threatened	G2G3T3	S3	null	CDFW_WL-Watch List, IUCN_VU-Vulnerable	Cismontane woodland, Meadow & seep, Riparian woodland, Valley & foothill grassland, Vernal pool, Wetland
Antrozous pallidus	pallid bat	Mammals	AMACC10010	425	3	None	None	G4	S3	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, USFS_S-Sensitive	Chaparral, Coastal scrub, Desert wash, Great Basin grassland, Great Basin scrub, Mojavean desert scrub, Riparian woodland, Sonoran desert scrub, Upper montane coniferous forest, Valley & foothill grassland
Athene cunicularia	burrowing owl	Birds	ABNSB10010	2058	14	None	Candidate Endangered	G4	S2	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, USFWS_BCC-Birds of Conservation Concern	Coastal prairie, Coastal scrub, Great Basin grassland, Great Basin scrub, Mojavean desert scrub, Sonoran desert scrub, Valley & foothill grassland
Atriplex cordulata var. cordulata	heartscale	Dicots	PDCHE040B0	66	4	None	None	G3T2	S2	1B.2	BLM_S-Sensitive	Chenopod scrub, Meadow & seep, Valley & foothill grassland
Atriplex minuscula	lesser saltscale	Dicots	PDCHE042M0	52	3	None	None	G2	S2	1B.1	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Alkali playa, Chenopod scrub, Valley & foothill grassland
Atriplex persistens	vernal pool smallscale	Dicots	PDCHE042P0	41	5	None	None	G2	S2	1B.2	null	Vernal pool, Wetland

Atriplex subtilis	subtle orache	Dicots	PDCHE042T0	24	1	None	None	G1	S1	1B.2	BLM_S-Sensitive	Valley & foothill grassland
Bombus crotchii	Crotch's bumble bee	Insects	IIHYM24480	483	1	None	Candidate Endangered	G2	S2	null	IUCN_EN-Endangered	null
Bombus pensylvanicus	American bumble bee	Insects	IIHYM24260	810	3	None	None	G3G4	S2	null	IUCN_VU-Vulnerable	Coastal prairie, Great Basin grassland, Valley & foothill grassland
Branchinecta conservatio	Conservancy fairy shrimp	Crustaceans	ICBRA03010	57	8	Endangered	None	G2	S2	null	IUCN_EN-Endangered	Valley & foothill grassland, Vernal pool, Wetland
Branchinecta lynchi	vernal pool fairy shrimp	Crustaceans	ICBRA03030	804	125	Threatened	None	G3	S3	null	IUCN_VU-Vulnerable	Valley & foothill grassland, Vernal pool, Wetland
Branchinecta mesovallensis	midvalley fairy shrimp	Crustaceans	ICBRA03150	147	50	None	None	G2	S2S3	null	null	Vernal pool, Wetland
Brasenia schreberi	watershield	Dicots	PDCAB01010	43	1	None	None	G5	S3	2B.3	IUCN_LC-Least Concern	Marsh & swamp, Wetland
Buteo regalis	ferruginous hawk	Birds	ABNKC19120	107	2	None	None	G4	S3S4	null	CDFW_WL-Watch List, IUCN_LC-Least Concern	Great Basin grassland, Great Basin scrub, Pinon & juniper woodlands, Valley & foothill grassland
Buteo swainsoni	Swainson's hawk	Birds	ABNKC19070	2577	35	None	Threatened	G5	S4	null	BLM_S-Sensitive, IUCN_LC-Least Concern	Great Basin grassland, Riparian forest, Riparian woodland, Valley & foothill grassland
Calycadenia hooveri	Hoover's calycadenia	Dicots	PDAST1P040	37	11	None	None	G2	S2	1B.3	BLM_S-Sensitive	Cismontane woodland, Valley & foothill grassland
Castilleja campestris var. succulenta	succulent owl's-clover	Dicots	PDSCR0D3Z1	99	44	Threatened	Endangered	G4? T2T3	S2S3	1B.2	null	Vernal pool, Wetland
Charadrius montanus	mountain plover	Birds	ABNNB03100	94	1	None	None	G3	S2	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_NT-Near Threatened, USFWS_BCC-Birds of Conservation Concern	Chenopod scrub, Valley & foothill grassland
Circus hudsonius	northern harrier	Birds	ABNKC11011	82	1	None	None	G5	S3	null	CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, USFWS_BCC-Birds of Conservation Concern	Coastal scrub, Great Basin grassland, Marsh & swamp, Riparian scrub, Valley & foothill grassland, Wetland
Clarkia rostrata	beaked clarkia	Dicots	PDONA050Y0	74	4	None	None	G2G3	S2S3	1B.3	BLM_S-Sensitive, SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden, SB_UCBG-UC Botanical Garden at Berkeley	Cismontane woodland, Valley & foothill grassland
Delphinium recurvatum	recurved larkspur	Dicots	PDRAN0B1J0	119	1	None	None	G2?	S2	1B.2	BLM_S-Sensitive, SB_SBBG-Santa Barbara Botanic Garden	Chenopod scrub, Cismontane woodland, Valley & foothill grassland
Dipodomys heermanni dixoni	Merced kangaroo rat	Mammals	AMAFD03062	21	7	None	None	G4T2	S2	null	null	Valley & foothill grassland
Downingia pusilla	dwarf downingia	Dicots	PDCAM060C0	132	3	None	None	GU	S2	2B.2	null	Valley & foothill grassland, Vernal pool, Wetland
Eryngium racemosum	Delta button-celery	Dicots	PDAPI0Z0S0	26	1	None	Endangered	G1	S1	1B.1	null	Riparian scrub, Wetland

Eryngium spinosepalum	spiny-sepaled button-celery	Dicots	PDAPI0Z0Y0	108	9	None	None	G2	S2	1B.2	BLM_S-Sensitive, SB_SBBG-Santa Barbara Botanic Garden	Valley & foothill grassland, Vernal pool, Wetland
Eumops perotis californicus	western mastiff bat	Mammals	AMACD02011	296	4	None	None	G4G5T4	S3S4	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern	Chaparral, Cismontane woodland, Coastal scrub, Valley & foothill grassland
Falco columbarius	merlin	Birds	ABNKD06030	38	1	None	None	G5	S3S4	null	CDFW_WL-Watch List, IUCN_LC-Least Concern	Estuary, Great Basin grassland, Valley & foothill grassland
Gambelia sila	blunt-nosed leopard lizard	Reptiles	ARACF07010	475	1	Endangered	Endangered	G1	S2	null	CDFW_FP-Fully Protected, IUCN_EN-Endangered	Chenopod scrub
Gratiola heterosepala	Boggs Lake hedge-hyssop	Dicots	PDSCR0R060	110	1	None	Endangered	G2	S2	1B.2	BLM_S-Sensitive	Freshwater marsh, Marsh & swamp, Vernal pool, Wetland
Haliaeetus leucocephalus	bald eagle	Birds	ABNKC10010	333	1	Delisted	Endangered	G5	S3	null	BLM_S-Sensitive, CDF_S-Sensitive, CDFW_FP-Fully Protected, IUCN_LC-Least Concern, USFS_S-Sensitive	Lower montane coniferous forest, Oldgrowth
Lagophylla dichotoma	forked hare-leaf	Dicots	PDAST5J070	7	1	None	None	G2	S2	1B.1	null	Cismontane woodland, Valley & foothill grassland
Lasiurus cinereus	hoary bat	Mammals	AMACC05032	238	5	None	None	G3G4	S4	null	IUCN_LC-Least Concern	Broadleaved upland forest, Cismontane woodland, Lower montane coniferous forest, North coast coniferous forest
Lasiurus frantzii	western red bat	Mammals	AMACC05080	128	3	None	None	G4	S3	null	CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern	Cismontane woodland, Lower montane coniferous forest, Riparian forest, Riparian woodland
Lasthenia chrysantha	alkali-sink goldfields	Dicots	PDAST5L030	55	2	None	None	G2	S2	1B.1	null	Vernal pool
Lepidurus packardi	vernal pool tadpole shrimp	Crustaceans	ICBRA10010	336	27	Endangered	None	G3	S3	null	IUCN_EN-Endangered	Valley & foothill grassland, Vernal pool, Wetland
Linderiella occidentalis	California linderiella	Crustaceans	ICBRA06010	508	52	None	None	G2G3	S2S3	null	IUCN_NT-Near Threatened	Vernal pool
Lytta molesta	molestan blister beetle	Insects	IICOL4C030	17	1	None	None	G2	S2	null	null	Vernal pool, Wetland
Mylopharodon conocephalus	hardhead	Fish	AFCJB25010	33	3	None	None	G3	S3	null	CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, USFS_S-Sensitive	Klamath/North coast flowing waters, Sacramento/San Joaquin flowing waters
Myotis yumanensis	Yuma myotis	Mammals	AMACC01020	265	5	None	None	G5	S4	null	BLM_S-Sensitive, IUCN_LC-Least Concern	Lower montane coniferous forest, Riparian forest, Riparian woodland, Upper montane coniferous forest
Navarretia myersii ssp. myersii	pincushion navarretia	Dicots	PDPLM0C0X1	16	3	None	None	G2T2	S2	1B.1	null	Vernal pool, Wetland
Navarretia nigelliformis ssp. radians	shining navarretia	Dicots	PDPLM0C0J2	102	27	None	None	G4T2T3	S2S3	1B.2	BLM_S-Sensitive	Cismontane woodland, Valley & foothill grassland, Vernal pool, Wetland

Neostapfia colusana	Colusa grass	Monocots	PMPOA4C010	66	29	Threatened	Endangered	G1	S1	1B.1	null	Vernal pool, Wetland
Northern Claypan Vernal Pool	Northern Claypan Vernal Pool	Herbaceous	CTT44120CA	21	3	None	None	G1	S1.1	null	null	Vernal pool, Wetland
Northern Hardpan Vernal Pool	Northern Hardpan Vernal Pool	Herbaceous	CTT44110CA	126	7	None	None	G3	S3.1	null	null	Vernal pool, Wetland
Oncorhynchus mykiss irideus pop. 11	steelhead - Central Valley DPS	Fish	AFCHA0209K	31	1	Threatened	None	G5T2Q	S2	null	AFS_TH-Threatened, CDFW_SSC-Species of Special Concern	Aquatic, Sacramento/San Joaquin flowing waters
Orcuttia inaequalis	San Joaquin Valley Orcutt grass	Monocots	PMPOA4G060	47	16	Threatened	Endangered	G1	S1	1B.1	null	Vernal pool, Wetland
Orcuttia pilosa	hairy Orcutt grass	Monocots	PMPOA4G040	35	2	Endangered	Endangered	G1	S1	1B.1	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Vernal pool, Wetland
Perognathus inornatus	San Joaquin pocket mouse	Mammals	AMAFD01060	140	3	None	None	G2G3	S2S3	null	BLM_S-Sensitive, IUCN_LC-Least Concern	Cismontane woodland, Mojavean desert scrub, Valley & foothill grassland
Phacelia ciliata var. opaca	Merced phacelia	Dicots	PDHYD0C0S2	7	6	None	None	G5TH	SH	3.2	null	Valley & foothill grassland
Pseudobahia bahiifolia	Hartweg's golden sunburst	Dicots	PDAST7P010	27	2	Endangered	Endangered	G1	S1	1B.1	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Cismontane woodland, Valley & foothill grassland
Puccinellia simplex	California alkali grass	Monocots	PMPOA53110	80	1	None	None	G2	S2	1B.2	BLM_S-Sensitive	Chenopod scrub, Meadow & seep, Valley & foothill grassland, Vernal pool
Sagittaria sanfordii	Sanford's arrowhead	Monocots	PMALI040Q0	143	3	None	None	G3	S3	1B.2	BLM_S-Sensitive	Marsh & swamp, Wetland
Sidalcea keckii	Keck's checkerbloom	Dicots	PDMAL110D0	50	2	Endangered	None	G2	S2	1B.1	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Cismontane woodland, Ultramafic, Valley & foothill grassland
Spea hammondii	western spadefoot	Amphibians	AAABF02020	1443	11	Proposed Threatened	None	G2G3	S3S4	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_NT-Near Threatened	Cismontane woodland, Coastal scrub, Valley & foothill grassland, Vernal pool, Wetland
Taxidea taxus	American badger	Mammals	AMAJF04010	648	2	None	None	G5	S3	null	CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern	Alkali marsh, Alkali playa, Alpine, Alpine dwarf scrub, Bog & fen, Brackish marsh, Broadleaved upland forest, Chaparral, Chenopod scrub, Cismontane woodland, Closed-cone coniferous forest, Coastal bluff scrub, Coastal dunes, Coastal prairie, Coastal scrub, Desert dunes, Desert wash, Freshwater marsh, Great Basin grassland, Great Basin scrub, Interior dunes, Ione formation, Joshua tree woodland,

												Limestone, Lower montane coniferous forest, Marsh & swamp, Meadow & seep, Mojavean desert scrub, Montane dwarf scrub, North coast coniferous forest, Oldgrowth, Pavement plain, Redwood, Riparian forest, Riparian scrub, Riparian woodland, Salt marsh, Sonoran desert scrub, Sonoran thorn woodland, Ultramafic, Upper montane coniferous forest, Upper Sonoran scrub, Valley & foothill grassland
Thamnophis gigas	giant gartersnake	Reptiles	ARADB36150	381	1	Threatened	Threatened	G2	S2	null	IUCN_VU-Vulnerable	Marsh & swamp, Riparian scrub, Wetland
Tuctoria greenei	Greene's tuctoria	Monocots	PMPOA6N010	50	5	Endangered	Rare	G1	S1	1B.1	null	Vernal pool, Wetland
Vulpes macrotis mutica	San Joaquin kit fox	Mammals	AMAJA03041	1020	8	Endangered	Threatened	G4T2	S3	null	null	Chenopod scrub, Valley & foothill grassland

CNPS Rare Plant Inventory

Search Results

32 matches found. Click on scientific name for details

Search Criteria: 9-Quad include [3712024:3712034:3712033:3712043:3712044:3712023:3712025:3712035:3712045]

▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	LIFEFORM	BLOOMING PERIOD	FED LIST	STATE LIST	CA RARE PLANT RANK	CA ENDEMIC
Agrostis hendersonii	Henderson's bent grass	Poaceae	annual herb	Apr-Jun	None	None	3.2	
Atriplex cordulata var. *cordulata*	heartscale	Chenopodiaceae	annual herb	Apr-Oct	None	None	1B.2	Yes
Atriplex minuscula	lesser saltscale	Chenopodiaceae	annual herb	May-Oct	None	None	1B.1	Yes
Atriplex persistens	vernal pool smallscale	Chenopodiaceae	annual herb	Jun-Oct	None	None	1B.2	Yes
Atriplex subtilis	subtle orache	Chenopodiaceae	annual herb	(Apr)Jun-Sep(Oct)	None	None	1B.2	Yes
Brasenia schreberi	watershield	Cabombaceae	perennial rhizomatous herb (aquatic)	Jun-Sep	None	None	2B.3	
Calycadenia hooveri	Hoover's calycadenia	Asteraceae	annual herb	Jul-Sep	None	None	1B.3	Yes
Castilleja campestris var. *succulenta*	succulent owl's-clover	Orobanchaceae	annual herb (hemiparasitic)	(Mar)Apr-May	FT	CE	1B.2	Yes
Centromadia parryi ssp. *rudis*	Parry's rough tarplant	Asteraceae	annual herb	May-Oct	None	None	4.2	Yes
Clarkia rostrata	beaked clarkia	Onagraceae	annual herb	Apr-May	None	None	1B.3	Yes
Convolvulus simulans	small-flowered morning-glory	Convolvulaceae	annual herb	Mar-Jul	None	None	4.2	
Delphinium hansenii ssp. *ewanianum*	Ewan's larkspur	Ranunculaceae	perennial herb	Mar-May	None	None	4.2	Yes
Delphinium recurvatum	recurved larkspur	Ranunculaceae	perennial herb	Mar-Jun	None	None	1B.2	Yes
Downingia pusilla	dwarf downingia	Campanulaceae	annual herb	Mar-May	None	None	2B.2	
Eryngium racemosum	Delta button-celery	Apiaceae	annual/perennial herb	(May)Jun-Oct	None	CE	1B.1	Yes
Eryngium spinosepalum	spiny-sepaled button-celery	Apiaceae	annual/perennial herb	Apr-Jun	None	None	1B.2	Yes
Fritillaria agrestis	stinkbells	Liliaceae	perennial bulbiferous herb	Mar-Jun	None	None	4.2	Yes
Gratiola heterosepala	Boggs Lake hedge-hyssop	Plantaginaceae	annual herb	Apr-Aug	None	CE	1B.2	

Hesperevax caulescens	hogwallow starfish	Asteraceae	annual herb	Mar-Jun	None	None	4.2	Yes
Lagophylla dichotoma	forked hare-leaf	Asteraceae	annual herb	Apr-May	None	None	1B.1	Yes
Lasthenia chrysantha	alkali-sink goldfields	Asteraceae	annual herb	Feb-Apr	None	None	1B.1	Yes
Navarretia myersii ssp. *myersii*	pincushion navarretia	Polemoniaceae	annual herb	Apr-May	None	None	1B.1	Yes
Navarretia nigelliformis ssp. *radians*	shining navarretia	Polemoniaceae	annual herb	(Mar)Apr-Jul	None	None	1B.2	Yes
Neostapfia colusana	Colusa grass	Poaceae	annual herb	May-Aug	FT	CE	1B.1	Yes
Orcuttia inaequalis	San Joaquin Valley Orcutt grass	Poaceae	annual herb	Apr-Sep	FT	CE	1B.1	Yes
Orcuttia pilosa	hairy Orcutt grass	Poaceae	annual herb	May-Sep	FE	CE	1B.1	Yes
Phacelia ciliata var. *opaca*	Merced phacelia	Hydrophyllaceae	annual herb	Feb-May	None	None	3.2	Yes
Pseudobahia bahiifolia	Hartweg's golden sunburst	Asteraceae	annual herb	Mar-Apr	FE	CE	1B.1	Yes
Puccinellia simplex	California alkali grass	Poaceae	annual herb	Mar-May	None	None	1B.2	
Sagittaria sanfordii	Sanford's arrowhead	Alismataceae	perennial rhizomatous herb (emergent)	May-Oct(Nov)	None	None	1B.2	Yes
Sidalcea keckii	Keck's checkerbloom	Malvaceae	annual herb	Apr-May(Jun)	FE	None	1B.1	Yes
Tuctoria greenei	Greene's tuctoria	Poaceae	annual herb	May-Jul(Sep)	FE	CR	1B.1	Yes

Showing 1 to 32 of 32 entries

Suggested Citation:
California Native Plant Society, Rare Plant Program. 2024. Rare Plant Inventory (online edition, v9.5). Website https://www.rareplants.cnps.org [accessed 13 December 2024].

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Merced County, California

Local office

Sacramento Fish And Wildlife Office

(916) 414-6600
(916) 414-6713

Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

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1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).

2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
San Joaquin Kit Fox Vulpes macrotis mutica Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/2873	Endangered

Reptiles

NAME	STATUS
Northwestern Pond Turtle Actinemys marmorata Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/1111	Proposed Threatened

Amphibians

NAME	STATUS
California Tiger Salamander Ambystoma californiense There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/2076	Threatened
Western Spadefoot Spea hammondii Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/5425	Proposed Threatened

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	Candidate

Valley Elderberry Longhorn Beetle Desmocerus californicus dimorphus — Threatened

Wherever found

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.

https://ecos.fws.gov/ecp/species/7850

Crustaceans

NAME	STATUS

Conservancy Fairy Shrimp Branchinecta conservatio — Endangered

Wherever found

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.

https://ecos.fws.gov/ecp/species/8246

Vernal Pool Fairy Shrimp Branchinecta lynchi — Threatened

Wherever found

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.

https://ecos.fws.gov/ecp/species/498

Vernal Pool Tadpole Shrimp Lepidurus packardi — Endangered

Wherever found

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.

https://ecos.fws.gov/ecp/species/2246

Flowering Plants

NAME	STATUS

Colusa Grass Neostapfia colusana — Threatened

Wherever found

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.

https://ecos.fws.gov/ecp/species/5690

Fleshy Owl's-clover Castilleja campestris ssp. succulenta — Threatened

Wherever found

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.

https://ecos.fws.gov/ecp/species/8095

Hairy Orcutt Grass Orcuttia pilosa — Endangered

Wherever found

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
https://ecos.fws.gov/ecp/species/2262

San Joaquin Valley Orcutt Grass Orcuttia inaequalis — Threatened

Wherever found

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
https://ecos.fws.gov/ecp/species/5506

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

You are still required to determine if your project(s) may have effects on all above listed species.

Bald & Golden Eagles

Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act[1] and the Migratory Bird Treaty Act[2].

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats[3], should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "Supplemental Information on Migratory Birds and Eagles".

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds

- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

There are likely bald eagles present in your project area. For additional information on bald eagles, refer to Bald Eagle Nesting and Sensitivity to Human Activity

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Jan 1 to Aug 31
Golden Eagle Aquila chrysaetos This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Jan 1 to Aug 31

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey

effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

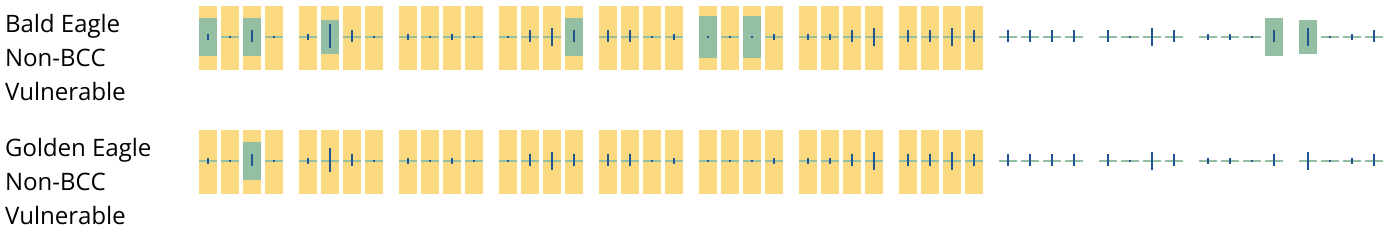
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

■ probability of presence ■ breeding season | survey effort – no data

SPECIES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC



What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply). To see a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs of bald and golden eagles in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur. Please contact your local Fish and Wildlife Service Field Office if you have questions.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats[3] should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "Supplemental Information on Migratory Birds and Eagles".

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Jan 1 to Aug 31

Belding's Savannah Sparrow Passerculus sandwichensis beldingi — Breeds Apr 1 to Aug 15

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/8

Bullock's Oriole Icterus bullockii — Breeds Mar 21 to Jul 25

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

California Gull Larus californicus — Breeds Mar 1 to Jul 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Clark's Grebe Aechmophorus clarkii — Breeds Jun 1 to Aug 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Common Yellowthroat Geothlypis trichas sinuosa — Breeds May 20 to Jul 31

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/2084

Golden Eagle Aquila chrysaetos — Breeds Jan 1 to Aug 31

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/1680

Lawrence's Goldfinch Spinus lawrencei — Breeds Mar 20 to Sep 20

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9464

Northern Harrier Circus hudsonius — Breeds Apr 1 to Sep 15

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/8350

Nuttall's Woodpecker Dryobates nuttallii — Breeds Apr 1 to Jul 20
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/9410

Oak Titmouse Baeolophus inornatus — Breeds Mar 15 to Jul 15
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9656

Olive-sided Flycatcher Contopus cooperi — Breeds May 20 to Aug 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3914

Santa Barbara Song Sparrow Melospiza melodia graminea — Breeds Mar 1 to Sep 5
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/5513

Short-billed Dowitcher Limnodromus griseus — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9480

Tricolored Blackbird Agelaius tricolor — Breeds Mar 15 to Aug 10
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3910

Western Grebe aechmophorus occidentalis — Breeds Jun 1 to Aug 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/6743

Yellow-billed Magpie Pica nuttalli — Breeds Apr 1 to Jul 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9726

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (▪)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

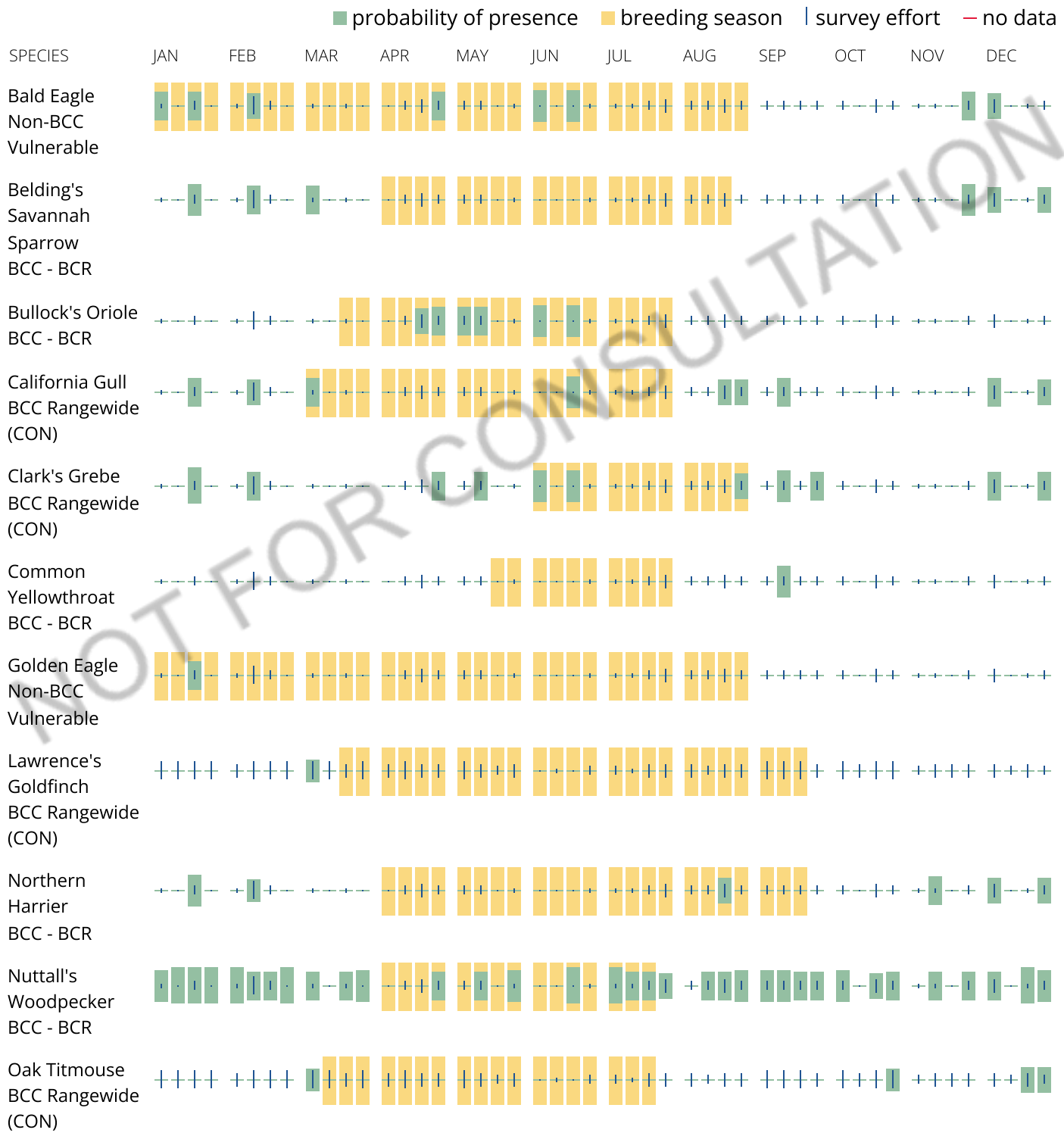
Breeding Season (▪)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

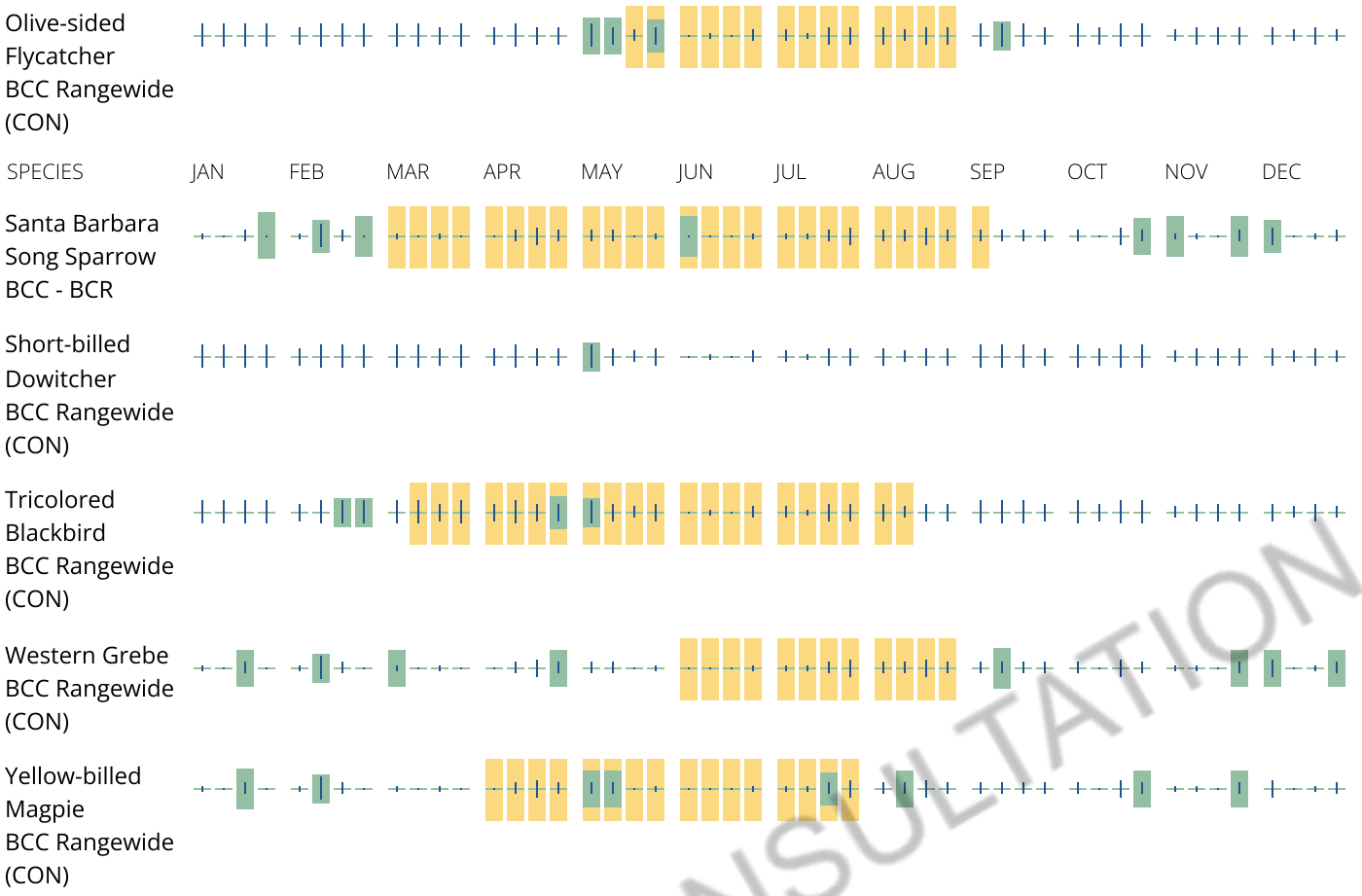
Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.





Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the RAIL Tool and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

This location did not intersect any wetlands mapped by NWI.

NOTE: This initial screening does **not** replace an on-site delineation to determine whether wetlands occur. Additional information on the NWI data is provided below.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

Appendix B

Potential for Special-Status Species in the Region to Occur in the Study Area

Scientific Name/ Common Name[1]	Status[2]	Habitat, Ecology and Life History	Potential to Occur[3]
Plants			
Agrostis hendersonii Henderson's bent grass	--; --; 3.2	Annual herb that occurs in mesic valley and foothill grassland, and vernal pools from 230 - 1000 feet elevation. This species blooms from April-June (CNPS 2024).	**No Potential.** There is no suitable wetland habitat present for the species in the Study Area. There are four CNDDB records for this species within five miles of the Study Area, but all of these occurrences are greater than 25 years old (CDFW 2024).
Atriplex cordulata var. cordulata heartscale	--; --; 1B.2	Annual herb that occurs in chenopod scrub, meadows and seeps, and sandy valley and foothill grassland from 0 - 1835 feet elevation. This species blooms from April - October (CNPS 2024).	**No Potential.** There is no suitable saline or alkaline habitat present for the species in the Study Area. There are no CNDDB records for this species within five miles of the Study Area (CDFW 2024).
Atriplex minuscula lesser saltscale	--; --; 1B.1	Annual herb that occurs in chenopod scrub, playas, and valley and foothill grassland from 50 - 655 feet elevation. This species blooms from May- October (CNPS 2024).	**No Potential.** There is no suitable saline or alkaline habitat present for the species in the Study Area. There are no CNDDB records for this species within five miles of the Study Area (CDFW 2024).
Atriplex persistens vernal pool smallscale	--; --; 1B.2	Annual herb that occurs in alkaline vernal pools from 35 - 375 feet elevation. This species blooms from June - October (CNPS 2024).	**No Potential.** There is no vernal pools habitat present for the species in the Study Area. There are no CNDDB records for this species within five miles of the Study Area (CDFW 2024).
Atriplex subtilis subtle orache	--; --; 1B.2	Annual herb that occurs in valley and foothill grassland from 130 - 330 feet elevation. This species blooms from June-September (CNPS 2024).	**No Potential.** There is no suitable saline habitat present for the species within the Study Area. There are no CNDDB records for this species within five miles of the Study Area (CDFW 2024).
Brasenia schreberi watershield	--; --; 2B.3	Aquatic perennial rhizomatous herb that occurs in freshwater marshes and swamps from	**No Potential.** There is no suitable aquatic habitat present for the

Scientific Name/ Common Name[1]	Status[2]	Habitat, Ecology and Life History	Potential to Occur[3]
		0 - 7220 feet elevation. This species blooms June – September from (CNPS 2024).	species in the Study Area. There is one CNDDB record for this species within five miles of the Study Area, but this documented occurrence is greater than 25 years old (CDFW 2024).
Calycadenia hooveri Hoover's calycadenia	--; --; 1B.3	Annual herb that occurs in cismontane woodland, and valley and foothill grassland from 215 - 985 feet elevation. This species blooms from July- September (CNPS 2024).	**No Potential.** There is no suitable undisturbed grassland habitat within the Study Area. There are no CNDDB records for this species within five miles of the Study Area (CDFW 2024).
Castilleja campestris var. succulenta succulent owl's-clover	FT; SE; 1B.2	Hemiparasitic annual herb that occurs in acidic vernal pools from 165 - 2460 feet elevation. This species blooms from April -May (CNPS 2024).	**No Potential.** There is no vernal pool habitat present for the species within the Study Area. Though t are several CNDDB records for this species within five miles of the Study Area, records document occurrences within vernal pools which are not present within the Study Area (CDFW 2024).
Centromadia parryi ssp. rudis Parry's rough tarplant	--; --; 4.2	Annual herb that occurs in valley and foothill grassland and vernal pools from 0 - 330 feet elevation. This species blooms from May – October (CNPS 2024).	**No Potential.** There is no suitable undisturbed grassland or vernal pool habitat within the Study Area. There are no CNDDB records for this species within five miles of the Study Area (CDFW 2024).
Clarkia rostrata beaked clarkia	--; --; 1B.3	Annual herb that occurs in cismontane woodland, and valley and foothill grassland from 195 - 1640 feet elevation. This species blooms from April – May (CNPS 2024).	**No Potential.** There is no suitable undisturbed grassland habitat within the Study Area. There are no CNDDB records for this species within five miles of the Study Area (CDFW 2024).
Convolvulus simulans small-flowered morning-glory	--; --; 4.2	Annual herb that occurs in chaparral openings, coastal scrub, and valley and foothill grassland from 100 - 2430 feet elevation. This species blooms from March - July (CNPS 2024).	**No Potential.** There is no suitable undisturbed grassland, chaparral, or coastal scrub habitat within the Study Area. There are no CNDDB records for this species within five miles of the Study Area (CDFW 2024)..

Scientific Name/ Common Name[1]	Status[2]	Habitat, Ecology and Life History	Potential to Occur[3]
Delphinium hansenii ssp. ewanianum Ewan's larkspur	--; --; 4.2	Perennial herb that occurs in cismontane woodland, and valley and foothill grassland from 195 - 1970 feet elevation. This species blooms from March - May (CNPS 2024).	**No Potential.** There is no suitable undisturbed grassland habitat within the Study Area. There are no CNDDB records for this species within five miles of the Study Area (CDFW 2024).
Delphinium recurvatum recurved larkspur	--; --; 1B.2	Perennial herb that occurs in chenopod scrub, cismontane woodland, and valley and foothill grassland from 10 - 2590 feet elevation. This species blooms from March - June (CNPS 2024).	**No Potential.** There is no scrub, woodland or undisturbed grassland habitat present for the species within the Study Area. There are no CNDDB records for this species within five miles of the Study Area (CDFW 2024).
Downingia pusilla dwarf downingia	--; --; 2B.2	Annual herb that occurs in mesic valley and foothill grassland, and vernal pools from 5 - 1460 feet elevation. This species blooms from March - May (CNPS 2024).	**No Potential.** There is no suitable undisturbed grassland or vernal pool habitat within the Study Area. There are no CNDDB records for this species within five miles of the Study Area (CDFW 2024). Though two documented occurrences occur within five miles of the Study Area, both of these occurrences are greater than 25 years old.
Eryngium racemosum Delta button-celery	--; SE; 1B.1	Annual/perennial herb that occurs in vernally mesic clay depressions of riparian scrub from 10 - 100 feet elevation. This species blooms from June- October (CNPS 2024).	**No Potential.** There is no suitable habitat present for the species within the Study Area and the Study Area is outside of the established elevation range for this species. There are no CNDDB records for this species within five miles of the Study Area (CDFW 2024).
Eryngium spinosepalum spiny-sepaled button-celery	--; --; 1B.2	Annual/perennial herb that occurs in valley and foothill grassland and vernal pools from 260 - 3200 feet elevation. This species blooms from April – June (CNPS 2024).	**No Potential.** There is no suitable undisturbed grassland or vernal pool habitat within the Study Area. There are several documented occurrences within 5 miles of the Study Area. However, records document

Scientific Name/ Common Name[1]	Status[2]	Habitat, Ecology and Life History	Potential to Occur[3]
			occurrences within habitat that does not occur within the Study Area.
Fritillaria agrestis stinkbells	--; --; 4.2	Perennial bulbiferous herb that occurs in chaparral, cismontane woodland, Pinyon and juniper woodland, and valley and foothill grassland from 35 - 5100 feet elevation. This species blooms from March – June (CNPS 2024).	**No Potential.** There is no suitable undisturbed grassland or woodland habitat within the Study Area. There are no CNDDB records for this species within five miles of the Study Area (CDFW 2024).
Gratiola heterosepala Boggs Lake hedge-hyssop	--; SE; 1B.2	Annual herb that occurs in lake margins of marshes and swamps, and vernal pools from 35 - 7790 feet elevation. This species blooms from April – August (CNPS 2024).	**No Potential.** There is no suitable aquatic habitat present for the species within the Study Area. There are no CNDDB records for this species within five miles of the Study Area (CDFW 2024).
Hesperevax caulescens hogwallow starfish	--; --; 4.2	Annual herb that occurs in mesic valley and foothill grassland, and shallow vernal pools from 0 - 1655 feet elevation. This species blooms from March - June (CNPS 2024).	**No Potential.** There is no suitable undisturbed mesic grassland or vernal pool habitat within the Study Area. There are no CNDDB records for this species within five miles of the Study Area (CDFW 2024).
Lagophylla dichotoma forked hare-leaf	--; --; 1B.1	Annual herb that occurs in cismontane woodland and valley and foothill grassland from 150 - 1100 feet elevation. This species blooms from April – May (CNPS 2024).	**No Potential.** There is no suitable undisturbed grassland or woodland habitat within the Study Area. There is one documented occurrence within five miles of the Study Area boundary.
Lasthenia chrysantha alkali-sink goldfields	--; --; 1B.1	Annual herb that occurs in vernal pools from 0 - 655 feet elevation. This species blooms from February – April (CNPS 2024).	**No Potential.** There is no suitable aquatic habitat present for the species within the Study Area. There are no CNDDB records for this species within five miles of the Study Area (CDFW 2024).
Navarretia myersii ssp. myersii pincushion navarretia	--; --; 1B.1	Annual herb that occurs in vernal pools from 65-1085 feet elevation. This species blooms from April – May (CNPS 2024).	**No Potential.** There is no suitable aquatic habitat present for the species within the Study Area. There

Scientific Name/ Common Name[1]	Status[2]	Habitat, Ecology and Life History	Potential to Occur[3]
			are no CNDDB records for this species within five miles of the Study Area (CDFW 2024).
Navarretia nigelliformis ssp. radians shining navarretia	--; --; 1B.2	Annual herb that occurs in cismontane woodland, valley and foothill grassland, and vernal pools from 215 - 3280 feet elevation. This species blooms from April – July (CNPS 2024).	**No Potential.** There is no aquatic habitat present within the Study Area. There are several CNDDB records for this species within five miles of the Study Area, but there is not suitable habitat within the Study Area boundary for this species. (CDFW 2024).
Neostapfia colusana Colusa grass	FT; SE; 1B.1	Annual herb that occurs in vernal pools from 15 - 655 feet elevation. This species blooms from May – August (CNPS 2024).	**No Potential.** There is no vernal pool habitat within the Study Area. There are several CNDDB records for this species within five miles of the Study Area, but the records are documented within vernal pool habitat that does not occur in the Study Area (CDFW 2024).
Orcuttia inaequalis San Joaquin Valley Orcutt grass	FT; SE; 1B.1	Annual herb that occurs in vernal pools from 35-2475 feet elevation. This species blooms from April- September (CNPS 2024).	**No Potential.** There is no vernal pool habitat within the Study Area. There are several CNDDB records for this species within five miles of the Study Area, but the records are documented within vernal pool habitat that does not occur in the Study Area (CDFW 2024).
Orcuttia pilosa hairy Orcutt grass	FE; SE; 1B.1	Annual herb that occurs in vernal pools from 150-655 feet elevation. This species blooms from May- September (CNPS 2024).	**No Potential.** There is no suitable aquatic habitat present for the species within the Study Area. There is one CNDDB record for this species within five miles of the Study Area, but this record is greater than 25 years old and there is no suitable habitat within the Study Area

Scientific Name/ Common Name[1]	Status[2]	Habitat, Ecology and Life History	Potential to Occur[3]
			boundary for this species (CDFW 2024).
Phacelia ciliata var. opaca Merced phacelia	--; --; 3.2	Annual herb that occurs in clay valley and foothill grassland from 195 - 490 feet elevation. This species blooms from February – May (CNPS 2024).	**No Potential.** There is no suitable undisturbed grassland habitat within the Study Area. There are several documented occurrences occur within five miles of the Study Area boundary (CDFW 2024).
Pseudobahia bahiifolia Hartweg's golden sunburst	FE; SE; 1B.1	Annual herb that occurs in cismontane woodland and valley and foothill grassland from 50-490 feet elevation. This species blooms from March – April (CNPS 2024).	**No Potential.** There is no suitable undisturbed grassland or woodland habitat within the Study Area. There are several documented occurrences occur within five miles of the Study Area boundary (CDFW 2024).
Puccinellia simplex California alkali grass	--; --; 1B.2	Annual herb that occurs in chenopod scrub, meadows and seeps, valley and foothill grassland, and vernal pools from 5 - 3050 feet elevation. This species blooms from March – May (CNPS 2024).	**No Potential.** There is no suitable habitat present for the species; prefers wetlands and saline soil. There are no CNDDB records for this species within five miles of the Study Area (CDFW 2024).
Sagittaria sanfordii Sanford's arrowhead	--; --; 1B.2	Emergent perennial rhizomatous herb that occurs in shallow freshwater of marshes and swamps from 0-2135 feet elevation. This species blooms from May- October (CNPS 2024).	**No Potential.** There is no suitable habitat present for the species; no standing water or swamps within the Study Area. There is one documented occurrence within five miles of the Study Area boundary, but this record is greater than 25 years old and there is not suitable habitat for this species within the Study Area (CDFW 2024).
Sidalcea keckii Keck's checkerbloom	FE; --; 1B.1	Annual herb that occurs in cismontane woodland and valley and foothill grassland from 245 - 2135 feet elevation. This species blooms from April- May (CNPS 2024).	**No Potential.** There is no suitable undisturbed grassland or woodland habitat within the Study Area for this species. There are several documented occurrences within five miles of the Study Area boundary (CDFW 2024).

Scientific Name/ Common Name[1]	Status[2]	Habitat, Ecology and Life History	Potential to Occur[3]
Tuctoria greenei Greene's tuctoria	FE; SR; 1B.1	Annual herb that occurs in vernal pools from 100-3510 feet elevation. This species blooms from May- July (CNPS 2024).	**No Potential.** There is no suitable habitat present for the species; no vernal pools within the Study Area. There are no CNDDB records for this species within five miles of the Study Area (CDFW 2024).
Animals			
Invertebrates			
Bombus crotchii Crotch's bumble bee	--; SCE; --	Crotch's bumble bee occurs in grassland and scrub habitats (California Department of Fish and Wildlife [CDFW] 2019). New colonies are initiated by solitary queens, generally in the early spring, which typically occupy abandoned rodent burrows (CDFW 2019). This species is a generalist forager and has been reported visiting a wide variety of flowering plants. A short-tongued bumble bee; food plants include *Asclepias* spp., *Antirrhinum* spp., *Clarkia* spp., *Eschscholzia* spp., *Eriogonum* spp., *Chaenactis* spp., *Lupinus* spp., *Medicago* spp., *Phacelia* spp., and *Salvia* spp. (Koch et al. 2012). The flight period for queens in California is from February to October. New queens hibernate over the winter and initiate a new colony the following spring (CDFW 2019). Rare throughout its range and in decline in Central Valley and southern California (CDFW 2019).	**No Potential.** Suitable floral species do not occur in the Study Area and the Study Area is developed or regularly disturbed and vegetation is managed. This species is also currently rare across its range and is in decline in California (Hatfield and Jepsen 2021) and is currently most abundant in coastal southern California and a few locations in the Sacramento area (Hatfield and Jepsen 2021). There is one CNDDB reported occurrence of this species within a five-mile radius of the Study Area, but this documented occurrence is greater than 25 years old (CDFW 2024).
Branchinecta conservatio Conservancy fairy shrimp	FE; --; --	Occupies large clay bottomed vernal pools to vernal lakes with turbid water in grasslands. The historical distribution of this species is unknown and it is currently distributed throughout the Central Valley and southern coastal regions of California (USFWS 2005).	**No Potential.** There is no vernal pool habitat within the Study Area. There are documented occurrences occur within five miles of the Study Area boundary.
Branchinecta lynchi vernal pool fairy shrimp	FT; --; --	Vernal pools ranging from small, clear, sandstone rock pools to large, turbid, alkaline, grassland valley floor pools. It is most	**No Potential.** There is no vernal pool habitat within the Study Area. There are documented occurrences occur

Scientific Name/ Common Name[1]	Status[2]	Habitat, Ecology and Life History	Potential to Occur[3]
		frequently found in pools measuring less than 0.05 acre; although has been collected from vernal pools exceeding 25 acres. The known range within California includes the Central Valley and southern California (USFWS 2005).	within five miles of the Study Area boundary.
Lepidurus packardi vernal pool tadpole shrimp	FE; --; --	Vernal pools from 54 square feet to 89 acres, containing clear- to highly-turbid water. Its known range is within the Central Valley of California and in the San Francisco Bay area (USFWS 2005).	**No Potential.** There is no vernal pool habitat within the Study Area. There are several documented occurrences occur within five miles of the Study Area boundary.
Fishes			
Oncorhynchus mykiss irideus pop. 11 steelhead - Central Valley DPS	FT; --; SSC	This distinct population segment includes all naturally spawned anadromous steelhead populations below natural and manmade impassable barriers in the Sacramento and San Joaquin Rivers and their tributaries, excluding steelhead from San Francisco and San Pablo Bays and their tributaries, as well as two artificial propagation programs: the Coleman NFH, and Feather River Hatchery steelhead hatchery programs (NMFS 2016). Steelhead spawn in rivers and streams with cool, clear, water and suitable silt free substrate (NMFS 2016).	**No Potential.** Study Area does not have suitable aquatic habitat for this species. There are no CNDDB records for this species within five miles of the Study Area (CDFW 2024).
Mylopharodon conocephalus hardhead	--; --; SSC	Hardhead are found in low to mid-elevation streams in undisturbed habitats. Prefers large streams with slow water, deep pools, well-oxygenated, clear water with sandy and boulder substrate. This species prefers warmer waters and typically co-occurs with other native fish such as Sacramento pikeminnow or suckers and is typically absent when alien fish species are present. Hardhead is seemingly incapable of passing manmade barriers even when fish ladders for anadromous fish are present. Hardhead are found in most large	**No Potential**. Study Area does not have suitable aquatic habitat for this species. There are no CNDDB records for this species within five miles of the Study Area (CDFW 2024).

Scientific Name/ Common Name[1]	Status[2]	Habitat, Ecology and Life History	Potential to Occur[3]
		tributaries of the Sacramento River drainage (Moyle et al. 2015).	
Amphibians			
Ambystoma californiense pop. 1 California tiger salamander - central California DPS	FT; ST; WL	California tiger salamanders are generally restricted to vernal pools and seasonal ponds, including many constructed stock ponds, in grassland and oak savannah plant communities from sea level to about 1,500 feet in central California. This species spends the majority of its life in upland areas in the vicinity of suitable breeding ponds, where it inhabits rodent burrows. In order to provide suitable habitat for this species, suitable breeding habitat must be present in combination with suitable upland habitat. In the Coastal region, populations are scattered from Sonoma County in the northern San Francisco Bay Area to Santa Barbara County, and in the Central Valley and Sierra Nevada foothills from Yolo to Kern counties (USFWS 2017a).	**No Potential.** There is no suitable aquatic or upland habitat for this species within the Study Area. The developed nature of the Study Area and lack of aquatic habitat or upland estivation habitat precludes it from occurring. This species is known to occur in the wetland Preserve to the north of the Study Area.
Spea hammondii western spadefoot	FPT; --; SSC	Occurs in a variety of habitats including mixed woodlands, grasslands, coastal sage scrub, chaparral, sandy washes, and playas. Breeds in vernal pools, depressional wetlands, puddles, and other ephemeral water features including altered or constructed features, often after heavy rains. Breeding sites must remain inundated for at least 3–11 weeks for larvae to mature with water temperatures between 48–86 degrees Fahrenheit (USFWS 2023a). Spadefoots are primarily terrestrial and require upland habitats for feeding and for constructing burrows for long dry-season dormancy (USFWS 2023a). Spadefoot typically burrow up to 3 feet below the surface and require sandy or friable soils which facilitate	**No Potential.** There is no suitable aquatic or upland refugia habitat for this species within the Study Area. The developed nature of the Study Area and lack of aquatic habitat or upland estivation habitat precludes it from occurring. Suitable habitat for this species does occur within the Preserve to the north of the Study Area.

Scientific Name/ Common Name[1]	Status[2]	Habitat, Ecology and Life History	Potential to Occur[3]
		digging and water absorption (UWSFWS 2023a). Dispersal through uplands may vary between wet and dry years but is considered to be up to 262 meters in a dry year and up to 605 meters in a wet year but is typically less (USFWS 2023a).	
Reptiles			
Actinemys marmorata northwestern pond turtle	FPT; --; SSC	Occurs in a variety of aquatic habitats; typically, semi-permanent ponds, lakes, streams, irrigation ditches, canals, marshes, or pools in intermittent drainages. Prefers areas lined with abundant vegetation and either rocky or muddy substrates. Requires basking sites such as logs, rocks, cattail mats or exposed banks. Active from February to November, and breeding occurs from April to May. Females typically nest in compact and dry soils from 3 to 400 meters from water, with a preference for south facing slopes between 0 and 60 degrees with little vegetation cover, however pond turtles occurring in forested areas will select nest sites under forest canopy that is more open. Overwintering occurs in upland terrestrial habitats close to water sources in open areas (up to 500 meters from water), in which they will bury themselves under loose soil where leaf litter is present (USFWS 2023b). In intermittent water systems, this species spends less time in water and more time at refuges sites in uplands.	**No Potential**. Study Area does not have suitable aquatic or upland habitat for this species. The developed nature of the Study Area and lack of aquatic habitat or upland upland habitat precludes it from occurring. Suitable habitat for this species does occur within the Preserve to the north of the Study Area.
Gambelia sila blunt-nosed leopard lizard	FE; ST; --	Blunt-nosed leopard lizard is endemic to the southern Coast Ranges and Central Valley, from Santa Clara and Merced Counties south to Ventura and Los Angeles Counties. Occurs in alkali sink, playa, and saltbush scrub habitats in the Central Valley, and grassland habitats in	**No Potential**. Study Area does not provide suitable habitat for this species. There are no CNDDB records for this species within five miles of the Study Area.

Scientific Name/ Common Name[1]	Status[2]	Habitat, Ecology and Life History	Potential to Occur[3]
		the foothills (USFWS 2010a). During breeding season, females show red coloration and males show a salmon coloration instead of the usual patterned tan, brown and white colors. Use rodent burrows for shelter from predators and extreme hot and cold temperatures (USFWS 2010a). This species eats primarily grasshoppers, crickets, moths and other lizards (USFWS 2010a).	
Thamnophis gigas giant garter snake	FT; ST; --	Endemic to the San Joaquin and Sacramento Valley floors. Inhabits agricultural wetlands and other waterways such as irrigation and drainage canals, sloughs, ponds, small lakes, low gradient streams, and adjacent uplands. Requires adequate water during its active season (early spring through mid-fall) to provide food and cover, emergent, herbaceous wetland vegetation for foraging and cover, grassy banks and openings in waterside vegetation for basking, and higher elevation uplands for cover and refuge from flood waters during its dormant season (winter). Inhabits small mammal burrows and other soil crevices with sunny exposure along south and west facing slopes, above prevailing flood elevations when dormant. Primarily found in marshes and sloughs as well as slow-moving creeks but absent from large rivers (USFWS 2017b).	**No Potential**. The Study Area does not have suitable aquatic habitat for this species. There are two documented occurrences of this species within five miles of the Study Area boundary, but existing habitat within the Study Area will not support this species.
Birds			
Agelaius tricolor tricolored blackbird	--; ST; SSC	Common locally throughout central California. Nests and seeks cover in emergent wetland vegetation and thorny vegetation such as Himalayan blackberry (*Rubus armeniacus*) as well as cattails and tules. Nesting area must be large enough to support a minimum colony of 50 pairs as they are a highly colonial species.	**Low Potential.** Though there are several documented occurrences of this species within five miles of the Study Area boundary, the Study Area provides extremely marginal foraging habitat and no nesting habitat for this species. The species could

Scientific Name/ Common Name[1]	Status[2]	Habitat, Ecology and Life History	Potential to Occur[3]
		Forages on ground in croplands, grassy fields, flooded land, and edges of ponds for insects (Shuford and Gardali 2008).	occasionally fly over the Study Area, but it would not be expected to be affected by project implementation.
Athene cunicularia burrowing owl	--; SCE; SSC	Forages in grasslands, agricultural fields, and disturbed places where burrowing mammals are abundant with low and sparse vegetation. Nests in burrows, especially those of California ground squirrel (*Otospermophilus beecheyi*) but will use other refuge sites (Shuford and Gardali 2008). In the Central Valley of California, most foraging occurs within a 600-m radius of the nest (Gervais et al. 2003).	**No Potential.** Though documented occurrences occur within five miles of the Study Area boundary, the Study Area does not provide suitable foraging or nesting habitat for this species. No suitable burrows are present within the Study Area and the Study Area does not support ground squirrels that could provide suitable burrow habitat.
Buteo swainsoni Swainson's hawk	--; ST; --	Swainson's hawks usually arrive in the Central Valley between March 1 and April 1 and migrate south between September and October. Found in a variety of habitats including grasslands, agricultural areas, and open woodlands. Often nests peripherally to riparian systems or other aquatic habitats. Nests in mature lone trees or groves of mature trees in agricultural fields, residential trees, or roadside trees. Prefers nest sites adjacent to large, open areas suitable for foraging. Fremont cottonwood, walnut, and willow, at least 30 feet in height, are the most commonly used nest trees in the Central Valley but are not required (CDFW 1994).	**No Potential.** Though documented occurrences occur within five miles of the Study Area boundary, the Study Area does not provide suitable foraging or nesting habitat for this species. Trees within the Study Area are landscape plantings and too small to provide nesting habitat. The species could occasionally fly over the Study Area, but it would not be expected to be affected by project implementation.
Charadrius montanus mountain plover	--;--; SSC	A winter resident of the Central Valley, southern deserts, and southern coast, as well as Texas, Arizona, and northern Mexico; does not breed in California. Found in places with sparse, low-growing vegetation such as fallow or burned agricultural fields, heavily grazed pastures, and playas (Shuford and Gardali 2008).	**No Potential.** Though documented occurrences occur within five miles of the Study Area boundary, the Study Area does not provide suitable foraging or nesting habitat for this species.

Scientific Name/ Common Name[1]	Status[2]	Habitat, Ecology and Life History	Potential to Occur[3]
Circus hudsonius northern harrier	--; --; SSC	Inhabits a variety of treeless habitats including freshwater marsh, brackish- and saltwater marsh, wet meadows, lake margins, grasslands, croplands, desert sinks, and sagebrush flats. Builds nests on large mounds of vegetation between March and August. Forages in most open habitats (Shuford and Gardali 2008).	**No Potential.** Though documented occurrences occur within five miles of the Study Area boundary, the Study Area does not provide suitable foraging or nesting habitat for this species. The species could occasionally fly over the Study Area, but it would not be expected to be affected by project implementation.
Haliaeetus leucocephalus bald eagle	FD; SE; FP	Occurs in a variety of habitats near large aquatic resources such as river systems, lakes, ocean shorelines and coastal wetlands. Nests in mature trees or snags, often in remote mixed stands adjacent to water. Suitable foraging habitat consists of large bodies of water with abundant fish and adjacent perching sites such as snags or large trees. Nests are usually located within a 1-mile radius of water. Nests are most often situated in large trees with a commanding view of the area (Zeiner et al. 1990).	**No Potential.** The Study Area does not provide suitable foraging or nesting habitat for this species. The species could occasionally fly over the Study Area, but it would not be expected to be affected by project implementation. There is one CNDDB record within five miles of the Study Area.
Mammals			
Antrozous pallidus pallid bat	--; --; SSC	Occurs throughout California except for the high Sierra Nevada and the northern Coast Ranges. Habitats include grasslands, shrublands, woodlands, and forests from sea level to 6,000 feet. Most common in open, dry habitats with rocky areas for roosting; roosts also include cliffs, abandoned buildings, bird boxes, and under bridges (Bolster, ed. 1998).	**No Potential.** Study Area does not provide suitable habitat for this species. There are no CNDDB records for this species within five miles of the Study Area.
Eumops perotis californicus western mastiff bat	--; --; SSC	Found throughout California and the southwestern U.S. to west Texas. Roosts in natural crevices in large outcrops of granite, sandstone, or basalt, on cliff faces, among boulders, and in appropriately proportioned	**No Potential.** Study Area does not provide suitable habitat for this species. There is one documented occurrence of this species within five miles of the Study Area boundary, but

Scientific Name/ Common Name[1]	Status[2]	Habitat, Ecology and Life History	Potential to Occur[3]
		cracks in buildings. Roosts are at least 10 feet above the ground (Bolster 1998).	this occurrence is greater than 25 years old (CDFW 2024).
Lasiurus frantzii western red bat	--; --; SSC	Roosts primarily in woodlands and forests amongst branches and avoids roosting in caves or buildings (Bolster 1998). Forages in open habitat such as croplands, grasslands and shrublands. This species is typically associated with water and has a poor urine concentrating ability. Primarily roosts solitarily in trees from 2–40 feet high in the trees, with females and young roosting higher in the trees than males. Forages along edge habitats (Zeiner et al. 1990). This species is rarely found in the winter at locations that freeze (Pierson et al. 2006).	**No Potential.** Study Area does not provide suitable habitat for this species. There are no CNDDB records for this species within five miles of the Study Area.
Taxidea taxus American badger	--; --; SSC	Inhabits drier open stages of most shrub, forest, and herbaceous habitats with loose, friable soils. Preys on a wide variety of mammals, reptiles, birds, and carrion, and hunts mostly by digging out fossorial prey. Occasionally takes prey on the surface. Not tolerant of cultivation. No longer occur in the Central Valley except in the extreme western edge (Williams 1986).	**No Potential.** Study Area does not provide suitable habitat for this species. There are no CNDDB records for this species within five miles of the Study Area.
Vulpes macrotis mutica San Joaquin kit fox	FE; ST; --	Inhabits grasslands, agricultural areas, playas, and scrublands. Formerly widespread in the Central Valley; now primarily found in foothills at the margins of the Central Valley and in the interior Coast Ranges. Uses natural and artificial burrows with entrances between 8 and 10 inches in diameter and occupies many different burrows in a single season (USFWS 2010b).	**No Potential.** Though documented occurrences occur within five miles of the Study Area boundary, the Study Area is too disturbed to support this species and no suitable den locations occur within the Study Area.

[1] Sensitive species reported in CNDDB or CNPS on the "Rio Linda" USGS quads, or in USFWS lists for the project site.

[2] Status is as follows: Federal (ESA) listing/State (CESA) listing/other CDFW status or CRPR. F = Federal; S = State of California; E = Endangered; T = Threatened; C = Candidate; FP=Fully Protected; SSC=Species of Special Concern; WL=Watch List.

[3] Status in the Project site is assessed as follows. **No Potential:** The Study Area is outside the known distribution of the species; or there is no suitable habitat present for the species; or, the species is not known to occur within five miles of the Study Area boundary, and its dispersal capability is less than five miles. **Low Potential:** There are no documented occurrences within five miles of the Study Area boundary, and the existing habitat is of low or marginal quality, or all documented occurrences within five miles of the Study Area line are believed to be extirpated, and existing habitat is of low or marginal quality, or extant occurrences are documented within five miles of the Study Area, and the most recent occurrence is greater than or equal to 25 years old. **Moderate Potential:** Documented occurrences are reported within five miles of the Study Area, the most recent occurrence is less than 25 but greater than 10 years old, and suitable habitat is present; or critical habitat is mapped within the Study Area, all PCEs are present within the Study Area, and suitable habitat is present. **High Potential:** There are extant occurrences within one mile of the Study Area, the most recent occurrence is less than 10 years old, and there is suitable habitat within the Study Area; or critical habitat is mapped within the Study Area, documented occurrences are present within one mile of the Study Area, suitable habitat is present, and all PCEs are present within the Study Area.

CRPR = California Rare Plant Rank: 1B – rare, threatened, or endangered in California and elsewhere; 2B – rare, threatened, or endangered in California but more common elsewhere. Extension codes: .1 – seriously endangered; .2 – moderately endangered.

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Appendix C

Plant and Animal Species Observed in the Study Area

Family	Scientific Name	Common Name	
Native			
Asteraceae	*Achillea millefolium*	Common yarrow	--
Cupressaceae	*Sequoia sempervirens*	Coast redwood	--
Salicaceae	*Populus fremontii*	Fremont cottonwood	--
Verbenaceae	*Phyla nodiflora*	Common lippia	--
Non-native			
Apocynaceae	*Nerium oleander*	Oleander	--
Asteraceae	*Lactuca serriola*	Prickly lettuce	--
	Leontodon saxatilis	Hawkbit	
	Sonchus asper	Spiny sowthistle	
	Sonchus oleraceus	Common sowthistle	--
	Taraxacum officinale	Red-seeded dandelion	--
Caprifoliaceae	*Lonicera japonica*	Japanese honeysuckle	--
Euphorbiaceae	*Euphorbia serpens*	Matted sandmat	--
Fabaceae	*Trifolium hirtum*	Rose clover	Limited
Geraniaceae	*Erodium moschatum*	Musky stork's bill	--
Ginkgoaceae	*Ginkgo biloba*	Ginkgo	--
Lythraceae	*Lagerstroemia sp.*	Crape myrtle	--
Nyctaginaceae	*Bougainvillea sp.*	Bougainvillea	--
Plantaginaceae	*Plantago major*	Common plantain	--
Poaceae	*Cynodon dactylon*	Bermuda grass	Moderate
	Paspalum dilatatum	Dallisgrass	--
	Poa annua	Annual bluegrass	--
Polygonaceae	*Rumex crispus*	Curly dock	Limited
Rosaceae	*Pyrus calleryana*	Callery pear	--

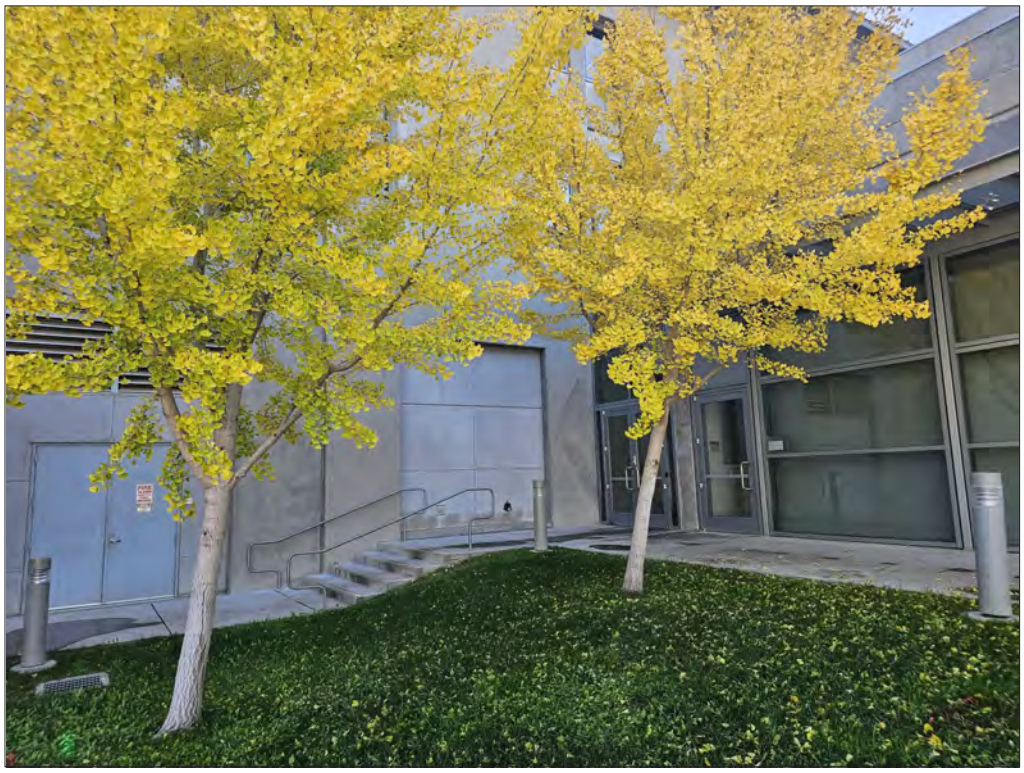
Cal-IPC Rating = Limited –; Moderate –; High
CDFA Rating = C –

Family	Scientific Name	Common Name
Birds		
Accipitridae	*Buteo jamaicensis*	Red-tailed hawk
Cathartidae	*Cathartes aura*	Turkey vulture
Charadriidae	*Charadrius vociferus*	Killdeer
Columbidae	*Zenaida macroura*	Mourning dove
Corvidae	*Aphelocoma californica*	California scrub jay
Parulidae	*Setophaga coronata*	Yellow-rumped warbler
Tyrannidae	*Sayornis nigricans*	Black phoebe

Appendix D

Representative Site Photographs

Photograph 1. Overview of cottonwoods and redwoods in varying stages of health within the Study Area. Taken November 12, 2024.



Photograph 2. View of ginkgo biloba trees within the Study Area. Taken November 12, 2024.

Photograph 3. View of crape myrtle trees, bougainvillea and oleander shrubs planted along annex buildings within the Study Area. Taken November 12, 2024.

Photograph 4. View of lawn within the Study Area. Dominant species include yarrow and plantago along with non-native grass species. Taken November 12, 2024.

Appendix E

Transportation Impact Analysis

FEHR PEERS

Memorandum

Date: January 23, 2025

To: Lesley Owning and Julia Pano, HELIX Environmental Planning, Inc.

From: Gillian Zhao, Grace Chen, and Ian Barnes, PE, Fehr & Peers

Subject: UC Merced COB3 CEQA Transportation Analysis

WC24-4141.00

This technical memorandum documents the California Environmental Quality Act (CEQA) transportation analysis results for the proposed UC Merced Classroom and Office Building 3 (COB3) Project (Project). The analysis is consistent with the requirements of California Senate Bill 743 (2013) and the State Office of Planning and Research's *Technical Advisory on Evaluating Transportation Impacts in CEQA* (OPR Technical Advisory). This memorandum also presents VMT estimates for Future (2046) scenarios and includes a site plan review that are supplementary to the CEQA transportation analysis.

Project Description

The Project, located at New Ranchers Road and Ansel Adams Road, proposes to construct a 61,640 square foot (sf) Classroom and Office Building. It would be constructed on the current site of the Academic Office Annex (AOA) modular trailers, and it is assumed that the AOA modular trailers would be demolished and recycled off-site. The total assignable square footage of COB3 would be 41,932 sf. The conceptual site plans and detailed program relevant to this analysis for the Project are in **Appendix A** of this memorandum.

VMT Methodology

The VMT analysis leverages the methodology used as part of the UC Merced 2020 Long Range Development Plan (LRDP) Environmental Impact Report (EIR), which demonstrated the relative VMT efficiency of the campus compared to other uses in the County and is consistent with the OPR Technical Advisory. The metrics were also used to environmentally clear other Projects such as the Medical Educational building (the 2021 Medical Education Building Study).[1]

The latest 2022 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) Merced County Association of Governments Model (MCAG Model) was used as the basis of estimating regional

[1] VMT Impact Analysis for the UC Merced Medical Education Building Project and 2020 LRDP (Fehr & Peers, June 30, 2021)

and Project total VMT and VMT per capita. The MCAG Model includes a base year of 2023 and multiple forecast years, including 2024, 2025, 2026, 2029, 2031, 2037, and 2046. The MCAG Model contains land use, roadway network, and travel characteristics information for Merced County, and divides the county into several traffic analysis zones (TAZs). The 2023 Base Year model was used as the Baseline model for this analysis. The forecast years are consistent with the expected build-out of the 2020 LRDP.

The model allows calculation of VMT based on the trip generation of each land use and the trip lengths for each trip. The models were reviewed and adjusted as described below to facilitate the VMT analysis.

MCAG Model Adjustments

Land Use

The MCAG Model land uses reflect the Merced County Association of Governments (MCAG) 2022 RTP/SCS for the land uses and roadway network outside of the UC Merced campus. However, an examination of the land use files in the model revealed that the model does not contain the correct Baseline and projected campus employees and student populations. Therefore, TAZs that contain the campus were updated to reflect the correct campus populations under Baseline conditions (year 2023) and under future scenarios. Since the model does not include specific student housing land use, the trip generation characteristics of on-campus housing were modified to reflect on-campus housing trip generation characteristics.

The MCAG Model does not include any development on the Virginia Smith Trust (VST) property to the south of the campus. In the event that new housing is constructed on the VST property by 2030, it is reasonable to assume that some of the students, faculty, and staff would choose to live on the VST property in close proximity to the campus, rather than in other housing more distant from the campus. This would have the effect of lowering the VMT of the campus population. Therefore, additional analysis scenarios were prepared that include the VST property located south of the campus.[2] It is assumed that phase 1 will be constructed by 2030 and phase 2 (full build-out) will be constructed by 2046.

The 2023 Baseline, 2030 Forecast, and 2046 LRDP housing, population, and employment for Merced County and the City of Merced, as included in the updated MCAG Model, are summarized in **Table 1**. The land use for the VST development south of the campus is shown in **Table 2.**

[2] Peck Planning and Development LLC, 'Building with Phasing Dates', transmitted to UC Merced on February 26, 2021.

Table 1: Housing, Population, and Employment in the Updated MCAG Model

Area	Households	Population	Employees
2023 Baseline			
City of Merced	30,240	99,788	35,883
Merced County	88,419	290,865	92,435
2030 Forecast			
City of Merced	35,572	117,716	38,681
Merced County	100,533	331,665	98,380
2046 Forecast (LRDP)			
City of Merced	40,900	142,682	45,076
Merced County	114,022	384,148	110,751

Note: The values for the County include those within the City of Merced.
Source: MCAG Travel Demand Model, 2024; Fehr & Peers, 2025

Table 2: VST Land Use (Phases 1 and 2)

	Single Family	Multi-Family	Retail Employees[1]	Office Employees[2]
Phase 1	343	1,726	650	908
Phase 2	1,298	2,619	1,174	2,998

Notes:
1. Retail employees estimated by Fehr & Peers using 3.3 employees per thousand square feet.
2. Office employees estimated by Fehr & Peers using 2 employees per thousand square feet.

Source: Peck Planning, March 2021

Roadway Network

The roadway networks in the MCAG Model are consistent with the 2022 MCAG RTP/SCS. The Network for the 2030 and 2046 with VST Development scenarios have been updated to reflect connectivity between the VST Development south of the campus and the existing roadway network.

Analysis Scenarios

The campus populations for the Baseline Year (2023), the COB3 Project, and Build-Out of the LRDP are shown in **Table 3**. The campus populations for the Baseline Year and for the LRDP Build-Out are consistent with the populations used for the 2021 Medical Education Building Study. Based on the detailed program (see **Appendix A**) proposed for the COB3 Project, the building is assumed to serve a total of 1,110 students and 126 faculty and staff. The full development of the 2046 LRDP would result in 15,000 students, including 7,200 residents, and 2,411 faculty and staff.

Table 3: Campus Populations by Scenario

Scenario	On-Campus Students	Off-Campus Students	Total Students	Faculty and Staff
Baseline	3,667	5,333	9,000	1,269
COB3 (Addition)	0	1,110	1,110	126
LRDP Build-Out	7,200	7,800	15,000	2,411

Source: UC Merced, 2024

The following scenarios were analyzed, and their results are included in the **Evaluation of VMT Impacts section** of this memorandum:

- Base Year (2023) No Project (Baseline)
- Base Year (2023) Plus Project
- Future (2030) No Project
- Future (2030) Plus Project
- Future (2030) No Project with VST Development
- Future (2030) Plus Project with VST Development

In addition, VMT estimates for the following scenarios were calculated and are included in the **Future (2046) VMT estimates section** of this memorandum:

- Future (2046) with LRDP Build-Out
- Future (2046) with LRDP Build-Out with VST Development

VMT Metrics and Significance Thresholds

This analysis uses VMT metrics and thresholds of significance consistent with the recommendations presented in the Technical Advisory, guidance from the University and the Project team, as well as the 2021 Medical Education Building Study. **Table 4** presents the metrics and significance thresholds.

Table 4: VMT Metrics and Significance Threshold

Metric	Significance Threshold
1. Project home-work VMT per worker	Impact would be less than significant if the campus home-work VMT per worker is at least 15 percent below the existing regional (Merced County) average home-work VMT per worker
2. Regional (countywide) average home-work VMT per worker	Impact would be less than significant if there is no increase in the forecasted regional (Merced County) average home-work VMT per worker due to the Project

Note: For this analysis, all campus faculty, staff, and students are considered workers. This is because the campus functions as a workplace not only for faculty and staff, but for students who attend class, study, and conduct research on-site.
Source: MCAG Travel Demand Model, 2024; Fehr & Peers, 2025

To evaluate the transportation impacts of the campus, all new faculty, staff and students added to the campus as a result of the Project or the 2046 LRDP were considered workers and their transportation effect was assessed relative to Metric 1 and Metric 2. This is because the campus functions as a workplace not only for faculty and staff, but for students who attend class, study and conduct research on-site.

Metric 1 is recommended in the Technical Advisory for use in evaluating the transportation impacts of Projects involving employment land uses. The concept underlying is to compare the Project's transportation efficiency (Project VMT per worker), with the existing regional efficiency (regional VMT per worker) and to determine whether the Project would be more or less efficient than the existing region. If the Project is sufficiently more efficient, it would result in a less than significant transportation impact. As noted earlier and in the table above, in order to be considered more efficient and result in a less than significant impact, the Project's VMT per capita must be at least 15 percent below the existing regional VMT per capita.

The regional average is defined as the Merced Countywide average. Since the campus is located in Merced County and most students and staff live in Merced County (about 90 percent and 60 percent, respectively), Merced County was chosen as the regional comparison metric. The average VMT per worker includes all home-work trips, i.e., all trips made between the home and the workplace.

With regard to cumulative impacts, the Technical Advisory notes that "[a] Project that falls below an efficiency-based threshold that is aligned with long-term environmental goals and relevant plans would have no cumulative impact distinct from the Project impact. Accordingly, a finding of a less-than-significant Project impact would imply a less than significant cumulative impact, and vice versa. This is similar to the analysis typically conducted for greenhouse gas emissions, air quality impacts, and impacts that utilize plan compliance as a threshold of significance." As this analysis uses efficiency-based metrics listed in **Table 4** above (i.e., Metric 1), VMT metrics that analyze cumulative impacts are not required. Nevertheless, for the 2021 Medical Education Building Study, the University has developed Metric 2 to evaluate whether the addition of worker population to the study area as a result of campus growth would have the potential to cause the forecasted regional VMT per capita to increase compared to the no Project conditions.

Metric 2 is designed to estimate whether the addition of new workers (defined to include not just new faculty and staff who would work at the campus but also all additional students who would travel to the campus for classes or to jobs on or off campus) to the region due to the proposed Project would result in a change in the forecasted (2030) regional average VMT per worker. Any increase in the forecasted regional average VMT per worker due to the addition of the campus population would be considered a significant cumulative impact. Conversely, if there is no increase in the forecasted regional average VMT per worker due to the Project, the cumulative impact would be less than significant.

CEQA VMT Analysis Results

This section presents the CEQA VMT impact analysis results for the Project. This analysis below is related to CEQA Guidelines Transportation Checklist Question A.

Baseline VMT Metrics

Table 5 presents the Baseline VMT metrics based on the current (2023) populations of the campus and the region (Merced County). For the Baseline Year, the campus generates substantially lower home-work VMT per worker than the county as a whole: 9.6 total home-work VMT per campus worker versus 16.0 total home-work VMT per worker regional average. Factors that underlie these results include the following:

- Students (listed as part of workers in the table as noted) tend to have lower auto ownership than typical county residents.
- Students living on campus generate nearly zero VMT for their home-work trips between campus housing and campus class/study/research locations.
- The campus is located near Merced County's largest population center, providing greater opportunities for off-campus residents to live relatively close to the campus.

Table 5: Baseline Year (2023) VMT Results

Metric	Regional	Campus
Workers	113,779	10,269
Total Home-Work VMT	1,821,591	98,829
Home-Work VMT per Worker	**16.0**	**9.6**

Note: For this analysis, all campus faculty, staff, and students are considered workers. This is because the campus functions as a workplace not only for faculty and staff, but for students who attend class, study, and conduct research on-site. Source: MCAG Travel Demand Model, 2024; Fehr & Peers, 2025

COB3 Project VMT Impact

Table 6 presents the VMT results for the COB3 Project development relative to Metric 1. As **Table 6** shows, Project home-work VMT per campus worker for the Plus Project scenarios would be 9.7, 8.3, and 8.2, for Base Year (2023) Plus Project, Future (2030) Plus Project, and Future (2030) Plus Project with VST Development, respectively. They are substantially less than the Metric 1 threshold value of 13.6. Therefore, the implementation of the COB3 Project would result in a ***less-than-significant*** Project VMT impact under all study scenarios.

Table 7 presents the VMT results for the COB3 Project development relative to Metric 2. As **Table 7** shows, countywide home-work VMT per worker for the Plus Project scenarios would be 15.9, 11.5, and 11.4, for Base Year (2023) Plus Project, Future (2030) Plus Project, and Future (2030) Plus Project with VST Development, respectively. They are either identical or less than the Metric 2 threshold values of 16.0, 11.5, and 11.4. Thus, implementation of the Project would not contribute to an increase in the forecasted regional (countywide) average VMT metric and therefore would result in a ***less-than-significant*** cumulative impact under all study scenarios.

Table 6: COB3 Project VMT Impact – Metric 1

Metric	Base Year (2023) No Project	Base Year (2023) Plus Project	Future (2030) No Project	Future (2030) Plus Project	Future (2030) No Project with VST Development	Future (2030) Plus Project with VST Development
Workers (Campus)	10,269	11,505	10,269	11,505	10,269	11,505
Total home-work VMT (Campus)	98,829	112,082	83,492	95,045	82,848	94,328
Project home-work VMT per worker (Campus)	**9.6**	**9.7**	**8.1**	**8.3**	**8.1**	**8.2**
Regional average home-work VMT per worker (County)	16.0	15.9	11.5	11.5	11.4	11.4
Metric 1 threshold: Project home-work VMT per worker is 15% below countywide average	13.6	---	---	---	---	---
Is the Project home-work VMT per worker at least 15% below countywide average?	---	Yes	---	Yes	---	Yes
Significant CEQA Impact Requiring Mitigation?	**---**	***No***	**---**	***No***	**---**	***No***

Note: For this analysis, all campus faculty, staff, and students are considered workers. This is because the campus functions as a workplace not only for faculty and staff, but for students who attend class, study, and conduct research on-site.
Source: MCAG Travel Demand Model, 2024; Fehr & Peers, 2025

Table 7: COB3 Project VMT Impact – Metric 2

Metric	Base Year (2023) No Project	Base Year (2023) Plus Project	Future (2030) No Project	Future (2030) Plus Project	Future (2030) No Project with VST Development	Future (2030) Plus Project with VST Development
Workers (County)	113,779	115,015	120,853	122,089	122,411	123,647
Total home-work VMT (County)	1,821,591	1,830,845	1,391,199	1,397,956	1,400,467	1,407,231
Home-work VMT per worker (County)	**16.0**	**15.9**	**11.5**	**11.5**	**11.4**	**11.4**
Metric 2 threshold: Does the forecasted home-work VMT per worker increase with the Project?	---	No	---	No	---	No
Significant CEQA Impact Requiring Mitigation?	**---**	***No***	**---**	***No***	**---**	***No***

Note: For this analysis, all campus faculty, staff, and students are considered workers. This is because the campus functions as a workplace not only for faculty and staff, but for students who attend class, study, and conduct research on-site.
Source: MCAG Travel Demand Model, 2024; Fehr & Peers, 2025

Future (2046) VMT estimates

Table 8 includes the Future (2046) VMT estimates calculated for the with LRDP Build-Out scenario and the with LRDP Build-Out with VST Development scenario. The Project is part of the overall LRDP and has been cleared through the LRDP EIR; thus, this information is provided only for consistency purposes.

Table 8: Future (2046) VMT Estimates

Metric	Future (2046) with LRDP Build-Out		Future (2046) with LRDP Build-Out with VST Development	
	Regional	Campus	Regional	Campus
Workers	140,385	17,411	144,557	17,411
Total home-work VMT	1,561,847	142,277	1,573,558	140,058
Home-work VMT per worker	**11.1**	**8.2**	**10.9**	**8.0**

Note: For this analysis, all campus faculty, staff, and students are considered workers. This is because the campus functions as a workplace not only for faculty and staff, but for students who attend class, study, and conduct research on-site. Source: MCAG Travel Demand Model, 2024; Fehr & Peers, 2025

Other Required CEQA Transportation Topics

Evaluation of Bicycle, Pedestrian, and Transit Impacts

A Project would result in a significant bicycle, pedestrian, or transit impact if it would disrupt or interfere with any existing or planned bicycle, pedestrian, or transit facilities, or if the proposed Project would result in a physical change that would be inconsistent with policies in the City of Merced's *Merced Vision 2030,* Merced County *2030 Merced County General Plan,* or the University of California, Merced *2020 Long Range Development Plan* (LRDP). These analyses are related to CEQA Guidelines Transportation Checklist Question A.

Pedestrian Facilities

There are existing sidewalks near the block where the Project site is located, along both New Ranchers Road and Ansel Adams Road, leading to the Project site. However, the sidewalk terminates at the Project site, indicating that there are no existing sidewalk facilities directly adjacent to the Project frontage. The attached conceptual site plans indicate that the Project would maintain the existing pedestrian facilities. It also indicates that the Project would construct sidewalks along the Project frontage. The proposed sidewalks would improve the pedestrian network by connecting the sidewalks on New Ranchers Road and Ansel Adams Road. The sidewalks, curb, gutter, and lighting would be consistent with General Plan policies and UC Merced design standards, where needed to accommodate new building construction or renovations.

Additionally, pedestrian connection to the existing sidewalk facilities would be supported by a proposed paseo on the first floor of the Project. As illustrated in the conceptual site plans, the paseo along with the

plaza areas would provide connection between the Project and surrounding campus facilities including the COB, the COB2, and the UC Merced Library. It also connects the Project to existing pedestrian facilities at Carol Tomlinson-Keasey Quad, Scholars Lane, New Ranchers Road, and Ansel Adams Road. The two primary connections include the path between the UC Merced Library and the COB as well as the path between the UC Merced Library and the COB2.

In summary, the Project would provide new pedestrian facilities that connect to the existing pedestrian network, linking to campus buildings, bicycle and vehicle parking, and transit stops. It would not disrupt or interfere with any existing or planned pedestrian improvements or result in a physical change that would be inconsistent with any pedestrian-related policies in the 2020 LRDP. Therefore, the Project would result in a ***less-than-significant*** pedestrian impact.

Bicycle Facilities

The nearest existing bicycle facilities is located near the UC Merced Library, which is approximately 750 feet southwest of the Project site. A Class IV Bikeway is present along Scholars Lane between UC Merced Library and Emigrant Pass Road. It terminates at Emigrant Pass Road as well as at the driveway leading to the parking lot for the library. As such, there are no existing bicycle facilities present along the Project frontage. Meanwhile, as illustrated in the conceptual site plans, the Project proposes a connection between the Project site and Scholars Lane through the plaza area that would support bicycle usage and connect the Project to existing bicycle facilities at Scholars Lane.

Figure 3.4 Bicycle Circulation Map in the 2020 LRDP envisions a variety of Class I, II and IV bikeways throughout campus. The four types of bikeways, including Class III bike routes, are defined as follows:

- Class I - Typically called a "bike path," a Class I bikeway provides bicycle travel on a paved right-of-way completely separated from any street or highway.
- Class II - Often referred to as a "bike lane," a Class II bikeway provides a striped and stenciled lane for one-way travel on a street or highway.
- Class III - Generally referred to as a "bike route," a Class III bikeway provides for shared use with pedestrian or motor vehicle traffic and is identified only by signing.
- Class IV - Cycle tracks or separated bikeways provide a right-of-way designated exclusively for bicycle travel adjacent to a roadway and which are protected from vehicular traffic.

Specifically, the Bicycle Circulation Map indicates the following bicycle facilities adjacent to the Project site:

- Class IV Bikeway along Ranchers Road between Ansel Adam Road and Emigrant Pass Road
- Class I Bike Path along Ansel Adams Road between Ranchers Road and Mineral King Road, transitioning into a Class II Bike Lane along Loop Road, before connecting to until a Class I Bike Path along Bellevue Road

While the envisioned bicycle facilities would support the 2020 LRDP's goal of expanding and enhancing the campus multi-model circulation network, the LRDP also states that the maps are intended to serve as a tool to inform future decisions. Immediate construction of bicycle facilities along the Project frontage would create gaps in the bicycle network, as the bicycle facilities at the adjacent parcels' frontage both west and south of the Project are currently undeveloped. For this reason, the Project would dedicate the necessary right-of-way for future construction of the bicycle facilities along the Project frontage once specific details become available.

The Project would not disrupt or interfere with the existing or planned bicycle facilities and would not result in any physical change that would be inconsistent with bicycle-related policies identified in the General Plans and the 2020 LRDP. Therefore, the proposed Project would result in a ***less-than-significant*** bicycle impact.

Transit Facilities

CatTracks provides bus service between UC Merced and local destinations in the City of Merced. The campus is currently served by Route C1, C2, E1, FastCat, FastCat 2, G Route, Yosemite Express and BobCat Express. Additionally, Merced's Regional Transit System "The Bus" provides bus service between UC Merced and the City through Route UC Merced. All routes include a single stop on the UC Merced campus at the University Transit Center. It is approximately 0.5 miles southwest of the Project site and is accessible via existing bicycle and pedestrian infrastructure.

The Project would not disrupt or interfere with existing or planned transit services and would not result in a physical change that would be inconsistent with any transit-related policies identified in the General Plans and the 2020 LRDP. Therefore, the Project would result in a ***less-than-significant*** transit impact.

Evaluation of Vehicle System Hazard Impacts

The following analyses are related to CEQA Guidelines Transportation Checklist Question C.

The Project is an academic development proposed in a Campus Mixed Use area as identified in the 2020 LRDP, so the volume, speed, and mix of vehicles generated by the Project would be similar to the existing volume, speed, and mix of vehicles in the study area.

According to the conceptual site plans, the Project is located at the corner of Ansel Adams Road and New Ranchers Road. It does not propose any driveways to and from the building, except for a service drive off Ansel Adams Road, as shown in the conceptual site plans in **Appendix A**. A service drive is a designated driveway that provides access for operational and logistical purposes, rather than general public use. As such, modification to the existing public roadway system is expected to be minor. Ansel Adams Road has a posted speed limit of 5 miles per hour. The width of the driveway is approximately 20 feet. The throat length of the driveway, when measured from the roadway to the first conflict point, is approximately 90 feet. The length when measured from the back of sidewalk is approximately 70 feet. The throat length and width would be adequate for service vehicles entering and exiting.

Stopping sight distance is a critical factor that ensures drivers have enough time and space to stop to avoid hazards. According to Table 201.1 of the Caltrans *Highway Design Manual*, the stopping sight distance at 10 miles per hour is 50 feet, indicating that the sight distance at 5 miles per hour would be lower than 50 feet. The sight distance entering the Project site at the service driveway appears to be more than 50 feet, indicating that the sight distance should be adequate. It is strongly recommended that the final site plans be reviewed for potential sight distance impediments including new signs, above ground utility boxes, or landscaping proposed in the sight triangle.

Overall, the Project does not introduce incompatible uses to the roadway system, nor would it introduce geometric features that would result in hazardous conditions. Thus, implementation of the Project would result in a ***less-than-significant*** vehicle system hazard impact.

Evaluation of Emergency Access Impacts

The following analyses are related to CEQA Guidelines Transportation Checklist Question D.

While the Project does not include any internal vehicular circulation system, it proposes a service driveway which would support operational and logistics purposes as well as support fire access. The width of the driveway is approximately 20-feet wide, which is sufficient for emergency vehicle access. The driveway would be constructed according to State of California design standards for roadway and intersection design and operations. It is strongly recommended that the final conceptual site plans be subject reviewed and approved by UC Merced's Physical & Environmental Planning department. The review and approval process would also include the Fire Department, which would include a review of the proposed Project's consistency with the City and Campus's design criteria to ensure that viable emergency vehicles movements are provided. Therefore, implementation of the Project would be consistent with an applicable design standard and the proposed Project would result in a ***less-than-significant*** emergency access impact.

Site Plan Review

This section provides recommendations for site access and circulation for vehicles, pedestrians, and cyclists that are additional to the CEQA compliance analysis. The recommendations provided in this section are not CEQA mitigation measures and are provided for informational purposes only.

There is no existing on-street parking directly in front of the Project site, and the conceptual site plans do not propose any on-street parking. The nearest parking access to the Project site is located at Library Lot 1 and Le Grand Faculty/Staff Lot, both approximately 750 feet from the Project site to the southwest and east, respectively.

The Project proposes new sidewalks that connect existing sidewalks along Ansel Adams Road and New Ranchers Road. It also proposes the construction of a paseo which would provide pedestrian connectivity and circulation through the COB3 between the plaza and Ansel Adams Road. The plaza area also indicates bicycle access to and from the Project site, as it is paved and sufficiently wide to accommodate both pedestrian and bicyclists.

The following recommendations aim to enhance wayfinding, improve pedestrian and bicycle mobility, and promote active transportation:

- Use prominent signs and pavement markings to explicitly indicate how bicyclists and pedestrians are expected to use the plaza area
- Add signage and informational maps to provide better wayfinding for pedestrians and bicyclists to circulate around/through the Project site
- Add wayfinding signage to different parking areas (Library parking, faculty and staff parking, bike parking) and to the transit stop
- Provide secure bicycle parking such as bike lockers and bike rooms

Conclusion

This completes our CEQA Transportation assessment for the proposed UC Merced COB3 Project. While this memorandum also includes a site plan review and presents VMT estimates for Future (2046) scenarios, they are supplementary to the CEQA Transportation assessment.

Results of the CEQA Transportation assessment indicate that Project CEQA Transportation impacts, including VMT, roadway system hazards/geometric features, pedestrian facilities, bicycle facilities, transit facilities, and emergency access are ***less-than-significant***.

Appendix A: Conceptual Site Plan and Detailed Program

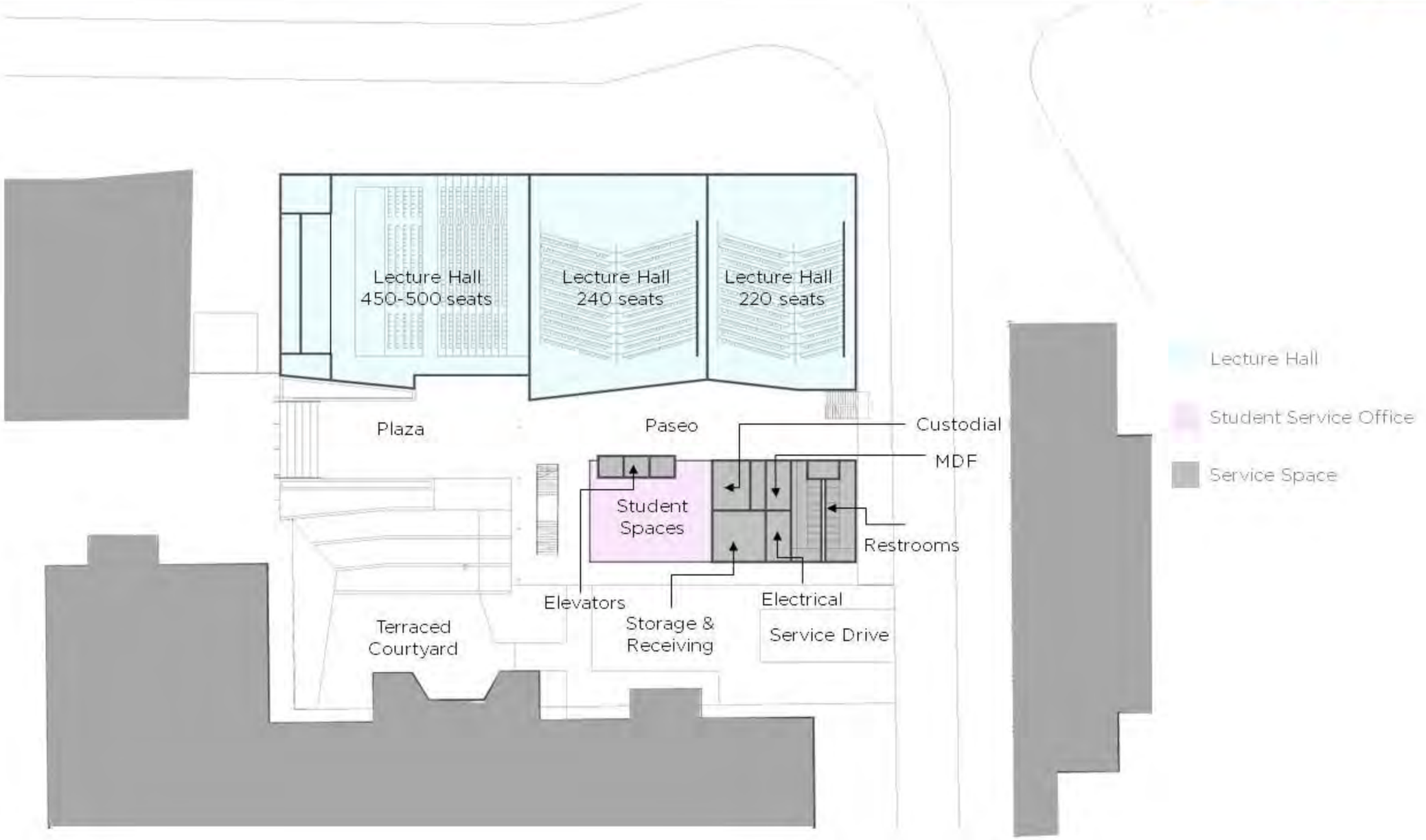
Classroom and Office Building 3 (COB3)

Appendix I - Full Detailed Program **9/19/2024**

Program Element:	Qty:	Sq Ft:	Extended Sq Ft:	Notes:	Stakeholder Contact:
Department of Political Science					
Ladder Ranked Faculty Offices	18	118	2124	individual space	Courtenay Monroe
Non-Senate Faculty Office Space	1	160	160	3 per space	
Post Doc Office Space	2	118	236	2 per space	
Graduate Student Workstations	21	48	1008	2 per workstation	
Social Science Labs	6	500	3000	research labs	
TA Offices	2	118	236	Small desk and a table for 2-3	
Administrative & Program Offices	2	118	236	shared office space/includes printer area	
CAPE Primary Collaborative Area	1	750	750	(CAPE Suite on the 1st floor)	Nathan Monroe
CAPE Offices	2	118	236	One individual/one shared	
CAPE Workstations	2	48	96		
CAPE Storage / Kitchen Nook	1	150	150		
SSHA Administrative Office Suite					
Administrative Offices	4	118	472	shared offices	Megan Topete
Administrative Workstations	6	65	390		
Small Conference Room	1	325	325	Seats 12-14, Zoom capable	
Huddle Room	1	140	140	Seats 4-6, Zoom capable	
Kitchenette Alcove	1	100	100		
Waiting area	1	160	160	includes printer/mailroom alcove	
Manager, Graduate Student Services	1	118	118		
Graduate Student Service Specialists	3	118	354		
Graduate Student Support Workstations	2	65	130		
Graduate Student area Huddle Room	1	140	140	Seats 4-6, Zoom capable	
Waiting Area	1	160	160	includes printer alcove	
Undergraduate SSHA Advising Offices	8	118	944	Desk & a table for 2-3	Brenda Maldonado-Rosas
Health Advising Office	1	118	118		
Manager & Asst Manager Offices	2	118	236	Desk & a table for 2-3	
Navigator Spaces	3	118	354		
Huddle Rooms	2	140	280	Seats 4-6, Zoom capable	
Degree Completion Advisors	2	118	236	Desk & a table for 2-3	
Advising Office Waiting Area	1	250	250		
Breakroom/Storage/Printer area	1	260	260		
Advising Area Workstations	2	48	96		
Student Academic Support Space					
Tutoring (large)	2	700	1400	tables/chairs	Alisha Kimble/Amy Bergerson
Tutoring (medium sized)	2	600	1200		
Tutoring Student Commons	1	600	600	Lounge/Kitchenette/Microwave	
Tutoring Offices	2	118	236	shared office	
Honor's Suite - waiting/common area	1	200	200		Alisha Kimble/Amy Bergerson
Honor's Administrative Offices	2	118	236	one individual/one shared	
Honor's workstations	2	65	130		
Honor's Small Meeting Room	1	200	200	Seats 6-8, Zoom capable	
Honor's Storage/Kitchenette	1	150	150		
Student Common Space					
Student Lounge/Kitchenette	1	700	700	Standing height kitchen counter/bar kitchen /soft seating/tables/chairs	Megan Topete
Student Study Space/Alcoves	1	250	250		
Student Storage Space	1	150	150		
CREATE Space					
Director's Office	1	118	118	individual space	Laura Martin
Asst Director/Program Coordinator	2	118	236	shared space	
Workstations	2	65	130		
Huddle Room	1	140	140	seats 4-6, Zoom capable	
Storage	1	80	80		
Common Space					
Lobby	1	1000	1000	Including space for artwork	
Large Conference Room	1	800	800	Seats 30-32, Zoom capable	
Medium Conference Rooms	2	400	800	Seats 15-16, Zoom capable	
Collaborative/Breakroom	1	650	650	Standing height kitchen counter/bar kitchen/soft seating/table chairs	

Program Element:	Qty:	Sq Ft:	Extended Sq Ft:	Notes:	Stakeholder Contact:
Instructional Space					
Auditorium w/stage	1	7,500	7500	Goal: auditorium should have as much "performance capability" as can be provided but should have seats that allow for a surface for note/exam taking	Amy Bergerson Josh Reinhold Jodon Bellofatto Rachel Leigh Bellofatto
Control Room	1	150	150		
Green Room	1	200	200	Mirrors, Soft Seating, Sink, Refrigerator	
Gender Inclusive Restrooms	2	63	126		
Large Lecture Hall	1	5100	5100	Circular - seats 292	
Control Room	1	150	150		
Medium Lecture Hall	1	4675	4675	Case Style - fixed tables/swivel chairs - seats 250	
Control Room	1	150	150		
Storage / Receiving Area	1	250	250		
Lactation Room	1	100	100	sink	
Shower/Gender Neutral Restroom	1	180	180	4-6 day lockers	
Custodial Storage	1	150	150	metro shelving	
Custodial Rooms	3	100	300	include corner floor sink/drain	
		Total Assignable Sq Ft:	41,932		
		Total Gross Sq Ft:	61,640		

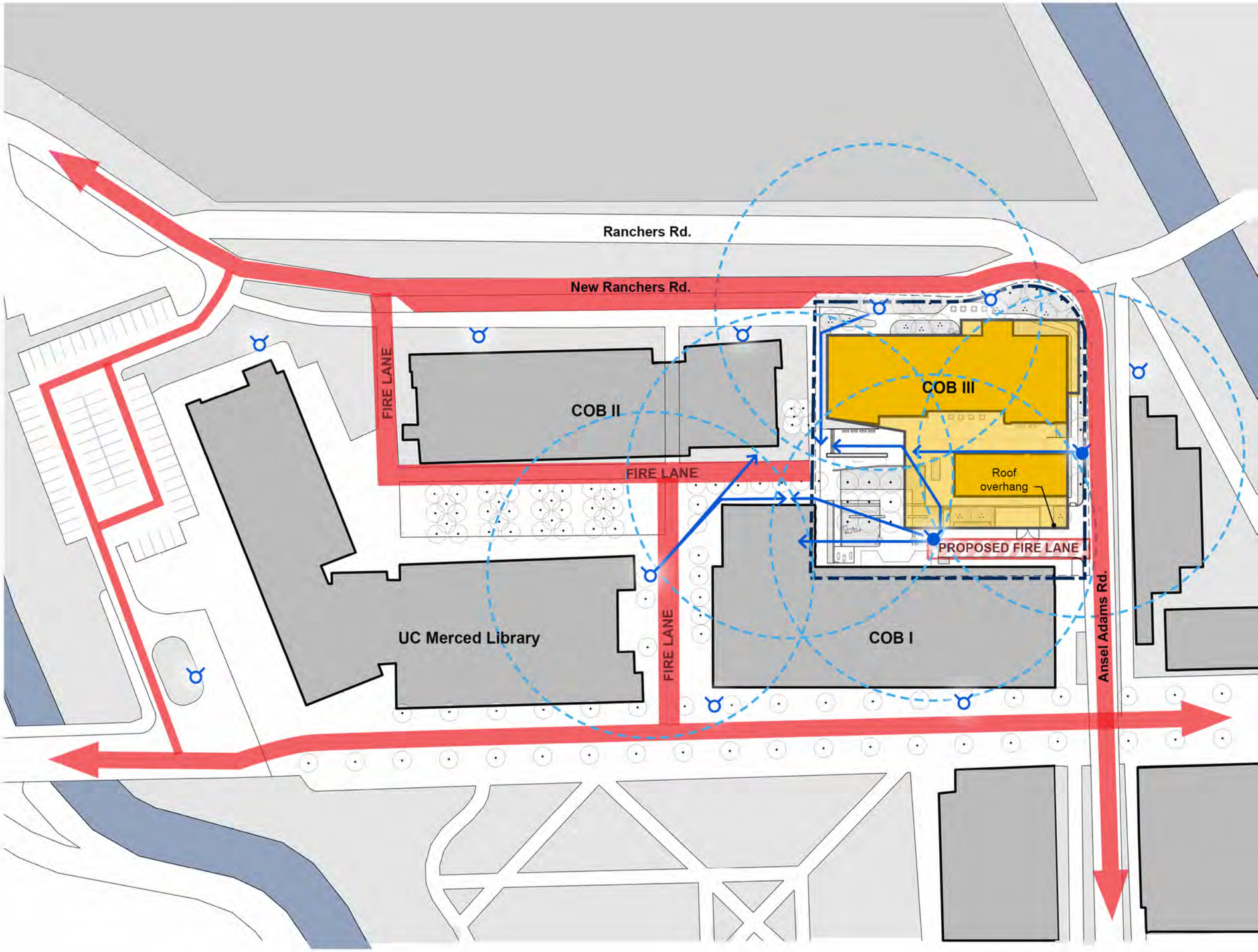
COB III | First Floor Plan



Fire Access

LEGEND

- Fire Access
- 150’ Hose Pull
- 150’ Hose Radius
- Proposed Fire Hydrant
- Existing Fire Hydrant
- COB 3 Limit of Work



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Appendix F

Applicable Mitigation Measures

APPLICABLE MITIGATION MEASURES

The following is a comprehensive list of all the mitigation measures from the 2020 LRDP SEIR and 2009 LRDP EIS/EIR that are applicable to the proposed project:

AESTHETICS

2009 LRDP MM AES-3a: UC Merced shall design all new aboveground infrastructure on the campus to the following standards: (a) Screen aboveground infrastructure from view from public rights-of-way or scenic vistas, via landscaping, fencing, or other architectural screening; (b) Require creative design measures to camouflage structures by integrating them with existing buildings and among other existing uses; (c) Locate aboveground infrastructure on sites that are not visible from visually sensitive areas, such as residential communities and open space areas; (d) Require providers to co-locate their structure on a single site, where technically feasible and visually desirable; and (e) Locate antennae and equipment on other existing community facility sites, such as water tanks or utility poles.

AIR QUALITY

2020 LRDP MM AQ-1a: The construction contractors shall be required via contract specifications to use construction equipment rated by the USEPA as meeting Tier 4 (model year 2008 or newer) emission limits for engines between 50 and 750 horsepower.

2020 LRDP MM AQ-1b: UC Merced shall include in all construction contracts the measures specified in SJVAPCD Regulation VIII (as it may be amended for application to all construction projects generally) to reduce fugitive dust impacts, including but not limited to the following:

- All disturbed areas, including storage piles, which are not being actively utilized for construction purpose, shall be effectively stabilized of dust emissions using water, chemical stabilizer/suppressant, or vegetative ground cover.

- All on-site unpaved roads and off-site unpaved access roads shall be effectively stabilized of dust emissions using water or chemical stabilizer/suppressant.

- All land clearing, grubbing, scraping, excavation, land leveling, grading, cut and fill, and demolition activities shall be effectively controlled of fugitive dust emissions using application of water or by presoaking.

- When materials are transported off-site, all material shall be covered, effectively wetted to limit visible dust emissions, or at least 6 inches of freeboard space from the top of the container shall be maintained.

- All operations shall limit or expeditiously remove the accumulation of mud or dirt from adjacent public streets at least once every 24 hours when operations are occurring. (The use of dry rotary brushes is expressly prohibited except where preceded or accompanied by sufficient wetting to limit visible dust emissions. Use of blower devices is expressly forbidden.)

- Following the addition of materials to, or the removal of materials from, the surface of outdoor storage piles, storage piles shall be effectively stabilized of fugitive dust emissions by using sufficient water or chemical stabilizer/ suppressant.

2020 LRDP MM AQ-2a: UC Merced shall implement the following measures to reduce emissions from vehicles:

- Provide pedestrian-enhancing infrastructure to encourage pedestrian activity and discourage vehicle use.
- Provide bicycle facilities to encourage bicycle use instead of driving, such as bicycle parking, bicycle lanes, bicycle lockers, and showers and changing facilities for employees.
- Provide preferential carpool and vanpool parking for non-residential uses.
- Provide transit-enhancing infrastructure to promote the use of public transportation, such as covered bus stops and information kiosks.
- Provide facilities such as electric car charging stations and a CNG refueling station to encourage the use of alternative-fuel vehicles.
- Improve traffic flows and congestion by timing of traffic signals at intersections adjacent to the campus to facilitate uninterrupted travel.
- Work with campus transit provider to replace CatTracks buses with either electric buses or buses operated on alternative fuels.
- Work with the City of Merced to establish park and ride lots and provide enhanced transit service between the park and ride lots and the campus.
- Replace campus fleet vehicles with electric vehicles or vehicles that operate on alternative fuels.
- Reduce the number of daily vehicle trips by providing more housing on campus.

2020 LRDP MM AQ-2b: UC Merced shall implement the following measures to reduce emissions from area and energy sources, as feasible:

- Utilize low-VOC cleaning supplies and low-VOC paints (100 grams/liter or less) in building maintenance.
- Utilize electric equipment for landscape maintenance.
- Plant low maintenance landscaping.
- Implement a public information program for resident students to minimize the use of personal consumer products that result in ROG emissions, including information on alternate products.
- Instead of natural gas water heaters, install solar water heating systems.

BIOLOGICAL RESOURCES

2020 LRDP MM BIO-9a: Avoid and minimize impacts on native birds protected under the MBTA, including listed species, fully protected species, special-status species of concern, and raptors and passerines.

- Limit ground disturbance activities to the non-breeding season and remove potential unoccupied breeding habitat during the non-breeding season if possible. If breeding season work is required, conduct take avoidance (tree, shrub, and ground) nest surveys to identify and avoid active nests.

    - If feasible, UC Merced shall conduct all project-related activities including (but not limited to) tree and shrub removal, other vegetation clearing, grading, or other ground disturbing activities during the non-breeding season (typically between September 16 and February 14).

    - If activities are scheduled to occur during the breeding season (typically between February 15 through September 15), applicable CDFW and/or USFWS permit conditions in the permits issued to the University related to bird surveys must be followed. In addition, a UC Merced-approved qualified avian biologist, with knowledge of the species to be surveyed, shall conduct focused nesting surveys within 15 days prior to the start of project or ground-disturbing activities and within the appropriate habitat. The qualified avian biologist shall determine the exact survey duration and location (typically 500 feet around the work area) based on the work conditions and shall take into account existing applicable CDFW or USFWS permit conditions.

    - If an unoccupied nest (without birds or eggs) of a non-listed or fully protected species (as determined by the qualified avian biologist) is found, the nest shall be removed under the direction of the qualified avian biologist.

    - If an active nest is located, a qualified avian biologist shall establish an appropriate no-disturbance buffer around the nest making sure that any buffer width required by the University's permit obligations is followed. A 500-foot buffer is recommended for listed or fully protected nesting birds (or another buffer determined in consultation with CDFW and/or USFWS), a 250-foot buffer around raptors, and a 75-foot buffer around passerines. If work activities cause or contribute to a bird being flushed from a nest, the buffer width shall be adjusted to avoid and minimize impacts to nesting birds.

    - A qualified avian biologist shall monitor the nest site regularly during work activities to ensure that the nest site is not disturbed, the buffer is maintained and the success or failure of the nest is documented.

    - If UC Merced elects to remove a nest tree, nest trees may only be removed after the qualified avian biologist has determined that the nests are unoccupied.

    - If an active nest is causing a safety hazard, CDFW shall be contacted to determine if the nest can be removed.

2020 LRDP MM BIO-9b: New buildings and structures proposed under the 2020 LRDP shall incorporate bird-safe design practices (for example, American Bird Conservancy's Bird-Friendly Building Design

[2015] or San Francisco Planning Department's Standards for Bird-Safe Buildings [2011]). The UC Merced Physical and Environmental Planning Department shall review the final designs of the buildings and structures to determine that appropriate bird safety designs have been effectively incorporated to reduce potential impacts to birds. The following design strategies shall be considered in the design of buildings and structures:

- Create building facades with "visual noise" via cladding or other design features that make it easier for birds to identify buildings and not mistake windows for open sky or trees.
- Incorporate windows that are not clear or reflective into the building or structure designs.
- Use windows that incorporate glass types such as UV-A or fritted glass and windows that incorporate UV-absorbing and UV-reflecting stripe.
- Use grid patterns on windows in locations with the highest potential for bird-window collisions (e.g., windows at the anticipated height of adjacent vegetation at maturity). Reduce the proportion of glass to other building materials in new construction.
- Avoid placement of bird-friendly attractants (i.e. vegetated roofs, water features, tall trees) near glass whenever possible.
- Install motion-sensitive lighting in any area visible from the exterior that automatically turn lights off during after-work hours.

CULTURAL RESOURCES

2009 LRDP MM CUL-2: If buried cultural resources, such as chipped or ground stone, historic debris, building foundations, or non-human bone are inadvertently discovered during ground-disturbing activities on the campus, work will stop in that area and within 100 feet of the find until a qualified archaeologist can assess the significance of the find and, if necessary, develop appropriate treatment measures. Treatment measures typically include development of avoidance strategies or mitigation of impacts through data recovery programs such as excavation or detailed documentation.

If cultural resources are discovered during construction activities, the construction contractor and lead contractor compliance inspector will verify that work is halted until appropriate treatment measures are implemented in coordination with the USACE and UC Merced.

2009 LRDP MM CUL-3: If human remains of Native American origin are discovered during ground disturbing activities, the campus and/or developer will comply with state laws relating to the disposition of Native American burials, which falls within the jurisdiction of the California Native American Heritage Commission (Public Resources Code Section 5097). If human remains are discovered or recognized in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until:

- The coroner of Merced County has been informed and has determined that no investigation of the cause of death is required; and
- If the remains are of Native American origin; the descendants from the deceased Native Americans have made a recommendation to the land owner or the person responsible for the excavation work, for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in Public Resources Code Section 5097.98; or

- The California Native American Heritage Commission was unable to identify a descendant or the descendant failed to make a recommendation within 24 hours after being notified by the Commission.

GEOLOGY AND SOILS

2009 LRDP MM GEO-2: During project-specific building design, a site-specific geotechnical investigation shall be performed by a Certified Engineering Geologist or Licensed Geotechnical Engineer to assess detailed seismic, geologic, and soil conditions at each construction site. The study shall include an evaluation of liquefaction potential, slope stability, landslide potential, expansive and compressible soils, and other structural characteristics and shall identify specific geotechnical recommendations designed to mitigate for the site hazards. The geotechnical recommendations will be followed.

HAZARDS AND HAZARDOUS MATERIALS

2009 LRDP MM HAZ-4: In the event that nonpermitted disposal sites, trash burn pits, wells, underground storage devices, or unknown hazardous materials are encountered during construction on the campus site, construction activities would cease until all contaminated areas are identified and remediated or removed. This process of identification and remediation or removal would be coordinated with the Merced County Division of Environmental Health.

HYDROLOGY AND WATER QUALITY

2020 LRDP MM C-HYD-2: UC Merced shall work with the regional water agencies, including the City of Merced and MID, to develop programs to expand conjunctive use capabilities, increase recharge, and reduce groundwater demand.

NOISE

2020 LRDP MM NOI-3: Prior to initiation of construction on a project that is within 500 feet of off-site residential receptors, UC Merced shall develop and implement a construction noise mitigation program for that project that includes but is not limited to the following:

- Construction activities within 500 feet of any residences shall be restricted to the hours of 7:00 AM and 6:00 PM on weekdays and Saturdays with no construction on Sundays and holidays.

- All noise-producing project equipment and vehicles using internal combustion engines shall be equipped where appropriate with exhaust mufflers and air-inlet silencers in good operating condition that meet or exceed original factory specifications.

- Mobile or fixed “package” equipment (e.g., arc-welders, air compressors) shall be equipped with shrouds and noise control features that are readily available for that type of equipment.

- All mobile or fixed noise-producing equipment used on the project that is regulated for noise output by local, state or federal agency shall comply with such regulation while engaged in project-related activities.

- Electrically powered equipment shall be used instead of pneumatic or internal combustion powered equipment, where practicable.

- Material stockpiles, mobile equipment staging, construction vehicle parking, and maintenance areas shall be located as far as practicable from noise- sensitive land uses.

- Stationary noise sources such as generators or pumps shall be located away from noise-sensitive land uses as feasible.

- The use of noise-producing signals, including horns, whistles, alarms, and bells, shall be for safety warning purposes only. No project-related public address loudspeaker, two-way radio, or music systems shall be audible at any adjacent noise-sensitive receptor except for emergency use.

- The erection of temporary noise barriers shall be considered where project activity is unavoidably close to noise-sensitive receptors.

- The noisiest construction operations shall be scheduled to occur together to avoid continuing periods of the greatest annoyance, wherever possible.

- Construction vehicle trips shall be routed as far as practical from existing residential uses.

- The loudest campus construction activities, such as demolition, blasting, and pile driving, shall be scheduled during summer, Thanksgiving, winter, and spring breaks when fewer people would be disturbed by construction noise.

- Whenever possible, academic, administrative, and residential areas that will be subject to construction noise shall be informed a week before the start of each construction project.

PUBLIC SERVICES AND RECREATION

2020 LRDP MM PUB-6a: UC Merced shall work with the County to avoid physical deterioration of existing facilities at Lake Yosemite Regional Park, and/or improve park facilities within the existing park site as necessitated by the increased uses associated with development of the campus.

2020 LRDP MM PUB-6b: UC Merced will pay its fair share of the cost of necessary improvements to the regional park. UC Merced's share of funding will be based on the percentage that on-campus residential population represents of the total population in eastern Merced County at the time that an improvement is implemented.

2020 LRDP MM PUB-6c: In recognition of the sensitive resources present on lands immediately adjacent to the regional park, all regional park improvement projects that are implemented by the County within 250 feet of the park's eastern boundary pursuant to LRDP Mitigation Measures PUB-6a and PUB-6b above, will implement mitigation measures to avoid and minimize indirect effects on biological resources.