



**Initial Study/Mitigated Negative Declaration
for the**

**UNIVERSITY OF CALIFORNIA, RIVERSIDE
SCHOOL OF MEDICINE EDUCATION BUILDING II**

PROJECT NO. 954045

Lead Agency
University of California, Riverside
Planning, Design & Construction
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TABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
I. PROJECT INFORMATION	1
1. PROJECT TITLE	1
2. LEAD AGENCY NAME AND ADDRESS.....	1
3. CONTACT PERSON AND PHONE NUMBER	1
4. PROJECT LOCATION	1
5. PROJECT SPONSOR'S NAME AND ADDRESS	1
6. CUSTODIAN OF THE ADMINISTRATIVE RECORD FOR THIS PROJECT	1
7. IDENTIFICATION AND LOCATION OF ENVIRONMENTAL IMPACT REPORT(S) BEING RELIED ON FOR TIERING	1
II. PROJECT DESCRIPTION.....	5
1. PROJECT LOCATION	5
2. ENVIRONMENTAL SETTING.....	5
3. CONSISTENCY WITH THE 2005 LRDP AMENDMENT 2	6
4. CODE COMPLIANCE AND REGULATION	6
5. PROPOSED PROJECT	7
6. RELATIONSHIP TO THE 2005 LONG RANGE DEVELOPMENT PLAN AMENDMENT 2	13
7. DISCRETIONARY APPROVALS	14
8. HAVE CALIFORNIA NATIVE AMERICAN TRIBES TRADITIONALLY AND CULTURALLY AFFILIATED WITH THE PROJECT AREA REQUESTED CONSULTATION PURSUANT TO PUBLIC RESOURCES CODE SECTION 21080.3.1?	15
III. ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED	17
IV. DETERMINATION (To be Completed by the Lead Agency).....	17
V. EVALUATION OF ENVIRONMENTAL IMPACTS	19
1. Aesthetics.....	20
2. Agriculture and Forestry Resources.....	26
3. Air Quality.....	28
4. Biological Resources.....	45
5. Cultural Resources.....	53
6. Energy.....	59
7. Geology and Soils	66
8. Greenhouse Gas Emissions.....	73
9. Hazards and Hazardous Materials	79
10. Hydrology and Water Quality.....	87

11.	Land Use and Planning	97
12.	Mineral Resources	103
13.	Noise	104
14.	Population and Housing	112
15.	Public Services	114
16.	Recreation	120
17.	Transportation	122
18.	Tribal Cultural Resources	138
19.	Utilities and Service Systems	142
20.	Wildfire	150
21.	Mandatory Findings of Significance	154
VI.	SUPPORTING INFORMATION SOURCES	158
VII.	REPORT PREPARERS	162

TABLES

<u>Table</u>	<u>Page</u>
1	Attainment Status of Criteria Pollutants in the South Coast Air Basin..... 33
2	South Coast Air Quality Management District Air Quality Significance Thresholds 35
3	Modeled Construction Equipment
4	Maximum Daily Regional Construction Emissions for the Proposed Project 38
5	Peak Daily Operational Emissions for the Proposed Project 39
6	LST Results for Daily Construction Emissions
7	LST Results for Daily Operations Emissions
8	Construction-Related Energy Use..... 63
9	Estimated Project Construction Greenhouse Gas Emissions
10	Estimated Gross Annual Greenhouse Gas Emissions – Proposed Project 76
11	Noise from Construction of the Proposed Project By Phase..... 107
12	Project Trip Generation
13	Senate Bill 743 Recommended Significance Thresholds..... 129
14	VMT Screening Criteria..... 129

FIGURES

<u>Figure</u>		<u>Follows Page</u>
1	Regional and Local Vicinity	5
2	UCR Campus Map	5
3	Aerial	5
4	Conceptual Site Plan.....	8
5	Conceptual Site Plan and Vehicular Access	8
6a	Conceptual Wet Utilities Plan	9
6b	Conceptual Dry Utilities Plan.....	9
7	Construction Parking, Laydown and Staging Area.....	13
8a-f	Site Photographs.....	23
9a-b	Conceptual Site Sections	24
10a-d	Conceptual Massing/Program Stack	24
11	Conceptual Landscape Plan	24
12	Tree Inventory	25

APPENDICES

Appendix

- A Air Quality and Greenhouse Gas Emissions Calculations
- B Tree Inventory Report
- C Memorandum for the Record, Historic Resources Evaluation
- D Energy Analysis
- E Geotechnical Report
- F Noise Calculations
- G Traffic Memo

LIST OF ACRONYMS

µg/m ³	micrograms per cubic meter
AB	Assembly Bill
ACUPCC	American College and University Presidents' Climate Commitment
AQMD	Air Quality Management District
AQMP	Air Quality Management Plan
ASUCR	Associated Students of UCR
AVR	average vehicle ridership
BAU	business-as-usual
BMP	Best Management Practices
CalEEMod	California Emissions Estimator Model
CalGreen	California Green Building Standards Code
Caltrans	California Department of Transportation
CAP	Climate Action Plan
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CBC	California Building Code
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CHRIS	California Historical Resources Information System
CMP	Congestion Management Program
CNEL	Community Noise Equivalent Level
CO	Carbon monoxide
CRHR	California Register or Historic Resources
CSSS	Clinical Skills and Simulation Suite
CTMP	Campus Traffic Mitigation Program
cy	cubic yards
dBA	decibel
DOC	Department of Conservation
DTSC	Department of Toxic Substances Control
EFZ	Earthquake Fault Zone
EH&S	Environmental Health and Safety
EIC	Eastern Information Center
EIR	Environmental Impact Report
EMFAC	Emission Factors
EOP	Emergency Operations Plan
FAR	Floor Area Ratio
fc	foot candle
FMMP	Farmland Mapping and Monitoring Program
FTE	Full-Time Equivalent
GHG	Greenhouse gas emissions
gsf	Gross square feet
HCP	Habitat Conservation Plan
HHRA	Human Health Risk Assessment
HVAC	Heating, Ventilation, and Air Conditioning
I-215	Interstate 215
ICE	Internal combustion engine
IS/MND	Initial Study/Mitigated Negative Declaration

ITE	Institute of Transportation Engineers
kV	kilovolt
KW	Kilowatt
kWh	Kilowatt hours
lbs	pound
LACM	Natural History Museum of Los Angeles County
LEED	Leadership in Energy and Environmental Design
L _{eq}	Equivalent Noise Level
LID	Low impact development
LOS	Level of Service
LRDP	Long Range Development Plan
LST	Localized significance thresholds
MBTA	Migratory Bird Treaty Act
mgd	Million gallons per day
MM	Mitigation Measure
MMRP	Mitigation Monitoring and Reporting Program
MND	Mitigated Negative Declaration
MOU	Memorandum of Understanding
MPO	Metropolitan Planning Organizations
MS4	Municipal Separate Storm Sewer System Permit
MSHCP	Multiple Species Habitat Conservation Plan
MTCO _{2e}	metric tons carbon dioxide equivalent
MVA	Megavolt amps
NAHC	Native American Heritage Commission
ND	Negative Declaration
NDD	North District Development
NHPA	National Historic Preservation Action
No.	number
NOI	Notice of Intent
NO ₂	nitrogen dioxide
NO _x	Nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
O ₃	ozone
OFFROAD	Off-Road Diesel Analysis
OPR	Office of Planning and Research
PM-10	respirable particulate matter less than 10 micrometers in diameter
PM-2.5	fine particulate matter less than 2.5 micrometers in diameter
PP	Programs and Practices
ppm	parts per million
ppb	parts per billion
PRC	Public Resources Code
PS	Planning Strategy
Qvof	Quaternary very old alluvial fan
Qyf	Quaternary young alluvial fan
RCDWR	Riverside County Department of Water Resources
RFD	Riverside Fire Department
RPD	Riverside Police Department
RPU	Riverside Public Utilities
RTP/SCS	Regional Transportation Plan/Sustainable Communities Strategy

RUSD	Riverside Unified School District
RWQCP	Riverside Water Quality Control Plant
RWQCB	Regional Water Quality Control Board
SAP	Sustainability Action Plan
SB	Senate Bill
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCH	State Clearinghouse
SLF	Sacred Lands File
SO ₂	Sulfur dioxide
SoCAB	South Coast Air Basin
SoM	School of Medicine
SoM Ed. I	School of Medicine Education Building I
SoM Ed. II	School of Medicine Education Building II
SR-60	State Route 60
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TACs	Toxic air contaminants
TDM	Transportation Demand Management
The Regents	Board of Regents
TPA	Transit Priority Area
UC	University of California
UCPD	UC Police Department
UCR	University of California, Riverside
UNET	University Neighborhood Enhancement Team
USEPA	U.S. Environmental Protection Agency
USGBC	U.S Green Building Council
USFWS	U.S. Fish and Wildlife Service
UST	underground storage tank
UWMP	Urban Water Management Plan
VdB	vibration decibels
VMT	Vehicle miles traveled
VOC	Volatile organic compound
WDR	Waste discharge requirement
WRCOG	Western Riverside Council of Governments
WSC	Water Systems Consulting

**SCHOOL OF MEDICINE EDUCATION BUILDING II
UNIVERSITY OF CALIFORNIA, RIVERSIDE**

Project No. 954045

Initial Study and Environmental Checklist Form

I. PROJECT INFORMATION

1. PROJECT TITLE

School of Medicine Education Building II

2. LEAD AGENCY NAME AND ADDRESS

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Oakland, California 94607

3. CONTACT PERSON AND PHONE NUMBER

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4. PROJECT LOCATION

University of California, Riverside
Riverside, California 92521
(Refer to Figure 1 – Regional and Local Vicinity and Figure 2 – UCR Campus Map)

5. PROJECT SPONSOR'S NAME AND ADDRESS

University of California, Riverside
Planning, Design & Construction
1223 University Avenue, Suite 240
Riverside, California 92507

6. CUSTODIAN OF THE ADMINISTRATIVE RECORD FOR THIS PROJECT

Same as listed under No. 3 above

7. IDENTIFICATION AND LOCATION OF ENVIRONMENTAL IMPACT REPORT(S) BEING RELIED ON FOR TIERING

University of California, Riverside 2005 Long Range Development Plan Environmental Impact Report (referred to hereinafter as the 2005 LRDP EIR) and the University of California, Riverside 2005 Long Range Development Plan Amendment 2 Environmental Impact Report (referred to hereinafter as the 2005 LRDP Amendment 2 EIR) (collectively referred to as

the “2005 LRDP EIR”). The documents are available for review at the University of California, Riverside (UCR) Planning, Design & Construction office, at the address listed above in Section I.3 and online at <http://lrdp.ucr.edu/>.

Introduction

The environmental analysis for the proposed School of Medicine Education Building II project (herein referred to as SoM Ed. II, project or proposed project) is tiered from the 2005 LRDP EIR (State Clearinghouse [SCH] No. 2005041164), certified by the University of California (UC) Board of Regents (The Regents) in November 2005, as augmented, revised, and supplemented by the 2005 LRDP Amendment 2 EIR (SCH No. 2010111034) certified by The Regents on November 28, 2011. The 2005 LRDP Amendment 2 EIR is a supplement to the 2005 LRDP EIR and provides an analysis of only those environmental effects identified in the 2005 LRDP that changed as a result of the 2005 LRDP Amendment 2, which includes a revision to the land use map to allow for the location of a new School of Medicine (SoM) as well as other land use map changes; additional building space to accommodate the increased square footage requirements for the SoM; and the extension of the LRDP horizon year (described further below). The 2005 LRDP Amendment 2 EIR also includes an analysis of greenhouse gas (GHG) emissions resulting from development under the 2005 LRDP, as amended. The 2005 LRDP EIR and 2005 LRDP Amendment 2 EIR are Program EIRs and were prepared in accordance with the California Environmental Quality Act (CEQA) (*Public Resources Code* [PRC], Sections 21000, et seq., specifically, Section 21094), the State CEQA Guidelines (Title 14, *California Code of Regulations* [CCR], Sections 15000 et seq.), and the *University of California Procedures for the Implementation of CEQA*.

Section 15152(a) of the State CEQA Guidelines states, “Tiering refers to using the analysis of general matters contained in a broader EIR (such as one prepared for a general plan or policy statement) with later EIRs and negative declarations (NDs) on narrower projects; incorporating by reference the general discussions from the broader EIR; and concentrating the later EIR or ND solely on the issues specific to the later project.” CEQA and the State CEQA Guidelines encourage the use of tiered environmental documents to eliminate repetitive discussions of the same issues. As stated in the 2005 LRDP Amendment 2 EIR, “As authorized by Section 15168(c) of the State CEQA Guidelines, projects implementing the 2005 LRDP as revised by Amendment 2 will be examined in light of the 2005 LRDP EIR and this supplemental EIR to determine whether the potential environmental effects of the individual project were adequately addressed in these EIRs, and whether any additional mitigation measures are required.” Therefore, this Initial Study/Mitigated Negative Declaration (IS/MND) is hereby tiered from the 2005 LRDP EIR as supplemented and updated by the 2005 LRDP Amendment 2 EIR. The documents are available for review at the UCR Planning, Design & Construction office, at the address listed above in Section I.3, and online at <http://lrdp.ucr.edu/>.

The 2005 LRDP EIR analyzes the direct, indirect, and cumulative impacts resulting from the projected need for development of approximately 7.1 million gross square feet (gsf) of new academic, housing, and support space to accommodate a total enrollment of 25,000 students¹ by the academic year 2015/2016, for a total of 11.8 million gsf on the UCR campus with the 2005 LRDP buildout. The 2005 LRDP Amendment 2 EIR analyzes the direct, indirect, and cumulative impacts resulting from revisions to the 2005 LRDP land use map and an increase in the maximum building space on the campus from 11.8 million gsf to 14.9 million gsf to accommodate the SoM. The 2005 LRDP Amendment 2 does not change the projected enrollment level of 25,000 students but projects that this enrollment level will be attained in 2020/2021, five years later than projected

¹ Derived from 1 Full-Time Equivalent (FTE) = 1 Headcount. UCR uses a conversion rate of 1 FTE (0.95 rounded up) = 1 Headcount, and for the purposes of the 2005 LRDP EIR and for the proposed Amendment 2, 1 FTE = 1 Headcount with the “student” taking full course loads every quarter with graduation in four years.

in the 2005 LRDP. The 2005 LRDP Amendment 2 addresses a total projected on-campus faculty, staff, and visitor population of 16,393 persons (an increase of 5,852 persons associated with the SoM) within the same modified planning horizon. Measures to mitigate the significant direct, indirect, and/or cumulative impacts identified for UCR's projected development are identified in both the 2005 LRDP EIR and 2005 LRDP Amendment 2 EIR.

Section 15152(f)(3) of the State CEQA Guidelines instructs that when tiering, a later EIR or Negative Declaration shall be prepared only when, on the basis of an IS, the later project may cause significant effects on the environment that were not adequately addressed in the prior EIR(s) or ND(s). Significant environmental effects are considered to have been "adequately addressed" if the lead agency determines the following:

- (A) they have been mitigated or avoided as a result of the prior EIR and findings adopted in connection with that prior environmental report; or
- (B) they have been examined at a sufficient level of detail in the prior EIR to enable those effects to be mitigated or avoided by site-specific revisions, the imposition of conditions, or by other means in connection with the approval of the later project.

Following review of the proposed project and the analysis presented in the 2005 LRDP EIR as supplemented and updated by the 2005 LRDP Amendment 2 EIR, it has been determined that the proposed project is a "project" under CEQA that was not fully addressed in the Program EIRs; therefore, additional environmental review is required. Accordingly, this tiered IS has been prepared on the basis that UCR has proposed to adopt an MND.

In conjunction with certification of the 2005 LRDP Amendment 2 EIR and approval of the 2005 LRDP Amendment 2 EIR, The Regents also adopted a Mitigation Monitoring and Reporting Program (MMRP). The MMRP ensures that the 2005 LRDP Planning Strategies (PSs), Campus Programs and Practices (PPs), and Mitigation Measures (MMs), as revised by the 2005 LRDP Amendment 2 EIR, that are the responsibility of the UC, are implemented in a timely manner. The MMs are monitored by the appropriate campus entity and are reported on an annual basis. As individual projects, such as the proposed project, are designed and constructed, the projects include features necessary to implement relevant PSs, PPs, and MMs. Therefore, in accordance with The Regents' November 2011 approval of the 2005 LRDP Amendment 2 and certification of the associated Final EIR, all relevant PSs, PPs, and MMs have been incorporated into the proposed project description and would be implemented as a part of the proposed project and monitored through the approved MMRP. Relevant UCR PSs, PPs, and/or MMs are listed in the introduction to the analysis for each topical issue in Section V, Evaluation of Environmental Impacts, which are included in the project MMRP. In addition to PSs, PPs, and MMs from the MMRP relevant to the proposed project, this IS/MND includes new project-specific mitigation measures identified to reduce project-specific environmental impacts to a less than significant level (specifically related to vibration impacts during construction and impacts to cultural resources/tribal cultural resources).

In summary, this IS/MND provides a project-specific environmental analysis to determine if the proposed project would result in any new significant impacts not examined in the 2005 LRDP EIR as supplemented and updated by the 2005 LRDP Amendment 2 EIR, and/or if additional MMs beyond those adopted in the MMRP for the 2005 LRDP Amendment 2 would be required to reduce significant impacts. In accordance with the State CEQA Guidelines, an MND is the appropriate environmental document because, after incorporation of the identified MMRP and proposed project-specific MMs, the new potentially significant effects that would be caused by the proposed project would be mitigated to a less than significant level.

This IS, along with a Notice of Intent (NOI) to Adopt an MND, has been circulated by the SCH Office of Planning and Research (OPR) for review by State agencies and to any responsible agencies, trustee agencies, and interested parties, as required by CEQA, for a 30-day public review. Following receipt and evaluation of comments from agencies, organizations, and/or individuals, the UC will determine whether any substantial new environmental issues have been raised. The proposed project will subsequently be submitted to The Regents for consideration in spring 2021.

II. PROJECT DESCRIPTION

The project site is currently developed as a surface parking lot (Parking Lot D17), School of Medicine (SoM) modular trailer and associated parking (Parking Lot 40), a grab and go café (Scotty's Market), a greenhouse and headhouse (Greenhouse #6), an emergency and service access drive, above-ground electrical infrastructure, and other hardscape and landscape areas (see Figure 3 – Aerial Map). The proposed project would involve the demolition of the existing greenhouse and headhouse (Greenhouse #6), and removal of existing asphalt/concrete, landscape, and parking spaces in Parking Lot 40 and Parking Lot D17. The existing modular trailer would be relocated to an existing parking lot or paved area on campus. Subsequent to demolition activities, the proposed project would involve the construction of an approximately 120,000 gross square feet (gsf) School of Medicine Education Building II (SoM Ed. II) consisting of instructional, collaboration, and student life space, as well as office and support spaces. The proposed project will also include a service loading area, stationary equipment [e.g., heating, ventilation, and air conditioning (HVAC)], landscaping, fire and emergency and service access improvements, and other associated site improvements (see Figure 4 – Conceptual Site Plan).

More detailed information regarding the Project Description is provided below under “Proposed Project Components.”

1. PROJECT LOCATION

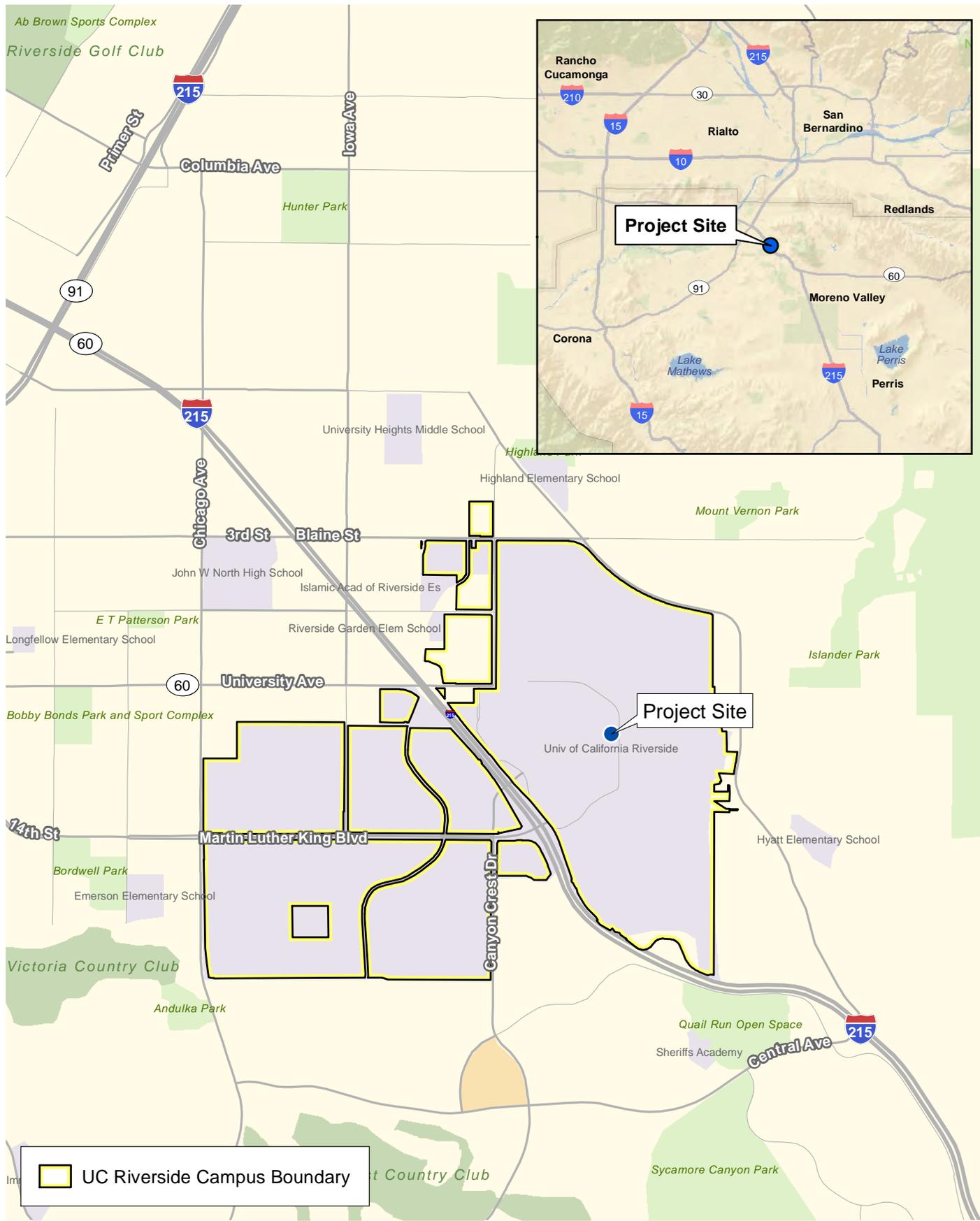
The UCR main campus is located within the City of Riverside, approximately two miles east of downtown Riverside and just west of Box Springs Mountains. The UCR campus is bisected by Interstate (I) 215/State Route (SR) 60 freeways. The approximately 3-acre project site encompasses the site of the existing SoM modular trailer, Parking Lot 40, Parking Lot D17, Scotty's Market, and Greenhouse #6 located at the eastern area of the UCR campus, west of East Campus Drive and east of Boyce Hall.

For purposes of this IS/MND, the project site includes the areas that would be subject to physical modifications to implement the proposed project, including, but not limited to, demolition of asphalt pavement, demolition of Greenhouse #6, removal of ornamental landscape, grading and construction of the new SoM Ed. II building, vehicular and non-vehicular circulation, hardscape and landscape, and infrastructure relocation/improvements, as described in this section.

Figure 1 shows the regional location and local vicinity for the proposed project; Figure 2 provides a map of the UCR campus, including the location of the proposed project; and Figure 3 shows an aerial photograph of the project site.

2. ENVIRONMENTAL SETTING

The 2005 LRDP EIR and 2005 LRDP Amendment 2 EIR include descriptions of the regulatory and environmental setting for the region, the County and City, and the UCR campus, though the 2005 LRDP Amendment 2 EIR largely focuses on the West Campus. The regulatory and environmental settings for many of the topics addressed in this IS/MND have not substantively changed since preparation of the 2005 LRDP EIR or the 2005 LRDP Amendment 2 EIR. Therefore, they are not wholly repeated in this document. Particularly relevant and site-specific details of the regulatory and environmental settings are summarized in this IS/MND. Additionally, updated regulations related to Air Quality, GHGs, Transportation, and Tribal Cultural Resources are incorporated in the environmental settings of that particular environmental topic. The following is a description of the environmental setting for the proposed project and surrounding areas.



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UC Riverside Campus Boundary

Regional Location and Local Vicinity

School of Medicine Education Building II



Figure 1



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Source: UCR 2016

UCR Campus Map

School of Medicine Education Building II



Figure 2





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Aerial Source: Esri, Maxar 2018

Aerial

School of Medicine Education Building II

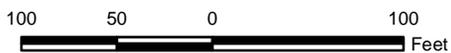


Figure 3



As shown on Figure 3, the approximately 3-acre project site is currently developed with the existing SoM modular trailer, Parking Lot 40, Parking Lot D17, Scotty's Market, Greenhouse #6, and associated hardscape, ornamental landscape, and above-ground electrical infrastructure. Parking Lot 40 and Parking Lot D17 currently contain a total of approximately 32 parking spaces. With implementation of the proposed project, approximately 19 parking spaces will be removed. Approximately 13 parking spaces will be relocated on the project site, which includes accessible and service parking. For purposes of this CEQA analysis, it is assumed that the existing SoM modular trailer would be relocated temporarily to Parking Lot 10, and then relocated permanently to an existing surface parking area within the Corporation Yard, or an existing 0.2-acre paved area, northwest of Parking Lot 30 on West Campus. See Figures 8a through 8f for photographs of the project site.

Surrounding land uses and facilities include the School of Medicine Education Building I (SoM Ed. I) (Academic) to the north, Boyce Hall (Academic) to the west, Greenhouses #6 through #10 (Academic) to the south, Batchelor Hall (Academic) to the southwest, the Botanic Gardens Detention Basin (Open Space) to the east and southeast, and a pedestrian walk to the north (Open Space).

Vehicular access to the project site is currently provided from East Campus Drive. Designated pedestrian pathways are located along East Campus Drive and the northern side of the site. Bicyclists currently share the roadway with vehicles along East Campus Drive.

Regionally, as with all of Southern California, the UCR campus lies within a seismically active area. There are no known active or potentially active faults within the project site or the immediate vicinity. The nearest active fault is the San Jacinto Fault Zone, located approximately 5.3 miles to the northeast.

3. CONSISTENCY WITH THE 2005 LRDP AMENDMENT 2

This proposed project is consistent with the 2005 LRDP Amendment 2 land use designation of Academic (UCR 2011). Therefore, no amendment to the 2005 LRDP is required. This site was selected for its proximity to other SoM facilities, including the SoM Ed. I, the School of Medicine Research Building, and the Orbach Science Library. The proposed project is sized at the maximum envelope of 120,000 gsf to be able to continue to provide services to the SoM program, similar to existing operations, and to accommodate an increase in SoM student enrollment and staff members that is consistent with the total campus population identified in the 2005 LRDP, as amended.

4. CODE COMPLIANCE AND REGULATION

The University is the authority having jurisdiction for matters of code regulations on University projects. The University complies with the Title 24 of the California Building Code (CBC), Parts 1 12 and all amendments. Each facility acts as a "local jurisdiction" complete with its own Building Official and locally administered code compliance program (similar to building officials in city or county jurisdictions).

All facilities owned, leased, designed, constructed, altered, or renovated with intent, or future intent, to support the mission of the University are under the jurisdiction and responsibility of the University and local Facility administration. Each Facility has a code compliance program to design, approve, construct, alter, renovate, inspect, and maintain its facilities in accordance with all applicable codes and regulations, and University policies. Codes and regulations include the CBC as adopted by the University, as well as applicable federal, State, and local agency regulations and legislation. The code compliance program applies to all activities at the facilities

that are subject to building codes and other related regulatory compliance, regardless of funding source, the party overseeing construction, or the ownership status of the improvements (UC 2018).

5. PROPOSED PROJECT

Purpose of the Project

The purpose of the proposed project is to create a new SoM facility that will allow the campus to adequately support existing programs and expand medical student enrollment to a level that will measurably reverse the region's severe physician shortage. UCR SoM is training a diverse workforce of physicians and developing innovative research and health care delivery programs that will improve the health of the medically underserved in the region. The goals of the proposed project include the following:

- Provide adequate space for the SoM MD Program to grow to a class size of 125, and a total student population of 500. This also includes incremental growth in faculty and staff to support the larger class size.
- The creation of a "home base" that is welcoming to not only faculty, students, and staff, but also to community partners and the community at large to facilitate interaction, help build synergies and partnerships, and support student success.
- Plan flexibly for the future needs and growth of the SoM by providing appropriate spatial configurations and adaptability.
- Create a central core of SoM facilities by considering the consolidation of SoM spaces within the new SoM Ed. II, and highly emphasizing the connection of the new SoM Ed. II building to the existing SoM Ed. I facility and future spaces planned within neighboring Orbach Science Library.

Proposed Project Components

UCR proposed the construction of a new, approximately 5 story (approximately 75 feet), 120,000 gsf SoM Ed. II building. The proposed project also includes landscape and hardscape improvements, service vehicle and emergency access improvements, a new pedestrian plaza that will replace an existing campus surface parking lot (Parking Lot D17), site amenities (e.g., bicycle racks, benches), site improvements around the existing Scotty's Market, and stationary equipment [e.g., heating, ventilation, and air conditioning (HVAC)]. The SoM Ed. II building would be similar in operations as the existing SoM Ed. I. Proposed uses in the SoM Ed. II building include instructional spaces (e.g., classrooms, lecture halls, and problem-based learning rooms); collaboration and student life spaces (e.g., student lounges, meeting rooms, study rooms, open study, a meditation room, and a lobby/reception area); and office and support spaces (e.g., staff lounges, conference rooms, support rooms, work stations, and enclosed offices).

All SoM staff currently at UC Path, which is located off-campus (14350 Meridian Pkwy, Riverside, CA 92518), will either be relocated into the proposed facility or into the SoM Ed. I. Some existing staff in the SoM Ed. I would move into the proposed SoM Ed. II facility. Over time, there would be an increase in approximately 65 net new staff/faculty, and an increase in approximately 225 net new students, bringing the total SoM staff/faculty population to 226 and the total enrollment of the SoM to 500 students, which is within with the total campus population identified in the 2005 LRDP, as amended.

There are three existing loading docks/loading areas on the proposed project site which serve Boyce Hall, the SoM Ed. I, and Scotty's Market that will either be improved or relocated to a consolidated service loading dock at the proposed SoM Ed. II building.

The existing SoM modular trailer would be relocated temporarily to Parking Lot 10, and then relocated permanently to an existing surface parking area within the Corporation Yard, or an existing paved area to the northwest of Parking Lot 30 on West Campus, all of which are fully disturbed and accessible via existing parking lots. To house departments currently located in the SoM modular trailer, approximately 3,675 gs of space in the SoM Ed. I building will be renovated to replace existing flooring, update aging ceiling tiles, and patch and paint walls, with several spaces requiring the demolition of existing casework/plumbing fixtures.

Site improvements will be made to improve pedestrian access, safety, and circulation, as well provide improved service and emergency and service vehicular access. The proposed plaza will be located on what is now Parking Lot D17 and will provide an outdoor gathering space with amenities such as landscaping and seating. Service vehicle access will be limited within the plaza, which will be designed to primarily accommodate pedestrians. Landscape improvements are proposed on the project frontage along East Campus Drive. Existing trees and vegetation within the project site are proposed to be removed.

Figure 4 shows the conceptual site plan.

Vehicle Circulation, Access, and Parking

The existing fire lane connected to Parking Lot 11 at the southwest corner of the site would be widened to serve the proposed project. It is a desire to consolidate the Boyce Hall, Scotty's Market, and the SoM Ed. I loading dock/loading area functions with a new loading dock at the SoM Ed. II building. This improved lane would provide emergency and service access to the consolidated loading dock for the proposed project. Alternatively, there is the potential for reduced service access to continue from East Campus Drive. Design measures in the proposed plaza will prioritize pedestrian safety and comfort. Emergency access to the project site would continue to be provided from East Campus Drive along the northern and southern perimeter of the proposed building in addition to access provided from the southwest. Emergency access to the SoM modular trailer relocation site would continue to be provided from West Linden Street if the SoM modular trailer is relocated to the Corporation Yard or continue to be provided from Martin Luther King Boulevard if the SoM modular trailer is relocated to the northwest area of Parking Lot 30.

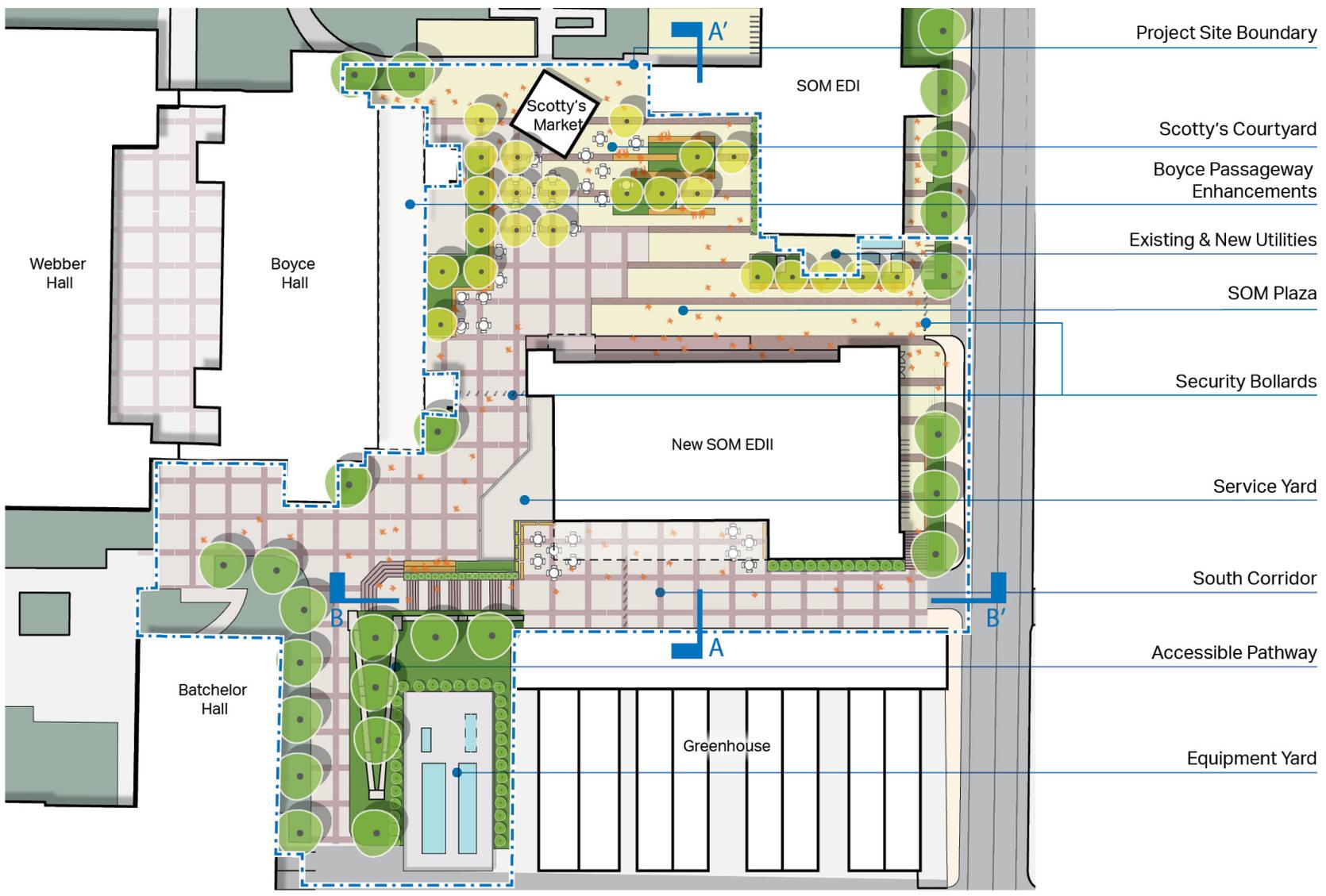
Currently, there are a total of approximately 32 parking spaces in Parking Lot 40 and Parking Lot D17. Approximately 19 parking spaces will be removed to accommodate both the proposed new facility and pedestrian plaza. Approximately 13 parking spaces will be retained on the project site, which includes approximately eight accessible parking spaces and six service parking spaces. Accessible parking spaces would also be provided in the existing parking Lot 10, Lot 13, and Parking Structure 1 (construction of Parking Structure 1 to be completed in 2021).

Figure 5 shows the conceptual site plan and vehicular access.

Pedestrian and Bicycle Circulation and Access

The main entrance to the SoM Ed. II building would be accessed from East Campus Drive for building users and visitors who park in Parking Lot 10, Lot 13, or Parking Structure 1 (Parking Structure 1 construction would be completed by spring 2021) northeast of the project site, or who arrive on foot or bicycle along East Campus Drive or via the proposed SoM plaza. A secondary entrance along the south façade is proposed with pedestrian site improvements that will provide

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Source: AECOM 2020

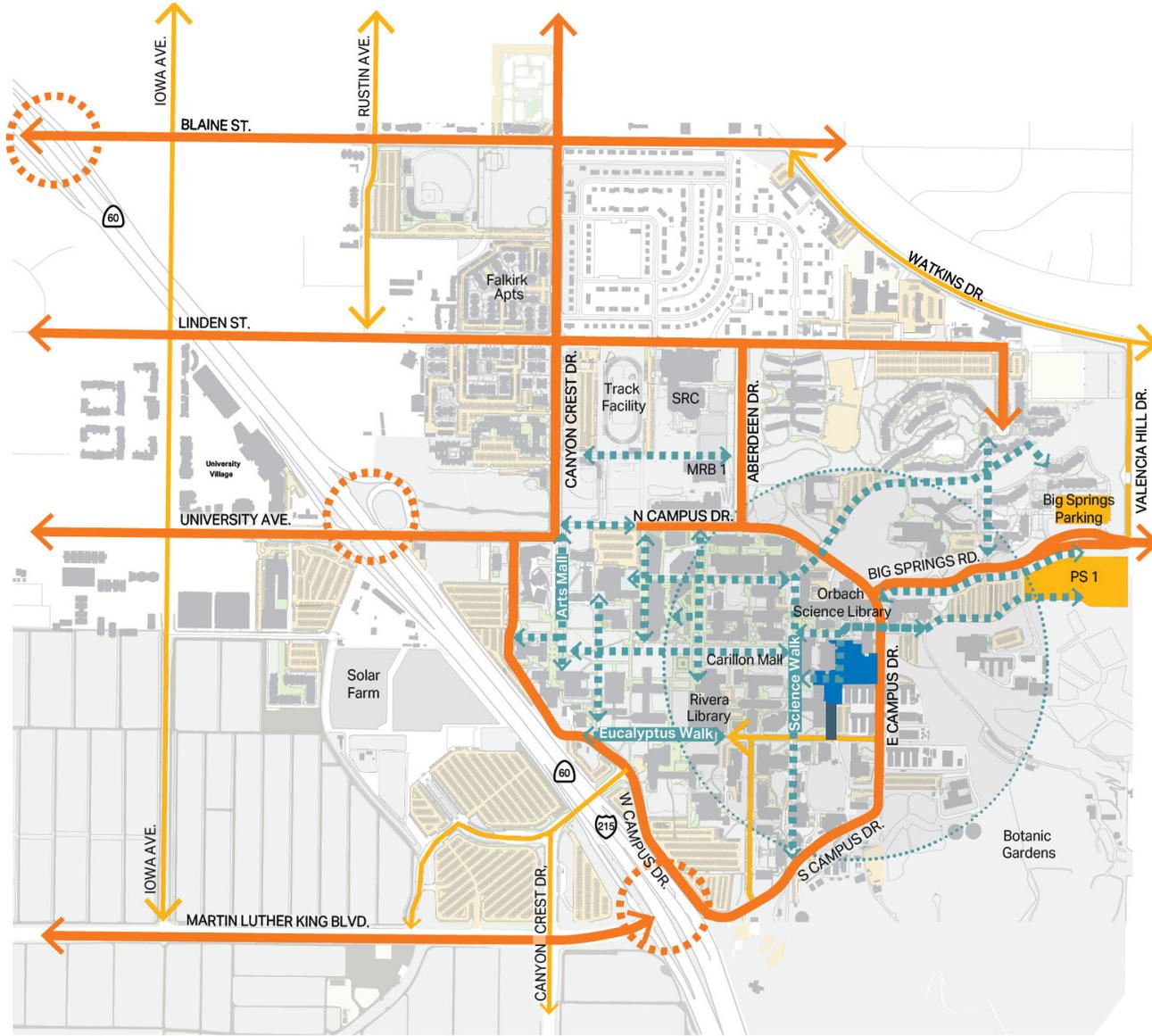
Conceptual Site Plan

School of Medicine Education Building II



Figure 4





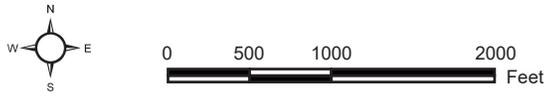
- LEGEND:**
- Project Site Boundary
 - Existing Building
 - Parking Structure
 - Open Space
 - Parking Lot
 - Primary Vehicular Circulation
 - Secondary Vehicular Circulation
 - Freeway Access
 - Pedestrian Circulation
 - 5 Minutes Walk Circle / 0.25 mile radius

Source: AECOM 2020

Conceptual Site Plan and Vehicular Access

Figure 5

School of Medicine Education Building II



an extension of the campus' east-west pedestrian circulation network by linking the Carillon Mall with East Campus Drive.

Existing pedestrian pathways at the southwest of the project site would be improved to connect to the proposed SoM plaza space (e.g., modifications to the loading area and arcade at Boyce Hall), and connecting the landscape across varying styles and approaches around the site itself. Bicyclists will have access to the site via bike lanes on East Campus Drive, and bicycle parking will be located on site.

The potential relocation sites for the existing SoM modular trailer, including Parking Lot 10 (temporary), the Corporation Yard, and the paved area northwest of Parking Lot 30, would be accessible via existing roadways and parking lots and no roadway improvements associated with these areas would be required.

Lighting and Security

Lighting installed on the project site would follow all campus standards. There would be architectural/landscape/hardscape lighting at the SoM Ed. II building, plaza, and project site. Exterior lighting is limited to pathway/plaza lighting and accent lighting and would be provided at a level of no less than one-foot candle (fc) with a color temperature between 3000° and 4000° kelvins (K). Exterior up lighting would not be used. The lighting design for the site would be carefully considered to prevent light spillage while providing a safe environment with minimal dark zones. All lighting would be reviewed by Planning, Design & Construction staff as to its coverage, intensity, and color temperature.

SoM Ed. II would be a secured facility with no public access to the rooftop areas. The building will be designed and constructed in compliance with all applicable codes that require the health and safety of all occupants, including suicide prevention.

Utilities and Services

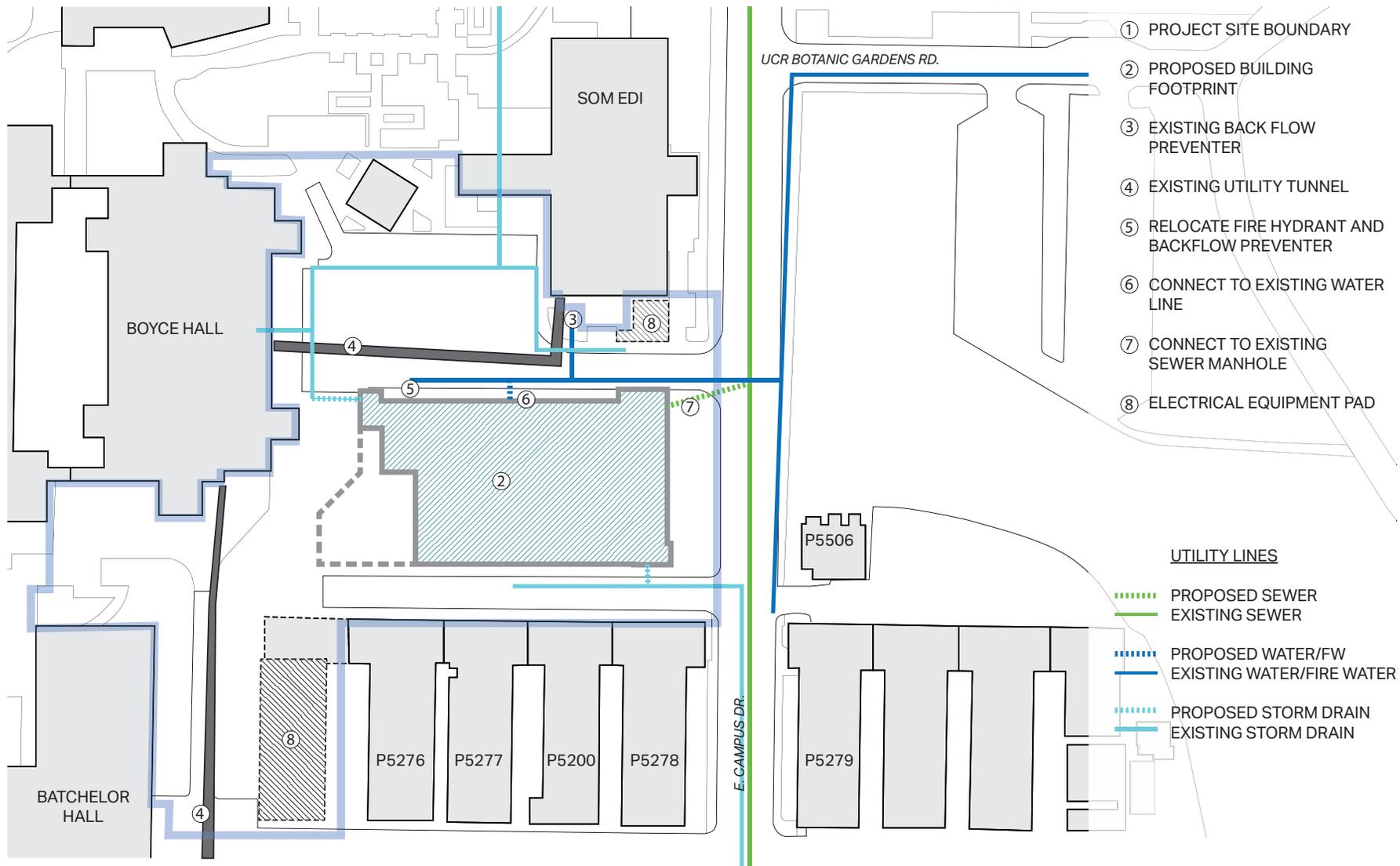
Connections to irrigation water, domestic water, sanitary sewer, storm drain, telecommunication, and electrical services would be established. Major upgrades to irrigation water, domestic water, sanitary sewer, storm drain, and telecommunication would not be required, but there may be minor re-routing.

Upgrades to the electrical services connection are needed due to the limited capacity in nearby existing electrical feeder circuits. The connection will be provided from the southwest of the site and will involve trenching through a portion of Parking Lot 11 (approximately 200 linear feet). At East Campus Drive, it will connect to an existing duct bank and vault system under Eucalyptus Drive, connecting to West Campus Drive and continuing to an existing vault near the University Substation.

All existing electrical equipment on site would be relocated to another area of the site that is less visible from East Campus Drive. This includes transformers and emergency distribution boards, a 2,500-kilowatt (KW) emergency generator, a transfer switchboard, a 4-way mega-volt (MV) switch for feeders, a generator emergency switchboard, and a 500 KW generator. No new generators are proposed for the project.

Figures 6a and 6b show the utility points of connection.

The potential permanent relocation sites for the existing SoM modular trailer, including the Corporation Yard and the paved area northwest of Parking Lot 30, would include connections to



- ① PROJECT SITE BOUNDARY
- ② PROPOSED BUILDING FOOTPRINT
- ③ EXISTING BACK FLOW PREVENTER
- ④ EXISTING UTILITY TUNNEL
- ⑤ RELOCATE FIRE HYDRANT AND BACKFLOW PREVENTER
- ⑥ CONNECT TO EXISTING WATER LINE
- ⑦ CONNECT TO EXISTING SEWER MANHOLE
- ⑧ ELECTRICAL EQUIPMENT PAD

UTILITY LINES

- PROPOSED SEWER
- EXISTING SEWER
- PROPOSED WATER/FW
- EXISTING WATER/FIRE WATER
- PROPOSED STORM DRAIN
- EXISTING STORM DRAIN

Source: AECOM 2020

Conceptual Wet Utilities Plan

School of Medicine Education Building II

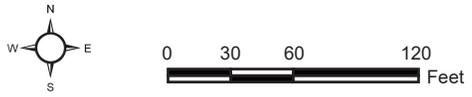
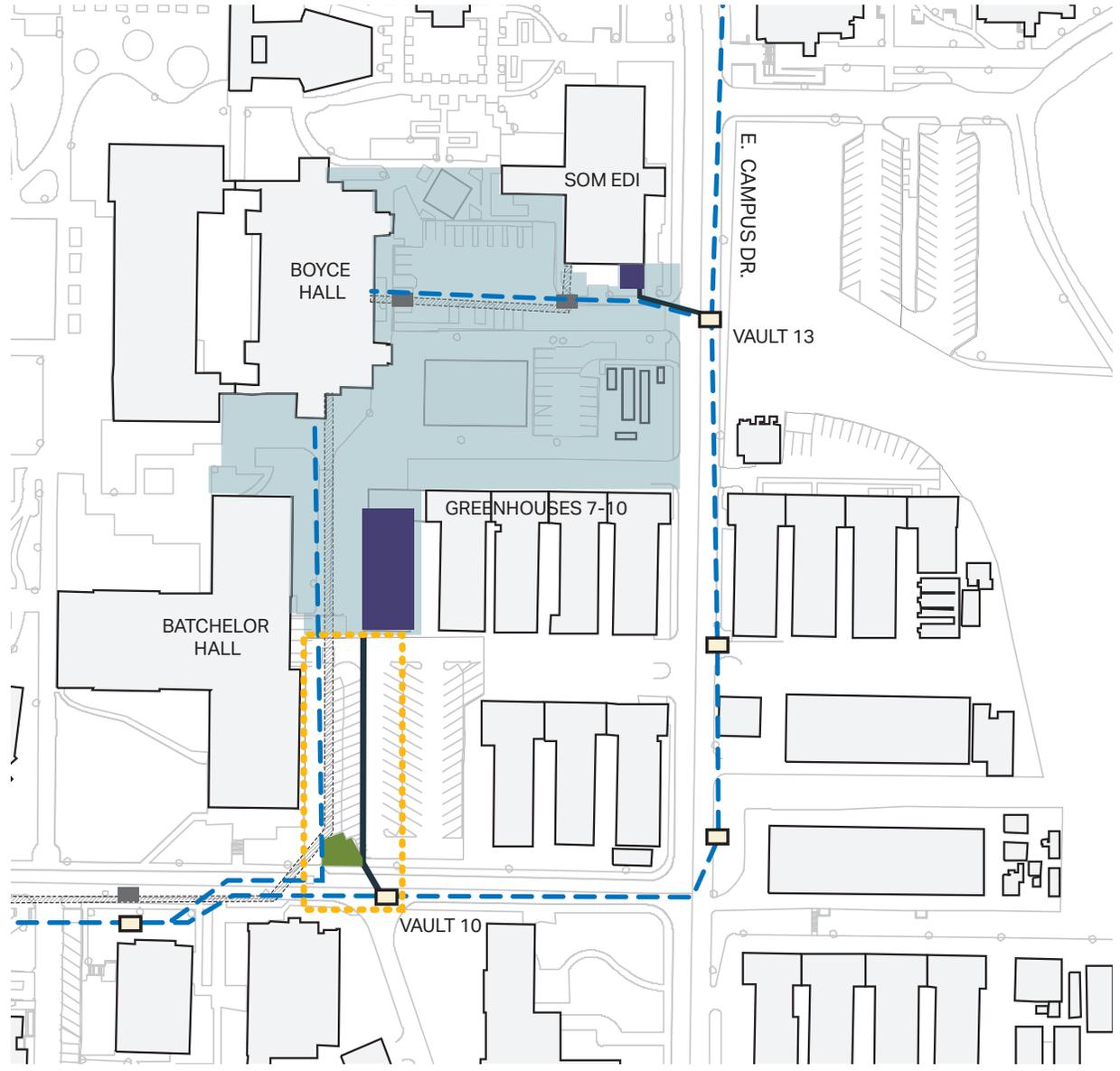


Figure 6a





LEGEND:

- Project Site Boundary
- Proposed Relocated Electrical
- Proposed New Switchgear Location
- Existing 12kV Electrical Ductbank
- Existing Electrical Vault
- Existing Tunnel Vault
- Proposed New Electrical Connections
- Electrical Connection Zone to Vault 10 (Trenching Only)

Source: AECOM 2020

Conceptual Dry Utilities Plan

School of Medicine Education Building II

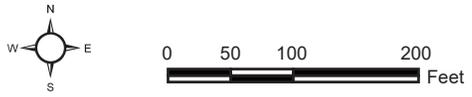


Figure 6b



domestic water, sanitary sewer, storm drain, telecommunication, and electrical services. Major upgrades would not be required, but there may be minor re-routing.

Water and Sewer Connections

Domestic water, fire water, and irrigation water laterals would be connected separately to the existing 8-inch UCR water main which runs in the existing Parking Lot D17. The sanitary sewer would connect to the existing 8-inch sewer main running along East Campus Drive. The storm drain would connect to existing storm drain inlets on the project site. Existing fire hydrants on the site are to be relocated, and potentially new fire hydrants served by the existing campus water system would supply the project with emergency water.

If the SoM modular trailer is relocated to the Corporation Yard, minor re-routing of water and sewer lines would be required. If the SoM modular trailer is relocated to the northwest of Parking Lot 30 (one of the proposed permanent relocation sites in addition to the Corporation Yard), re-routing of the water line would be required, and a sanitary sewer extension would be required.

Stormwater Management

All storm water runoff would be managed for both quality and quantity as required by current regulations (as further discussed in Section V.10, Hydrology and Water Quality, of this IS/MND). The stormwater design shall maintain and enhance natural drainage patterns, where possible. All stormwater runoff from the site and roof of the SoM Ed. II building would be treated and detained, infiltrated, or reused as necessary to comply with UCR's Municipal Separate Storm Sewer System (MS4) permits, the National Pollutant Discharge Elimination System (NPDES) permit program, and the UCR Post Construction Stormwater Management Requirements. Runoff not adequately captured, mitigated or treated by site design measures shall be directed to a facility designed to infiltrate, evapotranspire or biotreat an amount of runoff determined by the Numeric Sizing Criteria for Stormwater Retention and Treatment of the Post-Construction Stormwater Management Requirements. Additionally, conveyance facilities would be designed in compliance with the Riverside County Flood Control and Water Conservation District requirements.

Stormwater quality would be managed using treatment-based low impact development (LID) best management practices (BMPs). The project would follow the Riverside County Flood Control and Water Conservation District BMPs. Since the project will create and/or replace 5,000 square feet (sf) or more of impervious surface, it is considered a Regulated Project and is required to implement measures for site design/runoff reduction, stormwater treatment, and baseline hydromodification. Design would make use of natural infiltration and evaporation where possible to reduce water runoff during storm events. Design should make use of BMPs such as bio-swales, filter strips, stormwater planters, or another LID method to filter runoff from roofs and paving.

Electricity and Communications Systems

The proposed SoM Ed. II building would exclusively use electric power with approximately 19 kilowatt-hours (kWh) per square foot annually, with no onsite combustion. Electrical service would be supplied from the 12-kilovolt (kV) campus normal power distribution system. The proposed SoM Ed. II building would be designed as "solar-ready" for future photovoltaic panels located on the roof for optimal exposure.

Electrical service for the SoM modular trailer would be provided via connections to existing power distribution system in place for each of the potential relocation sites.

Emergency Services and Infrastructure

The SoM Ed. II building would be required to connect to the existing UCR fire protection system as well as be connected to the UCR Police dispatch. Emergency responders would have clear access to any mechanical or electrical systems. Spaces shall include the blue emergency call boxes. Construction would be required in compliance with the 2019 CBC, and plans will be submitted to the Campus Fire Marshal for review and approval. The project would not connect to an emergency generator, but fire, life, safety would be provided through local backup power.

Architecture Design and Sustainability Features

The architectural style and selection of materials and color palette shall be harmonious with the UCR campus as well as the specific buildings surrounding the site. Materials used at UCR have a range of color and texture that provides a naturally varied composition. The building will follow all relevant campus design guidelines. The exterior finish could include materials such as exposed architectural concrete, brick, and metals such as aluminum, zinc or steel, to complement the overall palette.

The proposed SoM Ed. II building is being designed as part of a design-build process. Priorities for building massing and architectural response for the proposed project are the following:

- The site exists along East Campus Drive and should respond to this position by clearly defining the street face; respecting the setback of the SoM Ed. I to the north and the greenhouses to the south to create a well-defined edge condition.
- This project also wants to create its own sense of identity and also reinforce wayfinding: as this will be the new icon of the SoM. This is an opportunity to create a community-facing element to define the SoM and help aid in directing visitors to the new facility.
- Responding to the climatic conditions of Riverside is critical while also creating character and identity to each unique exposure. The opportunity to create a transparent facade to the north where student queuing and movement will occur in the major learning spaces can bring energy and promote a strong sense of community within the SoM and the broader campus context it serves.
- In responding to the creation of the new plaza to the north, the architecture should engage with this new open space and provide permeability for the pedestrian experience.
- In order to improve the pedestrian experience within the plaza, it is encouraged that views of the Boyce Hall loading area be screened from view and noise as much as possible.
- Responding to view corridors to the east and north is preferred where the presence of the nearby Box Spring Mountains are a distinct and unique quality of the Campus. Opportunities for roof terraces or balconies can contribute both to the environmental response of the building while also providing access to views, daylight, and fresh air.

The proposed project would comply with the University of California Policy on Sustainable Practices (Sustainable Practices Policy) and adopt the principles of energy efficiency and sustainability to the extent practical, consistent with budgetary constraints and regulatory and programmatic requirements. The project would meet or exceed Leadership in Energy and Environmental Design (LEED) Silver certification. Project design would implement strategies required by the 2019 California Green Building Standards Code (CalGreen) and the Sustainable Practices Policy to exceed CBC Title 24 energy efficiency requirements by 20 percent or greater for new buildings. Materials should be selected for recycled content, regional availability and low emitting properties in order to meet or exceed LEED requirements.

Project sustainability design features include but are not limited to:

- Limit solar heat gain on the façade and incorporate external shading devices;
- Efficient building envelope;
- High efficiency HVAC system;
- Solar (photovoltaic panel) ready;
- Water-saving fixtures;
- Short term bicycle parking; and
- Water-efficient landscaping.

Landscape Design

The landscape design for the proposed project would use approved plant species and planting criteria in accordance with the UCR Campus Design Guidelines. Both the design and installation shall meet or exceed the state of California Model Efficient Landscape Ordinance and the UCR requirements for a water efficient landscape.

There are four main planting typologies proposed: (1) The typologies include the structural planting at the base of the buildings, plaza planting, screening planting, and streetscape planting on the project frontage along East Campus Drive; (2) Existing trees and vegetation within the project site are proposed to be removed; (3) The project proposes to remove approximately 59 trees on the project site (Refer to Figure 12); and (4) The tree replacement ratio will be in accordance with the draft *UCR Tree Preservation and Replacement Guidelines* of at least a 1:1 ratio.

CONSTRUCTION

For purposes of this CEQA analysis, construction activities would begin summer 2021 and last for approximately 23 months. Construction activities would include the following:

- Site Preparation (approximately 2 weeks);
- Demolition (approximately 4 weeks);
- Grading (approximately 18 weeks);
- Building Construction (approximately 18 months);
- Paving (approximately 13 weeks); and
- Architectural Coating (approximately 4 weeks).

Depending on the construction phase, implementation of the proposed project would require common equipment, such as dozers, tractors/loaders/backhoes, excavators, welders, concrete/industrial saws, cranes, forklifts, pavers, rollers, compressors, generator set, and cement and mortar mixers. As required by existing regulations, soil erosion from the project site during construction would be controlled with BMPs, including the use of sandbags as barriers. The construction site would be encircled by sandbags, and stabilized driveways would be provided at construction entrance and exit areas. Appropriate BMPs to minimize sediment entering the storm drain system would be provided.

The project would demolish existing trees, landscaping, concrete sidewalks, lighting, retaining walls, utilities and asphalt from the existing surface area of Parking Lot 40 and Lot D17. Three

locations for temporary construction staging and laydown areas could include Parking Lot 10, Parking Lot 11, and Parking Lot 41. Construction workers would park in Parking Lot 11, Parking Lot 10, Parking Lot 13, Parking Structure 1, Parking Lot 41, and the North District Development (NDD) area at the northeast corner of West Linden Street and Canyon Crest Drive or within the vacant/undeveloped areas of the NDD.

The existing SoM modular trailer would be relocated temporarily to Parking Lot 10, and then relocated permanently to an existing surface parking area within the Corporation Yard, or an existing paved area to the northwest of Parking Lot 30 on West Campus.

Approximately 48,300 sf (i.e., 1.1 acres) of asphalt would be demolished during construction, resulting in approximately 500 cubic yards (cy), or 1,000 tons of demolition material. Approximately, 100,000 sf (i.e., 2.3 acres) of the project site would be graded. Approximately 16,355 cy of soil would be excavated (cut) and no fill would be required during grading activities. Approximately 36,600 square feet of the project site would be paved, which includes approximately 10,000 sf for the new plaza hardscape; approximately 9,000 sf for the east-west fire lane north of existing greenhouses #6 through #10; and approximately 17,600 for the southwest fire/service lane improvement. Net new hardscape is approximately 20,500 sf.

Vehicular and Pedestrian Access During Construction

The proposed project would not require lane closures or other access restrictions for extended periods of time. The proposed construction route is from I-215/SR-60 at Martin Luther King Boulevard to Canyon Crest Drive to South Campus Drive, which turns into East Campus Drive. The alternative construction route is from West Linden Street to Aberdeen Drive to North Campus Drive, which turns into East Campus Drive. Emergency access would be made available from East Campus Drive.

During construction activities, access to the site would be limited to authorized Campus staff, construction workers, and emergency providers, and no public access would be allowed.

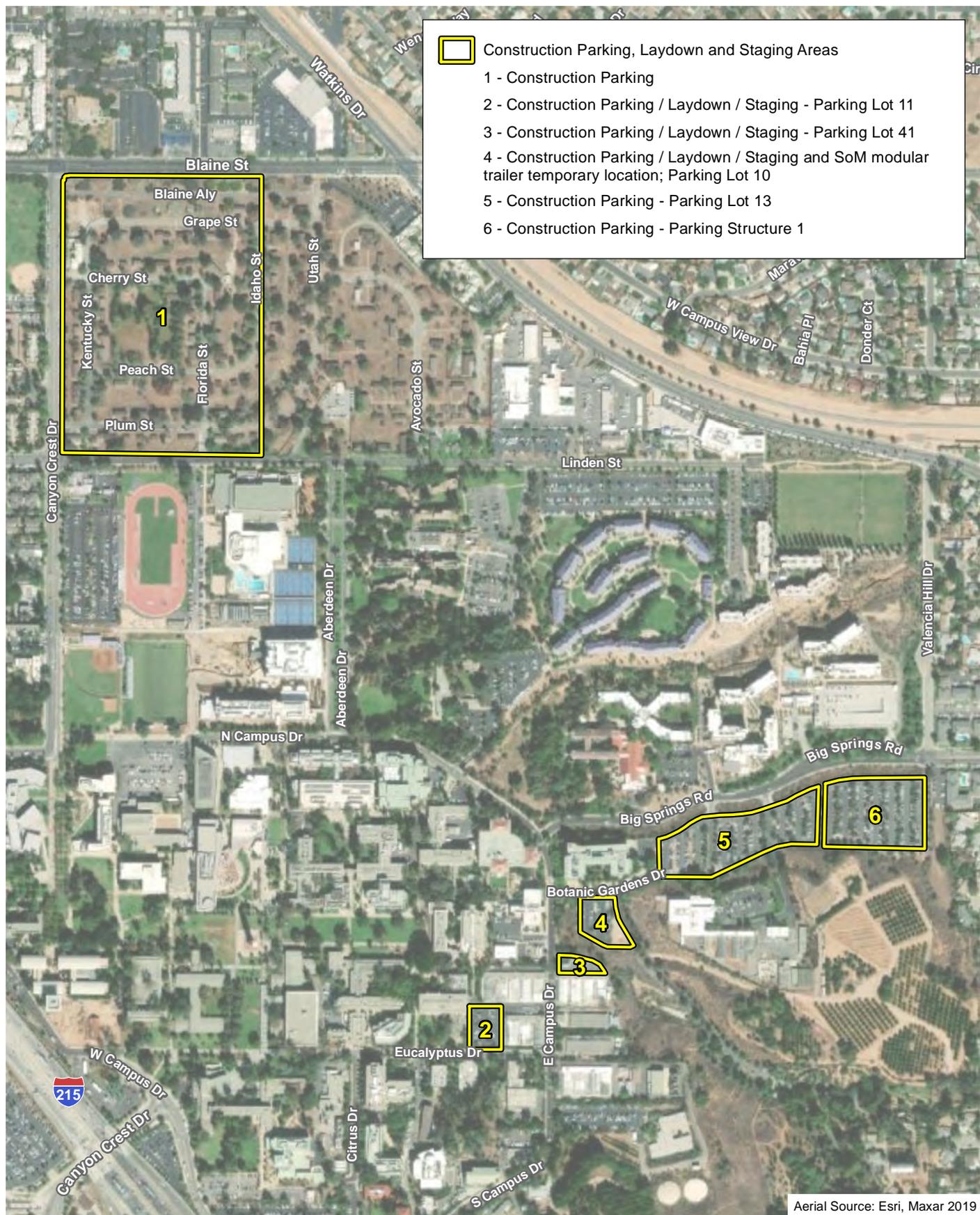
6. RELATIONSHIP TO THE 2005 LONG RANGE DEVELOPMENT PLAN AMENDMENT 2

Figure 13 of the 2005 LRDP Amendment 2 provides the current Land Use Plan for the UCR campus. As shown, the project site and surrounding uses are in an area designated as “Academic” which allows for the development of the proposed project. The Land Use Section of the 2005 LRDP Amendment 2 identifies that Academic support uses “should be located near the center of the academic core on both the East and West Campuses,” and “be located on and near primary pedestrian circulation routes and in central, accessible locations, where informal gathering and interaction can occur easily”. As previously discussed, the project site is located west of East Campus Drive, south of the SoM Ed. I, north of greenhouses 6 and 10, and east of Boyce Hall on UCR’s East Campus.

The 2005 LRDP Amendment 2 projected total building space on campus to be approximately 14.9 million gsf by 2020/2021, including approximately 3.1 million gsf allocated to the SoM. As identified in Table 3.0-5 of the 2005 LRDP Amendment 2 EIR, of the total gross square footage, a total of 5.5 million gsf is allocated to “Academic” uses (which includes the proposed project). The existing on-campus development is approximately 7.4 million gsf, and approximately 638,415 gsf of new development has been approved but not yet built.² Therefore, there is approximately 6.8 million gsf of development allocation remaining on campus. The proposed project would

² Approved but still under construction includes the North District Development Phase 1 and the Plant Growth Environments Facility.

-  Construction Parking, Laydown and Staging Areas
- 1 - Construction Parking
- 2 - Construction Parking / Laydown / Staging - Parking Lot 11
- 3 - Construction Parking / Laydown / Staging - Parking Lot 41
- 4 - Construction Parking / Laydown / Staging and SoM modular trailer temporary location; Parking Lot 10
- 5 - Construction Parking - Parking Lot 13
- 6 - Construction Parking - Parking Structure 1



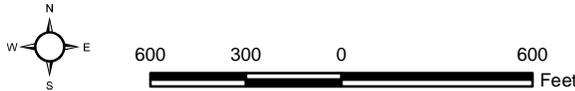
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Aerial Source: Esri, Maxar 2019

Construction Parking, Laydown and Staging Area

Figure 7

School of Medicine Education Building II



construct approximately 120,000 gsf of development on campus. The increase in development with the proposed project is well within the remaining building allocation.

Additionally, the 2005 LRDP, as amended, projected a total enrollment of 25,000 students and 16,393 associated faculty, staff members, and visitors, for a total campus population of 41,393 by the academic year 2020/2021 (refer to Table 3.0-4 of the 2005 LRDP Amendment 2 EIR). The projected population for the campus (less SoM) is 35,540 individuals. Excluding the category of “other individuals”,³ there are projected to be 32,916 students, faculty and academic staff, and non-academic staff. For comparison, the current student population (headcount) on campus based on the fall 2019 enrollment is 25,548 students (i.e., 22,055 undergraduate students and 3,493 graduate students) (UCR 2020). Additionally, there are approximately 4,837 faculty, staff members, and staff personnel, for a total population of 28,759 individuals (not including other individuals). Therefore, the remaining projected growth on campus (not including SoM and other individuals) is 4,157 individuals⁴. The proposed project would provide classrooms, lecture halls, student support spaces, and office spaces. The proposed project would serve the projected UCR campus population with the addition of approximately 250 students and 65 staff positions. This population is within the remaining projected growth on campus, as identified in the 2005 LRDP, as amended.

With respect to “other individuals”, the campus population projections presented in Table 3.0-4 of the 2005 LRDP Amendment 2 EIR consider the average weekday number of other individuals, not evening or weekend visitors. Due to the nature of the proposed project, it is not expected to conflict with the projections for other individuals on campus.

As further discussed in Section V.11, Land Use and Planning, of this IS/MND, the 2005 LRDP Amendment 2 includes PSs for the following issues to guide expansion and development of the UCR Campus: land use, circulation and parking, open space and landscape, and campus and community. These Planning Strategies are required to be implemented with each development project on campus and have been specifically identified in the 2005 LRDP EIR as supplemented and updated by the 2005 LRDP Amendment 2 EIR, along with general development strategies. The Planning Strategies that are applicable to the proposed project have been incorporated into the project as identified for each topical issue in this IS/MND.

7. DISCRETIONARY APPROVALS

The Regents will consider approval of the proposed SoM Ed. II project and the tiered IS/MND. UCR and the responsible agencies identified below are expected to use the information contained in this tiered IS/MND for consideration of approvals related to and involved in the implementation of the proposed project. This tiered IS/MND has been prepared to inform all State, regional, and local government approvals needed for construction and/or operation of the proposed project, whether or not such actions are known or are explicitly listed. Approvals required from UCR and the responsible agencies to implement the proposed project include, but are not limited to, those listed below.

University of California Board of Regents

- Adoption of the Final Tiered IS/MND

³ Includes campus visitors, patients, childcare students, student family members (living on campus), daytime extension students, Associated Students of UCR (ASUCR), KUCR, and Highlander non-student staff, vendors, and construction workers.

⁴ Campus statistics provided by UCR Institutional Research: <https://ir.ucr.edu/stats/employees/headcount> and <https://ir.ucr.edu/stats/enroll/overall>. Please note that current faculty and staff enrolled in classes are excluded from the total faculty and staff member count to avoid double counting in the campus population.

- Adoption of the Mitigation Monitoring and Reporting Program and the implementation of all applicable Planning Strategies, Programs and Practices, and mitigation measures within the responsibility and jurisdiction of the University
- Adoption of the Findings
- Approval of the design
- Approval of the project budget
- Approval of financing

Other Public Agencies Whose Approval May Be Required

Other project approvals may include:

- Division of the State Architect (accessibility compliance)
- State of California Fire Marshal (fire/life safety)

8. HAVE CALIFORNIA NATIVE AMERICAN TRIBES TRADITIONALLY AND CULTURALLY AFFILIATED WITH THE PROJECT AREA REQUESTED CONSULTATION PURSUANT TO PUBLIC RESOURCES CODE SECTION 21080.3.1?

To date, UCR has received requests for project notification pursuant to Assembly Bill 52 (AB 52) from the Agua Caliente Band of Cahuilla Indians, Cahuilla Band of Indians, Pechanga Band of Luiseño Indians, Rincon Band of Luiseño Indians, San Manuel Band of Mission Indians, and the Torres Martinez Desert Cahuilla Indians. In August 2020, UCR provided these tribes with notification of the proposed project. On September 9, 2020, the Rincon Band of Luiseño Indians responded that the proposed project is within the tribe's traditional land use area and requested government-to-government consultation and requested cultural monitoring during ground disturbing activities on the project. Consultation first took place in November 2020, in which UCR e-mailed information about the project, which was followed by a meeting on November 13, 2020 with the Rincon Band of Luiseño Indians in which cultural monitoring during ground disturbing activities was discussed. On September 22, 2020, Agua Caliente Band of Cahuilla Indians responded noting that the project site is not located within the boundaries of the Agua Caliente Band of Cahuilla Indians Tribe's reservation, but within the Tribe's Traditional Use Area. Agua Caliente Band of Cahuilla Indians requested the presence of an approved Agua Caliente Native American Cultural Resource Monitor during any ground disturbing activities. A phone call between UCR staff and the Tribe took place on November 6, 2020 and draft cultural/TCR MMs were provided via email to the Agua Caliente Band of Cahuilla Indians Tribe on November 20, 2020. On November 20, 2020, UCR staff e-mailed a project description, map, and draft cultural/TCR MMs to the San Manuel Band of Mission Indians. In response, on November 23, 2020, the San Manuel Band of Mission Indians indicated that they have no concerns with the proposed mitigation measures.

No responses were received by the Pechanga Band of Luiseño Indians or the Torres Martinez Desert Cahuilla Indians. See Section V.18, Tribal Cultural Resources, of this IS/MND for additional discussion.

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III. ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

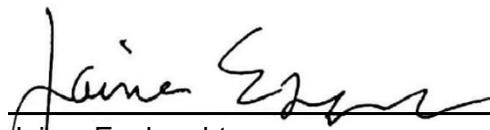
The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages

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

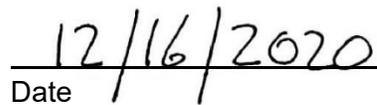
IV. DETERMINATION (TO BE COMPLETED BY THE LEAD AGENCY)

On the basis of this initial evaluation:

- I find that the proposed project WOULD NOT have a significant effect on the environment, and recommend that a NEGATIVE DECLARATION be adopted.
- I find that although the proposed project could have a significant effect on the environment, the project impacts were adequately addressed in an earlier document or there will not be a significant effect in this case because revisions in the project have been made or project-specific mitigation measures have been proposed that will avoid or reduce any potential significant effects to a less than significant level and recommend that a MITIGATED NEGATIVE DECLARATION be adopted.
- I find that the proposed project MAY have a significant effect on the environment and recommend that an ENVIRONMENTAL IMPACT REPORT be certified.



Jaime Engbrecht
University of California, Riverside
Planner



Date

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V. EVALUATION OF ENVIRONMENTAL IMPACTS

The University has defined the column headings in the IS checklist as follows:

- A) **“Potentially Significant Impact”** is appropriate if there is substantial evidence that the project’s effect may be significant even with the incorporation of Planning Strategies (PSs), Programs and Practices (PPs), and Mitigation Measures (MMs) identified in the 2005 LRDP EIR as supplemented and updated by the 2005 LRDP Amendment 2 EIR. If there are one or more “Potentially Significant Impacts” a Project EIR will be prepared.

- B) **“Project Impact Adequately Addressed in LRDP EIR”** applies where the potential impacts of the proposed project were adequately addressed in the 2005 LRDP EIR as supplemented and updated by the 2005 LRDP Amendment 2 EIR, and the PSs, PPs, and MMs identified in the 2005 LRDP EIR as supplemented and updated by the 2005 LRDP Amendment 2 EIR will mitigate any impacts of the proposed project to the extent feasible. All applicable MMs identified in the 2005 LRDP EIR as supplemented and updated by the 2005 LRDP Amendment 2 EIR are incorporated into the project as proposed. The impact analysis in this document summarizes and cross references the relevant analysis in the 2005 LRDP EIR as supplemented and updated by the 2005 LRDP Amendment 2 EIR.

- C) **“Less Than Significant With Project-level Mitigation Incorporated”** applies where the incorporation of project-specific mitigation measures will reduce an effect from “Potentially Significant Impact” to a “Less Than Significant Impact”. All project-level mitigation measures must be described, including a brief explanation of how the measures reduce the effect to a less than significant level.

- D) **“Less Than Significant Impact”** applies where the proposed project will not result in any significant effects. The effects may or may not have been discussed in the 2005 LRDP EIR as supplemented and updated by the 2005 LRDP Amendment 2 EIR. The project impact is less than significant without the incorporation of 2005 LRDP EIR as supplemented and updated by the 2005 LRDP Amendment 2 EIR or project-level mitigation.

- E) **“No Impact”** applies where the proposed project would not result in any impact in the category or the category does not apply. “No Impact” answers need to be adequately supported by the information sources cited, which show that the impact does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A “No Impact” answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

IMPACT QUESTIONS AND RESPONSES

1. Aesthetics

The analysis of Aesthetics is tiered from the 2005 LRDP EIR and was addressed in Section 4.1, Aesthetics, of that document. Relevant elements of the proposed project related to aesthetics/visual change include the construction of a multi-story building to support the SoM instructional and ancillary needs. The proposed building would be up to 5-stories in height and contain a maximum of 120,000 gsf of developable space. The project would also include a service loading area; stationary equipment (e.g., HVAC); landscape and hardscape elements similar to the surrounding areas; and emergency and service access improvements. The building would include new sources of light, similar to the existing buildings in the immediate area. During construction activities, some walkways would be closed to allow for construction access to the site as well as construction staging and equipment storage. The project proposes to remove approximately 59 trees on the project site (Refer to Figure 12). The tree replacement ratio will be in accordance with the draft *UCR Tree Preservation and Replacement Guidelines* of at least a 1:1 ratio. The existing SoM modular trailer would be relocated temporarily to Parking Lot 10, and then relocated permanently to an existing surface parking area within the Corporation Yard, or an existing paved area to the northwest of Parking Lot 30 on West Campus, all of which are fully disturbed and accessible via existing parking lots.

The following applicable PSs, PPs, and MM were adopted as part of the 2005 LRDP EIR as supplemented and updated by the 2005 LRDP Amendment 2 EIR and are incorporated as part of the proposed project and assumed in the analysis presented in this section.

PS Development Strategy 1

Establish a design review process to provide regular review of building and landscape development on campus.

PP 4.1-1

The Campus shall provide design professionals with the 2007 Campus Design Guidelines and instructions to implement the guidelines, including those sections related to use of consistent scale and massing, compatible architectural style, complementary color palette, preservation of existing site features, and appropriate site and exterior lighting design. *(This is identical to Land Use PP 4.9-1[a].)*

PP 4.1-2(a)

The Campus shall continue to provide design professionals with the 2007 Campus Design Guidelines and instructions to develop project-specific landscape plans that are consistent with the Guidelines with respect to the selection of plants, retention of existing trees, and use of water conserving plants, where feasible. *(This is identical to Land Use PP 4.9-1[b].)*

MM 4.1-3(a)

Building materials shall be reviewed and approved as part of project-specific design and through approval of construction documents. Mirrored, reflective glass is prohibited on campus.

Project Impact Analysis

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

As discussed on page 4.1-13 of the 2005 LRDP EIR, scenic vistas may generally be described in two ways: panoramic views (i.e., visual access to a large geographic area, for which the field of view can be wide and extend into the distance) and focal views (i.e., visual access to a particular object, scene, setting, or feature of interest). The 2005 LRDP EIR concluded that scenic vistas for the campus are limited to panoramic views of the Box Springs Mountains, Mount Rubidoux, and the San Bernardino Mountains from publicly accessible viewpoints, only when atmospheric conditions permit. Views of these mountains from many vantage points on the East Campus are partially blocked by buildings, mature trees, and landscaping. Notably, there are panoramic views of the Box Springs Mountains from the Carillon Mall and the Athletic Fields (east of Canyon Crest Drive) within the East Campus; however, views in some portions of the Carillon Mall are obstructed by a large number of mature trees. While views of the adjacent mountains are generally visible from locations on the West Campus, these locations are not publicly accessible with the exception of Parking Lot 30. There are no identified focal views for the UCR campus.

The analysis of Impact 4.1-1 in Section 4.1, Aesthetics, of the 2005 LRDP EIR concluded that with implementation of PS Open Space 5 (retaining Carillon Mall as a major campus Landmark Open Space) and PP 4.1-1 (developed in conformance with the Campus Design Guidelines), development under the 2005 LRDP would result in a less than significant impact to scenic vistas.

Figure 4.1-1 of the 2005 LRDP EIR indicates that partial views of the Box Springs Mountains are available from the proposed project if looking eastward. However, views of the Box Springs Mountains from the project site are mainly obstructed by mature trees and vegetation. Partial views of the Box Springs Mountains would remain available from East Campus Drive with implementation of the proposed project. Therefore, the proposed project would have a less than significant impact on a scenic vista with incorporation of PP 4.1-1, consistent with the findings of the LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would not impact scenic vistas. The proposed project impacts would be less than significant with the incorporation of the PS and PP noted above. The proposed project impacts were adequately addressed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

As identified in the IS for the 2005 LRDP EIR, the UCR campus is bisected by the I-215/SR-60 freeway and is generally bounded by University Avenue, Canyon Crest Drive, Blaine Street, Watkins Drive, Valencia Hill Drive, Le Conte Drive, and Chicago Avenue, none of which are officially designated or identified as eligible for designation as a State scenic highway (Caltrans 2020). Therefore, development under the 2005 LRDP was determined to have no impact related to State scenic highways.

While there are no scenic highways in the campus vicinity, the 2005 LRDP includes the provision to retain the southeast hills and associated rock outcroppings, considered a scenic resource, as an Open Space Reserve. The proposed project is not located adjacent to the southeast hills. Therefore, there would be no impact from implementation of the proposed project on scenic resources, including within a State scenic highway, consistent with the findings of the LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would not substantially damage scenic resources within a scenic highway. The proposed project impacts were adequately addressed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Would the project substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

The analysis of Impact 4.1-2 in the 2005 LRDP EIR concluded that, with implementation of PS Land Use 1 through 3, PS Open Space 1 through 7, PS Conservation 1 through 4, PS Campus & Community 1, PS Development Strategy 1 through 3, and PP 4.1-2(a) through PP 4.1-2(d), development under the 2005 LRDP would result in a less than significant impact to the visual

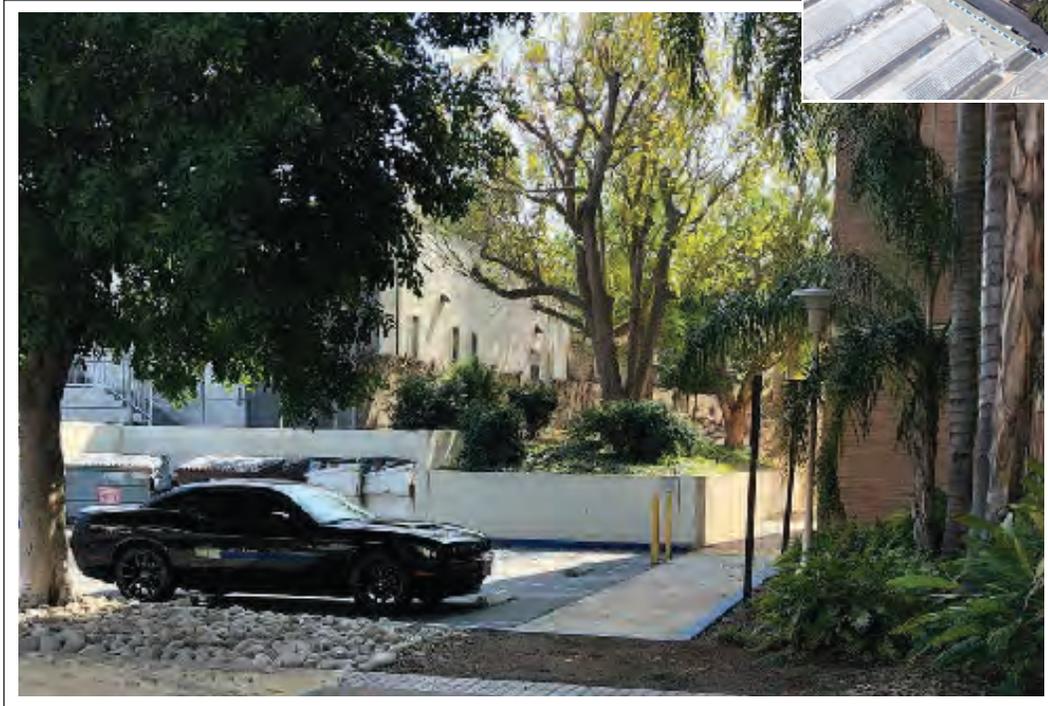
character or quality of the campus and the immediately surrounding area. As discussed above, relevant PSs and PPs have been incorporated into the proposed project.

The project site is located at the east side of the UCR campus, sited directly adjacent to the existing SoM Ed. I, which currently houses the majority of the SoM administration and staff members, as well as dedicated instruction spaces and student amenities and study spaces. This site was selected for its proximity to other SoM facilities, including the SoM Ed. I, the SoM Building, and Orbach Science Library, which is planned to house the future Clinical Skills and Simulation Suite (CSSS). Once the proposed facility is completed, some of the SoM spaces in SoM Ed. I would be decanted and moved into SoM Ed. II, which would follow the completion of the CSSS in Orbach Science Library. Uses in the SoM modular trailer would be relocated to the SoM Ed. I building. Additionally, off-campus administration and staff housed at UC Path would move back to campus in either the SoM Ed. I or SoM Ed. II building. Part of the goal for the proposed project is to create a SoM “complex” of buildings that are connected with a series of outdoor spaces, providing encouragement for interaction and enhancing connections between campus assets. The primary views of the project site are from immediately adjacent vantage points; views from more distant vantage points are obstructed by intervening buildings and landscaping. The existing visual character of the project site and immediate surrounding areas is depicted in the site photographs provided on Figures 8a through 8f and are described below.

- **View 1** – This photograph depicts the electrical equipment to be repurposed and relocated on site. A paved median with ornamental landscaping and pole-mounted security lighting is a prominent visual feature in the photograph. Additionally, existing modular buildings can be seen in the background of the photograph.
- **View 2** – This photograph shows the project site in close proximity to Boyce Hall with a narrow passage. As shown, the site consists of an existing parking area. The pathway is surrounded by mature trees and ornamental landscaping. Four large dumpsters can be seen behind the vehicle, and existing modular buildings can be seen in the background of the photograph.
- **View 3** – This photograph depicts the sloped sidewalk on East Campus Drive. Mature trees can be seen lining East Campus Drive. The existing electrical equipment and modular buildings including pole-mounted security lighting can be seen in the photograph. Additionally, a landscaped median can be seen dividing two separate driveways with Boyce Hall in the background of the photograph.
- **View 4** – This photograph depicts the grade difference between SoM Ed. I and SoM Ed. II on the project site. Boyce Hall is a main focal point in this photograph. Webber Hall can be seen on the right-hand side of the photograph surrounded by a few mature trees. A landscaped median, which includes pole-mounted security lighting divides the two driveways and the existing modular buildings can be seen on the left-hand side of the photograph.
- **View 5** – This photograph shows the western portion of the headhouses associated with Greenhouses #6-10. Greenhouse #6 and the associated headhouse is proposed to be demolished. As shown in the photograph, there are existing paved parking spots adjacent to the headhouse. Additionally, the headhouse is surrounded by mature trees and vegetation as shown in the background of the photograph.
- **View 6** – This photograph depicts the grade difference between the SoM Ed. II project site and the headhouses. As shown in the photograph, there is an existing driveway with paved parking spots adjacent to the headhouse. The modular buildings on the right-hand side of the photograph are bounded by opaque fencing. Both the headhouse and modular



View 1: Electrical equipment to be repurposed and relocated on site.



View 2: Project site in close proximity to boyce hall with narrow passage.

Site Photographs

School of Medicine Education Building II

Figure 8a





View 3: Sloped sidewalk on east campus drive.



View 4: Grade difference between ED1 and ED2 project site.

Site Photographs

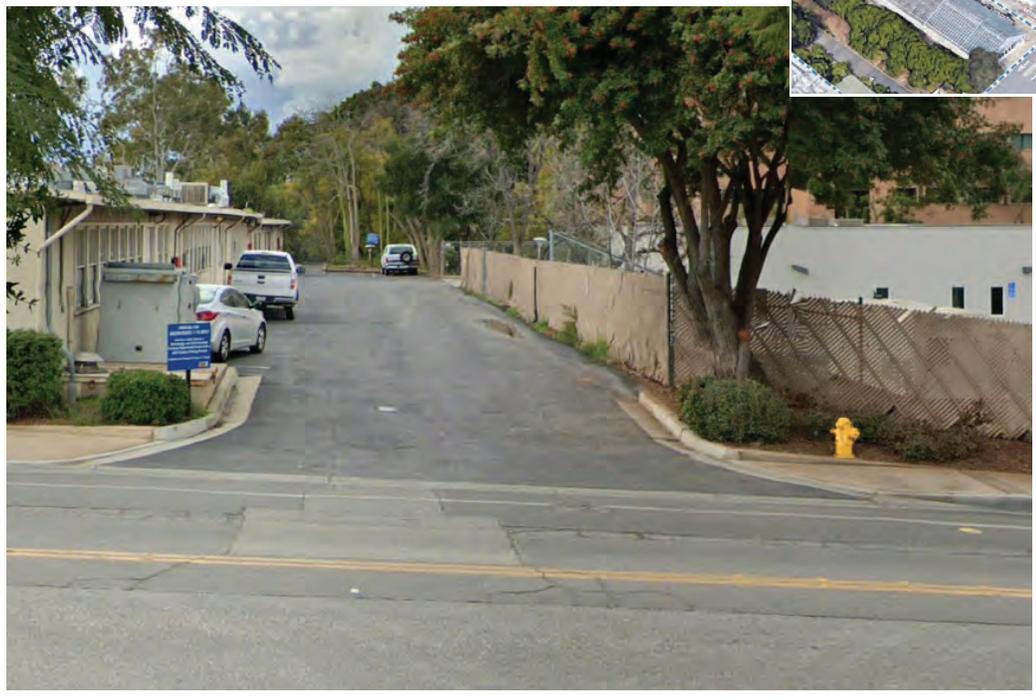
School of Medicine Education Building II

Figure 8b





View 5: West portion of head-house to be demolished.



View 6: Grade difference between ED2 project site and headhouses.

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Site Photographs

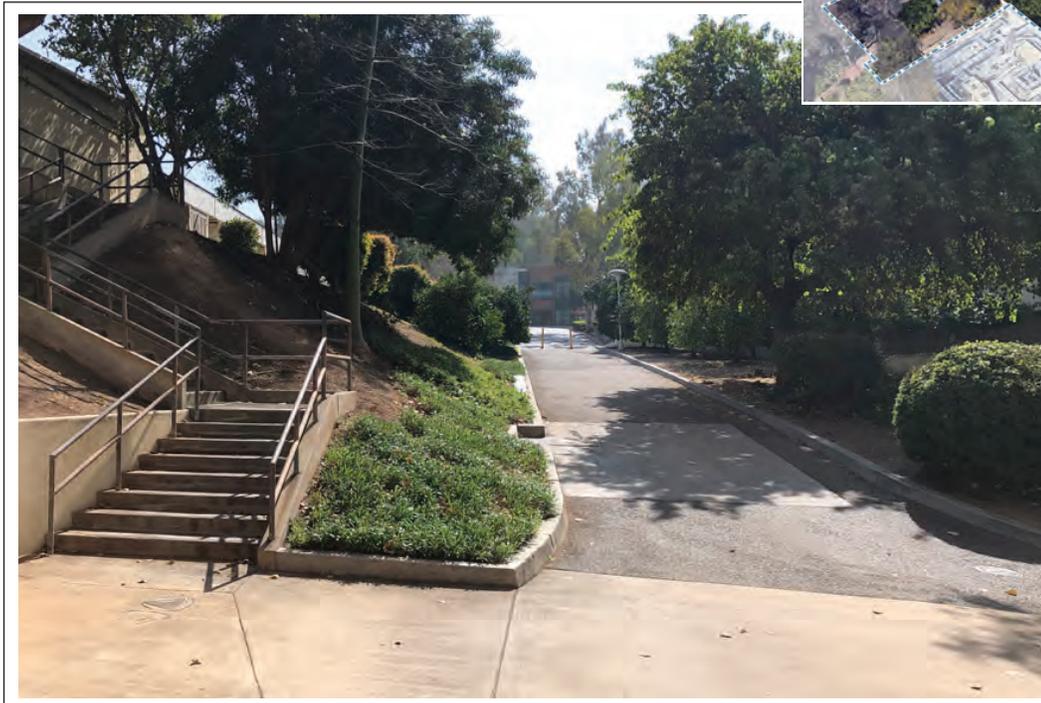
School of Medicine Education Building II

Figure 8c





View 7: Grade change and existing convenience stair between “west plaza” and “upper plaza”.



View 8: Sloped fire access road on southwest portion of project site.

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Site Photographs

School of Medicine Education Building II

Figure 8d



buildings are surrounded by mature trees and vegetation. Additionally, Boyce Hall can be seen in the background of the photograph.

- **View 7** – This photograph depicts the grade change and existing convenience staircase between Keen Hall and Boyce Hall and the existing driveway on the north of Greenhouses #6-#10. Besides the staircase, a paved area which includes pole-mounted security lighting and mature trees and landscaping is the focal point of this photograph. SoM Ed. I and the SoM modular trailer can be seen on the left-hand side of the photograph.
- **View 8** – This photograph shows the sloped fire access road on the southwest portion of the project site. The access road is paved and surrounded by mature trees and ornamental landscaping. Additionally, there is pole-mounted security lighting along the access road as shown in the photograph. The existing convenience staircase can also be seen.

To address visual changes associated with implementation of the proposed project and to address the relationship between the proposed project and the existing land uses surrounding the project site, the Conceptual Site Sections are provided on Figures 9a and 9b, and Conceptual Massing/Program Stack are provided on Figures 10a through 10d. The Conceptual Landscape Plan is provided on Figure 11.

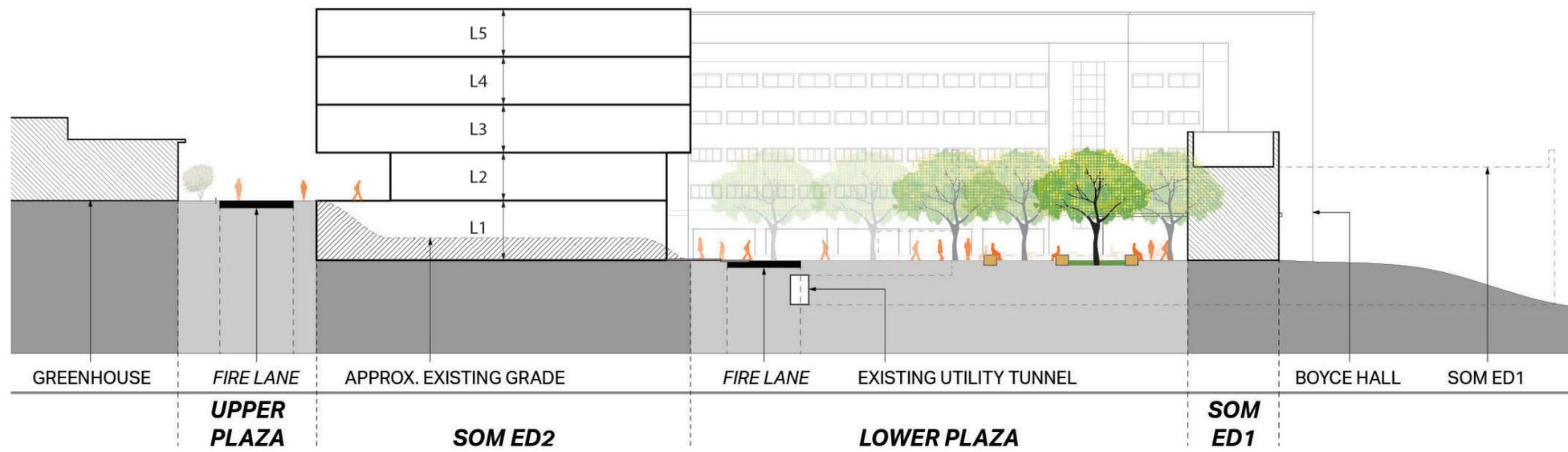
As detailed in Section II, Project Description, the project site is currently developed as a surface parking lot (Parking Lot D17), SoM modular trailer and associated parking (Parking Lot 40), a grab and go café (Scotty's Market), a greenhouse and headhouse (Greenhouse #6), an emergency and service access drive, above-ground electrical infrastructure, and other hardscape and landscape areas. Development of the proposed project would involve construction of an approximately 120,000 gsf SoM Ed. II consisting of instructional, collaboration, and student life space, as well as office and support spaces. The proposed project would also include a service loading area, stationary equipment (e.g., HVAC), landscaping, fire and emergency and service access improvements, and other associated site improvements.

The project would demolish existing trees, landscaping, concrete sidewalks, lighting, retaining walls, utilities and asphalt from the existing surface area of Parking Lot 40 and Lot D17. Three locations for temporary construction staging and laydown areas could include Parking Lot 10, Parking Lot 11, and Parking Lot 41. These areas would be reverted back to existing conditions upon completion of construction. The existing SoM modular trailer would be relocated temporarily to Parking Lot 10, and then relocated permanently to an existing surface parking area within the Corporation Yard, or an existing paved area to the northwest of Parking Lot 30 on West Campus.

As discussed above, PSs and PPs relevant to project design and visual character have been incorporated into the proposed project. The architectural style and selection of materials and color palette would be harmonious with the UCR campus as well as the specific buildings surrounding the site. Materials used at UCR have a range of color and texture that provides a naturally varied composition. The building would follow all relevant campus design guidelines. The exterior finish could include materials such as exposed architectural concrete, brick, or metals (e.g., aluminum, zinc or steel, to complement the overall palette. The building materials and color palette would adhere to the Campus Design Guidelines to be visually harmonious with the UCR campus as well as the immediately surrounding buildings (as required by PP 4.1-1) and would be reviewed as part of the project-specific design review process and through approval of construction documents (refer to MM 4.1-3[a]).

As a result of the proposed project, existing landscaping, primarily trees and shrubs, would be removed, changing the site's existing visual character. Potential impacts to trees are discussed in detail in Section V.4, Biological Resources, of this IS/MND and are shown on Figure 12, Tree Inventory. The proposed project includes PP 4.1-2(a), which ensures that project-specific

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Source: AECOM 2020

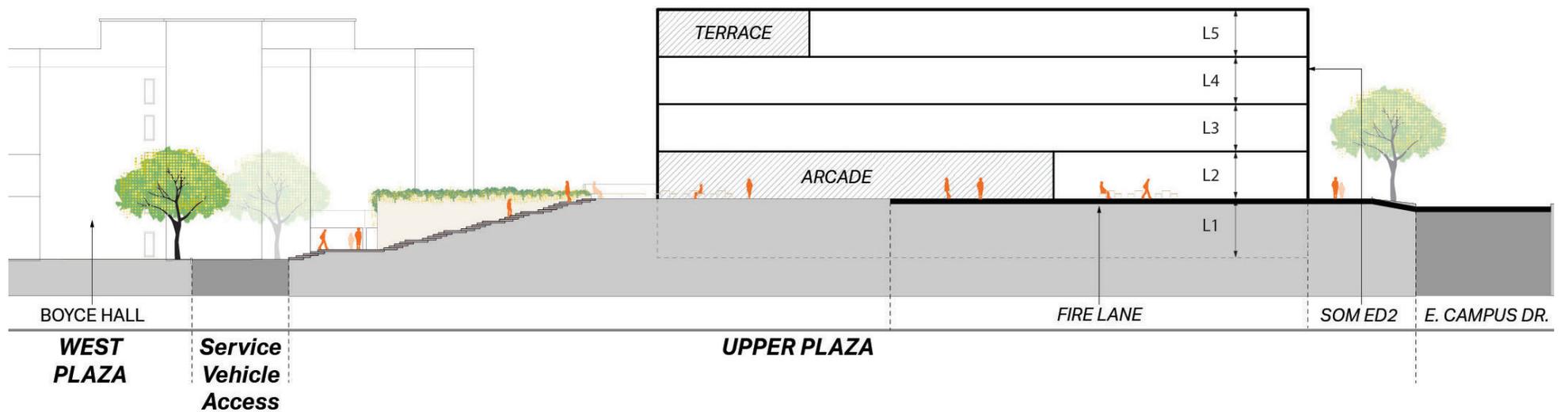
Conceptual Site Section B

School of Medicine Education Building II

Figure 9a



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Source: AECOM 2020

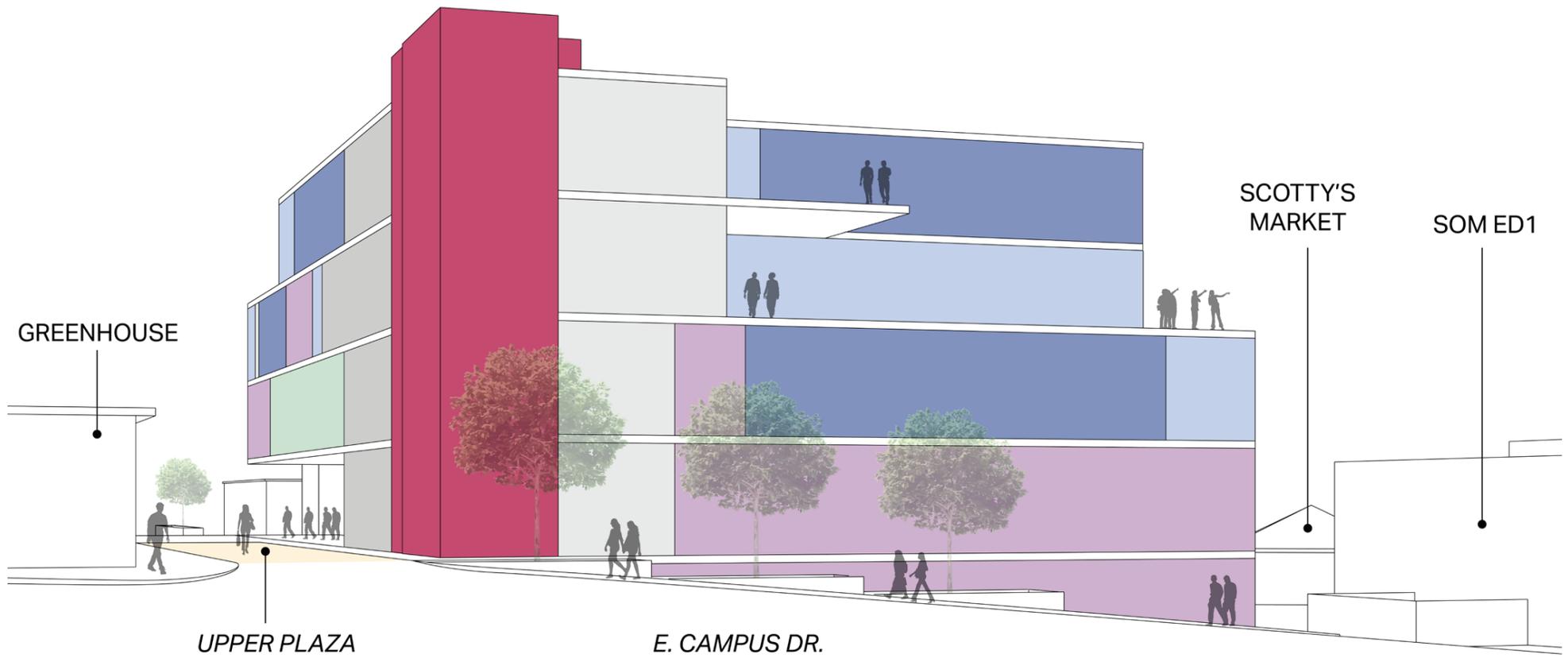
Conceptual Site Section A

Figure 9b

School of Medicine Education Building II



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- | | | | |
|---|---|---|--|
|  OFFICE / WORKSTATION |  INSTRUCTIONAL |  SUPPORT |  STAIR / ELEVATOR |
|  OFFICE SUPPORT |  COLLABORATION |  CIRCULATION |  PLAZA |

Source: AECOM 2020

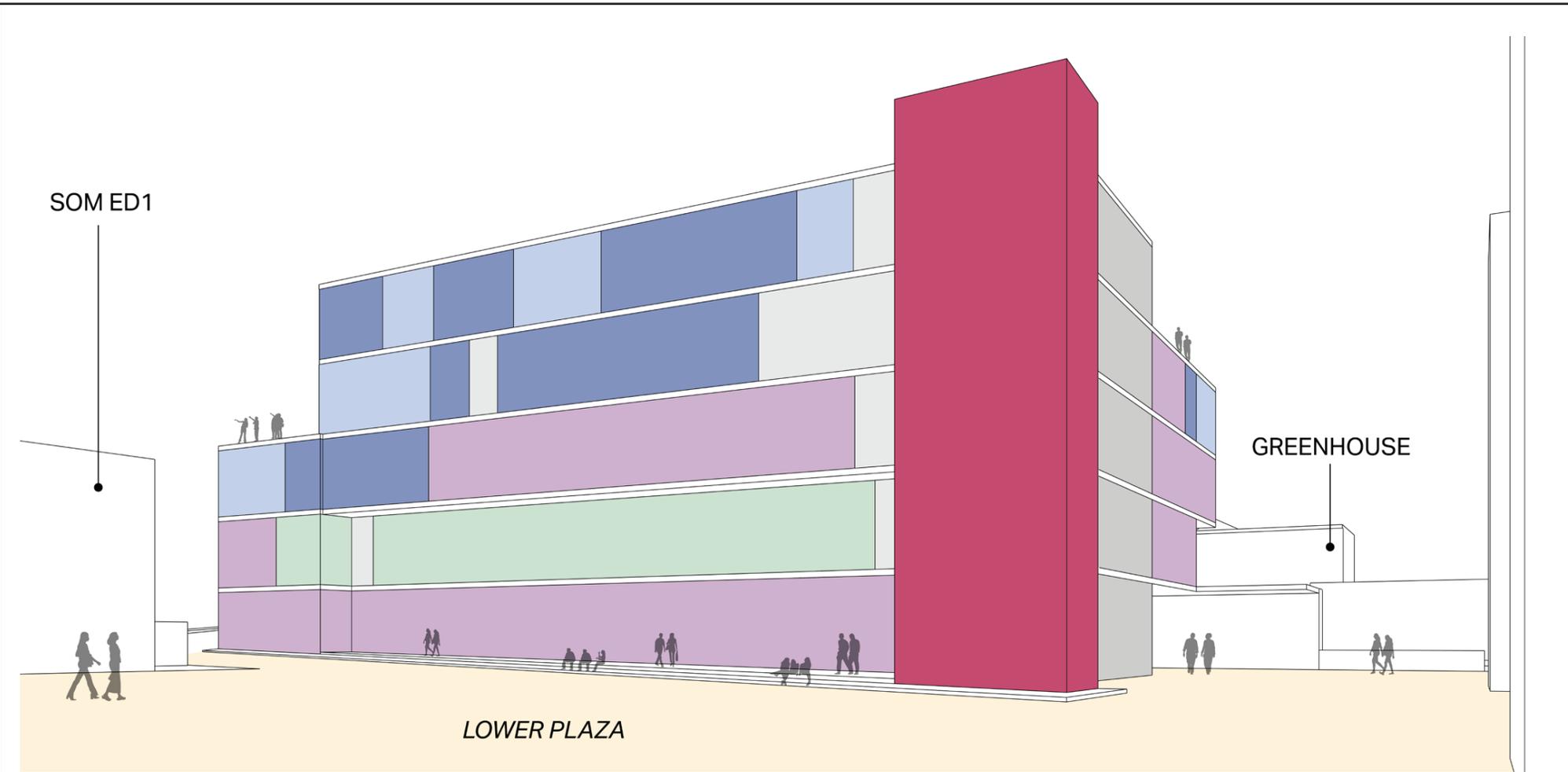
Conceptual Massing/Program Stack from Southeast Corner

Figure 10a

School of Medicine Education Building II



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LOWER PLAZA

GREENHOUSE

SOM ED1

- OFFICE / WORKSTATION
- INSTRUCTIONAL
- SUPPORT
- STAIR / ELEVATOR
- OFFICE SUPPORT
- COLLABORATION
- CIRCULATION
- PLAZA

Source: AECOM 2020

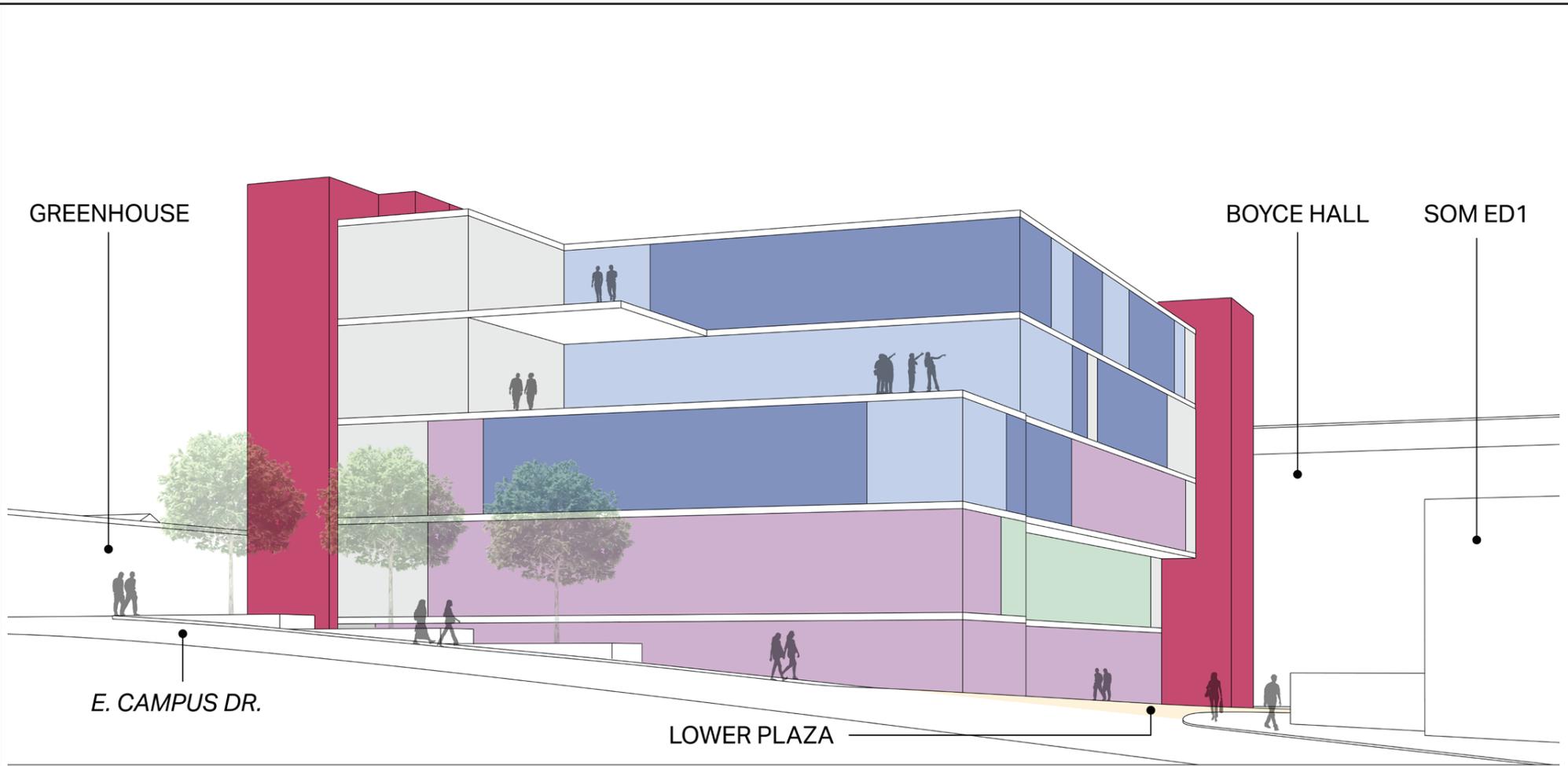
Conceptual Massing/Program Stack from Northwest Corner/Lower Plaza

Figure 10b

School of Medicine Education Building II



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- OFFICE / WORKSTATION
- INSTRUCTIONAL
- SUPPORT
- STAIR / ELEVATOR
- OFFICE SUPPORT
- COLLABORATION
- CIRCULATION
- PLAZA

Source: AECOM 2020

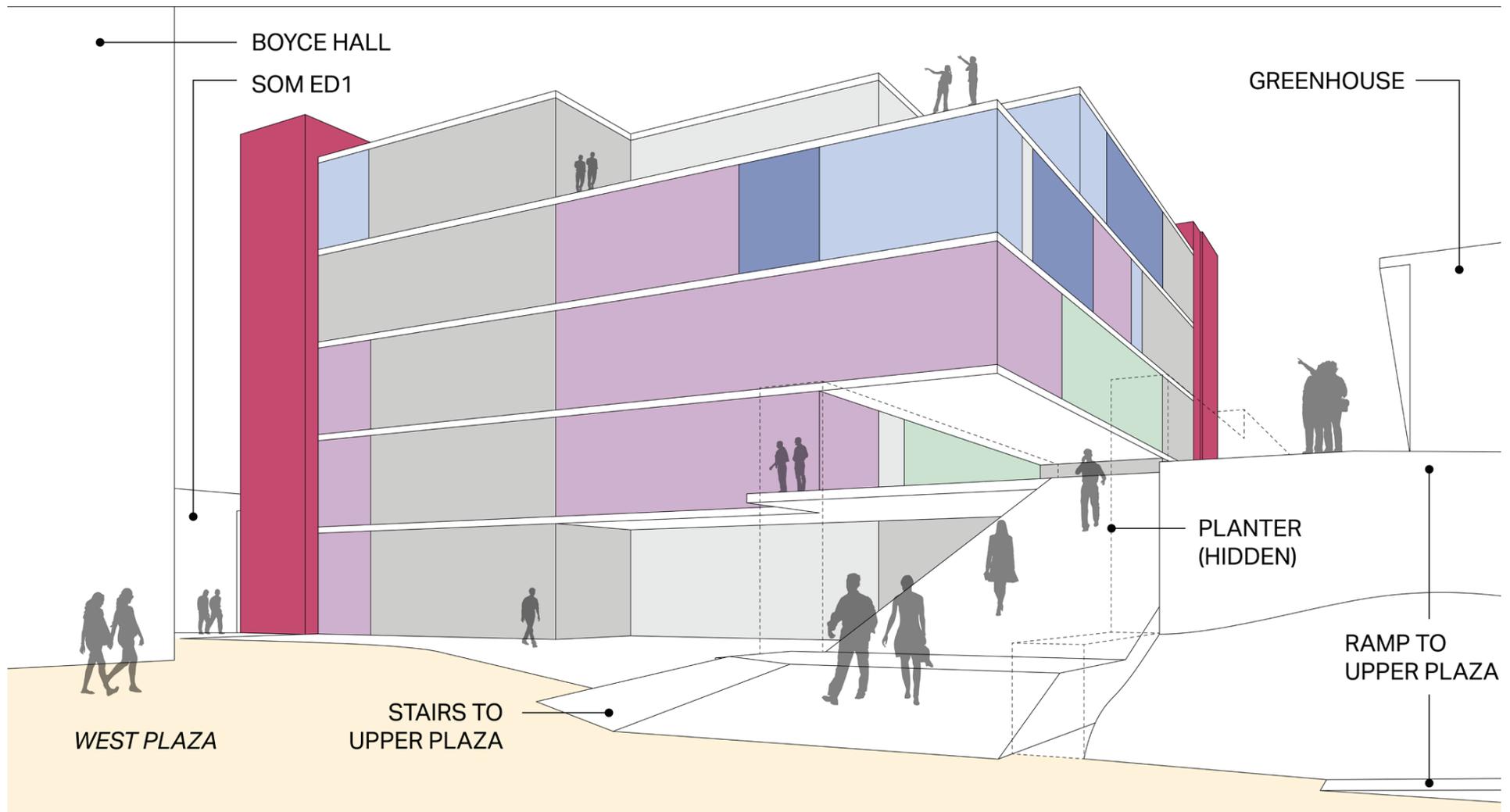
Conceptual Massing/Program Stack from Northeast at East Campus Drive

Figure 10c

School of Medicine Education Building II



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- | | | | |
|--|---|--|--|
| OFFICE / WORKSTATION | INSTRUCTIONAL | SUPPORT | STAIR / ELEVATOR |
| OFFICE SUPPORT | COLLABORATION | CIRCULATION | PLAZA |

Source: AECOM 2020

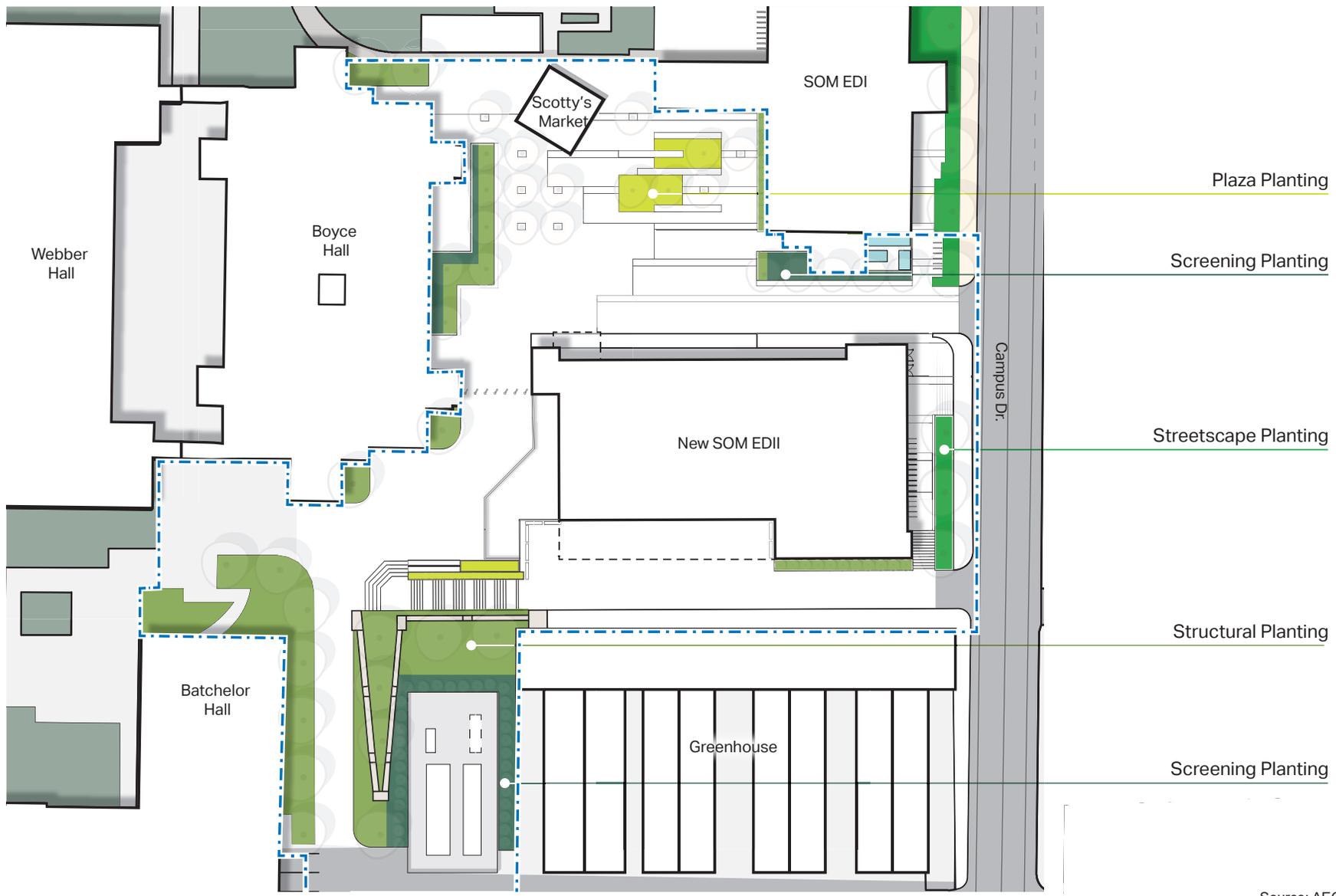
Conceptual Massing/Program Stack from West Plaza

Figure 10d

School of Medicine Education Building II



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Source: AECOM 2020

Conceptual Landscape Plan

School of Medicine Education Building II



Figure 11



landscape plans are consistent with the Campus Design Guidelines with respect to, among other items, retention of existing trees. Trees in the construction staging/laydown areas are to be protected in place or replaced in-kind.

In summary, the proposed project has been designed in consideration of the Campus Design Guidelines (PPs 4.1-1 and 4.1-2[a]) and will be subject to design review by the Campus Design Review Board (PS Development Strategy 1). The height, massing, site design, materials, and other aspects of the visual character of the proposed project would be consistent with and complementary to the existing surrounding structures and uses and would not degrade the existing visual quality of the project site and surroundings consistent with the findings of the LRDP EIR. There would be a less than significant impact with the incorporation of PS Development Strategy 1, PP 4.1-1, PP 4.1-2(a), and MM 4.1-3(a), consistent with the findings of the LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would not substantially degrade the existing visual character or quality of the site and its surroundings. The proposed project impacts would be less than significant with the incorporation of the PPs, PSs, and MM noted above. The proposed project impacts were adequately addressed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

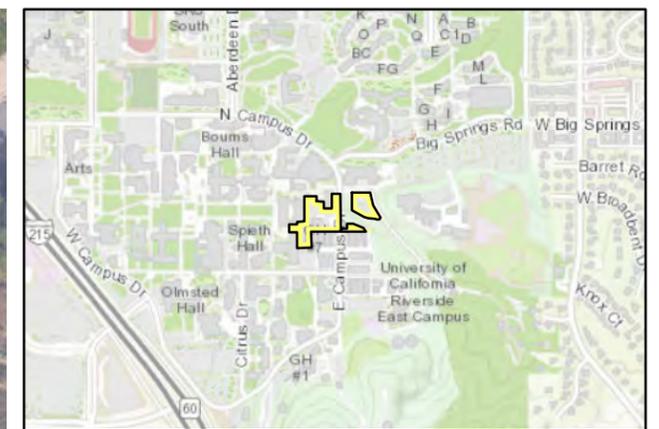
Discussion

The analysis of Impact 4.1-3 in the 2005 LRDP EIR concluded that implementation of PS Land Use 3, PS Open Space 1 through 4, PS Conservation 1 and 2, PS Campus & Community 1, PS Development Strategy 1, PP 4.1-1, PP 4.1-2(a), PP 4.1-2(b), and MM 4.1-3(a) through MM 4.1-3(c) would ensure that light and glare impacts on adjacent land uses resulting from development under the 2005 LRDP would be reduced or avoided, resulting in a less than significant impact.

Lighting on the project site currently includes light poles for security purposes. Other light sources in and surrounding the project site include, but are not limited to, streetlights along East Campus Drive, exterior lighting at existing buildings, and lighting along pedestrian pathways. The 2005 LRDP EIR identifies that the primary sources of light and glare on the UCR campus include recreation facilities at night and surface parking lots. There are no recreation facilities in the vicinity of the project site; however, there are surface parking lots. As stated previously, Parking Lot D17 and Parking Lot 40 would be demolished as part of the project. Additionally, Parking Lot 10 is located to the east, across East Campus Drive.

The proposed project is not in the vicinity of any light-sensitive uses. Lighting installed on the project site would follow all campus standards. There would be landscape/hardscape lighting

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Survey Area

Tree Species

- Queensland pittosporum (*Auranticarpa rhombifolia*)
- purple orchid tree (*Bauhinia variegata*)
- weeping bottlebrush (*Callistemon viminalis*)
- pecan (*Carya illinoensis*)
- deodar cedar (*Cedrus deodara*)
- floss silk (*Ceiba speciosa*)
- grapefruit (*Citrus X paradisi*)
- carrotwood (*Cupaniopsis anacardioides*)
- Italian cypress (*Cupressus sempervirens*)
- South African coral tree (*Erythrina caffra*)
- Shamel ash (*Fraxinus uhdei*)
- jacaranda (*Jacaranda mimosifolia*)
- Southern California black walnut (*Juglans californica*)
- goldenrain tree (*Koelreuteria paniculata*)
- glossy privet (*Ligustrum lucidum*)
- Pygmy date palm (*Phoenix roebelenii*)
- Aleppo pine (*Pinus halepensis*)
- Torrey pine (*Pinus torreyana*)
- western sycamore (*Platanus racemosa*)
- London plane (*Platanus X hispanica*)
- flowering pear (*Pyrus calleryana*)
- coast live oak (*Quercus agrifolia*)
- ▲ cork oak (*Quercus suber*)
- ▲ interior live oak (*Quercus wislizeni*)
- ▲ locust (*Robinia sp.*)
- ▲ Brazilian pepper tree (*Schinus terebinthifolius*)
- ▲ queen palm (*Syagrus romanzoffiana*)
- ▲ windmill palm (*Trachycarpus fortunei*)
- ▲ unknown



Aerial Source: Esri, Maxar 2019

Tree Inventory

School of Medicine
Education Building II

Figure 12



around the SoM Ed. II building, plaza, and project site. Exterior lighting would be provided at a level no less than one-fc. Additionally, such lighting would be reviewed by Planning, Design & Construction staff as to its coverage, intensity, and color temperature. Exterior building lighting would be down lighting. The lighting design for the site would be carefully considered to prevent light spillage while providing a safe environment with minimal dark zones.

Based on the level of lighting currently present on and near the project site and the existing level of ambient nighttime illumination at the UCR campus, the proposed project would not noticeably increase the intensity of nighttime ambient light from the campus. Additionally, construction of the proposed SoM Ed. II building would replace some existing parking lot lighting with pathway/plaza lighting and accent lighting associated with the new building, thus reducing the light intensity from the surface parking lots. Therefore, the lighting associated with the proposed project would not adversely affect any existing land uses, which are not considered light-sensitive (e.g., residential uses).

The proposed project also incorporates MM 4.1-3(a) to ensure there is no glare from the proposed structure. Building materials for the proposed project comply with the UCR Design Guidelines, and materials that are encouraged include the following: exposed architectural concrete; brick; matching existing building stock with color, texture, and dimensions; clear anodized or pre-finished aluminum in silver tones to complement the overall palette; curtain wall, storefront panels, and infill panels; pre-finished aluminum or unfinished zinc; rain screen cladding systems; equipment screens; exposed architectural steel; and brick should be used volumetrically, be carefully detailed and planned acknowledging the modular dimension of the UCR typical brick – a roman proportion (long and narrow).

Implementation of PS Development Strategy 1 (design review), PP 4.1-1 (design in compliance with the Campus Design Guidelines), and MM 4.1-3(a) (use of non-reflective building materials), as part of the proposed project, would ensure that impacts are less than significant. The proposed project would not result in a substantial new source of light or glare, and there would be less than significant impacts related to new sources of daytime or nighttime light and glare, consistent with the findings of the LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

There would be a less than significant impact associated with the creation of a new source of substantial light or glare affecting day or nighttime views in the area with the incorporation of the PSs, PPs, and MMs noted above. The proposed project impacts were adequately addressed in the LRDP EIR.

2. Agriculture and Forestry Resources

The analysis of agriculture and forestry resources is tiered from the 2005 LRDP Amendment 2 EIR and was addressed in Section 4.2, Agricultural Resources, of that document. There are no relevant elements of the proposed project related to agriculture or forestry resources, and no PSs, PPs, or MMs are applicable. There are no agriculture or forestry resources on or near the project site.

Project Impact Analysis

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project 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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Would the project 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))?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Would the project result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Would the project 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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

The analysis of Impact 4.2-1 in Section 4.2, Agricultural Resources, of the 2005 LRDP Amendment 2 EIR concluded that, even with implementation of PS Land Use 1, PS Land Use 2, and PS Land Use 3, development under the 2005 LRDP, as amended, would result in a significant and unavoidable impact due to conversion of Prime Farmland to non-agricultural uses with improvements on the West Campus. However, implementation of the 2005 LRDP would not result in the loss of Prime Farmland on the East Campus, where the proposed project is located. Additionally, the possible relocation of the SoM modular trailer to the surface parking area at the Corporation Yard on East Campus or to the northwest of Parking Lot 30 on the West Campus is not within an area designed as Prime Farmland.

The 2005 LRDP Amendment 2 EIR identified the distribution of Farmland, as designated by the California Department of Conservation (DOC) Farmland Mapping and Monitoring Program (FMMP), on the UCR campus at that time. The UCR campus was mapped as having 481.7 acres of Prime Farmland and Farmland of Statewide Importance (collectively, "Farmland") primarily located on the West Campus with an isolated area of Farmland of Statewide Importance located along the eastern boundary of the East Campus. Review of the 2016 Important Farmland Map indicates a similar distribution of Farmland, primarily on the West Campus with an isolated area near the eastern boundary of the East Campus (DOC 2016). The project site and the relocation sites for the SoM modular trailer is designated as Urban Built-Up Land or Other Land and, as such, implementation of the proposed project would not convert Farmland to non-agricultural resources (DOC 2016). Therefore, the proposed project would have no impact on agricultural resources.

As identified in the IS prepared for, and summarized in, the 2005 LRDP Amendment 2 EIR, no portion of the UCR campus is zoned for forest land, timberland, or agricultural use. The campus does not contain any forest land or timberland and is not under a Williamson Act Contract. Therefore, implementation of the proposed project would result in no impacts related to conflict with existing zoning for forest land, timberland, or agriculture; it would not conflict with a Williamson Act Contract; and it would not result in the loss or conversion of forest lands, consistent with the findings of the 2005 LRDP Amendment 2 EIR.

Implementation of the proposed project would not involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use. Therefore, the proposed project would result in no impacts related to indirect conversion of Farmland to non-agricultural use, consistent with the findings of LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

There would be no impacts to Farmland, forest land, timberland, or Williamson Act Contracts. The proposed project impacts were adequately addressed in the LRDP EIR.

3. Air Quality

The analysis of air quality is tiered from the 2005 LRDP Amendment 2 EIR and was addressed in Section 4.3, Air Quality, of that document. Relevant elements of the proposed project related to air quality include the demolition of surface parking areas (Parking Lot D17 and Parking Lot 40), a greenhouse and headhouse (Greenhouse #6), an emergency and service access drive, and other hardscape and landscape areas; removal of SoM modular trailer; use of diesel-powered off-road construction equipment and on-road trucks used for material deliveries/debris hauling; construction of an approximately 120,000 gsf SoM Ed. II building with associated hardscape, landscape, and on-site improvements.

The following applicable PSs, PPs, and MMs were adopted as part of the 2005 LRDP EIR and 2005 LRDP Amendment 2 EIR; they are incorporated as part of the proposed project and are assumed in the analysis presented in this section.

- | | |
|----------------------------------|---|
| PS Campus and Community 4 | Provide strong connections within the campus and its edges to promote walking, bicycling, and transit use, rather than vehicular traffic. |
| PS Transportation 3 | Provide a continuous network of bicycle lanes and paths throughout the campus, connecting to off-campus bicycle routes. |
| PS Transportation 5 | Provide bicycle parking at convenient locations. |
| PP 4.3-1 | The Campus shall continue to implement a Transportation Demand Management (TDM) program that meets or exceeds all trip reduction and average vehicle ridership (AVR) requirements of the South Coast Air Quality Management District (SCAQMD). The TDM program may be subject to modification as new technologies are |

developed or alternate program elements are found to be more effective. *(This is identical to Transportation and Traffic PP 4.14-1.)*

PP 4.3-2(a)

Construction contract specifications shall include the following:

- (i) Compliance with all SCAQMD rules and regulations.
- (ii) Maintenance programs to assure vehicles remain in good operating condition.
- (iii) Avoid unnecessary idling of construction vehicles and equipment.
- (iv) Use of alternative fuel construction vehicles.
- (v) Provision of electrical power to the site, to eliminate the need for on-site generators.

PP 4.3-2(b)

The Campus shall continue to implement dust control measures consistent with SCAQMD Rule 403—Fugitive Dust during the construction phases of new project development. The following actions are currently recommended to implement Rule 403 and have been quantified by the SCAQMD as being able to reduce dust generation between 30 and 85 percent depending on the source of the dust generation. The Campus shall implement these measures as necessary to reduce fugitive dust. Individual measures shall be specified in construction documents and require implementation by construction contractor:

- (i) Apply water and/or approved non-toxic chemical soil stabilizers according to manufacturer's specification to all inactive construction areas (previously graded areas that have been inactive for 10 or more days).
- (ii) Replace ground cover in disturbed areas as quickly as possible.
- (iii) Enclose, cover, water twice daily, or apply approved chemical soil binders to exposed piles with 5 percent or greater silt content.
- (iv) Water active grading sites at least twice daily.
- (v) Suspend all excavating and grading operations when wind speeds (as instantaneous gusts) exceed 25 miles per hour over a 30-minute period.
- (vi) All trucks hauling dirt, sand, soil, or other loose materials shall be covered or maintain at least two feet of freeboard (i.e., minimum vertical distance between top of the load and the top of the trailer), in accordance with Section 23114 of the *California Vehicle Code*.

- (vii) Sweep streets at the end of the day if visible soil material is carried over to adjacent roads.
- (viii) Install wheel washers where vehicles enter and exit unpaved roads onto paved roads, or wash off trucks and any equipment leaving the site each trip.
- (ix) Apply water three times daily or chemical soil stabilizers according to manufacturers' specifications to all unpaved parking or staging areas or unpaved road surfaces.
- (x) Post and enforce traffic speed limits of 15 miles per hour or less on all unpaved roads.

(This is identical to Geology PP 4.6-2[a] and Hydrology PP 4.8-3[c].)

MM 4.3-1(a)

For each construction project on the campus, the project contractor will implement Programs and Practices 4.3-2(a) and 4.3-2(b). In addition, the following PM-10 and PM-2.5 control measure shall be implemented for each construction project:

- Post a publicly visible sign with the telephone number and person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The phone number of the District shall also be visible to ensure compliance.

MM 4.3-1(b)

For each construction project on the campus, the University shall require that the project include a construction emissions control plan that includes a comprehensive inventory of all off-road construction equipment, equal to or greater than 50 horsepower, that will be used for an aggregate of 40 or more hours during any portion of the construction project. During construction activity, the contractor shall utilize CARB certified equipment or better for all on-site construction equipment according to the following schedule:

- Post January 1, 2015: All off-road diesel-powered construction equipment greater than 50 hp shall meet the Tier 4 emission standards, where available. In addition, all construction equipment shall be outfitted with BACT devices certified by CARB. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations.
- A copy of each unit's certified specification, BACT documentation and CARB or SCAQMD operating permit

shall be provided at the time of mobilization of each applicable unit or equipment.

- Encourage construction contractors to apply for AQMD “SOON” funds. Incentives could be provided for those construction contractors who apply for AQMD “SOON” funds. The “SOON” program provides funds to accelerate clean-up of off-road diesel vehicles, such as heavy duty construction equipment. More information on this program can be found at the following website: <http://www.aqmd.gov/home/programs/business/business-detail?title=off-road-diesel-engines&parent=vehicle-engine-upgrades>.

The contractor shall also implement the following measures during construction:

- Prohibit vehicle and engine idling in excess of 5 minutes and ensure that all off-road equipment is compliant with the California Air Resources Board’s (CARB) in-use off-road diesel vehicle regulation and SCAQMD Rule 2449.
- Configure construction parking to minimize traffic interference.
- Provide temporary traffic controls such as a flag person, during all phases of construction to maintain smooth traffic flow.
- Provide dedicated turn lanes for movement of construction trucks and equipment on- and off site.
- Schedule construction activities that affect traffic flow on the arterial system to off-peak hour to the extent practicable.
- Improve traffic flow by signal synchronization, and ensure that all vehicles and equipment will be properly tuned and maintained according to manufacturers’ specifications.
- Use diesel-powered construction vehicles and equipment that operate on low-NOx fuel where possible.
- Reroute construction trucks away from congested streets or sensitive receptor areas.
- Maintain and tune all vehicles and equipment according to manufacturers’ specifications.

MM 4.3-1(c)

To minimize VOC emissions from the painting/finishing phase, for each construction project on the campus, the project contractor will implement the following VOC control measures:

- Construct or build with materials that do not require painting, or use pre-painted construction materials.

- If appropriate materials are not available or are cost-prohibitive, use low VOC-content materials more stringent than required under SCAQMD Rule 1113.

MM 4.3-2(b)

UCR shall continue to participate in greenhouse gas (GHG) reduction programs such as the American College and University Presidents' Climate Commitment (ACUPCC) and shall adhere to the UC Policy on Sustainable Practices. The measures adopted by UCR are presented in Tables 4.16-9 and 4.16-10 in Section 4.16 Greenhouse Gas Emissions of the 2005 LRDP Amendment 2 EIR. While these measures are typically targeted at GHG emissions, many act to reduce energy consumption and vehicle use on campus and would consequently also reduce air pollutant emissions from both area and mobile sources. In accordance with the ACUPCC and the UC Policy on Sustainable Practices and through implementation of its Climate Action Plan (CAP), UCR shall commit to reducing GHG emissions to 1990 levels by 2020, which would require significant reductions (on the order of 70 percent) from these sources in terms of GHG and therefore reductions in other air pollutants as well.

Regulatory Framework

A detailed discussion of the regulatory framework for air quality is provided in Section 4.3 of the 2005 LRDP Amendment 2 EIR. In summary, both the federal and State governments have established ambient air quality standards for outdoor concentrations of specific pollutants, referred to as "criteria pollutants", in order to protect public health. The national and State ambient air quality standards have been set at concentration levels to protect the most sensitive persons from illness or discomfort; these levels are given with a margin of safety. The criteria pollutants for which federal standards have been promulgated and that are most relevant to this air quality impact analysis are ozone (O₃), carbon monoxide (CO), nitrogen dioxide (NO₂), and particulate matter (PM-10 and PM-2.5). Respirable particulate matter with an aerodynamic diameter of 10 micrometers or less is referred to as PM-10. Fine particulate matter (i.e., PM-2.5) is a subgroup of particulate matter that consists of smaller particles that have an aerodynamic diameter of 2.5 micrometers or less. O₃ is a gas that is formed when Volatile Organic Compounds (VOCs) and nitrogen oxides (NO_x)—both byproducts of internal combustion engine exhaust—undergo slow photochemical reactions in the presence of sunlight. Thus, VOCs and NO_x are O₃ precursors.

The campus is located within the South Coast Air Basin (SoCAB), which was named as such since its geographical formation is that of a basin with the surrounding mountains trapping the air and its pollutants in the valleys (or basins) below. This area includes all of Orange County and the non-desert portions of Los Angeles, San Bernardino, and Riverside Counties. The South Coast Air Quality Management District (SCAQMD) is responsible for ensuring that the SoCAB meets the national and State ambient air quality standards.

Subsequent to the preparation of the air quality study for the 2005 LRDP Amendment 2 EIR, there have been changes to the attainment status in the SoCAB. These changes include federal designation of the SoCAB as a PM-10 attainment area and federal designation of Los Angeles County as a nonattainment area for lead. The current federal and State attainment designations are shown in Table 1.

**TABLE 1
ATTAINMENT STATUS OF CRITERIA POLLUTANTS
IN THE SOUTH COAST AIR BASIN**

Pollutant	State	Federal
O ₃ (1 hour)	Nonattainment	No Standard
O ₃ (8 hour)		Nonattainment
PM-10	Nonattainment	Attainment
PM-2.5	Nonattainment	Nonattainment
CO	Attainment	Unclassified/Attainment
NO ₂	Attainment	Unclassified/Attainment
SO ₂	Attainment	Unclassified/Attainment
Lead	Attainment	Attainment/Nonattainment*

Notes: O₃: ozone; PM-10: respirable particulate matter 10 micrometers or less in diameter; PM-2.5: fine particulate matter 2.5 micrometers or less in diameter; CO: carbon monoxide; NO₂: nitrogen dioxide; SO₂: sulfur dioxide.

* The Los Angeles County portion of the South Coast Air Basin (SoCAB) is designated nonattainment for lead; the remainder of the SoCAB is designated attainment.

Source: CARB 2019b.

Air Quality Management Plan

In December 2012, the SCAQMD adopted the 2012 Air Quality Management Plan (AQMP), which is a regional and multiagency effort (SCAQMD, California Air Resources Board [CARB], Southern California Association of Governments [SCAG], and the U.S. Environmental Protection Agency [USEPA]). The 2012 AQMP incorporated the latest scientific and technical information and planning assumptions, including SCAG’s 2012–2035 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), updated emission inventory methods for various source categories, and SCAG’s latest growth forecasts. The primary purposes of the 2012 AQMP are to demonstrate attainment of the federal 24-hour PM-2.5 standard by 2014 and to update the USEPA-approved 8-hour Ozone Control Plan. On December 20, 2012, the 2012 AQMP was submitted to CARB and the USEPA for concurrent review and approval for inclusion in the State Implementation Plan (SCAQMD 2013). CARB approved the 2012 AQMP on January 25, 2013.

The SCAQMD updated its AQMP for the SoCAB in 2016, which included a new approach focusing on available, proven, and cost effective alternatives to traditional strategies, while seeking to achieve multiple goals in partnership with other entities, promoting reductions in GHGs and toxic risk, as well as efficiencies in energy use, transportation, and goods movement. The most effective way to reduce air pollution impacts on the health of the nearly 17 million residents within the SoCAB, including those in disproportionately impacted and environmental justice communities that are concentrated along transportation corridors and goods movement facilities, is to reduce emissions from mobile sources, the principal contributor to air quality challenges within the SoCAB. For that reason, the SCAQMD has been and would continue to be closely engaged with CARB and the USEPA who have primary responsibility for these sources. The 2016 AQMP recognized the critical importance of working with other agencies to develop funding and other incentives that encourage the accelerated transition of vehicles, buildings, and industrial facilities to cleaner technologies in a manner that benefits not only air quality, but also local businesses and the regional economy. These “win-win” scenarios are key to implementation of the 2016

AQMP with broad support from a wide range of stakeholders. The 2016 AQMP includes strategies and measures to meet the following National Ambient Air Quality Standards (SCAQMD 2017):

- 8-hour O₃ (75 parts per billion [ppb]) by 2031⁵
- Annual PM-2.5 (12 micrograms per cubic meter [$\mu\text{g}/\text{m}^3$]) by 2025
- 8-hour O₃ (80 ppb) by 2023
- 1-hour O₃ (120 ppb) by 2022
- 24-hour PM_{2.5} (35 $\mu\text{g}/\text{m}^3$) by 2019

The SCAG assists by preparing the transportation portion of the AQMP. This includes the preparation of a SCS that responds to planning requirements of Senate Bill 375 and demonstrates the region's ability to attain GHG reduction targets set forth in State law. The SCS identifies regional and local efforts to promote new housing and employment in high-quality transit areas that would support development patterns that complement the evolving transportation network. The SCS was incorporated in the 2016 Regional Transportation Plan, adopted by SCAG on April 7, 2016. The AQMP for the SoCAB establishes a program of rules and regulations directed at attainment of the State and national air quality standards. Ultimately, a project's operational cumulative impact is judged against its consistency with the applicable AQMP. Conformance with the AQMP for development projects is determined by demonstrating compliance with local land use plans.

Air Quality Sensitive Receptors

The SCAQMD defines typical sensitive receptors as residences, schools, playgrounds, childcare centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes. The project site is not located within a K-12 school. The nearest off-campus sensitive receptors to the project site are single-family residential uses at the end of the cul-de-sac along West Broadbent Drive, west of Watkins Drive, located approximately 1,900 feet to the east of the project site. The nearest on-campus noise sensitive use is Lothian Residence Hall located approximately 850 feet to the north of the project site. Potential impacts to sensitive receptors from construction emissions are assessed under the analysis of Threshold (d) below.

Methodology and Criteria Pollutant Emissions Thresholds

Criteria pollutant emissions for project construction and operation were calculated using the California Emissions Estimator Model (CalEEMod), Version 2016.3.2. 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 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. Where specific information was not known, engineering judgment and default CalEEMod settings and parameters were used. The input data and subsequent construction and operation emission

⁵ On October 1, 2015, the USEPA lowered the 8-hour O₃ standard to 0.070 parts per million (ppm) (70 parts per billion [ppb]). The State Implementation Plan (or AQMP) for the 70 ppb standard will be due four years after the attainment/nonattainment designations are issued by the USEPA, which is expected in 2017. Thus, meeting the 70 ppb standard will be addressed in a 2021 AQMP.

estimates for the proposed project are discussed below. CalEEMod output files for the project are included in Appendix A to this report.

The SCAQMD recommends that projects be evaluated in terms of their quantitative thresholds, which have been established to assess both the regional and localized impacts of project-related air pollutant emissions. The significance thresholds are updated, as needed, to appropriately represent current ambient air quality standards and attainment status. As identified in Section 4.3.4, Impacts and Mitigation Measures, of the 2005 LRDP Amendment 2 EIR, UCR utilizes the SCAQMD-recommended thresholds that are in place at the time development projects are proposed in order to assess the significance of quantifiable emissions. The current SCAQMD thresholds are identified in Table 2 and are applied to the proposed project.

**TABLE 2
SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT AIR QUALITY
SIGNIFICANCE THRESHOLDS**

Mass Daily Thresholds ^a		
Pollutant	Construction	Operation
NOx	100 lbs/day	55 lbs/day
VOC	75 lbs/day	55 lbs/day
PM-10	150 lbs/day	150 lbs/day
PM-2.5	55 lbs/day	55 lbs/day
SOx	150 lbs/day	150 lbs/day
CO	550 lbs/day	550 lbs/day
Lead	3 lbs/day	3 lbs/day
Toxic Air Contaminants, Odor, and Greenhouse Gas Thresholds		
TACs (including carcinogens and non-carcinogens)	Maximum Incremental Cancer Risk \geq 10 in 1 million Cancer Burden > 0.5 excess cancer cases (in areas \geq 1 in 1 million) Chronic and Acute Hazard Index \geq 1.0 (project increment)	
Odor	Project creates an odor nuisance pursuant to SCAQMD Rule 402	
GHG	10,000 MT/yr CO ₂ e for industrial facilities	
<p>Notes: NOx: nitrogen oxides; lbs/day: pounds per day; VOC: volatile organic compound; PM-10: respirable particulate matter with a diameter of 10 micrometers or less; PM-2.5: fine particulate matter with a diameter of 2.5 micrometers or less; SOx: sulfur oxides; SO₂: sulfur dioxide; CO: carbon monoxide; TACs: toxic air contaminants; GHG: greenhouse gases; SCAQMD: South Coast Air Quality Management District; MT/yr CO₂e: metric tons per year of carbon dioxide equivalents; NO₂: nitrogen dioxide; ppm: parts per million; $\mu\text{g}/\text{m}^3$: micrograms per cubic meter.</p> <p>^a Source: SCAQMD Air Quality Significance Thresholds (SCAQMD 2019). ^b Ambient air quality thresholds for criteria pollutants based on SCAQMD Rule 1303, Table A-2 unless otherwise stated. ^c Ambient air quality threshold is based on SCAQMD Rule 403.</p> <p>Source: SCAQMD 2019.</p>		

Localized Significance Thresholds

The SCAQMD has developed Localized Significance Thresholds (LST) for projects that generate air pollutants that have the potential to affect land uses proximate to a project site. The Final Localized Significance Threshold Methodology (SCAQMD 2003) provides the methodology used for this localized air quality assessment. The LSTs were developed to determine whether a project would result in construction or operations phase emissions which may potentially result in health impacts for NOx, CO, PM10 and PM2.5. The LSTs provide a simplified look-up table for projects that are 1 to 5 acres in size in lieu of detailed project-specific air quality dispersion modeling that is typically required for this type of analysis. If project emissions are below these LSTs, no significant health impacts related to the project’s air pollutant emissions are anticipated.

Project Impact Analysis

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

The analysis of Impact 4.3-6 in the 2005 LRDP Amendment 2 EIR concluded that, even with implementation of PS Land Use 4 and PS Land Use 5, PS Transportation 1 through 6, and MM 4.3-6 (which implements MM 4.3-1 and MM 4.3-2[b]), development under the 2005 LRDP would likely conflict with SCAQMD AQMPs for O₃ and particulate matter; and there would be a significant and unavoidable impact. This conclusion was based on the forecasted construction emissions that exceed SCAQMD CEQA significance mass daily thresholds for VOC, NO_x, and PM-10 and operational emissions that exceed the mass daily thresholds for VOC, NO_x, PM-10, and PM-2.5.

The two principal criteria for conformance to the AQMP are whether (1) the project would result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations or delay timely attainment of air quality standards and (2) whether the project would exceed the assumptions in the AQMP (SCAQMD 1993).

With respect to the first criterion, the following is an analysis of the short-term construction-related and long-term operational emissions that would result from implementation of the proposed project.

The analysis of Impacts 4.3-1 and 4.3-2 in the 2005 LRDP Amendment 2 EIR concluded that, even with implementation of PP 4.3-1, PP 4.3-2(a), PP 4.3-2(b), MM 4.3-1(a) through MM 4.3-1(c), MM 4.3-2(a), and MM 4.3-2(b), development under the 2005 LRDP could result in significant and unavoidable impacts related to:

- Construction emissions of VOC, NO_x, and PM-10 (Impact 4.3-1) and
- Operational emissions of VOC, NO_x, CO, PM-10, and PM-2.5 (Impact 4.3-2).

Construction Emissions

Construction-related emissions are described as short-term (or temporary) in duration. Construction activities associated with the proposed project would result in emissions of criteria air pollutants (i.e., PM-10, PM-2.5, CO, and the O₃ precursors VOC and NO_x) from (1) construction equipment that performs demolition, excavation, grading, paving, and building construction; (2) material handling and transport (i.e., removal of demolished materials and trucking of building materials to the project site); and (3) other miscellaneous activities, including worker commuting vehicles and application of architectural coatings.

As described further in Section II, Project Description, of this IS/MND, the total construction period is anticipated to extend from summer 2021 to summer 2023, for a period of approximately 23 months. The construction schedule utilized for the analysis represents a “worst-case” scenario since if actual construction occurs after the dates assumed, emission factors for equipment and

on-road vehicles decrease as the construction start date gets delayed due to the inclusion of newer less polluting equipment.

Approximately 48,300 sf (i.e., 1.1 acres) of asphalt would be demolished during construction, resulting in approximately 500 cubic yards (cy), or 1,000 tons of demolition material. Approximately 100,000 sf (i.e., 2.3 acres) of the project site would be graded. Approximately 16,355 cy of soil would be excavated (cut) and no fill would be required during grading activities. Approximately 36,600 sf of the project site would be paved, which includes approximately 10,000 sf for the new plaza hardscape; approximately 9,000 sf for the east-west fire lane north of existing greenhouses #6-#10; and approximately 17,600 sf for the southwest fire/service lane improvement. Net new hardscape is approximately 20,500 sf.

Construction for the proposed project were calculated by using the CalEEMod, Version 2016.3.2. Compliance with SCAQMD rules is required and included as part of the proposed project (PP 4.3-2[a]). Additionally, the proposed project includes PPs and MMs that serve to reduce construction-related emissions and have been assumed in the analysis. Specifically, construction would be performed in accordance with SCAQMD's Rule 403, Fugitive Dust (PP 4.3-2[b]) and Rule 1113, Architectural Coatings (MM 4.3-1[c]). Additionally, Tier 4 construction equipment would be used, per MM 4.3-1(b). Table 3, Modeled Construction Equipment, shows the proposed construction equipment anticipated to be used for the project.

**TABLE 3
MODELED CONSTRUCTION EQUIPMENT**

Construction Phase	Construction Equipment	Hours of Operation
Demolition	1 Concrete/Industrial Saws	8
	1 Excavator	8
	1 Rubber Tired Dozer	8
	1 Skid Steer Loader	8
	1 Tractors/Loaders/Backhoes	8
Site Preparation	3 Rubber Tired Dozer	8
	4 Tractors/Loaders/Backhoe	8
Grading	2 Excavators	8
	1 Grader	8
	1 Roller	8
	1 Rubber Tired Dozer	8
	1 Tractors/Loaders/Backhoe	8
Building Construction	1 Crane	7
	1 Excavator	8
	3 Forklifts	8
	1 Generator Set	8
	2 Tractors/Loaders/Backhoe	7
	1 Welders	8
Paving	2 Cement and Mortar Mixer	6
	1 Paver	8
	2 Paving Equipment	6
	2 Roller	6
	1 Tractors/Loaders/Backhoe	8
Architectural Coating	1 Air Compressor	6

Source: CalEEMod (Appendix A).

Table 4 summarizes the modeled maximum daily regional emissions for construction of the proposed project. Construction-related regional air quality impacts were determined by comparing these modeling results with applicable SCAQMD significance thresholds, as shown.

**TABLE 4
MAXIMUM DAILY REGIONAL CONSTRUCTION EMISSIONS FOR
THE PROPOSED PROJECT**

Construction Year	Emissions in Pounds per Day					
	VOC	NOx	CO	SO ₂	PM-10	PM-2.5
2021	1	9	42	<1	7	4
2022	1	5	22	<1	1	0
2023	45	6	36	<1	1	0
Maximum Daily Emissions	45	9	42	<1	7	4
SCAQMD Significance Thresholds (Construction)	75	100	550	150	150	55
Significant Impact?	No	No	No	No	No	No
<small>Notes: VOC: volatile organic compound; NOx: nitrogen oxides; CO: carbon monoxide; SO₂: sulfur dioxide; PM-10: respirable particulate matter less than 10 micrometers in diameter; PM-2.5: fine particulate matter less than 2.5 micrometers in diameter; SCAQMD: South Coast Air Quality Management District. Note: Calculations assume compliance with SCAQMD Rules 403 and 1113. Emissions were presented based on the highest emissions occurring for both the winter and summer seasons. Numbers were rounded to the nearest whole number. Source: CalEEMod model data sheets (Appendix A).</small>						

Estimated regional construction emissions would be less than the SCAQMD CEQA significance thresholds. Nonetheless, the project contractor would incorporate PP 4.3-2(a), MM 4.3-1(a), MM 4.3-1(b), and MM 4.3-1(c) in the LRDP EIR as standard construction practice to further reduce air quality impacts to the extent feasible. Therefore, construction emissions from the proposed project are considered to be less than significant with incorporation of PP 4.3-2(a), PP 4.3-2(b), MM 4.3-1(a), MM 4.3-1(b), and MM 4.3-1(c), consistent with the findings of the LRDP EIR.

Operational Emissions

Long-term operation emissions are evaluated at build-out of the project. The proposed project is assumed to be operational in 2023. Operational emissions are composed of area source, energy source, and mobile source emissions. Area source emissions would result from use of landscape maintenance equipment, periodic painting, and use of consumer products. Energy emissions are typically associated with energy use for the building and outside lighting. Mobile source emissions refer to on-road motor vehicle emissions generated from the project's traffic and are based on the new staff projections of approximately 65 net new staff members/faculty and approximately 225 net new students. The proposed project is anticipated to generate 578 daily trips with 49 trips in the morning peak hour and 51 trips in the evening peak hour. It should be noted that UCR implements PS Campus and Community 4 (promote campus-wide non-vehicular transportation), PS Transportation 3 (campus-wide bicycle network to connect to off-campus bicycle routes), PS Transportation 5 (provide bicycle parking), and PP 4.3-1 (campus-wide implementation of a transportation demand management program), which all serve to reduce vehicular trips.

The peak daily operational emissions associated with operation of the proposed project were calculated using CalEEMod and are shown in Table 5. As shown in Table 5, the operational emissions for the proposed project would be less than the SCAQMD CEQA significance thresholds. Furthermore, the proposed project would adhere to the UC Policy on Sustainable Practices (MM 4.3-2[b]) that would reduce air pollutant emissions from both area and mobile

sources and comply with the campus' TDM (Transportation Demand Management) Program (PP 4.3-1). Therefore, air quality impacts during project operations are considered to be less than significant with incorporation of PS Campus and Community 4, PS Transportation 3, PS Transportation 5, PP 4.3-1 and MM 4.3-2(b), consistent with the findings of the LRDP EIR.

**TABLE 5
PEAK DAILY OPERATIONAL EMISSIONS FOR THE PROPOSED PROJECT**

Emission Source	Maximum Daily Emissions in Pounds per Day					
	VOC	NOx	CO	SO ₂	PM-10	PM-2.5
Area Sources	3	<1	<1	<1	<1	<1
Energy Sources	<1	<1	<1	<1	<1	<1
Mobile Sources	1	1	11	<1	4	1
Peak daily operational emissions	3	1	11	<1	4	1
SCAQMD Significance Thresholds (Operational)	55	55	550	150	150	55
Significant Impact?	No	No	No	No	No	No

Notes: VOC: volatile organic compound; NOx: nitrogen oxides; CO: carbon monoxide; SO₂: sulfur dioxide; PM-10: respirable particulate matter less than 10 micrometers in diameter; PM-2.5: fine particulate matter less than 2.5 micrometers in diameter; SCAQMD: South Coast Air Quality Management District.

Totals may not add due to rounding. Emission values presented are the higher of summer or winter season emissions.

Source: CalEEMod model data sheets (Appendix A).

Therefore, with respect to the first criterion, with incorporation of the identified PSs, PPs, and MMs, the forecasted proposed project construction and operational emissions would not exceed the SCAQMD CEQA significance mass daily thresholds, which demonstrates that the proposed project would not result in a long-term increase in the frequency or severity of existing regional air quality violations, cause or contribute to new violations, or delay timely attainment of air quality standards. With respect to the second criterion, the increase in faculty and staff to accommodate a student population of 25,000 was identified in the 2005 LRDP. The project area was identified with an academic building and therefore, the trip generation associated with the project was evaluated in the 2005 LRDP EIR. As stated in Section 4.9 of the 2005 LRDP Amendment 2 EIR, "The projected growth in campus population by 2020 is within the SCAG projections for the City of Riverside. Therefore, the 2005 LRDP population increase would be consistent with AQMP attainment forecasts". The current 2016 AQMP would have included the projected growth associated with the 2005 LRDP, including the increase in population resulting from the proposed project. Additionally, the project site is in an area designated as "Academic" which allows for the development of the proposed project. Consequently, because the proposed project would have been accounted for in SCAG's RTP/SCS, the proposed project would not exceed the assumptions in the 2016 AQMP. Based on these criteria, it is concluded that the proposed project would not conflict with or obstruct the SCAQMDAQMP; there would be no impact, consistent with the findings of the LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would not conflict with or obstruct implementation of the applicable air quality plans; there would be no impact. The proposed project would have a less than significant impact related to violating the SCAQMD pollutant thresholds with incorporation of the PSs, PPs

and, MMs noted above. The proposed project impacts were adequately addressed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Would the project 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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

The analysis of Impact 4.3-7 in the 2005 LRDP Amendment 2 EIR concluded that, with implementation of MM 4.3-7 (implements MM 4.3-2(b), which will reduce traffic associated with campus operations), development under the 2005 LRDP would result in a less than significant impact related to a cumulatively considerable net increase of pollutants for which the project region is in nonattainment.

The Riverside County portion of the SoCAB is a federal and State nonattainment area for O₃ and PM-2.5 and a State nonattainment area for PM-10. Therefore, cumulative regional emissions of VOCs and NO_x (which are O₃ precursors) as well as PM-10 and PM-2.5 are addressed in the following analysis of cumulative criteria pollutant emissions (during construction activities and operation of the proposed project).

Construction Activities

As identified in Table 4.3-8 of the 2005 LRDP Amendment 2 EIR, construction of the remaining development on campus would include individual projects that would have construction emissions that would exceed the SCAQMD VOC, NO_x, and PM-10 emissions thresholds in some years. Because of the short duration of peak emissions and the relatively low VOC, NO_x, and PM-10 emission rates (refer to Table 4) compared to the SCAQMD CEQA significance thresholds, the cumulative contributions to construction emissions on campus from project-related construction emissions would not be considerable, and the impact would be less than significant with the incorporation of the PPs, and MMs noted in threshold 3.a), consistent with the findings of the LRDP EIR.

Operational Activities

The increase in long-term emissions of all nonattainment pollutants resulting from the proposed project (refer to Table 5) would be less than the SCAQMD CEQA significance thresholds and would not be cumulatively considerable. The impact would be less than significant with the incorporation of the PSs, PP, and MM noted in threshold 3.a), consistent with the findings of the LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

Construction and operation of the proposed project would result in a less than significant cumulatively considerable net increase of criteria pollutants for which the proposed project region is in nonattainment under an applicable federal or State ambient air quality standard (i.e., O₃, PM-10, and PM-2.5) with the incorporation of the PSs, PPs, and MMs noted in threshold 3.a). The proposed project impacts were adequately addressed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Would the project expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

The analysis of Impacts 4.3-3 and 4.3-4 in the 2005 LRDP Amendment 2 EIR concluded that development under the 2005 LRDP would result in a less than significant impact related to exposure of sensitive receptors to substantial concentrations of CO and toxic air contaminants (TACs). Exposure to substantial concentrations of construction emissions is a project-specific and site-specific analysis and was not evaluated in the 2005 LRDP Amendment 2 EIR.

Carbon Monoxide

Exposure of sensitive receptors to CO is of concern if the project contributes substantial traffic to severely-congested, high-volume, signalized intersections with an associated potential increase in local CO concentrations (i.e., CO hotspots). With project implementation, it is estimated that there would be a potential increase of approximately 578 trips per day. As such, the proposed project would generate a total of 49 trips in the morning peak hour and 51 trips in the evening peak hour. These peak-hour project-related traffic volumes are small and are not of sufficient magnitude to create a CO hotspot. This is consistent with the conclusion of the 2005 LRDP Amendment 2 EIR that implementation of the proposed project would not result in exposure of sensitive receptors to substantial concentrations of CO, and there would be no impact. No mitigation is required.

Toxic Air Contaminants

TACs are airborne substances that are capable of causing chronic (i.e., of long duration) and acute (i.e., severe but of short duration) adverse effects on human health. A human health risk assessment (HHRA) was prepared as part of the 2005 LRDP Amendment 2 EIR to estimate the potential off-campus and on-campus health risks associated with TACs generated by current and projected campus-wide operations. The emissions sources analyzed in the HHRA included natural gas combustion sources, boilers and kitchen equipment, gasoline dispensing operations, emergency generators driven by internal combustion engines (ICEs), painting operations, and laboratory fume hoods (chemical usage). The HHRA concluded that full development of the campus under the 2005 LRDP Amendment 2 would not generate toxic air emissions that would result in excess human cancer risk from stationary sources or that would result in a cumulative acute or chronic non-cancer Hazard Index that exceeds the established standards.

The proposed project would not add facilities or equipment that would emit substantial levels of TACs. Therefore, implementation of the proposed project would not result in exposure of the additional campus population to substantial concentrations of TACs. The impact would be less than significant, which is consistent with the findings of the 2005 LRDP Amendment 2 EIR.

Construction-Source Emissions LST Analysis

The SCAQMD has developed thresholds and methodologies for analyzing the localized air quality effects on a project-specific level. The localized significance thresholds (LST) methodology is a conservative, simple screening methodology for determining impacts to off-site receptors from on-site emissions (SCAQMD 2009). According to the LST methodology, only on-site emissions need to be analyzed. Emissions associated with vendor and worker trips are mobile source emissions that occur off site. The emissions analyzed under the LST methodology are NO₂, CO, PM-10, and PM-2.5. The LST methodology provides “lookup” tables of emissions limits based on the location of the project site, the size of the project site, and the distance to the off-site receptor. For the LST method for CO and NO₂, receptor locations include residential, commercial, and industrial land use areas and any other areas where persons can be situated for an hour at a time or longer consistent with the time periods used in the State of California’s ambient air quality standards for these pollutants. The PM-10 and PM-2.5 LSTs are based on a 24-hour exposure period for land uses which include residence, hotels and residence halls.

For the LST analysis for PM-10 and PM-2.5, the nearest sensitive receptor that may be exposed for 24-hours is the Lothian Residence Hall located approximately 259 meters (850 feet) to the north of the project site. For the LST analysis for CO and NO₂ which have an hourly exposure period, the distance to the receptors used for analysis is 25 meters (82 feet),⁶ which is the minimum distance prescribed for the LST methodology for all source-to-receptor distances of 25 meters (82 feet) or less. SCAQMD provides LST lookup tables for project sites that measure one, two, or five acres. Because no more than one acre would be subject to disturbance at any time based on construction phases, a worst-case analysis was used based on the thresholds for a one-acre site in Receptor Source Area 23, Metropolitan Riverside County were used. Based on these parameters, LST emissions and thresholds for the proposed project are shown in Table 6.

**TABLE 6
LST RESULTS FOR DAILY CONSTRUCTION EMISSIONS**

Pollutant	Maximum Daily On-Site Emissions ^a (lbs/day)	LST Thresholds (lbs/day)	Exceed Threshold?
NOx	5	118	No
CO	39	602	No
PM-10	7	89	No
PM-2.5	4	33	No
Notes: lbs/day: pounds per day; LST: localized significance threshold; NOx: nitrogen oxides; CO: carbon monoxide; PM-10: respirable particulate matter less than 10 micrometers in diameter; PM-2.5: fine particulate matter less than 2.5 micrometers in diameter. NOx and CO LST calculated based on a 25-meter source receptor distance while PM-10 and PM-2.5 is based on 259 meters from the project site to the Lothian Residence Hall. ^a CalEEMod model data sheets are included in Appendix A.			

⁶ The methodology for LST analysis uses the metric system for distance factors.

As shown in Table 6, the proposed project’s estimated construction emissions would not exceed the SCAQMD LST thresholds, and the impact from exposure to construction emissions at the nearest sensitive uses would be less than significant, consistent with the findings of the LRDP EIR.

Localized Significance – Long-Term Operational Activities

According to the SCAQMD LST methodology, LSTs would apply to the operational phase of a project. Project related emissions that occur at the project site were calculated and presented in Table 7. These emissions include those that are generated from landscaping, consumer products, architectural coatings as well as a portion of the vehicular trips. It was assumed that 5 percent of the emissions from vehicular trips would occur at the project site.

**TABLE 7
LST RESULTS FOR DAILY OPERATIONS EMISSIONS**

Pollutant	Maximum Daily On-Site Emissions^a (lbs/day)	LST Thresholds (lbs/day)	Exceed Threshold?
NOx	1	203	No
CO	1	1,114	No
PM-10	<1	25	No
PM-2.5	<1	10	No

Notes: lbs/day: pounds per day; LST: localized significance threshold; NOx: nitrogen oxides; CO: carbon monoxide; PM-10: respirable particulate matter less than 10 micrometers in diameter; PM-2.5: fine particulate matter less than 2.5 micrometers in diameter.
NOx and CO LST calculated based on a 25-meter source receptor distance while PM-10 and PM-2.5 is based on 259 meters from the project site to the Lothian Residence Hall.
^a CalEEMod model data sheets are included in Appendix A.

As shown in Table 7, the proposed project’s estimated operations emissions would not exceed the SCAQMD LST thresholds, and the impact from exposure to construction emissions at the nearest sensitive uses would be less than significant, consistent with the findings of the LRDP EIR. As such, the project site would not involve emission sources that result in substantial levels of emissions that would have the potential to adversely affect the nearest sensitive receptors. The largest source of emissions associated with the project site are existing parking lots that do not have the potential to result in significant levels of localized air pollutants due to the small number of additional vehicular trips (i.e., 49 morning and 51 evening peak hour trips). Elevated air pollutant concentrations related to vehicles is generally assessed based on the potential for CO hotspots. As discussed previously, CO hotspots are not expected to occur at local intersections. CO hotspots at parking lots are likewise not expected to occur due to the brevity of emissions within the parking lot and the requirement of passenger cars to have pollutant control devices (catalytic converters). Therefore, no significant impacts associated with exceedance of the LST from the operational phase of the project would occur consistent with the findings of the LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

Construction and operation of the proposed project would have a less than significant impact related to exposure of sensitive receptors to substantial pollutant concentrations. The proposed project impacts were adequately addressed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

The analysis of Impact 4.3-5 in the 2005 LRDP Amendment 2 EIR concluded that development under the 2005 LRDP would result in a less than significant impact related to objectionable odors.

Construction activities may result in other emissions (e.g., those leading to odors), such as diesel exhaust associated with operations of diesel-fueled construction vehicles/equipment, architectural coatings, and asphalt paving. These odors are typical of urbanized environments and would be subject to construction and air quality regulations, including proper maintenance of machinery to minimize engine emissions. These emissions would occur during daytime hours and would be isolated to the immediate vicinity of construction activities. The odors would be of a relatively small magnitude and short duration and would quickly disperse into the atmosphere. These odors are not pervasive enough to cause objectionable odors affecting a substantial number of people. The project uses are also regulated from nuisance odors or other objectionable emissions by SCAQMD Rule 402. Rule 402 prohibits any the discharge from any source of air contaminants or other material which would cause injury, detriment, nuisance, or annoyance to people or the public. As such, the project would have a less than significant impact.

As identified in the 2005 LRDP Amendment 2 EIR, the campus does not contain any facilities that are considered by the SCAQMD to be odor-emitting, and no such facilities would be added. Additionally, the CARB has developed an Air Quality and Land Use Handbook that outlines major common sources of odor complaints, including sewage treatment plants, landfills, recycling facilities, and petroleum refineries (CARB 2005). However, the proposed project does not include any such uses. Therefore, long-term operation of the proposed project would not expose substantial numbers of persons to objectionable odors.

In summary, impacts from construction or operation of the proposed project related to odors would be less than significant, consistent with the findings of the 2005 LRDP Amendment 2 EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would create a less than significant impact associated with other emissions affecting a substantial number of people. The proposed project impacts were adequately addressed in the LRDP EIR.

4. Biological Resources

The analysis of biological resources is tiered from the 2005 LRDP EIR and was addressed in Section 4.4, Biological Resources, of that document. Relevant elements of the proposed project related to biological resources include removal and/or retention of trees, ornamental landscape, and vegetation located within the project site. New trees are also proposed as part of the project.

The following applicable PS, PP, and MMs were adopted as part of the 2005 LRDP EIR and 2005 LRDP Amendment 2 EIR and are incorporated as part of the proposed project and assumed in the analysis presented in this section.

PS Conservation 2

Site buildings and plan site development to minimize site disturbance, reduce erosion and sedimentation, reduce stormwater runoff, and maintain existing landscapes, including healthy mature trees whenever possible.

PP 4.4-2(b)

In compliance with National Pollutant Discharge Elimination System (NPDES), the campus would continue to implement Best Management Practices, as identified in the UCR Stormwater Management Plan (UCR 2003):

- i. Public education and outreach on stormwater impacts
- ii. Public involvement/participation
- iii. Illicit discharge detection and elimination
- iv. Pollution prevention/good housekeeping for facilities
- v. Construction site stormwater runoff control
- vi. Post-construction stormwater management in new development and redevelopment

(This is identical to Geology and Soils PP 4.6-2(b) and Hydrology PP 4.8 3(d).)

MM 4.4-4(a)

Prior to the onset of construction activities that would result in the removal of mature trees that would occur between March and mid-August, surveys for nesting special status avian species and raptors shall be conducted on the affected portion of the campus following USFWS and/or CDFW guidelines. If no active avian nests are identified on or within 250 feet of the construction site, no further mitigation is necessary.

MM 4.4-4(b)

If active nests for avian species of concern or raptor nests are found within the construction footprint or a 250-foot buffer zone, exterior construction activities shall be delayed within the construction footprint and buffer zone until the young have fledged or appropriate mitigation measures responding to the specific situation have been developed and implemented in consultation with USFWS and CDFW.

Additionally, PP 4.1-2(a) (included under the Aesthetics analysis, which is Section V.1 of this IS/MND) is included in the proposed project. PP 4.1-2(a) requires development of landscape plans that are consistent with the Campus Design Guidelines (including tree retention).

Project Impact Analysis

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project 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 Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

The analysis of Impact 4.4-1 in the 2005 LRDP EIR concluded that, with implementation of PS Open Space 1 through 4, PS Conservation 1 through 3, PP 4.4-1(a), PP 4.4-1(b), MM 4.4-1(a), and MM 4.4-1(b), development under the 2005 LRDP would result in less than significant impacts on candidate, sensitive, and special-status plant and wildlife species.

Based on the land use and open space designations defined in the 2005 LRDP, on-campus plant and wildlife resources can be generally described by four biological resource “associations” as follows:

- **Natural** areas are undeveloped open space and are composed of native and naturally occurring plant species. This association refers to the southeast hills on the East Campus, where the primary plant community is coastal sage scrub.
- **Naturalistic** areas are mostly undeveloped but have been subject to modification and/or the introduction of ornamental trees and shrubs. This association is limited to drainage channels or arroyos, Picnic Hill, and the Botanic Gardens.
- **Landscaped** areas are open spaces that have been developed with turf-covered lawn areas, mature trees, and shrubs or groundcover in planting beds, typically around the edges of these spaces. This association dominates the academic core and the residential areas of the East Campus.
- **Agricultural** areas are undeveloped land that is used for agricultural teaching and research and is dominated by row crops and orchards. This association is found on most of the West Campus.

As identified in the 2005 LRDP EIR, a literature search determined that special status plant and animal species have the potential to occur within Natural and Naturalistic areas of the campus; several sensitive wildlife species and one sensitive plant species were observed within the UCR Botanic Gardens (refer to Tables 4.4-1 and 4.4-2 of the 2005 LRDP EIR). Therefore, development within Natural and Naturalistic areas could result in substantial direct and indirect (e.g., removal of foraging habitat) adverse impacts on candidate, sensitive, and/or special status species. The distribution of the campus’ Natural and Naturalistic areas is shown on Figure 4.4-1, Existing Campus Biological Resources, of the 2005 LRDP EIR. As shown, the project site is not located

within a Natural or Naturalistic open space areas; however, there are designated areas immediately to the east of the project site and to the west and south of Parking Lot 10. Construction of the proposed SoM Ed. II building would not indirectly impact the open space area (including the Botanic Gardens Detention Basin) as it is located east of the project site with East Campus Drive separating the site from this area. Additionally, the possible relocation of the SoM modular trailer temporarily to Parking Lot 10, and subsequently to the surface parking area at the Corporation Yard on East Campus or to the northwest of Parking Lot 30 on the West Campus would not impact this open space area as the SoM modular trailer will be placed within previously disturbed/developed areas on campus.

According to the Tree Inventory Report prepared by Psomas (Appendix B), the study area has no existing native vegetation types; it currently supports developed (hardscape) areas with landscaped areas interspersed within the larger developed area. Trees that are located within the project site that are to be removed include 6 native trees and 74 non-native trees, which will be replaced in accordance with the draft *UCR Tree Preservation and Replacement Guidelines* of at least a 1:1 ratio. All other trees in the parking, laydown, and staging areas noted in Figure 12 are to be protected in place (Psomas 2020a).

Native trees include 1 western sycamore (*Platanus racemosa*), 4 coast live oaks (*Quercus agrifolia*), and 1 interior live oak (*Quercus wislizeni*). These native trees were all planted in landscape settings and are not part of a native vegetation community.

Non-native trees include the following: 3 Queensland pittosporums (*Auranticarpa rhombifolia*), 1 purple orchid tree (*Bauhinia variegata*), 4 floss silk trees (*Ceiba speciosa*), 2 Italian cypress (*Cupressus sempervirens*), 4 South African coral trees (*Erythrina caffra*), 1 Shamel ash (*Fraxinus uhdei*), 2 jacarandas (*Jacaranda mimosifolia*), 5 black walnuts (*Juglans nigra*), 3 glossy privets (*Ligustrum lucidum*), 1 Pygmy date palm (*Phoenix roebelenii*), 1 London plane (*Platanus X hispanica*), 1 flowering pear (*Pyrus calleryana*), 5 cork oaks (*Quercus suber*), 2 Brazilian pepper trees (*Schinus terebinthifolius*), 2 queen palms (*Syagrus romanzoffiana*), and 1 windmill palm (*Trachycarpus fortunei*). In addition to these trees, the project site contains 19 grapefruit trees (*Citrus X paradisi*) that were all between 4 to 7 inches in trunk diameter and 6 to 12 feet in height. These grapefruits are better described as saplings or bushes rather than trees based on their size.

Other trees include 2 weeping bottlebrush trees (*Callistemon viminalis*) and 1 Brazilian pepper tree that are located on the periphery of the project site along East Campus Drive. Because the existing SoM modular trailer will be relocated temporarily to Parking Lot 10, trees were assessed in that area as well, however no trees will be impacted. Parking Lot 10 contains 4 Torrey pines (*Pinus torreyana*) and 1 Aleppo pine (*Pinus halepensis*) in the interior of the parking lot. Along the periphery of the parking lot there are 1 coast live oak, 1 Southern California black walnut (*Juglans californica*), 1 goldenrain tree (*Koelreuteria paniculata*), 1 deodar cedar (*Cedrus deodara*), 1 locust (*Robinia* sp.), and 1 Brazilian pepper tree. Parking Lot 41 is proposed as a laydown/staging area and trees were assessed in this area as well, however no trees will be impacted.

Trees that are disturbed or removed in the project site would be replaced with at least a 1:1 replacement ratio in accordance with the draft *UCR Tree Preservation and Replacement Guidelines*.

Based on observations by a Psomas biologist of the project site and knowledge of the common species known to occur in the area, common wildlife species that may occur on the project site are expected to be relatively acclimated to urban settings. Bird species that may occur include Anna's hummingbird (*Calypte anna*), Allen's hummingbird (*Selasphorus sasin*), black phoebe (*Sayornis nigricans*), bushtit (*Psaltriparus minimus*), northern mockingbird (*Mimus polyglottos*),

house finch (*Haemorhous mexicanus*), and house sparrow (*Passer domesticus*). Reptile species that may occur include western fence lizard (*Sceloporus occidentalis*) and side-blotched lizard (*Uta stansburiana*). Mammal species that may occur include common raccoon (*Procyon lotor*), Virginia opossum (*Didelphia virginiana*), and striped skunk (*Mephitis mephitis*). Common bat species with potential to forage in the survey area include big brown bat (*Eptesicus fuscus*) and California myotis (*Myotis californicus*). Bats may also roost in trees and buildings on campus.

Additionally, there is potential for other common animal species typically found in urban areas to be present, such as small mammals, birds, small reptiles, and insects. The project would incorporate PS Conservation 2, which would maintain existing landscape whenever possible; incorporate MM 4.4-4(a), which requires a pre-construction survey for nesting special status avian species and raptors; and incorporate MM 4.4-4(b), which requires that exterior construction activities be delayed within the construction footprint or a 250-foot buffer zone until the young have fledged or appropriate MMs responding to the specific situation have been developed and implemented in consultation with U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW). Because the proposed project would incorporate all relevant PS and MMs and would be required to comply with the Migratory Bird Treaty Act (MBTA), impacts on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulation by the CDFW or by the USFWS would be less than significant with incorporation of PS Conservation 2, MM 4.4-4(a) and MM 4.4-4(b), consistent with the findings of the LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would not 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 CDFW or USFWS. Impacts would be less significant with incorporation of the PS and MMs noted above. The proposed project impacts were adequately addressed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Would the project 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 Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Discussion

The analysis of Impact 4.4-2 in the 2005 LRDP EIR concluded that there would be less than significant impacts to the on-campus portion of the USFWS-designated critical habitat area for coastal California gnatcatcher (*Polioptila californica californica*) and on the riparian habitat within the existing arroyos on campus with implementation of PS Open Space 1 through 3, PS Conservation 1, PP 4.4-1(a), PP 4.4-1(b), PP 4.4-2(a), PP 4.4-2(b), MM 4.4-1(a), and MM 4.4-1(b).

The project site is currently developed as a surface parking lot (Parking Lot D17), SoM modular trailer and associated parking (Parking Lot 40), a grab and go café (Scotty’s Market), Greenhouse #6, an emergency and service access drive, above-ground electrical infrastructure, and other hardscape and landscape areas. The relocation site for the existing SoM modular trailer would be relocated on an existing parking lot or paved area on campus.

Based on review of Figure 4.4-1, Existing Campus Biological Resources, of the 2005 LRDP EIR, the proposed project does not involve any development within or near designated critical habitat for the coastal California gnatcatcher, and the project site is not traversed by an existing arroyo or other drainage feature. Further, there was no riparian or wetland habitat identified on the project site. Therefore, the proposed project does not have the potential to impact riparian or other sensitive natural communities that may occur in these areas.

Runoff from the project site can become contaminated from common pollutants such as fertilizers and pesticides, leaked motor oil from vehicles, and debris, and has the potential to indirectly cause adverse effects to riparian habitat. However, the proposed project would incorporate PS Conservation 2, siting the SoM Ed. II facility and relocation of the SoM modular trailer in a manner to minimize site disturbance, reduce erosion and stormwater runoff, and maintain existing landscape whenever possible. Additionally, the proposed project would comply with PP 4.4-2(b) to use BMPs as identified in the UCR Stormwater Management Plan, which would reduce stormwater runoff and control erosion in and around the project site.

The proposed project would have less than significant impacts with the incorporation of PS Conservation 2 and PP 4.4-2(b), consistent with the findings of the LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would not 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 CDFW or USFWS. Impacts would be less significant with the incorporation of the PS and PP noted above. The proposed project impacts were adequately addressed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Would the project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Discussion

As identified in Section 4.4, Biological Resources, of the 2005 LRDP EIR, development under the 2005 LRDP could involve minor development, such as extension of utility lines or pedestrian or

bicycle paths, within Naturalistic open space areas, which can include arroyos that may contain jurisdictional seasonal wetlands or “waters of the U.S.”. The analysis of Impact 4.4-3 in the 2005 LRDP EIR concluded that, with implementation of PS Open Space 3, PS Conservation 1 and 2, PP 4.4-1(a), PP 4.4-1(b), PP 4.4-2(a), PP 4.4-2-(b), MM 4.4-3(a), MM 4.4-3(b), and MM 4.4-3(c), there would be less than significant impacts to jurisdictional wetlands.

Although located proximate to Naturalistic open space areas, the project site has been previously disturbed and is currently developed as a surface parking lot (Parking Lot D17), SoM modular trailer and associated parking (Parking Lot 40), a grab and go café (Scotty’s Market), Greenhouse #6, an emergency and service access drive, above-ground electrical infrastructure, and other hardscape and landscape areas. The relocation site for the existing SoM modular trailer would be relocated on an existing parking lot or paved area on campus. The project site does not include wetlands or other areas under the jurisdiction of the CDFW or U.S. Army Corps of Engineers as none exist on site. Nonetheless, the project would comply with PP 4.4-2(b) using applicable BMPs as identified in the UCR Stormwater Management Plan, which would reduce stormwater runoff and control erosion in and around the project site. Thus, impacts are considered less than significant with incorporation of PP 4.4-2(b), consistent with the findings in the LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would not have a substantial effect on federally protected wetlands (including, but not limited to, marsh, vernal pool, and coastal) as defined by Section 404 of the Clean Water Act through direct removal, filling, hydrological interruption, or other means. Impacts would be less than significant with incorporation of the PP noted above. The proposed project impacts were adequately addressed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Would the project 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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

As identified in Section 4.4, Biological Resources, of the 2005 LRDP EIR, the large undeveloped areas of the southeast hills, including the Botanical Gardens and nearby arroyos, provide opportunities for wildlife connections between the Box Springs Mountains and Sycamore Canyon Park. These undeveloped areas function as potential wildlife corridors as they connect two or more habitat patches that would otherwise be fragmented or isolated from one another. Also, the 2005 LRDP EIR identified that development on campus would result in the removal of mature trees, some of which could be used by migratory birds. Nesting birds and raptors are protected by the MBTA; raptors are also protected by the *California Fish and Game Code*. The loss of an occupied nest as a result of construction or demolition activities would constitute a substantial adverse effect (such as “take” or “destruction” under Section 3513 of the *California Fish and Game*

Code) and, in the case of raptors, would constitute the “take” or “destruction” of the nest or egg (under Section 3503.5 of the *California Fish and Game Code*).

The analysis of Impact 4.4-4 in the 2005 LRDP EIR concluded there would be less than significant impacts related to wildlife movement with implementation of PS Open Space 1, 2, 3, and 5; PS Conservation 1 and 2; PP 4.4-1(a); PP 4.4-1(b); MM 4.4-4(a); and MM 4.4-4(b).

The proposed project would not involve development within or near the southeast hills described for wildlife connections. The project site is in a currently developed portion of the East Campus; specifically developed as a surface parking lot (Parking Lot D17), SoM modular trailer and associated parking (Parking Lot 40), a grab and go café (Scotty’s Market), Greenhouse #6, an emergency and service access drive, above-ground electrical infrastructure, and other hardscape and landscape areas. The project site is surrounded by campus structures and East Campus Drive. The relocation site for the existing SoM modular trailer would be relocated on an existing parking lot or paved area on campus. Therefore, it would not interfere with wildlife movement through identified corridors. Impacts to wildlife movement would be less than significant, which is consistent with the conclusions of the 2005 LRDP EIR.

The proposed project includes PP 4.1-2(a), which ensures that project-specific landscape plans are consistent with the Campus Design Guidelines. Additionally, the proposed project would involve planting new trees within the project site. Trees that occur in the vicinity of the proposed project provide potential opportunities for nesting or perching of various common bird species.

As analyzed in the 2005 LRDP EIR, it is expected that any migratory birds or raptors using mature trees as perching sites would leave the site upon the initiation of construction activities. However, implementation of the 2005 LRDP, including the proposed project, could still result in the removal of trees and other vegetation that may serve as perching or nesting sites of migratory birds or raptors. This would constitute substantial interference (take or destruction) with a raptor or migratory species of special concern. Therefore, the proposed project incorporates MM 4.4-4(a), which requires a pre-construction survey for nesting special status avian species and raptors, and MM 4.4-4(b), which requires that exterior construction activities be delayed within the construction footprint or a 250-foot buffer zone until the young have fledged or appropriate MMs responding to the specific situation have been developed and implemented in consultation with USFWS and CDFW. Because the proposed project incorporates all relevant PPs, and MMs, impacts on nesting birds and raptors would be less than significant with incorporation of PP 4.1 2(a), MM 4.4-4(a), and MM 4.4-4(b), consistent with the findings of the LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would not 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. Impacts would be less significant with incorporation of the PP and MMs noted above. The proposed project impacts were adequately addressed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
e) Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

UCR is a part of the University of California (UC), a constitutionally-created unit of the State of California. As a State entity, UC is not subject to municipal plans, policies, or regulations such as the County and City General Plans or local ordinances. However, because UCR values its relationship with the local communities, it voluntarily reviewed the policies in the *City of Riverside General Plan* for consistency. Relevant *City of Riverside General Plan* policies include preservation of sage scrub habitat, retention of natural ridgeline areas, and preservation of Rare and Endangered Species habitat. The *County of Riverside General Plan* does not apply to the UCR Campus as it includes only unincorporated areas of the County. The analysis of Impact 4.4-5 in the 2005 LRDP EIR concluded there would be less than significant impacts related to consistency with *City of Riverside General Plan* goals related to preservation of biological resources with implementation of PS Conservation 1 and PS Open Space 1 through 3.

As discussed under Thresholds 4a through 4d and Threshold 4f, the proposed project incorporates PS Conservation 2, PP 4.1-2(a), MM 4.4-4(a), and MM 4.4-4(b) and would have less than significant impacts to sensitive biological resources. Existing landscaping--primarily 59 trees--is proposed to be removed in order to construct the SoM Ed. II building and associated hardscape and landscape improvements. As previously mentioned, any removal of trees and associated potential for disturbance to protected birds and raptors would copy with the MBTA, MM 4.4-4(a) and MM 4.4-4(b).

The University currently does not have a tree preservation policy or ordinance in place; however, a Tree Preservation and Replacement Guidelines document is currently being drafted. The project would include new landscape planting and replacement trees of at least a 1:1 replacement ratio. Accordingly, the proposed project would also be consistent with the City of Riverside General Plan policies related to biological resources. Impacts would be less than significant with incorporation of PS Conservation 2, PP 4.1-2(a), MM 4.4-4(a), and MM 4.4-4(b), consistent with the findings of the LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have less than significant impacts related to conflict with LRDP policies protecting biological resources with incorporation of the PS, PP, and MMs noted above. The proposed project impacts were adequately addressed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

A Multiple Species Habitat Conservation Plan (MSHCP) was approved and adopted by Riverside County in 2003 as a comprehensive, multijurisdictional Habitat Conservation Plan (HCP) focusing on conservation of both species and associated habitats to address biological and ecological diversity conservation needs in Western Riverside County. In addition to being an HCP pursuant to Section 10(a)(1)(B) of the Federal Endangered Species Act of 1973, this MSHCP also serves as a Natural Communities Conservation Plan under the Natural Communities Conservation Planning Act of 1991. UCR is not a Permittee to the Western Riverside MSHCP and therefore is not subject to the Conservation efforts established in the MSHCP. Nonetheless, the following analysis discusses how the proposed project complies with the MSHCP.

Sections of Criteria Cells 634 of the MSHCP include portions of the UCR campus; however, the project site is not within this Criteria Cell and therefore is not subject to any Conservation efforts. The project site is not located within a drainage feature, riparian, or riverine areas; thus, the proposed project does not conflict with Section 6.1.2 of the MSHCP. The project site does not occur within a predetermined Survey Area for the MSHCP criteria area species, mammals, amphibians, or narrow endemic plant species. As such, the proposed project does not conflict with Sections 6.1.3 and 6.3.2 of the MSHCP. The project site is not located adjacent to an existing or proposed MSHCP Conservation Area. Thus, the project is not subject to the MSHCP Urban/Wildlands Interface guidelines and does not conflict with Section 6.1.4 of the MSHCP.

The 2005 LRDP EIR concluded that development under the 2005 LRDP, of which the proposed project is a part, would not conflict with the MSHCP, and there would be no impact. Therefore, the proposed project would have no impact related to conflict with the MSHCP, consistent with the findings of the LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have no impact related to conflict with the Western Riverside County MSHCP. The proposed project impacts were adequately addressed in the LRDP EIR.

5. Cultural Resources

This study used the results of the 2005 LRDP EIR (UCR 2005b) and the 2005 LRDP Amendment 2 (UCR 2011) which contains an additional analysis for a land use map revision as well other environmental analyses and land use map changes. A supplementary historic and archaeological record search was conducted by Psomas in December 2018 at the Eastern Information Center (EIC), located on the campus of UCR.

Several cultural resources were identified within the LRDP EIR; however, no resources were identified within the SoM boundaries. The project site is currently developed as a surface parking lot (Parking Lot D17), SoM modular trailer and associated parking (Parking Lot 40), a grab and go café (Scotty’s Market), Greenhouse #6, an emergency and service access drive, above-ground electrical infrastructure, and other hardscape and landscape areas. The proposed project would involve the demolition of the existing greenhouse and headhouse (Greenhouse #6), and removal of existing asphalt/concrete, landscape, and parking spaces in Parking Lot 40 and Parking Lot D17. The existing SoM modular trailer would be relocated to an existing parking lot or paved area on campus. The proposed building is comprised up to 120,000 gsf of buildable area and would include a subterranean level. The historic (1948–2016) aerials (NetROnline 2020) of the UCR Campus illustrate that the project site has been developed with hardscapes and structures since the early 1950’s. Prior to the 1950’s, the project site was used for agricultural practices. As such, the cultural resource sensitivity for the project site is considered low. However, the following applicable PP from the LRDP EIR is incorporated as part of the Project and assumed in the analysis presented in this section.

PP 4.5-5 In the event of the discovery of a burial, human bone, or suspected human bone, all excavation or grading in the vicinity of the find shall halt immediately and the area of the find shall be protected and the University immediately shall notify the Riverside County Coroner of the find and comply with the provisions of P.R.C. Section 5097 with respect to Native American involvement, burial treatment, and re-burial, if necessary.

Project Impact Analysis

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

The analysis of Impact 4.5-1 in the 2005 LRDP EIR concluded that there would be less than significant impacts associated with modification of historic or potentially historic resources during construction activities with implementation of PS Conservation 4, MM 4.5-1(a), and MM 4.5-1(b). The analysis of Impact 4.5-2 concluded there would be significant and unavoidable impacts with the demolition of historic or potentially historic resources even with implementation of PS Conservation 4, PS Land Use 3, PS Open Space 5, PP 4.5-2, MM 4.5 1(a), MM 4.5-1(b), and MM 4.5-2. A detailed discussion of the regulatory setting and existing cultural resources is provided in Section 4.4, Cultural Resources, of the 2005 LRDP EIR. As identified, relevant regulatory programs include the National Historic Preservation Act (NHPA) of 1966, California Senate Bill 297, and the California Register of Historic Resources (CRHR).

The 2005 LRDP EIR identified a total of eight campus structures located on both the East Campus and West Campus that were considered by CRM Tech (2002) to be potentially eligible for listing in the National Register of Historic Places (NRHP) and/or the CRHR. The LRDP EIR also identified structures exceeding 45 years of age that were evaluated and determined not to be eligible for listing as a historic resource. In addition, the 2005 LRDP EIR included a compilation

of structures that would be of age for evaluation as potentially historic by the end of the 2005 LRDP planning horizon (2015–2016). The planning horizon was extended to 2020-2021 as part of the 2005 LRDP Amendment 2 and, as such, would result in additional campus buildings that are potentially historic. However, none of these structures are located on the SoM project site.

Psomas archaeologists conducted a site visit and survey on December 7, 2018 and December 11, 2018 as part of a general constraints study and observed that the project site is currently developed with trees and ornamental landscape and hardscape areas. The project site contains existing modular buildings that are not considered historically significant. A Memorandum for the Record, Historic Resources Evaluation was prepared for the Greenhouse/Headhouses #6-10 by Rincon Consultants, Inc. (Appendix C) and concluded that Greenhouses #6-10 do not appear eligible for the NRHP or California Register of Historical Resources and therefore not qualifying historical resources. Greenhouse #6 is proposed for demolition. Based on the review of historic aerial photographs, the site visit by Psomas, and Memorandum prepared by Rincon Consultants, Inc., and given that no historically significant structures are on site, no impacts to historical resources would occur with development of the project.

Although the LRDP planning area contains potentially significant resources, as discussed above, the SoM Project site does not contain any known historical resources. As such, impacts to historical resources, as defined in Section 15064.5, is considered to be less than significant, consistent with the findings of the LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The project would have less than significant impact related to the potential to cause a substantial adverse change to a significant historical resource as defined in Section 15064.5 of the State CEQA Guidelines. The project’s impacts were adequately addressed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

The analysis of Impact 4.5-3 in the 2005 LRDP EIR concluded there would be less than significant impacts related to archaeological resources during construction activities with implementation of PS Land Use 2 and 3, PS Open Space 1 through 3 and 5, PS Conservation 1 through 3, and PP 4.5-3.

As discussed in the 2005 LRDP EIR, three archaeological sites have been recorded within the UCR campus: Site CA-RIV-495; CA-RIV-5056; and Site CA-RIV-4768H. Also, the cultural resources investigation conducted in support of the 2005 LRDP EIR concluded that the following areas of the UCR campus exhibit moderate sensitivity for unknown archaeological resources: (1) the rolling hills within the southeastern or southwestern portion of the campus and (2) the

agricultural fields on the West Campus. The project site is not located within the southeast hills (not within the Natural Open Space Reserve) or within the West Campus agricultural fields. The majority of the East Campus has been developed for academic purposes. Most of these areas have been previously graded and were replaced with undocumented, artificial fill (UCR 2005b). Substantial ground disturbance has, therefore, occurred in these areas, and surface evidence of intact archaeological resources is not likely to be encountered.

Prior to the development of the UCR Campus, the project site was used for agricultural or farming practices. The historic topographic maps (NetROnline 2020) show the project site shifting from agricultural land use to the UCR Campus between 1942-1955. Structures south of the project site were situated along South Campus Drive by 1948. The Project site was developed as a parking lot between 1955-1959 and has undergone a considerable amount of landscaping and hardscaping since the 1950's. The adjacent roadway, East Campus Drive, has been used as a main access point to the area since the area was developed in 1950's. East Campus Drive was connected to North Campus Drive by 1969. The project is not located within the southeast hills (not within the Natural Open Space Reserve) or within the West Campus agricultural fields, where on-campus archaeological resources are most likely to be encountered. As such it is thereby concluded that the project has a low potential for impacting previously undisturbed soils.

Burials or cemeteries containing human remains can also be considered an archaeological resource, in addition to tribal cultural resources (as discussed in Section 18 of this IS/MND). Although prehistoric occupation has been documented along the eastern side of the campus, there are no known burials or cemeteries within the project site. Given the developed nature of the surrounding areas and past activities within the project site as described above, the potential to find intact buried deposits within the project site is considered low. Nevertheless, there is always a possibility of encountering unknown or undocumented resources and/or burials containing human remains during earth moving activities. UCR's standard contract specifications address the protection and recovery of buried archaeological resources, including human remains, and the standard requirements are incorporated into the project as MM CUL-1 through MM CUL-4, presented below. This mitigation measure identifies the steps to be taken in the event archaeological resources, including human remains, are discovered during construction activities.

Any Additional Project-Level Mitigation Measure

MM CUL-1 Unanticipated Discovery of Archaeological Resources. If a previously undiscovered archaeological resource is identified during construction, all ground disturbing activities within 100 feet of the resource shall halt, University of California, Riverside (UCR) Planning, Design & Construction (PDC) staff shall be notified, and the find shall be evaluated by a qualified non-University Archaeologist meeting the Secretary of the Interior standards and, if the discovery is Native American in origin, a tribal representative within 24 hours of discovery to determine whether it is a unique archaeological resource, as defined by the California Environmental Quality Act (CEQA). The archaeologist and the tribal representative shall make recommendations to UCR PDC staff on the measures that will be implemented to protect the newly discovered cultural resource(s), including but not limited to, avoidance in place, excavation, relocation, and further evaluation of the discoveries in accordance with CEQA. If the resource meets the criteria for a unique archaeological resource, work shall remain halted within 100 feet of the area of the find, and UCR PDC staff shall consult with the non-University Archaeologist and, if appropriate, consulting Tribes, regarding methods to ensure that no substantial adverse change would occur to the significance of the resource pursuant to CEQA Guidelines Section 15064.5(b). Preservation in place (i.e., avoidance) is the preferred method of mitigation for impacts to archaeological

resources and the University shall devote adequate time and funding to determine if it is feasible, through project design measures, to preserve the find intact. If it cannot be preserved, the non-University Archaeologist shall design and implement a treatment plan, prepare a report, and salvage the material, as appropriate. Any important artifacts recovered during monitoring shall be cleaned, catalogued, and analyzed, with the results presented in a report of findings that meets professional standards. Work on the site may commence upon completion of treatment.

MM CUL-2 Native American Monitoring. The University of California, Riverside (UCR) shall invite up to one qualified Native American Monitor to be on site during any project-related ground disturbing activities with the potential to encounter native soils. The Native American Monitor shall have ties to the region and be a member of one of the consulting Tribes for the proposed project. The on-site monitoring shall end when project-related ground disturbing activities are completed, or when the Native American Monitor has indicated that the project site has a low potential for tribal cultural resources.

Prior to the issuance of a building permit which includes grading activities, and before any project-related ground disturbing activities take place, UCR shall enter into a Tribal Monitoring & Cultural Resources Treatment Agreement (Agreement) with one Traditionally and Culturally Affiliated (TCA) tribe to retain the qualified Native American Monitor. The Agreement shall address the roles, authorities and responsibilities of the Native American Monitor and other participants; project scheduling; and insurance requirements.

MM CUL-3 Cultural Sensitivity Training. The Native American Monitor shall attend the pre-construction meeting to provide Cultural Sensitivity Training for all construction personnel, to inform construction personnel on the types of cultural resources that may be encountered, and to bring awareness to personnel of actions to be taken in the event of a discovery. UCR Planning, Design & Construction Project Manager/contractor shall complete training for all construction personnel and retain documentation showing when training of personnel was completed.

MM CUL-4 Unanticipated Discovery of Tribal Cultural Resources or Human Remains. If a previously undiscovered resource is discovered during construction, the Native American Monitor shall have the authority to temporarily halt or redirect ground disturbing activities away from the vicinity of the discovery to allow for preliminary evaluation of potential tribal cultural resources. The Native American Monitor shall assess and determine the significance of such resource(s) in consultation with University of California, Riverside (UCR) Planning, Design & Construction (PDC) and the Traditionally and Culturally Affiliated (TCA) tribe(s) as appropriate. If human remains are discovered, work shall halt in that area and the procedures detailed in the California Health and Safety Code (Section 7050.5) and the California Public Resources Code (Section 5097.98) will be followed as described below.

If the discovery is determined to be a tribal cultural resource, UCR shall retain a qualified non-University Archaeologist and in consultation with the TCA tribe(s), shall make recommendations to the UCR PDC staff on the measures that will be implemented to protect the tribal cultural resource(s), including but not limited to, avoidance, preservation in place, excavation, relocation, and further evaluation of the discoveries in accordance with CEQA. Additionally, UCR PDC staff, in consultation with the non-University Archaeologist and TCA tribe(s) shall design

and implement a treatment plan, prepare a report, and salvage the material, as appropriate as agreed upon by the consulting TCA tribe(s). If a determination is made that the tribal cultural resource(s) is considered potentially significant, the consulting TCA tribe(s) shall be notified and consulted in regards to the respectful and dignified treatment of those resources. Any tribal cultural resources recovered during monitoring shall be cleaned, catalogued in the presence of a Native American monitor, with the results presented in a report of findings that meets professional standards.

In the event of the discovery of a burial, human bone, or suspected human bone, all excavation or grading in the vicinity of the find shall halt immediately and the area of the find shall be protected. The University shall immediately notify the Riverside County Coroner of the find and comply with the provisions of *California Health and Safety Code* Section 7050.5. If such a discovery occurs, a temporary construction exclusion zone shall be established surrounding the area of the discovery so that the area would be protected, and consultation and treatment could occur as prescribed by law. By law, the Medical Examiner will determine within two working days of being notified if the remains are subject to his or her authority. If the Medical Examiner recognizes the remains to be Native American, and not under his or her jurisdiction, then he or she shall contact the Native American Heritage Commission (NAHC), by telephone, within 24 hours. The NAHC will make a determination as to the Most Likely Descendent, who shall be afforded 48 hours from the time access is granted to the discovery site to make recommendations regarding culturally appropriate treatment. If suspected Native American remains are discovered, the remains shall be kept in-situ until after the Medical Examiner makes its determination and notifications, and until after Most Likely Descendent is identified at which time the archaeological examination of the remains shall only occur on-site in the presence of the Most Likely Descendent. The specific locations of Native American burials and reburials will be proprietary and not disclosed to the general public. According to California Health and Safety Code, six or more human burials at one location constitute a cemetery (Section 8100), and disturbance of Native American cemeteries is a felony (Section 7052). In the event that the project proponent and the Most Likely Descendant are in disagreement regarding the disposition of the remains, State law will apply, and the mediation process will occur with the NAHC. In the event that mediation is not successful, the landowner shall rebury the remains at a location free from future disturbance (see Public Resources Code Section 5097.98(e) and 5097.94(k)).

Level of Significance

The project would have a less than significant impact related to a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5 of the State CEQA Guidelines with incorporation of project-level mitigation measure MM CUL-1 through MM CUL-4.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Would the project disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

The analysis of Impact 4.5-5 in the 2005 LRDP EIR concluded that there would be less than significant impacts related to the disturbance of human remains, including those interred outside of formal cemeteries, during construction activities with implementation of PS Land Use 3; PS Open Space 1, 2, and 5; PS Conservation 1 and 2; and PP 4.5-5. As discussed in the 2005 LRDP EIR, no formal cemeteries are known to have occupied the UCR campus, so any human remains encountered would likely come from archaeological or historical archaeological contexts. As such, given the presence of archaeological resources on the campus, ground-disturbing activities associated with development could affect unknown human remains, particularly in those areas of the campus that are in a relatively undisturbed condition.

The project site is currently a developed with surface parking lots, a SoM modular trailer, a grab and go café, above-ground electrical infrastructure, and landscape and hardscape. Historic maps (NetrOnline 2020) show the project site being used as agricultural land as early as 1948. The area has been developed with landscapes and hardscapes since the 1950's. Despite previous development, there is always a possibility for encountering unknown human remains.

Human burials, in addition to being potential archaeological resources, have specific provisions for treatment in Section 5097 of the PRC. In accordance with these requirements, the project incorporates PP 4.5-5 and MM CUL-4, which requires implementation of these provisions if human remains are discovered on campus. Accordingly, the project would result in a less than significant impact related to the disturbance of human remains with the incorporation of PP 4.5-5 and MM CUL-4, consistent with the findings of the LRDP EIR.

Additional Project-Level Mitigation Measures

Refer to MM CUL-4 above in threshold V.5.b.

Level of Significance

The proposed project would have a less than significant potential to disturb any human remains, including those interred outside of formal cemeteries with incorporation of the PP and MM noted above. The proposed project impacts were adequately addressed in the LRDP EIR.

6. Energy

In January 2019, updates to the State CEQA Guidelines were adopted, which included the addition of an Energy section, as addressed in this section. The following applicable PS and MM were adopted as part of the 2005 LRDP Amendment 2 EIR and are incorporated as part of the proposed project and assumed in the analysis presented in this section.

PS Conservation 5 Continue to adhere to conservation requirements of Title 24 of the California Code of Regulations and comply with any future conservation goals or programs created by the University of California.

MM 4.3-3 To reduce energy consumption and areawide emission of criteria pollutants, the campus shall annually inspect and enforce an emissions control strategy, which may include, where feasible, the following:

Design

- Use light-colored roof materials to reduce heat gain
- Orient buildings to the north and include passive solar design features
- Increase building and attic insulation beyond Title 24 requirements
- Provide electric vehicle charging systems at convenient location in campus parking facilities
- Provide prominent website and/or kiosks displaying information about alternative transportation programs
- Install electrical outlets outside buildings for the use of electric landscape maintenance equipment

Operation

- Implement a subsidized vanpool program
- Implement staggered or compressed work schedules to reduce vehicular traffic
- Use alternative fuel shuttle buses to reduce intra-campus vehicle trips
- Provide shuttle service to major off-campus activity centers and Metrolink station(s)
- Aggressive expansion of the campus TDM program to achieve an AVR of 1.5
- Expand transit subsidies to encourage use of public transit
- Implement incentives for telecommuting
- Convert campus fleet to low emission, alternative fuel, and electric vehicles over time
- Implement solar or low-emission water heaters
- Implement an educational program for faculty and staff and distribute information to students and visitors about air pollution problems and solutions

In addition, the following PPs and MM are incorporated into the proposed project and would reduce energy impacts: PP 4.3-1 included under the Air Quality analysis (Section V.3 of this IS/MND) which addresses implementation of a Transportation Demand Management (TDM) program; PP 4.3-2(a) included under the Air Quality analysis (Section V.3 of this IS/MND) which

requires compliance with SCAQMD rules and regulations; and MM 4.3-1(b) included under the Air Quality analysis (Section V.3 of this IS/MND) which requires implementation of Construction Best Practices.

Energy consumption is regulated through federal, State, and local guidelines. On a federal level, the Energy Independence and Security Act of 2007 (*Public Law 110–140*) sets standards for Corporate Average Fuel Economy; Renewable Fuel; appliance energy efficiency; building energy efficiency; and accelerated research and development tasks on renewable energy sources (e.g., solar energy, geothermal energy, and marine and hydrokinetic renewable energy technologies), carbon capture, and sequestration. The State regulations primarily regulate utility companies and ensures the provision of safe, reliable utility service and infrastructure related to electric, natural gas, telecommunications, water, railroad, rail transit, and passenger transportation companies. Local regulations provide planning programs intended to incentivize efficient energy use for increased sustainability and affordability.

UCR has committed to sustainability throughout the campus through a number of programs designed to promote energy efficiency, alternative energy, smart procurement, and clean energy research.

Development of the proposed project would involve the consumption of gasoline and diesel fuel from off-road construction equipment and on-road vehicle sources such as vendor trucks, haul trucks, and worker trips. During operation, vehicles entering and exiting the UCR campus site would use transportation fuels. In addition, electricity would be used for heating and other services, to power the building and lighting, and for conveyance of water to and from the proposed project site. As mandated by state and local laws, the project is required to assess energy consumption during construction and operations.

Construction

Fuel use for both diesel and gasoline are provided for the construction phase for off-road equipment, worker commutes, haul trips, and vendor trips. Fuel consumption was estimated based on anticipated construction durations, as well as equipment quantities and types. Construction energy consumption was estimated using a combination of the CalEEMod, the Off-Road Diesel Analysis (OFFROAD) inventory tool, and the EMISSION FACTors (EMFAC) database. Construction equipment assumptions were based on data provided by UCR and CalEEMod for construction equipment activities, while fuel consumption was derived from OFFROAD for off-road vehicles and EMFAC for on-road vehicles.

Operations

The operations phase of the proposed SoM Education Building II would result in energy consumption for building operations and equipment, lighting, elevator, HVAC, and from vehicle trips associated with the proposed project. Operational phase energy consumption was estimated using CalEEMod for vehicle trips, trip lengths, and vehicle types. Fuel consumption for each of these vehicle types was obtained from the EMFAC model. CalEEMod generates electricity consumption projections based on energy data specific to land uses.

Electric Power

The Riverside Public Utilities (RPU) currently provides electricity to the UCR campus. The energy is received through a 69 kV line at a substation west of the I-215/SR-60. From this point, the power is reduced to a usable voltage and then distributed to individual buildings and transformers. The existing UCR distribution system has been expanded and renovated in the last decade. The

sub-station has been enlarged to accommodate two new transformers and associated outdoor switchgear to provide distribution of power to the campus at 12 kV. Campus 4.16 kV distribution lines and building transformers have been gradually replaced on a selected basis. The City-owned substation is a dual transformer system, with each transformer powered from a different 69 kV utility station. Normally, half of the campus load is served by each transformer through a 12 kV loop distribution system. Should either transformer experience a power failure, the entire campus 12 kV load could be transferred to the transformer remaining in service. For this reason, the capacity of the substation is 25 mega volt amps (MVA) versus the 50 MVA-installed rating of the two transformers.

Natural Gas

The proposed project is not anticipated to use natural gas. As of June 2019, no new UC buildings or major renovations, except in special circumstances, will use on-site fossil fuel combustion, (e.g., natural gas) for space and water heating.

Project Impact Analysis

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Construction

Construction energy use could be considered wasteful, inefficient, or unnecessary if construction equipment is not well-maintained such that its energy efficiency is substantially lower than newer equipment; if equipment idles when not in use; if construction trips utilize longer routes than necessary; or if excess electricity and water⁷ are used during construction activities. Pursuant to the *California Code of Regulations* (specifically, Title 13, Section 2485), all diesel-fueled commercial motor vehicles must not idle for more than five consecutive minutes at any location. Mandatory compliance should reduce fuel use by construction vehicles. Per MM 4.3-1(b), construction equipment would utilize equipment that complies with Tier 4 final engine standards. Tier 4 final engines are the newest, lowest emitting off-road engines. Fuel efficiency for these engines would not be considered inefficient. Fuel energy consumed during construction would also be temporary in nature, and there are no unusual project characteristics that would necessitate the use of construction equipment that would be less energy-efficient than at comparable construction sites in other parts of the region or state. Short-term energy usage for construction of the proposed project would result in long-term energy savings from renovated and newly constructed buildings that are compliant with the current Title 24 CBC and goals/strategies adopted by UCR pursuant to PS Conservation 5.

The construction of the project would require the use of construction equipment for demolition, site preparation, grading, paving, and building activities. Transportation energy use depends on the type and number of trips, vehicle miles traveled, fuel efficiency of vehicles, and travel mode. During construction, transportation energy would be used for the transport and use of construction

⁷ Indirect energy use for the extraction, treatment, and conveyance of water.

equipment, from delivery vehicles and haul trucks, and from construction employee vehicles that would use diesel fuel and/or gasoline. Fuel consumption from construction worker, vendor, and delivery/haul trucks was calculated using the trip rates and distances provided in the CalEEMod construction output files. Total vehicle miles traveled (VMT) was then calculated for each type of construction-related trip and divided by the corresponding miles per gallon factor using CARB's Emissions FACTor (EMFAC) 2017 model. EMFAC provides the total annual VMT and fuel consumed for each vehicle type. Construction vendor and delivery/haul trucks were assumed to be heavy-duty diesel trucks. Offroad construction vehicle fuel usage is based on CARB's Offroad 2017 model.

The use of these energy resources fluctuates according to the phase of construction and would be temporary, as construction activities would occur over an approximately 23-month period. Table 8 quantifies energy use during construction activities. Table 8 provides a magnitude of the estimated fuel needed to develop the proposed project. No quantitative threshold has been developed to determine whether a specific quantity of fuel is significant relative to CEQA. The determination of impact significance is based on the use of the fuel is considered to be wasteful, inefficient, or unnecessary consumption of energy resources.

**TABLE 8
CONSTRUCTION-RELATED ENERGY USE**

Source	Gasoline (gallons)	Diesel Fuel (gallons)
Off-road construction equipment	18,484	23,944
Worker commute trips	16,080	64
Vendor trips	3,109	44
On-road haul trips	3	2,610
Totals	37,677	26,662
<small>Note: Totals may not add due to rounding. Source: Calculated based on CalEEMod, EMFAC and Offroad (Appendix D).</small>		

Operations

The operations phase of the proposed project would result in energy consumption related to electricity, water, solid waste, and transportation. In addition, as detailed previously, potential energy impacts of proposed projects are evaluated with emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy.

Long-term energy use would be considered inefficient if alternative energy sources are not used when they are feasible/available and if the new buildings are not compliant with building code requirements for energy efficiency. The regulations, plans, and policies adopted for the purpose of maximizing energy efficiency that are directly applicable to the proposed project include (1) California's Title 24 Energy Efficiency Standards for Residential and Nonresidential Buildings, and (2) the CALGreen Code. All UC projects are required to outperform California's Title 24, Part 6, currently in effect, by 20 percent. The proposed project would be developed in compliance with these regulations, plans, and policies.

As discussed previously, analysis by the California Energy Commission (CEC) concludes that the 2019 energy efficiency standards are projected to result in a 30 percent improvement in energy efficiency over the 2016 standards and are planned to be effective January 1, 2020. Based on information provided by UC Riverside, the electricity usage from the proposed project would be approximately 1.7 million kilowatt hours per year (million kWh/yr). Because the new campus

structures in the proposed project would be constructed to meet forecasted educational demands as well as exceed the latest energy efficiency standards by 20 percent, energy use associated with the proposed project would not be considered inefficient, wasteful, or unnecessary. Additionally, the proposed SoM Ed. II building would be designed to be “solar-ready,” where future photovoltaic panels could be located on the exterior for optimal sun rays.

Transportation energy use would be associated with daily trips associated with the proposed project. Based on data obtained from CalEEMod (refer to Appendix A), the proposed project is projected to generate 1.4 million annual VMT. The gasoline and diesel consumption rates were calculated using estimated miles per gallon factors based on Riverside County data from CARB’s Emissions FACTors (EMFAC 2017) model that provides average vehicle emissions rates for California (CARB 2019a). It is estimated that the proposed project-generated traffic would use 7,765 gallons of diesel fuel and 53,653 gallons of gasoline per year. The proposed project would continue to provide higher education options and would contribute to meeting forecasted educational needs. Transportation fuels consumption would steadily decline with increases to the Corporate Average Fuel Efficiency Standards as well as the phase-out of older, more fuel consumptive vehicles.

Relative to Criterion 1—decreasing overall per capita energy consumption—development of the proposed project would incorporate the 2019 Building Standards which are expected to reduce energy consumption for nonresidential buildings by 30 percent over the 2016 Building Standards (CEC 2018). In addition, the UC Policy on Sustainable Practices seeks to go beyond the reduction by 20 percent over the 2019 CBC for new construction projects. As such, the proposed project will be consistent with Criterion 1 and result in a decrease in the overall per capita energy consumption by implementing energy efficiency associated with the project.

In regards to Criterion 2 (decreasing reliance on fossil fuels such as coal, natural gas, and oil) and Criterion 3 (increasing reliance on renewable energy sources) development of the proposed project is guided by UC Policy on Sustainable Practices and goals to achieve carbon neutrality, which include UCR transportation emission reduction strategies (increase access to alternative modes of transportation, such as accommodations for electric vehicles, incentives for carpools, educational materials, and bicycle and pedestrian facilities), solar carports, thermal energy storage, solar farm, and other non-fossil fuel sources of energy. Increases in energy efficiency for buildings and water and solid waste conservation efforts would result in reductions in energy consumption. Implementation of these measures to reduce energy consumption for transportation, building energy usage, water consumption, and solid waste generation would directly reduce reliance on fossil fuel usage, which is used to generate electricity and meet heating needs. This reduction in fossil fuel reliance is consistent with Criterion 2.

In summary, the proposed project is consistent with the 2005 LRDP, as amended. The project will contribute to the region’s need for higher education by providing educational resources. The project will also develop an energy efficient building that exceeds the requirements of the State of California’s Title 24 energy efficiency standards, pursuant to PS Conservation 5. In addition, the LRDP EIR has PPs as well as MM which include PP 4.3-1 (TDM program), PP 4.3-2(a) (Construction Best Practices), and MM 4.3-3 (Energy Consumption) which promote energy efficiency. As such, the project would not result in significant impacts related to inefficient, wasteful, or unnecessary consumption of energy and no mitigation measures are required.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have less than significant temporary energy-related impacts associated with wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation with incorporation of the PS, PPs, and MM noted above.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Consistency with Statewide, Regional, and Local Policies

As discussed above, strategies and measures have been implemented at the State level with the California’s Title 24 Energy Efficiency Standards for Residential and Nonresidential Buildings and the CALGreen Code.

All newly constructed buildings would be developed in compliance with (and exceed) Title 24 Energy Efficiency Standards and the CALGreen Code, and UCR would incorporate other green building strategies as part of their Sustainable Practices Policy in new development including energy consumption reduction targets and water use reduction, pursuant to PS Conservation 5. The proposed project would achieve a minimum LEED Silver standards by the Green Business Certification, Inc. (GBCI). The proposed project would not impede the policies described in CARB’s Scoping Plan Update, or others, that will help achieve established goals.

Consistency with the UC Sustainable Practices Policy

As discussed previously, the proposed project is part of the UCR campus which has established numerous sustainability programs. These programs include, but is not limited to, the Green Lab, Green Campus Action Plan, Sustainable Practices Policy, green procurement, carbon neutrality, and Sustainable Integrated Grid Initiative. Energy consumption related to the project would occur in the context of these programs and the LRDP EIR. The LRDP EIR stated that future development of the campus under the amended 2005 LRDP would comply with the UC Sustainable Practices Policy, as well as any future conservation goals or programs enacted by the UC. For all of these reasons, implementation of the 2005 LRDP, as amended would not encourage the wasteful or inefficient use of energy, and this impact would be less than significant. The project would likewise be consistent with the energy conservation goals and programs established by the UC. The LRDP EIR has PPs as well as MMs which include PP 4.3-1 (TDM program), PP 4.3-2(a) (Construction Best Practices), and MM 4.3-3 (Energy Consumption) which promote energy efficiency. Consequently, the 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.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency with incorporation of the PPs and MM noted above. Impacts would be less than significant.

7. Geology and Soils

The analysis of geology and soils is tiered from the 2005 LRDP EIR and was addressed in Section 4.6, Geology and Soils, of that document. Relevant elements of the proposed project related to geology and soils include earth-moving activities to accommodate the required removal and preparation of the underlying soils for the building pad and associated building construction.

Information in this section is primarily based on the *Geotechnical Data Report, Proposed School of Medicine Education Building II, UCR Project No. 954045, University of California, Riverside*, (geotechnical report) prepared for the proposed project by Twining and is provided in Appendix E (Twining 2020).

The following applicable PPs are incorporated as part of the proposed project and are assumed in the analysis presented in this section.

- PP 4.5-4** Construction specifications shall require that if a paleontological resource is uncovered during construction activities:
- (i) A qualified paleontologist shall determine the significance of the find.
 - (ii) The Campus shall make an effort to preserve the find intact through feasible project design measures.
 - (iii) If it cannot be preserved intact, then the University shall retain a qualified non-University paleontologist to design and implement a treatment plan to document and evaluate the data and/or preserve appropriate scientific samples.
 - (iv) The paleontologist shall prepare a report of the results of the study, following accepted professional practice.
 - (v) Copies of the report shall be submitted to the University and the Riverside County Museum.
- PP 4.6-1(a)** During project-specific building design, a site-specific geotechnical study shall be conducted under the direct supervision of a California Registered Engineering Geologist or licensed geotechnical engineer to assess seismic, geological, soil, and groundwater conditions at each construction site and develop recommendations to prevent or abate any identified hazards. The study shall follow applicable recommendations of CDMG Special Publication 117 and shall include, but not necessarily be limited to:
- Determination of the locations of any suspected fault traces and anticipated ground acceleration at the building site.
 - Potential for displacement caused by seismically induced shaking, fault/ground surface rupture, liquefaction, differential soil settlement, expansive and compressible soils, landsliding, or other earth movements or soil constraints.

- Evaluation of depth to groundwater.

The structural engineer shall incorporate the recommendations made by the geotechnical report when designing building foundations.

PP 4.6-1(c)

The Campus will continue to fully comply with the University of California's Policy for Seismic Safety, as amended. The intent of this policy is to ensure that the design and construction of new buildings and other facilities shall, as a minimum, comply with seismic provisions of California Code of Regulations, Title 24, California Administrative Code, the California State Building Code, or local seismic requirements, whichever requirements are most stringent.

PP 4.6-2(a)

The Campus shall continue to implement dust control measures consistent with SCAQMD Rule 403—Fugitive Dust during the construction phases of new project development. The following actions are currently recommended to implement Rule 403 and have been quantified by the SCAQMD as being able to reduce dust generation between 30 and 85 percent depending on the source of the dust generation. The Campus shall implement these measures as necessary to reduce fugitive dust. Individual measures shall be specified in construction documents and require implementation by construction contractor:

- (i) Apply water and/or approved nontoxic chemical soil stabilizers according to manufacturer's specification to all inactive construction areas (previously graded areas that have been inactive for 10 or more days).
- (ii) Replace ground cover in disturbed areas as quickly as possible.
- (iii) Enclose, cover, water twice daily, or apply approved chemical soil binders to exposed piles with 5 percent or greater silt content.
- (iv) Water active grading sites at least twice daily.
- (v) Suspend all excavating and grading operations when wind speeds (as instantaneous gusts) exceed 25 miles per hour over a 30-minute period.
- (vi) All trucks hauling dirt, sand, soil, or other loose materials are to be covered or should maintain at least two feet of freeboard (i.e., minimum vertical distance between top of the load and the top of the trailer), in accordance with Section 23114 of the California Vehicle Code.
- (vii) Sweep streets at the end of the day if visible soil material is carried over to adjacent roads.
- (viii) Install wheel washers where vehicles enter and exit unpaved roads onto paved roads, or wash off trucks and any equipment leaving the site each trip.
- (ix) Apply water three times daily or chemical soil stabilizers according to manufacturers' specifications to all unpaved parking or staging areas or unpaved road surfaces.
- (x) Post and enforce traffic speed limits of 15 miles per hour or less on all unpaved roads.

(This is identical to Air Quality PP 4.3-2[b] and Hydrology PP 4.8-3[c].)

PP 4.6-2(b) In compliance with National Pollutant Discharge Elimination System (NPDES), the campus would continue to implement Best Management Practices, as identified in the *UCR Stormwater Management Plan* (UCR 2003):

- (i) Public education and outreach on stormwater impacts.
- (ii) Public involvement/participation.
- (iii) Illicit discharge detection and elimination.
- (iv) Pollution prevention/good housekeeping for facilities.
- (v) Construction site stormwater runoff control.
- (vi) Post-construction stormwater management in new development and redevelopment.

(This is identical to Biological Resources PP 4.4-2[b] and Hydrology PP 4.8-3[d].)

Project Impact Analysis

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:					
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

The analysis of Impact 4.6-1 in the 2005 LRDP EIR determined that, with implementation of PS Open Space 1 and 2, PS Conservation 2, and PPs 4.6-1(a) through 4.6-1(c), there would be less than significant impacts related to fault rupture, strong seismic ground shaking, or seismic-related hazards.

In accordance with PP 4.6-1(a), and as identified previously, a site-specific study has been prepared for the proposed project, and the associated geotechnical recommendations would be incorporated into the building design. The geotechnical report included excavation of 5

geotechnical borings to depths up to 7.5 feet below ground surface (bgs); percolation testing to evaluate the infiltration rate; laboratory testing; and engineering analyses.

According to the geotechnical report, before advancing to subsurface earth materials, borings B-1 through B-4 encountered a pavement section consisting of 2 to 4 inches of asphaltic concrete cover up to 4.5 inches of base. Boring P-1 was drilled in an unpaved area. Earth materials encountered during the subsurface investigation consisted predominately of up to 5 ft of fill overlying older alluvium. The older alluvium encountered in the borings consisted primarily of clayey sand and silty sand. The fill consisted of silty sand and sandy lean clay with about 40 to 50 percent of sand. It should be noted that the undocumented fill thickness may vary across the site. The fill is believed to be placed during recent expansion of the SoM modular trailer; however, the fill is considered undocumented because documentation regarding its placement and compaction is not available. Groundwater was not encountered within any of the borings drilled to depths between 5 and 7.5 ft bgs. Based on a review of the California Water Resource website, the groundwater level is reportedly situated at a depth greater than 50 ft bgs (Twining 2020).

The project site is not located within or adjacent to an Alquist-Priolo Earthquake Fault Zone (EFZ). The boundary of the closest Alquist-Priolo EFZ is located approximately 5.3 miles northeast of the site associated with the San Jacinto fault zone. The closest known active fault to the site is the San Jacinto fault, located approximately 5.7 miles northeast of the project site. As such, the likelihood of fault rupture occurring at the site during the design life of the proposed improvements is low (Twining 2020). Because ground rupture occurrences are generally limited to the location of faults, the proposed project would not be subject to a substantial risk of fault (ground surface) ruptures.

Although the project site is not located within an active fault, the project site is located in a seismically active area, as is the majority of southern California. Therefore, as concluded for the UCR campus in the 2005 LRDP EIR, the project site is located within a seismically active area and moderate to strong seismic shaking caused by an earthquake on any of the active or potentially active local and regional faults (refer to Figure 4.6-2, Regional Fault Map, of the 2005 LRDP EIR) can be expected during the lifetime of the proposed project. According to the 2019 California Building Code (CBC), the project site is classified as Site Class D, corresponding to a "Stiff Soil" profile. This classification is used as the basis for seismic design parameters to be implemented for the proposed project in accordance with 2019 CBC standards.

The geotechnical report concludes there are no geologic and seismic conditions on the project site that would preclude development of the proposed project, provided appropriate engineering design and construction practices are implemented (Twining 2020). The proposed project incorporates PP 4.6-1(c) and ensures that buildings and other facilities are designed and constructed in compliance with the University Policy on Seismic Safety, which requires compliance with the seismic provisions of the current CBC and other State codes as described in PP 4.6-1(c) or local seismic requirements, whichever is more stringent. Therefore, implementation of the proposed project would not expose people and/or structures to potentially substantial adverse effects resulting from strong seismic ground shaking, and this impact is considered to be less than significant.

Other seismic-related hazards investigated in the geotechnical report include liquefaction, seismically induced settlement, and landslide potential. The project site is mapped by Riverside County as having low liquefaction potential (Twining 2020). Based on the lack of shallow groundwater and the medium dense to dense subsurface soil profile, the geotechnical report concludes that liquefaction and seismic settlement would not be a design consideration for the proposed project. The project site is not within a California Geological Survey mapped area with the potential for earth-quake induced landslides. As such, the potential for earthquake-induced

landslides to occur at the site is considered low (Twining 2020). Therefore, there would be less than significant impacts related to seismic-related ground failure or landslides with incorporation of PP 4.6-1(c), consistent with the findings of the LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have less than significant impacts related to surface fault rupture or seismic-related ground failure, including liquefaction, settlement, or landslides and strong ground shaking with compliance with the above-mentioned PP and compliance with the CBC. The proposed project impacts were adequately addressed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Would the project result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

The analysis of Impact 4.6-2 in the 2005 LRDP EIR concluded that there would be less than significant impacts related to soil erosion and loss of topsoil with implementation of PS Land Use 2 and 3, PS Open Space 1 through 5, PS Conservation 1 through 3, PP 4.6-2(a), and PP 4.6-2(b).

Soil erosion from water or wind can occur to exposed soils during site clearance, excavation/grading activities, and other earth-disturbing activities associated with construction, including vegetation and hardscape removal. Erosion hazards in most of the East Campus, including the project site, range from slight to moderate. Construction activities associated with the proposed project would comply with all provisions of the current CBC related to excavation activities, grading activities, erosion control, and construction of foundations to minimize or eliminate soil erosion or loss of topsoil.

The proposed project would also minimize or eliminate soil erosion during construction activities through implementation of dust-control measures consistent with SCAQMD Rule 403 (PP 4.6-2[a]) and implement BMPs, in compliance with the NPDES permit (PP 4.6-2[b]) (refer to the discussion provided for Thresholds 9a and 9f in Section V.10, Hydrology and Water Quality, of this IS/MND). When these dust-control measures and construction BMPs are applied, they significantly reduce the erosion potential of project construction to negligible amounts. Therefore, the proposed project would result in less than significant impacts related to soil erosion or loss of topsoil with incorporation of PP 4.6-2(a) and PP 4.6-2(b), consistent with the findings of the LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have a less than significant impact related to soil erosion and the loss of topsoil with incorporation of the PPs noted above. The proposed project impacts were adequately addressed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Would the project 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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

The analysis of Impacts 4.6-3 and 4.6-4 in the 2005 LRDP EIR determined that, with implementation of PS Open Space 1 and 2, PS Conservation 2, and PP 4.6-1(a), there would be less than significant impacts related to unstable geologic materials, including expansive soils.

According to the project-specific geotechnical report and as previously discussed, based on the lack of shallow groundwater and the medium dense to dense subsurface profile, the geotechnical report concludes that liquefaction and seismic settlement would not be a design consideration for the proposed project. Laboratory testing for expansive soils determined that soils on the project site have a very low expansion potential (Twining 2020). As discussed under Threshold 7a, the project site is not subject to landslides (Twining 2020).

The preliminary geotechnical report concludes there are no geologic and seismic conditions on the project site that would preclude development of the proposed project, provided appropriate engineering design and construction practices are implemented (Twining 2020). As required by PP 4.6-1(a), the preliminary geotechnical report includes design parameters that would be incorporated into the building design. Therefore, with the proposed project’s incorporation of PP 4.6-1(a), there would be less than significant impacts related to unstable and expansive soils, consistent with the findings of the LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have less than significant impacts associated with unstable and expansive soils with incorporation of the PP noted above. The proposed project impacts were adequately addressed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
e) Would the project 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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

Through the IS process for the 2005 LRDP EIR, implementation of the 2005 LRDP was determined to have no impact related to soils constraints for alternative wastewater disposal systems and was not carried forward for further discussion in the Draft EIR. As indicated in the 2005 LRDP EIR, the campus is served by the municipal sewer system and does not require the use of septic tanks or alternative wastewater disposal systems. Therefore, there would be no impact related to the use of septic tanks or alternative wastewater disposal systems resulting from implementation of the proposed project because existing wastewater infrastructure would be used. This is consistent with the findings of the LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have no impact related to soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater. The proposed project impacts were adequately addressed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

A paleontological records search was conducted by Dr. Samuel McLeod of the Natural History Museum of Los Angeles County (LACM) on December 18, 2018. This search used the vertebrate paleontology records housed at the LACM to identify fossil localities near or within the UCR campus vicinity, as well as those within the geologic formations that underlie the UCR campus. In addition to this records search, online records searches were conducted using the Paleobiology Database and University of California Museum of Paleontology online collections. To augment the information from the records searches, a literature search was conducted using scientific publications and unpublished technical reports regarding the geology and paleontology of the UCR Campus, and the project site and surrounding region. The results of the record searches

and literature review did not identify any known paleontological resources within the UCR Campus or within the project site.

The analysis of Impact 4.5-4 in the 2005 LRDP EIR concluded that there would be less than significant impacts related to paleontological resources during construction activities with implementation of PS Land Use 3; PS Open Space 1, 2, and 5; and PP 4.5-4. As discussed in the 2005 LRDP EIR, the rock and sediment types that underlie most of the campus are unlikely to be fossil-bearing. However, Psomas (2019) mapped and identified areas of low and high paleontological sensitivity within the LRDP planning area during their 2019 Cultural Constraints Study. The Cultural Constraints Study concluded that paleontological deposits may be present within the Quaternary old alluvial fan, Quaternary very old alluvial fan (Qvof), and Quaternary young alluvial fan (Qyf) deposits located in the east side of the UCR Campus. The project site is underlain by Qvof sediments. These Qvof may contain buried paleontological resources.

Although there are no known paleontological resources within the project site, the potential for discovery of previously unknown paleontological resources cannot be eliminated. Therefore, there is a potential to encounter unknown paleontological resources because the proposed project involves excavation activities. The project will incorporate PP 4.5-4, which outlines the necessary steps to take in the event paleontological resources are uncovered during construction activities. Accordingly, the project would result in a less than significant impact to paleontological resources with incorporation of PP 4.5-4, consistent with the findings of the LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have a less than significant impact related to the potential to directly or indirectly destroy a unique paleontological resource or site or unique geologic feature, with incorporation of the PP noted above. The proposed project impacts were adequately addressed in the LRDP EIR.

8. Greenhouse Gas Emissions

The analysis of GHG emissions is tiered from the 2005 LRDP Amendment 2 EIR and was addressed in Section 4.16, Greenhouse Gas Emissions, of that document. Relevant elements of the proposed project related to GHG emissions include (1) demolition of the existing Greenhouse #6, landscape and hardscape areas, relocation of the SoM modular trailer, and removal of construction spoils from the project site; (2) construction of the new approximately 120,000 gsf SoM Ed. II building, and associated on-site improvements, off-site underground utility connections, hardscaping and landscaping; (3) construction equipment and workers' vehicles during the construction phase of the project; and (4) the increase in energy use for the SoM Ed. II building. It is estimated that the proposed project would allow the School of Medicine to grow to a class size of 125, and a total student population of approximately 500 students. It would also allow the growth in staff and faculty positions from approximately 161 to approximately 226. The new building associated with implementation of the proposed project would be designed to achieve a LEED Silver rating. Hours of operation will be similar to existing academic facilities on campus.

Section 4.16 of the 2005 LRDP Amendment 2 EIR discusses the background of GHG emissions and climate change; the types of GHGs; the State, United States, and global GHG contributions; and the regulatory framework related to GHG emissions and their assessment under CEQA. This information remains current and applicable to the analysis of GHG emissions related to the

proposed project in this IS/MND. In addition, subsequent regulations have been adopted to reduce GHG emissions statewide. Senate Bill (SB) 32 was enacted in 2016 and codified a 2030 GHG emissions reduction goal in Executive Order B-30-15 to reduce emissions 40 percent below 1990 levels. In December 2017, CARB approved California's 2017 Climate Change Scoping Plan, which identifies how the State can reach the 2030 climate target and substantially advance toward the 2050 climate goal to reduce GHG emissions by 80 percent below 1990 levels identified in Executive Order S-3-05. Governor Schwarzenegger adopted Executive Order S-3-05 which established GHG emission reduction targets for the years 2010, 2020 and 2050. Senate Bill 350 was also enacted in 2015 increasing the Renewables Portfolio Standard to 50 percent by 2030 and will double the energy savings required in electricity and natural gas end uses.

The following applicable PSs and MMs were adopted as part of the 2005 LRDP Amendment 2 EIR and are incorporated as part of the proposed project and assumed in the analysis presented in this section.

PS Campus and Community 4 Provide strong connections within the campus and its edges to promote walking, bicycling and transit use, rather than vehicular traffic.

PS Transportation 3 Provide a continuous network of bicycle lanes and paths throughout the campus, connecting to off-campus bicycle routes.

PS Transportation 5 Provide bicycle parking at convenient locations.

MM 4.14-1(b) **Travel Demand Management.** To reduce on- and off-campus vehicle trips and resulting impacts, the University will enhance its Transportation Demand Management (TDM) program. TDM strategies will include measures to increase transit and Shuttle use, encourage alternative transportation modes including bicycle transportation, implement parking policies that reduce demand, and other mechanisms that reduce vehicle trips to and from the campus. The University shall monitor the performance of campus TDM strategies through annual surveys.

MM 4.14-1(d) **Sustainability and Monitoring.** The University shall review individual projects proposed under the amended 2005 LRDP for consistency with UC sustainable transportation policy and UCR TDM strategies to ensure that bicycle and pedestrian improvements, alternative fuel infrastructure, transit stops, and other project features that promote alternative transportation are incorporated into each project to the extent feasible.

MM 4.16-1 All projects developed under the amended 2005 LRDP shall be evaluated for consistency with the GHG reduction policies of the UC Policy on Sustainable Practices, as may be updated from time to time by the University. GHG reduction measures, including, but not limited to, those found within the UC Policy identified in Tables 4.16-9 and 4.16-10 shall be incorporated in all campus projects so that at a minimum an 8-percent reduction in emissions from BAU

is achieved. It is expected that the GHG reduction measures will be refined from time to time, especially in light of the evolving regulations and as more information becomes available regarding the effectiveness of specific GHG reduction measures. The Campus will also monitor its progress in reducing GHG emissions to ensure it will attain the established targets.

In addition, the following MM and PS are incorporated into the proposed project and would reduce GHG emissions: MM 4.3-2(b) included under the Air Quality analysis (Section V.3 of this IS/MND) which requires UCR to continue to participate in GHG reduction programs and PS Conservation 5 included under the Energy analysis (Section V.6 of this IS/MND) requiring adherence to Title 24 conservation goals and programs.

Project Impact Analysis

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

The analysis of Impact 4.16-1 in the 2005 LRDP Amendment 2 EIR concluded that, although development under the 2005 LRDP Amendment 2 would generate substantial direct and indirect GHG emissions, impacts would be less than significant with implementation of MM 4.16-1. UCR has committed to reduce GHG emissions by over 70 percent by 2020 from business-as-usual (BAU) projections.

Proposed Project Emissions

GHG emissions from the proposed project were calculated using CalEEMod Version 2016.3.2. Construction GHG emissions are generated by vehicle engine exhaust from construction equipment, on-road hauling trucks, vendor trips, and worker commuting trips. Construction assumptions are described in Section V.3, Air Quality, and in Appendix A of this IS/MND. The results are output in metric tons carbon dioxide equivalent (MTCO₂e) for each year of construction. The estimated construction GHG emissions for the proposed project are shown in Table 9.

**TABLE 9
 ESTIMATED PROJECT CONSTRUCTION
 GREENHOUSE GAS EMISSIONS**

Year	Emissions (MTCO ₂ e)
2021	316
2022	542
2023	231
Total*	1,089
Annual emissions for 30-year amortization	36
Notes: MTCO ₂ e: metric tons carbon dioxide equivalent.	
* Totals may not add due to rounding.	
Source: CalEEMod model data sheets are included in Appendix A.	

As shown in Table 9, an estimated 1,089 MTCO₂e would occur from project construction over the course of the estimated construction period. Since the draft SCAQMD GHG threshold Guidance document released in October 2008⁸ recommends that construction emissions be amortized for a project lifetime of 30 years to ensure that GHG reduction measures address construction GHG emissions as part of the operational reduction strategies. Therefore, the total GHG emissions from project construction were amortized and are included in Table 10 below.

Operational GHG emissions attributed to the proposed project include area sources (i.e., the use of landscape maintenance equipment, periodic painting, and consumer products); energy sources (i.e., purchased electricity); the electricity embodied in water consumption; the energy associated with solid waste disposal; and vehicle travel by existing and projected students, faculty, and staff members. Operational phase GHG emissions attributable to the proposed project are shown in Table 10.

**TABLE 10
 ESTIMATED GROSS ANNUAL GREENHOUSE GAS
 EMISSIONS – PROPOSED PROJECT**

Source	Emissions MTCO ₂ e/yr
Area	<1
Energy	1,053
Mobile	439
Waste	13
Water	9
Total Operational Emissions – Proposed Project	1,515
Plus: Amortized construction emissions (Table 9)	36
Total Emissions – Proposed Project	1,551
Notes: MTCO ₂ e/yr: metric tons of carbon dioxide equivalent per year.	
Totals may not add due to rounding.	
Source: Detailed calculations can be found in Appendix A.	

⁸ [http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-\(ghg\)-ceqa-significance-thresholds/year-2008-2009/ghg-meeting-6/ghg-meeting-6-guidance-document-discussion.pdf?sfvrsn=2](http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/year-2008-2009/ghg-meeting-6/ghg-meeting-6-guidance-document-discussion.pdf?sfvrsn=2)

As discussed in Section 4.16 of the 2005 LRDP Amendment 2 EIR, some air quality management and air pollution control districts in California, including CARB and the SCAQMD, have either proposed or adopted guidance documents for evaluating the significance of GHG emissions. Beginning in April 2008, the SCAQMD convened a Working Group to provide guidance to local lead agencies in determining significance for GHG emissions in their CEQA documents. In September 2010, the SCAQMD Working Group presented a revised tiered approach to determining GHG significance for residential and commercial projects (SCAQMD 2010). These proposals have not yet been considered by the SCAQMD Board. At Tier 1, GHG emissions impacts would be less than significant if the project qualifies under a categorical or statutory CEQA exemption. At Tier 2, for projects that do not meet the Tier 1 criteria, the GHG emissions impact would be less than significant if the project is consistent with a previously adopted GHG reduction plan that meets specific requirements.⁹ At Tier 3, the Working Group proposes extending the 10,000 MTCO₂e/yr screening threshold currently applicable to industrial projects where the SCAQMD is the lead agency, described above, to other lead agency industrial projects. For residential and commercial projects, the Working Group proposes the following Tier 3 screening values: either (1) a single 3,000-MTCO₂e/yr threshold for all land use types or (2) separate thresholds of 3,500 MTCO₂e/yr for residential projects, 1,400 MTCO₂e/yr for commercial projects, and 3,000 MTCO₂e/yr for mixed-use projects. A project with emissions less than the applicable screening value would be considered to have less than significant GHG emissions.

As shown in Table 10, the estimated annual operational GHG emissions for the proposed project with GHG reduction features, including amortized construction emissions, is 1,551 MTCO₂e/yr. This value may be compared with the proposed SCAQMD Tier 3 screening threshold of 3,000 MTCO₂e/yr for all land use types. Therefore, the proposed project would generate a less than significant emission rate of GHG emissions based on the SCAQMD threshold. It is therefore concluded that the direct and indirect GHG emissions of the proposed project would not be cumulatively considerable and would result in a less than significant impact with the incorporation of PS Campus and Community 4, PS Transportation 3, PS Transportation 5, MM 4.3-2(b), MM 4.14-1(b), MM 4.14-1(d), and MM 4.16-1, consistent with the findings in the LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have a less than significant impact related to GHG emissions with incorporation of the PSs and MMs noted above. The proposed project impacts were adequately addressed in the LRDP EIR.

⁹ The plan must (a) quantify greenhouse gas emissions, both existing and projected over a specified time period, resulting from activities within a defined geographic area; (b) establish a level, based on substantial evidence, below which the contribution to greenhouse gas emissions from activities covered by the plan would not be cumulatively considerable; (c) identify and analyze the greenhouse gas emissions resulting from specific actions or categories of actions expected within the geographic area; (d) specify measures or a group of measures, including performance standards, that substantial evidence demonstrates, if implemented on a project-by-project basis, would collectively achieve the specified emissions level; (e) establish a mechanism to monitor the plan's progress toward achieving the level and to require an amendment if the plan is not achieving specified levels; and (f) be adopted in a public process following environmental review (State CEQA Guidelines, §15183.5).

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

The analysis of Impact 4.16-2 in the 2005 LRDP Amendment 2 EIR concluded that development under the 2005 LRDP, as amended, would result in a less than significant impact related to conflict with applicable plans, policies, or regulations concerning reductions in GHG emissions. The applicable plans, policies, or regulations pertinent to the proposed project include (1) the UC Policy on Sustainable Practices (last issued in July 2020).

The Green Building Design section of the UC Policy on Sustainable Practices includes the following goals for new buildings that are applicable to the proposed project:

- All new building projects, other than acute care facilities, shall be designed, constructed, and commissioned to outperform the CBC energy-efficiency standards by at least 20 percent. The University will strive to design, construct, and commission buildings that outperform CBC energy efficiency standards by 30 percent or more, whenever possible within the constraints of program needs and standard budget parameters.¹⁰
- All new buildings will achieve a U.S Green Building Council (USGBC) LEED “Silver” certification at a minimum.
- All new building projects will achieve at least two points within the available credits in LEED-BD+C’s Water Efficiency category.

There are multiple policies and regulatory requirements applicable to development on the UCR campus, including the UC Policy on Sustainable Practices; AB 32; American College and University Presidents Climate Commitment, to which UCR is a signatory; CEQA; and USEPA reporting requirements. The UC Policy on Sustainable Practices establishes the goal for the campus to reduce GHG emissions to 1990 levels by 2020. UCR has committed to achieving a LEED Silver rating. The proposed project also incorporates PS Campus and Community 4, PS Transportation 3 and 5, MM 4.3-2(b), MM 4.14-1(b), MM 4.14-1(d), and MM 4.16-1, which relate primarily to UCR implementation of GHG reduction policies and measures and travel demand management, and promoting alternative transportation.

The proposed project incorporates MM 4.3-2(b), which requires UCR to implement the GHG reduction measures described in the 2005 LRDP Amendment 2 EIR (Tables 4.16-9 and 4.16-10 in Section 4.16); MM 4.14-1(b), which requires UCR’s continued implementation and enhancement of its TDM program; MM 4.14-1(d), which requires UCR’s review of individual projects for consistency with UC transportation policy and TDM strategies; and MM 4.16-1, which requires UCR’s review of individual projects for consistency with the GHG reduction policies of the UC Policy on Sustainable Practices. Additionally, implementation of the proposed project would adhere to the conservation requirements of Title 24 of the California Code of Regulations

¹⁰ The UC Policy also offers an alternative “energy performance target” method.

and comply with any future conservation goals or programs enacted by the UC (PS Conservation 5).

Specifically, the design, construction, and operation of the proposed project would include a series of green building strategies under development, along with mandatory strategies required by the CalGreen Code, and the UC Policy on Sustainable Practices to exceed CBC energy efficiency requirements by 20 percent or greater (for new buildings). Additionally, the proposed project would comply with applicable UC Policy on Sustainable Practices goals for climate protection, recycling and waste management, and sustainable food services (e.g., food procurement, education, engagement with external stakeholders, and sustainable operations). Based on the above analysis, the proposed project would not conflict with the UC Policy on Sustainable Practices. Impacts would be less than significant with incorporation of PS Campus and Community 4, PS Transportation 3 and 5, PS Conservation 5, MM 4.3-2(b), MM 4.14-1(b), MM 4.14-1(d), and MM 4.16-1, consistent with the findings of the LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions. Impacts were considered less than significant with incorporation of the PSs and MMs noted above. The proposed project impacts were adequately addressed in the LRDP EIR.

9. Hazards and Hazardous Materials

The analysis of hazards and hazardous materials is tiered from the 2005 LRDP EIR and was addressed in Section 4.7, Hazards and Hazardous Materials, of that document. Relevant elements of the proposed project related to hazards and hazardous materials include removal of existing landscape and hardscape areas, above-ground electrical equipment, demolition of Greenhouse #6, and the construction of the proposed SoM Ed. II, an emergency and service access drive, and associated on-site improvements. The existing SoM modular trailer would be relocated on an existing parking lot or paved area on campus. Landscape maintenance chemicals and cleaning products would continue to be used, consistent with existing campus operations. The design of the proposed project ensures that emergency access to and around the project site and SoM modular trailer relocation site is maintained.

Section 4.7 of the 2005 LRDP EIR provides a detailed description of the hazardous materials and wastes handled and/or generated at UCR and the policies, programs, and practices implemented to manage these materials in compliance with local, State, and federal regulations, as applicable. These include, but are not limited to, the following programs offered by UCR's Environmental Health and Safety (EH&S) Department: Biosafety; Emergency Management; Campus Emergency Response Plan; Environmental Health; Environmental Programs; Hazardous Materials Program; Spill Prevention, Control and Countermeasures Plan; Industrial Hygiene and Safety; Laboratory/Research Safety; and Radiation Safety.

The following applicable PPs were adopted as part of the 2005 LRDP EIR as supplemented and updated by the 2005 LRDP Amendment 2 EIR; they are incorporated as part of the proposed project and assumed in the analysis presented in this section.

- PP 4.7-1** The Campus shall continue to implement the current (or equivalent) health and safety plans, programs, and practices related to the use, storage, disposal, or transportation of hazardous materials, including, but not necessarily limited to, the Business Plan, the Broadscope Radioactive Materials License, and the following programs: Biosafety, Emergency Management, Environmental Health, Hazardous Materials, Industrial Hygiene and Safety, Laboratory/Research Safety, Radiation Safety, and Integrated Waste Management. These programs may be subject to modification as more stringent standards are developed or if the programs are replaced by other programs that incorporate similar health and safety protection measures.
- PP 4.7-2** The campus shall perform hazardous materials surveys on buildings and soils, if applicable, prior to demolition and construction. When remediation is deemed necessary, surveys shall identify all potential hazardous materials within the structure to be demolished, and identify hazardous materials within the structure to be demolished, and identify handling and disposal practices. The campus shall follow the practices during building demolition to ensure construction worker and public safety.
- PP 4.7-7(a)** To the extent feasible, the Campus shall maintain at least one unobstructed lane in both directions on campus roadways. At any time only a single lane is available, the Campus shall provide a temporary traffic signal, signal carriers (i.e., flag persons), or other appropriate traffic controls to allow travel in both directions. If construction activities require the complete closure of a roadway segment, the Campus shall provide appropriate signage indicating alternative routes. *(This is identical to Transportation and Traffic PP 4.14-5.)*
- PP 4.7-7(b)** To maintain adequate access for emergency vehicles when construction projects would result in roadway closures, Architects & Engineers (formerly the Office of Design and Construction) shall consult with the UCPD, EH&S, and the RFD to disclose roadway closures and identify alternative travel routes. *(This is identical to Transportation and Traffic PP 4.14-8.)*
- PP 4.8-10** In the event of an emergency, including catastrophic failure of the California State Water Project pipeline, the campus would implement the Emergency Operations Plan.

Project Impact Analysis

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Would the project 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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

The analysis of Impacts 4.7-1 through 4.7-4 in the 2005 LRDP EIR concluded that, with implementation of PP 4.7-1 through PP 4.7-4 and MM 4.7-4, development under the 2005 LRDP would have a less than significant impact during construction and long-term operations related to public exposure to hazards from (1) the routine transport, use, or disposal of hazardous materials and (2) a reasonably foreseeable upset and accident condition involving the release of hazardous materials.

As defined in the 2005 LRDP EIR, for purposes of this analysis, hazardous materials include inorganic and organic chemicals and products (chemical reagents and reactions) containing such substances as defined by California laws and regulations, radioactive materials, and biohazardous materials.

Construction-Related Hazards

There have been localized areas of soil contamination on campus in connection with leaking underground storage tanks (USTs) in the past; all of the sites on campus have been remediated and properly closed. Additionally, although there is no known contamination associated with the historic use of agricultural teaching and research fields in the West Campus, due to the long-term use of common agricultural practices, including the application of pesticides, fertilizers, and other agricultural chemicals, the potential exists for residues of agricultural chemicals to be present in the soil in this area. Development of new facilities in the West Campus north of Martin Luther King Boulevard could result in exposure of these residues, if any, to construction workers during construction and campus occupants during operation of the buildings and other facilities. The proposed project is located in the East Campus and would not expose construction workers or building occupants to these potential hazards.

Additionally, construction activities could encounter abandoned pipes, discarded building materials, unknown USTs, or previously unidentified contaminated soil, which could result in the exposure of construction workers or campus occupants to hazardous materials.

The proposed project incorporates PP 4.7-1, described above, which requires compliance with federal, State, and local regulations as well as current (or equivalent) campus plans, programs, and practices related to the use, storage, disposal, and transport of hazardous materials and wastes. Therefore, the proposed project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials or through reasonably foreseeable upset and accident conditions involving the release of hazardous materials during construction; there would be a less than significant impact, consistent with the findings of the LRDP EIR.

Operational Hazards

Hazardous Materials Use and Transport

As discussed in Section 4.7 of the 2005 LRDP EIR, implementation of the 2005 LRDP would include development of facilities that use hazardous materials in teaching and research activities; development of such facilities is not included under the proposed project. However, with an increase in on-campus facilities, expansion of maintenance and cleaning services would be required, which would increase the use, handling, storage, and disposal of products routinely used in building maintenance, some of which may contain hazardous materials (Impact 4.7-1). This, in turn, would result in an increase in the amount of hazardous materials that are used,

stored, transported, and disposed of and could increase the potential for an accident or accidental release of hazardous materials or wastes (Impact 4.7-3).

As discussed in the 2005 LRDP EIR, transportation of hazardous materials and wastes along any City or State roadway or rail lines within or near the campus is subject to all relevant Caltrans, California Highway Patrol, and California Department of Health Services hazardous materials and wastes transportation regulations, as applicable. Regular inspections of licensed waste transporters are conducted by a number of agencies to ensure compliance with requirements that range from the design of vehicles used to transport wastes to the procedures to be followed in case of spills or leaks during transit.

To minimize risks associated with routine hazardous material use on campus, the proposed project incorporates PP 4.7-1, which requires compliance with federal, State, and local regulations as well as current (or equivalent) campus plans, programs, and practices related to the use, storage, disposal, and transport of hazardous materials and wastes. Modifications of these existing programs and services are made over time to make sure that they continue to keep the campus in compliance with the numerous hazardous materials laws and regulations at all levels of government. EH&S oversees proper transportation and disposal of waste materials on campus.

Other hazardous materials that may be used as part of the proposed project include commercial cleaning products and landscape maintenance chemicals. Cleaning products would be disposed of either through the wastewater system (i.e., sinks, laundry) or evaporation. Pesticides and herbicides are directly applied to affected areas using methods that follow State and County laws and/or guidelines.

The potential for accidents involving hazardous materials during operation would not increase with the proposed project since the types of uses would be consistent with existing conditions at the project site and other locations on campus. The design of the project ensures that emergency access to and around the project site and SoM modular trailer relocation site would be maintained. Emergency access to the project site would continue to be provided from East Campus Drive along the northern and southern perimeter of the proposed building in addition to access provided from the southwest. Emergency access to the SoM modular trailer relocation site would continue to be provided from West Linden Street if the SoM modular trailer is relocated to the Corporation Yard or continue to be provided from Martin Luther King Boulevard if the SoM modular trailer is relocated to the northwest area of Parking Lot 30.

Operation of the proposed project would comply with applicable federal, State, and local laws and regulations and with the existing UCR programs, practices, and procedures required by PP 4.7-1, identified above. Therefore, the proposed project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials or through reasonably foreseeable upset and accident conditions involving the release of hazardous materials during operation; there would be a less than significant impact with incorporation of PP 4.7-1, consistent with the findings of the 2005 LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have a less than significant impact related to the potential to create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials or through reasonably foreseeable upset and accident conditions involving

the release of hazardous materials into the environment with incorporation of the PP noted above. The proposed project impacts were adequately addressed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

The analysis of Impact 4.7-5 in the 2005 LRDP EIR concluded that, with implementation of PP 4.7-1, development under the 2005 LRDP would have a less than significant impact related to hazardous emissions or handling hazardous materials within a ¼-mile of a school. There are no K-12 schools located within a ¼-mile of the project site.

The nearest schools from the project site are the Islamic Academy of Riverside Elementary School, which is approximately 0.7-mile northwest of the project site at its nearest point and Riverside STEM Academy, which is approximately 0.7 mile southeast of the project site at its nearest point. Project construction may require occasional transport of hazardous materials, including oils, lubricants, paints, or other construction equipment chemicals. Use of such materials would be typical of construction projects and any transport, use, and storage of hazardous materials would be conducted in accordance with all applicable State and federal laws. Further, the proposed project does not involve the operation of any uses that would involve the use, storage, transport, and disposal of hazardous materials beyond that which currently occurs on campus, including hazardous materials associated with food service. Compliance with federal, State, and local regulations as well as current (or equivalent) campus plans, programs, and practices related to the use, storage, disposal, and transport of hazardous materials and wastes, as required by PP 4.7-1, would ensure that risks associated with hazardous emissions or materials would be eliminated or reduced through proper handling techniques, disposal practices, and/or cleanup procedures.

The proposed project incorporates PP 4.7-1, which would ensure the appropriate use and transport of common hazardous materials, including cleaning and landscape maintenance products, as discussed under Thresholds 9.a and 9.b, above. Therefore, there would be no impact related to handling hazardous materials within a ¼-mile of a school, consistent with the findings of the LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have no impact related to handling hazardous materials within ¼-mile of a school with incorporation of the PP noted above. The proposed project impacts were adequately addressed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Would the project 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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

The analysis of Impact 4.7-6 in the 2005 LRDP EIR concluded that development under the 2005 LRDP would have a less than significant impact related to construction on a site included on the Cortese List, which is compiled pursuant to Section 65962.5 of the *California Government Code*.

In compliance with PP 4.7-2, multiple databases were checked to determine if the project site is recorded as a contaminated site. The project site is not included in any database of sites compiled pursuant to Section 65962.5 of the *California Government Code*, referred to as the Cortese List, and collected by the California Environmental Protection Agency (CalEPA 2020a). Specifically, the project site is not identified on (1) the California Department of Toxic Substances Control’s (DTSC’s) Hazardous Waste and Substances Site List, also called Envirostor; (2) the DTSC’s list of hazardous waste facilities where the DTSC has taken or contracted for corrective action because a facility owner/operator has failed to comply with a date for taking corrective action or because DTSC determined that immediate corrective action was necessary to abate an imminent or substantial endangerment; (3) the State Water Resources Control Board’s (SWRCB’s) Leaking Underground Storage Tank sites, also called GeoTracker; (4) the SWRCB’s list of Cease and Desist Orders and Cleanup and Abatement Orders; and (5) the SWRCB’s list of solid waste disposal sites with waste constituents above hazardous waste levels outside the waste management unit (CalEPA 2020a, 2020b, 2020c, 2020d, 2020e; DTSC 2020). As such, the proposed project would not be located on a site included on a list of hazardous materials site that would create a significant hazard to the public or the environment. Nonetheless, the proposed project would incorporate PP 4.7-1, which requires compliance with federal, State, and local regulations as well as current (or equivalent) campus plans, programs, and practices related to the use, storage, disposal, and transport of hazardous materials and wastes. Impacts are considered less than significant, consistent with the findings of the LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would not be located on a site that is included on a list of hazardous materials sites compiled pursuant to *California Government Code* Section 65962.5 and would have less than significant impacts with the incorporation of the PP noted above. The proposed project impacts were adequately addressed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
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 for people residing or working in the project area?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

Based on the IS prepared for the 2005 LRDP EIR, development under the 2005 LRDP was determined to have no impact related to public use airports or private airstrips and was not carried forward for further discussion in the Draft EIR. Specifically, the UCR campus is not located within two miles of a public airport or public use airport; it has not been included in an airport land use plan; and it is not located within the vicinity of a private airstrip. Therefore, the proposed project would not result in any impacts from safety hazards associated with airports or airstrips, consistent with the findings of the LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have no impacts related to public use airports or private airstrips. The proposed project impacts were adequately addressed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
f) Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

The analysis of Impact 4.7-7 in the 2005 LRDP EIR concluded that, with implementation of PS Land Use 3, PS Open Space 1, PS Open Space 4 through 7, PS Transportation 4, PP 4.7-7(a), PP 4.7-7(b), MM 4.7-7(a), and MM 4.7-7(b), development under the 2005 LRDP would have a less than significant impact related to impairing the implementation of or physically interfering with an adopted emergency response plan or emergency evacuation plan.

EH&S is responsible for the campus' Emergency Operations Plan (EOP), which is intended to safeguard people, property, research, and other resources from the consequences of natural and man-made hazards through mitigation, preparedness, response, and recovery. The EOP was last updated in December 2011. Although the City of Riverside does not have a Master Emergency Response Plan prepared specifically for the campus, the campus coordinates with the City during development and update of its EOP to ensure awareness and proper coordination when

emergency situations occur on the campus. In the event of an emergency, the proposed project would incorporate PP 4.8-10 by implementing the campus' EOP.

Multiple emergency access or evacuation routes are provided on campus to ensure that, in the event one roadway or travel lane is temporarily blocked, another may be utilized. Construction of the proposed project could result in temporary lane or roadway closures to an on-campus road, East Campus Drive. However, construction and operation of the proposed project would be designed to ensure that the EOP is maintained and that emergency access on campus is not impeded, including existing fire lanes near the project site. Notably, as visible on Figure 5, emergency access would continue to be provided from East Campus Drive along the northern and southern perimeter of the proposed building in addition to access provided from the southwest. Emergency access to the SoM modular trailer relocation site would continue to be provided from West Linden Street if the SoM modular trailer is relocated to the Corporation Yard or continue to be provided from Martin Luther King Boulevard if the SoM modular trailer is relocated to the northwest area of Parking Lot 30.

Also, the proposed project incorporates PP 4.7-7(a), which requires the maintenance of at least one unobstructed lane in both directions on campus roadways, to the extent feasible, and PP 4.7-7(b), which requires consultation between UCR and the UC Police Department (UCPD), Riverside Fire Department, and UCR EH&S to identify alternative travel routes for emergency vehicle access when construction projects result in roadway closures.

Therefore, the proposed project would result in a less than significant impact related to emergency response and evacuation on campus with incorporation of PP 4.7-7(a), PP 4.7-7(b) and PP 4.8-10, consistent with the findings of the 2005 LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have a less than significant impact related to implementation of or physical interference with an adopted emergency response plan or emergency evacuation plan with incorporation of the PPs noted above. The proposed project impacts were adequately addressed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
g) Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

The analysis of Impact 4.7-8 in the 2005 LRDP EIR concluded that, with implementation of PS Open Space 1, MM 4.7-8(a), and MM 4.7-8(b), development under the 2005 LRDP would have a less than significant impact related to wildfires. The 2005 LRDP EIR identified the campus areas that may be subject to wildland fires, which include the following areas located adjacent to the

southeast hills and the Botanic Gardens: the area south of South Campus Drive and areas currently occupied by Parking Lots 13 and 10, east of East Campus Drive.

As part of the project, the existing SoM modular trailer would be relocated temporarily to Parking Lot 10, and then relocated permanently to an existing surface parking area within the Corporation Yard, or an existing paved area to the northwest of Parking Lot 30 on West Campus. The proposed project would be designed and constructed in compliance with applicable requirements of the California Fire Code. Specifically, fire sprinklers, fire alarm systems, fire water connections, emergency lighting, emergency response notification systems, and illuminated signage would be installed as required for the SoM Ed. II building. The proposed project would also be consistent with the UCR Physical Design Framework, which recommends the use of native or climate adapted plants or low water requiring plants to prevent wildfires from spreading (UCR 2009). State and UCR regulations, inspections, and enforcement procedures would reduce risk of loss, injury, or death involving wildland fires, and impacts would be less than significant. Project impacts were adequately addressed in the LRDP EIR. For more discussion of potential impacts related to wildfire, please refer to Section V.20, Wildfire, of this IS/MND.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have less than significant impacts related to wildland fires. The proposed project was adequately addressed in the LRDP EIR.

10. Hydrology and Water Quality

The analysis of hydrology and water quality is primarily tiered from the 2005 LRDP EIR; however, current regulatory information and selected portions of the impact analysis, as indicated, are tiered from the 2005 Amendment 2 EIR. Hydrology and water quality issues are addressed in Section 4.8 of both documents. As detailed in the following discussions, relevant elements of the proposed project related to hydrology and water quality include the use of treatment-based LID BMPs. The analysis of hydrology and water quality is applicable to the proposed project which would involve the similar types of uses, and a similar amount of pervious and impervious surface.

The following applicable PPs were adopted as part of the 2005 LRDP Amendment and/or 2005 LRDP Amendment 2 EIR; they are incorporated as part of the proposed project and have been assumed in the analysis presented in this section.

PP 4.8-1 The Campus will continue to comply with all applicable water quality requirements established by the SARWQCB. *(This is identical to Utilities PP 4.15-5.)*

PP 4.8-2(a) To further reduce the campus' impact on domestic water resources, to the extent feasible, UCR will

- (i) Install hot water recirculation devices (to reduce water waste).
- (ii) Continue to require all new construction to comply with applicable State laws requiring water-efficient plumbing fixtures, including but not limited to the Health and Safety Code and Title 24, California Code of Regulations, Part 5 (California Plumbing Code).

- (iii) Retrofit existing plumbing fixtures that do not meet current standards on a phased basis over time.
- (iv) Install recovery systems for losses attributable to existing and proposed steam and chilled-water systems.
- (v) Prohibit using water as a means of cleaning impervious surfaces.
- (vi) Install water-efficient irrigation equipment to maximize water savings for landscaping and retrofit existing systems over time.

(This is identical to Utilities PP 4.15-1[b].)

PP 4.8-2(b)

The Campus shall promptly detect and repair leaks in water and irrigation pipes. *(This is identical to Utilities PP 4.15-1[c].)*

PP 4.8-3(c)

The Campus shall continue to implement dust control measures consistent with SCAQMD Rule 403—Fugitive Dust during the construction phases of new project development. The following actions are currently recommended to implement Rule 403 and have been quantified by the SCAQMD as being able to reduce dust generation between 30 and 85 percent depending on the source of the dust generation. The Campus shall implement these measures as necessary to reduce fugitive dust. Individual measures shall be specified in construction documents and require implementation by construction contractor:

- (i) Apply water and/or approved nontoxic chemical soil stabilizers according to manufacturer's specification to all inactive construction areas (previously graded areas that have been inactive for 10 or more days).
- (ii) Replace ground cover in disturbed areas as quickly as possible.
- (iii) Enclose, cover, water twice daily, or apply approved chemical soil binders to exposed piles with 5 percent or greater silt content.
- (iv) Water active grading sites at least twice daily.
- (v) Suspend all excavating and grading operations when wind speeds (as instantaneous gusts) exceed 25 miles per hour over a 30-minute period.
- (vi) All trucks hauling dirt, sand, soil, or other loose materials are to be covered or should maintain at least two feet of freeboard (i.e., minimum vertical distance between top of the load and the top of the trailer), in accordance with Section 23114 of the California Vehicle Code.
- (vii) Sweep streets at the end of the day if visible soil material is carried over to adjacent roads.
- (viii) Install wheel washers where vehicles enter and exit unpaved roads onto paved roads, or wash off trucks and any equipment leaving the site each trip.
- (ix) Apply water three times daily or chemical soil stabilizers according to manufacturers' specifications to all unpaved parking or staging areas or unpaved road surfaces.

- (x) Post and enforce traffic speed limits of 15 miles per hour or less on all unpaved roads.

(This is identical to Air Quality PP 4.3-2[b] and Geology PP 4.6-2[a].)

PP 4.8-3(d)

In compliance with NPDES, the campus would continue to implement Best Management Practices, as identified in the *UCR Stormwater Management Plan* (UCR 2003):

- (i) Public education and outreach on stormwater impacts.
- (ii) Public involvement/participation.
- (iii) Illicit discharge detection and elimination.
- (iv) Pollution prevention/good housekeeping for facilities.
- (v) Construction site stormwater runoff control.
- (vi) Post-construction stormwater management in new development and redevelopment.

(This is identical to Biological Resources PP 4.4-2[b] and Geology and Soils PP 4.6-2[b].)

PP 4.8-3(e)

Prior to the time of design approval, the Campus will evaluate each specific project to determine if the project runoff would exceed the capacity of the existing storm drain system. If it is found that the capacity would be exceeded, one or more of the following components of the storm drain system would be implemented to minimize the occurrence of local flooding:

- (i) Multi-project stormwater detention basins.
- (ii) Single-project detention basins.
- (iii) Surface detention design.
- (iv) Expansion or modification of the existing storm drain system.
- (v) Installation of necessary outlet control facilities.

Additionally, PS Conservation 2 (included under the Biological Resources analysis, which is Section V.4 of this IS/MND) is included in the proposed project, which requires buildings to minimize site disturbance through reduction of stormwater runoff.

Project Impact Analysis

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Discussion

The analysis of Impacts 4.8-1 and 4.8-7 in the 2005 LRDP EIR concluded that, with implementation of PS Conservation 2 and PP 4.8-1, there would be a less than significant impact related to violation of existing water quality standards or waste discharge requirements (WDRs) and degradation of water quality. A detailed discussion of the regulatory setting for water quality is provided in Section 4.8, Hydrology and Water Quality, of the 2005 LRDP Amendment 2 EIR. The Clean Water Act establishes a framework for regulating potential water quality impacts through the NPDES program. Phase I of the NPDES Program requires NPDES permits for storm water discharge from a large number of priority sources, including MS4s serving populations of over 100,000; several categories of industrial activity; and construction activity that disturbs 1 acre or more, as discussed further below.

Phase II of the NPDES Program regulates storm water discharges from Small MS4s (such as schools and universities). As part of Phase II, the SWRCB adopted a General Permit for the Discharge of Storm Water from Small MS4s (WQ Order No. 2003-0005-DWQ) to provide permit coverage for smaller municipalities, including non-traditional Small MS4s, which include public campuses. The Phase II Small MS4 General Permit covers Phase II Permittees Statewide. On February 5, 2013, the Phase II Small MS4 General Permit was adopted and became effective on July 1, 2013 (WQ Order No. 2013-0001-DWQ). UCR was approved for coverage under the Phase II MS4 permit program and is required to comply with the requirements of the MS4 permit, including the following:

1. Education and outreach program;
2. Public involvement and participation program;
3. Illicit discharge detection and elimination;
4. Construction site storm water runoff control program;
5. Pollution prevention/good housekeeping for facilities;
6. Post-construction stormwater management program; and
7. Program effectiveness assessment and improvement.

The project site is currently developed as a surface parking lot (Parking Lot D17), SoM modular trailer and associated parking (Parking Lot 40), a grab and go café (Scotty's Market), Greenhouse #6, an emergency and service access drive, above ground electrical infrastructure, and other hardscape and landscape areas. The existing SoM modular trailer would be relocated on an

existing parking lot or paved area on campus. It is served by the UCR on-campus drainage system, which connects to local and regional drainage systems. Impermeable surfaces would not appreciably increase with construction of the proposed project.

Construction

Implementation of the proposed project could result in runoff exiting the project site during project construction. Storm water runoff during construction could contain pollutants such as soils and sediments released during grading and excavation activities as well as petroleum-related pollutants due to spills or leaks from heavy equipment and machinery. Other common pollutants that may result from construction activities include solid or liquid chemical spills; concrete and related cutting or curing residues; wastes from paints, stains, sealants, solvents, detergents, glues, acids, lime, plaster, and cleaning agents; and heavy metals from equipment.

The proposed project incorporates PP 4.8-1 and PP 4.8-3(d), which requires compliance with requirements and water quality standards set forth within the current NPDES permit regulations. The SWRCB is authorized by the USEPA to oversee the NPDES program through the Regional Water Quality Control Boards (RWQCBs). The proposed project would be subject to the requirements of the Statewide General NPDES Permits, including the requirement to obtain coverage under the Statewide General NPDES Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (NPDES No. CAS000002, California Water Resources Control Board Resolution No. 2001-046; Modification of Water Quality Order 99-08-DWQ, SWRCB, NPDES, General Permit for Storm Water Discharges Associated with Construction Activity). This permit was revised on September 2, 2009 (Construction General Permit Order 2009-0009-DWQ) and was subsequently amended by Order No. 2010-0014-DWQ and Order No. 2012-0006-DWQ. Order No. 2012-0006-DWQ became effective on July 17, 2012. Specifically, the proposed project would require completion and filing of a Permit Registration Document with the SWRCB, which consists of a Notice of Intent (NOI), Risk Assessment, Site Map, Storm Water Pollution Prevention Plan (SWPPP), annual fee, and a signed certification statement. The primary objective of the SWPPP is to identify, construct, implement, and maintain BMPs to reduce or eliminate pollutants in storm water discharges and authorized non-storm water discharges from the construction site during construction.

A SWPPP typically includes both source-control and treatment-control BMPs to reduce water quality impacts. The BMPs that are most often used during construction include watering exposed soils; covering stockpiles of soil; installing sandbags to minimize off-site runoff; creating temporary desilting basins; and timing grading to avoid the rainy season (i.e., November-April). In addition, coverage under the Construction Permit would also include implementation of post-construction standards to achieve the pre-project volume and rate of storm water runoff from the project site. The proposed project would meet these standards through installation of active and passive treatment units, as described below under "Operation". The proposed project also incorporates PP 4.8-3(c), which requires implementation of SCAQMD Rule 403 for management of fugitive dust during construction. Finally, the proposed project would be required to comply with applicable provisions of the 2019 California Building Code and 2019 CalGreen Code, which became effective January 1, 2020, and require the reduction of erosion and sedimentation and therefore further reduce construction-related water quality impacts.

The proposed project is required to comply with all applicable water quality requirements established by the Santa Ana RWQCB and SWRCB. Therefore, consistent with the findings of the 2005 LRDP Amendment 2 EIR, the proposed project would be consistent with the Santa Ana Basin Plan, which is the applicable Water Quality Control Plan.

Because the PPs discussed above are included in the proposed project, short-term construction-related water quality impacts would be less than significant, which is consistent with the findings of the LRDP EIR.

Operations

As discussed under the analysis of Impact 4.8-1 in the 2005 LRDP EIR, the UCR campus is not considered a point source for regulatory purposes and is not subject to WDRs. In addition, no hazardous wastes generated on campus are discharged into the sewer or storm drainage systems. Therefore, the proposed project would not violate WDRs.

Despite the increase in impervious areas on the project site, the constituent pollutants entering the campus and City storm drain systems with proposed project implementation would not substantively change in character compared to existing conditions on campus, as the proposed facilities are essentially the same as existing facilities on campus. In addition, as required by PP 4.8-1 and PP 4.8-3(d), the proposed project would comply with all applicable water quality requirements, including NPDES Phase I requirements (General Construction Permit), as described above, and Phase II Small MS4 General Permit requirements. In compliance with PS Conservation 2, the following are potential site BMPs to reduce project site runoff:

- Permeable Paving;
- Filter strips;
- Grated Flow Control;
- Vegetated Swales;
- Rain Gardens and Flow Through Planters; and
- Eco roofs.

Therefore, operation of the proposed project would not violate any water quality standards or otherwise substantially degrade water quality. There would be a less than significant impact related to surface water quality with incorporation of PP 4.8-1 and PP 4.8-3(d), consistent with the findings of the LRDP EIR.

Additionally, according to the 2005 LRDP EIR, the UCR campus is located near the southeastern edge of the Riverside-Arlington groundwater subbasin and is not designated as a groundwater recharge area. Further, the soils underlying the East Campus and the project site are designated as the least-permeable soil type. Therefore, with the treatment BMPs identified previously and the fact that the underlying soils have a low permeability factor, the project would not result in a significant impact related to a sustainable groundwater management plan. The construction of the proposed SoM Ed. II and relocation of the SoM modular trailer would not substantially interfere with groundwater recharge, consistent with the findings of the LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have a less than significant impact related to (1) violating water quality standards or WDRs (2) otherwise substantially degrading surface or groundwater quality or (3) conflict with or obstruct implementation of a water quality control plan or sustainable

groundwater management plan with incorporation of the PPs noted above. The proposed project impacts were adequately addressed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

The analysis of Impact 4.8-2 in the 2005 LRDP EIR concluded that, with implementation of PS Conservation 5 and PP 4.8-2(a) through PP 4.8-2(b), there would be a less than significant impact related to substantial depletion of groundwater supplies or interference with groundwater recharge. The Riverside area is located within the Upper Santa Ana Valley Groundwater Basin, and the UCR campus including the project site is located near the southeastern edge of the Riverside-Arlington Subbasin (Subbasin). Groundwater in the Subbasin is replenished by infiltration from Santa Ana River flow; underflow past the Rialto-Colton Fault; intermittent underflow from the Chino Groundwater Subbasin; return irrigation flow; and deep percolation of precipitation.

As discussed in Section V.19, Utilities and Service Systems, of this IS/MND, the proposed project would generate a demand for an additional 0.0015 million gallons per day¹¹ (mgd) of potable water. The project would not lead to a substantial increase in water use that would increase demand on groundwater supplies. Additionally, the proposed project incorporates PP 4.8-2(a), which requires implementation of water conservation measures to reduce potable water consumption; PP 4.8-2(b), which requires the campus to promptly detect and repair leaks in water and irrigation pipes.

As stated in the 2005 LRDP Amendment 2 EIR, the RPU has indicated that it does not foresee any problems in providing adequate water supply to remaining and new development on the UCR campus. Therefore, the provision of additional water to the UCR campus, which could include groundwater, would not require water supplies in excess of existing entitlements and resources or result in the need for new or expanded entitlements. As such, implementation of the proposed project would not substantially deplete groundwater supplies, which is consistent with the findings of the LRDP EIR.

As identified in the 2005 LRDP EIR, the UCR campus is not a designated groundwater recharge area for the Subbasin, nor does the campus serve as a primary source of groundwater recharge within the Subbasin. The soils underlying the East Campus, including the project site, are designated as Class D, which is the least-permeable soil type. Therefore, the increase in the impervious surface area on the approximately 3-acre project site would not substantially interfere with groundwater recharge. Therefore, there would be a less than significant impact related to groundwater recharge with incorporation of PP 4.8-2(a) and PP 4.8-2(b), which is consistent with the findings of the LRDP EIR.

¹¹ Indoor water use (232,000 gallons/year) and outdoor water use (325,000 gallons/year) divided by 365 days.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have a less than significant impact related to substantial depletion of groundwater supplies; it would have a less than significant impact related to interference with groundwater recharge such that the project may impede sustainable groundwater management of the basin with incorporation of the PPs noted above. The proposed project impacts were adequately addressed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Would the project 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;	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite; or	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

The analysis of Impacts 4.8-3 through 4.8-5 in the 2005 LRDP EIR concluded that, with implementation of PS Land Use 2 and 3, PS Open Space 1 through 5, PS Conservation 1 through 3, and PP 4.8-3(a) through 4.8-3(e), there would be a less than significant impact related to alteration of existing drainage patterns and storm drain system capacity.

As described in the 2005 LRDP EIR, the UCR campus is located within two sub-watersheds of the Upper Santa Ana River Watershed, generally divided by the I-215/SR-60 freeway. Most of the East Campus drains to the University Arroyo Watershed, while portions of the West Campus drain to the Box Springs Arroyo Watershed. Major storm drainages on campus, including natural drainages, are shown on Figure 4.8-3 of the 2005 LRDP EIR. As shown, there are no natural channels within the project site. Drainage within the project limits currently leaves the site through a combination of flow to inlets leading to subsurface storm drainpipes and overland flow to East Campus Drive. Consistent with existing conditions, storm water runoff from the project site would discharge into the East Campus' existing storm drain system, which consists of culverts, pipelines, engineered channels of the University Arroyo, and the Gage and Glade Detention Basins, and then into the City of Riverside's storm drain system. The proposed project would not alter the course of a stream or river.

In compliance with PP 4.8-3(d), UCR has evaluated the existing hydrologic conditions of the project site and future conditions with implementation of the proposed project to determine if the proposed project runoff would exceed the capacity of the existing storm drain system. The project site would be designed so roof runoff would be collected by roof drains connected to subsurface storm drain lines. Surface flow would be conveyed over land and collected in inlets connected to subsurface storm drain lines. The project site would be designed so roof runoff would be collected in roof drains and conveyed by down-drains to subsurface storm drain lines. Surface flow would be conveyed over land and collected in inlets connected to subsurface storm drain lines north of the proposed building Tributary drainage from campus improvements outside the project limits would be accommodated by the project. Existing drainage patterns would also be maintained.

As discussed above, the proposed project incorporates PP 4.8-1, which requires compliance with applicable water quality regulations to manage storm water runoff during construction and operation with appropriate BMPs and to ensure that drainage from the project site does not result in erosion or contribute pollutants to runoff. The project also incorporates PS Conservation 2 by designing the SoM Ed. II building within previously disturbed area, relocating the SoM modular trailer within a previously disturbed area, maintaining existing landscape to the extent feasible, and incorporating appropriate SWPPP and BMPs to prevent stormwater runoff. Per PP 4.8-3(e), prior to the time of design approval, the proposed project will be reviewed to ensure that project runoff would not exceed the capacity of the existing storm drain system. Therefore, the proposed project would result in less than significant impacts related to (1) substantial alteration of existing drainage patterns and the potential to cause substantial erosion or flooding on or off site; (2) increased volumes of runoff that could exceed the capacity of the existing UCR or City of Riverside storm drain systems; or (3) substantial additional sources of polluted runoff with incorporation of PS Conservation 2, PP 4.8-1, PP 4.8-3(d), and PP 4.8-3(e). This determination is consistent with the findings of the LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have a less than significant impact related to (1) altering the existing drainage pattern in a manner that would result in substantial erosion or siltation on- or off-site; (2) altering the existing drainage pattern or substantially increasing the rate or amount of surface runoff in a manner that would result in flooding on- or off-site; and (3) creating or contributing to runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff with incorporation of the PS and PPs noted above. The proposed project impacts were adequately addressed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Would the project in flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

The analysis of Impacts 4.8-8 through 4.8-11 in the 2005 LRDP EIR concluded that, with implementation of PS Open Space 1 and 2, PP 4.8-3(e), PP 4.8-10, and MMs 4.8-9(a) and 4.8-9(b), there would be no impact related to placing housing within a 100-year flood hazard area and less than significant impacts related to placing structures within a 100-year flood hazard area; flooding as a result of failure of a levee or dam; or inundation by seiche, tsunami, or mudflow.

The project site is not located within a 100-year flood boundary, and the project would not expose people or structures to flood hazard conditions (FEMA 2017). Additionally, the project site is not within a dam inundation area. The nearest upstream dam to the campus is the Seven Oaks Dam, located on the Santa Ana River in the upper Santa Ana Canyon located approximately 24 miles upstream of the City of Riverside. As discussed in the 2005 LRDP EIR, given the distance between the campus and the Santa Ana River (more than three miles), the potential for flooding, and subsequent release of pollutants, to occur on the project site or SoM modular relocation site as the result of a catastrophic failure of the Seven Oaks Dam is remote. In addition, the potential for catastrophic failure of the Santa Ana Pipeline (which is operated by the California State Department of Water Resources and is located north and east of the campus along Watkins Drive at the base of the Box Springs Mountains) to affect campus lands is also considered remote. Therefore, implementation of the proposed project would not expose people or structures to a significant risk of release of pollutants due to inundation related to flood hazard, including flooding as a result of the failure of a levee or dam, and there would be no impact consistent with the findings of the LRDP EIR.

As discussed in the 2005 LRDP EIR, the potential for the campus to be affected by a seiche or tsunami is considered extremely remote given the inland location of the campus and the distance to any large water bodies. In addition, the potential for mudflows to affect campus development is limited to areas immediately adjacent to the southeast hills or within the existing on-campus arroyos. The project site is located proximate to the Botanic Gardens Detention Basin. The basin is located east and southeast of the project site and is separated by East Campus Drive. The temporary relocation of the SoM modular trailer is at Lot 10, which is adjacent to the Botanic Gardens Detention Basin area but would be located within the previously disturbed area of Lot 10 and thus not be susceptible to mudflows. The permanent relocation of the SoM modular trailer at the Corporation Yard or the paved area northwest of Parking Lot 30 on West Campus would not be located adjacent to any hillsides and thus not be susceptible to mudflows. Therefore, implementation of the proposed project would not result in potential inundation of subsequent release of pollutants by a seiche, tsunami, or mudflow, and there would be less than significant impacts, consistent with the findings of the LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have no impacts related to (1) placement of housing or structures within a 100-year flood hazard area; (2) exposure of people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam; and (3) release of pollutants due to inundation by flood, tsunami, or seiche. There would also be no impacts related to placement of structures within a 100-year flood hazard area that would impede or redirect flood flows due to installation of a utility connection across an identified flood hazard area. The proposed project impacts were adequately addressed in the LRDP EIR.

11. Land Use and Planning

The analysis of land use and planning is tiered from the 2005 LRDP EIR and, as applicable, the 2005 Amendment 2 EIR and was addressed in Section 4.9, Land Use and Planning, of both documents. Relevant elements of the proposed project related to land use and planning include (1) removal of existing landscape and hardscape areas; (2) construction of a new approximately 120,000 gsf, 5-story SoM Ed. II; (3) the introduction of new landscaping and hardscape; and (4) relocation of the existing SoM modular trailer. The proposed project would serve the projected UCR campus population with the addition of approximately 65 net new staff positions and 225 net new students. Population growth would not exceed the projections as analyzed in the 2005 LRDP Amendment and/or 2005 LRDP Amendment 2 EIR.

The following applicable PSs and PPs were adopted as part of the 2005 LRDP Amendment and/or 2005 LRDP Amendment 2 EIR and are incorporated as part of the proposed project and assumed in the analysis presented in this section.

PS Land Use 1	Achieve academic core densities of 1.0 FAR or higher on both the East and West Campuses in order to achieve a balance of academic land area versus other required uses.
PS Land Use 2	In order to achieve a compact and contiguous academic core and desired development densities, strategies will include infill sites in the developed East Campus academic core as well as expansion to the West Campus academic zone immediately adjacent to the I-215/SR-60 freeway.
PS Conservation 2	Site buildings and plan site development to minimize site disturbance, reduce erosion and sedimentation, reduce stormwater runoff, and maintain existing landscapes, including healthy mature trees whenever possible.
PS Development Strategy 1	Establish a design review process to provide regular review of building and landscape development on campus.
PS Transportation 3	Provide a continuous network of bicycle lanes and paths throughout the campus, connecting to off campus bicycle routes.
PS Transportation 5	Provide bicycle parking at convenient locations.
PS Campus and Community 4	Provide strong connections within the campus and its edges to promote walking, bicycling, and transit use, rather than vehicular traffic.

PP 4.9-1(a) The campus shall provide design architects with the 2007 Campus Design Guidelines and instructions to implement the Guidelines, including those sections related to use of consistent scale and massing, compatible architectural style, complementary color palette, preservation of existing site features, and appropriate site and exterior lighting design. *(This is identical to Aesthetics PP 4.1-1.)*

PP 4.9-1(b) The campus shall continue to provide design architects with the 2007 Campus Design Guidelines and instructions to develop project-specific landscape plans that are consistent with the Guidelines with respect to the selection of plants, retention of existing trees, and use of water conserving plants, where feasible. *(This is identical to Aesthetics PP 4.1-2[a].)*

MM 4.1-3(a) Building materials shall be reviewed and approved as part of project-specific design and through approval of construction documents. Mirrored, reflective glass is prohibited on campus.

Additionally, PP 4.1-1 (included under the Aesthetics analysis, which is Section V.1 of this IS/MND) is included in the proposed project, which requires compliance with Campus Design Guidelines.

Project Impact Analysis

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project physically divide an established community?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

Based on the IS prepared for the 2005 LRDP Amendment 2 EIR, it was concluded that development of the campus under the 2005 LRDP, as amended, would have no impact related to division of an established community. This issue was not carried forward for further analysis in the EIR. The 2005 LRDP, as amended, guides development within the campus boundaries, such as the proposed project, and does not therefore affect the established community outside the UCR campus. Consistent with the findings of the 2005 LRDP Amendment 2 EIR, no impact would occur.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have no impact related to physically dividing an established community. The proposed project impacts were adequately addressed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Would the project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

The analysis of Impact 4.9-2 in the 2005 LRDP Amendment 2 EIR concluded that development of the UCR campus under the 2005 LRDP, as amended, which incorporates relevant PSs, PPs, and MMs would not conflict with applicable local or regional land use plans, policies, or regulations.

Following is an evaluation of the proposed project’s consistency with the 2005 LRDP, as amended, and applicable local and regional plans, policies, or regulations.

University of California, Riverside 2005 Long Range Development Plan, as Amended

The “Vision for UC Riverside” section of the 2005 LRDP, as amended, identifies various goals for the UCR campus, including to “enhance UCR image and identity” and “emphasize strong connections and ease of access within campus and with the surrounding community”. The proposed project supports these goals through design by (1) providing adequate space for the SoM MD Program to grow to a class size of 125, and a total student population of 500. This also includes incremental growth in faculty and staff members to support the larger class size; (2) the creation of a “home base” that is welcoming to not only faculty, students, and staff, but also to community partners and the community at large to facilitate interaction, help build synergies and partnerships, and support student success; (3) plan flexibly for the future needs and growth of the SoM by providing appropriate spatial configurations and adaptability; and (4) creating a central core of SoM facilities by considering the consolidation of SoM spaces within the new SoM Ed. II, and highly emphasizing the connection of the new SoM Ed. II building to the existing SoM Ed. I facility and future spaces planned within the neighboring Orbach Science Library.

Following is a discussion of the proposed project’s consistency with the land use designation, square footage and population assumptions, and PSs of the 2005 LRDP, as amended.

LRDP Land Use Designation. The Land Use Plan included in the 2005 LRDP, as amended (shown on Figure 3.0-6 of the 2005 LRDP Amendment 2 EIR and Figure 13 of the 2005 LRDP Amendment 2), identifies 12 general categories of land use for development within the UCR campus boundaries. The main project site is designated as “Academic.” The proposed SoM modular trailer relocation site options are designated as “Academic” (Parking Lot 30) and “Campus Support” (Corporation Yard). The Academic land use category allows for various Academic and support uses. The project is proposed to be sited within the campus’s academic core on the eastern edge of what is known as East Campus. This area was selected for its proximity to other SoM facilities, including SoM Ed. I, the SoM Research Building, and Orbach Science Library which would house the future CSSS. Once the SoM Ed. II facility is completed, some of the SoM spaces in SoM Ed. I would be decanted and moved into SoM Ed. II. Additionally, off-campus administration and staff housed at UC Path would move back to campus in either the SoM Ed. I or SoM Ed. II building. Part of the goal for the SoM Ed. II project is to create a SoM “complex” of buildings that are connected with a series of outdoor spaces, providing

encouragement for interaction and enhancing connections between campus assets. The Campus Support land use category allows for the Corporation Yard and other general campus operations and maintenance.

LRDP Square Footage. The 2005 LRDP, as amended, projected total building space on campus to be approximately 14.9 million gsf by 2020/2021, including approximately 3.1 million gsf allocated to the SoM. As identified in Table 3.0-5 of the 2005 LRDP Amendment 2 EIR, of this amount, there is a total of 5.5 million gsf allocated to Academic Programs (which includes the proposed project). The existing on-campus development is approximately 7.4 million gsf, and approximately 638,415 gsf of new development has been approved but construction has not been completed; therefore, there is approximately 6.8 million gsf of development allocation remaining on campus. The proposed project involves construction of up to 120,000 gsf of development, which is well within the remaining building allocation.

LRDP Population. The 2005 LRDP, as amended, projected a total enrollment of 25,000 students and 16,393 associated faculty, staff members, and visitors for a total campus population of 41,393 by the academic year 2020/2021. Of this amount, 5,853 individuals (non-students) would be associated with the SoM; the projected population for the rest of the campus is 35,540 individuals. Excluding the category of “other individuals,”¹² there are projected to be 32,916 students, faculty, and academic staff and non-academic staff members. For comparison, the current student population on campus based on the fall 2019 enrollment is 25,548 students (including 22,055 undergraduate students and 3,493 graduate students) (UCR 2020). Additionally, there are approximately 4,866 faculty, staff, and staff personnel, for a total population of 30,414 individuals (not including other individuals). Therefore, the remaining projected growth on campus (not including SoM and other individuals) is 2,502 individuals.

As discussed previously, the proposed project would serve the projected UCR campus population with the addition of approximately 225 net new students and 65 net new staff members. There are approximately 275 existing students and 131 existing faculty and staff members on campus, and approximately 30 staff members and faculty at UC Path (off-campus). The UC Path staff members and faculty would also be moving back to campus to one of the SoM Education buildings. The SoM Ed. I and SoM Ed. II would allow a total enrollment of approximately 500 students and 226 staff members and faculty (it is currently unknown how many people in the existing SoM Ed. I building would move into the new building). This potential increase in population is within the remaining projected growth on campus (approximately 2,502 individuals), that was previously contemplated in the 2005 LRDP Amendment 2 EIR overall campus population. Therefore, implementation of the proposed project would remain within the projected growth on campus, as identified in the 2005 LRDP, as amended.

LRDP Planning Strategies. The 2005 LRDP, as amended, includes PSs for the following issues to guide expansion and development of the UCR campus: land use, circulation and parking, open space and landscape, and campus and community. These planning strategies are required to be implemented with each development project on campus and have been specifically identified in the 2005 LRDP EIR and 2005 LRDP Amendment 2 EIR, along with general development strategies. Key Planning Strategies that have been incorporated into the project are identified for each topical issue in this IS/MND. Notably, as identified in the “Land Use” section of the 2005 LRDP, as amended, in order to achieve campus goals and to accommodate the program that would be associated with a projected enrollment of 25,000, expansion of the campus and its

¹² Includes campus visitors, patients, childcare students, student family members (living on campus), daytime extension students, ASUCR, KUCR, and Highlander non-student staff, vendors, and construction workers.

facilities will be guided by a number of Land Use PSs. Most relevant to the proposed project are the following strategies that are incorporated into the proposed project:

- Achieve academic core densities of 1.0 Floor Area Ratio (FAR) or higher on the East Campus to achieve a balance of academic land area versus other required uses within the existing land base.
- In order to achieve a compact and contiguous academic core and desired development densities, strategies will include infill sites in the developed East Campus academic core as well as expansion to the West Campus academic zone immediately adjacent to the I-215/SR-60 freeway.
- Site buildings and plan site development to minimize site disturbance, reduce erosion and sedimentation, reduce stormwater runoff, and maintain existing landscapes, including healthy mature trees whenever possible.

These strategies (PS Land Use 1, PS Land Use 2, and PS Conservation 2) are incorporated into the proposed project. The proposed project would be an infill development in the area designated for academic and support uses in the East Campus. The proposed project would contribute to a 1.0 FAR or higher density on the East Campus. As required by existing regulations, soil erosion, sedimentation, and stormwater runoff from the project site during construction would be controlled through the use of several BMPs, including the use of sandbags as barriers. The construction site would be encircled by sandbags, and stabilized roadways would be provided at construction entrance and exit areas.

Circulation and Parking and Campus PSs relevant to the proposed project include the following:

- Provide a continuous network of bicycle lanes and paths throughout campus, connecting to off campus bicycle routes.
- Provide bicycle parking at convenient locations.
- Provide strong connections within the campus and its edges to promote walking, bicycling, and transit use, rather than vehicular traffic.

The main entrance to the SoM Ed. II site would be accessed from East Campus Drive for building users and visitors who park in Lot 10, Lot 13 or the under construction Parking Structure 1 northeast of the project site, or who arrive on foot or bicycle along East Campus Drive or via the proposed SoM plaza. A secondary entrance along the south façade is proposed along with pedestrian site improvements that will provide an extension of the campus' east-west pedestrian circulation network by linking the Carillon Mall with East Campus Drive.

Existing pedestrian pathways at the southwest of the project site will be improved to connect to the proposed plaza space, such as modifications to the loading area and arcade at Boyce Hall and connecting the landscape across varying styles and approaches around the site itself. Bicyclists will have access to the site via bike lanes on East Campus Drive, and bicycle parking would be located on site.

University of California, Riverside Campus Design Guidelines

The UCR Campus Design Guidelines include Site and Architectural Guidelines to establish the basic premises and clear intent for creative design decisions that are made for projects on campus; the Campus Design Guidelines are not intended to be prescriptive. The Site Guidelines address planting, paving, site lighting, furnishings, grading and rainwater management, circulation systems, and campus-wide signage. The Architectural Guidelines address outdoor circulation;

building orientation and entrances; relationship of interior to exterior at ground floor; building massing and articulation; building materials and color palette; and building response to climate. A description of the proposed project, which addresses each of these issues, is provided in Section II, Project Description, of this IS/MND.

The proposed project incorporates PP 4.9-1(a), which ensures that the Campus Design Guidelines and instructions to implement the Guidelines are taken into consideration, including those sections related to use of consistent scale and massing, compatible architectural style, complementary color palette, preservation of existing site features, and appropriate site and exterior lighting design. The building materials and color palette to be used would adhere to the Campus Design Guidelines to be visually harmonious with the UCR campus as well as the immediate surrounding buildings (as required by PP 4.1-1 and PP 4.9-1[a]) and would be reviewed as part of the project-specific design review process and through approval of construction documents (refer to PS Development Strategy 1 and MM 4.1-3[a]).

Additionally, the proposed project incorporates PP 4.9-1(b), which ensures that the design team has developed a project-specific landscape plan consistent with the Campus Design Guidelines with respect to the selection of plants, retention of existing trees, and use of water conserving plants, where feasible. The conceptual open space and landscape plan is depicted on Figure 11. Incorporation of the draft Tree Preservation and Replacement Guidelines, and compliance with PS Conservation 2, ensures that mature trees be preserved to the extent feasible or replaced as illustrated on Figure 12. The project would include new landscape planting and replacement trees of at least a 1:1 replacement ratio.

Incorporation of PPs 4.9-1(a) and 4.9-1(b) into the proposed project ensures that the intent of the Campus Design Guidelines related to site and architectural guidelines have been met and incorporation of PS Development Strategy 1 would ensure that the project plans are reviewed and approved in accordance with the Campus Design Guidelines.

Regional and Local Plans

The proposed project would involve an increase of development on campus of up to approximately 120,000 gsf. The proposed project would not be considered regionally significant by SCAG based on the established criteria in Section 15206 of the State CEQA Guidelines, which is applied by SCAG to determine regional significance (SCAG 2016). Therefore, an assessment of the proposed project's consistency with SCAG's regional plans is not required.

As addressed in Section V.10, Hydrology and Water Quality, of this IS/MND, the proposed project is required to comply with all applicable water quality requirements established by the Santa Ana RWQCB and SWRCB. Therefore, consistent with the findings of the 2005 LRDP Amendment 2 EIR, the proposed project would be consistent with the Basin Plan. As discussed in Section V.3, Air Quality, of this IS/MND, the proposed project would also be consistent with the AQMP.

UCR is part of the UC, a constitutionally created entity of the State of California. As a constitutional entity, the UC is not subject to municipal regulations, such as the County and City General Plans. Nevertheless, UCR has considered local plans and policies for the communities surrounding the campus. UCR participated in the development of the current City of Riverside General Plan and the University Neighborhood Plan in an effort to coordinate planning efforts between the City of Riverside and the campus. The City of Riverside General Plan, which includes the campus, has identified UCR as a public facility/institutional land use (Riverside 2007). The proposed project is consistent with this land use designation, consistent with the findings of the 2005 LRDP Amendment 2 EIR.

In summary, consistent with the findings under Impact 4.9-2 of the 2005 LRDP Amendment 2 EIR, there would be a less than significant impact related to conflicts with an applicable land use plan, policy, or regulation of an agency with jurisdiction over the proposed project adopted for the purpose of avoiding or mitigating an environmental effect with incorporation of PS Land Use 1, PS Land Use 2, PS Conservation 2, PS Development Strategy 1, PS Transportation 3, PS Transportation 5, PS Campus and Community 4, PP 4.9-1(a), PP 4.9-1(b), and MM 4.1-3(a), consistent with the findings of the LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would not conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the proposed project; therefore, no impact would result with incorporation of the PSs, PPs, and MM noted above. The proposed project impacts were adequately addressed in the LRDP EIR.

12. Mineral Resources

Mineral resource issues were addressed in the IS prepared for the 2005 LRDP EIR. There are no relevant elements of the proposed project related to Mineral Resources. Additionally, there are no relevant PSs, PPs, or MMs adopted as part of the 2005 LRDP EIR.

Project Impact Analysis

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project 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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Would the project 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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

As identified in the IS for the 2005 LRDP EIR, there are no mineral resources of regional or Statewide importance known to exist on the UCR campus. Also, no mineral resource recovery activities occur on the UCR campus, and no mineral resource recovery sites are delineated in the General Plans for the County and City of Riverside or the University Community Plan, which covers the area around the campus. Therefore, consistent with the findings of the 2005 LRDP EIR, implementation of the proposed project would not 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, and no impact would occur, consistent with the findings of the LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have no impact related to (1) the availability of a known mineral resource that would be of value to the region and the residents of the State or (2) the availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan. The proposed project impacts were adequately addressed in the LRDP EIR.

13. Noise

The analysis of noise is tiered from the 2005 LRDP EIR (as it relates to development in the East Campus) as supplemented and updated by the 2005 LRDP Amendment 2 EIR (as it relates to increased noise from traffic generated by the 2005 LRDP Amendment 2); it was addressed in Section 4.10, Noise, of those documents. Relevant elements of the proposed project related to noise and vibration include the use of diesel-powered and other heavy equipment during construction. The proposed project would include construction activities at the project site, which would involve demolition, grading, and other construction-related activities. With respect to operations, the proposed project would increase the UCR campus employee population by approximately 65 net new faculty/staff members and 225 net new students. Additionally, the proposed project includes use of mechanical equipment (e.g., air conditioning units) and as well as additional vehicle trips. These vehicle trips were accounted for within the 2005 LRDP EIR. Hours of operation will be similar to existing academic facilities on campus.

The following applicable PPs and MM were adopted as part of the 2005 LRDP Amendment and/or 2005 LRDP Amendment 2 EIR and are incorporated as part of the proposed project and assumed in the analysis presented in this section.

PP 4.10-1(a) UCR will incorporate the following siting design measures to reduce long-term noise impacts:

- (i) Truck access, parking area design, and air conditioning/refrigeration units will be designed and evaluated when planning specific individual new facilities to minimize the potential for noise impacts to adjacent developments.
- (ii) Building setbacks, building design and orientation will be used to reduce intrusive noise at sensitive student residential and educational building locations near main campus access routes, such as Blaine Street, Canyon Crest Drive, University Avenue, and Martin Luther King Boulevard. Noise walls may be advisable to screen existing and proposed facilities located near the I-215/SR-60 freeway.

PP 4.10-2 The UCR campus shall limit the hours of exterior construction activities from 7:00 AM to 9:00 PM Monday through Friday and 8:00 AM to 6:00 PM on Saturday when necessary. Construction traffic shall follow transportation routes prescribed for all construction traffic to minimize the impact of this traffic (including noise impacts) on the surrounding community.

- PP 4.10-6** The Campus shall continue to shield all new stationary sources of noise that would be located in close proximity to noise-sensitive buildings and uses.
- PP 4.10-7(a)** To the extent feasible, construction activities shall be limited to 7:00 AM to 9:00 PM Monday through Friday, 8:00 AM to 6:00 PM on Saturday, and no construction on Sunday and national holidays, as appropriate, in order to minimize disruption to area residences surrounding the campus and to on campus uses that are sensitive to noise.
- PP 4.10-7(b)** The Campus shall continue to require by contract specifications that construction equipment be required to be muffled or otherwise shielded. Contracts shall specify that engine-driven equipment be fitted with appropriate noise mufflers.
- PP 4.10-7(c)** The Campus shall continue to require that stationary construction equipment material and vehicle staging be placed to direct noise away from sensitive receptors.
- PP 4.10-7(d)** The Campus shall continue to conduct regular meetings, as needed, with on campus constituents to provide advance notice of construction activities in order to coordinate these activities with the academic calendar, scheduled events, and other situations, as needed.
- PP 4.14-2** The Campus will periodically assess construction schedules of major projects to determine the potential for overlapping construction activities to result in periods of heavy construction vehicle traffic on individual roadway segments, and adjust construction schedules, work hours, or assess routes to the extent feasible to reduce construction-related traffic congestion.
- MM 4.10-2** The campus shall notify all academic and residential facilities within 300 feet of approved construction sites of the planned schedule of vibration causing activities so that the occupants and/or researchers can take necessary precautionary measures to avoid negative effects to their activities and/or research.

As identified in Section V.3, Air Quality, of this IS/MND, the proposed project also incorporates PS Campus and Community 4 (promote campus-wide non-vehicular transportation), PS Transportation 3 (campus-wide bicycle network to connect to off-campus bicycle routes), PS Transportation 4 (provide bicycle parking), and PP 4.3-1 (campus-wide implementation of a transportation demand management program), which all serve to reduce vehicular trips.

Noise-Sensitive Receptors

Noise-sensitive land uses include those uses where noise exposure could result in health-related risks to individuals and places where quiet is an essential element of the intended purpose. Residential dwellings are of primary concern; land uses such as parks, historic sites, cemeteries, and some recreation areas are considered sensitive to increases in exterior noise levels. Noise-sensitive land uses identified in the 2005 LRDP Amendment 2 EIR are residential areas and a motel. However, recreational uses are also identified for construction noise impact analysis. The nearest residences to the project site are on-campus residences at Lothian Residence Hall located approximately 850 feet to the northeast of the project site. The nearest off-campus residences are the single-family residential uses located approximately 1,900 feet to the east

along East Broadbent Drive. The closest buildings to the SoM Education Building II include Boyce Hall, the SoM Ed. I, Batchelor Hall, and the greenhouses #6-#10.

Existing Noise Levels

Noise levels vary by location throughout the UCR campus. When noise measurements were taken for the 2005 LRDP EIR, the noise level along East Campus Drive near the project site was 59.7 A-weighted decibels (dBA) on the Sound Energy Equivalent Noise Level (L_{eq}). Noise levels of 56.6 dBA L_{eq} were also taken in the Central Quad near the Geology Building.

Project Impact Analysis

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

UCR is a part of the University of California, a constitutionally-created unit of the State of California. As a State entity, UC is not subject to municipal plans, policies, or regulations such as the County and City General Plans or local ordinances. As identified in the 2005 LRDP EIR, federal agencies that have developed noise standards include the Federal Highway Administration, the Department of Housing and Urban Development, the Federal Interagency Committee on Urban Noise, and the Federal Aviation Administration. None of these federal noise standards are applicable to the UCR campus. Title 24 of the *California Code of Regulations* codifies Sound Transmission Control requirements, which establishes uniform minimum noise insulation performance standards for new residences, hotels, motels, dormitories, and apartment houses. The SoM Ed. II building consists of non-residential educational facilities and the State Title 24 regulations are not applicable to the proposed project. In addition, there are no University noise standards applicable to the proposed project. Therefore, there would be no impact based on exceedance of applicable standards, because there are no federal, State, or University noise regulations applicable to the proposed project. However, the following analysis related to construction and operational noise activities are discussed below for informational purposes.

Project Related Temporary Noise Increases

The analysis of Impacts 4.10-7 and 4.10-8 in the 2005 LRDP EIR and 2005 LRDP Amendment 2 EIR concluded that development under the 2005 LRDP, as amended, would result in significant and unavoidable impacts related to:

- On-campus ambient noise levels during construction; and
- Off-campus ambient noise levels during construction.

On-Campus Receptors

During construction, nearby noise-sensitive receptors would be exposed to occasional increased noise levels associated with the operation of heavy equipment (e.g., loaders and bulldozers) during the demolition and grading phase as well as other equipment used during construction of the proposed building. For the purpose of this analysis and consistent with the 2005 LRDP EIR, noise impacts during construction would be considered significant if activities lasting more than one day would increase the ambient noise levels by 10 dBA L_{eq} or more over a one-hour period at any on-campus or off-campus noise-sensitive location.

The closest on-campus noise-sensitive receptors are located at Lothian Residence Hall approximately 850 feet to the northeast of the project site. Construction equipment noise would not be constant because of the variations of power, cycles, and equipment location. Noise associated with construction are shown below in Table 11 for the nearest on- and off-campus residential uses. Additional reduction would occur due to intervening buildings which were not accounted for in the analysis.

The proposed project incorporates PPs 4.10-2 and 4.10-7(a), which require hours of construction to be limited to 7:00 AM to 9:00 PM Monday through Friday and 8:00 AM to 6:00 PM on Saturday. Noise impacts would be minimized with PP 4.10-7(b), which requires the muffling or shielding of equipment, and PP 4.10-7(c), which requires that stationary construction equipment material and vehicle staging be placed to direct noise away from sensitive receptors. PP 4.10-7(d), PP 4.14-2 and MM 4.10-2 would allow for coordination of construction activities related to vibration and noise between the construction contractor and campus constituents.

As shown in Table 11, project related construction activities will result in noise levels of up to 64 dBA L_{eq} . The closest noise measurement found within the 2005 LRDP EIR to the Lothian Residence Hall is 59.7 dBA L_{eq} . As such, project related noise levels would not result in an increase of 10 dBA L_{eq} or more at the Lothian Residence Hall. Because the project would generate construction related noise that is less than 10 dB above the ambient noise level, project related construction noise impacts for on-campus receptors would be less than significant.

**TABLE 11
NOISE FROM CONSTRUCTION OF THE PROPOSED PROJECT BY PHASE**

Construction Phase	Noise Exposure at the Nearest On-Campus Housing (Lothian Residence Hall) (dBA L_{eq})	Noise Exposure at the Nearest Off-Campus Housing (Single-Family Residential Uses) (dBA L_{eq})
Ground Clearing/Demolition	59	52
Excavation (Site Preparation)	64	57
Foundation Construction	53	46
Building Construction	62	55
Paving	64	57
Note: Noise levels based on Bolt, Beranek and Newman, "Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances," prepared for the USEPA, December 31, 1971. Detailed calculations can be found in Appendix F.		

Off-Campus Receptors

As previously noted, the nearest off-campus noise-sensitive receptors (East Broadbent Drive residences) are residences located approximately 1,900 feet to the east of the project site. Table

11 shows the noise exposure related SoM Ed. II building construction activities. Noise levels would be further reduced due to intervening buildings and terrain.

With respect to construction vehicle noise impacts, heavy trucks exporting demolition spoils and excavated soil would use designated haul routes. Approximately 100 truck trips would remove demolition debris over a month. This would result in approximately 4 truck trips per day. Grading of the project site would result in 2,044 truck trips over a 5-month period, which result in an average of 20 truck trips per day or 2 truck trips per hour. Individual truck pass-bys may be occasionally noticeable; however, the change in the overall average noise level would not be substantial due to the relatively small volume of truck traffic, resulting in a less than significant impact.

Construction activities for the proposed project would result in noise levels of up to 57 dBA L_{eq} . Noise level exposure that are 65 dBA or less are generally considered acceptable for residential uses. The LRDP EIR reported ambient noise levels of 66.0 dBA L_{eq} at the nearest off-campus measurement location along Watkins Drive. Because the project would generate construction related noise that is less than 10 dBA above the ambient noise level, the project would result in less than significant noise impacts during construction activities with incorporation of PP 4.10-1(a) through PP 4.10-7(d), PP 4.12-2, and MM 4.10-2, consistent with the findings of the LRDP EIR.

Permanent Project Operational Noise Increases

The analysis of Impacts 4.10-5 and 4.10-6 in the 2005 LRDP EIR and 2005 LRDP Amendment 2 EIR concluded that development under the 2005 LRDP, as amended, would result in less than significant long-term operational impacts related to:

- On- or off-campus ambient roadway (traffic) noise levels; and
- On- or off-campus ambient stationary source noise levels.

The 2005 LRDP Amendment 2 EIR addressed potential traffic-related noise impacts associated with the remaining development under the 2005 LRDP, as amended, which includes the proposed project. For purposes of analysis in this IS/MND, it is expected that the proposed project could result in an increased campus employment of approximately 65 net new faculty/staff members and 225 net new students. The project would result in 578 daily trips and 49 AM peak hour and 51 PM peak hour trips. Increases in vehicle trips were evaluated in the 2005 LRDP EIR and thus within the growth projections for the campus. The 2005 LRDP found that the maximum increase in traffic noise would be 2.5 dBA Community Noise Equivalent Level (CNEL) which are below the adopted noise increase thresholds. Traffic associated with the proposed SoM Ed. II building would comprise a small portion of the traffic identified under the 2005 LRDP EIR. The proposed project would incorporate PS Campus and Community 4 (promote campus-wide non-vehicular transportation) and PP 4.3-1 (campus-wide implementation of a transportation demand management program), which all serve to reduce vehicular trips thereby minimizing traffic related noise. As such, implementation of the proposed project would not have a substantial increase in traffic or traffic-related noise.

With respect to stationary sources of noise, new HVAC units would be installed on the roofs of the proposed new building. The equipment would be shielded by parapets or other screening materials. As identified under the analysis of Impact 4.10-6 in the 2005 LRDP Amendment 2 EIR, the type of equipment currently installed on new on-campus buildings generates noise levels up to 66 dBA L_{eq} , or 73 dBA CNEL if operating for 24 hours, when measured at 50 feet from the source.

The nearest noise-sensitive receptor to the proposed project site is the off-campus residential uses (East Broadbent Drive) located approximately 1,900 feet to the east of the project site. The nearest on-campus noise sensitive uses are the Lothian Residential Hall which are approximately 850 feet to the northeast. At that distance, and not taking into account any intervening uses that would provide noise attenuation, noise from the operation of typical HVAC units would be less than 34 dBA L_{eq} and 41 dBA CNEL at the nearest off-campus noise sensitive uses and 41 dBA L_{eq} and 48 dBA CNEL at the nearest on-campus uses. With noise attenuation from intervening structures, noise associated with HVAC units would not be perceptible at the nearest on- and off-campus residential uses. The noise impacts from stationary sources would be less than significant, which is consistent with the findings of the 2005 LRDP Amendment 2 EIR.

Furthermore, consistent with PS Campus and Community 4, PP 4.3-1, PP 4.10-1(a) and PP 4.10-6, the design and placement of the SoM Ed. II building including the on-site stationary equipment have been considered to minimize potential noise impacts onto adjacent developments. In summary, the proposed project would not result in substantial, permanent operational noise impacts. The impact would be less than significant with incorporation of PP 4.10-1(a), and PP 4.10-6, which is consistent with the findings of the 2005 LRDP Amendment 2 EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would result in a less than significant temporary or permanent increase in ambient noise levels in the project vicinity with incorporation of the PS, PPs, and MM noted above. The proposed project impacts were adequately addressed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

The 2005 LRDP EIR and 2005 LRDP Amendment 2 EIR adopt the following thresholds for “excessive” vibrations: 65 vibration decibels (VdB) at buildings where vibration would interfere with interior operations (e.g., sensitive on-campus research buildings), 80 VdB at residences and buildings where people normally sleep (e.g., student housing buildings and nearby residences), and 83 VdB at other institutional buildings.

Short-Term (Construction) Vibration

The analysis of Impact 4.10-3 in the 2005 LRDP EIR and 2005 LRDP Amendment 2 EIR concluded that development on campus would result in less than significant short-term impacts to off-campus persons from vibration during construction, including vibration from heavy trucks. The analysis of Impact 4.10-2 in the 2005 LRDP Amendment 2 EIR concluded that development under the 2005 LRDP, as amended, could result in significant and unavoidable impacts to on-

campus sensitive buildings located in close proximity to the construction sites from excessive groundborne vibration.

Construction of the proposed project would begin in summer 2021 with completion in 2023. Construction activities would occur over an approximate 23-month period and would include demolition (removal of landscape and hardscape areas and Greenhouse #6), relocation of the SoM modular trailer to an existing parking lot paved area on campus, site preparation, grading, building construction, paving, and the application of architectural coatings.

On-Campus Receptors

Vibration-sensitive uses (residential buildings) are located approximately 850 feet from the project site (Lothian Residence Hall). The closest research buildings are greenhouses #6-10 (Greenhouse #6 to be demolished) which are approximately 30 feet from the project site and Boyce Hall located approximately 40 feet from the project site. SoM Ed. I and Batchelor Hall may also be exposed to vibration during construction.

Construction activities would include landscape and hardscape removal, demolition of Greenhouse #6, relocation of the SoM modular trailer to an existing parking lot or paved area on campus, excavation and grading, building construction, paving, landscaping, and architectural coating. The proposed project would not include pile driving or blasting, which are the construction activities that generate the highest vibration levels. Heavy trucks would transport materials to and from the project site. During the removal of landscape and hardscape areas and grading phases, the operation of heavy or large construction equipment such as bulldozers, excavators, and loaded trucks have the potential to generate perceptible vibration levels at nearby buildings.

As described under the analysis of Impact 4.10-2 in the 2005 LRDP EIR and 2005 LRDP Amendment 2 EIR, where construction occurs more than 50 feet from campus classroom buildings, office buildings, and student housing buildings or where construction occurs more than 300 feet from research buildings with vibration-sensitive equipment, the impact would be less than significant. Based on the information presented in Table 4.10-8 of the LRDP EIRs, Vibration Levels for Construction Equipment, vibration levels from large bulldozers and loaded trucks could reach up to 86 to 87 VdB at buildings located within 25 feet of the equipment in use. This would exceed the 83 VdB threshold for institutional buildings. At a distance of 50 feet, vibration levels for this equipment would not exceed 81 VdB.

Removal of landscape and hardscape areas and grading for the proposed project could occur at approximately 50 feet of the greenhouses. The proposed project would incorporate PP 4.10-2 and PP 4.10-7(a) limiting the hours of construction where necessary. MM 4.10-2 from the 2005 LRDP Amendment 2 EIR is incorporated into the project and requires notification of affected persons about the planned construction in order to minimize the impact. Further, project-level, MM VIB-1, which prohibits the use of large heavy equipment within 50 feet of occupied academic buildings, is required and would reduce potential vibration impacts to a less than significant level.

Off-Campus Receptors

Potential vibration impacts from construction activities to off-campus uses are addressed under the analysis of Impact 4.10-3 in 2005 LRDP EIR. The nearest off-campus residences are on East Broadbent Drive, approximately 1,900 feet east of the SoM Education Building II. Based on Table 4.10-8 of the 2005 LRDP EIR, vibration levels at the nearest off-campus residences from construction activities at the project site would be less than the 75 VdB significance threshold, which is the highest vibration level at 100 feet. No significant construction-related vibration impact to off-campus uses would result, which is consistent with the findings of the 2005 LRDP EIR.

Heavy trucks would transport materials to and from the campus when construction activities occur. Demolition would include the removal of existing landscape and hardscape areas. It is estimated that demolition and grading would require 2,144 trips to a construction and demolition waste disposal site. These trucks typically generate groundborne vibration velocity levels of around 63 VdB at 50 feet and could reach 72 VdB where trucks pass over bumps in the road; these vibration levels would be less than the Federal Railway Administration's 80 VdB vibration impact threshold for residences referenced in Table 4.10-8 of the 2005 LRDP Amendment 2 EIR. Therefore, construction of the proposed project would not expose occupants of on- or off-campus buildings to excessive groundborne vibration levels from heavy trucks, and this impact would be less than significant with incorporation of PP 4.14-2, which is consistent with the findings in the 2005 LRDP EIR and 2005 LRDP Amendment 2 EIR.

Operational Vibration

As described in the 2005 LRDP EIR, the existing campus facilities are not a major source of vibration. The proposed academic uses would not result in vibration levels that could expose persons on or off campus to excessive groundborne vibration or noise levels. This impact would be less than significant, which is consistent with findings of the 2005 LRDP EIR.

Additional Project-Level Mitigation Measures

No additional project-level mitigation is required for construction-related vibration to off-campus uses. MM VIB-1 would reduce potential vibration impacts during construction to a less than significant level.

MM VIB-1 The campus shall require by contract specifications that large bulldozers; large, heavy trucks; vibratory rollers; and other similar equipment not be used within 50 feet of occupied academic buildings. The work shall be done with medium-sized equipment or smaller within these prescribed distances. Vibratory rollers operated in the static mode would be allowed.

Level of Significance

The proposed project would have less than significant temporary construction vibration impacts to off-campus receptors.

The proposed project would have less than significant impacts for temporary related to groundborne vibration or groundborne noise levels impacts to occupied on-campus buildings with the incorporation of the PP and MM VIB-1 noted above. The proposed project impacts were adequately addressed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

As discussed in the Initial Study for the 2005 LRDP Amendment 2 EIR, development under the 2005 LRDP, as amended, was determined to have no impact related to noise from public or private airport/airstrip operations and was not carried forward for further discussion in the Draft EIR. The UCR campus is not located within the boundaries of any airport land use plan; is more than two miles from the nearest public airport; and is not located in the vicinity of a private airstrip. Consistent with the findings of the 2005 LRDP Amendment 2 EIR, implementation of the proposed project would not expose people in the vicinity of the proposed project to excessive noise levels related to public or private airport operations, consistent with the findings of the LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have no impact related to public use airports or private airstrips. The proposed project impacts were adequately addressed in the LRDP EIR.

14. Population and Housing

The analysis of population and housing is tiered from the 2005 LRDP Amendment 2 EIR and was addressed in Section 4.11, Population and Housing, of that document. Relevant elements of the proposed project related to population and housing include the addition of 65 net new staff positions and 225 net new students.

There were no applicable PSs, PPs, or MMs adopted as part of the 2005 LRDP EIR and 2005 LRDP Amendment 2 EIR related to population and housing.

Project Impact Analysis

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project induce substantial 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)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

The analysis of Impacts 4.11-1 and 4.11-2 in the 2005 LRDP Amendment 2 EIR determined that, although development under the 2005 LRDP Amendment 2 EIR and cumulative development would directly induce substantial population growth, because the projected housing supply in the area would be adequate to serve the additional population, there would be a less than significant impact with implementation of PS Land Use 4 (related to provision of on-campus housing).

As stated previously, the project proposes to develop a new SoM Ed. II consisting of instructional, collaboration, and student life space, as well as office and support spaces. No housing would be developed as part of the project. Approximately 65 net new staff/faculty positions and an increase in approximately 225 net new students would be generated by the proposed project. Additionally, the staff/faculty positions would be filled by the local labor pool. As further discussed in Section V.11, Land Use and Planning, of this IS/MND, this increase in the on-campus population is within the remaining projected growth on campus, as identified in the 2005 LRDP, as amended.

Because the projected housing supply in both the City of Riverside and the region was determined adequate for the additional non-student population associated with implementation of the 2005 LRDP, as amended, it can be concluded that there would be adequate supply for additional staff positions at the SoM Ed. II. However, it is not likely that all of these positions would be new to the City or region.

Therefore, the proposed project would not result in substantial population growth or growth beyond what was projected in the 2005 LRDP, as amended. This impact is less than significant, consistent with the findings of the LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have a less than significant impact related to inducing substantial population growth in the area either directly or indirectly. The proposed project impacts were adequately addressed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Would the project displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

The IS prepared for the 2005 LRDP Amendment 2 EIR concluded that there would be no impacts related to the displacement of existing housing or people since implementation of the 2005 LRDP, as amended, would not involve the demolition or removal of housing. There are no existing residential uses located within the project site. Therefore, the proposed project would not require the construction of replacement housing consistent with the findings of the 2005 LRDP Amendment 2 EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have no impacts related to displacement of a substantial amount of existing housing that would necessitate the construction of replacement housing or displacement of substantial numbers of people that would necessitate the construction of replacement housing. The proposed project impacts were adequately addressed in the LRDP EIR.

15. Public Services

The analysis of the provision of public services on campus (i.e., fire, police, schools, and other public facilities) is tiered from the 2005 LRDP EIR and 2005 LRDP Amendment 2 EIR and is addressed in Section 4.12, Public Services, of those documents. Relevant elements of the proposed project related to public services include the construction and operation of the SoM Ed. II building and relocation and operation of the SoM modular trailer. Additionally, pathways would be developed and/or improved to provide adequate requirements for emergency vehicle access.

The following applicable PPs were adopted as part of the 2005 LRDP EIR and 2005 LRDP Amendment 2 EIR; they have been incorporated as part of the proposed project and are assumed in the analysis presented in this section.

PP 4.12-1(a) As development occurs, the following measures will be incorporated:

- (i) New structures would be designed with adequate fire protection features in compliance with State law and the requirements of the State Fire Marshal. Building designs would be reviewed by appropriate campus staff and government agencies.
- (ii) Prior to implementation of individual projects, the adequacy of water supply and water pressure will be determined in order to ensure sufficient fire protection services.

- (iii) Adequate access will be provided to within 50 feet of the main entrance of occupied buildings to accommodate emergency ambulance service.
 - (iv) Adequate access for fire apparatus will be provided within 50 feet of standpipes and sprinkler outlets.
 - (v) Service roads, plazas, and pedestrian walks that may be used for fire or emergency vehicles will be constructed to withstand loads of up to 80,000 pounds.
 - (vi) As implementation of the LRDP occurs, campus fire prevention staffing needs would be assessed; increases in staffing would be determined through such needs assessments.
- PP 4.12-1(b)**
- (i) Accident prevention features shall be reviewed and incorporated into new structures to minimize the need for emergency response from the City of Riverside.
 - (ii) Increased staffing levels for local fire agencies shall be encouraged to meet needs generated by LRDP project related on-campus population increases.

PP 4.12-2(a) As development under the LRDP occurs, the Campus will hire additional police officers and support staff as necessary to maintain an adequate level of service, staff, and equipment, and will expand the existing police facility when additional space is required.

Project Impact Analysis

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:					
a) Fire protection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

The analysis of Impacts 4.12-1 and 4.12-3 in the 2005 LRDP EIR and 2005 LRDP Amendment 2 EIR concluded that, with implementation of PP 4.12-1(a), PP 4.12-1(b), and MM 4.12-1, there would be less than significant direct and cumulative impacts related to the need for new or physically altered fire protection facilities to accommodate the increased demand resulting from implementation of the 2005 LRDP, as amended, and to maintain acceptable service levels. As identified in the 2005 LRDP Amendment 2 EIR, the City of Riverside Fire Department (RFD) indicated that it would be desirable to add a fire station near the campus in order to meet national standards for fire and life safety services with the addition of planned development under the 2005

LRDP, as amended. The 2005 LRDP Amendment 2 EIR concluded that the environmental impact resulting from the potential for the RFD to construct new or expanded fire protection facilities would be less than significant.

Development of the proposed project would result in the construction of an approximately 120,000 gsf of SoM Ed. II building, an emergency and service access drive, and associated hardscape and landscape improvements. The existing SoM modular trailer would be relocated on an existing parking lot or paved area on campus. Implementation of the proposed project would increase the on-campus population by approximately 225 net new students and 65 net new faculty/staff positions; however, this increase in population is within the growth projections for the campus as identified in the 2005 LRDP, as amended, and analyzed in the 2005 LRDP EIR and the 2005 LRDP Amendment 2 EIR. Hours of operation will be similar to existing academic facilities on campus.

The UCPD public safety dispatch provides communication from the campus to the RFD in the event of an emergency, in which the UCR Campus Fire Marshal would be notified. Fire Station 4 is the closest fire station to the project site and serves the university, located approximately 1.2 miles west from the project site at 3510 Cranford Avenue Riverside, CA 92507. It employs one captain, one engineer, one firefighter, and one firefighter/paramedic, and has one engine and one water tender. Domestic water and fire water laterals will be tapped off the existing 8-inch water main which runs north-south along East Campus Drive. During the first quarter of 2019, turnout time for all 14 fire stations was 2:06. The goal is to reduce “turnout time” to under 2:00 minutes at all fire stations (City of Riverside 2019).

The RFD is responsible for fire suppression, and the UCR Campus Fire Marshal is responsible for inspection, fire protection engineering, and fire prevention. The campus has a Memorandum of Understanding (MOU) with the State Fire Marshal to provide additional support, and the Campus Fire Marshal is a designated Deputy State Fire Marshal. The proposed project would comply with all regulations of Sections 13000 et seq. of the *California Health and Safety Code*, which pertain to fire protection systems, including provision of smoke alarms, fire extinguishers, appropriate building access, and emergency response notification systems. The proposed project incorporates PP 4.12-1(a), which requires new structures to be designed with adequate fire protection features in compliance with State law. It also requires adequacy of water supply and water pressure to be determined prior to implementation of individual projects to ensure sufficient fire protection services for the campus. PP 4.12-1(b) requires accident prevention features to be included in new structures to minimize the demand for emergency response services from RFD. The proposed project would include fire protection features and fire water infrastructure.

Emergency access would continue to be provided from East Campus Drive along the northern and southern perimeter of the proposed building in addition to access provided from the southwest. Emergency access to the SoM modular trailer relocation site would continue to be provided from West Linden Street if the SoM modular trailer is relocated to the Corporation Yard or continue to be provided from Martin Luther King Boulevard if the SoM modular trailer is relocated to the northwest area of Parking Lot 30.

According to the Campus Fire Marshal, RFD can adequately provide fire protection and emergency medical response services without resulting in the need for additional staff or facilities from other departments; UCPD, the Campus Fire Marshal and EH&S would render assistance as necessary (Jackson 2020). As such, no new, expanded, or altered fire protection services or facilities would be required to serve the proposed project, and no physical environmental impacts related to the provision of fire protection services would result.

Because emergency access and fire flows would be adequate to serve the proposed project and no new, expanded, or altered fire protection services or facilities would be required beyond those included as part of the proposed project, impacts associated with the provision of fire protection services from implementation of the proposed project, which incorporates PP 4.12-1(a) and PP 4.12-1(b), are considered less than significant; this is consistent with the findings of the LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have a less than significant impact on fire protection services with incorporation of the PPs noted above; no new or altered fire protection services would be required. The proposed project impacts were adequately addressed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Police protection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

The analysis of Impacts 4.12-2 and 4.12-3 in the 2005 LRDP EIR and 2005 LRDP Amendment 2 EIR identified that the incremental increase in the campus population may result in increased response times by the UC Police Department (UCPD). The increased population on campus would require additional routine services to provide additional patrols of the campus and maintain police presence. Additional administrative staff members may be necessary to support the additional patrol personnel. In order to maintain adequate levels of police protection to serve the increase in campus population, the UCPD may need to purchase additional equipment and hire additional personnel. However, with implementation of PP 4.12-2(a), there would be less than significant direct and cumulative impacts related to the need for new or physically altered police facilities to accommodate the increased demand resulting from implementation of the 2005 LRDP, as amended, and to maintain acceptable service levels.

The increase in staffing and equipment of the UCPD with the addition of planned development under the 2005 LRDP, as amended, could require provision of additional space, which could include renovation of the existing UCPD facility, expansion of the existing facility, or the acquisition of a satellite facility (similar to the storefront facility at University Village). The potential environmental effects associated with expanding the existing facility or providing a satellite facility were evaluated in the 2005 LRDP Amendment 2 EIR at a program level, and it was concluded that there would be a less than significant impact.

The UCPD is responsible for providing police services to the UCR campus. The UCPD is located on campus at 3500 Canyon Crest Drive Riverside, California 92507. The UCPD has an MOU with the City of Riverside, whereby the UCPD and the Riverside Police Department (RPD) provide reciprocal assistance to each other. UCPD personnel regularly meet with agents assigned to the Riverside Field Office of the Federal Bureau of Investigation to exchange information to prevent

criminal activity on campus. UCPD and RPD is currently drafting a MOU for continued partnership in responding to student issues surrounding campus.

As discussed above, the proposed project would increase the campus population by approximately 225 net new students and 65 net new faculty/staff positions; however, this increase is within the growth projections for the campus as identified in the 2005 LRDP, as amended, and analyzed in the 2005 LRDP EIR and the 2005 LRDP Amendment 2 EIR. While implementation of the proposed project would result in an increased demand for police services, the types and volume of service calls for police services at the site would be similar to existing campus facilities. Additionally, the proposed buildings incorporate crime prevention related design features, including, but not limited to, security cameras, electronic access/controls, and environmental design features to help prevent or deter criminal activity. PP 4.12-2(a), which ensures the hiring of additional officers as needed to maintain adequate service levels is also incorporated into the proposed project. The UCPD has determined that the proposed project can be adequately served without the need for additional staff members or expanded police facilities (Freese 2020).

Therefore, consistent with the findings of the LRDP EIR, no new or expanded police facilities would be required and no physical environmental impacts would result with incorporated of the PP 4.12-2(a). There would be less than significant impacts.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have a less than significant impact to police services with incorporation of the PP noted above; no new or altered police facilities would be required. The proposed project impacts were adequately addressed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Schools?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

As identified in the 2005 LRDP EIR and the IS for the 2005 LRDP Amendment 2 EIR, implementation of the proposed 2005 LRDP Amendment 2 would result in new students in the City of Riverside and surrounding areas, and funds would be available from private residential and commercial development to pay for new facilities. In addition, the Riverside Unified School District (RUSD) and neighboring school districts have a number of options available to accommodate new students. Therefore, it was concluded that implementation of the 2005 LRDP, as amended, would not result in substantial adverse physical impacts associated with the provision of new or physically altered school facilities.

As stated previously, the proposed project would involve the construction of an approximately 120,000 gsf SoM Ed. II building, an emergency and service access drive, associated hardscape and landscape improvements, and the relocation of the SoM modular trailer. The project would result in the introduction of approximately 225 net new students and 65 net new faculty/staff

positions; however, no housing is proposed and the increase in population is consistent with the growth projections assumed in the 2005 LRDP, as amended, and analyzed in the 2005 LRDP EIR and the 2005 LRDP Amendment 2 EIR. As such, the proposed project would not result in an increase in new students within the RUSD service area that was not identified in the 2005 LRDP EIR or LRDP Amendment 2 EIR. Therefore, substantial adverse impacts associated with new or physically altered school facilities would not result from implementation of the proposed project, and there would be a less than significant impact, consistent with the findings of the LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have a less than significant impact to schools; no new or altered school facilities would be required. The proposed project impacts were adequately addressed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Parks?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

The analysis of the proposed project’s impacts on parks and other recreation facilities is provided in Section V.16, Recreation, of this IS/MND.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would not involve the development of new and expanded recreational facilities, and no new or altered park/recreation facilities would be required as a result of the proposed project. The proposed project impacts were adequately addressed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
e) Other public facilities?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

As identified in the 2005 LRDP EIR and IS for the 2005 LRDP Amendment 2 EIR, implementation of the proposed 2005 LRDP, as amended, would not result in substantial adverse physical impacts associated with the provision of new or physically altered library facilities, and this impact

would be less than significant. In addition, UCR provides libraries that are open to the public and are used by its campus population, thus reducing demand on City resources. It was also identified that implementation of planned development under the 2005 LRDP, as amended, would increase the demand on each of the four existing libraries on campus and that satellite libraries may also be developed as part of professional school development. The potential environmental effects associated with the development of satellite libraries were evaluated in the 2005 LRDP EIR at a program level, and it was concluded that there would be a less than significant impact.

As discussed previously, the proposed project would accommodate approximately 225 net new students and 65 net new faculty/staff positions; however, this increase in population is within the growth projections for the campus as identified in the 2005 LRDP, as amended, and analyzed in the 2005 LRDP EIR and the 2005 LRDP Amendment 2 EIR. As such, the proposed project would not result in an increased demand for on- or off-campus library services or other public services not identified in the 2005 LRDP EIR or 2005 LRDP Amendment 2 EIR. Therefore, consistent with the findings of these EIRs, substantial adverse impacts associated with new or physically altered libraries or other public services would not result from implementation of the proposed project.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have no impact on library services or other public services. The proposed project impacts were adequately addressed in the LRDP EIR.

16. Recreation

The analysis of recreation is tiered from the 2005 LRDP EIR and was addressed in Section 4.13, Recreation, of that document. The proposed project does not include the development of any recreational facilities or propose a use that would result in a substantial increase in campus population above what was identified in the LRDP EIR.

There were no applicable PSs, PPs, or MMs adopted as part of the 2005 LRDP EIR and 2005 LRDP Amendment 2 EIR related to recreation.

Project Impact Analysis

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

The analysis of Impact 4.13-1 in the 2005 LRDP EIR concluded that the 2005 LRDP includes the implementation of recreational facilities that would be sufficient to serve the planned population

growth on campus. Further, it was concluded that with implementation of PS Open Space 7, the increased demand for recreational facilities from additional persons in the City of Riverside would not increase the use of existing neighborhood and regional parks or other recreational facilities such that the substantial physical deterioration of the facility would occur or be accelerated. Therefore, the impact was determined to be less than significant.

As discussed previously, the proposed project would accommodate approximately 65 net new staff/faculty members and approximately 225 net new students, bringing the total SoM staff/faculty population to 226 and the total enrollment of the SoM to 500 students, which is within with the total campus population identified in the 2005 LRDP, as amended. The staff members/faculty positions are expected to be filled by the local labor pool. As such, there could be a limited increase in the demand for on-campus recreational facilities associated with the increase in population. However, the proposed project would not result in an increased demand for recreational facilities not projected in the 2005 LRDP, as amended.

Therefore, consistent with the findings of the LRDP EIR, the proposed project would result in a less than significant impact related to substantial or accelerated physical deterioration of existing neighborhood or regional parks or other recreational facilities.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have a less than significant impact related to an increase in 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. The proposed project impacts were adequately addressed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

The analysis of Impact 4.13-2 in the 2005 LRDP EIR identified that the implementation of the 2005 LRDP would include the development of new recreational facilities that could result in adverse physical impacts on the environment during the construction period. The development of new recreational facilities is one component of the overall LRDP program and, as such, is part of the whole of the action that is analyzed in this 2005 LRDP EIR. The 2005 LRDP EIR concluded that there would be less than significant impacts related to the construction of recreational facilities with implementation of relevant construction-related PSs, PPs, and MMs, including, but not limited to, those related to air quality, noise, traffic, and agriculture.

While there are no recreational facilities included as part of the proposed project, the proposed project does include new landscape and hardscape improvements throughout the project site in

addition to improving the existing pedestrian pathways at the southwest of the project site to connect to the proposed plaza space and arcade at Boyce Hall.

This IS provides project-specific environmental review of the construction and operation of the various project components identified above. Local and regional air quality impacts are addressed under Section V.3, Air Quality; noise and vibration impacts are addressed under Section V.13, Noise; and transportation impacts are addressed under Section V.17, Transportation, of this IS/MND. No additional impacts associated with these improvements would occur beyond those addressed for the proposed project and evaluated in the 2005 LRDP EIR; the proposed project impacts would be less than significant.

The proposed project would not require the construction of new recreational facilities or expansion of existing recreational facilities on or off campus. Therefore, no additional physical impacts would occur with implementation of the proposed project, consistent with the findings of the LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have no impact related to the construction or expansion of recreational facilities. The proposed project impacts were adequately addressed in the LRDP EIR.

17. Transportation

The analysis of transportation is tiered from the 2005 LRDP Amendment 2 EIR and was addressed in Section 4.14, Transportation and Traffic, of that document.

SB 743, signed into law in 2013, changed transportation impact analysis as part of CEQA compliance. SB 743 required Office of Planning and Research (OPR) to identify new metrics for identifying and mitigating transportation impacts and eliminated capacity and level of service as a consideration for determining significance under CEQA. In December 2018, the California Natural Resources Agency finalized updates to CEQA Guidelines to incorporate VMT-based analysis methodology and thresholds for the purposes of evaluating transportation impacts. Statewide application of the new guidelines was required beginning July 1, 2020.

The analysis of transportation is also based on the *UC Riverside School of Medicine Building II Project Traffic Evaluation* prepared by Psomas for the project in December 2020 and included as Appendix G to this IS/MND. Relevant elements of the proposed project related to transportation include (1) an increase in faculty and staff on campus and a change in traffic patterns associated with development of the proposed SoM Ed. II from UC Path (off-campus) to the proposed project site; (2) temporary construction activities that would involve heavy trucks on the identified construction routes; and (3) maintaining existing emergency vehicle access in addition to providing adequate access for the future SoM Ed. II building.

The following applicable PSs, PPs, and MMs were adopted as part of the 2005 LRDP EIR and/or 2005 LRDP Amendment 2 EIR and are incorporated as part of the proposed project and assumed in the analysis presented in this section.

PS Campus and Community 4 Provide strong connections within the campus and its edges to promote walking, bicycling and transit use, rather than vehicular traffic.

- PS Transportation 3** Provide a continuous network of bicycle lanes and paths throughout the campus, connecting to off campus bicycle routes.
- PS Transportation 5** Provide bicycle parking at convenient locations.
- PP 4.14-1** The campus shall continue to implement a Transportation Demand Management program that meets or exceeds all trip reduction and AVR requirements of the SCAQMD. The TDM program may be subject to modification as new technologies are developed or alternate program elements are found to be more effective. *(This is identical to Air Quality PP 4.3-1.)*
- PP 4.14-2** The Campus will periodically assess construction schedules of major projects to determine the potential for overlapping construction activities to result in periods of heavy construction vehicle traffic on individual roadway segments, and adjust construction schedules, work hours, or access routes to the extent feasible to reduce construction-related traffic congestion.
- PP 4.14-5** To the extent feasible, the Campus shall maintain at least one unobstructed lane in both directions on campus roadways. At any time only a single lane is available, the Campus shall provide a temporary traffic signal, signal carriers (i.e., flag persons), or other appropriate traffic controls to allow travel in both directions. If construction activities require the complete closure of a roadway segment, the Campus shall provide alternate routes and appropriate signage. *(This is identical to Hazards and Hazardous Materials PP 4.7-7[a].)*
- PP 4.14-6** For any construction-related closure of pedestrian routes, the Campus shall provide alternate routes and appropriate signage and provide curb cuts and street crossings to assure alternate routes are accessible.
- PP 4.14-8** To maintain adequate access for emergency vehicles when construction projects would result in roadway closures, the Office of Architects and Engineers shall consult with the UCPD, EH&S, and the RFD to disclose roadway closures and identify alternative travel routes.
- MM 4.14-11** If on-campus parking is not available, off-site construction worker parking shall be provided with shuttle service to the remote parking location.

Project Impact Analysis

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

The analysis of Impacts 4.14-1 through 4.14-4 in the 2005 LRDP Amendment 2 EIR, which addresses intersection and roadway capacity, concluded that, with implementation of PS Land Use 4, PS Land Use 7, PS Transportation 1 through 6, PP 4.14-1, MM 4.14-1(a), and the Campus Traffic Mitigation Program (CTMP), composed of MM 4.14-1(b) through MM 4.14-1(f), development under the 2005 LRDP, as amended, would result in the following:

- Less than significant impacts to local roadways under existing plus project conditions and in 2020 and no mitigation is required (Impacts 4.14-3 and 4.14-4); and
- Significant and unavoidable impacts to 13 of the 32 study area intersections under the existing plus project condition and 17 intersections under the year 2020 condition; these intersections are under the jurisdiction of the City of Riverside or California Department of Transportation (Caltrans) (Impacts 4.14-1 and 4.14-2).

As discussed in the 2005 LRDP Amendment 2 EIR, all of the intersection improvements described in the CTMP would fall under the jurisdiction of the City and/or Caltrans. However, because the City and/or Caltrans have not programmed any improvements to these facilities at the time of preparation of the EIR, the construction of the improvements cannot be ensured, as it depends on actions by the City and/or Caltrans. Furthermore, improvements that would restore operations to acceptable levels are not feasible at some of the 17 total affected intersections under the jurisdiction of the City and/or Caltrans. For these reasons, the identified off-campus intersection impacts (Impacts 4.14-1 and 4.14-2) remain significant and unavoidable.

The analysis of Impact 4.14-5 concluded that, even with implementation of PP 4.14-2, development under the 2005 LRDP, as amended, would result in a significant and unavoidable impact to intersection and roadway capacity due to temporary construction traffic.

Short-Term Construction Traffic

Construction activities associated with the proposed project could result in temporary closure of on-campus traffic lanes or roadway segments in the project vicinity to permit the delivery of construction materials; to transport exported soil; or to provide adequate site access during construction of utility connections or other project-related features located adjacent to, or within, East Campus Drive. The project includes the export of approximately 16,355 cy of soil requiring heavy truck trips during grading activities. As previously discussed under V.3, Air Quality, of this IS/MND, truck capacity is assumed to be 16 cubic yards, resulting in approximately 2,044 truckloads of export over a 5-month period, or approximately 20 truckloads per day or 2 truck trips per hour. Additionally, demolition activities would result in the removal of approximately 500 cubic yards of debris, or approximately 100 haul trips.

Additionally, there is a chance that construction of the proposed project may overlap with construction of other on-campus projects that are either proposed or approved; however, it is not expected that they would have overlapping construction traffic routes. The proposed project would not require lane closures or other access restrictions for extended periods of time.

The proposed project would not require lane closures or other access restrictions for extended periods of time. The proposed construction route would occur from I-215/SR-60 at Martin Luther King Boulevard to Canyon Crest Drive to South Campus Drive, which turns into East Campus Drive. The alternative construction route is from West Linden Street to Aberdeen Drive to North Campus Drive, which turns into East Campus Drive. Emergency access to the project site would be made available from East Campus Drive and Parking Lot 11. Emergency access to the SoM modular trailer relocation site would continue to be provided from West Linden Street if the SoM modular trailer is relocated to the Corporation Yard or continue to be provided from Martin Luther King Boulevard if the SoM modular trailer is relocated to the northwest area of Parking Lot 30. The proposed project incorporates PP 4.14-2, which requires the campus to assess construction schedules of major projects periodically to determine the potential for overlapping construction activities and adjust construction schedules, work hours, or access routes to the extent feasible to reduce construction-related traffic congestion. Additionally, the proposed project incorporates PP 4.14-5, which requires one travel lane in each direction, to minimize construction traffic impacts to the extent feasible. Therefore, potential project-related traffic impacts associated with lane closures and access restrictions during construction would be less than significant. With regard to construction worker parking, the proposed project would comply with MM 4.14-11, which requires shuttles to access off-site construction worker parking if on-campus parking is not available. Although the 2005 LRDP Amendment 2 EIR concluded that construction traffic could be significant at some locations along the identified access routes, for the reasons discussed above, in the event there is an overlap of construction activities on campus, it is concluded that the proposed project would result in a less than significant cumulative traffic construction impact with incorporation of PP 4.14-2 and PP 4.14-5, consistent with the findings of the LRDP EIR.

Long-Term Operational Traffic

Changes in the State CEQA Guidelines regarding transportation impacts have occurred since the adoption of the 2005 LRDP Amendment 2 EIR in 2011. Senate Bill 743 (SB 743) has eliminated auto delay, level of service, and other similar measures of vehicular capacity or traffic congestion as a basis for determining significant impacts for projects in favor of the evaluation of VMT. A new State CEQA Guidelines Section 15064.3(b), was established to address this topic. UCR is now utilizing the guidelines to assess project impacts as they provide the most current direction from the State and reflect the most defensible guidance available. Impacts associated with VMT and State CEQA Guidelines Section 15064.3(b) are addressed in the next section.

Operations associated with the proposed project would generate minor increased operational traffic at the project site primarily associated with service vehicle activities and the addition of up to 65 net new staff/faculty positions from existing conditions. These positions are expected to be filled by the local labor pool. Over time, there would be an increase in approximately 225 net new students, bringing the total SoM staff/faculty population to 226 and the total enrollment of the SoM to 500 students, which is consistent with the total campus population identified in the 2005 LRDP, as amended. Overall, the increase in population is not expected to result in long-term operational traffic. It should be noted that currently there are approximately 30 faculty and staff members at UC Path, located approximately six miles south of the UCR main campus (14350 Meridian Pkwy, Riverside, CA 92518). Those faculty and staff members would be relocated to the proposed SoM Ed. II building or SoM Ed. I building. Because the project is on the UCR campus and the University would not require entitlement through the City, a traffic study is not required. In addition, the UCR

LDRP plan showed the project site as an academic building, so the traffic impacts have already been analyzed and mitigation measures identified.

Trip Generation

Based on the approximate building size and the trip generation rates in the Institute of Transportation Engineers (ITE) *Trip Generation Manual, 10th Edition*, the trip generation for the site was calculated and is shown in Table 12. Because the building would serve new and existing students and faculty, the trip generation was calculated based on the new student and new faculty numbers. As seen in the table, the project is expected to generate between 351 and 578 new daily trips, including between 34 and 49 new trips in the AM peak hour and between 34 and 51 new trips in the PM peak hour.

**TABLE 12
PROJECT TRIP GENERATION**

ITE LU 550 (University/College)						
Students			225			
Period	Trips/Units	Trips	% In	% Out	Trips In	Trips Out
AM Peak	0.15	34	78%	23%	26	8
PM Peak	0.15	34	32%	68%	11	23
Daily	1.56	351	50%	50%	176	176
ITE LU 550 (University/College)						
Employees			65			
Period	Trips/Units	Trips	% In	% Out	Trips In	Trips Out
AM Peak	0.75	49	76%	23%	37	11
PM Peak	0.79	51	33%	68%	17	35
Daily	8.89	578	50%	50%	289	289
ITE: Institute of Transportation Engineers; LU: Land Use Source: Psomas 2020b.						

Non-Vehicular Circulation

The analysis of Impact 4.14-13 in the 2005 LRDP Amendment 2 EIR concluded that development under the 2005 LRDP, as amended, would result in less than significant impacts related to demand for public transit with implementation of PS Transportation 1 and PP 4.14-1.

The proposed project involves the construction of a new SoM Ed. II building on campus and would not impact public transit, bicycle, or pedestrian facilities off campus. The proposed project would increase the on-campus population by approximately 225 net new students and 65 net new faculty/staff positions; however, this increase in population is not expected to result in direct or indirect population growth in the area that would create an additional demand for alternative transportation facilities not identified in the 2005 LRDP Amendment 2 EIR.

Additionally, the proposed project incorporates PS Campus and Community 4 (promote campus-wide non-vehicular transportation), PS Transportation 3 (provide a campus-wide bicycle network to connect to off-campus bicycle routes), and PS Transportation 5 (provide bicycle parking at convenient locations) by maintaining and enhancing pedestrian and bicycle access through and surrounding the project site.

Thus, consistent with the findings of the 2005 LRDP Amendment 2 EIR, the proposed project would not conflict with adopted policies, plans, or programs that support alternative transportation and would result in a less than significant impact.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would not conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities with the incorporation of the PSs and PPs noted above. The proposed project impacts were adequately analyzed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Discussion

On September 17, 2013, California Governor Jerry Brown signed SB 743 into law, which required changes to the CEQA Guidelines regarding the analysis of transportation impacts. Historically, CEQA treated auto delays and congestion as environmental impacts, and those impacts were measured using level of service (LOS) analysis. SB 743 instead required OPR to revise the CEQA Guidelines to prescribe an alternative analysis to LOS, particularly within areas served by transit that would promote the reduction of GHG emissions, the development of multi-modal transportation networks, and a diversity of land uses.

Significance Thresholds

Per SB 743, a project’s significant impact should be determined using VMT as the primary metric instead of delay-based LOS. The final Technical Advisory released by OPR in December 2018 recommends new significance thresholds that may constitute a significant transportation impact. The recommended thresholds are summarized in

Table 13. If a significant impact is identified utilizing the significance thresholds, mitigation must be identified.

Under OPR's recommendations, lead agencies have the discretion to set or apply their own thresholds of significance or rely on thresholds recommended by other agencies. UCR is in the process of developing and finalizing their thresholds, which are expected to be based on VMT per service population and students. For this analysis, the OPR thresholds are provided. OPR's guidelines state that a qualitative analysis should be conducted when methods do not exist for conducting a quantitative analysis.

**TABLE 13
SENATE BILL 743 RECOMMENDED SIGNIFICANCE THRESHOLDS**

Type	Metric	Threshold
Residential Development	Household VMT per capita	15% less than existing city household VMT per capita or regional household VMT per capita
Office Development	VMT per Employee	15% less than existing regional VMT per employee
Retail Development	Total VMT	If project causes a net increase in total VMT

In order to evaluate a project’s potential transportation impacts related to VMT, qualitative significance criteria have been established to evaluate the project’s compatibility with the statutory goals for the VMT metric. The following are the three statutory goals for the VMT metric stated in the Technical Advisory:

- The reduction of GHG emissions
- The development of multi-modal transportation networks
- A diversity of land uses

The significance criteria utilized in this analysis is summarized in Table 14 and takes into consideration the OPR Technical Advisory, the goals listed above, and the California Air Pollution Control Officers Association’s (CAPCOA’s) Compressive Report for Quantifying GHG MMs. The CAPCOA document includes 54 TDM strategies associated with reducing VMT and GHG emissions and is an appropriate resource for this type of analysis.

**TABLE 14
VMT SCREENING CRITERIA**

Category	Criteria/Screening	Threshold
Screening Thresholds	<p>The Technical Advisory includes four screening thresholds. The project should be evaluated against the thresholds, and if any are met, the project can be screened out from completing a full VMT analysis. These screening thresholds include:</p> <ul style="list-style-type: none"> • Trip generation screening (small projects can be screened out) • Map-based screening (projects located in areas of low VMT can be screened out) • Proximity to transit (projects with 1/2 mile of a major transit stop or located along a high-quality transit corridor can be screened out) • Affordable residential development (affordable 	<ul style="list-style-type: none"> • If the project generates fewer than 110 trips per day, it is assumed to have a less than significant impact • If the project is in a low VMT area, it is assumed to have a less than significant impact • If the project is within 1/2 mile of a high-quality transit stop or corridor, it is assumed to have a less than significant impact • If the project includes affordable housing units and is located in an infill location, it is assumed to have a less than significant impact

**TABLE 14
VMT SCREENING CRITERIA**

Category	Criteria/Screening	Threshold
	<p>housing in infill locations can be screened out)</p> <p>Evaluate the project using the screening thresholds.</p>	
TDM Strategies for the Reduction of GHG Emissions	<p>Identify existing TDM measures that increase vehicle efficiency, reduce the amount of vehicle travel, improve human health, reduce vehicle crashes, improve air quality, improve physical and mental health, and encourage transit use.</p> <p>Evaluate if the project would eliminate or reduce the existing TDM measures.</p>	<p>If the project is not expected to eliminate or reduce existing TDM measures, it is assumed to have a less than significant impact.</p>
Multi-modal Transportation	<p>Providing alternative modes of transportation that have high accessibility and connectivity reduces VMT, reduces single occupancy vehicle travel, and reduces VMT per capita.</p> <p>Identify existing pedestrian, bicycle, and transit facilities that provide alternatives to single-occupancy vehicle use, and evaluate the accessibility and connectivity of said facilities around the project site.</p>	<p>If the project restricts access or alters a route, it may result in a significant impact.</p>
Diversity of Land Uses	<p>Interactions between different land uses and between land uses and transportation have the potential to reduce VMT.</p> <p>Evaluate the surrounding uses of the project and the interaction between the land use and transportation.</p>	<p>If the project is complementary and consistent with the existing land use patterns, it is assumed to have a less than significant impact.</p>
Proximity to Transit	<p>The Technical Advisory states that projects within ½ mile of a major transit stop or a stop located along a high-quality transit corridor reduce VMT and therefore can be screened out from completing a full VMT analysis.</p> <p>Evaluate the project's existing and future transit accessibility.</p>	<p>If the project is within ½ mile of a major transit stop or along a high-quality transit corridor, the project is assumed to have a less than significant impact. If not, provide an analysis of existing and future transit accessibility.</p>
Regional Transportation Plan / Sustainable Community Strategies (RTP/SCS) Consistency	<p>The purpose of the RTP/SCS is to evaluate regional land use patterns and transportation systems to help achieve the State's GHG emissions reduction goals.</p> <p>Evaluate whether the project is consistent with the RTP/SCS.</p>	<p>If the project is consistent with the RTP/SCS, it would have a less than significant impact. If the project is inconsistent, the inconsistency should be evaluated for a significant impact on transportation.</p>

Transportation Impact Analysis

Screening Thresholds

OPR recommends that lead agencies conduct a screening evaluation “to quickly identify when a project should be expected to cause a less than significant impact without conducting a detailed study.” As noted in Table 14, OPR suggests that lead agencies may screen out VMT impacts using project size, maps, transit availability, and provision of affordable housing. The screening evaluation for this project follows.

Trip Generation Screening

The guidelines indicate that small projects that generate fewer than 110 trips per day may generally be assumed to cause a less than significant transportation impact. Based on the anticipated building size and the trip generation rates in the Institute of Transportation Engineers *Trip Generation Manual, 10th Edition*, the trip generation for the proposed project was calculated. Because the building will serve new and existing students and faculty, the trip generation was calculated based on the new student and new faculty members. As seen in Table 12, the project is expected to generate between 351 and 578 new daily trips. Because the project is expected to generate more than 110 trips per day, it cannot be screened out from requiring a VMT analysis due to size.

Map-Based Screening

Projects located in a low VMT area of a city or region can be considered to have a less than significant impact on VMT. Per the Western Riverside Council of Governments (WRCOG) VMT screening tool,¹³ the project is not located in an area with low VMT per service population. Therefore, the project cannot be screened out from requiring a full VMT analysis using map-based screening.

Proximity to High Quality Transit

The Technical Advisory indicates that project can be expected to have a less than significant impact on VMT if the project is located within ½ mile of an “existing major transit stop or an existing stop along a high-quality transit corridor.” A major transit stop is defined as one which serves the “intersection of two or more major bus routes with a frequency interval of 15 minutes or less during the morning and afternoon peak commute periods.” Projects located in such an area are said to be within a Transit Priority Area (TPA).

Based on the definition of an existing major transit stop or stop along a high-quality transit corridor, the project would not be screened out from a full VMT analysis. However, the TPAs are mapped in the WRCOG screening tool, and the map shows that the project site is partially located within a TPA. Specifically, at least part of the building is expected to be within the identified TPA. The guidance is unclear on whether part of or all of a building needs to be within a TPA in order to be considered exempt from VMT analysis; however, logically, if a person arrives at a building after walking, cycling, skating, etc. from a transit stop, whether or not they are yet inside, they are likely to feel as though they have arrived. In addition, future transit improvements are planned which will further enhance transit accessibility to/around campus. Therefore, although the service frequency does not meet the guidelines, the project is located in a TPA and is expected to have

¹³ <https://apps.fehrandpeers.com/WRCOGVMT/>

a less than significant transportation impact and can be screened out from requiring further VMT analysis.

Affordable Housing

Projects with an affordable housing aspect in an infill location can be considered to have a less than significant impact on transportation. This project does not include any housing and therefore this screening threshold is not applicable.

TDM Strategies for the Reduction of GHG Emissions

Emissions Analysis

As previously noted, one goal of using the VMT metric for evaluation of transportation impacts is to reduce GHG emissions. UCR operates several programs to encourage the use of active transportation modes. The alternative transportation programs are summarized below.

- Carpool incentive program for faculty, staff, and graduate students.
- Ride-share through Zimride. This program promotes ridesharing by matching compatible commuters by origin and destination.
- UPASS: This program is available to students, staff, and faculty, and allows any passenger with a UCR Card to ride any transit routes serviced by Riverside Transit Agency (RTA) for free.
- Vanpool: The vanpool program provides 30 operating routes. These vanpools operate from designated departure sites, allowing a group of students, faculty, and staff to travel to campus together.
- Zipcar: This service provides users access to a shared fleet of vehicles on an as-needed basis at an hourly or mileage rate.
- Point to Point Shuttle: This shuttle is operated by UCR and will take riders to any destination within the service area. It provides one-way transit for riders leaving the University with pick-up every thirty minutes between 6 PM and 11:30 PM, Monday to Friday.
- Cyclist or Walker Program: These programs encourage travel by biking and walking to campus. The campus has provided amenities such as bike parking and bike repair stations. Participants may also utilize the lockers and showers in the Student Recreation Center and Athletics and Dance Building at no cost.
- Emergency Ride Home: This program provides rides to faculty or staff participating in an alternative transportation program when they need a ride home in an emergency situation.
- Resident parking restrictions: Freshman are now restricted from purchasing parking permits.
- Parking pricing: Permit prices are increased annually.
- Parking Management: The parking demand model is updated annually.
- Annual Monitoring and Evaluation: The campus conducts annual monitoring and evaluation program to determine effectiveness of TDM strategies and need for new facilities.

The TDM strategies listed above are consistent with CAPCOA's list of TDM mitigation measures that reduce GHG emissions. Because the proposed project is not anticipated to eliminate or reduce any of the existing UCR TDM measures, the project would have no impact.

Multi-modal Transportation

As previously mentioned, another goal of using the VMT metric to evaluate transportation impacts is to facilitate the "development of multi-modal transportation networks." A multi-modal network would provide safe and accessible access to a destination via bicycle, transit, and/or walking. When choices are available, single occupancy vehicle VMT is reduced. This project would not block or alter any multi-modal facilities or access. Further, the proposed project would include a new pedestrian plaza in place of an existing parking lot as well as bicycle racks, both of which encourage non-vehicular travel. Existing pedestrian pathways at the southwest of the project site would be improved to connect to the proposed plaza area. Bicyclists would have access to the site via bike lanes on East Campus Drive. Therefore, the project would have a less than significant impact on VMT based on the multi-modal screening threshold.

Diversity of Land Uses

The VMT metric also aims to aid in the development of "a diversity of land uses." As previously mentioned, the Technical Advisory indicates that "interactions between land use projects, and also between land use and transportation projects, existing and future, together affect VMT." The proposed project is part of a larger plan, the 2005 LRDP. The goals of the 2005 LRDP include:

- Enhance UCR image and identity
- Accommodate planned growth for UCR to 25,000 students while retaining flexibility for unanticipated additional needs in the future
- Recognize teaching and research change, and encourage interdisciplinary endeavors by identifying a flexible academic zone rather than individual college precincts
- Increase the size of the on-campus residential community and thereby improve opportunities for social interaction and socialization: a living/learning environment
- Improve university/town interactions and synergy; encourage new development and intensification of activity on University Avenue
- Emphasize strong connections and ease of access within campus and with the surrounding community
- Create a regional model of planning, design and environmental stewardship, protecting the natural environments and incorporating sustainable planning and design practices.

The LRDP provides direction for growth with the understanding that increased development density and provision of good multi-modal circulation are critical to achieving the goals listed above. Further, the goals help improve upon the campus in a way that will help reduce VMT. The proposed project is consistent with the LRDP and would bring off-campus students, faculty, and staff onto campus. Although the proposed project itself will not provide diversity at its location, it is consistent with the larger LRDP which would provide diverse land uses which are expected to complement one another. Therefore, the proposed project is expected to have a less than significant impact when concerning land use diversity.

Proximity to Transit

OPR suggest that a project can be “screened out” to have a less than significant impact on VMT if the project is within a half-mile of an “existing major transit stop or an existing stop along a high-quality transit corridor.” A major transit stop is defined as “the intersection of two or more major bus routes with a frequency service interval of 15 minutes or less during the morning and afternoon peak commute periods.”

Based on this definition, the proposed project would not be eligible to be “screened out.” However, as previously discussed, the project site is located in a Transit Priority Area (TPA) according to WRCOG and would be able to be screened out. Therefore, to be conservative, transit accessibility was evaluated since CAPCOA cites transit accessibility as a measure that reduces VMT and GHG emissions.

With implementation of the proposed project, staff members/faculty and students would be able to utilize public bus transit provided by RTA to access the site. The bus stops (which includes bus rapid transit service) along Canyon Crest Drive is approximately 0.45 mile from the project site and approximately 0.5 mile from the SoM modular trailer relocation site at the Corporation Yard. There is also a transit stop at Parking Lot 30 if the SoM modular trailer is relocated to the northwest area of Parking Lot 30.

The proposed project would not remove any transit stops, though through site improvements, the proposed project would improve pedestrian pathways and walking experience to the existing transit stops. No bus stops within a half mile of the project site can be considered a high-quality stop per the definition noted above, however, the existing transit services in proximity to the project site and SoM modular trailer relocation site provide opportunities for staff members/faculty and students to access the project site and SoM modular trailer relocation site without driving.

Regional Transportation Plan/Sustainable Community Strategies Consistency

Metropolitan Planning Organizations (MPOs) are required to develop a Regional Transportation Plan (RTP) and Sustainable Community Strategies (SCS), the purpose of which are to evaluate regional land use patterns and transportation systems to help achieve the State’s GHG emissions reduction goals. The UCR campus is located within the SCAG MPO region. In September 2020, the SCAG Regional Council adopted Connect SoCal (2020-2045 RTP/SCS). The core vision of the plan “centers on maintaining and better managing the transportation network we have for moving people and goods; expanding mobility choices by locating housing, jobs and transit closer together; and increasing investment in transit and complete streets.”

The proposed project is fully accounted for in the growth allocated by the 2005 LRDP, as amended, and is consistent with the land use assumptions in the RTP/SCS. Therefore, the proposed project is consistent with the RTP/SCS and would have a less than significant impact on transportation based on the RTP/SCS screening threshold.

Therefore, using the OPR criteria for evaluating potential transportation impacts, the project is expected to have a less than significant impact on VMT.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have a less than significant impact related to a conflict with an applicable Congestion Management Program (CMP), including, but not limited to, VMT standards and travel demand measures or other standards established by the Riverside County CMP for designated roads or highways, which would be reduced from the analysis provided in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

The analysis of Impacts 4.14-8 through 4.14-10 in the 2005 LRDP Amendment 2 EIR, which addresses transportation hazards, concluded that, with implementation of PP 4.14-4, PP 4.14-5, and PP 4.14-6, development under the 2005 LRDP, as amended, would result in less than significant impacts related to (1) vehicular traffic hazards due to design or land use incompatibilities during long-term operation; (2) vehicular traffic hazards during construction due to closure of traffic lands or roadway segments; or (3) pedestrian hazards during construction due to closure of sidewalks or paths.

Vehicular Hazards During Construction

As discussed under Threshold a, construction activities associated with the proposed project could result in temporary closure of traffic lanes or roadway segments in the project vicinity to permit the delivery of construction materials; to provide adequate site access; or during construction of other project-related features located adjacent to or within East Campus Drive, the roadway closest to the project site. However, disruption to East Campus Drive is expected to be minimal (e.g., for site access) as the majority of construction activity would occur within the project site.

The temporary reduction of roadway capacity, the narrowing of traffic lanes, and the occasional interruption of traffic flow on streets associated with proposed project-related construction activities could pose hazards to vehicular traffic due to localized traffic congestion, decreased turning radii, or the condition of roadway surfaces. To minimize traffic disruption and congestion, the proposed project incorporates PP 4.14-2, which requires coordination of major construction projects on campus, and PP 4.14-5, which requires one travel lane in each direction to minimize construction traffic impacts to the extent feasible. With implementation of these PPs, construction-related traffic disruptions would be less than significant.

Pedestrian and Bicycle Hazards During Construction

As stated previously, the proposed project would not require lane closures or other access restrictions for extended periods of time. The proposed construction route is from I-215/SR-60 at Martin Luther King Boulevard to Canyon Crest Drive to East Campus Drive. The alternative

construction route is from I-215/SR-60 to Blaine Street to Canyon Crest Drive to West Linden Street. Emergency access would be made available from East Campus Drive and Parking Lot 11. Emergency access to the SoM modular trailer relocation site would continue to be provided from West Linden Street if the SoM modular trailer is relocated to the Corporation Yard or continue to be provided from Martin Luther King Boulevard if the SoM modular trailer is relocated to the northwest area of Parking Lot 30. During construction activities, access to the site would be limited to authorized Campus staff members, construction workers, and emergency providers, and no public access would be allowed.

During construction activities, existing pathways on the project site would be maintained to the extent feasible with potential detours for any temporary closures. PP 4.14-6 is incorporated into the proposed project; therefore, alternate pedestrian routes, which also accommodate bicyclists, would be identified to maintain the same travel movement and signage would be installed to facilitate wayfinding. PP 4.14-5, which requires use of flag persons to ensure traffic control during construction, would also ensure that there is safe movement through the construction access area. Therefore, consistent with the findings of the 2005 LRDP Amendment 2 EIR, there would be less than significant impacts related to pedestrian and bicycle hazards during construction.

Vehicular Hazards During Operation

The proposed project does not include permanent modifications to on-campus or City of Riverside roadways. With the exception of service truck access (which may coincide with emergency access lanes), there would be no vehicular circulation within the project site with implementation of the proposed project. Service access to Boyce Hall, SoM Ed. I and SoM Ed. II is restricted from the plaza in order to maintain a pedestrian-friendly environment, and relocated to the south. A combined service yard is provided at the southwest side of the proposed SoM Ed. II building, at plaza level.

Therefore, implementation of the proposed project would not increase hazards due to design features or incompatible uses. Consistent with the findings of the 2005 LRDP Amendment 2 EIR, operation of the proposed project would result in a less than significant impact related to vehicular hazards.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have a less than significant impact related to a substantial increase in traffic hazards due to a design feature or incompatible uses. The proposed project impacts were adequately addressed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Would the project result in inadequate emergency access?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

The analysis of Impacts 4.14-11 and 4.14-12 in the 2005 LRDP Amendment 2 EIR, which addressed emergency access, concluded that construction and operation of development under the 2005 LRDP, as amended, would result in less than significant impacts to emergency access with implementation of PS Transportation 4.

Emergency Access During Construction

Emergency access would continue to be provided from East Campus Drive along the northern and southern perimeter of the proposed building in addition to access provided from the southwest. Emergency access to the SoM modular trailer relocation site would continue to be provided from West Linden Street if the SoM modular trailer is relocated to the Corporation Yard or continue to be provided from Martin Luther King Boulevard if the SoM modular trailer is relocated to the northwest area of Parking Lot 30. Construction activities associated with the proposed project could result in temporary closure of on-campus traffic lanes or roadway segments along East Campus Drive. The reduction of roadway capacity, the narrowing of traffic lanes, and the occasional interruption of traffic flow could impair emergency access. Construction activities would be planned so that one lane along East Campus Drive would be maintained at all times. The proposed project incorporates PP 4.14-8 and emergency service agencies would be consulted regarding street closures to ensure adequate access for emergency vehicles during construction. Therefore, consistent with the findings of the 2005 LRDP Amendment 2 EIR, construction of the proposed project would result in less than significant impacts related to vehicular hazards during construction.

Emergency Access During Operation

Emergency vehicles access the campus via roadways such as the I-215/SR-60 freeways and would be made available from East Campus Drive and Parking Lot 11, West Linden Street, and Martin Luther King Boulevard. Once emergency vehicles are on campus, the internal roadway network is adequate to allow these vehicles to reach their designated locations, including the project site.

The proposed project does not include permanent modifications to on-campus or City of Riverside roadways. Additionally, consistent with the campus' standard procedures, the Campus Fire Marshal would review and approve the proposed project to ensure that circulation and design features allow adequate emergency vehicle access in compliance with the California Building Code. Adequate vehicle and emergency access to the project site would be maintained with proposed project implementation. Therefore, consistent with the findings of the 2005 LRDP Amendment 2 EIR, there would be less than significant impacts related to emergency access during operation of the proposed project.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have a less than significant impact related to emergency access with incorporation of the PP noted above. The proposed project impacts were adequately addressed in the LRDP EIR.

18. Tribal Cultural Resources

In September 2014, Governor Brown signed Assembly Bill (AB) 52 (Chapter 532, Statutes of 2014), which creates a new category of environmental resources that must be considered under CEQA: “tribal cultural resources.” The legislation imposes new requirements for offering to consult with California Native American tribes regarding projects that may affect a tribal cultural resource, emphasizes a broad definition of what may be considered to be a tribal cultural resource, and includes a list of recommended MMs.

Recognizing that tribes may have expertise regarding their tribal history and practices, AB 52 which became effective on July 1, 2015, requires lead agencies to provide notice to tribes that are traditionally and culturally affiliated with the geographic area of a proposed project, if they have requested such notice in writing. The project notification is required prior to the lead agency’s release of a Notice of Preparation of an EIR or NOI to adopt an MND or ND. Once Native American tribes receive a project notification, they have 30 days to respond as to whether they wish to initiate consultation regarding the project, including subjects such as mitigation for any potential project impacts. If a tribe request consultation and the lead agency and the tribe ultimately agree on mitigation to address any potentially significant impacts to tribal cultural resources, the MMs agreed upon during consultation must be recommended for inclusion in the environmental document. To date, UCR has received requests for project notification pursuant to AB 52 from the Agua Caliente Band of Cahuilla Indians, Cahuilla Band of Indians, Pechanga Band of Luiseño Indians, Rincon Band of Luiseño Indians, San Manuel Band of Mission Indians, and the Torres Martinez Desert Cahuilla Indians.

In January 2019, updates to the State CEQA Guidelines were adopted, which included the addition of a Tribal Cultural Resources section, as addressed in this section. There are no relevant elements of the proposed project related to tribal cultural resources, and no PSs, PPs, or MMs are applicable.

Project Impact Analysis

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
<p>Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:</p> <p>a) 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</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

The analysis of Impact 4.5-1 in the 2005 LRDP EIR concluded that there would be less than significant impacts associated with modification of historic or potentially historic resources during construction activities with implementation of PS Conservation 4, MM 4.5-1(a), and MM 4.5-1(b). The analysis of Impact 4.5-2 concluded there would be significant and unavoidable impacts with demolition of historic or potentially historic resources even with implementation of PS Conservation 4, PS Land Use 3, PS Open Space 5, PP 4.5-2, MM 4.5-1(a), MM 4.5-1(b), and MM 4.5-2. A detailed discussion of the regulatory setting and existing cultural resources is provided in Section 4.4, Cultural Resources, of the 2005 LRDP EIR. As identified, relevant regulatory programs include the NHPA of 1966, California Senate Bill 297, and the CRHR. The 2005 LRDP EIR identified a total of eight campus structures located on both the East Campus and West Campus that were considered by CRM Tech (2002) to be potentially eligible for listing in the NRHP and/or the CRHR. It also identified structures exceeding 45 years of age that were evaluated and determined not to be eligible for listing as a historic resource. In addition, the 2005 LRDP EIR included a compilation of structures that would be of age for evaluation as potentially historic by the end of the 2005 LRDP planning horizon (2015-2016). The planning horizon was extended to 2020-2021 as part of the 2005 LRDP Amendment 2 and, as such, would result in additional campus buildings that are potentially historic. None of these structures are located on the project site.

The project site is currently developed as a surface parking lot (Parking Lot D17), SoM modular trailer and associated parking (Parking Lot 40), a grab and go café (Scotty's Market), a greenhouse and headhouse (Greenhouse #6), an emergency access drive, above-ground electrical infrastructure, and other hardscape and landscape areas. Based on the Memorandum for the Record, Historic Resources Evaluation for Greenhouse/Headhouses #6-10 prepared by Rincon Consultants, Inc., implementation of the proposed project would not result in significant impacts on historical resources.

Although the LRDP planning area contains potentially significant resources, as discussed above, the project site does not contain any known historical resources. As such, impacts to historical resources are considered to be less than significant, consistent with the findings of the LRDP EIR.

Additional Project-Level Mitigation Measures

None.

Level of Significance

The proposed project would have no impact related to the potential to cause a substantial adverse change to a significant historical resource as defined in Section 15064.5 of the State CEQA Guidelines. The proposed project impacts were adequately addressed in the LRDP EIR

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
b) 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.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

As previously addressed in 2005 LRDP EIR and 2019 (Psomas) Constraint Study, a cultural resources records search and literature review was completed at the CHRIS Eastern Information Center (EIC) at UCR. No significant tribal cultural resources were identified within the SoM Project site. Based on the information available through the record searches at the EIC and the NAHC, and the long-term past use of the UCR campus for educational purposes, there is no information available that indicates there are tribal resources within the project site that would be significant pursuant to criteria set forth in subdivision (c) of Public Resource Code Section 5024.1.

The 2019 (Psomas) Cultural Constraint study requested an additional SLF Check for the entire UCR campus. The NAHC completed its Sacred Lands File search on December 19, 2018. The results were positive for Tribal Cultural Resources and/or sacred sites. The NAHC recommended consulting with the Cahuilla Band of Indians for additional details regarding any resources considered sacred by the Tribe. UCR requested a SLF Check for the SoM project site in August of 2020. The SoM project site yielded negative for Tribal Cultural Resources and/or sacred sites. These results suggest that although UCR is known to have Tribal Cultural Resources and/or sacred sites, none have been identified within the SoM project site. However, these results should be confirmed via Tribal Consultation.

To date, UCR has received requests for project notification pursuant to AB 52 from the Agua Caliente Band of Cahuilla Indians, Cahuilla Band of Indians, Pechanga Band of Luiseño Indians, Rincon Band of Luiseño Indians, San Manuel Band of Mission Indians, and the Torres Martinez Desert Cahuilla Indians. UCR initiated consultation on August 28, 2020 by mailing out notification letters to the Tribes listed on their consultation list: the Torres-Martinez Desert Cahuilla Indians, Rincon Band of Luiseño Indians, Pechanga Band of Luiseño Indians, Cahuilla Band of Indians, and Agua Caliente Band of Cahuilla Indians. On November 20, UCR e-mailed project details to San Manuel Band of Mission Indians. To date, UCR has received four responses dated

September 9, 2020, from Rincon Band of Luiseño Indians, September 22, 2020, from Agua Caliente Band of Cahuilla Indians, and November 23, 2020 from San Manuel Band of Mission Indians.

On September 9, 2020, Rincon Band of Luiseño Indians requested government-to-government consultation and requested cultural monitoring during ground disturbing activities. Draft cultural/TCR MMs were provided to the Rincon Band of Luiseño Indians and a zoom call took place on November 13, 2020 to go over the MMs. The Rincon Band of Luiseño Indians were satisfied with the revisions made to the cultural/TCR MMs during the call but noted that the Tribe did not agree with the University with not having a project archaeologist on site. UCR staff noted that the University has on-call archaeologists that would be contacted in the event unanticipated resources are discovered, activities would halt, and necessary protocols would occur in accordance with MM CUL-1 through MM CUL-4. Consultation with the Rincon Band of Luiseño Indians has concluded.

On September 22, 2020, Agua Caliente Band of Cahuilla Indians noted that the UCR campus is not located within the boundaries of the Agua Caliente Band of Cahuilla Indians Reservation. However, the Tribal Historic Preservation Officer, Patricia Garcia-Plotkin from the tribe identified the UCR campus is within the Tribe's Traditional Use Area. Therefore, the Agua Caliente Band of Cahuilla Indians is requesting the project implement an approved Agua Caliente Native American Cultural Resource Monitor during ground disturbing activities. A phone call between UCR staff and the Tribe took place on November 6, 2020 and draft cultural/TCR MMs were provided via email to the Agua Caliente Band of Cahuilla Indians Tribe on November 20, 2020. The University did not receive additional feedback from the Tribe and consultation has thus concluded. The University will be in discussions with the Agua Caliente Band of Cahuilla Indians Tribe regarding the tribal monitoring aspects for the proposed project.

It was unclear if the San Manuel Band of Mission Indians had requested project notification pursuant to Assembly Bill 52, however, UCR staff had a phone conversation with the Cultural Resource Analyst Ryan Nordness on November 18, 2020, to discuss the project. On November 20, 2020, UCR staff e-mailed a project description, map, and draft cultural/TCR MMs. In response, on November 23, 2020, San Manuel Band of Mission Indians indicated that they have no concerns with the proposed mitigation measures and that they do not expect the need for a tribal monitor in the project site, however, if UCR does hire a tribal monitor they will project a list of qualified monitors.

Follow up e-mails and cultural/TCR MMs were provided to the Torres-Martinez Desert Cahuilla Indians, Pechanga Band of Luiseño Indians, and the Cahuilla Band of Indians on November 30, 2020. The November 30, 2020 email noted that if UCR did not receive additional feedback on the updated MMs, the University would assume that consultation has concluded for the proposed project. The University did not receive additional feedback from Torres-Martinez Desert Cahuilla Indians or Pechanga Band of Luiseño Indians and consultation has thus concluded. UCR will add the Agua Caliente Band of Cahuilla Indians and Rincon Band of Luiseño Indians to the NOI distribution list so they may review the Tribal Cultural Resource analysis.

Based on the AB 52 consultation efforts, incorporation of MM CUL-1 through MM CUL-4 would ensure and identify steps to be taken in the event archaeological resources, including Native American cultural resources, are discovered during construction activities.

Additional Project-Level Mitigation Measures

Refer to MM CUL-1 through MM CUL-4 in Section V.5, Cultural Resources.

Level of Significance

The proposed project would have a less than significant impact related to tribal cultural resources with implementation of MM CUL-1 through MM CUL-4.

19. Utilities and Service Systems

The analysis of utilities and service systems (i.e., water supply, solid waste, wastewater, and energy) is tiered from the 2005 LRDP Amendment 2 EIR and was addressed in Section 4.15, Utilities, of that document. Relevant elements of the proposed project related to utilities and service systems include an approximately 120,000 gsf of building space at the project site, which would subsequently increase the demand for water and energy and the generation of solid waste and wastewater at the project site. The relocation of the SoM modular trailer would also require utility connections. The proposed project would be designed to achieve, at a minimum, a LEED Silver rating.

The following applicable PPs were adopted as part of the 2005 LRDP Amendment 2 EIR and are incorporated as part of the proposed project and assumed in the analysis presented in this section.

PP 4.15-1(a)

Improvements to the campus water distribution system, including necessary pump capacity, will be made as required to serve new projects. Project-specific CEQA analysis of environmental effects that would occur prior to project-specific approval will consider the continued adequacy of the domestic/fire water systems, and no new development would occur without a demonstration that appropriate domestic/fire water supplies continue to be available.

PP 4.15-1(b)

To further reduce the campus' impact on domestic water resources, to the extent feasible, UCR will:

- (i) Install hot water recirculation devices (to reduce water waste).
- (ii) Continue to require all new construction to comply with applicable State laws requiring water-efficient plumbing fixtures, including but not limited to the Health and Safety Code and Title 24, California Code of Regulations, Part 5 (California Plumbing Code).
- (iii) Retrofit existing plumbing fixtures that do not meet current standards on a phased basis over time.
- (iv) Install recovery systems for losses attributable to existing and proposed steam and chilled-water systems.
- (v) Prohibit using water as a means of cleaning impervious surfaces.
- (vi) Install water-efficient irrigation equipment to local evaporation rates to maximize water savings for landscaping and retrofit existing systems over time.

(This is identical to Hydrology PP 4.8-2[a]).

- PP 4.15-1(c)** The Campus shall promptly detect and repair leaks in water and irrigation pipes. *(This is identical to Hydrology PP 4.8-2[b]).*
- PP 4.15-5** The Campus will continue to comply with all applicable water quality requirements established by the SARWQCB. *(This is identical to Hydrology PP 4.8-1).*

Project Impact Analysis

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project 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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

Water/Wastewater Treatment

The analysis of Impact 4.15-2 in the 2005 LRDP Amendment 2 EIR concluded there would be a less than significant impact related to construction of new or expanded water treatment facilities with implementation of PP 4.15-1(a). The analysis of Impact 4.15-4 in the 2005 LRDP Amendment 2 EIR concluded there would be a less than significant impact related to construction of new or expanded wastewater conveyance systems with implementation of MM 4.15-4. In addition, the EIR identified that campus development under the amended 2005 LRDP would also be required to follow water conservation policies listed in the UC Sustainable Practices Policy and adhere to goals listed in the water section of the Sustainability Action Plan (SAP).

As identified under the analysis of Impact 4.15-3 of the 2005 LRDP Amendment 2 EIR, the UCR Campus does not treat or discharge wastewater to any surface waters. Wastewater generated at the campus is collected and discharged into the City’s sewer system from where it is conveyed to the RWQCP for treatment and disposal. Therefore, the campus is not considered a point-source of water pollution for regulatory purposes and is not subject currently to any Waste Discharge Requirements established by the Santa Ana RWQCB. Therefore, the proposed project would not exceed wastewater treatment requirements. No impact would occur, consistent with the findings of the 2005 LRDP Amendment 2 EIR.

Water Distribution

As identified in Table 4.15-4, Existing and Projected UCR Campus Water Demand, from the 2005 LRDP Amendment 2 EIR, the total water consumption on campus in 2009–2010 was 2.5 mgd; the entire demand was generated on the East Campus. The projected campus-wide water demand in 2020 is estimated in the 2005 LRDP Amendment 2 EIR at 5.3 mgd, including 3.0 mgd on the East Campus. This represents an estimated increase in water demand associated with the East Campus of 0.5 mgd.

The proposed project would involve construction of an approximately 120,000 gsf building and associated hardscape and landscape improvements at the project site. The proposed project would also involve the relocation of the existing SoM modular trailer to an existing parking lot or paved area on campus. With incorporation of PP 4.15-1(b) (implementation of water consumption reduction measures) and PP 4.15-1(c) (ensures that leaks in water and irrigation pipes are repaired), the proposed project would result in a net increase in water consumption of approximately 0.0015 mgd. The proposed water usage is well below the projected additional water demand associated with development on the East Campus of 3.0 mgd assumed in the 2005 LRDP, as amended. Therefore, the proposed project's water consumption would be well within the increase identified in the 2005 LRDP Amendment 2 EIR.

The domestic water system at UCR consists of an underground distribution system, a pumping system, storage tanks, and connections to the City of Riverside's municipal water distribution system. The 2005 LRDP Amendment 2 EIR concluded that because the City would be able to provide the necessary water using existing or planned water facilities, implementation of the 2005 LRDP, as amended, would not require the construction of new or expanded water facilities. As required by PP 4.15-1(a), the campus has reviewed the adequacy of the domestic/fire water systems that would serve the proposed project. Domestic water and fire supply would be supplied from an existing water line running east-west through the plaza that connects to a water main in East Campus Drive. There are existing fire hydrants and backflow preventers that may need to be relocated as part of the project. The SoM modular trailer domestic water and fire supply would be supplied from an existing water line running south of the Facilities Services Administration building or from an existing water line in Parking Lot 30. Fire water and potable water systems would not be combined. Connections to the water main for the potable and fire water systems would be separate and distinct. The impact area for installation of these water lines is within the construction impact limits identified on Figure 7, and the physical impacts have been addressed in the analysis throughout this IS. Therefore, consistent with the findings of the 2005 LRDP Amendment 2 EIR, this impact would be less than significant.

Wastewater Collection

Wastewater on campus is collected in the sanitary sewer system on campus, which consists of a network of lines owned and maintained by UCR. A sewer lateral would connect to the existing 8-inch main in East Campus Drive to convey sewage from the proposed SoM Ed. II building (refer to Figures 6a–b for the conceptual utility plans). Additionally, a sanitary sewer extension would be required for the SoM modular trailer if relocated to the northwest of Parking Lot 30 on West Campus. There is an existing sanitary sewer line adjacent to the Facilities Services Administration building.

Development of campus facilities such as the proposed SoM Ed. II building was assumed in the 2005 LRDP, as amended. The proposed project would result in a wastewater generation of approximately 0.1872 mgd. The proposed water usage is well below the projected additional water demand associated with development on the East Campus of 1.2 mgd assumed in the 2005 LRDP, as amended. Therefore, the wastewater collection requirements associated with the proposed SoM Ed. II building would be within the increase identified with buildout of the 2005 LRDP, as amended, and there is sufficient remaining capacity in the sewer lines serving the East Campus. No new or expanded sewer laterals or main lines would be necessary with proposed project implementation beyond the sewer lines within the project site to connect the proposed project to the existing sewer main. The impact area for installation of these sewer lines is within the construction impact limits identified on Figure 7, and the physical impacts have been addressed in the analysis throughout this IS. Therefore, consistent with the findings of the 2005 LRDP Amendment 2 EIR, this impact would be less than significant.

Consistent with the findings of the 2005 LRDP Amendment 2 EIR, there would be less than significant impacts related to wastewater infrastructure or wastewater treatment facility capacity. In addition, because wastewater generation is correlated with water usage, continued water conservation practices would reduce the volume of wastewater generated. Continued implementation of PPs 4.15-1(b) and 4.15-1(c), which emphasize a variety of water conservation practices, would further reduce wastewater generation and utilization of sewer line capacity.

Electricity/Natural Gas

The analysis of Impacts 4.15-8 through 4.15-10 in the 2005 LRDP Amendment 2 EIR concluded there would be a less than significant impact related to the need to construct new or expanded energy (electricity and natural gas) production or transmission facilities or to the inefficient use of energy.

As identified in the 2005 LRDP Amendment 2 EIR, the RPU provides electricity to the UCR campus. The energy is received through a 69 kV line at a substation west of the I-215/SR-60 freeway. From this point, the power is reduced to a usable voltage and distributed to individual buildings and transformers. UCR is in the process of transitioning the East Campus to 12 kV distribution lines and transformers; portions of the East Campus are currently operating under a 5kV system.

The 2005 LRDP Amendment 2 EIR concluded that the peak power demands on campus are 25.5 MVA (megavolt amps), and the total campus development under the 2005 LRDP, as amended, would demand 49 MVA, which is an increase of 23.5 MVA over existing conditions at the time. The total capacity of the existing 12 kV substation is 54 MVA, so the 2005 LRDP Amendment 2 EIR concluded that the existing campus electrical distribution system would be able to accommodate the projected demand of development under the 2005 LRDP, as amended, of which the proposed project is a part. Additionally, it was concluded that the RPU would have adequate infrastructure to serve the remaining and new development on campus.

The proposed project is estimated to generate a total electric demand of 1,748,000 kWh annually. It should be noted that campus development under the 2005 LRDP, as amended, would be required to follow energy conservation policies listed in the UC Sustainable Practices Policy, minimize energy use in order for the campus to attain the GHG reduction goals and comply with any future conservation goals or programs enacted by the UC. Therefore, the electric demand and required infrastructure of the proposed project has been determined taking these requirements into consideration. Consistent with the findings of the 2005 LRDP Amendment 2 EIR, there would be a less than significant impact related to construction of new or expanded electrical infrastructure or the inefficient use of energy.

As identified in the 2005 LRDP Amendment 2 EIR, UCR uses natural gas for heating and some cooling needs for research and instructional lab purposes. Natural gas is provided to the East Campus by SoCalGas. The 2005 LRDP Amendment 2 EIR concluded that the total campus development under the 2005 LRDP, as amended, would demand 45,458 therms per day, which is an increase of 31,700 therms per day over existing conditions at the time. SoCalGas has indicated that it could provide gas service to the campus to accommodate future development under the 2005 LRDP, as amended. There would be no natural gas in the proposed building in accordance with a UC systemwide policy. Therefore, consistent with the findings of the 2005 LRDP Amendment 2 EIR, there would be a less than significant impact related to construction of new or expanded natural gas infrastructure or the inefficient use of natural gas or energy.

Telecommunication Facilities

The 2005 LRDP Amendment 2 EIR did not address telecommunication facilities. However, the conceptual utility plans (refer to Figures 6a–b) illustrates a preferred and alternate point of connection to existing telecommunications/optical fiber which would serve the proposed project. Impacts associated with the proposed project were adequately addressed in the LRDP EIR.

Storm Water Drainage

Please refer to the analysis of drainage provided under Section V.10, Hydrology and Water Quality, of this IS/MND. In summary, the analysis concluded that operation of the proposed project would not exceed the capacity of the existing storm drain system, and there would be a less than significant impact, consistent with the findings of the 2005 LRDP Amendment 2 EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

Water/Wastewater Treatment

The proposed project would not require construction of new wastewater treatment facilities beyond the installation of new lines to connect to the proposed project; the physical limits of utility construction are within the impact area addressed throughout this IS. The proposed project would have a less than significant impact related to the capacity of existing wastewater systems. Impacts associated with the proposed project were adequately addressed in the LRDP EIR.

Water Distribution

There are adequate water distribution facilities available to serve the proposed project with incorporation of the PPs noted above, resulting in a less than significant impact. Impacts associated with the proposed project were adequately addressed in the LRDP EIR.

Wastewater Collection

There are adequate wastewater collection facilities available to serve the proposed project with incorporation of the PPs noted above, resulting in a less than significant impact. Impacts associated with the proposed project were adequately addressed in the LRDP EIR.

Electricity and Natural Gas

The proposed project would have a less than significant impact related to provision of electricity to the project site or the inefficient use of energy. The proposed project would have no impact related to natural gas. Impacts associated with the proposed project were adequately addressed in the LRDP EIR.

Telecommunications Facilities

The proposed project would have a less than significant impact related to telecommunications facilities. Impacts associated with the proposed project were adequately addressed in the LRDP EIR.

Storm Water Drainage

There is a less than significant impact related to the need for new or expanded storm drainage facilities beyond the installation of new storm waste management facilities to serve the proposed project. The physical limits of construction are within the impact area addressed throughout this IS. Impacts associated with the proposed project were adequately addressed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

The analysis of Impact 4.15-1 in the 2005 LRDP Amendment 2 EIR concluded there would be a less than significant impact related to water supply with implementation of PP 4.15-1(a). In addition, the LRDP EIR identified that campus development under the amended 2005 LRDP would also be required to follow water conservation policies listed in the UC Sustainable Practices Policy; adhere to goals listed in the water section of the SAP; and comply with any future conservation goals or programs enacted by the UC.

As described in the 2005 LRDP Amendment 2 EIR, the City RPU supplies domestic water to UCR. RPU's water supply consists primarily of groundwater, with additional sources, including recycled water and imported water. UCR also has rights to potable water in the Gage Canal. All existing and planned water supply entitlements, water rights, and/or water service contracts that may be used to serve development associated with the 2005 LRDP, as amended, are set forth in the current City of Riverside Urban Water Management Plan (UWMP), prepared by for RPU by Water Systems Consulting, Inc. (WSC) in 2015 (2015 UWMP). The 2015 UWMP identifies adequate potable water supplies to meet future demands (through 2040) within the RPU's water supply service area, which includes the UCR campus, under normal weather conditions. Specifically, the 2015 UWMP projects surplus water supplies under all scenarios, including multiple dry years (WSC 2016).

The 2005 LRDP Amendment 2 EIR concluded there would be adequate water supplies for implementation of the 2005 LRDP, as amended, with implementation of PP 4.15-1(a). Therefore, because the proposed project (approximately 120,000 gsf of building space) is within the assumed remaining development for the East Campus under the 2005 LRDP, as amended, and future development on campus is assumed in the City of Riverside UWMP, the estimated increase in water demand of 0.0015 mgd would also be met with existing entitlements and resources and would not result in the need for new or expanded entitlements with continued implementation of the identified PPs. Consistent with the findings of the 2005 LRDP Amendment 2 EIR, there would be a less than significant impact related to water supply, and no mitigation is required.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years. Impacts would be less than significant with incorporation of the PPs noted above. The proposed project impacts were adequately addressed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Would the project result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

The analysis of Impact 4.15-3 in the 2005 LRDP Amendment 2 EIR concluded there would be a less than significant impact related to construction of new or expanded wastewater treatment facilities with implementation of PP 4.15-5. As identified in the 2005 LRDP Amendment 2 EIR, the Sewerage Systems Services Program and its Treatment Services unit, administered by the RPU, collects, treats, and disposes of all wastewater generated within the City of Riverside and is responsible for compliance with State and federal requirements governing the treatment and discharge of all domestic and industrial wastewater generated in its service area, including the UCR campus. The RWQCP provides treatment of all campus-generated wastewater, with UCR operating its own collection system that connects to the City's system. The RWQCP currently treats an average of 30 mgd and has a capacity of 40 mgd. The plant is currently being expanded and retrofitted, and would have a capacity of 46 mgd. The City's Integrated Wastewater Master Plan addresses facility needs for projected wastewater influent flow through the year 2025 and identifies improvements that would increase the capacity of the RWQCP up to 52.2 mgd, although at this time the City is increasing the treatment capacity of the RWQCP to 46 mgd (City of Riverside 2008).

The 2005 LRDP Amendment 2 EIR also determined that implementation of the 2005 LRDP, as amended, would not generate a volume of wastewater that would exceed the capacity of the Riverside RWQCP wastewater treatment system in combination with the provider's existing service commitments. Because the proposed project would only result in approximately 120,000 gsf of building space on campus, and is within the remaining development allocation assumed for the campus in the 2005 LRDP Amendment 2 EIR, the wastewater generated would also be accommodated by the Riverside RWQCP.

Furthermore, as required by PP 4.15-5, the proposed project would comply with all applicable water quality requirements established by the RWQCB. Consistent with the findings of the LRDP EIR, impacts would be less than significant.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would not generate wastewater that exceeds the capacity of the wastewater treatment facilities resulting in a less than significant impact with implementation of the PP noted above. The proposed project impacts were adequately addressed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Would the project 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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

The analysis of Impact 4.15-6 in the 2005 LRDP Amendment 2 EIR concluded there would be a less than significant impact related to landfill capacity. The analysis of Impact 4.15-7 in the 2005 LRDP Amendment 2 EIR concluded there would be a less than significant impact related to compliance with applicable federal, State, and local solid waste-related statutes and regulations. It should also be noted that further reduction in solid waste generation would occur with implementation of the UC Policy on Sustainable Practices.

The City of Riverside Solid Waste Division is responsible for the collection and handling of residential refuse, recycling, and green waste (compostable organic waste) generated within the City of Riverside. The Robert A. Nelson Transfer Station, located at 1830 Agua Mansa Road, receives refuse from western Riverside County, including the UCR campus. The transfer station is owned by the Riverside County Department of Waste Resources (RCDWR) and operated by Burrtec Waste Industries. The transfer station is permitted to accept up to 4,000 tons of solid waste per day (CalRecycle 2020a). It should be noted that this number reflects all waste including recycling, green waste, and C&D. The operations division of the RCDWR receives, compacts, and buries refuse received at the various landfill sites at several locations in the County (UCR 2011).

On the UCR campus, trash is collected and placed in containers located throughout the campus. The RCDWR is responsible for the landfilling of non-hazardous county waste. In this effort RCDWR operates six landfills, has a contract agreement for waste disposal with an additional private landfill, and administers several transfer station leases (RCDWR 2020). These facilities are regulated at the federal, State, and local levels and monitored for compliance.

Solid waste would be generated during construction and operation of the proposed project. With respect to construction-related waste generation, approximately 1,000 tons (500 cubic yards) would be generated during the 23-month construction period.

With respect to operations, the 2005 LRDP Amendment 2 EIR assumed an annual generation factor of 0.675 ton of solid waste per 1,000 sf of building space on campus. This factor was developed by comparing the existing occupied building space to existing generation of solid waste

at the time of preparation of the LRDP EIR. Based on the identified solid waste generation factor, the 120,000 gsf of building space would generate approximately 81 tons per year of solid waste.

UCR implements a waste/source reduction and recycling program that includes sorting and separating wastes to simplify the removal of recyclable materials and the expansion of composting procedures associated with landscaping and agriculture to reduce the solid waste flow. The campus has constructed a transfer station on the West Campus north of Lot 30. UCR collects the recyclables and waste on campus and delivers these materials to the transfer station for hauling. A third-party vendor picks up the recyclable material for recycling. UCR delivers waste, in UCR haul trucks, to the Nelson Transfer Station from which a third-party vendor then transports 100 percent of the non-recyclable material to a bio-energy facility. UCR composts all green wastes on campus. In addition, UCR is carrying out a shift in its procurement practices toward recyclable, second generation, or reusable products to the extent feasible. Therefore, the total amount of solid waste generated by construction and operation of the proposed project would be substantially reduced compared to the waste generation factors in the 2005 LRDP Amendment 2 EIR. After implementation of waste diversion efforts, the proposed project is estimated to generate approximately 26 tons of solid waste per year.

It is anticipated that solid waste from UCR would be used as bio-energy by the third-party vendor, in the City of Perris. No byproducts at the end of the process are landfilled.

Therefore, consistent with the findings of the 2005 LRDP Amendment 2 EIR, there would be a less than significant impact related to solid waste statutes and regulations.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have a less than significant impact related to (1) landfill capacity and solid waste disposal and (2) compliance with applicable federal, State, and local statutes and regulations related to solid waste. The proposed project impacts were adequately addressed in the LRDP EIR.

20. Wildfire

In January 2019, updates to the State CEQA Guidelines were adopted, which included the addition of a Wildfire section, as addressed in this section. There are no relevant elements of the proposed project related to wildfire, and no PSSs, PPs, or MMs are applicable.

Project Impact Analysis

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level 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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

According to the Fire and Resource Assessment Program *Very High Fire Hazard Severity Zones in LRA As Recommended by CAL FIRE* map for the City of Riverside, the project site is not located within or near the areas in the southeast portions of campus that are susceptible to wildfires; the nearest Very High Fire Hazard Severity Zones (VHFHSZ) are located approximately 0.2 miles to the south and 0.49 miles to the northeast of the project site (CAL FIRE 2020). Additionally, the possible relocation of the SoM modular trailer to the surface parking area at the Corporation Yard on East Campus or to the northwest of Parking Lot 30 on the West Campus is not within an area designed as a VHHSZ. As discussed in Section V.9, Hazards and Hazardous Materials, the project would not impair the ability of emergency services to respond to emergencies on the UCR campus. The 2005 LRDP EIR identified the campus areas that may be subject to wildland fires, which include the following areas located adjacent to the southeast hills and the Botanic Gardens: the area south of South Campus Drive and areas currently occupied by Parking Lots 13 and 10, east of East Campus Drive. The project does not propose new development adjacent to the hillsides in the southeastern area of East Campus or near the Botanic Gardens and therefore would not exacerbate wildfire risks due to development near steep and vegetated slopes. Construction of the project would not obstruct emergency response or evacuation. The project would incorporate PP 4.7-7(a), which requires the maintenance of at least one unobstructed lane in both directions on campus roadways, to the extent feasible, and PP 4.7-7(b), which requires consultation between UCR and UCPD, RFD, and EH&S to identify alternative travel routes for emergency vehicle access when construction projects result in roadway closures. Additionally, MM 4.7-7(b) requires the campus' EOP be reviewed on an annual basis and updated as appropriate to account for new on-campus development.

Operation of the project would not impede off-campus emergency response. The RFD has created emergency response maps for the open lands in the City of Riverside. The response maps were created through the collaborative efforts of Fire, Information Technology, and the Parks and Recreation Departments. According to the Box Canyon Reserve Incident Action Plan emergency response map, the closest Reception Center and Staging Area to the project site is at Islander Park on the corner of Big Springs Road and Mt. Vernon Avenue. Type I Engine fire access is available on certain trails at Islander Park, at the foothills of the Box Springs Mountains (City of Riverside 2018). The project would not permanently impede access on any roads, trails, reception centers, or staging areas.

Therefore, the project would have a less than significant impact related to implementation of or physical interference with an adopted emergency response plan or emergency evacuation plan with incorporation of PP 4.7-7(a), PP 4.7-7(b), and MM 4.7-7(b), consistent with the findings of the 2005 LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have a less than significant impact related to implementation of or physical interference with an adopted emergency response plan or emergency evacuation plan with the incorporation of the PPs and MM noted above. The proposed project impacts were adequately addressed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level 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:					
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Discussion

The analysis of Impact 4.7-8 in the 2005 LRDP EIR concluded that, with implementation of PS Open Space 1, MM 4.7-8(a), and MM 4.7-8(b), development under the 2005 LRDP would have a less than significant impact related to wildfires. The 2005 LRDP EIR identified the campus areas that may be subject to wildland fires, which include the following areas located adjacent to the southeast hills and the Botanic Gardens: the area south of South Campus Drive and areas currently occupied by Parking Lots 13 and 10, east of East Campus Drive.

According to the Fire and Resource Assessment Program *Very High Fire Hazard Severity Zones in LRA As Recommended by CAL FIRE* map for the City of Riverside, the project site is not located within or near the areas in the southeast portions of campus that are susceptible to wildfires; the nearest VHFHSZs are located approximately 0.2 miles to the south and 0.49 miles to the northeast of the project site (CAL FIRE 2020). Additionally, the possible relocation of the SoM modular trailer to the surface parking area at the Corporation Yard on East Campus or to the northwest of Parking Lot 30 on the West Campus is not within an area designed as a VHHSZ. The UCR campus is subject to Santa Ana winds, which are strong, extremely dry offshore winds that affect southern California in autumn and winter. They can range from hot to cold, depending on the prevailing temperatures in the source regions, the Great Basin and upper Mojave Desert. The winds are known for the hot dry weather (often the hottest of the year) that they bring in the fall and are infamous for fanning regional wildfires. Santa Ana winds are a type of downslope windstorm that occur over southern California from the coastal mountains westward and from Ventura County southward to the Mexican border (Rolinski, et. al 2016).

Wildfire smoke produced from combustion of natural biomass contains thousands of individual compounds, including particulate matter, carbon dioxide, water vapor, carbon monoxide, hydrocarbons and other organic chemicals, nitrogen oxides, and trace minerals. Wildfires can move into the wildland urban interface, burning homes and structures and thereby consuming man-made materials in addition to natural fuels. Wildfire behavior will vary depending on natural

fuel type; fires in forest fuels can range from mild to severe and can spread very slowly or extremely rapidly depending on weather and fuel conditions. Wildfires in forests can last for weeks or months and are often the type that results in the most severe and longest duration air quality impacts. Smoke levels in populated areas can be difficult to predict (USEPA 2019).

The project does not propose new development adjacent to the hillsides in the southeastern area of East Campus and therefore would not exacerbate wildfire risks due to development near steep and vegetated slopes. This includes the possible relocation of the SoM modular trailer to the surface parking area at the Corporation Yard on East Campus or to the northwest of Parking Lot 30 on the West Campus. As discussed in Section V.7, Geology and Soils, the project site does not contain steep slopes, and none are proposed with implementation of the project. Therefore, implementation of the project would not expose people and/or structures to pollutant concentrations from a wildfire due to steep slopes.

The UCR Fire Prevention and Life Safety Policy, requires that all construction, alterations, renovations, and interior space dividers are subject to fire code review and inspection by EH&S. This includes approval of plans and specifications to verify compliance with applicable codes, including the following:

- Title 24, CCR, Building Regulations
- Uniform Fire Code
- National Fire Codes of the National Fire Protection Association
- Title 19, CCR, Public Safety
- Title 8, CCR, Occupational Safety
- California Health and Safety Code

During the plan check review, the Campus Building Official and Campus Fire Marshal will review the project plans to ensure that the design of the SoM Ed. II building and relocation of the SoM modular trailer comply with all the required codes noted above. As such, the project would not exacerbate wildfire risks, and would not expose occupants to pollutant concentrations or the uncontrolled spread of wildfire. This impact would be less than significant.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have less than significant impacts related to exposure of project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire.

These proposed project impacts were not previously evaluated in the LRDP EIR but would be less than significant.

21. Mandatory Findings of Significance

Project Impact Analysis

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
<p>MANDATORY FINDINGS OF SIGNIFICANCE – The lead agency shall find that a project may have a significant effect on the environment and thereby require an EIR to be prepared for the project where there is substantial evidence, in light of the whole record, that any of the following conditions may occur. Where prior to commencement of the environmental analysis a project proponent agrees to mitigation measures or project modifications that would avoid any significant effect on the environment or would mitigate the significant environmental effect, a lead agency need not prepare an EIR solely because without mitigation the environmental effects would have been significant (per Section 15065 of the State CEQA Guidelines):</p>					
<p>a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

As discussed in Section V.4, Biological Resources, of this IS/MND, the proposed project would not have a substantial impact on special status plant and wildlife species or sensitive habitats and wildlife corridors. The proposed project incorporates PS Open Space 3 (preserve natural resources, including trees, where feasible, in Naturalistic Open Space areas), MM 4.4-4(a) (surveys for nesting bird and raptor species prior to construction), and MM4.4-4(b) (protection of active nests during construction) from the 2005 LRDP Amendment 2 EIR, and, as a result, would have a less than significant impact on nesting species. The proposed project also includes tree retention and replacement to ensure a less than significant impact related to removal of trees. The proposed project would comply with PP 4.4-2(b) noted in the 2005 LRDP EIR and 2005 LRDP Amendment 2 EIR to use BMPs as identified in the UCR Stormwater Management Plan, which would reduce stormwater runoff and control erosion in and around the project site. Therefore, the potential for the proposed project to degrade the quality of the environment related to biological resources would result in a less than significant impact.

As discussed under Section V.5, Cultural Resources including a summary of the Memorandum for the Record, Historic Resources Evaluation for Greenhouse/Headhouses #6-10 prepared by Rincon Consultants, Inc., of this IS/MND, implementation of the proposed project would not result in significant impacts on historical resources.

The project site is not located in an area on campus associated with known or previously documented historic or archaeological resources. However, there remains the potential to encounter archaeological resources during ground-disturbing activities associated with project construction. Incorporation of MM CUL-1, as identified in Section V.5, Cultural Resources, of this IS/MND, would reduce potential impacts to archaeological resources and incorporation of MM CUL-2 through MM CUL-4 would reduce potential impacts related to the potential to eliminate important examples of the major periods of California history or prehistory to less than significant levels. Additionally, the proposed project would comply with PP 4.5-5 in the inadvertent discovery of human remains during construction activities.

Additional Project-Level Mitigation Measures

Refer to MM CUL-1 through MM CUL-4 in Section V.5, Cultural Resources and Section V.18, Tribal Cultural Resources, of this IS/MND.

Level of Significance

The proposed project has a less than significant impact related to the potential to degrade the quality of the environment; substantially reduce the habitat of a fish or wildlife species; cause a fish or wildlife population to drop below self-sustaining levels; threaten to eliminate a plant or animal community; substantially reduce the number or restrict the range of a rare or Endangered plant or animal; or eliminate important examples of the major periods of California history or prehistory with the incorporation of the PP and MMs noted above. The proposed project impacts were adequately addressed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Does the project have impacts that are individually limited, but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of past, present and probable future projects)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

As identified through the analysis presented in this IS/MND, the proposed project would not result in significant environmental impacts during construction or operation with continued implementation of applicable PSs, PPs, and MMs (identified for each environmental topic analyzed above in Sections V.1 through V.20 of this IS/MND) and project-specific MMs. Potential cumulative construction impacts related to air quality and traffic have been addressed in Section V.3 and V.17 of this IS/MND, respectively, and are determined to be less than significant.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have less than significant cumulatively considerable impacts with incorporation of the PSs, PPs, MMs, and project-specific MMs noted throughout the various sections of the IS/MND.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

As indicated in the analysis presented in this IS/MND, implementation of the proposed project would not result in potentially significant impacts that could degrade the quality of the environment or cause substantial adverse effects on human beings, either directly or indirectly.

The proposed project would not result in new or more significant impacts than addressed and disclosed in the 2005 LRDP EIR and 2005 Amendment 2 LRDP EIR with continued implementation of applicable PSs, PPs, and MMs (identified for each environmental topic analyzed above in Sections V.1 through V.20 of this IS/MND) from the MMRP adopted as part of the 2005 LRDP EIR and the 2005 Amendment 2 LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have a less than significant impact related to the potential to have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly with incorporation of the PSs, PPs, MMs, and project-specific MMs noted throughout the various sections of the IS/MND.

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APPENDIX A

AIR QUALITY AND GREENHOUSE GAS EMISSIONS CALCULATIONS

UCR School of Medicine - Riverside-South Coast County, Winter

UCR School of Medicine
Riverside-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
University/College (4Yr)	225.00	Student	3.00	120,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.4	Precipitation Freq (Days)	28
Climate Zone	10			Operational Year	2023
Utility Company	Riverside Public Utilities				
CO2 Intensity (lb/MW hr)	1325.65	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

UCR School of Medicine - Riverside-South Coast County, Winter

Project Characteristics -

Land Use - Project data

Construction Phase - Project data

Off-road Equipment -

Off-road Equipment - UCR provided data

Off-road Equipment - Project information

Off-road Equipment - UCR provided data

Off-road Equipment -

Off-road Equipment -

Trips and VMT - UCR provided trip length

Demolition -

Grading - .

Architectural Coating -

Vehicle Trips - Based on traffic study

Construction Off-road Equipment Mitigation - MM 4.3-1(b)

Energy Use - Provided by UCR

Solid Waste - Provided by UCR

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00

UCR School of Medicine - Riverside-South Coast County, Winter

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	9.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	3.00	13.00
tblConstructionPhase	NumDays	20.00	26.00
tblConstructionPhase	NumDays	6.00	105.00
tblConstructionPhase	NumDays	220.00	445.00
tblConstructionPhase	NumDays	10.00	78.00
tblConstructionPhase	NumDays	10.00	25.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00

UCR School of Medicine - Riverside-South Coast County, Winter

tblConstructionPhase	NumDaysWeek	5.00	6.00
tblEnergyUse	LightingElect	3.99	7.38
tblEnergyUse	NT24E	1.92	3.55
tblEnergyUse	NT24NG	0.01	0.00
tblEnergyUse	T24E	1.97	3.64
tblEnergyUse	T24NG	13.82	0.00
tblFleetMix	HHD	0.07	5.5540e-003
tblFleetMix	LDA	0.55	0.62
tblFleetMix	LDT1	0.04	0.04
tblFleetMix	LDT2	0.19	0.21
tblFleetMix	LHD1	0.01	0.00
tblFleetMix	LHD2	4.8060e-003	0.00
tblFleetMix	MCY	4.5080e-003	4.9390e-003
tblFleetMix	MDV	0.11	0.12
tblFleetMix	MH	8.9800e-004	8.7600e-004
tblFleetMix	MHD	0.02	0.00
tblFleetMix	OBUS	1.4090e-003	1.5720e-003
tblFleetMix	SBUS	9.1800e-004	9.9100e-004
tblFleetMix	UBUS	1.1470e-003	1.2470e-003
tblGrading	MaterialExported	0.00	16,355.00
tblLandUse	LandUseSquareFeet	41,354.43	120,000.00
tblLandUse	LotAcreage	0.95	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00

UCR School of Medicine - Riverside-South Coast County, Winter

tblSolidWaste	SolidWasteGenerationRate	41.06	26.00
tblTripsAndVMT	HaulingTripLength	20.00	8.00
tblTripsAndVMT	HaulingTripLength	20.00	8.00
tblTripsAndVMT	HaulingTripLength	20.00	8.00
tblTripsAndVMT	HaulingTripLength	20.00	8.00
tblTripsAndVMT	HaulingTripLength	20.00	8.00
tblTripsAndVMT	HaulingTripLength	20.00	8.00
tblVehicleTrips	ST_TR	1.30	1.95
tblVehicleTrips	WD_TR	1.71	2.57

2.0 Emissions Summary

UCR School of Medicine - Riverside-South Coast County, Winter

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	4.7176	47.8500	37.1038	0.0790	18.2675	2.1373	20.3131	9.9840	1.9860	11.8660	0.0000	7,725.554 3	7,725.554 3	1.8107	0.0000	7,770.822 8
2022	2.0291	17.7807	19.3992	0.0389	0.6869	0.8223	1.5093	0.1851	0.7735	0.9586	0.0000	3,772.288 5	3,772.288 5	0.7396	0.0000	3,790.779 4
2023	45.7289	24.8338	31.8254	0.0594	0.9105	1.1506	2.0611	0.2444	1.0750	1.3194	0.0000	5,724.460 2	5,724.460 2	1.2955	0.0000	5,756.847 8
Maximum	45.7289	47.8500	37.1038	0.0790	18.2675	2.1373	20.3131	9.9840	1.9860	11.8660	0.0000	7,725.554 3	7,725.554 3	1.8107	0.0000	7,770.822 8

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	1.4167	9.4308	41.2665	0.0790	7.2470	0.1807	7.3103	3.9263	0.1800	3.9895	0.0000	7,725.554 3	7,725.554 3	1.8107	0.0000	7,770.822 8
2022	0.8556	4.6792	21.2668	0.0389	0.6869	0.1121	0.7990	0.1851	0.1117	0.2968	0.0000	3,772.288 5	3,772.288 5	0.7396	0.0000	3,790.779 4
2023	45.1184	5.7395	35.5905	0.0594	0.9105	0.1535	1.0640	0.2444	0.1531	0.3975	0.0000	5,724.460 2	5,724.460 2	1.2955	0.0000	5,756.847 8
Maximum	45.1184	9.4308	41.2665	0.0790	7.2470	0.1807	7.3103	3.9263	0.1800	3.9895	0.0000	7,725.554 3	7,725.554 3	1.8107	0.0000	7,770.822 8

UCR School of Medicine - Riverside-South Coast County, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	9.69	78.06	-11.09	0.00	55.48	89.14	61.59	58.17	88.40	66.89	0.00	0.00	0.00	0.00	0.00	0.00

UCR School of Medicine - Riverside-South Coast County, Winter

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2.6829	2.1000e-004	0.0230	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0492	0.0492	1.3000e-004		0.0525
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.7362	1.2582	9.2276	0.0315	3.6428	0.0212	3.6640	0.9682	0.0196	0.9878		3,157.1520	3,157.1520	0.1070		3,159.8257
Total	3.4191	1.2584	9.2506	0.0315	3.6428	0.0213	3.6641	0.9682	0.0197	0.9879		3,157.2012	3,157.2012	0.1071	0.0000	3,159.8782

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2.6829	2.1000e-004	0.0230	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0492	0.0492	1.3000e-004		0.0525
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.7362	1.2582	9.2276	0.0315	3.6428	0.0212	3.6640	0.9682	0.0196	0.9878		3,157.1520	3,157.1520	0.1070		3,159.8257
Total	3.4191	1.2584	9.2506	0.0315	3.6428	0.0213	3.6641	0.9682	0.0197	0.9879		3,157.2012	3,157.2012	0.1071	0.0000	3,159.8782

UCR School of Medicine - Riverside-South Coast County, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	7/1/2021	7/15/2021	6	13	
2	Demolition	Demolition	7/16/2021	8/14/2021	6	26	
3	Grading	Grading	8/15/2021	12/15/2021	6	105	
4	Building Construction	Building Construction	11/15/2021	4/17/2023	6	445	
5	Paving	Paving	2/16/2023	5/17/2023	6	78	
6	Architectural Coating	Architectural Coating	5/17/2023	6/14/2023	6	25	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 52.5

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 180,000; Non-Residential Outdoor: 60,000; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

UCR School of Medicine - Riverside-South Coast County, Winter

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	1	8.00	158	0.38
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Demolition	Skid Steer Loaders	1	8.00	65	0.37
Demolition	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rollers	1	8.00	80	0.38
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Excavators	1	8.00	158	0.38
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	2	6.00	132	0.36
Paving	Rollers	2	6.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

UCR School of Medicine - Riverside-South Coast County, Winter

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	8.00	LD_Mix	HDT_Mix	HHDT
Demolition	5	13.00	0.00	99.00	14.70	6.90	8.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	2,044.00	14.70	6.90	8.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	50.00	20.00	0.00	14.70	6.90	8.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	14.70	6.90	8.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	10.00	0.00	0.00	14.70	6.90	8.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

3.2 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809		3,685.6569	3,685.6569	1.1920		3,715.4573
Total	3.8882	40.4971	21.1543	0.0380	18.0663	2.0445	20.1107	9.9307	1.8809	11.8116		3,685.6569	3,685.6569	1.1920		3,715.4573

UCR School of Medicine - Riverside-South Coast County, Winter

3.2 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0838	0.0503	0.5372	1.7200e-003	0.2012	1.1900e-003	0.2024	0.0534	1.0900e-003	0.0545		171.9348	171.9348	3.9700e-003		172.0342
Total	0.0838	0.0503	0.5372	1.7200e-003	0.2012	1.1900e-003	0.2024	0.0534	1.0900e-003	0.0545		171.9348	171.9348	3.9700e-003		172.0342

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0458	0.0000	7.0458	3.8730	0.0000	3.8730			0.0000			0.0000
Off-Road	0.4656	2.0175	20.8690	0.0380		0.0621	0.0621		0.0621	0.0621	0.0000	3,685.6569	3,685.6569	1.1920		3,715.4573
Total	0.4656	2.0175	20.8690	0.0380	7.0458	0.0621	7.1079	3.8730	0.0621	3.9351	0.0000	3,685.6569	3,685.6569	1.1920		3,715.4573

UCR School of Medicine - Riverside-South Coast County, Winter

3.2 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0838	0.0503	0.5372	1.7200e-003	0.2012	1.1900e-003	0.2024	0.0534	1.0900e-003	0.0545		171.9348	171.9348	3.9700e-003		172.0342
Total	0.0838	0.0503	0.5372	1.7200e-003	0.2012	1.1900e-003	0.2024	0.0534	1.0900e-003	0.0545		171.9348	171.9348	3.9700e-003		172.0342

3.3 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.8281	0.0000	0.8281	0.1254	0.0000	0.1254			0.0000			0.0000
Off-Road	1.9231	19.0619	14.6338	0.0251		0.9626	0.9626		0.8995	0.8995		2,421.3073	2,421.3073	0.6258		2,436.9531
Total	1.9231	19.0619	14.6338	0.0251	0.8281	0.9626	1.7907	0.1254	0.8995	1.0248		2,421.3073	2,421.3073	0.6258		2,436.9531

UCR School of Medicine - Riverside-South Coast County, Winter

3.3 Demolition - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0127	0.5642	0.0811	1.4100e-003	0.0267	1.1200e-003	0.0278	7.3200e-003	1.0700e-003	8.3900e-003		149.4495	149.4495	0.0161		149.8507
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0605	0.0363	0.3880	1.2500e-003	0.1453	8.6000e-004	0.1462	0.0385	7.9000e-004	0.0393		124.1752	124.1752	2.8700e-003		124.2469
Total	0.0732	0.6005	0.4691	2.6600e-003	0.1720	1.9800e-003	0.1740	0.0459	1.8600e-003	0.0477		273.6247	273.6247	0.0189		274.0976

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.3230	0.0000	0.3230	0.0489	0.0000	0.0489			0.0000			0.0000
Off-Road	0.3195	2.3263	15.5217	0.0251		0.0392	0.0392		0.0392	0.0392	0.0000	2,421.3073	2,421.3073	0.6258		2,436.9531
Total	0.3195	2.3263	15.5217	0.0251	0.3230	0.0392	0.3622	0.0489	0.0392	0.0881	0.0000	2,421.3073	2,421.3073	0.6258		2,436.9531

UCR School of Medicine - Riverside-South Coast County, Winter

3.3 Demolition - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0127	0.5642	0.0811	1.4100e-003	0.0267	1.1200e-003	0.0278	7.3200e-003	1.0700e-003	8.3900e-003		149.4495	149.4495	0.0161		149.8507
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0605	0.0363	0.3880	1.2500e-003	0.1453	8.6000e-004	0.1462	0.0385	7.9000e-004	0.0393		124.1752	124.1752	2.8700e-003		124.2469
Total	0.0732	0.6005	0.4691	2.6600e-003	0.1720	1.9800e-003	0.1740	0.0459	1.8600e-003	0.0477		273.6247	273.6247	0.0189		274.0976

3.4 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.5721	0.0000	6.5721	3.3705	0.0000	3.3705			0.0000			0.0000
Off-Road	2.3345	25.0227	16.4893	0.0312		1.1584	1.1584		1.0658	1.0658		3,024.409 2	3,024.409 2	0.9782		3,048.863 1
Total	2.3345	25.0227	16.4893	0.0312	6.5721	1.1584	7.7305	3.3705	1.0658	4.4362		3,024.409 2	3,024.409 2	0.9782		3,048.863 1

UCR School of Medicine - Riverside-South Coast County, Winter

3.4 Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0648	2.8842	0.4148	7.2000e-003	0.1365	5.7100e-003	0.1422	0.0374	5.4600e-003	0.0429		764.0545	764.0545	0.0820		766.1055
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0698	0.0419	0.4476	1.4400e-003	0.1677	9.9000e-004	0.1687	0.0445	9.1000e-004	0.0454		143.2790	143.2790	3.3100e-003		143.3618
Total	0.1346	2.9261	0.8624	8.6400e-003	0.3041	6.7000e-003	0.3108	0.0819	6.3700e-003	0.0883		907.3335	907.3335	0.0854		909.4673

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.5631	0.0000	2.5631	1.3145	0.0000	1.3145			0.0000			0.0000
Off-Road	0.3829	1.6593	18.9704	0.0312		0.0511	0.0511		0.0511	0.0511	0.0000	3,024.409 2	3,024.409 2	0.9782		3,048.863 1
Total	0.3829	1.6593	18.9704	0.0312	2.5631	0.0511	2.6142	1.3145	0.0511	1.3655	0.0000	3,024.409 2	3,024.409 2	0.9782		3,048.863 1

UCR School of Medicine - Riverside-South Coast County, Winter

3.4 Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0648	2.8842	0.4148	7.2000e-003	0.1365	5.7100e-003	0.1422	0.0374	5.4600e-003	0.0429		764.0545	764.0545	0.0820		766.1055
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0698	0.0419	0.4476	1.4400e-003	0.1677	9.9000e-004	0.1687	0.0445	9.1000e-004	0.0454		143.2790	143.2790	3.3100e-003		143.3618
Total	0.1346	2.9261	0.8624	8.6400e-003	0.3041	6.7000e-003	0.3108	0.0819	6.3700e-003	0.0883		907.3335	907.3335	0.0854		909.4673

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9663	17.9267	17.8693	0.0294		0.9653	0.9653		0.9074	0.9074		2,790.2683	2,790.2683	0.6926		2,807.5842
Total	1.9663	17.9267	17.8693	0.0294		0.9653	0.9653		0.9074	0.9074		2,790.2683	2,790.2683	0.6926		2,807.5842

UCR School of Medicine - Riverside-South Coast County, Winter

3.5 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0496	1.8349	0.3906	4.9900e-003	0.1281	3.6300e-003	0.1317	0.0369	3.4700e-003	0.0403		525.9464	525.9464	0.0436		527.0355
Worker	0.2326	0.1397	1.4922	4.7900e-003	0.5589	3.2900e-003	0.5622	0.1482	3.0300e-003	0.1513		477.5968	477.5968	0.0110		477.8727
Total	0.2822	1.9745	1.8828	9.7800e-003	0.6870	6.9200e-003	0.6939	0.1851	6.5000e-003	0.1916		1,003.5432	1,003.5432	0.0546		1,004.9082

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6170	2.8709	19.5509	0.0294		0.1160	0.1160		0.1160	0.1160	0.0000	2,790.2683	2,790.2683	0.6926		2,807.5842
Total	0.6170	2.8709	19.5509	0.0294		0.1160	0.1160		0.1160	0.1160	0.0000	2,790.2683	2,790.2683	0.6926		2,807.5842

UCR School of Medicine - Riverside-South Coast County, Winter

3.5 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0496	1.8349	0.3906	4.9900e-003	0.1281	3.6300e-003	0.1317	0.0369	3.4700e-003	0.0403		525.9464	525.9464	0.0436		527.0355
Worker	0.2326	0.1397	1.4922	4.7900e-003	0.5589	3.2900e-003	0.5622	0.1482	3.0300e-003	0.1513		477.5968	477.5968	0.0110		477.8727
Total	0.2822	1.9745	1.8828	9.7800e-003	0.6870	6.9200e-003	0.6939	0.1851	6.5000e-003	0.1916		1,003.5432	1,003.5432	0.0546		1,004.9082

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7645	15.9264	17.6603	0.0294		0.8161	0.8161		0.7677	0.7677		2,790.7648	2,790.7648	0.6884		2,807.9751
Total	1.7645	15.9264	17.6603	0.0294		0.8161	0.8161		0.7677	0.7677		2,790.7648	2,790.7648	0.6884		2,807.9751

UCR School of Medicine - Riverside-South Coast County, Winter

3.5 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0463	1.7287	0.3646	4.9400e-003	0.1281	3.0500e-003	0.1311	0.0369	2.9200e-003	0.0398		521.3543	521.3543	0.0413		522.3868
Worker	0.2182	0.1256	1.3742	4.6200e-003	0.5589	3.2100e-003	0.5621	0.1482	2.9500e-003	0.1512		460.1694	460.1694	9.9200e-003		460.4176
Total	0.2645	1.8543	1.7389	9.5600e-003	0.6869	6.2600e-003	0.6932	0.1851	5.8700e-003	0.1910		981.5237	981.5237	0.0512		982.8043

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5911	2.8249	19.5279	0.0294		0.1058	0.1058		0.1058	0.1058	0.0000	2,790.7648	2,790.7648	0.6884		2,807.9751
Total	0.5911	2.8249	19.5279	0.0294		0.1058	0.1058		0.1058	0.1058	0.0000	2,790.7648	2,790.7648	0.6884		2,807.9751

UCR School of Medicine - Riverside-South Coast County, Winter

3.5 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0463	1.7287	0.3646	4.9400e-003	0.1281	3.0500e-003	0.1311	0.0369	2.9200e-003	0.0398		521.3543	521.3543	0.0413		522.3868
Worker	0.2182	0.1256	1.3742	4.6200e-003	0.5589	3.2100e-003	0.5621	0.1482	2.9500e-003	0.1512		460.1694	460.1694	9.9200e-003		460.4176
Total	0.2645	1.8543	1.7389	9.5600e-003	0.6869	6.2600e-003	0.6932	0.1851	5.8700e-003	0.1910		981.5237	981.5237	0.0512		982.8043

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6290	14.5898	17.5494	0.0294		0.7092	0.7092		0.6671	0.6671		2,791.4361	2,791.4361	0.6843		2,808.5423
Total	1.6290	14.5898	17.5494	0.0294		0.7092	0.7092		0.6671	0.6671		2,791.4361	2,791.4361	0.6843		2,808.5423

UCR School of Medicine - Riverside-South Coast County, Winter

3.5 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0354	1.2952	0.3127	4.8100e-003	0.1281	1.3700e-003	0.1294	0.0369	1.3000e-003	0.0382		507.8053	507.8053	0.0315		508.5926
Worker	0.2053	0.1132	1.2664	4.4400e-003	0.5589	3.1300e-003	0.5620	0.1482	2.8800e-003	0.1511		442.7060	442.7060	8.9200e-003		442.9290
Total	0.2407	1.4084	1.5790	9.2500e-003	0.6869	4.5000e-003	0.6914	0.1851	4.1800e-003	0.1893		950.5113	950.5113	0.0404		951.5217

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5688	2.7826	19.5100	0.0294		0.0970	0.0970		0.0970	0.0970	0.0000	2,791.4361	2,791.4361	0.6843		2,808.5423
Total	0.5688	2.7826	19.5100	0.0294		0.0970	0.0970		0.0970	0.0970	0.0000	2,791.4361	2,791.4361	0.6843		2,808.5423

UCR School of Medicine - Riverside-South Coast County, Winter

3.5 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0354	1.2952	0.3127	4.8100e-003	0.1281	1.3700e-003	0.1294	0.0369	1.3000e-003	0.0382		507.8053	507.8053	0.0315		508.5926
Worker	0.2053	0.1132	1.2664	4.4400e-003	0.5589	3.1300e-003	0.5620	0.1482	2.8800e-003	0.1511		442.7060	442.7060	8.9200e-003		442.9290
Total	0.2407	1.4084	1.5790	9.2500e-003	0.6869	4.5000e-003	0.6914	0.1851	4.1800e-003	0.1893		950.5113	950.5113	0.0404		951.5217

3.6 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9181	8.7903	12.1905	0.0189		0.4357	0.4357		0.4025	0.4025		1,805.4304	1,805.4304	0.5673		1,819.6122
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.9181	8.7903	12.1905	0.0189		0.4357	0.4357		0.4025	0.4025		1,805.4304	1,805.4304	0.5673		1,819.6122

UCR School of Medicine - Riverside-South Coast County, Winter

3.6 Paving - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0821	0.0453	0.5066	1.7800e-003	0.2236	1.2500e-003	0.2248	0.0593	1.1500e-003	0.0604		177.0824	177.0824	3.5700e-003		177.1716
Total	0.0821	0.0453	0.5066	1.7800e-003	0.2236	1.2500e-003	0.2248	0.0593	1.1500e-003	0.0604		177.0824	177.0824	3.5700e-003		177.1716

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3076	1.5032	13.9949	0.0189		0.0507	0.0507		0.0507	0.0507	0.0000	1,805.4304	1,805.4304	0.5673		1,819.6122
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.3076	1.5032	13.9949	0.0189		0.0507	0.0507		0.0507	0.0507	0.0000	1,805.4304	1,805.4304	0.5673		1,819.6122

UCR School of Medicine - Riverside-South Coast County, Winter

3.6 Paving - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0821	0.0453	0.5066	1.7800e-003	0.2236	1.2500e-003	0.2248	0.0593	1.1500e-003	0.0604		177.0824	177.0824	3.5700e-003		177.1716
Total	0.0821	0.0453	0.5066	1.7800e-003	0.2236	1.2500e-003	0.2248	0.0593	1.1500e-003	0.0604		177.0824	177.0824	3.5700e-003		177.1716

3.7 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	44.4960					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	44.6877	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690

UCR School of Medicine - Riverside-South Coast County, Winter

3.7 Architectural Coating - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0411	0.0227	0.2533	8.9000e-004	0.1118	6.3000e-004	0.1124	0.0296	5.8000e-004	0.0302		88.5412	88.5412	1.7800e-003		88.5858
Total	0.0411	0.0227	0.2533	8.9000e-004	0.1118	6.3000e-004	0.1124	0.0296	5.8000e-004	0.0302		88.5412	88.5412	1.7800e-003		88.5858

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	44.4960					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690
Total	44.6877	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690

UCR School of Medicine - Riverside-South Coast County, Winter

3.7 Architectural Coating - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0411	0.0227	0.2533	8.9000e-004	0.1118	6.3000e-004	0.1124	0.0296	5.8000e-004	0.0302		88.5412	88.5412	1.7800e-003		88.5858
Total	0.0411	0.0227	0.2533	8.9000e-004	0.1118	6.3000e-004	0.1124	0.0296	5.8000e-004	0.0302		88.5412	88.5412	1.7800e-003		88.5858

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

UCR School of Medicine - Riverside-South Coast County, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.7362	1.2582	9.2276	0.0315	3.6428	0.0212	3.6640	0.9682	0.0196	0.9878		3,157.1520	3,157.1520	0.1070		3,159.8257
Unmitigated	0.7362	1.2582	9.2276	0.0315	3.6428	0.0212	3.6640	0.9682	0.0196	0.9878		3,157.1520	3,157.1520	0.1070		3,159.8257

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
University/College (4Yr)	578.25	438.75	0.00	1,428,992	1,428,992
Total	578.25	438.75	0.00	1,428,992	1,428,992

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
University/College (4Yr)	16.60	8.40	6.90	6.40	88.60	5.00	91	9	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
University/College (4Yr)	0.615742	0.039295	0.209628	0.120156	0.000000	0.000000	0.000000	0.005554	0.001572	0.001247	0.004939	0.000991	0.000876

5.0 Energy Detail

Historical Energy Use: N

UCR School of Medicine - Riverside-South Coast County, Winter

5.1 Mitigation Measures Energy

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

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
University/College (4Yr)	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

UCR School of Medicine - Riverside-South Coast County, Winter

5.2 Energy by Land Use - Natural Gas

Mitigated

	Natural Gas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
University/College (4Yr)	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2.6829	2.1000e-004	0.0230	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0492	0.0492	1.3000e-004		0.0525
Unmitigated	2.6829	2.1000e-004	0.0230	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0492	0.0492	1.3000e-004		0.0525

UCR School of Medicine - Riverside-South Coast County, Winter

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.3048					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.3760					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.1300e-003	2.1000e-004	0.0230	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0492	0.0492	1.3000e-004		0.0525
Total	2.6829	2.1000e-004	0.0230	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0492	0.0492	1.3000e-004		0.0525

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.3048					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.3760					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.1300e-003	2.1000e-004	0.0230	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0492	0.0492	1.3000e-004		0.0525
Total	2.6829	2.1000e-004	0.0230	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0492	0.0492	1.3000e-004		0.0525

7.0 Water Detail

UCR School of Medicine - Riverside-South Coast County, Winter

7.1 Mitigation Measures Water**8.0 Waste Detail****8.1 Mitigation Measures Waste****9.0 Operational Offroad**

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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10.0 Stationary Equipment**Fire Pumps and Emergency Generators**

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

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

UCR School of Medicine - Riverside-South Coast County, Summer

UCR School of Medicine
Riverside-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
University/College (4Yr)	225.00	Student	3.00	120,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.4	Precipitation Freq (Days)	28
Climate Zone	10			Operational Year	2023
Utility Company	Riverside Public Utilities				
CO2 Intensity (lb/MW hr)	1325.65	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

UCR School of Medicine - Riverside-South Coast County, Summer

Project Characteristics -

Land Use - Project data

Construction Phase - Project data

Off-road Equipment -

Off-road Equipment - UCR provided data

Off-road Equipment - Project information

Off-road Equipment - UCR provided data

Off-road Equipment -

Off-road Equipment -

Trips and VMT - UCR provided trip length

Demolition -

Grading - .

Architectural Coating -

Vehicle Trips - Based on traffic study

Construction Off-road Equipment Mitigation - MM 4.3-1(b)

Energy Use - Provided by UCR

Solid Waste - Provided by UCR

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00

UCR School of Medicine - Riverside-South Coast County, Summer

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	9.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	3.00	13.00
tblConstructionPhase	NumDays	20.00	26.00
tblConstructionPhase	NumDays	6.00	105.00
tblConstructionPhase	NumDays	220.00	445.00
tblConstructionPhase	NumDays	10.00	78.00
tblConstructionPhase	NumDays	10.00	25.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00

UCR School of Medicine - Riverside-South Coast County, Summer

tblConstructionPhase	NumDaysWeek	5.00	6.00
tblEnergyUse	LightingElect	3.99	7.38
tblEnergyUse	NT24E	1.92	3.55
tblEnergyUse	NT24NG	0.01	0.00
tblEnergyUse	T24E	1.97	3.64
tblEnergyUse	T24NG	13.82	0.00
tblFleetMix	HHD	0.07	5.5540e-003
tblFleetMix	LDA	0.55	0.62
tblFleetMix	LDT1	0.04	0.04
tblFleetMix	LDT2	0.19	0.21
tblFleetMix	LHD1	0.01	0.00
tblFleetMix	LHD2	4.8060e-003	0.00
tblFleetMix	MCY	4.5080e-003	4.9390e-003
tblFleetMix	MDV	0.11	0.12
tblFleetMix	MH	8.9800e-004	8.7600e-004
tblFleetMix	MHD	0.02	0.00
tblFleetMix	OBUS	1.4090e-003	1.5720e-003
tblFleetMix	SBUS	9.1800e-004	9.9100e-004
tblFleetMix	UBUS	1.1470e-003	1.2470e-003
tblGrading	MaterialExported	0.00	16,355.00
tblLandUse	LandUseSquareFeet	41,354.43	120,000.00
tblLandUse	LotAcreage	0.95	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00

UCR School of Medicine - Riverside-South Coast County, Summer

tblSolidWaste	SolidWasteGenerationRate	41.06	26.00
tblTripsAndVMT	HaulingTripLength	20.00	8.00
tblTripsAndVMT	HaulingTripLength	20.00	8.00
tblTripsAndVMT	HaulingTripLength	20.00	8.00
tblTripsAndVMT	HaulingTripLength	20.00	8.00
tblTripsAndVMT	HaulingTripLength	20.00	8.00
tblTripsAndVMT	HaulingTripLength	20.00	8.00
tblVehicleTrips	ST_TR	1.30	1.95
tblVehicleTrips	WD_TR	1.71	2.57

2.0 Emissions Summary

UCR School of Medicine - Riverside-South Coast County, Summer

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	4.7154	47.8996	37.4130	0.0803	18.2675	2.1370	20.3131	9.9840	1.9857	11.8660	0.0000	7,856.417 1	7,856.417 1	1.7999	0.0000	7,901.415 3
2022	2.0298	17.7941	19.6725	0.0397	0.6869	0.8222	1.5092	0.1851	0.7734	0.9585	0.0000	3,845.538 2	3,845.538 2	0.7368	0.0000	3,863.959 2
2023	45.7305	24.8466	32.2135	0.0603	0.9105	1.1506	2.0611	0.2444	1.0750	1.3193	0.0000	5,815.108 5	5,815.108 5	1.2943	0.0000	5,847.465 0
Maximum	45.7305	47.8996	37.4130	0.0803	18.2675	2.1370	20.3131	9.9840	1.9857	11.8660	0.0000	7,856.417 1	7,856.417 1	1.7999	0.0000	7,901.415 3

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	1.4146	9.4804	41.5757	0.0803	7.2470	0.1804	7.3103	3.9263	0.1797	3.9895	0.0000	7,856.417 1	7,856.417 1	1.7999	0.0000	7,901.415 2
2022	0.8563	4.6926	21.5401	0.0397	0.6869	0.1120	0.7989	0.1851	0.1116	0.2967	0.0000	3,845.538 2	3,845.538 2	0.7368	0.0000	3,863.959 2
2023	45.1200	5.7523	35.9786	0.0603	0.9105	0.1535	1.0640	0.2444	0.1531	0.3974	0.0000	5,815.108 5	5,815.108 5	1.2943	0.0000	5,847.465 0
Maximum	45.1200	9.4804	41.5757	0.0803	7.2470	0.1804	7.3103	3.9263	0.1797	3.9895	0.0000	7,856.417 1	7,856.417 1	1.7999	0.0000	7,901.415 2

UCR School of Medicine - Riverside-South Coast County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	9.69	77.99	-10.97	0.00	55.48	89.15	61.59	58.17	88.41	66.89	0.00	0.00	0.00	0.00	0.00	0.00

UCR School of Medicine - Riverside-South Coast County, Summer

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2.6829	2.1000e-004	0.0230	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0492	0.0492	1.3000e-004		0.0525
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.9137	1.2298	10.9703	0.0349	3.6428	0.0212	3.6640	0.9682	0.0196	0.9878		3,497.9648	3,497.9648	0.1129		3,500.7861
Total	3.5966	1.2301	10.9933	0.0349	3.6428	0.0213	3.6640	0.9682	0.0196	0.9879		3,498.0140	3,498.0140	0.1130	0.0000	3,500.8386

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2.6829	2.1000e-004	0.0230	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0492	0.0492	1.3000e-004		0.0525
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.9137	1.2298	10.9703	0.0349	3.6428	0.0212	3.6640	0.9682	0.0196	0.9878		3,497.9648	3,497.9648	0.1129		3,500.7861
Total	3.5966	1.2301	10.9933	0.0349	3.6428	0.0213	3.6640	0.9682	0.0196	0.9879		3,498.0140	3,498.0140	0.1130	0.0000	3,500.8386

UCR School of Medicine - Riverside-South Coast County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	7/1/2021	7/15/2021	6	13	
2	Demolition	Demolition	7/16/2021	8/14/2021	6	26	
3	Grading	Grading	8/15/2021	12/15/2021	6	105	
4	Building Construction	Building Construction	11/15/2021	4/17/2023	6	445	
5	Paving	Paving	2/16/2023	5/17/2023	6	78	
6	Architectural Coating	Architectural Coating	5/17/2023	6/14/2023	6	25	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 52.5

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 180,000; Non-Residential Outdoor: 60,000; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

UCR School of Medicine - Riverside-South Coast County, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	1	8.00	158	0.38
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Demolition	Skid Steer Loaders	1	8.00	65	0.37
Demolition	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rollers	1	8.00	80	0.38
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Excavators	1	8.00	158	0.38
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	2	6.00	132	0.36
Paving	Rollers	2	6.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

UCR School of Medicine - Riverside-South Coast County, Summer

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	8.00	LD_Mix	HDT_Mix	HHDT
Demolition	5	13.00	0.00	99.00	14.70	6.90	8.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	2,044.00	14.70	6.90	8.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	50.00	20.00	0.00	14.70	6.90	8.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	14.70	6.90	8.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	10.00	0.00	0.00	14.70	6.90	8.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

3.2 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809		3,685.6569	3,685.6569	1.1920		3,715.4573
Total	3.8882	40.4971	21.1543	0.0380	18.0663	2.0445	20.1107	9.9307	1.8809	11.8116		3,685.6569	3,685.6569	1.1920		3,715.4573

UCR School of Medicine - Riverside-South Coast County, Summer

3.2 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0853	0.0486	0.6655	1.9200e-003	0.2012	1.1900e-003	0.2024	0.0534	1.0900e-003	0.0545		191.6552	191.6552	4.5700e-003		191.7694
Total	0.0853	0.0486	0.6655	1.9200e-003	0.2012	1.1900e-003	0.2024	0.0534	1.0900e-003	0.0545		191.6552	191.6552	4.5700e-003		191.7694

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0458	0.0000	7.0458	3.8730	0.0000	3.8730			0.0000			0.0000
Off-Road	0.4656	2.0175	20.8690	0.0380		0.0621	0.0621		0.0621	0.0621	0.0000	3,685.6569	3,685.6569	1.1920		3,715.4573
Total	0.4656	2.0175	20.8690	0.0380	7.0458	0.0621	7.1079	3.8730	0.0621	3.9351	0.0000	3,685.6569	3,685.6569	1.1920		3,715.4573

UCR School of Medicine - Riverside-South Coast County, Summer

3.2 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0853	0.0486	0.6655	1.9200e-003	0.2012	1.1900e-003	0.2024	0.0534	1.0900e-003	0.0545		191.6552	191.6552	4.5700e-003		191.7694
Total	0.0853	0.0486	0.6655	1.9200e-003	0.2012	1.1900e-003	0.2024	0.0534	1.0900e-003	0.0545		191.6552	191.6552	4.5700e-003		191.7694

3.3 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.8281	0.0000	0.8281	0.1254	0.0000	0.1254			0.0000			0.0000
Off-Road	1.9231	19.0619	14.6338	0.0251		0.9626	0.9626		0.8995	0.8995		2,421.3073	2,421.3073	0.6258		2,436.9531
Total	1.9231	19.0619	14.6338	0.0251	0.8281	0.9626	1.7907	0.1254	0.8995	1.0248		2,421.3073	2,421.3073	0.6258		2,436.9531

UCR School of Medicine - Riverside-South Coast County, Summer

3.3 Demolition - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0117	0.5719	0.0628	1.4800e-003	0.0267	1.0800e-003	0.0278	7.3200e-003	1.0300e-003	8.3500e-003		157.0965	157.0965	0.0144		157.4561
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0616	0.0351	0.4806	1.3900e-003	0.1453	8.6000e-004	0.1462	0.0385	7.9000e-004	0.0393		138.4176	138.4176	3.3000e-003		138.5001
Total	0.0733	0.6070	0.5434	2.8700e-003	0.1720	1.9400e-003	0.1739	0.0459	1.8200e-003	0.0477		295.5142	295.5142	0.0177		295.9563

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.3230	0.0000	0.3230	0.0489	0.0000	0.0489			0.0000			0.0000
Off-Road	0.3195	2.3263	15.5217	0.0251		0.0392	0.0392		0.0392	0.0392	0.0000	2,421.3073	2,421.3073	0.6258		2,436.9531
Total	0.3195	2.3263	15.5217	0.0251	0.3230	0.0392	0.3622	0.0489	0.0392	0.0881	0.0000	2,421.3073	2,421.3073	0.6258		2,436.9531

UCR School of Medicine - Riverside-South Coast County, Summer

3.3 Demolition - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0117	0.5719	0.0628	1.4800e-003	0.0267	1.0800e-003	0.0278	7.3200e-003	1.0300e-003	8.3500e-003		157.0965	157.0965	0.0144		157.4561
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0616	0.0351	0.4806	1.3900e-003	0.1453	8.6000e-004	0.1462	0.0385	7.9000e-004	0.0393		138.4176	138.4176	3.3000e-003		138.5001
Total	0.0733	0.6070	0.5434	2.8700e-003	0.1720	1.9400e-003	0.1739	0.0459	1.8200e-003	0.0477		295.5142	295.5142	0.0177		295.9563

3.4 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.5721	0.0000	6.5721	3.3705	0.0000	3.3705			0.0000			0.0000
Off-Road	2.3345	25.0227	16.4893	0.0312		1.1584	1.1584		1.0658	1.0658		3,024.409 2	3,024.409 2	0.9782		3,048.863 1
Total	2.3345	25.0227	16.4893	0.0312	6.5721	1.1584	7.7305	3.3705	1.0658	4.4362		3,024.409 2	3,024.409 2	0.9782		3,048.863 1

UCR School of Medicine - Riverside-South Coast County, Summer

3.4 Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0599	2.9238	0.3211	7.5700e-003	0.1365	5.5200e-003	0.1420	0.0374	5.2800e-003	0.0427		803.1494	803.1494	0.0735		804.9879
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0711	0.0405	0.5546	1.6000e-003	0.1677	9.9000e-004	0.1687	0.0445	9.1000e-004	0.0454		159.7126	159.7126	3.8100e-003		159.8078
Total	0.1310	2.9644	0.8757	9.1700e-003	0.3041	6.5100e-003	0.3106	0.0819	6.1900e-003	0.0881		962.8621	962.8621	0.0774		964.7957

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.5631	0.0000	2.5631	1.3145	0.0000	1.3145			0.0000			0.0000
Off-Road	0.3829	1.6593	18.9704	0.0312		0.0511	0.0511		0.0511	0.0511	0.0000	3,024.409 2	3,024.409 2	0.9782		3,048.863 1
Total	0.3829	1.6593	18.9704	0.0312	2.5631	0.0511	2.6142	1.3145	0.0511	1.3655	0.0000	3,024.409 2	3,024.409 2	0.9782		3,048.863 1

UCR School of Medicine - Riverside-South Coast County, Summer

3.4 Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0599	2.9238	0.3211	7.5700e-003	0.1365	5.5200e-003	0.1420	0.0374	5.2800e-003	0.0427		803.1494	803.1494	0.0735		804.9879
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0711	0.0405	0.5546	1.6000e-003	0.1677	9.9000e-004	0.1687	0.0445	9.1000e-004	0.0454		159.7126	159.7126	3.8100e-003		159.8078
Total	0.1310	2.9644	0.8757	9.1700e-003	0.3041	6.5100e-003	0.3106	0.0819	6.1900e-003	0.0881		962.8621	962.8621	0.0774		964.7957

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9663	17.9267	17.8693	0.0294		0.9653	0.9653		0.9074	0.9074		2,790.2683	2,790.2683	0.6926		2,807.5842
Total	1.9663	17.9267	17.8693	0.0294		0.9653	0.9653		0.9074	0.9074		2,790.2683	2,790.2683	0.6926		2,807.5842

UCR School of Medicine - Riverside-South Coast County, Summer

3.5 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0467	1.8508	0.3302	5.1800e-003	0.1281	3.5200e-003	0.1316	0.0369	3.3700e-003	0.0402		546.5020	546.5020	0.0391		547.4795
Worker	0.2371	0.1350	1.8486	5.3400e-003	0.5589	3.2900e-003	0.5622	0.1482	3.0300e-003	0.1513		532.3755	532.3755	0.0127		532.6928
Total	0.2837	1.9858	2.1788	0.0105	0.6870	6.8100e-003	0.6938	0.1851	6.4000e-003	0.1915		1,078.8775	1,078.8775	0.0518		1,080.1723

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6170	2.8709	19.5509	0.0294		0.1160	0.1160		0.1160	0.1160	0.0000	2,790.2683	2,790.2683	0.6926		2,807.5842
Total	0.6170	2.8709	19.5509	0.0294		0.1160	0.1160		0.1160	0.1160	0.0000	2,790.2683	2,790.2683	0.6926		2,807.5842

UCR School of Medicine - Riverside-South Coast County, Summer

3.5 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0467	1.8508	0.3302	5.1800e-003	0.1281	3.5200e-003	0.1316	0.0369	3.3700e-003	0.0402		546.5020	546.5020	0.0391		547.4795
Worker	0.2371	0.1350	1.8486	5.3400e-003	0.5589	3.2900e-003	0.5622	0.1482	3.0300e-003	0.1513		532.3755	532.3755	0.0127		532.6928
Total	0.2837	1.9858	2.1788	0.0105	0.6870	6.8100e-003	0.6938	0.1851	6.4000e-003	0.1915		1,078.8775	1,078.8775	0.0518		1,080.1723

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7645	15.9264	17.6603	0.0294		0.8161	0.8161		0.7677	0.7677		2,790.7648	2,790.7648	0.6884		2,807.9751
Total	1.7645	15.9264	17.6603	0.0294		0.8161	0.8161		0.7677	0.7677		2,790.7648	2,790.7648	0.6884		2,807.9751

UCR School of Medicine - Riverside-South Coast County, Summer

3.5 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0435	1.7462	0.3071	5.1400e-003	0.1281	2.9600e-003	0.1310	0.0369	2.8300e-003	0.0397		541.8504	541.8504	0.0370		542.7761
Worker	0.2217	0.1215	1.7051	5.1500e-003	0.5589	3.2100e-003	0.5621	0.1482	2.9500e-003	0.1512		512.9230	512.9230	0.0114		513.2081
Total	0.2653	1.8677	2.0122	0.0103	0.6869	6.1700e-003	0.6931	0.1851	5.7800e-003	0.1909		1,054.7734	1,054.7734	0.0484		1,055.9841

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5911	2.8249	19.5279	0.0294		0.1058	0.1058		0.1058	0.1058	0.0000	2,790.7648	2,790.7648	0.6884		2,807.9751
Total	0.5911	2.8249	19.5279	0.0294		0.1058	0.1058		0.1058	0.1058	0.0000	2,790.7648	2,790.7648	0.6884		2,807.9751

UCR School of Medicine - Riverside-South Coast County, Summer

3.5 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0435	1.7462	0.3071	5.1400e-003	0.1281	2.9600e-003	0.1310	0.0369	2.8300e-003	0.0397		541.8504	541.8504	0.0370		542.7761
Worker	0.2217	0.1215	1.7051	5.1500e-003	0.5589	3.2100e-003	0.5621	0.1482	2.9500e-003	0.1512		512.9230	512.9230	0.0114		513.2081
Total	0.2653	1.8677	2.0122	0.0103	0.6869	6.1700e-003	0.6931	0.1851	5.7800e-003	0.1909		1,054.7734	1,054.7734	0.0484		1,055.9841

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6290	14.5898	17.5494	0.0294		0.7092	0.7092		0.6671	0.6671		2,791.4361	2,791.4361	0.6843		2,808.5423
Total	1.6290	14.5898	17.5494	0.0294		0.7092	0.7092		0.6671	0.6671		2,791.4361	2,791.4361	0.6843		2,808.5423

UCR School of Medicine - Riverside-South Coast County, Summer

3.5 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0334	1.3130	0.2707	5.0000e-003	0.1281	1.3200e-003	0.1294	0.0369	1.2600e-003	0.0381		527.4391	527.4391	0.0284		528.1494
Worker	0.2079	0.1096	1.5736	4.9500e-003	0.5589	3.1300e-003	0.5620	0.1482	2.8800e-003	0.1511		493.4306	493.4306	0.0102		493.6865
Total	0.2413	1.4226	1.8443	9.9500e-003	0.6869	4.4500e-003	0.6914	0.1851	4.1400e-003	0.1892		1,020.8697	1,020.8697	0.0386		1,021.8359

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5688	2.7826	19.5100	0.0294		0.0970	0.0970		0.0970	0.0970	0.0000	2,791.4361	2,791.4361	0.6843		2,808.5423
Total	0.5688	2.7826	19.5100	0.0294		0.0970	0.0970		0.0970	0.0970	0.0000	2,791.4361	2,791.4361	0.6843		2,808.5423

UCR School of Medicine - Riverside-South Coast County, Summer

3.5 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0334	1.3130	0.2707	5.0000e-003	0.1281	1.3200e-003	0.1294	0.0369	1.2600e-003	0.0381		527.4391	527.4391	0.0284		528.1494
Worker	0.2079	0.1096	1.5736	4.9500e-003	0.5589	3.1300e-003	0.5620	0.1482	2.8800e-003	0.1511		493.4306	493.4306	0.0102		493.6865
Total	0.2413	1.4226	1.8443	9.9500e-003	0.6869	4.4500e-003	0.6914	0.1851	4.1400e-003	0.1892		1,020.8697	1,020.8697	0.0386		1,021.8359

3.6 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9181	8.7903	12.1905	0.0189		0.4357	0.4357		0.4025	0.4025		1,805.4304	1,805.4304	0.5673		1,819.6122
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.9181	8.7903	12.1905	0.0189		0.4357	0.4357		0.4025	0.4025		1,805.4304	1,805.4304	0.5673		1,819.6122

UCR School of Medicine - Riverside-South Coast County, Summer

3.6 Paving - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0832	0.0438	0.6294	1.9800e-003	0.2236	1.2500e-003	0.2248	0.0593	1.1500e-003	0.0604		197.3722	197.3722	4.0900e-003		197.4746
Total	0.0832	0.0438	0.6294	1.9800e-003	0.2236	1.2500e-003	0.2248	0.0593	1.1500e-003	0.0604		197.3722	197.3722	4.0900e-003		197.4746

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3076	1.5032	13.9949	0.0189		0.0507	0.0507		0.0507	0.0507	0.0000	1,805.4304	1,805.4304	0.5673		1,819.6122
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.3076	1.5032	13.9949	0.0189		0.0507	0.0507		0.0507	0.0507	0.0000	1,805.4304	1,805.4304	0.5673		1,819.6122

UCR School of Medicine - Riverside-South Coast County, Summer

3.6 Paving - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0832	0.0438	0.6294	1.9800e-003	0.2236	1.2500e-003	0.2248	0.0593	1.1500e-003	0.0604		197.3722	197.3722	4.0900e-003		197.4746
Total	0.0832	0.0438	0.6294	1.9800e-003	0.2236	1.2500e-003	0.2248	0.0593	1.1500e-003	0.0604		197.3722	197.3722	4.0900e-003		197.4746

3.7 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	44.4960					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	44.6877	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690

UCR School of Medicine - Riverside-South Coast County, Summer

3.7 Architectural Coating - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0416	0.0219	0.3147	9.9000e-004	0.1118	6.3000e-004	0.1124	0.0296	5.8000e-004	0.0302		98.6861	98.6861	2.0500e-003		98.7373
Total	0.0416	0.0219	0.3147	9.9000e-004	0.1118	6.3000e-004	0.1124	0.0296	5.8000e-004	0.0302		98.6861	98.6861	2.0500e-003		98.7373

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	44.4960					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690
Total	44.6877	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690

UCR School of Medicine - Riverside-South Coast County, Summer

3.7 Architectural Coating - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0416	0.0219	0.3147	9.9000e-004	0.1118	6.3000e-004	0.1124	0.0296	5.8000e-004	0.0302		98.6861	98.6861	2.0500e-003		98.7373
Total	0.0416	0.0219	0.3147	9.9000e-004	0.1118	6.3000e-004	0.1124	0.0296	5.8000e-004	0.0302		98.6861	98.6861	2.0500e-003		98.7373

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

UCR School of Medicine - Riverside-South Coast County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.9137	1.2298	10.9703	0.0349	3.6428	0.0212	3.6640	0.9682	0.0196	0.9878		3,497.9648	3,497.9648	0.1129		3,500.7861
Unmitigated	0.9137	1.2298	10.9703	0.0349	3.6428	0.0212	3.6640	0.9682	0.0196	0.9878		3,497.9648	3,497.9648	0.1129		3,500.7861

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
University/College (4Yr)	578.25	438.75	0.00	1,428,992	1,428,992
Total	578.25	438.75	0.00	1,428,992	1,428,992

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
University/College (4Yr)	16.60	8.40	6.90	6.40	88.60	5.00	91	9	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
University/College (4Yr)	0.615742	0.039295	0.209628	0.120156	0.000000	0.000000	0.000000	0.005554	0.001572	0.001247	0.004939	0.000991	0.000876

5.0 Energy Detail

Historical Energy Use: N

UCR School of Medicine - Riverside-South Coast County, Summer

5.1 Mitigation Measures Energy

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

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
University/College (4Yr)	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

UCR School of Medicine - Riverside-South Coast County, Summer

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
University/College (4Yr)	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2.6829	2.1000e-004	0.0230	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0492	0.0492	1.3000e-004		0.0525
Unmitigated	2.6829	2.1000e-004	0.0230	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0492	0.0492	1.3000e-004		0.0525

UCR School of Medicine - Riverside-South Coast County, Summer

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.3048					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.3760					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.1300e-003	2.1000e-004	0.0230	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0492	0.0492	1.3000e-004		0.0525
Total	2.6829	2.1000e-004	0.0230	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0492	0.0492	1.3000e-004		0.0525

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.3048					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.3760					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.1300e-003	2.1000e-004	0.0230	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0492	0.0492	1.3000e-004		0.0525
Total	2.6829	2.1000e-004	0.0230	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0492	0.0492	1.3000e-004		0.0525

7.0 Water Detail

UCR School of Medicine - Riverside-South Coast County, Summer

7.1 Mitigation Measures Water**8.0 Waste Detail**

8.1 Mitigation Measures Waste**9.0 Operational Offroad**

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

UCR School of Medicine - Riverside-South Coast County, Annual

**UCR School of Medicine
Riverside-South Coast County, Annual**

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
University/College (4Yr)	225.00	Student	3.00	120,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.4	Precipitation Freq (Days)	28
Climate Zone	10			Operational Year	2023
Utility Company	Riverside Public Utilities				
CO2 Intensity (lb/MW hr)	1325.65	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

UCR School of Medicine - Riverside-South Coast County, Annual

Project Characteristics -

Land Use - Project data

Construction Phase - Project data

Off-road Equipment -

Off-road Equipment - UCR provided data

Off-road Equipment - Project information

Off-road Equipment - UCR provided data

Off-road Equipment -

Off-road Equipment -

Trips and VMT - UCR provided trip length

Demolition -

Grading - .

Architectural Coating -

Vehicle Trips - Based on traffic study

Construction Off-road Equipment Mitigation - MM 4.3-1(b)

Energy Use - Provided by UCR

Solid Waste - Provided by UCR

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00

UCR School of Medicine - Riverside-South Coast County, Annual

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	9.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	3.00	13.00
tblConstructionPhase	NumDays	20.00	26.00
tblConstructionPhase	NumDays	6.00	105.00
tblConstructionPhase	NumDays	220.00	445.00
tblConstructionPhase	NumDays	10.00	78.00
tblConstructionPhase	NumDays	10.00	25.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00

UCR School of Medicine - Riverside-South Coast County, Annual

tblConstructionPhase	NumDaysWeek	5.00	6.00
tblEnergyUse	LightingElect	3.99	7.38
tblEnergyUse	NT24E	1.92	3.55
tblEnergyUse	NT24NG	0.01	0.00
tblEnergyUse	T24E	1.97	3.64
tblEnergyUse	T24NG	13.82	0.00
tblFleetMix	HHD	0.07	5.5540e-003
tblFleetMix	LDA	0.55	0.62
tblFleetMix	LDT1	0.04	0.04
tblFleetMix	LDT2	0.19	0.21
tblFleetMix	LHD1	0.01	0.00
tblFleetMix	LHD2	4.8060e-003	0.00
tblFleetMix	MCY	4.5080e-003	4.9390e-003
tblFleetMix	MDV	0.11	0.12
tblFleetMix	MH	8.9800e-004	8.7600e-004
tblFleetMix	MHD	0.02	0.00
tblFleetMix	OBUS	1.4090e-003	1.5720e-003
tblFleetMix	SBUS	9.1800e-004	9.9100e-004
tblFleetMix	UBUS	1.1470e-003	1.2470e-003
tblGrading	MaterialExported	0.00	16,355.00
tblLandUse	LandUseSquareFeet	41,354.43	120,000.00
tblLandUse	LotAcreage	0.95	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00

UCR School of Medicine - Riverside-South Coast County, Annual

tblSolidWaste	SolidWasteGenerationRate	41.06	26.00
tblTripsAndVMT	HaulingTripLength	20.00	8.00
tblTripsAndVMT	HaulingTripLength	20.00	8.00
tblTripsAndVMT	HaulingTripLength	20.00	8.00
tblTripsAndVMT	HaulingTripLength	20.00	8.00
tblTripsAndVMT	HaulingTripLength	20.00	8.00
tblTripsAndVMT	HaulingTripLength	20.00	8.00
tblVehicleTrips	ST_TR	1.30	1.95
tblVehicleTrips	WD_TR	1.71	2.57

2.0 Emissions Summary

UCR School of Medicine - Riverside-South Coast County, Annual

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.2265	2.3984	1.6531	3.5300e-003	0.5063	0.1069	0.6132	0.2520	0.0990	0.3510	0.0000	314.1641	314.1641	0.0789	0.0000	316.1374
2022	0.3146	2.7878	3.0431	6.1300e-003	0.1058	0.1287	0.2345	0.0285	0.1211	0.1496	0.0000	538.9381	538.9381	0.1047	0.0000	541.5559
2023	0.6821	1.0902	1.3948	2.6300e-003	0.0407	0.0504	0.0911	0.0109	0.0472	0.0581	0.0000	229.9209	229.9209	0.0503	0.0000	231.1775
Maximum	0.6821	2.7878	3.0431	6.1300e-003	0.5063	0.1287	0.6132	0.2520	0.1211	0.3510	0.0000	538.9381	538.9381	0.1047	0.0000	541.5559

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.0533	0.3955	1.8275	3.5300e-003	0.2176	6.4900e-003	0.2241	0.1037	6.4600e-003	0.1102	0.0000	314.1638	314.1638	0.0789	0.0000	316.1371
2022	0.1309	0.7374	3.3353	6.1300e-003	0.1058	0.0175	0.1233	0.0285	0.0175	0.0460	0.0000	538.9376	538.9376	0.1047	0.0000	541.5554
2023	0.6100	0.2688	1.5544	2.6300e-003	0.0407	7.5400e-003	0.0482	0.0109	7.5200e-003	0.0185	0.0000	229.9206	229.9206	0.0503	0.0000	231.1772
Maximum	0.6100	0.7374	3.3353	6.1300e-003	0.2176	0.0175	0.2241	0.1037	0.0175	0.1102	0.0000	538.9376	538.9376	0.1047	0.0000	541.5554

UCR School of Medicine - Riverside-South Coast County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	35.07	77.67	-10.28	0.00	44.22	88.97	57.85	50.87	88.23	68.74	0.00	0.00	0.00	0.00	0.00	0.00

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	7-1-2021	9-30-2021	1.1782	0.1631
2	10-1-2021	12-31-2021	1.4369	0.2819
3	1-1-2022	3-31-2022	0.7641	0.2135
4	4-1-2022	6-30-2022	0.7731	0.2164
5	7-1-2022	9-30-2022	0.7816	0.2188
6	10-1-2022	12-31-2022	0.7811	0.2182
7	1-1-2023	3-31-2023	0.8747	0.2294
8	4-1-2023	6-30-2023	0.9008	0.6480
		Highest	1.4369	0.6480

UCR School of Medicine - Riverside-South Coast County, Annual

2.2 Overall Operational**Unmitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.4895	3.0000e-005	2.8700e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	5.5800e-003	5.5800e-003	1.0000e-005	0.0000	5.9500e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1,051.1047	1,051.1047	0.0230	4.7600e-003	1,053.0973
Mobile	0.1114	0.1928	1.4412	4.8200e-003	0.5364	3.1700e-003	0.5395	0.1428	2.9300e-003	0.1457	0.0000	438.9708	438.9708	0.0147	0.0000	439.3371
Waste						0.0000	0.0000		0.0000	0.0000	5.2778	0.0000	5.2778	0.3119	0.0000	13.0754
Water						0.0000	0.0000		0.0000	0.0000	0.1528	8.8057	8.9585	0.0159	4.1000e-004	9.4781
Total	0.6009	0.1928	1.4440	4.8200e-003	0.5364	3.1800e-003	0.5395	0.1428	2.9400e-003	0.1457	5.4306	1,498.8867	1,504.3173	0.3655	5.1700e-003	1,514.9939

UCR School of Medicine - Riverside-South Coast County, Annual

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.4895	3.0000e-005	2.8700e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	5.5800e-003	5.5800e-003	1.0000e-005	0.0000	5.9500e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1,051.1047	1,051.1047	0.0230	4.7600e-003	1,053.0973
Mobile	0.1114	0.1928	1.4412	4.8200e-003	0.5364	3.1700e-003	0.5395	0.1428	2.9300e-003	0.1457	0.0000	438.9708	438.9708	0.0147	0.0000	439.3371
Waste						0.0000	0.0000		0.0000	0.0000	5.2778	0.0000	5.2778	0.3119	0.0000	13.0754
Water						0.0000	0.0000		0.0000	0.0000	0.1528	8.8057	8.9585	0.0159	4.1000e-004	9.4781
Total	0.6009	0.1928	1.4440	4.8200e-003	0.5364	3.1800e-003	0.5395	0.1428	2.9400e-003	0.1457	5.4306	1,498.8867	1,504.3173	0.3655	5.1700e-003	1,514.9939

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

UCR School of Medicine - Riverside-South Coast County, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	7/1/2021	7/15/2021	6	13	
2	Demolition	Demolition	7/16/2021	8/14/2021	6	26	
3	Grading	Grading	8/15/2021	12/15/2021	6	105	
4	Building Construction	Building Construction	11/15/2021	4/17/2023	6	445	
5	Paving	Paving	2/16/2023	5/17/2023	6	78	
6	Architectural Coating	Architectural Coating	5/17/2023	6/14/2023	6	25	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 52.5

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 180,000; Non-Residential Outdoor: 60,000; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

UCR School of Medicine - Riverside-South Coast County, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	1	8.00	158	0.38
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Demolition	Skid Steer Loaders	1	8.00	65	0.37
Demolition	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rollers	1	8.00	80	0.38
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Excavators	1	8.00	158	0.38
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	2	6.00	132	0.36
Paving	Rollers	2	6.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

UCR School of Medicine - Riverside-South Coast County, Annual

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	8.00	LD_Mix	HDT_Mix	HHDT
Demolition	5	13.00	0.00	99.00	14.70	6.90	8.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	2,044.00	14.70	6.90	8.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	50.00	20.00	0.00	14.70	6.90	8.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	14.70	6.90	8.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	10.00	0.00	0.00	14.70	6.90	8.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

3.2 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1174	0.0000	0.1174	0.0646	0.0000	0.0646	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0253	0.2632	0.1375	2.5000e-004		0.0133	0.0133		0.0122	0.0122	0.0000	21.7332	21.7332	7.0300e-003	0.0000	21.9089
Total	0.0253	0.2632	0.1375	2.5000e-004	0.1174	0.0133	0.1307	0.0646	0.0122	0.0768	0.0000	21.7332	21.7332	7.0300e-003	0.0000	21.9089

UCR School of Medicine - Riverside-South Coast County, Annual

3.2 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-004	3.4000e-004	3.6800e-003	1.0000e-005	1.2900e-003	1.0000e-005	1.2900e-003	3.4000e-004	1.0000e-005	3.5000e-004	0.0000	1.0400	1.0400	2.0000e-005	0.0000	1.0406
Total	5.0000e-004	3.4000e-004	3.6800e-003	1.0000e-005	1.2900e-003	1.0000e-005	1.2900e-003	3.4000e-004	1.0000e-005	3.5000e-004	0.0000	1.0400	1.0400	2.0000e-005	0.0000	1.0406

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0458	0.0000	0.0458	0.0252	0.0000	0.0252	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.0300e-003	0.0131	0.1357	2.5000e-004		4.0000e-004	4.0000e-004		4.0000e-004	4.0000e-004	0.0000	21.7332	21.7332	7.0300e-003	0.0000	21.9089
Total	3.0300e-003	0.0131	0.1357	2.5000e-004	0.0458	4.0000e-004	0.0462	0.0252	4.0000e-004	0.0256	0.0000	21.7332	21.7332	7.0300e-003	0.0000	21.9089

UCR School of Medicine - Riverside-South Coast County, Annual

3.2 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-004	3.4000e-004	3.6800e-003	1.0000e-005	1.2900e-003	1.0000e-005	1.2900e-003	3.4000e-004	1.0000e-005	3.5000e-004	0.0000	1.0400	1.0400	2.0000e-005	0.0000	1.0406
Total	5.0000e-004	3.4000e-004	3.6800e-003	1.0000e-005	1.2900e-003	1.0000e-005	1.2900e-003	3.4000e-004	1.0000e-005	3.5000e-004	0.0000	1.0400	1.0400	2.0000e-005	0.0000	1.0406

3.3 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0108	0.0000	0.0108	1.6300e-003	0.0000	1.6300e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0250	0.2478	0.1902	3.3000e-004		0.0125	0.0125		0.0117	0.0117	0.0000	28.5555	28.5555	7.3800e-003	0.0000	28.7400
Total	0.0250	0.2478	0.1902	3.3000e-004	0.0108	0.0125	0.0233	1.6300e-003	0.0117	0.0133	0.0000	28.5555	28.5555	7.3800e-003	0.0000	28.7400

UCR School of Medicine - Riverside-South Coast County, Annual

3.3 Demolition - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.6000e-004	7.4800e-003	9.2000e-004	2.0000e-005	3.4000e-004	1.0000e-005	3.6000e-004	9.0000e-005	1.0000e-005	1.1000e-004	0.0000	1.8148	1.8148	1.8000e-004	0.0000	1.8193
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.2000e-004	4.9000e-004	5.3200e-003	2.0000e-005	1.8600e-003	1.0000e-005	1.8700e-003	4.9000e-004	1.0000e-005	5.0000e-004	0.0000	1.5022	1.5022	3.0000e-005	0.0000	1.5030
Total	8.8000e-004	7.9700e-003	6.2400e-003	4.0000e-005	2.2000e-003	2.0000e-005	2.2300e-003	5.8000e-004	2.0000e-005	6.1000e-004	0.0000	3.3170	3.3170	2.1000e-004	0.0000	3.3223

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					4.2000e-003	0.0000	4.2000e-003	6.4000e-004	0.0000	6.4000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.1500e-003	0.0302	0.2018	3.3000e-004		5.1000e-004	5.1000e-004		5.1000e-004	5.1000e-004	0.0000	28.5554	28.5554	7.3800e-003	0.0000	28.7399
Total	4.1500e-003	0.0302	0.2018	3.3000e-004	4.2000e-003	5.1000e-004	4.7100e-003	6.4000e-004	5.1000e-004	1.1500e-003	0.0000	28.5554	28.5554	7.3800e-003	0.0000	28.7399

UCR School of Medicine - Riverside-South Coast County, Annual

3.3 Demolition - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.6000e-004	7.4800e-003	9.2000e-004	2.0000e-005	3.4000e-004	1.0000e-005	3.6000e-004	9.0000e-005	1.0000e-005	1.1000e-004	0.0000	1.8148	1.8148	1.8000e-004	0.0000	1.8193
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.2000e-004	4.9000e-004	5.3200e-003	2.0000e-005	1.8600e-003	1.0000e-005	1.8700e-003	4.9000e-004	1.0000e-005	5.0000e-004	0.0000	1.5022	1.5022	3.0000e-005	0.0000	1.5030
Total	8.8000e-004	7.9700e-003	6.2400e-003	4.0000e-005	2.2000e-003	2.0000e-005	2.2300e-003	5.8000e-004	2.0000e-005	6.1000e-004	0.0000	3.3170	3.3170	2.1000e-004	0.0000	3.3223

3.4 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3450	0.0000	0.3450	0.1770	0.0000	0.1770	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1226	1.3137	0.8657	1.6400e-003		0.0608	0.0608		0.0560	0.0560	0.0000	144.0441	144.0441	0.0466	0.0000	145.2088
Total	0.1226	1.3137	0.8657	1.6400e-003	0.3450	0.0608	0.4059	0.1770	0.0560	0.2329	0.0000	144.0441	144.0441	0.0466	0.0000	145.2088

UCR School of Medicine - Riverside-South Coast County, Annual

3.4 Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.2500e-003	0.1544	0.0190	3.9000e-004	7.0600e-003	2.9000e-004	7.3500e-003	1.9400e-003	2.8000e-004	2.2200e-003	0.0000	37.4697	37.4697	3.6800e-003	0.0000	37.5616
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.3800e-003	2.2800e-003	0.0248	8.0000e-005	8.6600e-003	5.0000e-005	8.7100e-003	2.3000e-003	5.0000e-005	2.3500e-003	0.0000	6.9997	6.9997	1.6000e-004	0.0000	7.0037
Total	6.6300e-003	0.1567	0.0438	4.7000e-004	0.0157	3.4000e-004	0.0161	4.2400e-003	3.3000e-004	4.5700e-003	0.0000	44.4694	44.4694	3.8400e-003	0.0000	44.5654

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1346	0.0000	0.1346	0.0690	0.0000	0.0690	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0201	0.0871	0.9959	1.6400e-003		2.6800e-003	2.6800e-003		2.6800e-003	2.6800e-003	0.0000	144.0440	144.0440	0.0466	0.0000	145.2086
Total	0.0201	0.0871	0.9959	1.6400e-003	0.1346	2.6800e-003	0.1372	0.0690	2.6800e-003	0.0717	0.0000	144.0440	144.0440	0.0466	0.0000	145.2086

UCR School of Medicine - Riverside-South Coast County, Annual

3.4 Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.2500e-003	0.1544	0.0190	3.9000e-004	7.0600e-003	2.9000e-004	7.3500e-003	1.9400e-003	2.8000e-004	2.2200e-003	0.0000	37.4697	37.4697	3.6800e-003	0.0000	37.5616
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.3800e-003	2.2800e-003	0.0248	8.0000e-005	8.6600e-003	5.0000e-005	8.7100e-003	2.3000e-003	5.0000e-005	2.3500e-003	0.0000	6.9997	6.9997	1.6000e-004	0.0000	7.0037
Total	6.6300e-003	0.1567	0.0438	4.7000e-004	0.0157	3.4000e-004	0.0161	4.2400e-003	3.3000e-004	4.5700e-003	0.0000	44.4694	44.4694	3.8400e-003	0.0000	44.5654

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0403	0.3675	0.3663	6.0000e-004		0.0198	0.0198		0.0186	0.0186	0.0000	51.8914	51.8914	0.0129	0.0000	52.2135
Total	0.0403	0.3675	0.3663	6.0000e-004		0.0198	0.0198		0.0186	0.0186	0.0000	51.8914	51.8914	0.0129	0.0000	52.2135

UCR School of Medicine - Riverside-South Coast County, Annual

3.5 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	9.8000e-004	0.0382	7.3600e-003	1.0000e-004	2.5900e-003	7.0000e-005	2.6600e-003	7.5000e-004	7.0000e-005	8.2000e-004	0.0000	10.0029	10.0029	7.6000e-004	0.0000	10.0220
Worker	4.3900e-003	2.9600e-003	0.0323	1.0000e-004	0.0113	7.0000e-005	0.0113	2.9900e-003	6.0000e-005	3.0500e-003	0.0000	9.1107	9.1107	2.1000e-004	0.0000	9.1160
Total	5.3700e-003	0.0412	0.0396	2.0000e-004	0.0139	1.4000e-004	0.0140	3.7400e-003	1.3000e-004	3.8700e-003	0.0000	19.1136	19.1136	9.7000e-004	0.0000	19.1380

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0127	0.0589	0.4008	6.0000e-004		2.3800e-003	2.3800e-003		2.3800e-003	2.3800e-003	0.0000	51.8914	51.8914	0.0129	0.0000	52.2134
Total	0.0127	0.0589	0.4008	6.0000e-004		2.3800e-003	2.3800e-003		2.3800e-003	2.3800e-003	0.0000	51.8914	51.8914	0.0129	0.0000	52.2134

UCR School of Medicine - Riverside-South Coast County, Annual

3.5 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	9.8000e-004	0.0382	7.3600e-003	1.0000e-004	2.5900e-003	7.0000e-005	2.6600e-003	7.5000e-004	7.0000e-005	8.2000e-004	0.0000	10.0029	10.0029	7.6000e-004	0.0000	10.0220
Worker	4.3900e-003	2.9600e-003	0.0323	1.0000e-004	0.0113	7.0000e-005	0.0113	2.9900e-003	6.0000e-005	3.0500e-003	0.0000	9.1107	9.1107	2.1000e-004	0.0000	9.1160
Total	5.3700e-003	0.0412	0.0396	2.0000e-004	0.0139	1.4000e-004	0.0140	3.7400e-003	1.3000e-004	3.8700e-003	0.0000	19.1136	19.1136	9.7000e-004	0.0000	19.1380

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2762	2.4925	2.7638	4.6000e-003		0.1277	0.1277		0.1201	0.1201	0.0000	396.2172	396.2172	0.0977	0.0000	398.6606
Total	0.2762	2.4925	2.7638	4.6000e-003		0.1277	0.1277		0.1201	0.1201	0.0000	396.2172	396.2172	0.0977	0.0000	398.6606

UCR School of Medicine - Riverside-South Coast County, Annual

3.5 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.9700e-003	0.2750	0.0523	7.9000e-004	0.0198	4.7000e-004	0.0202	5.7000e-003	4.5000e-004	6.1500e-003	0.0000	75.7067	75.7067	5.5200e-003	0.0000	75.8447
Worker	0.0314	0.0203	0.2269	7.4000e-004	0.0860	5.0000e-004	0.0865	0.0228	4.6000e-004	0.0233	0.0000	67.0142	67.0142	1.4600e-003	0.0000	67.0506
Total	0.0384	0.2953	0.2792	1.5300e-003	0.1058	9.7000e-004	0.1068	0.0285	9.1000e-004	0.0295	0.0000	142.7209	142.7209	6.9800e-003	0.0000	142.8953

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0925	0.4421	3.0561	4.6000e-003		0.0166	0.0166		0.0166	0.0166	0.0000	396.2167	396.2167	0.0977	0.0000	398.6601
Total	0.0925	0.4421	3.0561	4.6000e-003		0.0166	0.0166		0.0166	0.0166	0.0000	396.2167	396.2167	0.0977	0.0000	398.6601

UCR School of Medicine - Riverside-South Coast County, Annual

3.5 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.9700e-003	0.2750	0.0523	7.9000e-004	0.0198	4.7000e-004	0.0202	5.7000e-003	4.5000e-004	6.1500e-003	0.0000	75.7067	75.7067	5.5200e-003	0.0000	75.8447
Worker	0.0314	0.0203	0.2269	7.4000e-004	0.0860	5.0000e-004	0.0865	0.0228	4.6000e-004	0.0233	0.0000	67.0142	67.0142	1.4600e-003	0.0000	67.0506
Total	0.0384	0.2953	0.2792	1.5300e-003	0.1058	9.7000e-004	0.1068	0.0285	9.1000e-004	0.0295	0.0000	142.7209	142.7209	6.9800e-003	0.0000	142.8953

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0741	0.6638	0.7985	1.3400e-003		0.0323	0.0323		0.0304	0.0304	0.0000	115.2219	115.2219	0.0282	0.0000	115.9279
Total	0.0741	0.6638	0.7985	1.3400e-003		0.0323	0.0323		0.0304	0.0304	0.0000	115.2219	115.2219	0.0282	0.0000	115.9279

UCR School of Medicine - Riverside-South Coast County, Annual

3.5 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.5500e-003	0.0598	0.0132	2.2000e-004	5.7500e-003	6.0000e-005	5.8100e-003	1.6600e-003	6.0000e-005	1.7200e-003	0.0000	21.4307	21.4307	1.2300e-003	0.0000	21.4614
Worker	8.5800e-003	5.3300e-003	0.0608	2.1000e-004	0.0250	1.4000e-004	0.0252	6.6400e-003	1.3000e-004	6.7700e-003	0.0000	18.7439	18.7439	3.8000e-004	0.0000	18.7534
Total	0.0101	0.0651	0.0741	4.3000e-004	0.0308	2.0000e-004	0.0310	8.3000e-003	1.9000e-004	8.4900e-003	0.0000	40.1746	40.1746	1.6100e-003	0.0000	40.2148

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0259	0.1266	0.8877	1.3400e-003		4.4200e-003	4.4200e-003		4.4200e-003	4.4200e-003	0.0000	115.2217	115.2217	0.0282	0.0000	115.9278
Total	0.0259	0.1266	0.8877	1.3400e-003		4.4200e-003	4.4200e-003		4.4200e-003	4.4200e-003	0.0000	115.2217	115.2217	0.0282	0.0000	115.9278

UCR School of Medicine - Riverside-South Coast County, Annual

3.5 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.5500e-003	0.0598	0.0132	2.2000e-004	5.7500e-003	6.0000e-005	5.8100e-003	1.6600e-003	6.0000e-005	1.7200e-003	0.0000	21.4307	21.4307	1.2300e-003	0.0000	21.4614
Worker	8.5800e-003	5.3300e-003	0.0608	2.1000e-004	0.0250	1.4000e-004	0.0252	6.6400e-003	1.3000e-004	6.7700e-003	0.0000	18.7439	18.7439	3.8000e-004	0.0000	18.7534
Total	0.0101	0.0651	0.0741	4.3000e-004	0.0308	2.0000e-004	0.0310	8.3000e-003	1.9000e-004	8.4900e-003	0.0000	40.1746	40.1746	1.6100e-003	0.0000	40.2148

3.6 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0358	0.3428	0.4754	7.4000e-004		0.0170	0.0170		0.0157	0.0157	0.0000	63.8765	63.8765	0.0201	0.0000	64.3783
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0358	0.3428	0.4754	7.4000e-004		0.0170	0.0170		0.0157	0.0157	0.0000	63.8765	63.8765	0.0201	0.0000	64.3783

UCR School of Medicine - Riverside-South Coast County, Annual

3.6 Paving - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.9400e-003	1.8300e-003	0.0209	7.0000e-005	8.5700e-003	5.0000e-005	8.6200e-003	2.2800e-003	4.0000e-005	2.3200e-003	0.0000	6.4265	6.4265	1.3000e-004	0.0000	6.4297
Total	2.9400e-003	1.8300e-003	0.0209	7.0000e-005	8.5700e-003	5.0000e-005	8.6200e-003	2.2800e-003	4.0000e-005	2.3200e-003	0.0000	6.4265	6.4265	1.3000e-004	0.0000	6.4297

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0120	0.0586	0.5458	7.4000e-004		1.9800e-003	1.9800e-003		1.9800e-003	1.9800e-003	0.0000	63.8764	63.8764	0.0201	0.0000	64.3782
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0120	0.0586	0.5458	7.4000e-004		1.9800e-003	1.9800e-003		1.9800e-003	1.9800e-003	0.0000	63.8764	63.8764	0.0201	0.0000	64.3782

UCR School of Medicine - Riverside-South Coast County, Annual

3.6 Paving - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.9400e-003	1.8300e-003	0.0209	7.0000e-005	8.5700e-003	5.0000e-005	8.6200e-003	2.2800e-003	4.0000e-005	2.3200e-003	0.0000	6.4265	6.4265	1.3000e-004	0.0000	6.4297
Total	2.9400e-003	1.8300e-003	0.0209	7.0000e-005	8.5700e-003	5.0000e-005	8.6200e-003	2.2800e-003	4.0000e-005	2.3200e-003	0.0000	6.4265	6.4265	1.3000e-004	0.0000	6.4297

3.7 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.5562					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.4000e-003	0.0163	0.0226	4.0000e-005		8.9000e-004	8.9000e-004		8.9000e-004	8.9000e-004	0.0000	3.1916	3.1916	1.9000e-004	0.0000	3.1963
Total	0.5586	0.0163	0.0226	4.0000e-005		8.9000e-004	8.9000e-004		8.9000e-004	8.9000e-004	0.0000	3.1916	3.1916	1.9000e-004	0.0000	3.1963

UCR School of Medicine - Riverside-South Coast County, Annual

3.7 Architectural Coating - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.7000e-004	2.9000e-004	3.3400e-003	1.0000e-005	1.3700e-003	1.0000e-005	1.3800e-003	3.6000e-004	1.0000e-005	3.7000e-004	0.0000	1.0299	1.0299	2.0000e-005	0.0000	1.0304
Total	4.7000e-004	2.9000e-004	3.3400e-003	1.0000e-005	1.3700e-003	1.0000e-005	1.3800e-003	3.6000e-004	1.0000e-005	3.7000e-004	0.0000	1.0299	1.0299	2.0000e-005	0.0000	1.0304

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.5562					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.4000e-003	0.0163	0.0226	4.0000e-005		8.9000e-004	8.9000e-004		8.9000e-004	8.9000e-004	0.0000	3.1916	3.1916	1.9000e-004	0.0000	3.1963
Total	0.5586	0.0163	0.0226	4.0000e-005		8.9000e-004	8.9000e-004		8.9000e-004	8.9000e-004	0.0000	3.1916	3.1916	1.9000e-004	0.0000	3.1963

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3.7 Architectural Coating - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.7000e-004	2.9000e-004	3.3400e-003	1.0000e-005	1.3700e-003	1.0000e-005	1.3800e-003	3.6000e-004	1.0000e-005	3.7000e-004	0.0000	1.0299	1.0299	2.0000e-005	0.0000	1.0304
Total	4.7000e-004	2.9000e-004	3.3400e-003	1.0000e-005	1.3700e-003	1.0000e-005	1.3800e-003	3.6000e-004	1.0000e-005	3.7000e-004	0.0000	1.0299	1.0299	2.0000e-005	0.0000	1.0304

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.1114	0.1928	1.4412	4.8200e-003	0.5364	3.1700e-003	0.5395	0.1428	2.9300e-003	0.1457	0.0000	438.9708	438.9708	0.0147	0.0000	439.3371
Unmitigated	0.1114	0.1928	1.4412	4.8200e-003	0.5364	3.1700e-003	0.5395	0.1428	2.9300e-003	0.1457	0.0000	438.9708	438.9708	0.0147	0.0000	439.3371

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
University/College (4Yr)	578.25	438.75	0.00	1,428,992	1,428,992
Total	578.25	438.75	0.00	1,428,992	1,428,992

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
University/College (4Yr)	16.60	8.40	6.90	6.40	88.60	5.00	91	9	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
University/College (4Yr)	0.615742	0.039295	0.209628	0.120156	0.000000	0.000000	0.000000	0.005554	0.001572	0.001247	0.004939	0.000991	0.000876

5.0 Energy Detail

Historical Energy Use: N

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5.2 Energy by Land Use - Natural Gas

Mitigated

	Natural Gas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
University/College (4Yr)	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000							

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
University/College (4Yr)	1.74804e+006	1,051.1047	0.0230	4.7600e-003	1,053.0973
Total		1,051.1047	0.0230	4.7600e-003	1,053.0973

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5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
University/College (4Yr)	1.74804e+006	1,051.1047	0.0230	4.7600e-003	1,053.0973
Total		1,051.1047	0.0230	4.7600e-003	1,053.0973

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.4895	3.0000e-005	2.8700e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	5.5800e-003	5.5800e-003	1.0000e-005	0.0000	5.9500e-003
Unmitigated	0.4895	3.0000e-005	2.8700e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	5.5800e-003	5.5800e-003	1.0000e-005	0.0000	5.9500e-003

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6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0556					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.4336					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.7000e-004	3.0000e-005	2.8700e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	5.5800e-003	5.5800e-003	1.0000e-005	0.0000	5.9500e-003
Total	0.4895	3.0000e-005	2.8700e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	5.5800e-003	5.5800e-003	1.0000e-005	0.0000	5.9500e-003

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0556					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.4336					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.7000e-004	3.0000e-005	2.8700e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	5.5800e-003	5.5800e-003	1.0000e-005	0.0000	5.9500e-003
Total	0.4895	3.0000e-005	2.8700e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	5.5800e-003	5.5800e-003	1.0000e-005	0.0000	5.9500e-003

7.0 Water Detail

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7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	8.9585	0.0159	4.1000e-004	9.4781
Unmitigated	8.9585	0.0159	4.1000e-004	9.4781

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
University/College (4Yr)	0.481748 / 0.753502	8.9585	0.0159	4.1000e-004	9.4781
Total		8.9585	0.0159	4.1000e-004	9.4781

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7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
University/College (4Yr)	0.481748 / 0.753502	8.9585	0.0159	4.1000e-004	9.4781
Total		8.9585	0.0159	4.1000e-004	9.4781

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	5.2778	0.3119	0.0000	13.0754
Unmitigated	5.2778	0.3119	0.0000	13.0754

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8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
University/College (4Yr)	26	5.2778	0.3119	0.0000	13.0754
Total		5.2778	0.3119	0.0000	13.0754

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
University/College (4Yr)	26	5.2778	0.3119	0.0000	13.0754
Total		5.2778	0.3119	0.0000	13.0754

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

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

11.0 Vegetation

APPENDIX B
TREE INVENTORY REPORT

December 16, 2020

Jaime Engbrecht
Planner
Planning, Design, and Construction
University of California, Riverside
223 University Avenue, Suite 240
Riverside, California 92507

VIA EMAIL
Jaime.Engbrecht@ucr.edu

Subject: Tree Inventory Report for the School of Medicine Education Building II Project Site,
University of California Riverside

Dear Ms. Engbrecht:

Psomas is pleased to provide the following tree inventory report for the School of Medicine (SoM) Education Building II Project site located on the campus of the University of California, Riverside (UCR) (Exhibit 1). The purpose of this Tree Inventory Report is to identify trees that occur within the limits of the Project site to support preparation of environmental documentation pursuant to the California Environmental Quality Act (CEQA).

PROJECT LOCATION

The Project site is located in the eastern portion of the UCR main campus, generally southwest of the intersection of East Campus Drive and Botanic Gardens Drive and east of Boyce Hall. The survey area for this report includes Parking Lot 40 (which contains the existing School of Medicine modular trailer), Scotty's Market, Greenhouse #6, Parking Lots 10, D17, and 41, and other adjacent hardscape and landscape areas.

PROJECT DESCRIPTION

The proposed Project consists of the demolition of the existing greenhouse/headhouse #6, and removal of existing asphalt/concrete, landscape, and parking spaces in Parking Lot 40 and Parking Lot D17. These areas are located west of East Campus Drive and are collectively referred to as the Project site as shown on Exhibit 2.

Once demolition activities are complete, the approximately 120,000 gross-square-foot SoM Education Building II would be constructed, which will consist of instructional, collaboration, and student life space, as well as office and support spaces. The proposed Project will also include a service loading area, stationary equipment (e.g., heating, ventilation, and air conditioning), landscaping, fire and emergency access improvements, and other associated site improvements.

Parking Lots 10 and 41, located east of the Project site, will be utilized for construction parking and as a laydown and staging area. Parking Lot 10 will also be used as a temporary relocation site for the existing modular that is currently located in Parking Lot 40.

225 South Lake Avenue
Suite 1000
Pasadena, CA 91101

Tel 626.351.2000
Fax 626.351.2030
www.Psomas.com

Ms. Jaime Engbrecht
 December 16, 2020
 Page 2

METHODS

Psomas Certified Arborist David Hughes (International Society of Arboriculture Certificate No. WE-7752A) visited the Project site on October 13, 2020 to document the type, quantity, and condition of trees that exist in the survey area.

During the survey, each tree was assigned an individual number and the following data were collected: trunk diameter at breast height (dbh), tree height, and canopy width. The health and aesthetic quality of each tree were assessed and rated on a scale of 1 (poor) to 5 (excellent). The collected data are included in Attachment A and described in more detail below.

EXISTING TREE RESOURCES

During the October 13, 2020 field survey, a total of 92 trees were documented in the survey area with 2 additional trees that are located immediately adjacent to the Project site boundary (Exhibit 2). Most of these trees are located in the areas west of East Campus Drive (the Project construction area in Parking Lots 40 and D17 and adjacent areas). In this area, a total of 80 trees are found, including: 3 Queensland pittosporums (*Auranticarpa rhombifolia*), 1 purple orchid tree (*Bauhinia variegata*), 2 weeping bottlebrush trees (*Callistemon viminalis*), 5 pecans (*Carya illinoensis*), 4 floss silk trees (*Ceiba speciosa*), 19 grapefruit trees (*Citrus X paradisi*), 1 carrotwood (*Cupaniopsis anacardioides*), 9 Italian cypress (*Cupressus sempervirens*), 4 South African coral trees (*Erythrina caffra*), 1 Shamel ash (*Fraxinus uhdei*), 5 jacarandas (*Jacaranda mimosifolia*), 3 glossy privets (*Ligustrum lucidum*), 1 Pygmy date palm (*Phoenix roebelenii*), 1 western sycamore (*Platanus racemosa*), 2 London plane trees (*Platanus X hispanica*), 2 flowering pears (*Pyrus calleryana*), 4 coast live oaks (*Quercus agrifolia*), 5 cork oaks (*Quercus suber*), 1 interior live oak (*Quercus wislizeni*), 3 Brazilian pepper trees (*Schinus terebinthifolius*), 2 queen palms (*Syagrus romanzoffiana*), 1 windmill palm (*Trachycarpus fortunei*), and 1 unidentified ornamental tree. The unidentified tree did not have any flowers or fruits to aid in identification and the leaves were at a height that they could not be carefully examined.

The 19 grapefruit trees listed above are all between 4 to 7 inches in trunk diameter and 6 to 12 feet in height. These grapefruits are better described as saplings or bushes rather than trees based on their size.

Parking Lot 10, where the existing modular may be relocated, contains 5 trees in the interior of the parking lot: 1 deodar cedar (*Cedrus deodara*), 1 Aleppo pine (*Pinus halepensis*), and 3 Torrey pines (*Pinus torreyana*). Additionally, 5 other trees occur along the periphery of the parking lot, including 1 coast live oak, 1 Southern California black walnut (*Juglans californica*), 1 goldenrain tree (*Koelreuteria paniculata*), 1 locust (*Robinia* sp.), and 1 Brazilian pepper tree.

Parking Lot 41, which may serve as a laydown/storage area, contains 4 trees at the lot entrance. These include 3 jacarandas and 1 weeping bottlebrush.

Trees in the survey area are generally in average or good health and are were planted as part of designed landscaping. A summary of all trees in the survey area is provided in Table 1.

TABLE 1
SUMMARY OF TREES IN SURVEY AREA

Tree Species		Quantity	DBH Size Range (in) ^a
Scientific Name	Common Name		
Project Site (Areas west of East Campus Drive)			
<i>Auranticarpa rhombifolia</i>	Queensland pittosporum	3	2.7–12.3
<i>Bauhinia variegata</i>	purple orchid tree	1	16.5
<i>Callistemon viminalis</i>	weeping bottlebrush	2	7.9–14.8
<i>Carya illinoensis</i>	pecan	5	8.0–18.3
<i>Ceiba speciosa</i>	floss silk	4	10.6–23.2
<i>Citrus X paradisi</i>	grapefruit	19	4.0–7.3
<i>Cupaniopsis anacardioides</i>	carrotwood	1	16.1
<i>Cupressus sempervirens</i>	Italian cypress	9	5.0–6.0
<i>Erythrina caffra</i>	South African coral tree	4	21.0–33.9
<i>Fraxinus uhdei</i>	Shamel ash	1	6.5
<i>Jacaranda mimosifolia</i>	jacaranda	5	13.1–19.5
<i>Ligustrum lucidum</i>	glossy privet	3	2.0–3.2
<i>Phoenix roebelenii</i>	Pygmy date palm	1	7.7
<i>Platanus racemosa</i> ^b	western sycamore	1	23.5
<i>Platanus X hispanica</i>	London plane	2	10.5–10.9
<i>Pyrus calleryana</i>	flowering pear	2	12.8–16.0
<i>Quercus agrifolia</i> ^b	coast live oak	4	4.0–13.0
<i>Quercus suber</i>	cork oak	5	7.0–12.8
<i>Quercus wislizeni</i> ^b	interior live oak	1	8.7
<i>Schinus terebinthifolius</i>	Brazilian pepper tree	3	8.2–45.0
<i>Syagrus romanzoffiana</i>	queen palm	2	19.5–19.8
<i>Trachycarpus fortune</i>	windmill palm	1	6.5
unidentified non-native tree species		1	11.9
Subtotal		80	
Parking Lot 10			
<i>Cedrus deodara</i>	deodar cedar	1	14.2
<i>Quercus agrifolia</i> ^b	coast live oak	1	11.6
<i>Juglans californica</i>	So. California black walnut	1	11.0
<i>Koelreuteria paniculata</i>	goldenrain tree	1	15.2
<i>Pinus halepensis</i>	Aleppo pine	1	49.3
<i>Pinus torreyana</i>	Torrey pine	3	2.7–12.3
<i>Robinia sp.</i>	locust	1	5.0
<i>Schinus terebinthifolius</i>	Brazilian pepper tree	1	4.5
Subtotal		10	
Parking Lot 41			
<i>Callistemon viminalis</i>	weeping bottlebrush	1	6.0
<i>Jacaranda mimosifolia</i>	jacaranda	3	2.7–12.3
Subtotal		4	
Total		94	
DBH: trunk diameter at breast height; in: inches			
^a The DBH of multi-trunk trees are represented as the sum of the largest two trunks.			
^b Native tree species.			

EXPECTED TREE IMPACTS

All trees on the Project site are expected to be removed during project construction activities. Trees within this area will be avoided as possible during construction, but this impact assessment assumes removal of all 80 trees that occur there. These 80 trees consist of 6 native tree species (1 western sycamore, 4 coast live oaks, and 1 interior live oak) along with 74 non-native tree species.

No trees will be impacted in Parking Lots 10 or 41. All trees will be protected in place.

Currently, UCR does not have a tree preservation policy or ordinance in place. Trees would be replaced at a minimum 1:1 ratio in accordance with the draft *UCR Tree Preservation and Replacement Guidelines*.

**TABLE 2
 EXPECTED TREE REMOVALS**

Tree Species		Quantity Proposed for Removal
Scientific Name	Common Name	
<i>Auranticarpa rhombifolia</i>	Queensland pittosporum	3
<i>Bauhinia variegata</i>	purple orchid tree	1
<i>Callistemon viminalis</i>	weeping bottlebrush	2
<i>Carya illinoensis</i>	pecan	5
<i>Ceiba speciosa</i>	floss silk	4
<i>Citrus X paradisi</i>	grapefruit	19
<i>Cupaniopsis anacardioides</i>	carrotwood	1
<i>Cupressus sempervirens</i>	Italian cypress	9
<i>Erythrina caffra</i>	South African coral tree	4
<i>Fraxinus uhdei</i>	Shamel ash	1
<i>Jacaranda mimosifolia</i>	jacaranda	5
<i>Ligustrum lucidum</i>	glossy privet	3
<i>Phoenix roebelenii</i>	Pygmy date palm	1
<i>Platanus racemosa</i> ^a	western sycamore	1
<i>Platanus X hispanica</i>	London plane	2
<i>Pyrus calleryana</i>	flowering pear	2
<i>Quercus agrifolia</i> ^a	coast live oak	4
<i>Quercus suber</i>	cork oak	5
<i>Quercus wislizeni</i> ^a	interior live oak	1
<i>Schinus terebinthifolius</i>	Brazilian pepper tree	3
<i>Syagrus romanzoffiana</i>	queen palm	2
<i>Trachycarpus fortune</i>	windmill palm	1
unidentified non-native tree species		1
Total		80

^a Native tree species.

Ms. Jaime Engbrecht
December 16, 2020
Page 5

RECOMMENDATIONS

The following measures are recommended to avoid or minimize impacts to trees in the survey area that may result from Project construction activities:

1. Prior to the initiation of construction activities, a Certified Arborist shall be consulted to discuss methods of protection for any of the trees that are listed as removals in this report but determined to be protected in place during construction. Ground disturbing activity under any tree's canopy shall be overseen by a Certified Arborist.
2. Prior to the initiation of construction activities, protective fencing shall be placed around all trees that are in the Project construction area and are intended to remain in place. Protective fencing should extend to at least five feet outside the outer canopy of any tree to remain. No ground disturbances, storage of construction materials, or entrance by Project personnel should occur within the protected zone of any tree during the Project construction.
3. The draft UCR Tree Preservation and Replacement Guidelines will be used to determine the appropriate tree replacement ratio and measures to protect trees that are identified in the survey area to remain.

Please call David Hughes at (626) 204-6530 with any questions related to this report.

Sincerely,

P S O M A S

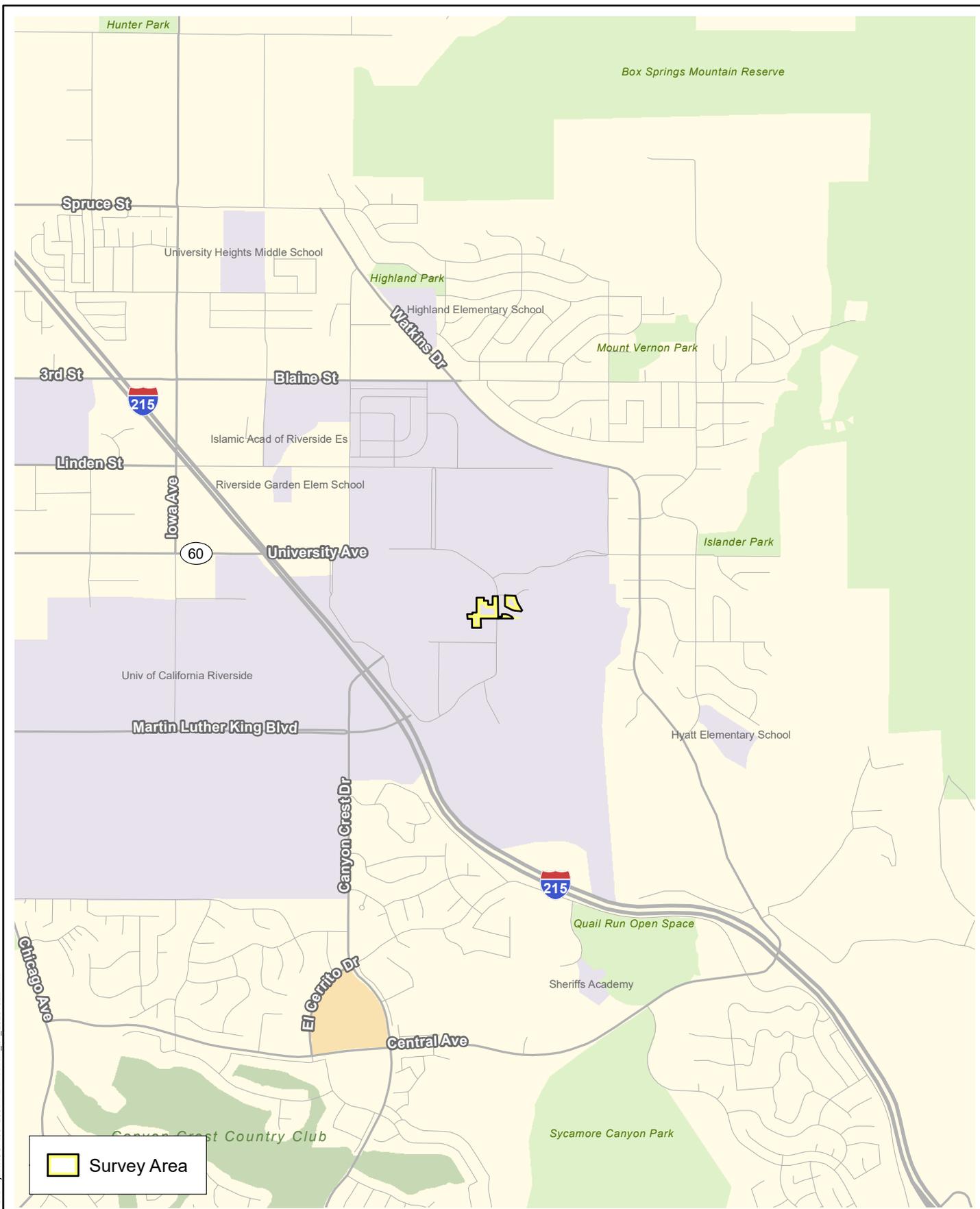


Ann M. Johnston
Vice President, Resource Management



David T. Hughes
Certified Arborist
International Society of Arboriculture
Certificate No. WE-7752A

Attachments: Exhibits 1 and 2
A – Tree Survey Data

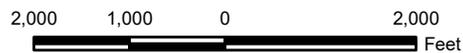


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Local Vicinity

Tree Inventory Report for the School of Medicine Education Building II Project

Exhibit 1

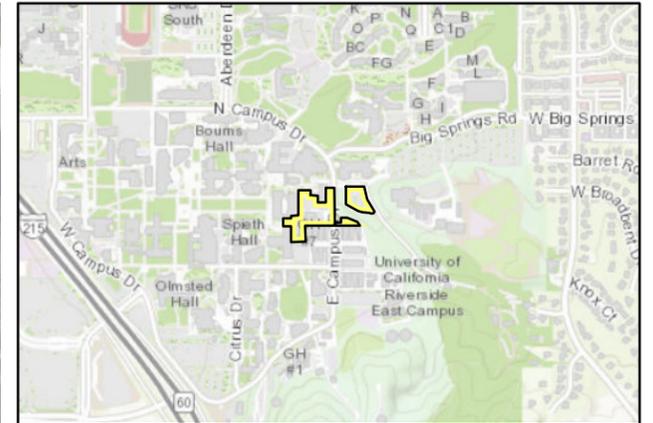


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Parking Lot 10 utilized for construction parking, laydown, staging, and as a temporary location for SoM modular trailer. All trees protected in place.

Parking Lot 41 utilized for construction parking, laydown, staging. All trees protected in place.



- Survey Area**
- Tree Species**
- Queensland pittosporum (*Auranticarpa rhombifolia*)
 - purple orchid tree (*Bauhinia variegata*)
 - weeping bottlebrush (*Callistemon viminalis*)
 - pecan (*Carya illinoensis*)
 - deodar cedar (*Cedrus deodara*)
 - floss silk (*Ceiba speciosa*)
 - grapefruit (*Citrus X paradisi*)
 - carrotwood (*Cupaniopsis anacardioides*)
 - Italian cypress (*Cupressus sempervirens*)
 - South African coral tree (*Erythrina caffra*)
 - Shamel ash (*Fraxinus uhdei*)
 - jacaranda (*Jacaranda mimosifolia*)
 - Southern California black walnut (*Juglans californica*)
 - goldenrain tree (*Koelreuteria paniculata*)
 - glossy privet (*Ligustrum lucidum*)
 - Pygmy date palm (*Phoenix roebelenii*)
 - Aleppo pine (*Pinus halepensis*)
 - Torrey pine (*Pinus torreyana*)
 - western sycamore (*Platanus racemosa*)
 - London plane (*Platanus X hispanica*)
 - flowering pear (*Pyrus calleryana*)
 - coast live oak (*Quercus agrifolia*)
 - ▲ cork oak (*Quercus suber*)
 - ▲ interior live oak (*Quercus wislizeni*)
 - ▲ locust (*Robinia sp.*)
 - ▲ Brazilian pepper tree (*Schinus terebinthifolius*)
 - ▲ queen palm (*Syagrus romanzoffiana*)
 - ▲ windmill palm (*Trachycarpus fortune*)
 - ▲ unknown



Aerial Source: Esri, Maxar 2019

Tree Locations **Exhibit 2**

Tree Inventory Report for the School of Medicine Education Building II Project

PSOMAS

(Rev. 12/16/2020 RMB) R:\Projects\UCR\3\UCR001209\Graphics\Tree_Report\TreeLocations.pdf

ATTACHMENT
TREE SURVEY DATA

**TABLE A-1
SUMMARY OF COLLECTED TREE DATA**

Tree Tag #	Tree Species		# Main Trunks	D.B.H. (in)	Height (ft)	Canopy Diameter (ft)	Health Rating	Aesthetic Rating	Notes
	Common name	Botanical Name							
1	Queensland pittosporum	<i>Auranticarpa rhombifolia</i>	1	12.3	20	15	4	4	
2	grapefruit	<i>Citrus X paradisi</i>	3	3.0, 2.5, 2.0	8	10	3	3	
3	grapefruit	<i>Citrus X paradisi</i>	2	4.2, 3.3	8	10	3	3	
4	grapefruit	<i>Citrus X paradisi</i>	1	5.5	7	8	2	3	
5	grapefruit	<i>Citrus X paradisi</i>	1	4.0	7	8	2	2	
6	grapefruit	<i>Citrus X paradisi</i>	1	7.4	15	12	4	3	
7	grapefruit	<i>Citrus X paradisi</i>	1	6.9	15	10	3	3	
8	grapefruit	<i>Citrus X paradisi</i>	1	6.1	12	8	3	3	
9	grapefruit	<i>Citrus X paradisi</i>	1	6.4	12	8	3	3	
10	grapefruit	<i>Citrus X paradisi</i>	1	7.2	15	8	3	2	
11	grapefruit	<i>Citrus X paradisi</i>	1	6.9	18	10	3	3	
12	grapefruit	<i>Citrus X paradisi</i>	1	5.9	15	10	3	3	
13	grapefruit	<i>Citrus X paradisi</i>	2	5.5, 2.1	18	10	3	3	
14	flowering pear	<i>Pyrus calleryana</i>	1	16.0	20	20	4	4	
15	Brazilian pepper tree	<i>Schinus terebinthifolius</i>	10	4.2, 4.0, 3.5, 3.5, 3.5, 3.0, 3.0, 2.5, 2.5, 2.0	20	20	3	2	
16	Brazilian pepper tree	<i>Schinus terebinthifolius</i>	4	6.3, 5.8, 2.5, 1.5	20	20	3	2	
17	floss silk	<i>Ceiba speciosa</i>	1	10.6	25	10	4	3	
18	jacaranda	<i>Jacaranda mimosifolia</i>	1	16.8	30	15	4	4	
19	jacaranda	<i>Jacaranda mimosifolia</i>	1	17.8	30	15	4	4	
20	jacaranda	<i>Jacaranda mimosifolia</i>	1	14.0	25	15	4	4	
21	flowering pear	<i>Pyrus calleryana</i>	1	12.8	20	15	4	4	
22	jacaranda	<i>Jacaranda mimosifolia</i>	3	10.1, 9.4, 7.8	30	15	4	4	off-site
23	unknown		2	8.8, 3.1	30	10	2	2	off-site
24	Queensland pittosporum	<i>Auranticarpa rhombifolia</i>	1	11.9	30	15	4	4	
25	Queensland pittosporum	<i>Auranticarpa rhombifolia</i>	1	2.7	15	5	3	3	
26	glossy privet	<i>Ligustrum lucidum</i>	1	2.5	12	5	3	3	
27	glossy privet	<i>Ligustrum lucidum</i>	1	2.0	12	5	3	3	

**TABLE A-1
SUMMARY OF COLLECTED TREE DATA**

Tree Tag #	Tree Species		# Main Trunks	D.B.H. (in)	Height (ft)	Canopy Diameter (ft)	Health Rating	Aesthetic Rating	Notes
	Common name	Botanical Name							
28	purple orchid tree	<i>Bauhinia variegata</i>	4	8.8, 7.7, 6.1, 4.1	20	15	3	3	
29	floss silk	<i>Ceiba speciosa</i>	2	12.7, 10.5	25	10	3	3	
30	floss silk	<i>Ceiba speciosa</i>	2	6.6, 4.9	25	10	3	3	
31	floss silk	<i>Ceiba speciosa</i>	1	13.5	25	10	4	4	
32	South African coral tree	<i>Erythrina caffra</i>	5	14.2, 11.9, 10.1, 9.0, 8.1	25	15	3	3	
33	South African coral tree	<i>Erythrina caffra</i>	4	13.3, 10.0, 7.5, 4.0	20	12	2	2	
34	coast live oak	<i>Quercus agrifolia</i>	1	13.0	25	15	4	3	
35	pecan	<i>Carya illinoensis</i>	1	15.5	30	15	4	4	
36	coast live oak	<i>Quercus agrifolia</i>	2	4.5, 2.8	15	8	3	3	
37	coast live oak	<i>Quercus agrifolia</i>	1	4.0	12	8	3	3	
38	coast live oak	<i>Quercus agrifolia</i>	4	2.5, 1.5, 1.0, 1.0	8	8	3	2	
39	pecan	<i>Carya illinoensis</i>	1	8.0	20	10	2	2	
40	pecan	<i>Carya illinoensis</i>	2	10.5, 8.8	20	15	3	3	
41	pecan	<i>Carya illinoensis</i>	1	8.2	20	15	3	3	
42	pecan	<i>Carya illinoensis</i>	2	6.5, 4.2	20	15	3	3	
43	Brazilian pepper tree	<i>Schinus terebinthifolius</i>	1	45.0	20	20	4	3	
44	western sycamore	<i>Platanus racemosa</i>	1	23.5	30	15	4	4	
45	jacaranda	<i>Jacaranda mimosifolia</i>	1	13.1	30	15	4	4	
46	South African coral tree	<i>Erythrina caffra</i>	1	21.0	25	25	3	3	
47	glossy privet	<i>Ligustrum lucidum</i>	1	3.2	15	8	3	2	
48	Shamel ash	<i>Fraxinus uhdei</i>	1	6.5	20	8	3	2	
49	South African coral tree	<i>Erythrina caffra</i>	4	18.5, 15.4, 14.8, 11.1	30	15	3	3	
50	grapefruit	<i>Citrus X paradisi</i>	1	5.0	8	8	3	3	
51	grapefruit	<i>Citrus X paradisi</i>	1	4.5	8	8	3	3	
52	queen palm	<i>Syagrus romanzoffiana</i>	3	11.8, 7.7, 4.5	30	10	3	3	
53	queen palm	<i>Syagrus romanzoffiana</i>	2	10.5, 9.3	25	10	3	3	

**TABLE A-1
SUMMARY OF COLLECTED TREE DATA**

Tree Tag #	Tree Species		# Main Trunks	D.B.H. (in)	Height (ft)	Canopy Diameter (ft)	Health Rating	Aesthetic Rating	Notes
	Common name	Botanical Name							
54	carrotwood	<i>Cupaniopsis anacardioides</i>	1	16.1	25	15	4	4	
55	windmill palm	<i>Trachycarpus fortune</i>	1	6.5	15	6	3	3	
56	Pygmy date palm	<i>Phoenix roebelenii</i>	1	7.7	8	6	3	3	
57	cork oak	<i>Quercus suber</i>	1	12.8	20	15	3	3	
58	cork oak	<i>Quercus suber</i>	1	14.7	20	15	3	3	
59	cork oak	<i>Quercus suber</i>	1	8.5	18	10	3	3	
60	cork oak	<i>Quercus suber</i>	1	7.3	18	10	3	3	
61	Italian cypress	<i>Cupressus sempervirens</i>	1	6.0	25	4	3	3	
62	Italian cypress	<i>Cupressus sempervirens</i>	1	5.0	25	4	3	3	
63	interior live oak	<i>Quercus wislizeni</i>	1	8.7	20	10	4	3	
64	cork oak	<i>Quercus suber</i>	1	10.0	20	10	3	3	
65	London plane	<i>Platanus X hispanica</i>	1	10.5	30	20	4	4	
66	grapefruit	<i>Citrus X paradisi</i>	1	4.0	6	6	4	3	
67	grapefruit	<i>Citrus X paradisi</i>	1	4.5	6	8	4	3	
68	grapefruit	<i>Citrus X paradisi</i>	1	4.0	7	8	4	3	
69	grapefruit	<i>Citrus X paradisi</i>	1	4.2	5	6	4	3	
70	grapefruit	<i>Citrus X paradisi</i>	1	4.5	5	5	4	3	
71	Italian cypress	<i>Cupressus sempervirens</i>	1	5.0	20	5	4	3	
72	Italian cypress	<i>Cupressus sempervirens</i>	1	5.0	20	5	3	3	
73	Italian cypress	<i>Cupressus sempervirens</i>	1	5.0	20	5	3	3	
74	Italian cypress	<i>Cupressus sempervirens</i>	1	5.5	20	5	3	3	
75	Italian cypress	<i>Cupressus sempervirens</i>	1	6.0	20	5	3	3	
76	Italian cypress	<i>Cupressus sempervirens</i>	1	5.0	20	5	3	3	
77	Italian cypress	<i>Cupressus sempervirens</i>	1	6.0	20	5	3	3	
78	London plane	<i>Platanus X hispanica</i>	1	10.9	25	20	4	4	
79	weeping bottlebrush	<i>Callistemon viminalis</i>	1	7.9	12	8	3	3	
80	weeping bottlebrush	<i>Callistemon viminalis</i>	2	7.7, 7.1	15	10	2	2	
81	jacaranda	<i>Jacaranda mimosifolia</i>	1	11.6	20	15	3	3	
82	jacaranda	<i>Jacaranda mimosifolia</i>	1	9.1	30	15	3	3	

**TABLE A-1
SUMMARY OF COLLECTED TREE DATA**

Tree Tag #	Tree Species		# Main Trunks	D.B.H. (in)	Height (ft)	Canopy Diameter (ft)	Health Rating	Aesthetic Rating	Notes
	Common name	Botanical Name							
83	jacaranda	<i>Jacaranda mimosifolia</i>	2	9.3, 7.7	25	20	3	3	
84	weeping bottlebrush	<i>Callistemon viminalis</i>	2	3.5, 2.5	10	8	2	2	
85	coast live oak	<i>Quercus agrifolia</i>	1	11.6	25	18	4	4	
86	Southern California black walnut	<i>Juglans californica</i>	2	5.8, 5.2	18	10	3	3	
87	goldenrain tree	<i>Koelreuteria paniculata</i>	2	10.8, 4.4	20	15	2	3	
88	Torrey pine	<i>Pinus torreyana</i>	1	10.2	15	10	3	3	
89	Torrey pine	<i>Pinus torreyana</i>	1	10.6	25	10	3	3	
90	Torrey pine	<i>Pinus torreyana</i>	1	10.5	20	10	3	3	
91	Aleppo pine	<i>Pinus halepensis</i>	2	31.3, 18.0	60	40	5	5	
92	deodar cedar	<i>Cedrus deodara</i>	1	14.2	25	25	3	3	
93	locust	<i>Robinia sp.</i>	3	3.0, 2.0, 1.0	8	8	2	2	
94	Brazilian pepper tree	<i>Schinus terebinthifolius</i>	5	2.5, 2.0, 2.0, 1.0, 1.0	8	10	3	2	

Aesthetics/Health Rating: 1=Very Poor, 2=Poor, 3=Fair, 4=Good, and 5=Excellent

APPENDIX C

MEMORANDUM FOR THE RECORD, HISTORIC RESOURCES EVALUATION



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October 29, 2020 | Project No. 20-10439

Stephanie Tang, Campus Environmental Planner
University of California, Riverside
1223 University Avenue, Suite 240
Riverside, California 92507

**Subject: Memorandum for the Record, Historic Resources Evaluation, UC Riverside
Greenhouse/Headhouses #6-10, Riverside, California**

Dear Ms. Tang:

This Memorandum for the Record presents the results of an intensive-level historic resources evaluation of Greenhouses/Headhouses #6-10, located on the University of California, Riverside campus. This intensive-level evaluation memo was prepared in support of an upcoming redevelopment/demolition project on the site.

This intensive-level evaluation memo includes the following sections:

1. Introduction
 - a. Project Description/Location, Methodology, and Regulatory Framework
2. Historic Context Framework for Evaluations
 - a. Drawn from the UCR Campus-wide 2020 UCR Historic Resources Survey Report
3. Construction Chronology
 - a. Including original plans and information on project architect
4. Architectural Description
5. Evaluation
6. Sources Consulted
7. Appendix A: Department of Parks and Recreation (DPR) Series 523 forms

This intensive-level evaluation confirms the finding from the UCR reconnaissance-level historic resources survey that Greenhouses #6-10 **do not appear eligible for the NRHP or CRHR** and are therefore not qualifying historical resources per the California Environmental Quality Act (CEQA).

Should there be any questions about the contents of this memo, please feel free to contact Debi Howell-Ardila at 626.524.1917 or dhardila@rinconconsultants.com.

Sincerely,

Rincon Consultants, Inc.

A handwritten signature in black ink that reads "Debi Howell-Ardila".

Debi Howell-Ardila, MHP
Senior Architectural Historian
dhardila@rinconconsultants.com

A handwritten signature in black ink that reads "Shannon Carmack".

Shannon Carmack
Principal/Architectural Historian Program Manager
scarmack@rinconconsultants.com

1. Introduction

Property Summary and Historic Resource Status

1. Property Name: Greenhouses/Headhouses #6-10
2. Date of Construction (source): 1950 – 1954 (original plans)
3. Architect (if known): Graham Latta and Carl Denney
4. Property evaluated in 2020 UCR reconnaissance-level survey? Yes
5. Current Historic Resource Status: 6Z (appears ineligible for listing)

Project Description

In 2020, Rincon completed a campus-wide historic resources survey of UCR to provide baseline information on the campus's historical resources, in support of UCR's 2021 Long Range Development Plan (UCR Project No. 958098). The reconnaissance-level survey included built environment properties, structures, and landscapes 45 years of age and older. Work efforts included archival research, literature review, and ArcGIS analysis and mapping, and a reconnaissance-level survey.

According to National Park Service Technical Assistance Bulletin #24, a **reconnaissance survey** represents an initial "once over" of a project area to identify potential historical resources. The reconnaissance survey is useful as a preservation planning tool. Following up on the reconnaissance-level survey, an **intensive-level evaluation** includes additional building-specific research, construction chronologies, and alteration histories, as well as identification of character-defining features. The reconnaissance-level survey is a helpful tool for master planning; the intensive-level evaluation is helpful in project planning and for confirming determinations of historic resource status.

As a result of the campus-wide reconnaissance-level survey, Greenhouses/Headhouses No. 6 through 10 were found to **appear ineligible for the NRHP or CRHR**. This historic resources evaluation memo follows up on the reconnaissance survey with an intensive-level evaluation, including building-specific research and analysis. This memo was prepared to provide UCR with the substantial evidence needed to make a historic resources determination for Greenhouses/Headhouses #6 through #10, prior to project planning and construction activities.

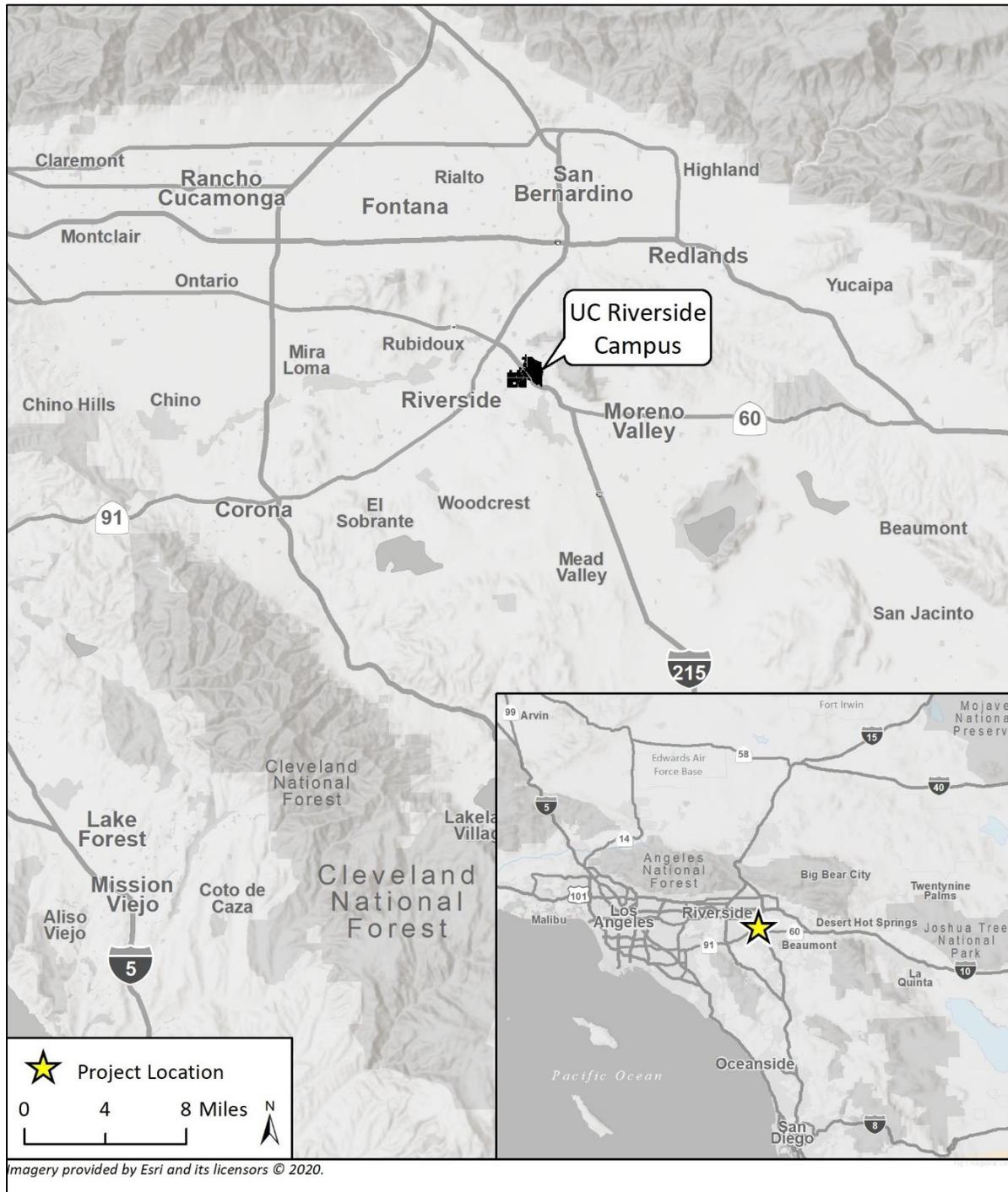
Project Location

Located approximately three miles east of downtown Riverside, the subject properties are part of the UCR East Campus, which falls within the University Neighborhood area, near the slopes of Box Springs Mountain. Interstate 215/State Route 60 (I-215/SR 60) divides the campus into East Campus and West Campus, with the east portion encompassing the campus core and the west portion occupied primarily by agricultural uses and research facilities.

The subject properties consist of five connected greenhouses/headhouses constructed in 1950 through 1954, for the University of California Citrus Experiment Station. Designed by architects Graham Latta and Carl Denney of Glendale, the greenhouses were utilized by the Citrus Experiment Station's soils and plant nutrition divisions for a variety of research activities. Designed in 1950, Greenhouses #6 and #7 were constructed for the divisions of soils and plant nutrition and plant breedings. Greenhouses #8 and

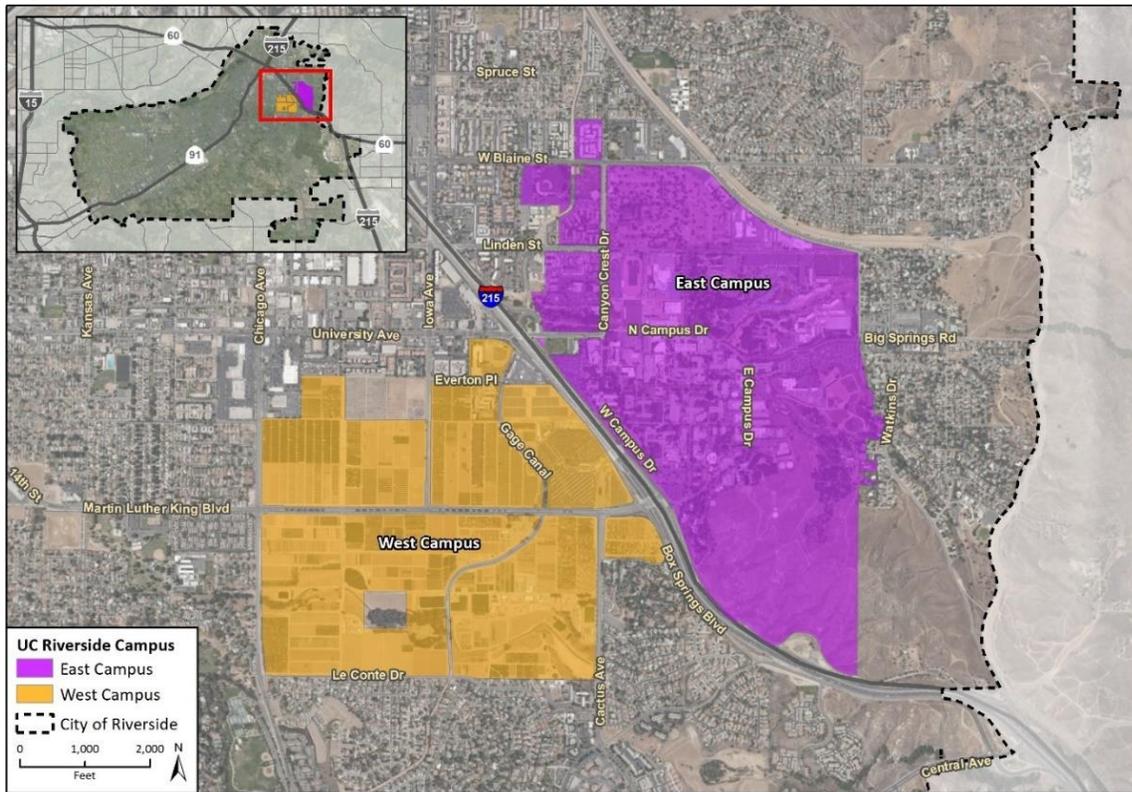
#10, designed in 1954, were built for research in plant physiology, plant pathology, soil, and plant nutrition. Greenhouse #9, designed in 1954, served as a nematode (round worm) greenhouse and headhouse. The East Campus area is roughly bounded by W. Blaine Street/Watkins Drive to the north, Watkins Drive and Valencia Hill Drive to the east, and the I-215/SR-60 to the south and west. (see Figure 1, Figures 2, and 3).

Figure 1 Regional and Vicinity Maps



Source: Rincon Consultants, Inc., 2020

Figures 2 and 3 UCR East and West Campuses (top) and project location (bottom)



Methodology

Senior Architectural Debi Howell-Ardila, MHP, and Architectural Historian Alexandra Madsen, MA, completed this intensive-level evaluation of Greenhouses #6-10 and their associated headhouses. Ms. Howell-Ardila and Ms. Madsen led efforts to conduct the campus-wide historic resources survey of UCR in support of the 2021 Long Range Development Plan Environmental Impact Report, currently in progress.

Ms. Howell-Ardila and Ms. Madsen meet the Secretary of the Interior's *Professional Qualification Standards* for architectural history and history (National Park Service [NPS] 1983). Rincon GIS Specialist John Donohue produced the figures for this HRE Memo. Rincon Cultural Resources Principal Shannon Carmack reviewed the memo for quality control.

In order to streamline the project, documentation compiled by Rincon for the UCR campus-wide historic resources survey was utilized; this included the historic context framework for evaluations completed for the campus-wide survey. Online repositories were utilized due to the ongoing COVID-19 pandemic. UCR staff photographed the subject properties, and Rincon reviewed photographs to assess overall condition and integrity and to identify and document any potential character-defining features.

Following initial research and a review of the photographs, Rincon evaluated the buildings for potential eligibility for the California Register of Historical Resources (CRHR) and National Register of Historic Places (NRHP). The subject buildings were recorded in this HRE Memo and recorded on California Department of Parks and Recreation (DPR) 523 series forms, included in Appendix A of this report.

Regulatory Framework

This section describes the applicable regulatory setting applied in the preparation of this study.

This study does not include local zoning code or landmark criteria. Per California State Government Code Section 53094, the properties of California school districts, including the UC system, are statutorily exempt from most provisions of local ordinances, including landmark designation. California State Government Code, Section 53094 permits “the governing board of a school district, by vote of two-thirds of its members . . . [to] render a city or county zoning ordinance inapplicable to a proposed use of property by such school district.”¹

Federal

National Register of Historic Places

The National Register of Historic Places (NRHP) was established by the National Historic Preservation Act of 1966 as “an authoritative guide to be used by Federal, State, and local governments, private groups and citizens to identify the Nation’s cultural resources and to indicate what properties should be considered for protection from destruction or impairment” (CFR 36 CFR 60.2).

Such standards are applicable to areas under the jurisdiction of the National Park Service. (36 CFR § 1.1.) The NRHP recognizes properties that are significant at the national, state, and local levels.

¹ Court of Appeal, State of California, Second Appellate District, Division 7, Los Angeles Unified School District, Petitioner and Appellant, v. City of Maywood, et al., Respondents and Defendants, Nos. B238629, B238630, Los Angeles Superior Court, filed 13 February 2013.

A property is eligible for the NRHP if it:

- Criterion A. Is associated with events that have made a significant contribution to the broad patterns of our history; or
- Criterion B. Is associated with the lives of persons significant in our past; or
- Criterion C. Embodies the distinctive characteristics of a type, period, or method of installation, or represents the work of a master, possesses high artistic values, or represents a significant and distinguishable entity whose components may lack individual distinction; or
- Criterion D. Has yielded, or may be likely to yield, information important in prehistory or history.

In addition to meeting these criteria, a property must retain historic integrity, which is defined in National Register Bulletin 15 as the “ability of a property to convey its significance” (National Park Service 1990). In order to assess integrity, the National Park Service recognizes seven aspects or qualities that, considered together, define historic integrity. To retain integrity, a property must possess several, if not all, of these seven qualities, which are defined in the following manner in National Register Bulletin 15:

1. **Location.** The place where the historic property was constructed or the place where the historic event occurred.
2. **Design.** The combination of elements that create the form, plan, space, structure, and style of a property.
3. **Setting.** The physical environment of a historic property.
4. **Materials.** The physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property.
5. **Workmanship.** The physical evidence of the crafts of a particular culture or people during any given period in history or prehistory.
6. **Feeling.** A property’s expression of the aesthetic or historic sense of a particular period of time.
7. **Association.** The direct link between an important historic event or person and a historic property.

Some aspects of integrity may be accorded more weight than others, depending on the type of resource being evaluated and the applicable eligibility criteria. Integrity can be assessed only after it has been concluded that a resource is significant.

State

The policies of the NHPA are implemented at the state level by the California Office of Historic Preservation, a division of the California Department of Parks and Recreation. The Office of Historic Preservation is also tasked with carrying out the duties described in the Public Resources Code and maintaining the California Historic Resources Inventory and CRHR. The state-level regulatory framework also includes CEQA, which requires the identification and mitigation of substantial adverse impacts that may affect the significance of eligible historical and archeological resources.

California Register of Historical Resources

Created in 1992 and implemented in 1998, the CRHR is “an authoritative guide in California to be used by state and local agencies, private groups, and citizens to identify the state’s historical resources and to

indicate what properties are to be protected, to the extent prudent and feasible, from substantial adverse change.”² Certain properties, including those listed in or formally determined eligible for listing on the NRHP and California Historical Landmarks numbered 770 and higher, are automatically included on the CRHR.

According to PRC Section 5024.1(c), a resource, either an individual property or a contributor to a historic district, may be listed in the CRHR if the State Historical Resources Commission determines that it meets one or more of the following criteria, which are modeled on NRHP criteria:

- Criterion 1:** It is associated with events that have made a significant contribution to the broad patterns of California’s history and cultural heritage
- Criterion 2:** It is associated with the lives of persons important in our past
- Criterion 3:** It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values
- Criterion 4:** Has yielded, or may be likely to yield, information important in prehistory or history

Properties that do not retain sufficient integrity for NRHP listing can still qualify for listing in the CRHR. Historical resources eligible for listing in the California Register must meet one of the criteria of significance described above and retain enough of their historic character or appearance to be recognizable as historical resources and to convey the reasons for their significance.

California Environmental Quality Act (CEQA)

CEQA requires a lead agency to analyze whether historic and/or archaeological resources may be adversely impacted by a proposed project. Under CEQA, a “project that may cause a substantial adverse change in the significance of a historic resource is a project that may have a significant effect on the environment” (PRC Section 21084.1).

Answering this question is a two-part process: first, the determination must be made as to whether the proposed project involves cultural resources (i.e. historic and/or archaeological resources). Second, if cultural resources are present, the proposed project must be analyzed for a potential “substantial adverse change in the significance” of the resource.

According to CEQA Guidelines Section 15064.5, historic resources are:

1. A resource listed in, or formally determined eligible for listing in, the California Register of Historical Resources (PRC 5024.1, Title 14 CCR, Section 4850 et seq);
2. A resource included in a local register of historical resources, as defined in Section 5020.1(k) of the PRC or identified as significance in a historic resources survey meeting the requirements of Section 5024.1(g) of the PRC;
3. Any building, structure, object, site, or district that the lead agency determines eligible for national, state, or local landmark listing; generally, a resource shall be considered by the lead agency to be historically significant (and therefore a historic resource under CEQA) if the resource meets the criteria for listing on the California Register (as defined in PRC Section 5024.1, Title 14 CCR, Section 4852).

² Public Resources Code, Sections 21083.2 and 21084.1.

Resources nominated to the CRHR must retain enough of their historic character or appearance to convey the reasons for their significance. Resources whose historic integrity (as defined in previous section) does not meet NRHP criteria may still be eligible for listing in the CRHR.

According to CEQA, the fact that a resource is not listed in or determined eligible for listing in the California Register or is not included in a local register or survey shall not preclude the lead agency from determining that the resource may be an historical resource (PRC Section 5024.1). Pursuant to CEQA, a project with an effect that may cause a substantial adverse change in the significance of a historical resource may have a significant effect on the environment (CEQA Guidelines, Section 15064.5(b)).

CEQA Guidelines specify that “substantial adverse change in the significance of an historical resource means physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired” (CEQA Guidelines, Section 15064.5).

Material impairment occurs when a project alters in an adverse manner or demolishes “those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion” or eligibility for inclusion in the NRHR, CRHR, or local register. In addition, pursuant to CEQA Guidelines Section 15126.2, the “direct and indirect significant effects of the project on the environment shall be clearly identified and described, giving due consideration to both the short-term and long-term effects.”

2. Historic Context and Setting

Located just east of the UCR's Mid-Century Core, Greenhouses #6-10 were constructed for the Citrus Experiment Station during a transitional era for the university. At the time, between 1950 and 1954, the historic Citrus Experiment Station was in the process of expanding to a four-year liberal arts college.

The Citrus Experiment Station had originally been founded in 1912, when the University of California Board of Regents established the station in Riverside near Mt. Rubidoux. Originally referred to as the Rubidoux Laboratory, the Citrus Experiment Station was a joint operation of the UC system, the US Department of Agriculture, and local citrus farmers. By 1917, operations had moved to the present-day location at UCR, at the foothills of the Box Spring Mountains. Over a century later, UCR retains Citrus Experiment Station facilities and buildings reflecting the station's earliest phases (as described in more detail below). For more than 100 years, the station has provided a multidisciplinary research center and clearinghouse for the study of citrus hybridization, crop maintenance, and productivity.

In 1954, as the last subject properties were constructed, the University of California opened the new College of Letters and Sciences on an expanded campus site, paving the way for UCR's rapid expansion through the 1950s and 1960s. Most of the new construction was centered to the west of the subject properties, in what is commonly referred to as UCR's "Mid Century Core." This area contains a cohesive collection of distinctive modernist buildings by some of the region's most renowned architects of the day. Through the decades, the modern-day campus of UCR continued to expand to over 1,100 acres, with dozens of buildings, research and support facilities, classrooms, housing, and facilities.

This section provides an overview of UCR's growth at critical junctures in its history, from the early twentieth century through 1975. The historic context framework for evaluations presented below allows for a context-based intensive-level evaluation of Greenhouses #6-10 and an examination of how the buildings fit within the history of development at UCR.

As established in the 2020 UCR Historic Resources Survey Report, UCR's extant facilities were constructed during five principal eras:

- Development of the Citrus Experiment Station, 1916;
- Founding of the College of Letters and Sciences in 1953;
- Adoption of the Master Plan and campus expansion in 1955;
- Elevation of UCR to a "General Campus" with the UC system in 1959;
- Era of transition, 1967 to 1975.

In accordance with best practice and National Park Service guidance, properties must be evaluated within their historic context to ensure a thorough application of the eligibility criteria. The National Register defines context as "a body of information about our history according to the stages of development occurring at various times and places."³ Theme, place, and time are the basic elements that define historic context.

³ United States Department of the Interior, National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation, (Washington, DC: National Park Service, rev. 1997): 7.

In order to provide a contextual framework for the intensive-level evaluation of Greenhouses #6-10, this section provides the historic context information specific to these properties. These are drawn from the historic context statement prepared by Rincon for the 2020 UCR Historic Resources Survey Report.

Given UCR's history and built environment, the contexts and themes that apply most closely to Greenhouses #6-10 include the following three contexts:

- Context #1: Early Settlement and Development in Riverside
Theme: Citrus Industry and Citriculture in Riverside
Subtheme: The UC Riverside Citrus Experiment Station
- Context #2: Riverside's Postwar Boom, 1945-1975
Theme: Postwar Institutional Expansion in Riverside
Subtheme: Founding of the University of California, Riverside
- Context #3: Architecture and Design, 1916-1975
Theme: Mission Revival/Spanish Colonial Revival style
Theme: Modernism at UCR

The following sections provide summaries of each context, along with eligibility standards. (For full descriptions of each context, see the 2020 UCR Historic Resources Survey Report.)



Context #1: Early Settlement and Development in Riverside

Theme: Citrus Industry in Riverside

Subtheme: UC Riverside Citrus Experiment Station

- **Summary:**
The Citrus Experiment Station set the stage for the institution that would become UCR and made an immeasurable contribution to the success of the citrus industry in Riverside as well as the region and California. Properties examined under this context and theme/subtheme will be considered for eligibility as significant reflections of the Citrus Experiment Station.
- **Eligibility Criteria:**
NRHP: A; CRHR: 1
NRHP: B; CRHR: 2
- **Property Types:**
Buildings, offices, fields, storage facilities/outbuildings; can include individual buildings, and/or cultural landscapes
- **Significance:**
Buildings, cultural landscapes, or historic districts strongly associated with the Citrus Experiment Station may be eligible for federal or state listing under Criteria A/1.

Those properties with a strong association to an individual who played in significant role in the Citrus Experiment Station might qualify under Criteria B/2.

- **Eligibility Standards:**
To be eligible under Criteria A/1, properties must show a strong association with the Citrus Experiment Station.

To be eligible under Criteria B/2, the property should show a strong association with a prominent researcher, administrator, or employee of the Citrus Experiment Station.

Context #1: Early Settlement and Development in Riverside
Theme: Citrus Industry in Riverside
Subtheme: UC Riverside Citrus Experiment Station

Description:

The area that now encompasses UCR falls within the City's University Neighborhood area, near the slopes of Box Springs Mountain. Situated northeast of Riverside's original townsite, this expanse of the City consisted primarily of agricultural fields and citrus groves at the time of the City's founding in 1870. Adjacent to the University Neighborhood to the west and southwest are the two of the City's oldest neighborhoods, Eastside and Victoria, which were the home of expansive citrus groves, packing houses and plants, as well as neighborhoods and communities, as early as the late nineteenth century.

During these founding years, one of the most significant events for Riverside was the introduction of the Washington Navel Orange. Imported from Brazil by the United States Department of Agriculture, the navel orange was brought to Riverside in 1873 by Eliza and Luther Tibbets. After the introduction of the Washington Navel Orange, the crop transformed Riverside and the surrounding region. By 1880, an expansive citrus industry was already well established, and much of Riverside was covered and/or surrounded by orange, lemon, and lime groves. As of 1882, among the half-million orange trees throughout California, 50 percent were growing in Riverside.¹

As the citrus industry expanded exponentially through the 1880s, the small town of Riverside quickly became one of the state's most prosperous and productive agricultural communities. However, some daunting challenges came along with the citrus industry's success. Principal among them was the challenge of invasive pests and diseases that damaged or killed crops. In order to address this threat, Riverside's Citrus Experiment Station was created through legislation drafted by State Assembly member Miguel Estudillo and local grower John Henry Reed.² For growers statewide, the Citrus Experiment Station became an important clearinghouse for citrus-related research, including topics such as how to understand and mitigate plant disease, nutritional deficiencies, insects, pests, and other challenges to the health and productivity of citrus groves. The research center helped growers remain competitive as the citrus market became more diversified, with increasing citrus trade from Florida, northern California, Puerto Rico, and South Africa in the early twentieth century.

In 1907, the California State legislature established an experimental orchard and research facility near Riverside's Mt. Rubidoux. Initially administered by the University of California, Berkeley's College of Agriculture, the research center initially focused on citrus crops and how to address and mitigate threats. In 1912, given the industry's importance and the facility's success in its opening years, the University of California announced plans to expand the UC Riverside Citrus Experiment Station, to make it "an institution adequate to the great industry whose problems it was established to solve."³

Within a few years, however, the need for a larger facility, with a broader scope of study, was already evident. In 1913, an advisory committee was tasked with finding a site that could accommodate more crops, larger orchards, as well as new research and office facilities and housing. When the City of Riverside offered the university a 370-acre site adjacent to Gage Canal, the advisory committee accepted; the Gage Canal continues to traverse the West Campus and the present-day facilities of the Citrus Experiment Station are extant on East Campus (**Figure 4**). With facilities designed by Los Angeles architects Lester H. Hibbard and H.B. Cody, the Citrus Experiment Station opened in March 1918. For the signature buildings of the Citrus Experiment Station, Hibbard and Cody opted for a distinctive Spanish/Mission Revival style.

Figure 4 Horticulture Building (Anderson Hall 1) and the orchards of West Campus, ca. 1920

Source: UC Riverside, Library, Special Collections and University Archives

In addition to an expansion of the facilities, this investment included hiring a nationally recognized expert, Dr. H.J. Webber, as the station's director. Webber had served in the US Department of Agriculture and as a faculty member at Cornell University. He was "regarded as among the chief of pomological authorities in the country" and "to get the best man and retain him, it would be necessary to build up an opportunity and an institution commensurable with his talents."⁴

Under Webber's leadership, the Citrus Experiment Station quickly became known as a focal point for research in a range of problems facing farmers and growers. After Webber joined the station as director, he oversaw additional expansions of the facilities, which by 1914 staffed 18 personnel with an annual budget of \$60,000.⁵ In 1917, Webber moved the facility four miles east to its present location; at the time, on an expansive 475-acre parcel. During this time, the Citrus Experiment Station focused its efforts on creating fertilizer that deterred pests, improving citrus rootstocks, cultivating new varieties of citrus, and preventing plant diseases.⁶ The center researched topics such as irrigation and soil sciences, breeding and hybridization, diseases and various injuries of trees including citrus, date, avocado, and walnuts, as well as the omnipresent problem of pest and disease control.

In 1917, a new \$125,000 complex was added to the station. Designed by Los Angeles architect Lester H. Hibbard, the new facilities included the horticulture building, director's home, and barn complex (Figure 5; Figure 6). According to the *San Bernardino News*, the architectural character of the new facilities "suggest[ed] the Spanish inheritance of California, through their graceful lines, tiled roofs, plastered façade, and picturesque open arcades from building to building. Everything is planned as part of a group capable of expansion by future generations."⁷

Figure 5 Horticulture Building (now Anderson Hall 1) in 1918 (left) and ca. 2000 (right)



Source: Los Angeles Daily Times, 14 March 1918, and UC Riverside

Figure 6 Overview of the Citrus Experiment Station; a third addition (Soils/Plant Nutrition Wing) was constructed in 1931 to form the current U-shaped complex



Source: <http://memory.loc.gov/pnp/habshaer/ca/ca1600/ca1674/photos/036482pv.jpg>.

With the continuing primacy of the citrus industry in the regional and statewide economies, the Citrus Experiment Station expanded in scope and profile, looking to other countries for solutions to problems faced by local farmers and publishing research results and guidance. In 1930, station professor Dr. H.S. Reed, a plant physiologist, took a year to travel to Spain to study the citrus industry, North Africa and Sicily to “investigate conditions,” and to the University of Geneva, where he served as a guest faculty member.⁸ During the Great Depression, the station continued to expand; in 1930/1931, a new Soils/Plant Nutrition Wing (now Chapman Hall; one of three signature landmarks for the Citrus Experiment Station) as well as an Insectary Building and Entomology Building were constructed. The station quickly became renowned as a center for citrus research around the world.⁹ During the Great Depression, the Citrus Experiment Station supported the industry by offering classes in citriculture to local growers. Subjects discussed include fertilization, soil management, irrigation, and soil values.¹⁰

The multidisciplinary faculty and associates at the time included facility director L.D. Batchelor; J.B. Brown, irrigation specialist at the College of Agriculture at Davis; W. Eberling and Stanley Flanders from the station’s entomology division (Flanders would later serve as station director). The team also included specialists in soil technology, entomology, physiology, as well as farm advisors and county assessor officials.

In the postwar era, prior to the founding of the College of Letters and Sciences, the Citrus Experiment Station consisted of roughly a dozen buildings and support structures, surrounded by orchards and agricultural outbuildings. Figure 7 provides an overview of the expanse of the station prior to the next major expansion: the 1954 opening of the UCR College of Letters and Sciences. By 1953, the Citrus Experiment Station had also grown from 30 to 1,000 acres and from 18 to 265 staff members and faculty.¹¹

As of 1953, one year prior to the opening of the new College of Letters and Sciences, the station employed a cross-disciplinary team of scientists studying invasive insects and diseases hampering the citrus crop and mitigation methods (**Figure 8**). One area of research involved identifying “predator parasites” that would overtake the insects plaguing citrus crops.¹² Scientists in the biological control department travelled to North Africa, Japan, and Italy, for example, in order to study citrus diseases and find (and bring home) parasites capable of reducing insect populations. In this way, by the time UCR was founded in 1954, the institution already enjoyed a national and international reputation for its work across a number of disciplines.

Figure 8 Dr. Stanley E. Flanders, UC Riverside Citrus Experiment Station, 1953



Source: The San Bernardino Sun, 30 April 1953

As the postwar building boom began eroding former agricultural lands throughout California, the Citrus Experiment Station began leasing over 11 acres of farmland of the Limoneira Company, a long-time citrus producer in Santa Paula, County of Ventura. As groves gave way to housing, researchers at the station used the Limoneira farmland to explore and address “the production and marketing problems that will be created by the shift of citrus away from coastal areas in the next 10 to 20 years.”¹³ This of course was prescient; Santa Paula was selected for this work for its climatic zone, which represented a departure from the subtropical areas that had been the focus of the citrus industry.

Through subsequent decades, the Citrus Experiment Station continued to respond to evolving challenges, with an increasingly diversified team of specialists and scientists. Drawing on decades of work by the Citrus Experiment Station, UCR’s entomology department became one of the top five such departments in the United States. With its experimental orchards and collections primarily spanning an over 22-acre site in UCR’s West Campus, the Citrus Experiment Station has conducted its work under the auspices of the College of Natural and Agricultural Sciences since 1974; the college was created through a merger of physical sciences and biological/agricultural sciences. The research collections of the UC Riverside Citrus Experiment Station are now housed in the UC Riverside Libraries.



Context #2: Riverside's Postwar Boom, 1945-1975

Theme: Postwar Institutional Expansion in Riverside

Subtheme: *Founding of the University of California, Riverside, 1953-1975*

- **Description:**
As part of Riverside's exponential postwar growth, the founding of UCR reflected a broad expansion of institutions/educational facilities throughout the City and region, as schools and universities grew to accommodate a rapidly expanding student population. Properties examined under this context and theme/subtheme will be considered for potential eligibility as reflections of this significant pattern of postwar institutional development in Riverside.
- **Eligibility Criteria:**
NRHP: A; CRHR: 1; NRHP: B; CRHR: 2
- **Property Types:**
Buildings, offices/classrooms, support structures, storage facilities/outbuildings; can include historic districts and/or cultural landscapes reflecting a unified site plan and design and associated landscaping and hardscaping features
- **Significance:**
Buildings, historic districts, or cultural landscapes strongly associated with the postwar institutional expansion of Riverside and the opening decades of UCR may be eligible for federal or state listing under Criteria A/1. Those properties with a strong association with an individual who played in significant role in the university's founding, development, or achievements might qualify under Criteria B/2.
- **Eligibility Standards:**
To be eligible under Criteria A/1, properties must show a strong association with the postwar institutional expansion of Riverside and the opening decades of UCR. To be eligible under Criteria B/2, the property should show a strong association with a prominent individual who played in significant role in the university's founding, development, or achievements.

Context #2: **Context #2: Riverside's Postwar Boom, 1945-1975**
Theme: **Postwar Institutional Expansion in Riverside**
Subtheme: **Founding of the University of California, Riverside, 1954-1975**

Description:

In the postwar period, the Citrus Experiment Station continued to expand its research mission as well as its faculty and facilities. In Riverside and throughout Southern California, though, the shortage of university spaces and higher education opportunities had reached acute levels. The population boom as well as the influx of returning GIs, ready and able to study under the American GI Bill, tested these limits. For the University of California system, the postwar years strained already overburdened schools.

In 1944, U.S. President Franklin D. Roosevelt established the Servicemen's Readjustment Act, commonly known as the G.I. Bill of Rights. The bill funded 7.8 million veterans total, with many of them enrolled in higher education programs in California.¹⁴ Four hundred universities and colleges in California were approved for the program, with over fifty percent of veterans attending fifty of the approved schools.

The presence of the Citrus Experiment Station provided a logical location for a new university; its expansion to a satellite College of Letters and Sciences of the UC system also reflected a broad expansion of institutions/educational facilities throughout the City. In 1952, UC Provost Gordon Samuel Watkins (who served in the post from 1949 to 1956) approved the construction of new facilities, mostly surrounding the Citrus Experiment Station. Following groundbreaking ceremonies in June 1952, construction began on the earliest core buildings (Figure 9). This group of buildings, which collectively reflect the earliest stage of construction at UCR, are all extant.

Figure 9 UCR groundbreaking ceremony, 30 July 1952



Source: UCR Library and Special Collections

An aerial photograph from 1953 illustrates the agricultural nature of the surroundings during the development of the campus (Figure 10). The citrus industry was still very much thriving during the early development of the campus. The core of the present-day East Campus is demarcated in red.

Figure 10 Aerial Photograph of UCR and Surrounding Vicinity, 1953



Source: Environmental Data Resources, 2020

This founding of the College of Letters and Sciences in Riverside was significant news not just for the city, but also for the region and state. Throughout California's institutions of higher learning, demand far outpaced availability in the postwar period. The problem was even more severe in the Inland Empire, with only a small handful of four-year universities in the extended region. A new four-year, research-focused university affiliated with the UC system was a significant step toward answering the increased demand for higher education.

Given the level of growth and expansion in Riverside itself, the community came together in the postwar period to form the "Citizens University Committee," a booster group that brought together members of the Chamber of Commerce, local teachers, political organizations, and Riverside citizens, in order to advocate for expanded higher-education offerings in Riverside. The group worked to convince UC Regents and state officials that Riverside should house a new campus. In 1948, California Governor (and future US Supreme Court justice) Earl Warren granted \$2 million in funding for the new liberal arts college, on the grounds surrounding the Citrus Experiment Station.

In February 1954, as the new College of Letters and Sciences prepared to welcome students, the *Riverside Daily Press and Enterprise* published a special supplemental edition celebrating the new school.¹⁵ With messages from the presidents of universities and institutions throughout California—including Stanford University, the Henry E. Huntington Libraries, Pomona College, University of Redlands, and Occidental College in Los Angeles—the supplement reflected the wider significance of a new four-year College of Letters and Sciences. In his message, Chief Justice Warren noted that he had signed the original legislation for Riverside’s new university when he was California’s governor.

In Riverside, UCR’s opening also had great importance for the local community. At the time, Riverside County residents had only a few nearby universities to attend. The University of Redlands and Pomona College would have been among the nearest such colleges. In a community that had formed around the region’s citriculture economy, having a local university was invaluable.

University of Redlands President George Armacost noted this, as well, writing “We believe the opening of the College of Letters and Sciences on the University of California campus at Riverside will stimulate many young people from Riverside and San Bernardino counties to attend college who otherwise would neglect further educational training after high school. Having another institution of higher learning in our vicinity will stimulate a great interest in and appreciation of cultural activities.”¹⁶

In 1948, as noted above, Govern Earl Warren signed a \$2 million plan for a new, undergraduate liberal arts college in Riverside. The campus’ first Provost, Gordon Watkins, established four divisions of the College of Letters and Sciences: humanities, social sciences, physical sciences, and life sciences, and the college was born.

Development of the main campus at UCR was initiated in 1952. Between 1953 and 1955, six new buildings were added to the campus, mostly situated north of the extant Horticulture Building. These buildings served the newly established UCR School of Agricultural Sciences. On February 15, 1954, the school officially opened with 65 faculty members and 127 students, as illustrated in a yearbook photograph and newspaper article from that year (**Figure 11**).¹⁷A campus map from 1955 depicts the growth and expansion that occurred at the campus as the school was expanded and opened. During UCR’s first year, the college had a total of 127 enrolled students (as of fall 2019, enrollment stands at approximately 25,000).

Figure 11 First class at UCR, Tartan Yearbook, 1954



Source: UC Riverside, Library, Special Collections and University Archives

Although the initial enrollment projections in 1954 were capped at 1,500, by 1955, as part of the Campus Development Plan, those numbers increased to 5,000 students. In 1955, the celebrated architectural firm of Allison and Rible completed a Master Plan for the new school (Figure 12).

Figure 12 Map of UCR Campus, 1955

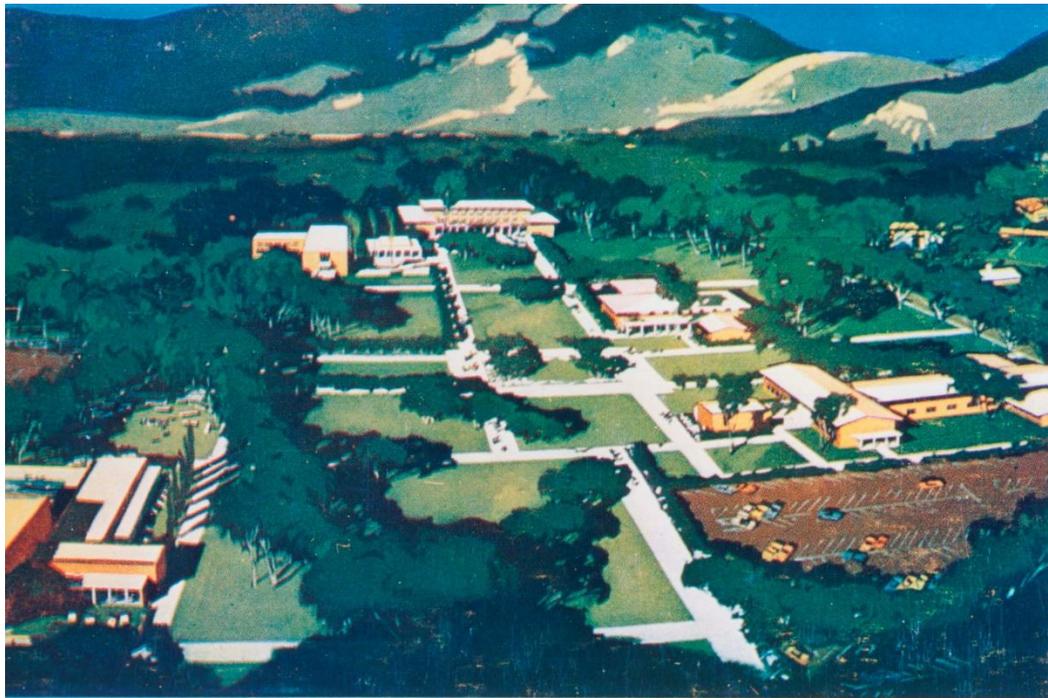


Source: University of California, Riverside, Special Collections and University Archives

In a reflection of UCR's current configuration, the master plan dedicated the area west of US Highway 60 to agricultural cultivation and experimentation and the area east of the freeway for the campus core. The East Campus Plan concentrated new construction around the six existing buildings listed above: Barn Complex, Physical Science Building (Geology Building), Social Sciences-Humanities Building (Watkins Hall), Webber Hall, Physical Education Building (Athletics and Dance Building), and the Library (Rivera Library).

An undated rendering of the campus shows its appearance around this time, and a yearbook from 1956 boasts of the construction slated for the campus with the motto "the future... takes form" (Figure 13, Figure 14).

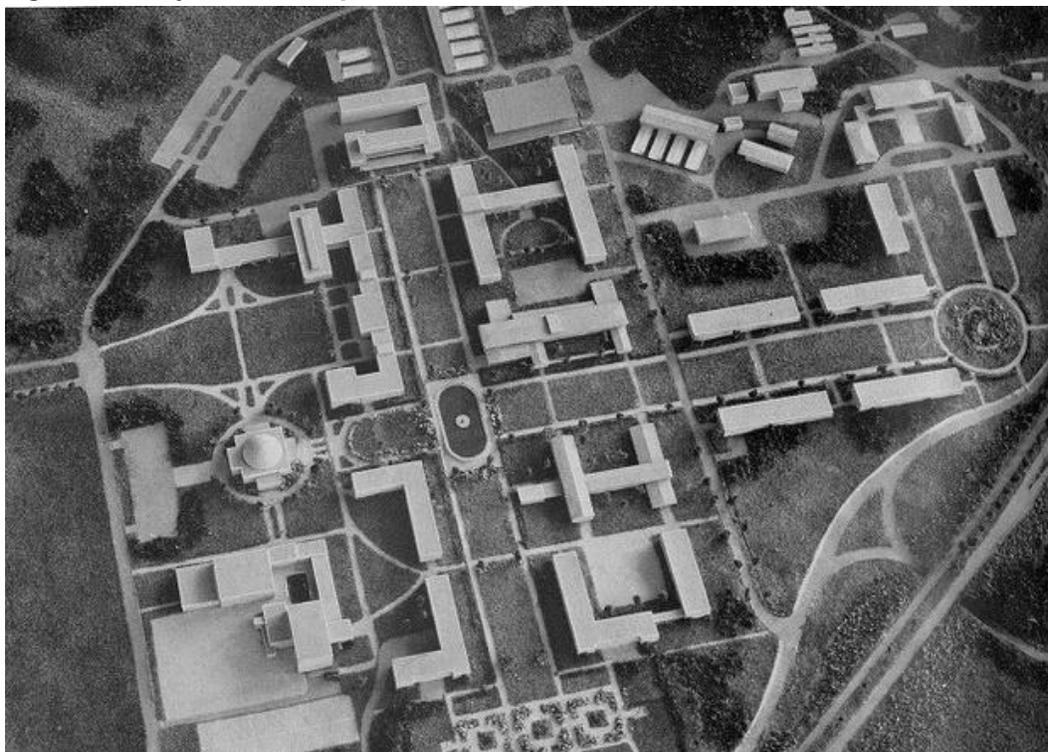
Figure 13 Map of UCR Campus, 1955



Riverside Campus, University of California

Source: UCR Special Collections and University Archives on Flickr, Image 282_018f_003

Figure 14 Projected Campus Plan, 1956



Source: UCR Yearbook, Calisphere, 1956



Context #3:

Architecture and Design, 1916-1975

Theme: Mission Revival/Spanish Colonial Revival Style

Theme: Modernism at UCR

- **Description:**

UCR is home to buildings, structures, and landscapes dating from the early through the late twentieth century. The campus has a handful of extant properties constructed as part of the renowned Citrus Experiment Station as well as one of the most distinctive collections of Mid-Century Modern facilities in Riverside County. Properties examined under this context will be considered for potential eligibility as, among other things, distinctive, outstanding examples of their architectural style, as the work of a master architect/designer/builder, or as a rare property type.
- **Criteria:** NRHP: C; CRHR: 3
- **Property Types:**

Buildings/structures, outdoor spaces, historic districts and associated site design features, landscaping/hardscaping and circulation corridors, or cultural landscapes
- **Significance:**

Buildings/structures, outdoor spaces, historic districts and associated site design features, landscaping/hardscaping and circulation corridors, or cultural landscapes that exhibit quality of design through distinctive features or that represent an excellent, intact example of the style at UCR may be eligible for federal or state listing under Criteria C/3.
- **Eligibility Standards:**

To be eligible under Criteria C/3, the resource would exhibit quality of design through distinctive features and/or represent an excellent, intact example of the style at UCR.

Context #3: Architecture and Design, 1916-1975
Theme: Mission Revival/Spanish Colonial Revival Style
Theme: Modernism at UCR

Description:

The architects who designed UCR's mid-century campus represent a virtual who's-who of the region's well known and celebrated Modernist practitioners, in particular those specializing in institutional architecture. The caliber of this team resulted in a collection of superb, distinctive examples of Mid-Century Modern design at UCR. It also reflected the college's intention of elevating its profile throughout the region.

In addition, the campus's Citrus Experiment Station buildings represented distinctive examples of Spanish Colonial Revival/Mission Revival architectural styles, designed by well-known architects practicing in the region (**Figure 15**).

Some of the first modernist buildings added at UCR include the Physical Sciences Building (now Geology Building, 1953), designed by Bennett and Bennett of Pasadena; Social Sciences-Humanities Building (now Gordon S. Watkins Hall [Watkins Hall], 1953); Webber Hall (1954), designed by Clark, Frey and Chambers of Palm Springs; the Physical Education Building (now Athletics and Dance Building, 1953), designed by Arthur Froehlich of Los Angeles; and the Library (now Tomas Rivera Library, 1954), designed by the Glendale firm of Graham Latta (the architect for Greenhouses/Headhouses #6-10). The Physical Education Building (Athletics and Dance Building) was constructed by Arthur Froehlich of Los Angeles in 1953.

Buildings on the UCR campus eligible under this context/theme would generally exhibit an intact, distinctive example of their architectural style.

Figure 15 Rivera Library (left) and Anderson Hall (right)



Source: Rincon Consultants, 2020

3. Construction Chronology

The following section provides an overview of the construction history for Greenhouses #6-10 and provides information on associated architects Graham Latta and Carl Denney.

Greenhouses #6-10 were designed in three phases between 1950 and 1954 for the Citrus Experiment Station (CES). They served research efforts including plant physiology, plant pathology, soil and plant nutrition, plant breeding, and nematology.

Greenhouses #6 and #7 were constructed in 1950 by Graham Latta for the Division of Soils & Plant Nutrition at CES and were originally approximately 2,000 square feet in size. The buildings included laboratories, offices, work rooms, chemical storage, restrooms, and a dark room.

Architectural drawings from that year illustrate the building's glass and metal construction and the corresponding headhouse (Figure 16). These greenhouses are also visible in a historical aerial photograph from 1952; early construction on the campus is illustrated in this photograph (Figure 17).

Figure 16 Architectural Drawings for Greenhouses #6 and #7, Latta (1950)



Source: UCR

Figure 17 Historical Aerial Photograph of Campus, Greenhouses #6 and #7 outlined in yellow (1952)



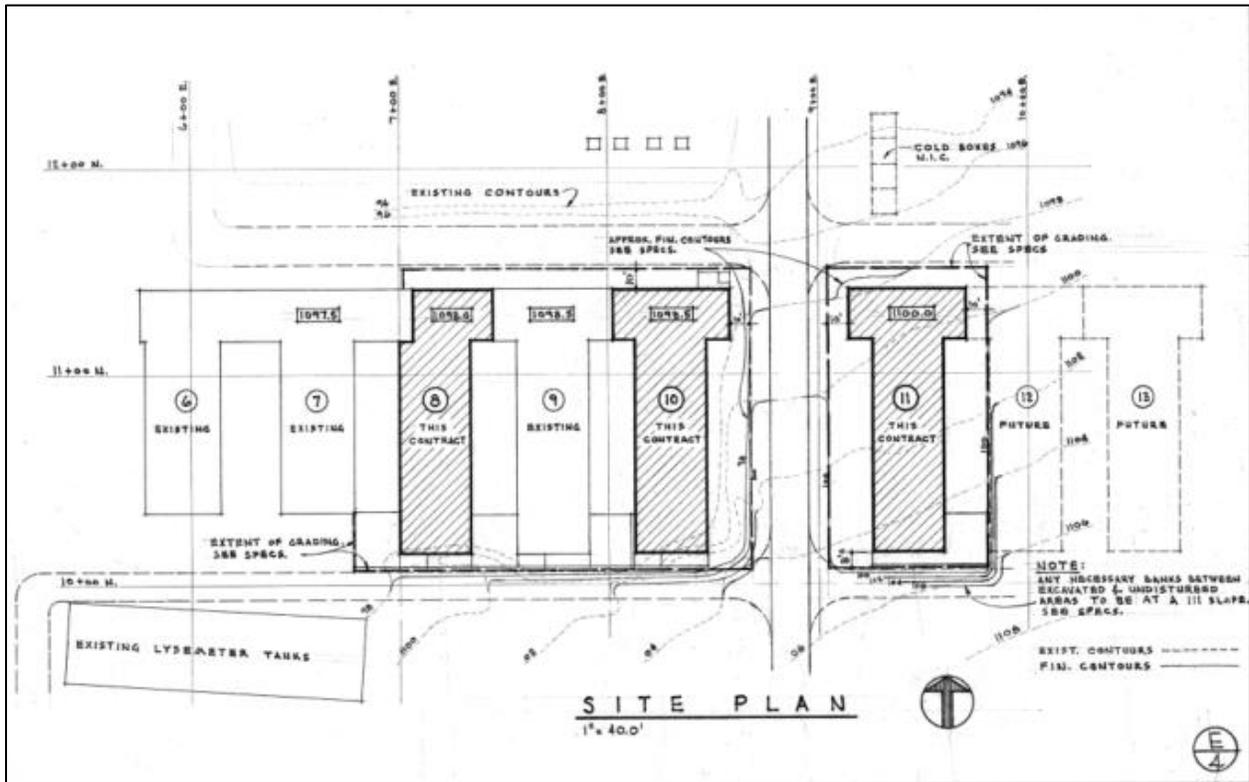
Source: UCR Special Collections and University Archives on Flickr, Image 282_003_184

Greenhouse #9 was designed by Latta and Denney in January of 1954. It was built to be slightly larger (approximately 1,000 square feet more) than Greenhouses #6 and #7 and was constructed for Nematode (round worm) research. A small headhouse was constructed to the north of the greenhouse to accommodate the office and restroom.

Greenhouses #8 and #10 were designed by Latta and Denney in May of 1954. Comparable in size, they were constructed on either side of Greenhouse #9 and the addition of their headhouses connected the existing buildings into one large, rectangular headhouse. An overview of this construction is visible in a site plan completed as part of the as-built architectural drawings (Figure 18). According to historical aerials, additions to the southern elevations of Greenhouses #6 and #7 also appear to date to the mid-1950s and made all buildings relatively uniform in size and design.

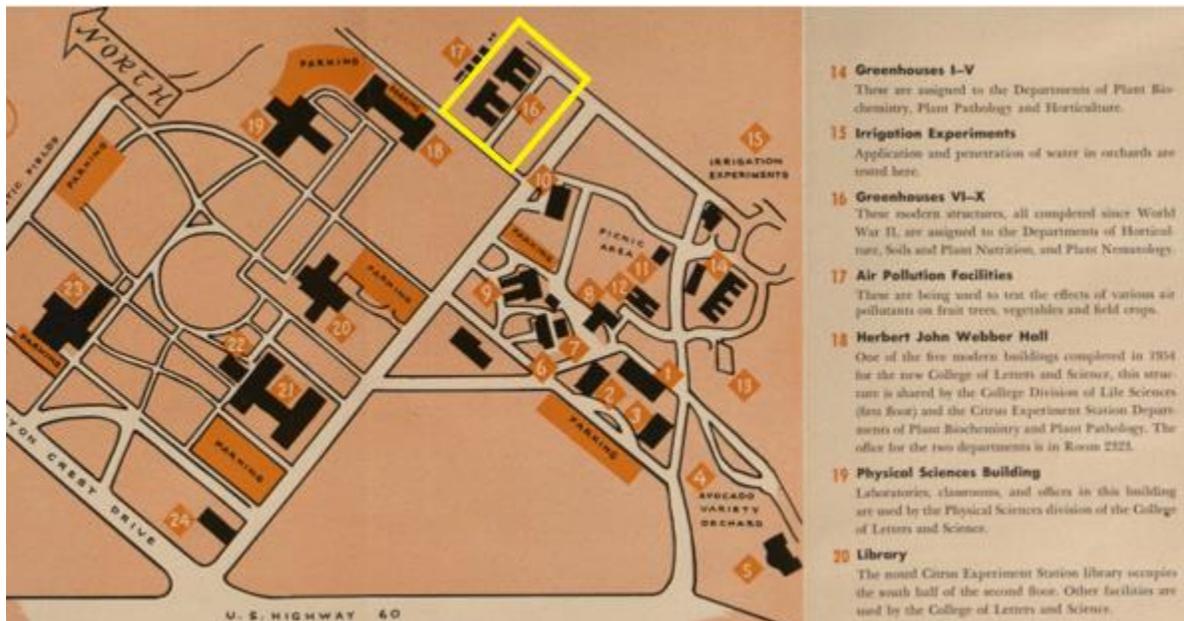
According to a stylized campus map from 1955, Greenhouses #6-10 (VI-X) were located in the northern portion of the campus and were assigned to the Department of Plant Biochemistry, Plant Pathology and Horticulture (Figure 19).

Figure 18 Site Plan for Greenhouses (1954)



Source: UCR

Figure 19 Campus Map, Greenhouses outlined in yellow (1955)



Source: University of California, Riverside, Special Collections and University Archives

Architects

The following architect biographies provide background information on both Graham Latta and Denney Carl of the architectural firm Latta and Denney.

Latta, Graham

Sheridan Graham Latta was born in 1906 in Wilcox, Pennsylvania before moving to the Los Angeles area to attend the University of Southern California (USC) School of Architecture. In 1927, Latta graduated, opening his own firm from 1935 to 1950. In 1950, Latta partnered with Carl Denney until 1955. He then joined with Donald Lynch from 1966 until he retired. Latta was located out of Glendale and completed prominent commissions such as Thomas Jefferson Elementary School in Glendale (1952), the office building at 3324 Wilshire Boulevard in Los Angeles (1961), the Grandview Branch Library in Glendale (1963), Lafayette Park Senior Citizens Center in Los Angeles (1964), and Crenshaw-Imperial Branch Library in Inglewood (1965). He was a member of the American Institute of Architects from 1942 to 1971. He died in 1976.⁴

Denney, Carl

Carl W. Denney, AIA was born in Philadelphia, PA in 1907 and was a Glendale-based architect who received his degree in Architecture from USC in 1930. Before joining the field, Denney worked as a set designer at Universal Pictures from 1930 to 1945. From 1947 to 1950, Denney worked as a designer for Graham Latta, before joining his as a partner from 1950 to 1955. He then went on to serve as chief architect at WED (Disney) Enterprises. Denney designed Walt Disney's home at Smoke Tree Ranch in Palm Springs and his residence in Los Angeles (1967).^{5,6}

⁴ HRG, City of Riverside Citywide Modernism Intensive Survey, Prepared for City of Riverside Community Development Department, September 2013.

⁵ Historic Resources Group (HRG), City of Palm Springs Citywide Historic Context Statement & Survey Findings, October 13, 2015

⁶ Pacific Coast Architecture Database (PCAD), "Carl W. Denney." Accessed on October 26, 2020. Available at: <http://pcad.lib.washington.edu/person/7833/>

4. Architectural Description

Located in the central region of the UCR campus, Greenhouses #6-10 are situated on a north-south axis in a linear row. They are bounded by the School of Medicine modular trailer to the north, East Campus Drive to the east, greenhouses on Eucalyptus Drive to the south, and Batchelor Hall to the west. They are numbered in a west-to-east order with Greenhouse #6 furthest to the west and Greenhouse #10 furthest to the east. Greenhouses #6-10 have concrete foundations and rectangular footprints. Each building displays an approximately 4,000-square-foot greenhouse with three separate compartments to the south and a headhouse to the north. The buildings are utilitarian in style.

Greenhouses #6-10 are constructed with glass panels set in a grid pattern secured by an aluminum frame and waist-high plaster-clad concrete water table. Metal vents along the east and west elevations provide evaporative cooling for the buildings. Primary greenhouse entrances are accessed from the south via raised concrete ramps/stairs and a concrete walkway that encircles the buildings. Entry is provided via either sliding glass and metal doors or fixed wood doors flanked by sidelights.

Two attached, 3,555-square-foot headhouses serve the five greenhouses: Greenhouses #6 and #7 share a headhouse to the west and Greenhouses #8-10 share a headhouse to the east. Headhouses are rectangular in plan and feature smooth-texture plaster-clad exteriors and composition roll-clad shed roofs with slightly overhanging boxed eaves along the north elevation. Fenestration is comprised of grouped, four-light, double-hung wood windows with wood surrounds on the north elevation of the headhouses. Pedestrian access is provided on the north elevation via concrete ramps and double wood doors. The glass and aluminum gables of the greenhouses are visible from this elevation over the headhouse roof. The following figures provide a visual overview of Greenhouses #6-10.

Figure 20 East View of Greenhouse #6 and #7, Box Spring Mountains visible in distance



Figure 21 Northwest View of Greenhouse #6, Boyce Hall visible in background



Figure 22 West View of Greenhouses #10-6, Batchelor Hall visible in distance



Figure 23 North View of Greenhouse #10



Figure 24 East View of Headhouses #6-10



Figure 25 West View of Headhouses #6-8



5. Evaluation

This evaluation considered Greenhouses #6-10 for eligibility for listing in the NRHP and CRHR and as a historical resource for the purposes of CEQA. This historic resources evaluation did not include local level criteria. Per California State Government Code Section 53094, the properties of California school districts, including the CSU system, are statutorily exempt from most provisions of local ordinances, including landmark designation. California State Government Code, Section 53094 permits “the governing board of a school district, by vote of two-thirds of its members . . . [to] render a city or county zoning ordinance inapplicable to a proposed use of property by such school district.”

Based on available literature and a site visit, the subject properties appear **ineligible for listing in the CRHR or NRHP under any criteria**. The following presents an application of the criteria of significance and the findings under each criterion. The UCR historic context framework for evaluations is also considered.

Criteria of Significance

Significance Criteria A/1 (Event)

Greenhouses #6-10 at UCR do not appear eligible for the NRHP or CRHR under Criteria A/1. They do not meet the eligibility standards established in the 2020 UCR Historic Resources Survey Report under Context #1 (Early Settlement and Development in Riverside, Theme/Citrus Industry in Riverside, Subtheme/UC Riverside Citrus Experiment Station) or Context #2 (Riverside’s Postwar Boom, 1945-1975, Theme/Postwar Institutional Expansion in Riverside, Subtheme/Founding of the University of California, Riverside, 1954-1975).

In addition, research completed for this study did not reveal associations with events that have made a significant contribution to the broad patterns of local, regional, state or national history or cultural heritage.

Built between 1950 and 1954, Greenhouses #6-10 fall roughly between the periods of significance for the early Citrus Experiment Station (starting in 1916) and the development of the UCR campus in 1953. UCR retains more representative examples of resources reflecting the early years of the Citrus Experiment Station as well as UCR’s postwar institutional expansion.

The properties do not reflect a significant event or pattern of development in terms of institutional development at UCR either regarding early Citrus Experiment Station development or postwar construction or settlement.

Therefore, the properties do not appear eligible for listing under Criteria A/1, either individually or as a contributor to a district.

Significance Criteria B/2 (Person)

Greenhouses #6-10 at UCR do not appear eligible for the NRHP or CRHR under Criteria B/2. They do not meet the eligibility standards established in the 2020 UCR Historic Resources Survey Report under Context #1 (Early Settlement and Development in Riverside, Theme/Citrus Industry in Riverside, Subtheme/UC Riverside Citrus Experiment Station) or Context #2 (Riverside’s Postwar Boom, 1945-1975, Theme/Postwar Institutional Expansion in Riverside, Subtheme/Founding of the University of California, Riverside, 1954-1975).

In addition, no information identified to date has suggested that anyone associated with the property has had a significant association with the city, region, state or nation. Research has not identified any other individual associated with the property who had this significance.

Therefore, the properties do not appear eligible for listing under Criteria B/2, either individually or as a contributor to a historic district.

Significance Criteria C/3 (Architecture/Design)

Greenhouses #6-10 at UCR do not appear individually eligible for the NRHP or CRHR under Criteria C/3.

They do not meet the eligibility standards established in the 2020 UCR Historic Resources Survey Report under Context #3 (Architecture and Design, 1916-1975).

The greenhouses are utilitarian in function, do not have a distinguishable architectural style, and are not notable example of early Citrus Experiment Station or postwar modernist architectural design. The greenhouses are the work of well-regarded architects, Graham Latta and Carl Denney, but the buildings are highly utilitarian in their function and style and do not represent master works of either architect. The team of Latta and Denney designed other buildings at UCR, such as the Rivera Library (1954), which serve as a more distinctive examples of their institutional designs.

The properties do not appear eligible for the NRHP or CRHR under Criteria C/3, either individually or as a contributor to an eligible historic district.

The property therefore does not qualify as a historical resource under CEQA.

6. Sources Consulted

California Department of Transportation

- 2011. Tract Housing in California 1945-1973: A Context for National Register Evaluation. Sacramento, CA.

California Office of Historic Preservation

- 2006 Technical Assistance Series No. 6, California Register and National Register: A Comparison. 14 March. Sacramento, CA.
- 1995 Instructions for Recording Historical Resources. Sacramento, CA.

Google Maps

- 2020 Aerial photos of UCR and vicinity. Accessed October 26, 2020. Available at: <https://www.google.com/maps>.

Historic Resources Group (HRG)

- 2009 City of Riverside Modernism Context Statement. Prepared for the City of Riverside Community Development Department. November.
- 2013 City of Riverside Citywide Modernism Intensive Survey. Prepared for the City of Riverside Community Development Department. September.
- 2015 City of Palm Springs Citywide Historic Context Statement & Survey Findings (Screencheck Draft). Prepared for the City of Palm Springs Planning Department. 13 October.

National Park Service

- 1995 How to Apply the National Register Criteria for Evaluation. National Register Bulletin, National Park Service, Washington D.C.

Nelson, Lee H.

- 1982 Preservation Brief 17: Architectural Character: Identifying the Visual Aspects of Historic Buildings as an Aid to Preserving Their Character. Heritage Preservation Services, National Park Service. Washington, DC: Department of the Interior.

Netronline

- Var. "Historic Aerials." [digital photograph database]. Images of UCR and vicinity viewed.

Sapphos Environmental, Inc.

- 2014 Los Angeles Unified School District: Historic Context Statement. Prepared for the Los Angeles Unified School District. March.

Weeks, Kay D. and Anne E. Grimmer

- 2001 Secretary of the Interior's Standards for the Treatment of Historic Properties, with Guidelines for Preserving, Rehabilitating, Restoring and Reconstructing Historic Buildings. Washington, DC: US Department of the Interior. Available at: <http://www.nps.gov/tps/standards/rehabilitation/rehabilitation-guidelines.pdf>.

7. Endnotes

- 1 Lawton, Harry W. 1989. "A Brief History of Citrus in Southern California." In Esther Klotz, Harry W. Lawton, and Joan H. Hall (eds.): *A History of Citrus in the Riverside Area*; revised edition; pp. 6-13. Riverside Museum Press, Riverside. Cited from Tang, Bai, Jennifer A. Mermilliod, and Casey Tibbet, 2003, "Historic Resources Survey of the Arlington Neighborhood," prepared for the City of Riverside by CRM Tech, Riverside, California.
- 2 Estudillo was a pioneering Latino attorney in Riverside in the late 1910s. A native of San Bernardino, Estudillo's ancestry went back to the Spanish era of Alta California. Estudillo was born in San Bernardino but educated in San Diego, where he served as Deputy Court Clerk. In 1893, following the establishment of Riverside, Estudillo was appointed Clerk of the Board of Supervisors. Soon thereafter, he became a practicing attorney. In 1904, Estudillo was elected to the California State Assembly, and in 1908 to the California State Senate. See Rincon, 2018, *City of Riverside Latino Historic Context Statement*, p. 78.
- 3 "Will Enlarge Institution: Riverside Citrus Experiment Station Improvement," *The Los Angeles Times*, 8 November 1912.
- 4 "Will Enlarge Institution: Riverside Citrus Experiment Station Improvement," *The Los Angeles Times*, 8 November 1912.
- 5 University of California Riverside College of Natural & Agricultural Sciences, "The Origins of the Citrus Experiment Station" 2020.
- 6 Winslow, M. "Citrus Experiment Station, Riverside." 1951. University of California Riverside, Special Collections and University Archives.
- 7 "Plans Adopted for South's Citrus Station Near City of Riverside," *San Bernardino News*, 21 January 1916.
- 8 "Our Neighbors: A Weekly Review of Agricultural Activities in the Southwest," *Los Angeles Times Farm and Garden Magazine*, 23 February 1930.
- 9 University of California, Riverside. N.d. "Citrus Variety Collection: History and Scope." Available at: <http://https://citrusvariety.ucr.edu/history/index.html>.
- 10 "U. of C. Fruit Experts Will Hold Classes: Annual Course in Citriculture Will Be Held Thursday and Friday at Station," *The San Bernardino Daily Sun*, 14 February 1933.
- 11 University of California Riverside College of Natural & Agricultural Sciences, 2020.
- 12 Harbison, Robert L., "Tiny Insects Aid in Fight against Citrus Enemies," *San Bernardino County Sun*, 30 April 1953.
- 13 "Limoneira Provides Land for Citrus Research," *Redlands Daily Facts*, 20 July 1961.
- 14 University of California Riverside, "The History of UCR: UCR 2020 Strategic Planning Working Paper," 2010:5.
- 15 *Riverside Daily Press and Enterprise*, "Greetings to UC's College at Riverside," 15 February 1954. Available at: <http://genealogybank.com>.
- 16 *Riverside Daily Press and Enterprise*, "Greetings to UC's College at Riverside," 15 February 1954. Available at: <http://genealogybank.com>.
- 17 University of California Riverside, "The History of UCR: UCR 2020 Strategic Planning Working Paper," 2010:5.



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Appendix A

DPR Forms

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary # _____
HRI # _____
Trinomial _____
NRHP Status Code 6Z

Other Listings _____
Review Code _____ Reviewer _____ Date _____

Page 1 of 6

Resource name(s) or number (assigned by recorder) *Greenhouses #6-10, UCR*

P1. Other Identifier: *N/A*

*P2. Location: Not for Publication Unrestricted

*a. County: *Riverside County*

*b. USGS 7.5' Quad: *Riverside East*

Date: *1980*

*c. Address: *900 University Avenue*

City: *Riverside*

Zip: *92521*

*e. Other Locational Data: *N/A*

***P3a. Description:**

Located in the central region of the UCR campus, Greenhouses #6-10 are situated on a north-south axis in a linear row. They are bounded by the School of Medicine modular trailer to the north, East Campus Drive to the east, greenhouses on Eucalyptus Drive to the south, and Batchelor Hall to the west. They are numbered in a west-to-east order with Greenhouse #6 furthest to the west and Greenhouse #10 furthest to the east. Greenhouses #6-10 have concrete foundations and rectangular footprints. Each building displays an approximately 4,000-square-foot greenhouse with three separate compartments to the south and a headhouse to the north. The buildings are utilitarian in style. Greenhouses #6-10 are constructed with glass panels set in a grid pattern secured by an aluminum frame and waist-high plaster-clad concrete water table. Metal vents along the east and west elevations provide evaporative cooling for the buildings. Primary greenhouse entrances are accessed from the south via raised concrete ramps/stairs and a concrete walkway that wraps around the buildings. Entry is provided via either sliding glass and metal doors or fixed wood doors flanked by sidelights.

Two attached approximately 3,555-square-foot headhouses serve the five greenhouses: Greenhouses numbers 6 and 7 share a headhouse to the west and Greenhouses numbers 8, 9, and 10 share a headhouse to the east. Headhouses are rectangular in plan and feature smooth-texture plaster-clad exteriors and composition roll-clad shed roofs with slightly overhanging boxed eaves along the north elevation. Fenestration is comprised of grouped four-light double-hung wood windows with wood surrounds on the north elevation of the headhouses. Pedestrian access is provided on the north elevation via Americans with Disability Act (ADA)-compliant concrete ramps and double wood doors. The glass and aluminum gables of the greenhouses are visible from this elevation over the headhouse roof.

*P3b. Resource Attributes: HP15. Educational Building

*P4. Resources Present: Building Structure Object Site District Other

P5a. Photo: (See Continuation Sheet page 4)



P5b. Photo:

South elevations, camera facing northeast, October 2020.

*P6. Date Constructed/Age and Sources:

historic 1950-1954

*P7. Owner and Address:

*University of California, Riverside
900 University Avenue
Riverside, CA 92521*

*P8. Recorded by:

*Debi Howell-Ardila and Alexandra Madsen
Rincon Consultants, Inc.
250 E. 1st Street
Los Angeles, CA 90012*

*P9. Date Recorded:

October 27, 2020

*P10. Survey Type: *Intensive Survey*

***P11. Report Citation:**

Howell-Ardila, Debi and Alexandra Madsen. 2020. *Memorandum for the Record, Historic Resources Evaluation, UC Riverside Greenhouse/Headhouses #6-10, Riverside, California*. Prepared by Rincon Consultants, Inc.

*Attachments: None Location Map Sketch Map Continuation Sheet Building, Structure, and Object Record
 Archaeological Record District Record Linear Feature Record Milling Station Record Rock Art Record
 Artifact Record Photograph Record Other (list)

BUILDING, STRUCTURE, AND OBJECT RECORD

Page 3 of 6

*CHR Status Code 6Z

*Resource Name or #: *Greenhouses #6-10, UCR*

- B1. Historic Name:** *Greenhouses VI-X*
- B2. Common Name:** *Greenhouses #6-10*
- B3. Original Use:** *Greenhouse*
- *B5. Architectural Style:** *Utilitarian*

B4. Present Use: *Greenhouse*

***B6. Construction History:**

Greenhouses #6-10 were designed in three phases between 1950 and 1954 for the Citrus Experiment Station (CES). They served research efforts including plant physiology, plant pathology, soil and plant nutrition, plant breeding, and nematology.

Greenhouses #6 and #7 were constructed in 1950 by Graham Latta for the Division of Soils & Plant Nutrition at CES and were originally approximately 2,000 square feet in size. The buildings included laboratories, offices, work rooms, chemical storage, restrooms, and a dark room. Architectural drawings from that year illustrate the building's glass and metal construction and the corresponding headhouse. These greenhouses are also visible in a historical aerial photograph from 1952; early construction on the campus is illustrated in this photograph.

Greenhouse #9 was designed by Latta and Denney in January of 1954. It was built to be slightly larger (approximately 1,000 square feet more) than Greenhouses #6 and #7 and was constructed for Nematode research. A small headhouse was constructed to the north of the greenhouse to accommodate the office and restroom.

Greenhouses #8 and #10 were designed by Latta and Denney in May of 1954. Comparable in size, they were constructed on either side of Greenhouse #9 and the addition of their headhouses connected the existing buildings into one large, rectangular headhouse. An overview of this construction is visible in a site plan completed as part of the as-built architectural drawings. According to historical aerials, additions to the southern elevations of Greenhouses #6 and #7 also appear to date to the mid-1950s and made all buildings relatively uniform in size and design. According to a stylized campus map from 1955, Greenhouses #6-10 (VI-X) were located in the then-northern reaches of the campus and were assigned "to the Department of Plant Biochemistry, Plant Pathology and Horticulture." Greenhouses #6-10 were relatively separated from the other CES, situated on the periphery of it and the nascent campus.

***B7. Moved?** No Yes Unknown **Date:** *N/A*

Original Location: *N/A*

***B8. Related Features:** *N/A*

B9a. Architect: *Graham Latta/ Graham Latta and Carl Denney*

b. Builder: *Unknown*

***B10. Significance:** *N/A*

Context/Theme: *N/A*

Period of Significance: *N/A* **Property Type:** *N/A*

Applicable Criteria: *N/A*

(See Continuation Sheet page 5)

B11. Additional Resource Attributes: *N/A*

***B12. References:**

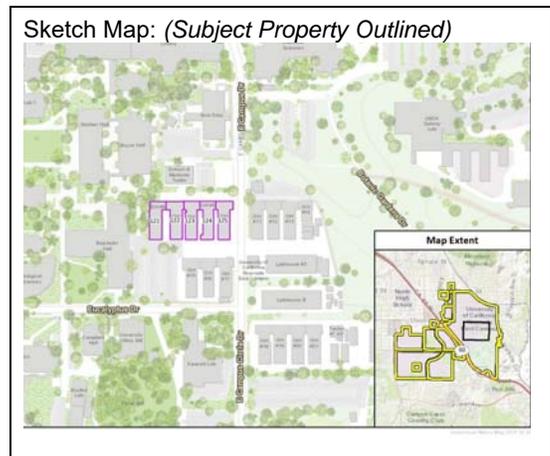
(See Continuation Sheet page 6)

B13. Remarks: *N/A*

***B14. Evaluator:** *Debi Howell-Ardila, MHP*

***Date of Evaluation:** *October 27, 2020*

(This space reserved for official comments.)



P5a. Photo: (Continued from Primary Record page 1)



Northwest and north views, October 2020.



East and west views, October 2020.

Figure 1 Original as-built drawings for Greenhouses #6 and #7, 1950

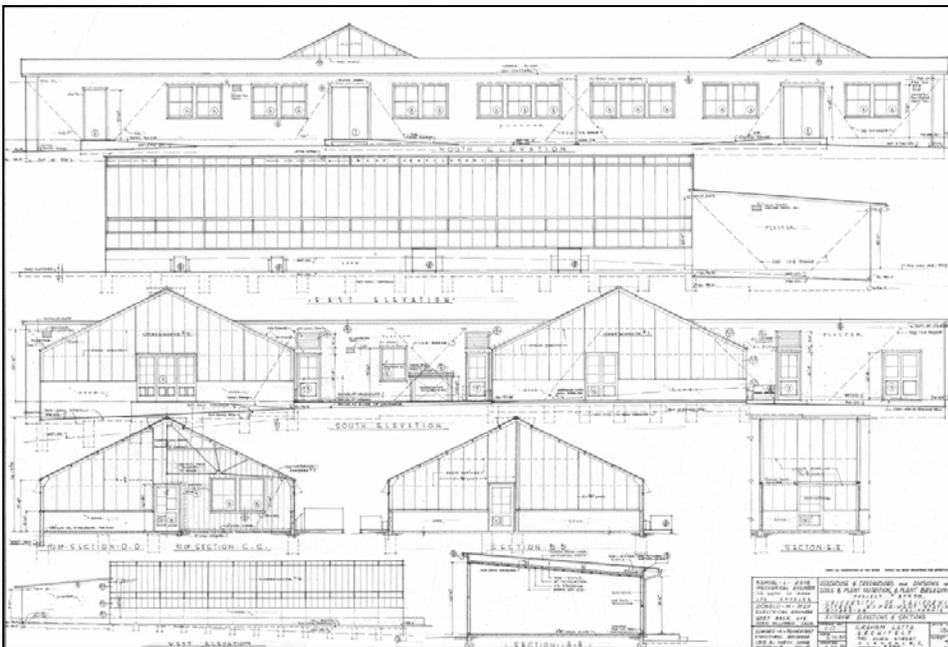
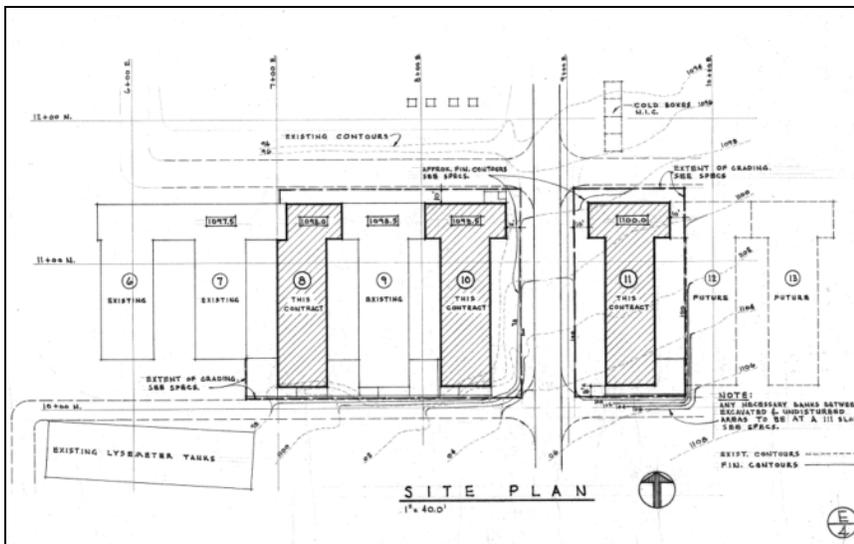


Figure 2 Historical Aerial Photograph of Campus, Greenhouses #6 and #7 outlined in yellow, 1952



Figure 3 Site Plan for Greenhouses, 1954



***B10. Significance (continued):**

Evaluation

Significance Criteria A/1

Greenhouses #6-10 at UCR do not appear eligible for the NRHP or CRHR under Criteria A/1. They do not meet the eligibility standards established in the UCR Historic Resources Survey Report under Context #1 (Early Settlement and Development in Riverside, Theme/Citrus Industry in Riverside, Subtheme/UC Riverside Citrus Experiment Station) or Context #2 (Riverside's Postwar Boom, 1945-1975, Theme/Postwar Institutional Expansion in Riverside, Subtheme/Founding of the University of California, Riverside, 1954-1975).

In addition, research completed for this study did not reveal associations with events that have made a significant contribution to the broad patterns of local, regional, state or national history or cultural heritage. (See continuation sheet page 6)

Page 6 of 6

Resource Name or # (Assigned by recorder) *Greenhouses #6-10, UCR*

*Recorded by *Debi Howell-Ardila, MHP*

*Date *October 27, 2020* Continuation Update

***B10. Significance (continued):**

Evaluation Continued

Significance Criterion A/1 continued

Built between 1950 and 1954, Greenhouses #6-10 fall roughly between the periods of significance for the early Citrus Experiment Station (starting in 1916) and the development of the UCR campus in 1953. UCR retains more representative examples of resources reflecting the early years of the Citrus Experiment Station as well as UCR's postwar institutional expansion.

The properties do not reflect a significant event or pattern of development in terms of institutional development at UCR either regarding early Citrus Experiment Station development or postwar construction or settlement.

Therefore, the properties do not appear eligible for listing under Criteria A/1, either individually or as a contributor to a district.

Significance Criterion B/2

Greenhouses #6-10 at UCR do not appear eligible for the NRHP or CRHR under Criteria B/2. They do not meet the eligibility standards established in the UCR Historic Resources Survey Report under Context #1 (Early Settlement and Development in Riverside, Theme/Citrus Industry in Riverside, Subtheme/UC Riverside Citrus Experiment Station) or Context #2 (Riverside's Postwar Boom, 1945-1975, Theme/Postwar Institutional Expansion in Riverside, Subtheme/Founding of the University of California, Riverside, 1954-1975).

In addition, no information identified to date has suggested that anyone associated with the property has had a significant association with the city, region, state or nation. Research has not identified any other individual associated with the property who had this significance.

Therefore, the properties do not appear eligible for listing under Criteria B/2, either individually or as a contributor to a historic district.

Significance Criterion C/3

Greenhouses #6-10 at UCR do not appear individually eligible for the NRHP or CRHR under Criteria C/3.

They do not meet the eligibility standards established in the UCR Historic Resources Survey Report under Context #3 (Architecture and Design, 1916-1975). The greenhouses are utilitarian in function, do not have a distinguishable architectural style, and are not notable example of early Citrus Experiment Station or postwar modernist architectural design. The greenhouses are the work of well-regarded architects, Graham Latta and Carl Denney, but the buildings are highly utilitarian in their function and style and do not represent master works of either architect. The team of Latta and Denney designed other buildings at UCR, such as the Rivera Library (1954), which serve as a more distinctive examples of their institutional designs.

The properties do not appear eligible for the NRHP or CRHR under Criteria C/3, either individually or as a contributor to an eligible historic district.

The property therefore does not qualify as a historical resource under CEQA

B12. References (continued):

California Department of Transportation. 2011. Tract Housing in California 1945-1973: A Context for National Register Evaluation. Sacramento, CA.

California Office of Historic Preservation. 2006. Technical Assistance Series No. 6, California Register and National Register: A Comparison. 14 March. Sacramento, CA.

Google Maps. 2020. Aerial photos of UCR and vicinity. Accessed October 26, 2020. Available at: <https://www.google.com/maps>.

Historic Resources Group (HRG). 2009. City of Riverside Modernism Context Statement. Prepared for the City of Riverside Community Development Department. November.

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Howell-Ardila, Debi. 2014. Los Angeles Unified School District: Historic Context Statement. Prepared by Sapphos Environmental, Inc. for the Los Angeles Unified School District. March 2014.

National Park Service. 1995. How to Apply the National Register Criteria for Evaluation. National Register Bulletin, National Park Service, Washington D.C.

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UCR. 2020. Special Collections and University Archives on Flickr, Image 282_003_184. Accessed October 2020.

APPENDIX D
ENERGY ANALYSIS

Energy Use Summary

Construction Phase (gallons/construction period)		Gasoline	Diesel		
Construction Vehicles		18,484	23,944		
Worker Trips		16,080	64		
Vendor Trips		3,109	44		
Haul Trucks		3	2,610		
Total		37,677	26,662		

Operations Phase (gallons/year)		Gasoline	Diesel	Natural Gas (kBTU/yr)	Electricity (kWh/yr)
University		53,653	7,765	0	1,748,000
	0	0	0	0	0
	0	0	0	0	0
	0	0	0	0	0
	0	0	0	0	0
All Land Uses		53,653	7,765	0	1,748,000

Operations Onroad Energy Use

Year **2021**

Vehicle Types	MPG by Fuel Type			Population by Fuel Type				Total
	GAS	DSL	ELEC	GAS	DSL	ELEC		
LDA	30.0	47.5		6,444,755	55,086	107,407	6,499,841	
LDT1	25.8	22.9		715,053	416	3,766	715,469	
LDT2	23.8	34.7		2,207,489	12,809	17,083	2,220,298	
LHDT1	10.4	21.2		176,982	113,082		290,064	
LHDT2	9.1	19.2		29,883	44,616		74,500	
MCY	36.4			286,161			286,161	
MDV	19.4	26.6		1,569,538	30,444	7,447	1,599,981	
MH	5.1	10.5		35,587	12,386		47,973	
MHDT	5.0	10.4		25,313	122,609		147,922	
HHDT	4.0	6.6		82	106,417		106,499	
OBUS	5.0	8.2		5,971	4,250		10,222	
SBUS	9.1	7.5		2,479	6,589		9,067	
UBUS	4.8	6.0		944	14	17	958	

Trips/Day	Trips/day	Trips/day	Trips/day	Total	VMT/day	VMT/day	VMT/day	Trip Length
Land Use	Weekday	Saturday	Sunday	Weekly	Weekday	Saturday	Sunday	
University	578.00	439.00	0.00	3329	4,771	3,624	0	8.25

Fleet Mix		LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHDT	OBUS	UBUS	MCY	SBUS	MH	Total
Land Use		0.558976	0.043534	0.209821	0.113949	0.016111	0.005791	0.025447	0.016654	0.001713	0.001553	0.004896	0.00059	0.000966	100.0%
University	0	0.558976	0.043534	0.209821	0.113949	0.016111	0.005791	0.025447	0.016654	0.001713	0.001553	0.004896	0.00059	0.000966	100.0%
	0	0.558976	0.043534	0.209821	0.113949	0.016111	0.005791	0.025447	0.016654	0.001713	0.001553	0.004896	0.00059	0.000966	100.0%
	0	0.558976	0.043534	0.209821	0.113949	0.016111	0.005791	0.025447	0.016654	0.001713	0.001553	0.004896	0.00059	0.000966	100.0%
	0	0.558976	0.043534	0.209821	0.113949	0.016111	0.005791	0.025447	0.016654	0.001713	0.001553	0.004896	0.00059	0.000966	100.0%

Vehicle Trips		LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHDT	HHDT	Obus	Ubus	MCY	Sbus	MH	Total	Daily VMT
Weekday Trips		323	25	121	66	9	3	15	10	1	1	3	0	1	578	4,771.34
University	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
Total		323	25	121	66	9	3	15	10	1	1	3	0	1	578	

Saturday Trips		LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHDT	HHDT	Obus	Ubus	MCY	Sbus	MH	Total	Daily VMT
University		245	19	92	50	7	3	11	7	1	1	2	0	0	439	3,623.91
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
Total		245	19	92	50	7	3	11	7	1	1	2	0	0	439	

Sunday Trips		LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHDT	HHDT	Obus	Ubus	MCY	Sbus	MH	Total	Daily VMT
University		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
Total		0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Gallons of Fuel		LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHDT	HHDT	Obus	Ubus	MCY	Sbus	MH	Total
Gasoline		26,364	2,409	12,515	8,244	1,348	366	1,241	5	287	455	192	25	202	53,653
University	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		26,364	2,409	12,515	8,244	1,348	366	1,241	5	287	455	192	25	202	53,653

Diesel		LDA	LDT1	LDT2	MDV	OBUS	LHD2	MHDT	HHDT	Obus	Ubus	MCY	Sbus	MH	Total
University		143	2	50	116	422	258	2,907	3,622	124	5	0	81	34	7,765
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		143	2	50	116	422	258	2,907	3,622	124	5	0	81	34	7,765

61,418 Total Gallons

23 Average MPG

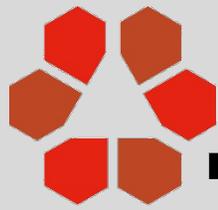
Utilities

	Natural Gas Use	Electricity Use
	kBTU/yr	kWh/yr
Land Use		
University	-	1,748,000
	0	
	0	
	0	
	0	
	0	
Total	0	1,748,000

Offroad Construction Equipment Energy Use

PhaseName	OffRoadEquipmentType	OffRoadEquipmentUnitA	UsageHours	HorsePower	Load Factor	Horsepower Category	Num Days	Year	Fuel Consumption Rate	Fuel Type	Total Fuel Consumption
		mount							(gal/hour)		(gal/construction period)
Site Preparation	Rubber Tired Dozers	3	8	247	0.4	300	13	2021	4.5	Diesel	557
Site Preparation	Tractors/Loaders/Backhoes	4	8	97	0.37	100	13	2021	1.6	Diesel	245
Demolition	Concrete/Industrial Saws	1	8	81	0.73	100	26	2021	4.7	Gasoline	716
Demolition	Excavators	1	8	158	0.38	175	26	2021	2.9	Diesel	228
Demolition	Rubber Tired Dozers	1	8	247	0.4	300	26	2021	4.5	Diesel	372
Demolition	Skid Steer Loaders	1	8	65	0.37	50	26	2021	0.9	Diesel	71
Demolition	Tractors/Loaders/Backhoes	1	8	97	0.37	100	26	2021	1.6	Diesel	122
Grading	Excavators	2	8	158	0.38	175	105	2021	2.9	Diesel	1,843
Grading	Graders	1	8	187	0.41	175	105	2021	3.1	Diesel	1,084
Grading	Rollers	1	8	80	0.38	100	105	2021	1.7	Diesel	541
Grading	Rubber Tired Dozers	1	8	247	0.4	300	105	2021	4.5	Diesel	1,500
Grading	Tractors/Loaders/Backhoes	1	8	97	0.37	100	105	2021	1.6	Diesel	494
Building Construction	Cranes	1	7	231	0.29	300	445	2021	3.3	Diesel	2,971
Building Construction	Excavators	1	8	158	0.38	175	445	2021	2.9	Diesel	3,904
Building Construction	Forklifts	3	8	89	0.2	100	445	2021	2.0	Diesel	4,277
Building Construction	Generator Sets	1	8	84	0.74	100	445	2021	5.2	Gasoline	13,707
Building Construction	Tractors/Loaders/Backhoes	2	7	97	0.37	100	445	2021	1.6	Diesel	3,663
Building Construction	Welders	1	8	46	0.45	50	445	2021	2.4	Gasoline	3,859
Paving	Cement and Mortar Mixers	2	6	9	0.56	25	78	2021	0.4	Gasoline	203
Paving	Pavers	1	8	130	0.42	100	78	2021	1.7	Diesel	455
Paving	Paving Equipment	2	6	132	0.36	100	78	2021	1.6	Diesel	554
Paving	Rollers	2	6	80	0.38	100	78	2021	1.7	Diesel	602
Paving	Tractors/Loaders/Backhoes	1	8	97	0.37	100	78	2021	1.6	Diesel	367
Architectural Coating	Air Compressors	1	6	78	0.48	100	25	2021	1.3	Diesel	95
									Total	Gasoline	18,484
									Total	Diesel	23,944

APPENDIX E
GEOTECHNICAL REPORT



TWINING

Engineering a Better Tomorrow

Geotechnical Data Report

**Proposed School of Medicine Education Building II
UCR Project No. 954045
University of California, Riverside
Riverside, California**

Prepared for:

University of California, Riverside
1223 University Avenue, Suite 240
Riverside, California 92507

June 15, 2020
Project No.: 200170.3



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Suite 300
Long Beach CA 90806

Tel 562.426.3355
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June 15, 2020
Project No.: 200170.3

Mr. Mihai Gavan
Project Manager
University of California, Riverside
1223 University Avenue, Suite 240
Riverside, California 92507

Subject: Geotechnical Data Report
Proposed School of Medicine Education Building II
University of California, Riverside
Riverside, California

Dear Mr. Gavan,

In accordance with your request and authorization, we are presenting our geotechnical data report for the Proposed School of Medicine Education Building II project located at University of California, Riverside in Riverside, California. The purpose of our investigation has been to evaluate the subsurface conditions at the site and to provide geotechnical engineering data for the proposed improvements.

We appreciate the opportunity to be of service on this project. Should you have any questions regarding this report or if we can be of further service, please do not hesitate to contact the undersigned.

Respectfully submitted,
TWINING, INC.

A handwritten signature in blue ink, appearing to read "Liangcai He", written over the circular professional seal.



Liangcai He, PhD, PE 73280, GE 3033
Chief Geotechnical Engineer

TABLE OF CONTENTS

	<u>Page</u>
1. INTRODUCTION.....	1
2. SITE DESCRIPTION AND PROPOSED DEVELOPMENT	1
3. SCOPE OF WORK	1
3.1. LITERATURE REVIEW.....	1
3.2. PRE-FIELD ACTIVITIES AND FIELD EXPLORATION	2
3.3. GEOTECHNICAL LABORATORY TESTING	2
3.4. ENGINEERING ANALYSES AND REPORT PREPARATION	3
4. GEOLOGY AND SUBSURFACE CONDITIONS.....	3
4.1. REGIONAL GEOLOGIC SETTING.....	3
4.2. SUBSURFACE EARTH MATERIALS	3
4.3. GROUNDWATER CONDITIONS.....	4
4.4. SOIL CORROSIVITY	4
4.5. PERCOLATION TEST	4
5. GEOLOGIC HAZARDS AND SEISMIC DESIGN CONSIDERATIONS	4
5.1. ACTIVE FAULTING AND SURFACE FAULT RUPTURE.....	4
5.2. LIQUEFACTION POTENTIAL AND SEISMIC SETTLEMENT	5
5.3. LATERAL SPREAD	5
5.4. LANDSLIDES.....	5
5.5. FLOODING, INUNDATION, TSUNAMI AND SEICHE.....	5
5.6. DEAGGREGATED SEISMIC SOURCE PARAMETERS	6
5.7. SITE CLASS FOR SEISMIC DESIGN.....	6
5.8. MAPPED CBC SEISMIC DESIGN PARAMETERS	6
6. LIMITATIONS	8
7. SELECTED REFERENCES	9

Figures

- Figure 1 – Site Location Map
- Figure 2 – Site Plan and Boring Location Map
- Figure 3 – Regional Geologic Map
- Figure 4 – Seismic Hazard Zones Map

Appendices

- Appendix A – Field Exploration
- Appendix B – Laboratory Testing



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1. INTRODUCTION

This report presents the data of the geotechnical investigation performed by Twining, Inc. (Twining) for the Proposed School of Medicine Education Building II project located at University of California, Riverside (UCR) in Riverside, California. A description of the site and the proposed improvements is provided in the following section. The objectives of this investigation have been to evaluate subsurface conditions at the site and to provide geotechnical engineering data for design and construction of the proposed development.

2. SITE DESCRIPTION AND PROPOSED DEVELOPMENT

The Proposed School of Medicine Education Building II project is on the campus of the University of California, Riverside, as shown on Figure 1 – Site Location Map, and located at a site known as the Lot 40 and SOM Modular building site. The site and surrounding vicinity are shown on Figure 2 – Site Plan and Boring Location Map.

The site is bounded by a parking lot, Scotty's Market, and the existing School of Medicine Education building on the north, by East Campus Drive on the east, by an access road to the green houses on the south, and by the Boyce Hall building on the west. The site is currently occupied by the recently completed Biomed Trailer complex, a 3 MW backup generator that serves multiple buildings, switches for the 12-kV circuit, and the associated surface parking spaces.

The site exhibits low relief and gently descends toward the west, with a surface elevation of approximately 1091 feet above mean sea level (msl). The site existing ground surface is approximately 5 to 7 feet higher than the parking lot on the north and approximately 8 feet lower than the access road on the south.

The approximate site coordinates are latitude 33.973242°N and longitude 117.324154°W, and the site is located on the Riverside East, California 7½-Minute Quadrangle, based on the United States Geological Survey (USGS) topographic map (USGS 2018).

Based on preliminary information provided to us by UCR, it is our understanding that the proposed project will consist of a new building with a footprint of approximately 25,000 square feet. No specific design information is available at the time this report was prepared. The building will most likely be four stories and no subterranean levels are planned at this time. The project is anticipated to provide approximately gross square feet (GSF) with approximately 65,000 assignable square feet (ASF) of instruction and instruction support spaces, student support / study facilities, academic / administrative offices and support space. The project will also include a stormwater infiltration system.

3. SCOPE OF WORK

Our scope of work included review of background information, pre-field activities and field exploration, laboratory testing, and report preparation. These tasks are described in the following subsections.

3.1. Literature Review

We reviewed readily available background data relevant to the subject site in preparation of this report, including available previous geotechnical investigation reports, published and unpublished geologic literature contained in our files, published geologic maps, topographic maps, aerial photos,

and other publications prepared by the California Geological Survey (CGS) and the United States Geological Survey (USGS). In particular, we reviewed the geotechnical investigation report for the Taco Fresco Replacement project (UCR project number 954029) provided by UCR prepared by Converse Consultants (2011). A partial list of literature reviewed is presented in the “Selected References” section of this report. Relevant information has been incorporated into this report.

At the time of this report, geotechnical reports for other improvements in the vicinity of the project site, including the Boyce Hall building on the east, the School of Medicine Education building on the north (UCR project number 954032), and the previous School of Medicine Trailer Expansion (UCR project number 954043) at this project site, were not available for our review.

3.2. Pre-Field Activities and Field Exploration

Before starting our exploration program, we performed a site reconnaissance to observe the general surficial conditions at the site, to select field exploration locations, and to plan field logistics including health and safety. After exploration locations were delineated, Underground Service Alert was notified of the planned locations a minimum of 72 hours prior to excavation.

The field exploration was conducted on May 14 and 15, 2020 and consisted of drilling, testing, sampling, and logging 5 hollow-stem-auger (HSA) borings (B-1 through B-4 and P-1). The borings were advanced to approximately 5 to 71½ feet below ground surface (bgs) using a CME-75 truck-mounted drill rigs equipped with 8-inch-diameter HSAs. The approximate locations of the borings are shown on Figure 2 – Site Plan and Boring Location Map.

Drive samples of the subsurface materials were obtained from the borings using a Standard Penetration Test (SPT) sampler without liners and a modified California split spoon sampler. The samplers were driven using a 140-pound automatic hammer falling approximately 30 inches. The blow-counts to drive the samplers were recorded, and subsurface conditions encountered in the borings were logged by a California Certified Engineering Geologist. Samples obtained from the borings were transported to Twining’s geotechnical engineering laboratory for examination and testing.

Percolation testing was performed on May 15, 2020 in boring P-1 according to the boring percolation test guidance provided in the Riverside County Design Handbook for Low Impact Development Best Management Practices. The tests were performed to provide an estimate of the infiltration rate of the site soils for use in preliminary design of a storm water management system.

Upon completion of drilling, sampling and testing, the borings were backfilled by the drilling subcontractor using drilled soil cuttings. The surface where drilling encountered a pavement section was repaired with quickset concrete.

Detailed descriptions of the borings, soils encountered during drilling, and the percolation tests are presented in Appendix A.

3.3. Geotechnical Laboratory Testing

Laboratory tests were performed on selected samples obtained from the borings to aid in the soil classification and to evaluate the engineering properties of site soils. The following tests were performed in general accordance with ASTM standards:

- In-situ moisture and density;
- #200 Wash;

- Atterberg Limits;
- Expansion Index;
- Consolidation;
- Maximum dry density and optimum moisture content;
- Corrosivity;
- Direct shear; and
- R-Value;

Detailed laboratory test procedures and results are presented in Appendix B – Laboratory Testing.

3.4. Engineering Analyses and Report Preparation

We compiled and analyzed the data collected from our site reconnaissance, subsurface evaluation, and laboratory testing, and prepared this report to present our geotechnical data including:

- Site geology and subsurface conditions;
- Groundwater conditions;
- Soil corrosion potential;
- Percolation test;
- Geologic hazards and seismic design parameters; and

4. GEOLOGY AND SUBSURFACE CONDITIONS

The geology and subsurface conditions at the site are based on the results of our field investigation (Appendix A) and our review of published geologic maps (Figure 3).

4.1. Regional Geologic Setting

According to geologic mapping published by the Dibblee Geological Foundation (Dibblee and Minch, 2003), the project site is underlain by Pleistocene-aged older surficial sediments (map symbol: Qoa). These sediments are weakly indurated alluvial fan described derived from local terrains of plutonic rocks. They are described as “alluvial fan deposits of sand, minor gravel, tan to light reddish brown.” A portion of this geologic map is reproduced as Figure 3 – Regional Geologic Map.

4.2. Subsurface Earth Materials

Before advancing into subsurface earth materials, borings B-1 through B-4 encountered a pavement section consisting of 2 to 4 inches of asphaltic concrete over up to 4.5 inches of base. Boring P-1 was drilled in an unpaved area.

Earth materials encountered during our subsurface investigation consisted predominantly of up to 5 feet of fill overlying older alluvium. The older alluvium encountered in our borings consisted primarily of clayey sand and silty sand.

The fill consisted of silty sand and sandy lean clay with about 40 to 50 percent of sand. It should be noted that the undocumented fill thickness may vary across the site. The fill is believed to be placed during recent expansion of the Biomed Trailer complex; however, the fill is considered undocumented because documentation regarding its placement and compaction is not available for our review.

Detailed information regarding the exploratory excavations is presented in Appendix A – Field Exploration.

4.3. Groundwater Conditions

Groundwater was not encountered within any of the borings drilled to depths between approximately 5 and 7½ feet bgs. Based on our review of the California Water Resource website, the groundwater level is reportedly situated at a depth greater than 50 feet bgs.

Groundwater conditions may vary across the site due to stratigraphic and hydrologic conditions and may change over time as a consequence of seasonal and meteorological fluctuations, or of activities by humans at this and nearby sites.

4.4. Soil Corrosivity

Laboratory testing was performed on one selected near-surface soil to evaluate pH and electrical resistivity, as well as chloride and sulfate contents. The pH and electrical resistivity tests were performed in accordance with California Test 643, and the sulfate and chloride tests were performed in accordance with California Tests 417 and 422, respectively. These laboratory test results are presented in Appendix B.

The sulfate content of the sample tested was 617 ppm. The pH value was 7.4. The chloride concentration was 118 ppm. The saturated minimum electrical resistivity value for the sample tested was 790 Ohm-cm.

4.5. Percolation Test

Details of the percolation test are presented in Appendix A. Infiltration rates with a factor of safety of 3 from our percolation tests are summarized in Table 1.

Table 1 – Infiltration Rate with a Factor of Safety of 3

Test Location	Depth of Test Borehole (feet)	Infiltration Rate (inch/hour)
P-1	5	1.76

5. GEOLOGIC HAZARDS AND SEISMIC DESIGN CONSIDERATIONS

The site is located in a seismically active area, as is the majority of southern California, and the potential for strong ground motion in the project area is considered high during the design life of the proposed development. The hazards associated with seismic activity in the vicinity of the site area discussed in the following sections.

5.1. Active Faulting and Surface Fault Rupture

It is our opinion that the likelihood of surface fault rupture and earthquake-induced landslides at the site during the life of the proposed improvements is low. The site is not located within or adjacent to an Alquist-Priolo Earthquake Fault Zone (EFZ) (CGS 2016). The boundary of the closest Alquist-

Priolo EFZ is located approximately 5.3 miles northeast of the site associated with the San Jacinto fault zone. Based on our search of the 2008 national fault database (Petersen et al., 2008), the closest known active fault is the San Jacinto fault, located approximately 5.72 miles northeast of the site.

5.2. Liquefaction Potential and Seismic Settlement

Liquefaction is the phenomenon in which loosely deposited granular soils with silt and clay contents of less than approximately 35 percent, and non-plastic silts located below the water table undergo rapid loss of shear strength when subjected to strong earthquake-induced ground shaking. Ground shaking of sufficient duration results in the loss of grain-to-grain contact due to a rapid rise in pore water pressure and causes the soil to behave as a fluid for a short period of time.

Seismic settlement can occur when loose to medium dense granular materials densify during seismic shaking and liquefaction. Seismically-induced settlement may occur in dry, unsaturated, as well as saturated soils. Liquefaction is generally known to occur in loose, saturated, relatively clean, fine-grained cohesionless soils at depths shallower than approximately 50 feet. Factors to consider in the evaluation of soil liquefaction potential include groundwater conditions, soil type, grain size distribution, relative density, degree of saturation, and both the intensity and duration of ground motion. Other phenomena associated with soil liquefaction include sand boils, ground oscillation, and loss of foundation bearing capacity.

Based on the fairly uniform and medium dense to dense subsurface soil profile, the anticipated differential settlement due to seismically-induced dry-sand settlement is negligible.

The area of the project site has not been evaluated for liquefaction by CGS. According to the liquefaction zones map in the General Plan 2025 of the City of Riverside, the site has low liquefaction susceptibility. Based on the presence of a groundwater table greater than 50 feet and the relatively dense soils encountered at the site, it is our opinion that the potential for liquefaction at this site is low.

5.3. Lateral Spread

The potential of liquefaction-induced lateral spread at the site is considered low because the site has low liquefaction susceptibility.

5.4. Landslides

The area of the project site is not within a CGS mapped area with the potential for earthquake-induced landslides. The potential for earthquake-induced landslides to occur at the site is considered low.

5.5. Flooding, Inundation, Tsunami and Seiche

According to the Flood Hazard Areas map in the Public Safety Element of the City of Riverside, the site is not located within a 100- or 500-year floodplain.

Tsunamis are waves generated by massive landslides near or under sea water. The site is not located within a coastal area or within an Inundation & Tsunami Hazard Area mapped by the state of California.

Seiches are standing wave oscillations of an enclosed water body (e.g., a lake, reservoir, or bay) after the original driving force has dissipated. Resulting oscillation could cause waves up to tens of feet high, which in turn could cause extensive damage along the shoreline. The most serious consequences of a seiche would be the overtopping and failure of a dam. The site is not located downstream of any large bodies of water that could adversely affect the property in the event of earthquake failures or seiches.

Therefore, flood-, inundation-, tsunami- and seiche-hazard at the site is considered remote.

5.6. Deaggregated Seismic Source Parameters

We performed a seismic hazard de-aggregation analysis for the peak ground acceleration with a probability of exceedance of 2% in 50 years. The analysis used the USGS Unified Hazard Tool based on the 2014 USGS seismic source model. The results of the analysis indicate the controlling modal moment magnitude M_w and fault distance R are 8.1 and 9.3 miles (9.3 km), respectively.

5.7. Site Class for Seismic Design

Based on the site subsurface conditions, average field standard penetration test blow-counts (Section 4.2 and Appendix A) for the upper 100 feet of soil between 15 and 50, we have determined Site Class D for the project seismic design according to Chapter 20 of ASCE 7-16.

5.8. Mapped CBC Seismic Design Parameters

As the site is classified as seismic Site Class D and the mapped spectral acceleration parameter at period 1-second, S_1 , is greater than 0.2 g, a site-specific ground motion hazard analysis is required according to Section 11.4.7 of ASCE 7-16. For structural design based on Exception 2 in Section 11.4.8 of ASCE 7-16, Table 2 presents the seismic design parameters for the site seismic Site Class D, based on coordinates of latitude 33.973242°N and longitude 117.324154°W.

**Table 2 – 2019 California Building Code Seismic Design Parameters
for Design Based on Exception 2 in Section 11.4.8 of ASCE 7-16**

Design Parameters	Value
Site Class	D
Mapped Spectral Acceleration Parameter at Period of 0.2-Second, S_s (g)	1.5
Mapped Spectral Acceleration Parameter at Period 1-Second, S_1 (g)	0.6
Site Coefficient, F_a	1
Site Coefficient, F_v	1.7
Adjusted MCE_R^1 Spectral Response Acceleration Parameter, S_{MS} (g)	1.5
Adjusted MCE_R^1 Spectral Response Acceleration Parameter, S_{M1} (g)	1.0
Design Spectral Response Acceleration Parameter, S_{DS} (g)	1.0
Design Spectral Response Acceleration Parameter, S_{D1} (g)	0.68
Risk Coefficient C_{RS}	0.931
Risk Coefficient C_{R1}	0.906
Peak Ground Acceleration, PGA_M^2 (g)	0.684
Seismic Design Category ³	D
Long-Period Transition Period, T_L (seconds)	8
$T_s = S_{D1} / S_{DS}$	0.68
<p>When using the above parameters for seismic design, the seismic design coefficient C_s should be calculated as follows:</p> <p>For $T \leq 1.5T_s$, $C_s = S_{DS}/(R/I_e)$</p> <p>For $T_L \geq T > 1.5T_s$, $C_s = 1.5 S_{D1}/(T R/I_e)$</p> <p>For $T > T_L$, $C_s = 1.5 (S_{D1} T_L)/(T^2 R/I_e)$</p> <p>where</p> <p>T = the fundamental period of the structure(s) determined in Section 12.8.2 of ASCE 7-16;</p> <p>R = the response modification factor determined in Table 12.2-1 of ASCE 7-16; and</p> <p>I_e = the importance factor determined in accordance with Section 11.5.1 of ASCE 7-16.</p>	
<p>Notes: ¹ Risk-Targeted Maximum Considered Earthquake.</p> <p>² Peak Ground Acceleration adjusted for site effects.</p> <p>³ For S_1 greater than or equal to 0.75 g, the Seismic Design Category is E for risk category I, II, and III structures and F for risk category IV structures.</p>	



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6. LIMITATIONS

The data presented in this report are based on Twining, Inc.'s review of available background documents, on information obtained from field explorations, and on laboratory testing. It should be noted that this study did not evaluate the possible presence of hazardous materials on any portion of the site.

Due to the limited nature of our field explorations, conditions not observed and described in this report may be present on the site. Uncertainties relative to subsurface conditions can be reduced through additional subsurface exploration. Additional subsurface evaluation and laboratory testing can be performed upon request. It should be understood that conditions different from those anticipated in this report may be encountered during grading operations.

Site conditions, including groundwater elevation, can change with time as a result of natural processes or the activities of man at the subject site or at nearby sites. Changes to the applicable laws, regulations, codes, and standards of practice may occur as a result of government action or the broadening of knowledge. The findings of this report may, therefore, be invalidated over time, in part or in whole, by changes over which Twining, Inc. has no control.

This document is intended to be used only in its entirety. No portion of the document, by itself, is designed to completely represent any aspect of the project described herein. Twining should be contacted if the reader requires additional information or has questions regarding the content, interpretations presented, or completeness of this document.

Twining performed its evaluation using the degree of care and skill ordinarily exercised under similar circumstances by reputable geotechnical professionals with experience in this area in similar soil conditions. No other warranty, either express or implied, is made as to the conclusions contained in this report.



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7. SELECTED REFERENCES

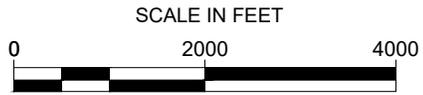
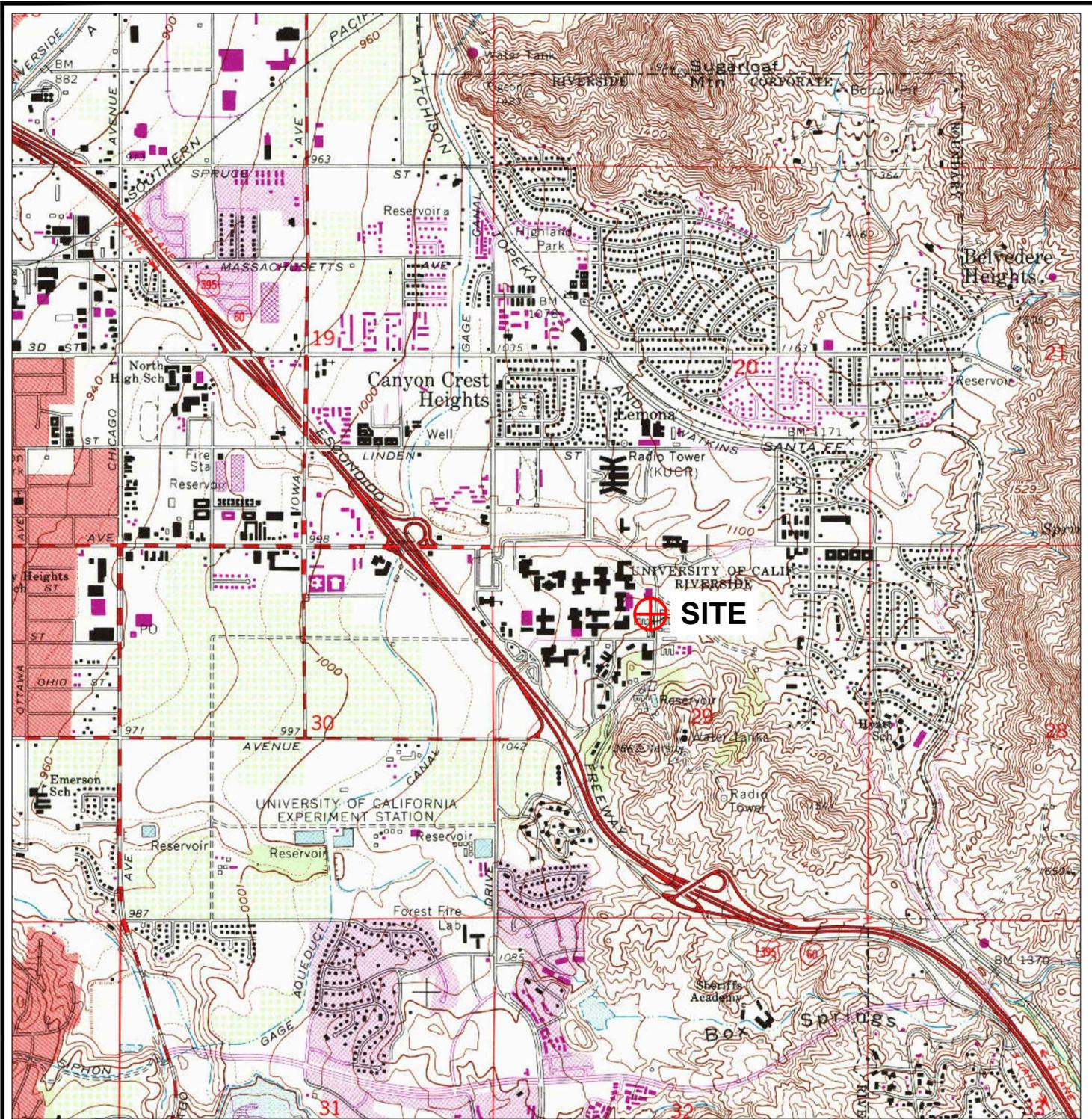
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FIGURES



REFERENCE: USGS (2012)



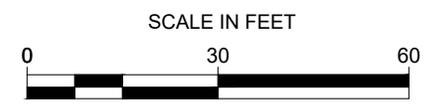
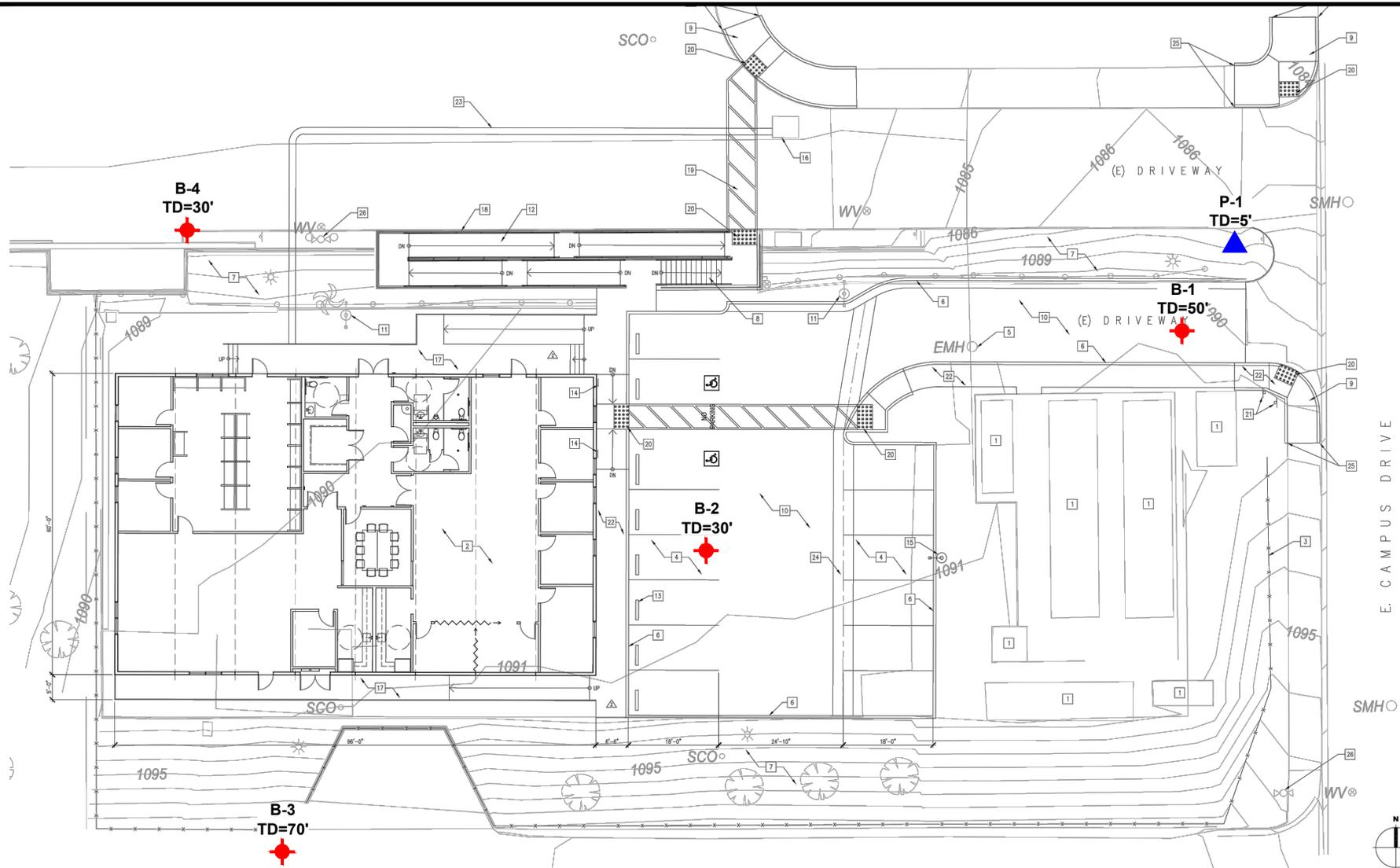
SITE LOCATION MAP

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FIGURE 1



LEGEND

- B-1**
TD=50'
 APPROXIMATE LOCATION OF BORING BY TWINING
TOTAL DEPTH IN FEET
- P-1**
TD=5'
 APPROXIMATE LOCATION OF PERCOLATION TEST BY TWINING
TOTAL DEPTH IN FEET

SITE LOCATION MAP

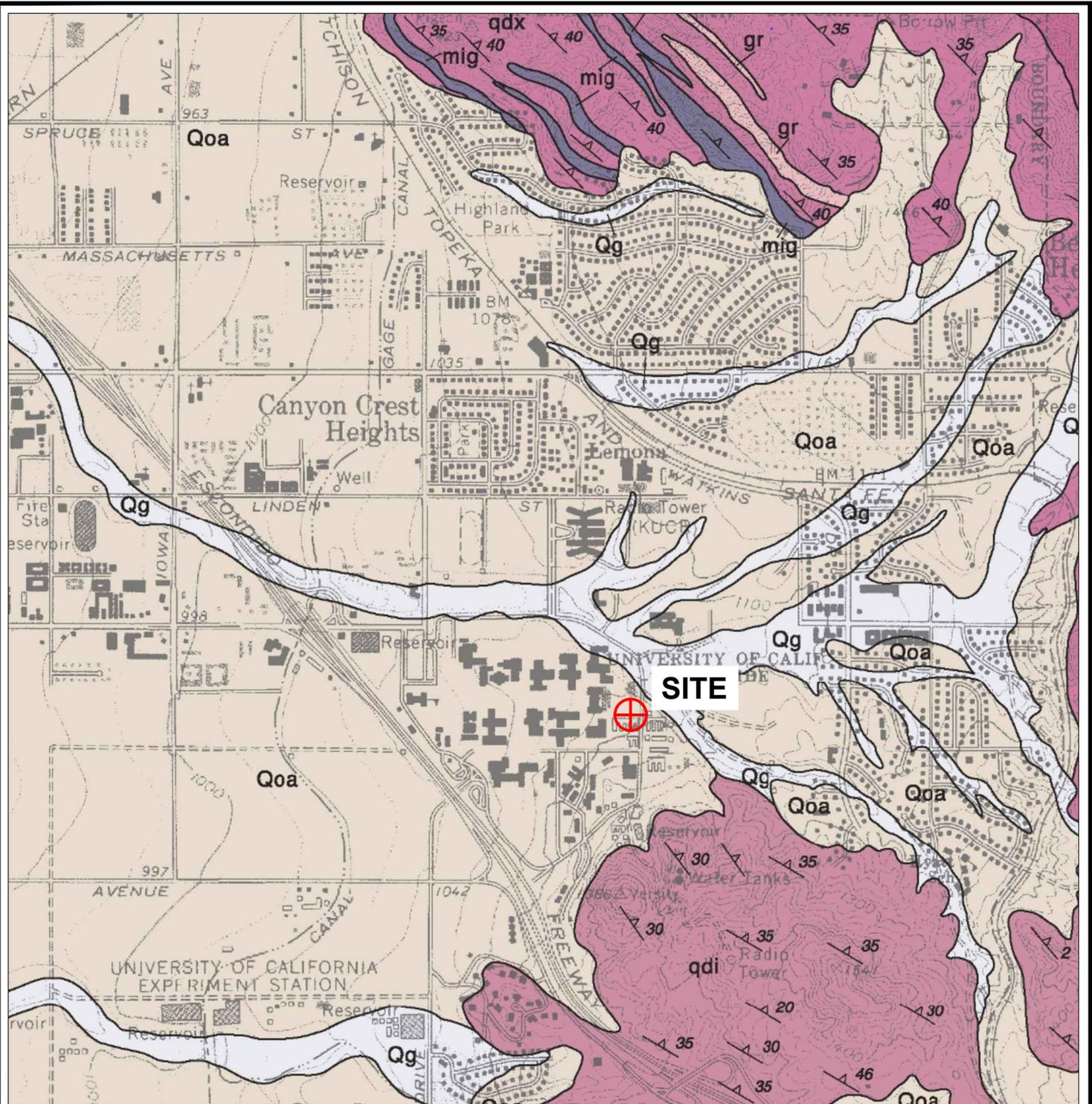
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FIGURE 2

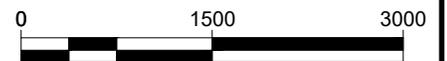




LEGEND

- Qoa Older surficial sediments
- Qg Surficial deposits, alluvial gravel and sand of stream channels
- qdi Plutonic rocks, quartz diorite
- gr Granitic dikes
- qdx Plutonic rocks, quartz diorite
- mig Metasedimentary rocks

APPROXIMATE SCALE IN FEET



REFERENCE: DIBBLEE AND MINCH (2003)

REGIONAL GEOLOGIC MAP

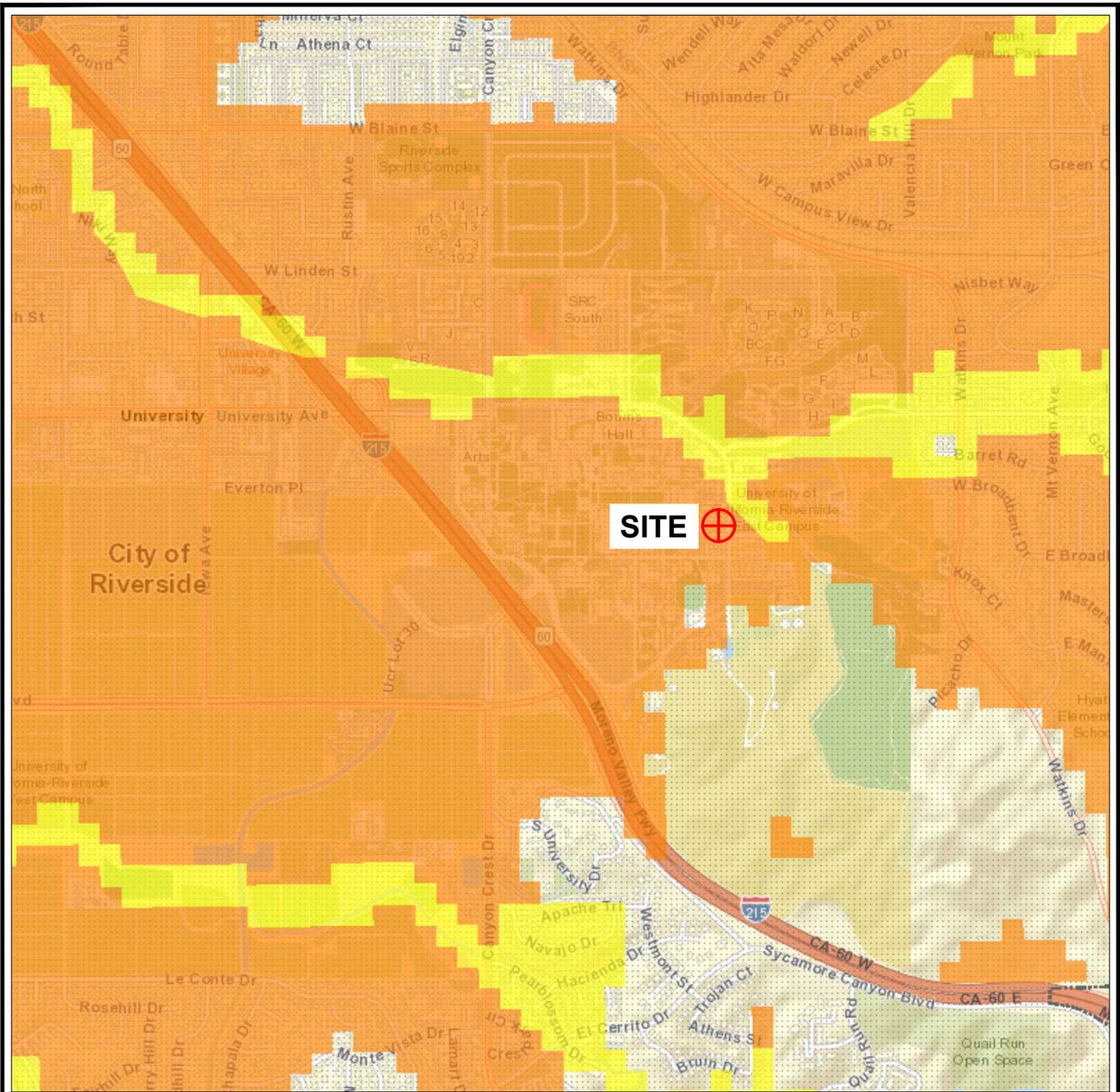
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200170.3

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June 2020

FIGURE 3





SUSCEPTIBILITY TO LIQUEFACTION

-  Other Susceptibility
-  High
-  Low
-  Moderate
-  Very High
-  Very low

REFERENCE: COUNTY OF RIVERSIDE (2020)



SEISMIC HAZARD ZONES MAP

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FIGURE 4



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APPENDIX A FIELD EXPLORATION



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Appendix A Field Exploration

General

The subsurface exploration program for the proposed project consisted of drilling, testing, sampling and logging 5 hollow-stem-auger (HSA) exploratory borings (B-1 through B-4 and P-1), and percolation testing in boring P-1 at the site between May 14 and 15, 2020.

The HSA borings were advanced to depths of approximately 5 to 71½ feet below the existing ground surface (bgs). Drilling operation for the HSA borings was performed by Baja Exploration, Inc. of Escondido, California using a CME-75 truck-mounted drill rigs equipped with 8-inch diameter hollow-stem-augers.

The approximate locations of the borings are shown on Figure 2 – Site Plan and Boring Location Map.

Drilling and Sampling

An explanation of the boring logs is presented as Figure A-1. The boring logs are presented as Figures A-2 through A-6. The boring logs describe the earth materials encountered, samples obtained, and show the field and laboratory tests performed. The logs also show the boring number, drilling date, and the name of the logger and drilling subcontractor. The borings were logged by an engineer using the Unified Soil Classification System under the supervision of a registered California Geotechnical Engineer. The boundaries between soil types shown on the logs are approximate because the transition between different soil layers may be gradual. Drive and bulk samples of representative earth materials were obtained from the borings.

Disturbed samples were obtained from select depths using a Standard Penetration Test (SPT) sampler. This sampler consists of a 2-inch O.D., 1.4-inch I.D. split barrel shaft with room for liner but liner was not used. Soil samples obtained by the SPT sampler were retained in plastic bags. A California modified sampler was also used to obtain drive samples of the soils from select depths. This sampler consists of a 3-inch outside diameter (O.D.), 2.4-inch inside diameter (I.D.) split barrel shaft. The samples were retained in brass rings for laboratory testing.

When the boring was drilled to select depths, the sampler was lowered to the bottom of the boring and then driven a total of 18-inches into the soil using an automatic hammer weighing 140 pounds dropped from a height of 30 inches. The number of blows required to drive the samplers the final 12 inches is presented on the boring logs.

During drilling, groundwater was not encountered within any of the borings drilled to depths between approximately 5 and 71½ feet bgs.

Upon completion of the borings or percolation testing, the boreholes were backfilled with drilled soil cuttings, and the surface was repaired with quickset concrete dyed black.

Percolation Testing

Percolation testing was performed on May 15, 2020 in boring P-1 drilled to 5 feet bgs. Testing was performed according to the boring percolation test guidance provided in the Riverside County Design Handbook for Low Impact Development Best Management Practices.



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After installing pipe and filter rock, the boreholes were filled with water to near the ground surface and presoaked for a 40-minute session and a 15-minute session prior to testing.

After presoaking, the boreholes were filled with water to near the ground surface again. Measurements were recorded at 10-minute intervals for a total of 8 readings. The last reading was used to determine the percolation rate.

Our calculated design infiltration rates are presented in Table A-1 below with a factor of safety of 3. Detailed test data is attached at the end of this appendix.

Table A-1 – Infiltration Rate with a Factor of Safety of 3

Test Location	Depth of Test Borehole (feet)	Infiltration Rate (inch/hour)
P-1	5	1.76

UNIFIED SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS		TYPICAL DESCRIPTIONS
			GRAPH	LETTER	
COARSE GRAINED SOILS <small>MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE</small>	GRAVEL AND GRAVELLY SOILS <small>MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE</small>	CLEAN GRAVELS <small>(LITTLE OR NO FINES)</small>		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES <small>(APPRECIABLE AMOUNT OF FINES)</small>		GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES <small>(APPRECIABLE AMOUNT OF FINES)</small>		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
		GRAVELS WITH FINES <small>(APPRECIABLE AMOUNT OF FINES)</small>		GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
	SAND AND SANDY SOILS <small>MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE</small>	CLEAN SANDS <small>(LITTLE OR NO FINES)</small>		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
		CLEAN SANDS <small>(LITTLE OR NO FINES)</small>		SP	POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES
		SANDS WITH FINES <small>(APPRECIABLE AMOUNT OF FINES)</small>		SM	SILTY SANDS, SAND - SILT MIXTURES
		SANDS WITH FINES <small>(APPRECIABLE AMOUNT OF FINES)</small>		SC	CLAYEY SANDS, SAND - CLAY MIXTURES
FINE GRAINED SOILS <small>MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE</small>	SILTS AND CLAYS LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY	
			CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS	
			OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY	
	SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS	
			CH	INORGANIC CLAYS OF HIGH PLASTICITY	
			OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS	
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

COARSE-GRAINED SOILS

FINE-GRAINED SOILS

Relative Density	SPT (blows/ft)	Relative Density (%)	Consistency	SPT (blows/ft)
Very Loose	<4	0 - 15	Very Soft	<2
Loose	4 - 10	15 - 35	Soft	2 - 4
Medium Dense	10 - 30	35 - 65	Medium Stiff	4 - 8
Dense	30 - 50	65 - 85	Stiff	8 - 15
Very Dense	>50	85 - 100	Very Stiff	15 - 30
			Hard	>30

NOTE: SPT blow counts based on 140 lb. hammer falling 30 inches

LABORATORY TESTING ABBREVIATIONS

ATT	Atterberg Limits
C	Consolidation
CORR	Corrosivity Series
DS	Direct Shear
EI	Expansion Index
GS	Grain Size Distribution
K	Permeability
MAX	Moisture/Density (Modified Proctor)
O	Organic Content
RV	Resistance Value
SE	Sand Equivalent
SG	Specific Gravity
TX	Triaxial Compression
UC	Unconfined Compression

Sample Symbol	Sample Type	Description
	SPT	1.4 in I.D., 2.0 in. O.D. driven sampler
	California Modified	2.4 in. I.D., 3.0 in. O.D. driven sampler
	Bulk	Retrieved from soil cuttings
	Thin-Walled Tube	Pitcher or Shelby Tube



TWINING

EXPLANATION FOR LOG OF BORINGS

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June 2020

FIGURE A-1

DATE DRILLED 5/15/2020 LOGGED BY JB **BORING NO.** B-1
 DRIVE WEIGHT 140 lbs. DROP 30 inches DEPTH TO GROUNDWATER (ft.) N/E
 DRILLING METHOD 8-inch HSA DRILLER Baja Exploration SURFACE ELEVATION (ft.) 1090 ±(MSL)

ELEVATION (feet)	DEPTH (feet)	SAMPLES		BLOWS / FOOT	MOISTURE (%)	DRY DENSITY (pcf)	ADDITIONAL TESTS	GRAPHIC LOG	U.S.C.S. CLASSIFICATION	DESCRIPTION
		Bulk	Driven							
							#200, ATT, C, RV		CL	3.5 inches of asphalt concrete over 4 inches of base FILL: Sandy lean CLAY; medium stiff; reddish brown; moist; fine to coarse sand
1085	5			15	9.2	115.9			SC	OLDER ALLUVIUM: Clayey SAND; medium dense; reddish brown; moist; fine to coarse sand; some mica
1080	10			17	10.6		#200, ATT, DS		SC	-- medium dense
1075	15			24	10.1	108.4	C		SC	-- medium dense
1070	20			14					SC	-- medium dense; becomes moist to wet
1065	25			50	10.1	125.8			SM	Silty SAND; dense; light reddish brown; slightly moist; fine to coarse sand; some mica
1060	30			30			#200, ATT		SM	-- medium dense
1055	35									

BORING LOG 200170.3 - UCR SOM IIGPJ TWINING LABS.GDT 6/11/20



LOG OF BORING

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PROJECT NO. 200170.3	REPORT DATE June 2020	FIGURE A - 2
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DATE DRILLED 5/15/2020 LOGGED BY JB **BORING NO.** B-1
 DRIVE WEIGHT 140 lbs. DROP 30 inches DEPTH TO GROUNDWATER (ft.) N/E
 DRILLING METHOD 8-inch HSA DRILLER Baja Exploration SURFACE ELEVATION (ft.) 1090 ±(MSL)

ELEVATION (feet)	DEPTH (feet)	SAMPLES		BLOWS / FOOT	MOISTURE (%)	DRY DENSITY (pcf)	ADDITIONAL TESTS	GRAPHIC LOG	U.S.C.S. CLASSIFICATION	DESCRIPTION
		Bulk	Driven							
				31	4.4	119.1			SM SM	Silty SAND; dense; light reddish brown; slightly moist; fine to coarse sand; some mica (<i>continued</i>) -- medium dense
1050	40			19			#200, ATT		SM	-- medium dense
1045	45			59	7.4	117.7			SM	-- dense; reddish brown
1040	50			36					SM	-- dense
1035	55	Total Depth = 51.5 feet Backfilled on 5/15/2020 Groundwater not encountered. Borehole backfilled with cuttings at completion. Surface patched with concrete.								
1030	60									
1025	65									
1020	70									

BORING LOG 200170.3 - UCR SOM II.GPJ_TWINING LABS.GDT 6/11/20



LOG OF BORING

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PROJECT NO.
200170.3

REPORT DATE
June 2020

FIGURE A - 2

DATE DRILLED 5/15/2020 LOGGED BY JB **BORING NO.** B-2
 DRIVE WEIGHT 140 lbs. DROP 30 inches DEPTH TO GROUNDWATER (ft.) N/E
 DRILLING METHOD 8-inch HSA DRILLER Baja Exploration SURFACE ELEVATION (ft.) 1091 ±(MSL)

ELEVATION (feet)	DEPTH (feet)	SAMPLES		BLOWS / FOOT	MOISTURE (%)	DRY DENSITY (pcf)	ADDITIONAL TESTS	GRAPHIC LOG	U.S.C.S. CLASSIFICATION	DESCRIPTION
		Bulk	Driven							
					8.9		#200, ATT, DS, MAX		CL	3 inches of asphalt concrete over 4 inches of base FILL: Sandy lean CLAY; medium stiff; reddish brown; moist; fine to coarse sand; some mica
1086	5			29	5.9	112.4			SM	OLDER ALLUVIUM: Silty SAND; medium dense; light reddish brown; dry to slightly moist; fine to coarse sand; some mica
1081	10			22			#200, ATT		SM	-- medium dense
1076	15			46	4.4	125.7	C		SM	-- dense
1071	20			31			#200, ATT		SC	Clayey SAND; dense; reddish brown; slightly moist; fine to coarse sand; some mica
1066	25			50/3"					SC	-- very dense; no recovery; trace fine gravel
1061	30			39					SC	-- dense
1056	35									Total Depth = 31.5 feet Backfilled on 5/15/2020 Groundwater not encountered. Borehole backfilled with cuttings at completion. Surface patched with concrete.

BORING LOG 200170.3 - UCR SOM II.GPJ TWINING LABS.GDT 6/11/20



LOG OF BORING

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PROJECT NO.
200170.3

REPORT DATE
June 2020

FIGURE A - 3

DATE DRILLED 5/15/2020 LOGGED BY JB **BORING NO.** B-3
 DRIVE WEIGHT 140 lbs. DROP 30 inches DEPTH TO GROUNDWATER (ft.) N/E
 DRILLING METHOD 8-inch HSA DRILLER Baja Exploration SURFACE ELEVATION (ft.) 1099 ±(MSL)

ELEVATION (feet)	DEPTH (feet)	SAMPLES		BLOWS / FOOT	MOISTURE (%)	DRY DENSITY (pcf)	ADDITIONAL TESTS	GRAPHIC LOG	U.S.C.S. CLASSIFICATION	DESCRIPTION
		Bulk	Driven							
										2 inches of asphalt concrete with no base
									SM SC	FILL: Silty SAND; medium dense; reddish brown; slightly moist; fine to coarse sand
									SC	Clayey SAND; dense; reddish brown; slightly moist; fine to coarse sand; some mica; trace concrete debris
1094	5			37					SC	-- dense
1089	10			77	4.8	105.4			SM	OLDER ALLUVIUM: Silty SAND; dense; light reddish brown; dry to slightly moist; fine to coarse sand
1084	15			29					SM	-- medium dense
1079	20			40	6.2	108.3	DS		SM	-- medium dense
1074	25			34			#200		SM	-- dense; reddish brown
1069	30			79	4.8	122.7			SM	-- dense
1064	35									

BORING LOG 200170.3 - UCR SOM II.GPJ TWINING LABS.GDT 6/11/20



LOG OF BORING

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PROJECT NO. 200170.3	REPORT DATE June 2020	FIGURE A - 4
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DATE DRILLED 5/15/2020 LOGGED BY JB **BORING NO.** B-3
 DRIVE WEIGHT 140 lbs. DROP 30 inches DEPTH TO GROUNDWATER (ft.) N/E
 DRILLING METHOD 8-inch HSA DRILLER Baja Exploration SURFACE ELEVATION (ft.) 1099 ±(MSL)

ELEVATION (feet)	DEPTH (feet)	SAMPLES		BLOWS / FOOT	MOISTURE (%)	DRY DENSITY (pcf)	ADDITIONAL TESTS	GRAPHIC LOG	U.S.C.S. CLASSIFICATION	DESCRIPTION
		Bulk	Driven							
				27			#200, ATT		SC	Clayey SAND; medium dense; light reddish brown; dry to slightly moist; fine to coarse sand
1059	40			23	21.4	106.5	C		CL	Sandy lean CLAY; very stiff; reddish brown; moist; some mica
1054	45			43			#200, ATT		SM	Silty SAND; dense; light reddish brown; slightly moist; fine to coarse sand; some mica
1049	50			70	5.8	114.2			SM	-- dense; some clay
1044	55			36			#200, ATT		SC	Clayey SAND; dense; dark reddish brown; moist; fine to coarse sand; some mica
1039	60			54	10.6	124.8			SC	-- dense
1034	65			52					SM	Silty SAND; very dense; light reddish brown; slightly moist; fine to coarse sand; some mica
1029	70									

BORING LOG 200170.3 - UCR SOM II.GPJ TWINING LABS.GDT 6/11/20



LOG OF BORING

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PROJECT NO.
200170.3

REPORT DATE
June 2020

FIGURE A - 4

DATE DRILLED 5/15/2020 LOGGED BY JB **BORING NO.** B-3
 DRIVE WEIGHT 140 lbs. DROP 30 inches DEPTH TO GROUNDWATER (ft.) N/E
 DRILLING METHOD 8-inch HSA DRILLER Baja Exploration SURFACE ELEVATION (ft.) 1099 ±(MSL)

ELEVATION (feet)	DEPTH (feet)	SAMPLES		BLOWS / FOOT	MOISTURE (%)	DRY DENSITY (pcf)	ADDITIONAL TESTS	GRAPHIC LOG	U.S.C.S. CLASSIFICATION	DESCRIPTION
		Bulk	Driven							
				30/50 for 4"					SM SM	-- very dense
1024	75									Total Depth = 71.5 feet Backfilled on 5/15/2020 Groundwater not encountered. Borehole backfilled with cuttings at completion. Surface patched with concrete.
1019	80									
1014	85									
1009	90									
1004	95									
999	100									
994	105									

BORING LOG 200170.3 - UCR SOM II.GPJ TWINING LABS.GDT 6/11/20



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PROJECT NO.
200170.3

REPORT DATE
June 2020

FIGURE A - 4

DATE DRILLED 5/15/2020 LOGGED BY JB **BORING NO.** B-4
 DRIVE WEIGHT 140 lbs. DROP 30 inches DEPTH TO GROUNDWATER (ft.) N/E
 DRILLING METHOD 8-inch HSA DRILLER Baja Exploration SURFACE ELEVATION (ft.) 1099 ±(MSL)

ELEVATION (feet)	DEPTH (feet)	SAMPLES		BLOWS / FOOT	MOISTURE (%)	DRY DENSITY (pcf)	ADDITIONAL TESTS	GRAPHIC LOG	U.S.C.S. CLASSIFICATION	DESCRIPTION
		Bulk	Driven							
									SC	4 inches of asphalt concrete over 4.5 inches of base
									SC	FILL: Clayey SAND; medium dense; reddish brown; moist; fine to coarse sand
				19					SC	OLDER ALLUVIUM: Clayey SAND; dense; dark reddish brown; moist; fine to coarse sand; some mica
1094	5								SC	-- medium dense
1089	10			31	12.3	106.8	DS		SM	Silty SAND; dense; reddish brown; slightly moist; fine to coarse sand; some mica
1084	15			35			#200		SM	-- dense; light brown
1079	20			53	5.8	111.3			SM	-- dense
1074	25			37			#200		SM	-- dense; light reddish brown
1069	30			61	4.6	110.5			SM	-- dense
1064	35									Total Depth = 31.5 feet Backfilled on 5/15/2020 Groundwater not encountered. Borehole backfilled with cuttings at completion. Surface patched with concrete.

BORING LOG 200170.3 - UCR SOM II.GPJ TWINING LABS.GDT 6/11/20



LOG OF BORING

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PROJECT NO.
200170.3

REPORT DATE
June 2020

FIGURE A - 5

DATE DRILLED 5/15/2020 LOGGED BY JB **BORING NO.** P-1
 DRIVE WEIGHT _____ DROP _____ DEPTH TO GROUNDWATER (ft.) N/E
 DRILLING METHOD 5-inch Hand auger DRILLER Baja Exploration SURFACE ELEVATION (ft.) 1099 ±(MSL)

ELEVATION (feet)	DEPTH (feet)	SAMPLES		BLOWS / FOOT	MOISTURE (%)	DRY DENSITY (pcf)	GRAPHIC LOG	U.S.C.S. CLASSIFICATION	DESCRIPTION
		Bulk	Driven						
1094	5							SM	FILL: Silty SAND with gravel; medium dense; reddish brown; moist; fine to coarse sand; fine subrounded gravel
1089	10								Total Depth = 5.0 feet Backfilled on 5/15/2020 Groundwater not encountered. Borehole backfilled with cuttings at completion. Surface patched with concrete.
1084	15								
1079	20								
1074	25								
1069	30								
1064	35								

BORING LOG 200170.3 - UCR SOM II.GPJ TWINING LABS.GDT 6/11/20



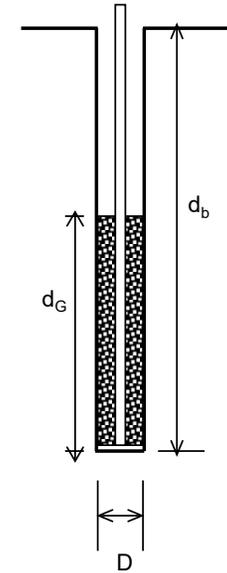
LOG OF BORING

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PROJECT NO. 200170.3	REPORT DATE June 2020	FIGURE A - 6
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PERCOLATION TEST DATA

Project No.: 200170.3
 Project Name: UCR SOM ED Bldg II 54045 Geotech Investigation
 Test Date: May 15, 2020
 Test Boring No.: P-1
 Diameter of Boring (D): 0.67 feet
 Depth of Boring (d_b): 5.5 feet
 Factor of Safety: 3.0
 Test Performer: JB



Sandy Soil Criteria Test

Time of Testing			Water Level Measurements			Greater than or Equal to 6"? (Yes/No)
Start Time T _i	Stop Time T _f	Time Interval ΔT (min)	Initial depth to water d ₁ (feet)	Final depth to water d ₂ (feet)	Drop of water column Δd = d _i - d _f (inches)	
7:30:00 AM	8:10:00 AM	40.00	1.30	4.56	39.12	Yes
8:11:00 AM	8:26:00 AM	15.00	0.80	3.55	33.00	Yes

Time of Testing			Water Level Measurements		Water Level Calculations			Infiltration Rate Calculations	
Start Time T _i	Stop Time T _f	Time Interval ΔT (min)	Initial depth to water d ₁ (feet)	Final depth to water d ₂ (feet)	Initial height of water column d _i (feet)	Final height of water column d _f (feet)	Drop of water column Δd = d _i - d _f (inches)	Tested Infiltration Rate I/t (inch/hr)	Infiltration Rate w/ Factor of Safety I/FS (inch/hr)
Percolation Test									
8:27:00 AM	8:37:00 AM	10.00	1.36	2.95	4.14	2.55	19.08	5.46	1.82
8:39:00 AM	8:49:00 AM	10.00	1.10	2.81	4.40	2.69	20.52	5.55	1.85
8:51:00 AM	9:01:00 AM	10.00	1.17	2.79	4.33	2.71	19.44	5.30	1.77
9:02:00 AM	9:12:00 AM	10.00	1.13	2.67	4.37	2.83	18.48	4.93	1.64
9:13:00 AM	9:23:00 AM	10.00	1.00	2.70	4.50	2.80	20.40	5.37	1.79
9:24:00 AM	9:34:00 AM	10.00	1.00	2.75	4.50	2.75	21.00	5.56	1.85
9:36:00 AM	9:46:00 AM	10.00	0.95	2.77	4.55	2.73	21.84	5.76	1.92
9:47:00 AM	9:57:00 AM	10.00	1.00	2.68	4.50	2.82	20.16	5.29	1.76

*Infiltration Rate: 1.76 (inch/hr)



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APPENDIX B LABORATORY TESTING



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Appendix B Laboratory Testing

Laboratory Moisture Content and Density Tests

The moisture content and dry densities of selected driven samples obtained from the exploratory borings were evaluated in general accordance with the latest version of ASTM D 2937. The results are shown on the boring logs in Appendix A, and also summarized in Table B-1.

No. 200 Wash Sieve

The fines content passing the No. 200 sieve was evaluated in accordance with ASTM D 1140. The results are presented in Table B-2.

Atterberg Limits

Tests were performed on selected representative fine-grained soil samples to evaluate the liquid limit, plastic limit, and plasticity index in general accordance with ASTM D 4318. These test results were utilized to evaluate the soil classification in accordance with the Unified Soil Classification System. The test results are summarized in on Figure B-1 and Table B-3.

Resistance Value (R-value)

R-value testing was performed on a select bulk sample of the near-surface soils encountered at the site. The test was performed in general accordance with ASTM D 2844. The result is summarized in Table B-4.

Expansion Index

The expansion index of a select soil sample was evaluated in general accordance with ASTM D 4829. The specimen was molded under a specified compactive energy at approximately 50 percent saturation. The prepared 1-inch thick by 4-inch diameter specimen was loaded with a surcharge of 144 pounds per square foot (psf) and was inundated with tap water. Readings of volumetric swell were made for a period of 24 hours. The result of expansion index test is presented in Table B-5.

Consolidation

Consolidation tests were performed on select modified-California soil samples in general accordance with the latest version of ASTM D2435. The samples were inundated during testing to represent adverse field conditions. The percent consolidation for each load cycle was recorded as a ratio of the amount of vertical compression to the original height of the sample. The results of the tests by Twining are presented in Figures B-2 through B-4.

Direct Shear

Direct shear tests were performed on remolded and representative intact soil samples in general accordance with the latest version of ASTM D 3080 to evaluate the shear strength characteristics of the selected materials. The samples were inundated during shearing to represent adverse field conditions. Test results are presented on Figures B-5 through B-8.

Corrosivity

Soil pH and resistivity tests were performed by Anaheim Test Lab, Inc. (ATLI) of Anaheim, California on representative soil samples. The resistivity of the soil assumes saturated soil



2883 East Spring Street
Suite 300
Long Beach CA 90806

Tel 562.426.3355
Fax 562.426.6424

conditions. The chloride and sulfate contents of the selected samples were evaluated in general accordance with the latest versions of Caltrans test methods CT417, CT422, and CT 643. The test results are presented on Table B-6 and the ATLI report included in this appendix.



2883 East Spring Street
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**Table B-1
 Moisture Content and Dry Density**

Boring No.	Depth (feet)	Moisture Content (%)	Dry Density (pcf)
B-1	6	9.2	115.9
B-1	16	10.1	108.4
B-1	26	10.1	125.8
B-1	36	4.4	119.1
B-1	46	7.4	117.7
B-2	6	5.9	112.4
B-2	16	4.4	125.7
B-3	11	4.8	105.4
B-3	20.5	6.2	108.3
B-3	30.5	4.8	122.7
B-3	40.5	21.4	106.5
B-3	50.5	5.8	114.2
B-3	61	10.6	124.8
B-4	11	12.3	106.8
B-4	21	5.8	111.3
B-4	31	4.6	110.5

**Table B-2
 Number 200 Wash Results**

Boring No.	Depth (feet)	Percent Passing #200
B-1	0-5	50.7
B-1	10.5	43.7
B-1	30.5	30
B-1	40.5	42.9
B-2	0-5	61.6
B-2	10.5	16.4
B-2	20.5	42.7
B-3	26	22.3
B-3	36	47.5
B-3	46	18.4
B-3	55.5	40.3
B-4	25	16.7
B-4	45	21.2

**Table B-3
Atterberg Limits Results**

Boring No.	Depth (feet)	Liquid Limit	Plastic Limit	Plasticity Index	U.S.C.S. Classification
B-1	1-5	34	18	16	Sandy Lean Clay (CL)
B-1	10.5	34	23	11	Clayey Sand (SC)
B-1	30.5	NP	NP	NP	Silty Sand (SM)
B-1	40.5	NP	NP	NP	Silty Sand (SM)
B-2	10.5	NP	NP	NP	Silty Sand (SM)
B-2	20	32	20	12	Clayey Sand (SC)
B-3	36	30	19	11	Clayey Sand (SC)
B-3	46	NP	NP	NP	Silty Sand (SM)
B-3	55.5	28	19	9	Clayey Sand (SC)

**Table B-4
Resistance Value (R-value)**

Boring No.	Depth (feet)	R Value
B-1	1 – 5	19

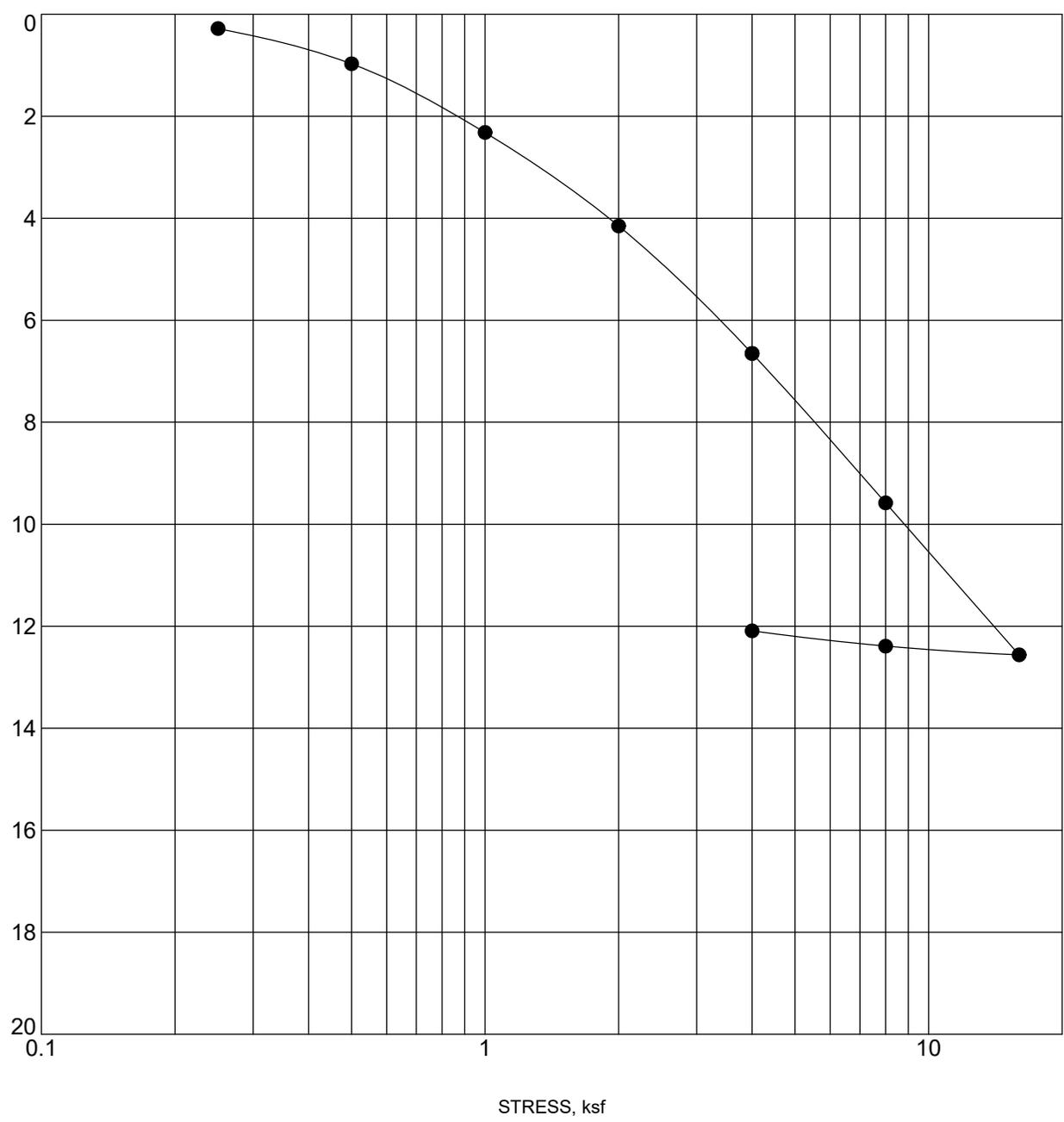
**Table B-5
Expansion Index**

Boring No.	Depth (feet)	Expansion Index	Expansion Potential
B-2	1 – 5	28	Low

**Table B-6
Corrosivity Test Results**

Boring No.	Depth (feet)	pH	Water Soluble Sulfate (ppm)	Water Soluble Chloride (ppm)	Minimum Resistivity (ohm-cm)
B-1	1-5	7.4	617	118	790

STRAIN, %



Sample Location	Soil Description	Dry Density (pcf)	Moisture Content (%)
● B-1 at 15 ft	Clayey SAND	108.4	10.1

CONSOL STRAIN_200170.3 - UCR SOM II.GPJ TWINING LABS.GDT 6/11/20

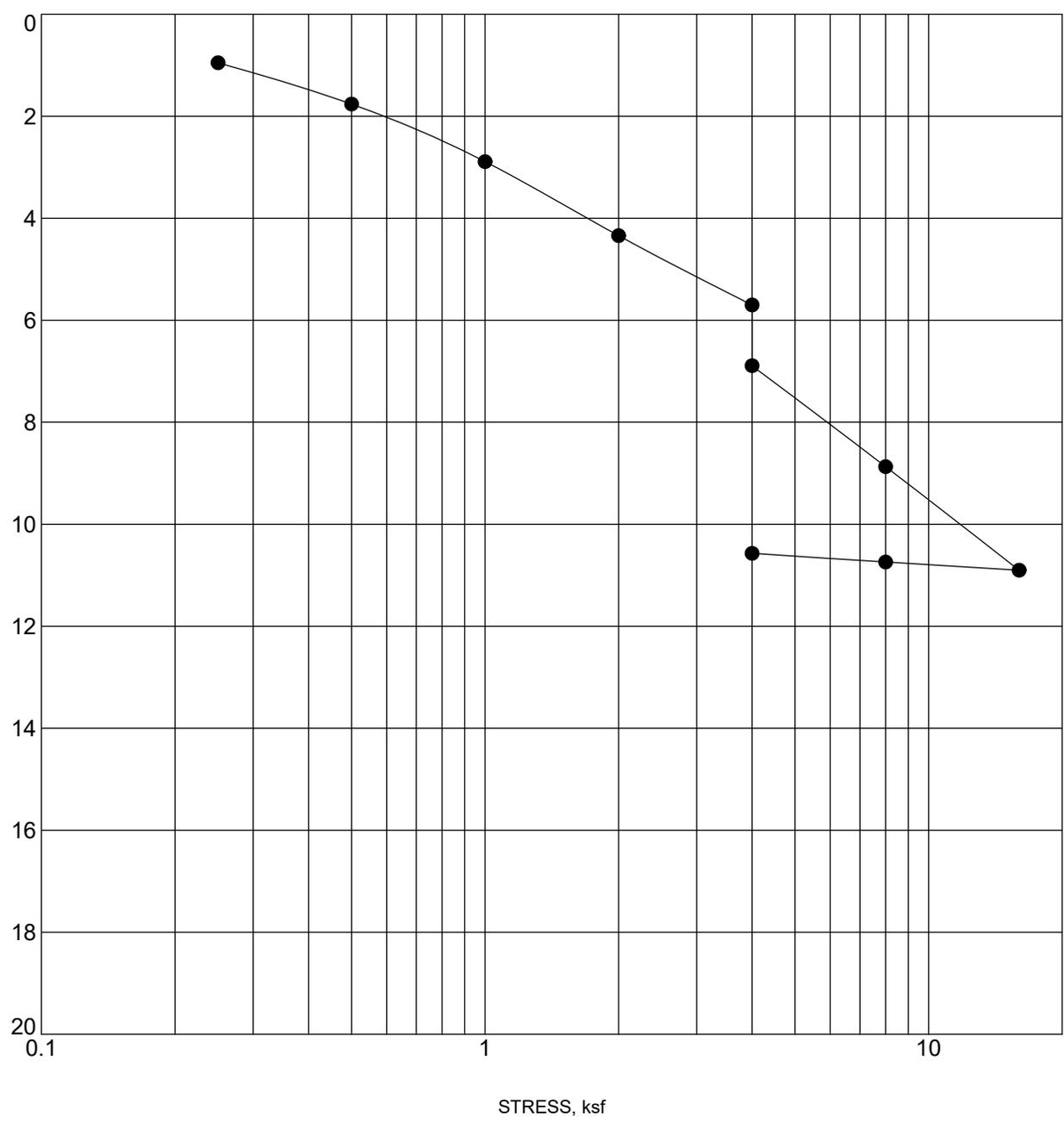


CONSOLIDATION TEST

School of Medicine Education Building II
 University of California, Riverside
 Riverside, California

PROJECT NO. 200170.3	REPORT DATE June 2020	FIGURE B-2
-------------------------	--------------------------	------------

STRAIN, %



Sample Location	Soil Description	Dry Density (pcf)	Moisture Content (%)
● B-2 at 15 ft	Silty SAND	125.7	4.4

CONSOL STRAIN_200170.3 - UCR SOM II.GPJ TWINING LABS.GDT 6/11/20

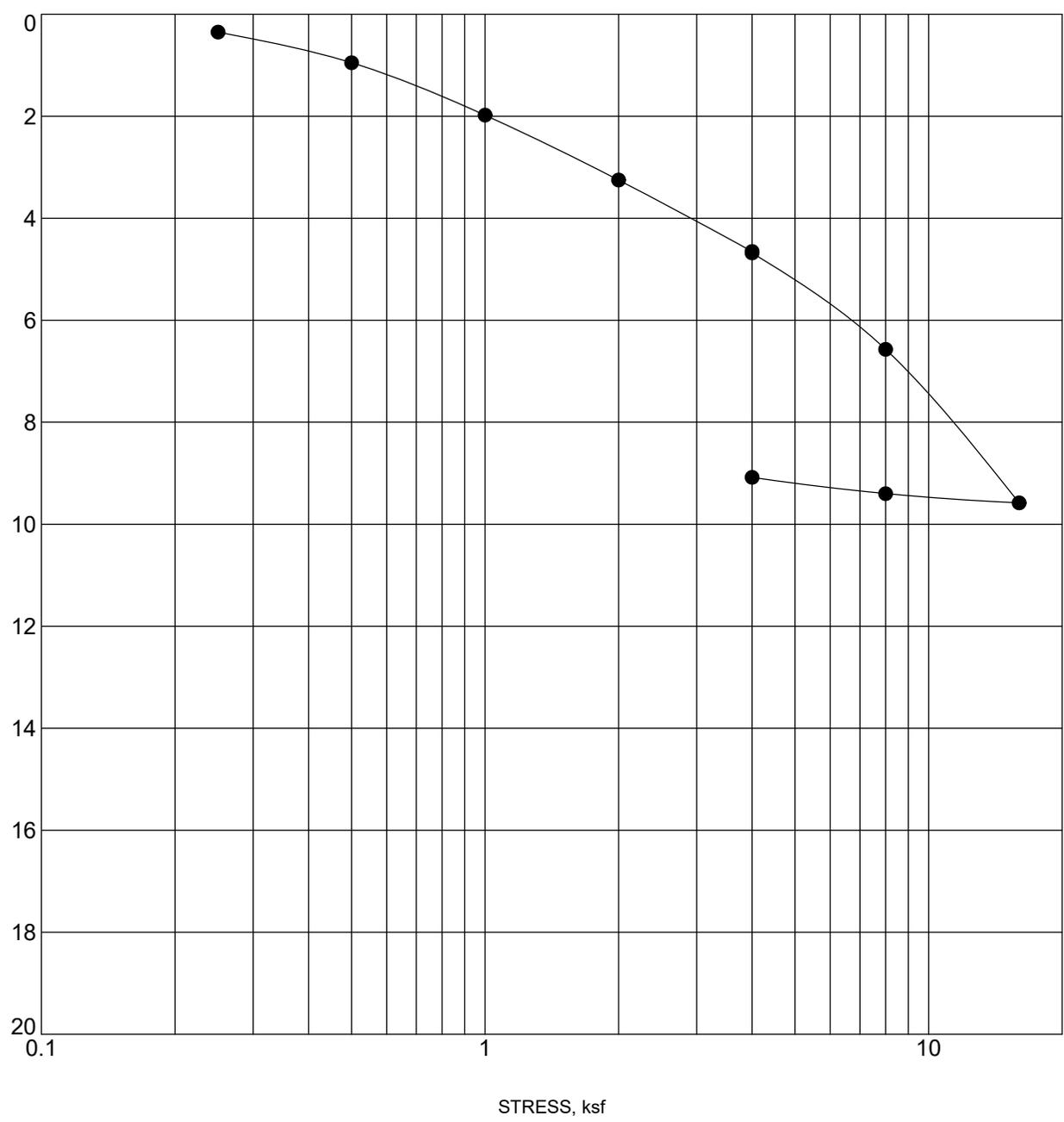


CONSOLIDATION TEST

School of Medicine Education Building II
University of California, Riverside
Riverside, California

PROJECT NO. 200170.3	REPORT DATE June 2020	FIGURE B-3
-------------------------	--------------------------	------------

STRAIN, %



Sample Location	Soil Description	Dry Density (pcf)	Moisture Content (%)
● B-3 at 40 ft	Sandy lean CLAY	106.5	21.4

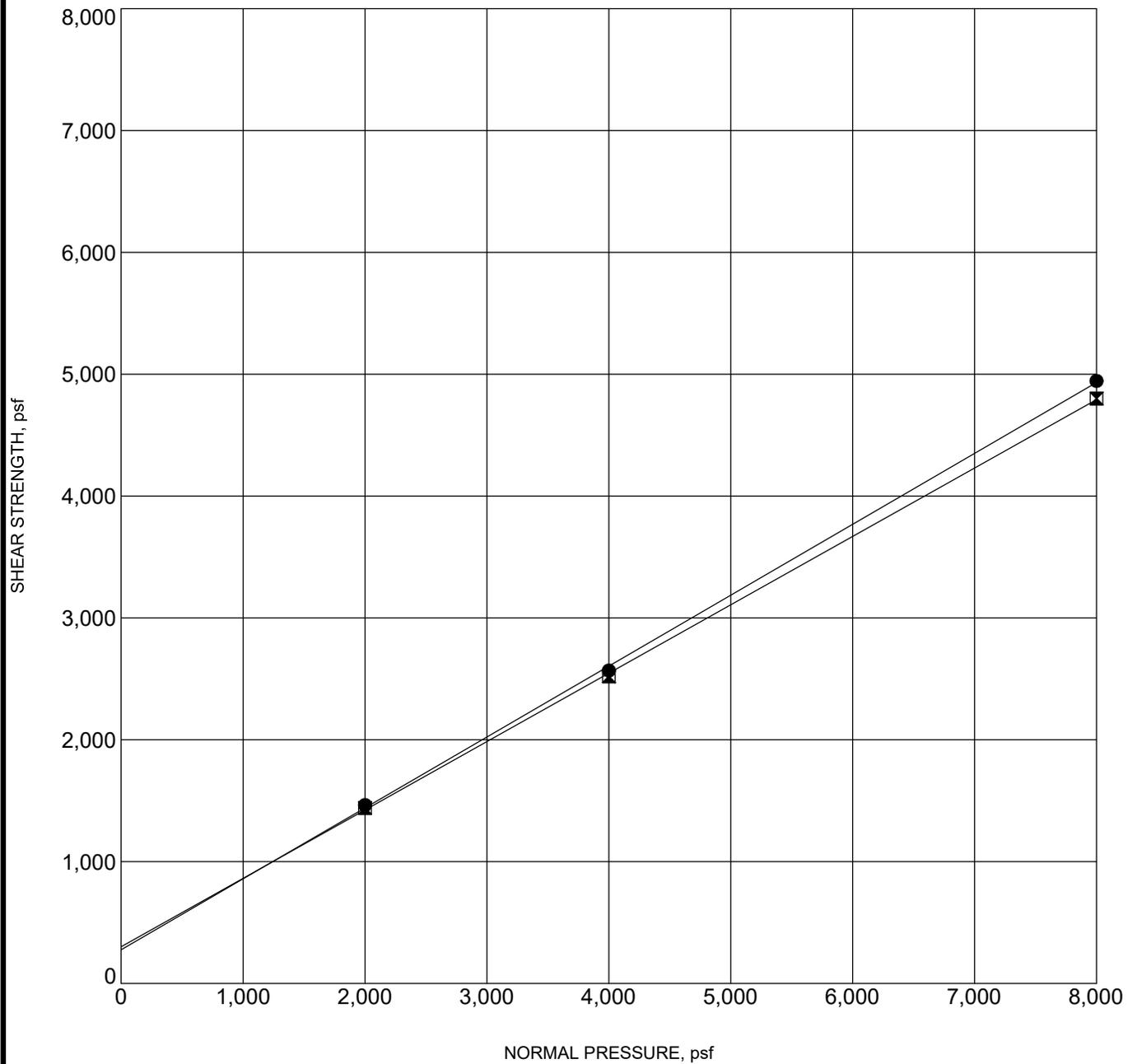
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CONSOLIDATION TEST

School of Medicine Education Building II
University of California, Riverside
Riverside, California

PROJECT NO. 200170.3	REPORT DATE June 2020	FIGURE B-4
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Boring No.: B-1
Sample Depth (ft): 10
Sample Description: Clayey SAND
Strain Rate (in./min): 0.005
Dry Density (pcf): 121.1

Shear Strength Parameters
Peak —●— **Ultimate** —✕—
Cohesion, C (psf): 276 300
Friction Angle, ϕ (deg): 30 29
Initial Moisture (%): 7.2
Final Moisture (%): 10.6

REMOLDED TO 90% RELATIVE COMPACTION



DIRECT SHEAR TEST

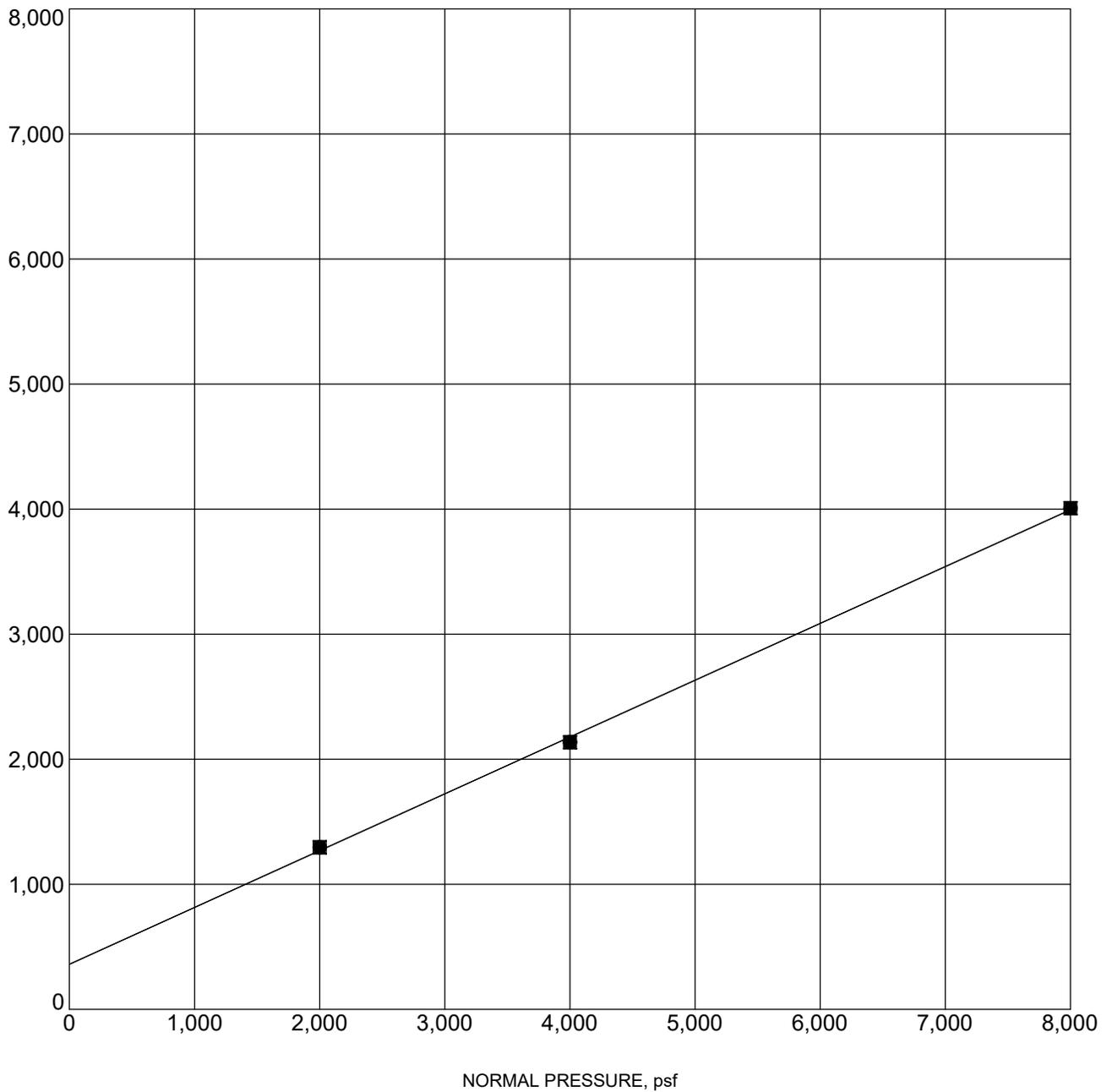
School of Medicine Education Building II
 University of California, Riverside
 Riverside, California

PROJECT NO.
200170.3

REPORT DATE
June 2020

FIGURE B-5

SHEAR STRENGTH, psf



Boring No.: B-2
Sample Depth (ft): 0-5 BULK
Sample Description: Sandy lean CLAY
Strain Rate (in./min): 0.005
Dry Density (pcf): 117.1

Shear Strength Parameters

	Peak ●	Ultimate ☒
Cohesion, C (psf):	360	360
Friction Angle, Ø (deg):	24	24
Initial Moisture (%):	6.9	
Final Moisture (%):	8.9	

REMOLDED TO 90% RELATIVE COMPACTION



DIRECT SHEAR TEST

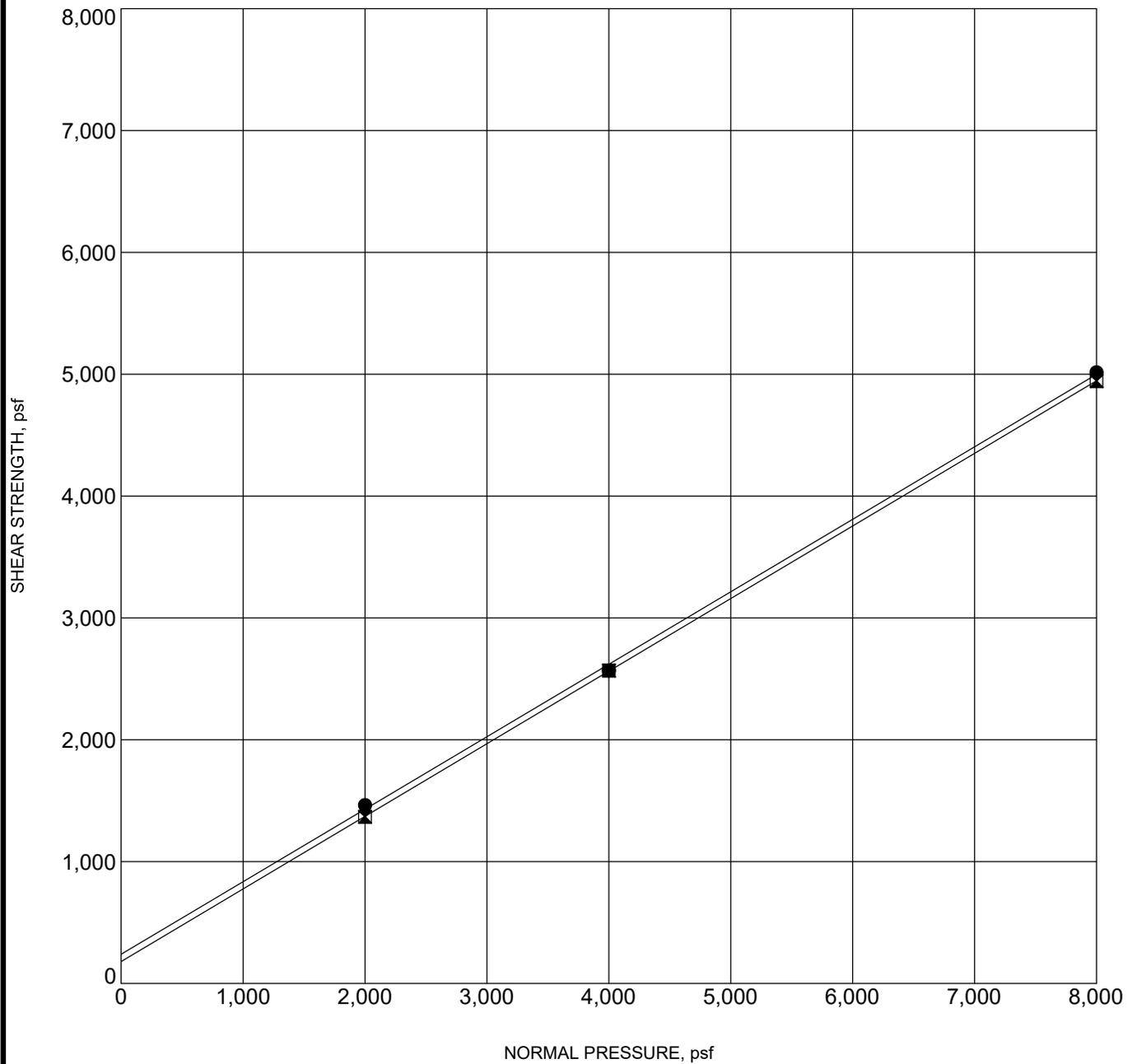
School of Medicine Education Building II
 University of California, Riverside
 Riverside, California

PROJECT NO.
200170.3

REPORT DATE
June 2020

FIGURE B-6

DIRECT SHEAR 200170.3 - UCR SOM II.GPJ TWINING LABS.GDT 6/11/20



Boring No.: B-3
Sample Depth (ft): 20
Sample Description: Silty SAND
Strain Rate (in./min): 0.005
Dry Density (pcf): 108.3

Shear Strength Parameters
Peak ● **Ultimate** ✕
Cohesion, C (psf): 240 180
Friction Angle, ϕ (deg): 31 31
Initial Moisture (%): 6.2
Final Moisture (%): 12.8

DIRECT SHEAR 200170.3 - UCR SOM II.GPJ TWINING LABS.GDT 6/11/20



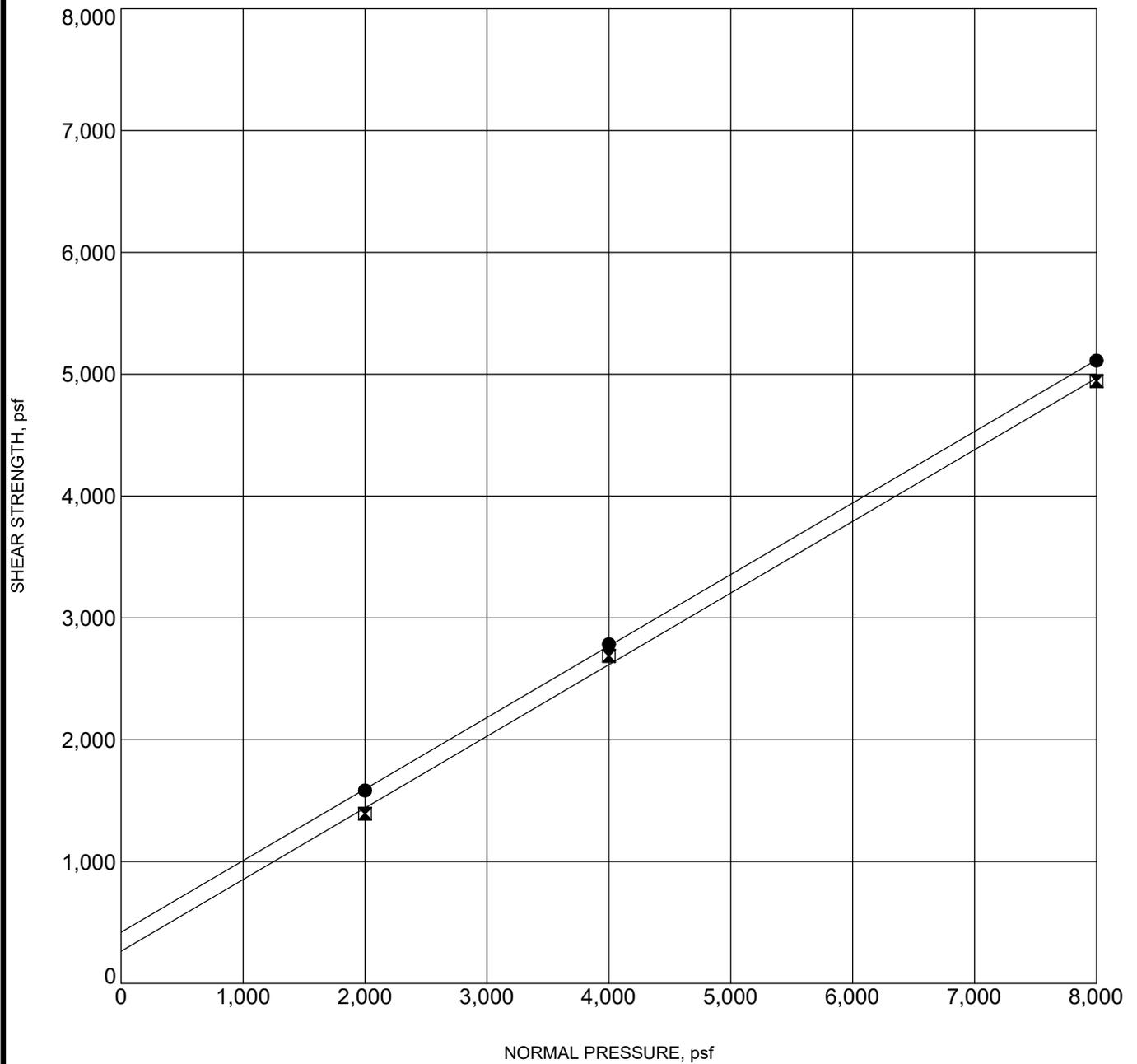
DIRECT SHEAR TEST

School of Medicine Education Building II
University of California, Riverside
Riverside, California

PROJECT NO.
200170.3

REPORT DATE
June 2020

FIGURE B-7



Boring No.: B-4
Sample Depth (ft): 10
Sample Description: Silty SAND
Strain Rate (in./min): 0.005
Dry Density (pcf): 106.8

Shear Strength Parameters
Peak —●— **Ultimate** —✕—
Cohesion, C (psf): 420 264
Friction Angle, ϕ (deg): 30 30
Initial Moisture (%): 12.3
Final Moisture (%): 14.0

DIRECT SHEAR 200170.3 - UCR SOM II.GPJ TWINING LABS.GDT 6/11/20



DIRECT SHEAR TEST

School of Medicine Education Building II
University of California, Riverside
Riverside, California

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200170.3

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June 2020

FIGURE B-8

ANAHEIM TEST LAB, INC.

196 Technology Drive, Unit D
Irvine, CA 92618
Phone (949)336-6544

TWINING LABS
3310 AIRPORT WAY
LONG BEACH, CA 90806

DATE: 06/10/2020

P.O. NO: Soils 060820

LAB NO: C-33853

SPECIFICATION: CTM-643/417/422

MATERIAL: Soil

Project No.: 200170.3
Project: UCR
Date sampled: 05/14/2020
Location: B-1 Bulk

ANALYTICAL REPORT

CORROSION SERIES SUMMARY OF DATA

pH	MIN. RESISTIVITY per CT. 643 ohm-cm	SOLUBLE SULFATES per CT. 417 ppm	SOLUBLE CHLORIDES per CT. 422 ppm
7.4	790	617	118

RESPECTFULLY SUBMITTED



WES BRIDGER LAB MANAGER

APPENDIX F
NOISE CALCULATIONS

Construction Generated Noise		
Building Type	Office, Hotel, Hospital, School, Public Works	Distance (ft)
Construction Noise at 50 Feet (dBA Leq)		50
Construction Phase	All Applicable Equipment in Use¹	
Ground Clearing/Demolition	84	
Excavation	89	
Foundation Construction	78	
Building Construction	87	
Finishing and Site Cleanup	89	
Lothian Residence Hall		
Maximum Construction Noise (dBA Leq)		850
Construction Phase	All Applicable Equipment in Use¹	
Ground Clearing/Demolition	59	
Excavation (Site Preparation)	64	
Foundation Construction	53	
Building Construction	62	
Paving	64	
Single-Family Residences to the East		
Maximum Construction Noise (dBA Leq)		1,900
Construction Phase	All Applicable Equipment in Use¹	
Ground Clearing/Demolition	52	
Excavation (Site Preparation)	57	
Foundation Construction	46	
Building Construction	55	
Paving	57	
Source: Bolt, Beranek and Newman, "Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances," prepared for the USEPA, December 31, 1971. Based on analysis for Office Building, Hotel, Hospital, School, and Public Works.		

Construction Generated Vibration

Lothian Residence Hall		Closest Distance (feet):		70
	Approximate RMS a		Approximate RMS	
	66		73.000	
Equipment	inch/second		inch/second	
Vibratory roller	0.21		0.045	
Large bulldozer	0.089		0.019	
Small bulldozer	0.003		0.001	
Jackhammer	0.035		0.007	
Loaded trucks	0.076		0.016	
	Criteria		0.250	
Single-Family Residences to the East		Closest Distance (feet):		35
	Approximate RMS a		Approximate RMS	
	Velocity at 25 ft,		Velocity Level,	
	inch/second		inch/second	
Equipment				
Vibratory roller	0.21		0.127	
Large bulldozer	0.089		0.054	
Small bulldozer	0.003		0.002	
Jackhammer	0.035		0.021	
Loaded trucks	0.076		0.046	
	Criteria		0.250	
Land Use3		Closest Distance (feet):		45
	Approximate RMS a		Approximate RMS	
	Velocity at 25 ft,		Velocity Level,	
	inch/second		inch/second	
Equipment				
Vibratory roller	0.21		0.087	
Large bulldozer	0.089		0.037	
Small bulldozer	0.003		0.001	
Jackhammer	0.035		0.014	
Loaded trucks	0.076		0.031	
	Criteria		0.250	
Land Use4		Closest Distance (feet):		85
	Approximate RMS a		Approximate RMS	
	Velocity at 25 ft,		Velocity Level,	
	inch/second		inch/second	
Equipment				
Vibratory roller	0.21		0.033	
Large bulldozer	0.089		0.014	
Small bulldozer	0.003		0.000	
Jackhammer	0.035		0.006	
Loaded trucks	0.076		0.012	
	Criteria		0.250	
Based on distance to nearest structure				
¹ : Determined based on use of jackhammers or pneumatic hammers that may be used for pavement demolition at a distance of 25 feet				
Notes: RMS velocity calculated from vibration level (VdB) using the reference of one microinch/second.				
Source: Based on methodology from the United States Department of Transportation Federal Transit Administration, <i>Transit Noise and Vibration Impact Assessment</i> (2006).				

APPENDIX G
TRAFFIC MEMO

MEMORANDUM

To: Jennifer Marks

From: Darlene Danehy, T.E., PTOE, RSP

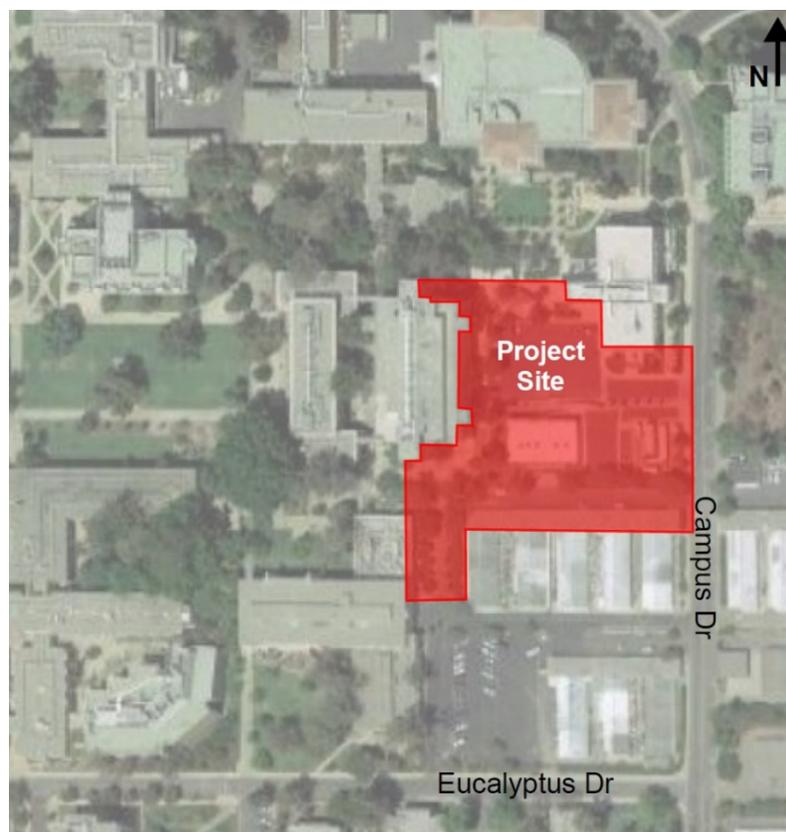
Date: December 16, 2020

Subject: UC Riverside School of Medicine Building II Project
Traffic Evaluation

Proposed Project and Location

The proposed School of Medicine (SOM) Building II Project (Project) is located south of the existing SOM education building and east of Boyce Hall along the west side of Campus Drive on the University of California, Riverside (UCR) campus as shown in Figure 1. The Project will include a new facility with a maximum of 120,000 square feet. The new facility will support the SOM and will serve both current and new students. With the existing building, the SOM is expected to serve 500 students (including 225 new students) with 226 faculty/staff (including 65 new faculty/staff).

Figure 1. Project Location



Currently, there are approximately 30 faculty and staff members located at UC Path, located approximately six miles south of the UCR main campus along I-215. Those faculty and staff will be relocated to the new building. Because the Project is on the UCR campus and the University will not require entitlement through the City, a traffic study is not required by the City. In addition, the UCR Long Range Development Plan (LDRP) plan showed the Project area as an academic building, so the traffic impacts have already been analyzed and mitigation measures identified. However, this memorandum will include a discussion of how the Project fits within the Vehicle Miles Traveled (VMT) methodology being developed for the University along with the anticipated trip generation.

Trip Generation

Based on the anticipated building size and the trip generation rates in the Institute of Transportation Engineers *Trip Generation Manual, 10th Edition*, the trip generation for the site was calculated and is shown in Table 1. Because the building will serve new and existing students and faculty, the trip generation was calculated based on the new student and new faculty numbers. As seen in the table, the project is expected to generate between 351 and 578 new daily trips, including between 34 and 49 new trips in the AM peak hour and between 34 and 51 new trips in the PM peak hour.

Table 1. Project Trip Generation

ITE LU 550 (University/College)						
Students			225			
Period	Trips/Unit	Trips	% In	% Out	Trips In	Trips Out
AM Peak	0.15	34	78%	23%	26	8
PM Peak	0.15	34	32%	68%	11	23
Daily	1.56	351	50%	50%	176	176

ITE LU 550 (University/College)						
Employees			65			
Period	Trips/Unit	Trips	% In	% Out	Trips In	Trips Out
AM Peak	0.75	49	76%	23%	37	11
PM Peak	0.79	51	33%	68%	17	35
Daily	8.89	578	50%	50%	289	289

VMT Evaluation

UCR is in the process of developing a VMT analysis methodology in accordance with the new state guidelines (Senate Bill 743), which indicate that the potential for traffic impacts can no longer be based on vehicle delay and should instead be determined based on VMT generated by a project. Per SB 743, a project’s significant impact should be determined using VMT as the primary metric instead of delay-based LOS. The final Technical Advisory released by OPR in December 2018 recommends new significance thresholds that may constitute a significant transportation impact. The recommended thresholds are summarized in Table 2. If a significant impact is identified utilizing the significance thresholds, mitigation must be identified.

Table 2. Senate Bill 743 Recommended Significance Thresholds

Type	Metric	Threshold
Residential Development	Household VMT per capita	15% less than existing city or regional household VMT per capita
Office Development	VMT per employee	15% less than existing regional VMT per employee
Retail Development	Total VMT	Consistent with total VMT

Under OPR’s recommendations, lead agencies have the discretion to set or apply their own thresholds of significance or rely on thresholds recommended by other agencies. UCR is in the process of developing and finalizing their thresholds, which are expected to be based on VMT per service population and students. For this analysis, the OPR thresholds are provided. OPR’s guidelines state that a qualitative analysis should be conducted when methods do not exist for conducting a quantitative analysis.

In order to evaluate a project’s potential transportation impacts related to VMT, qualitative significance criteria have been established to evaluate the project’s compatibility with the statutory goals for the VMT metric. The following are the three statutory goals for the VMT metric stated in the Technical Advisory:

- The reduction of GHG emissions
- The development of multi-modal transportation networks
- A diversity of land uses

The significance criteria utilized in this analysis is summarized in Table 14 and takes into consideration the OPR Technical Advisory, the goals listed above, and the California Air Pollution Control Officers Association’s (CAPCOA’s) Compressive Report for Quantifying GHG MMs. The CAPCOA document includes 54 TDM strategies associated with reducing VMT and GHG emissions and is an appropriate resource for this type of analysis.

Table 3. VMT Screening Criteria

Category	Criteria/Screening	Threshold
Screening Thresholds	<p>The Technical Advisory includes four screening thresholds. The project should be evaluated against the thresholds, and if any are met, the project can be screened out from completing a full VMT analysis. These screening thresholds include:</p> <ul style="list-style-type: none"> --Trip generation screening (small projects can be screened out) --Map-based screening (projects located in areas of low VMT can be screened out) --Proximity to transit (projects with 1/2 mile of a major transit stop or located along a high-quality transit corridor can be screened out) --Affordable residential development (affordable housing in infill locations can be screened out) <p>Evaluate the project using the screening thresholds.</p>	<ul style="list-style-type: none"> --If the project generates fewer than 110 trips per day, it is assumed to have a less than significant impact --If the project is in a low VMT area, it is assumed to have a less than significant impact --If the project is within 1/2 mile of a high-quality transit stop or corridor, it is assumed to have a less than significant impact --If the project includes affordable housing units and is located in an infill location, it is assumed to have a less than significant impact
TDM Strategies for the Reduction of GHG Emissions	<p>Identify existing TDM measures that increase vehicle efficiency, reduce the amount of vehicle travel, improve human health, reduce vehicle crashes, improve air quality, improve physical and mental health, and encourage transit use. Evaluate if the project would eliminate or reduce the existing TDM measures.</p>	<p>If the project is not expected to eliminate or reduce existing TDM measures, it is assumed to have a less than significant impact.</p>
Multimodal Transportation	<p>Providing alternative modes of transportation that have high accessibility and connectivity reduces VMT, reduces single occupancy vehicle travel, and reduces VMT per capita. Identify existing pedestrian, bicycle, and transit facilities that provide alternatives to single-occupancy vehicle use, and evaluate the accessibility and connectivity of said facilities around the project site.</p>	<p>If the project restricts access or alters a route, it may result in a significant impact.</p>
Diversity of Land Uses	<p>Interactions between different land uses and between land uses and transportation have the potential to reduce VMT. Evaluate the surrounding uses of the project and the interaction between the land use and transportation.</p>	<p>If the project is complementary and consistent with the existing land use patterns, it is assumed to have a less than significant impact.</p>
RTP/SCS Consistency	<p>The purpose of the RTP/SCS is to evaluate regional land use patterns and transportation systems to help achieve the State's GHG emissions reduction goals. Evaluate whether the project is consistent with the RTP/SCS.</p>	<p>If the project is consistent with the RTP/SCS, it would have a less than significant impact. If the project is inconsistent, the inconsistency should be evaluated for a significant impact on transportation.</p>

Screening Thresholds

OPR recommends that lead agencies conduct a screening evaluation “to quickly identify when a project should be expected to cause a less than significant impact without conducting a detailed study.” As noted in Table 14, OPR suggests that lead agencies may screen out VMT impacts using project size, maps, transit availability, and provision of affordable housing. The screening evaluation for this project follows.

Trip Generation Screening

The guidelines indicate that small projects that generate fewer than 110 trips per day may generally be assumed to cause a less than significant transportation impact. Based on the anticipated building size and the trip generation rates in the Institute of Transportation Engineers *Trip Generation Manual, 10th Edition*, the trip generation for the proposed project was calculated. Because the building will serve new and existing students and faculty, the trip generation was calculated based on the new student and new faculty members. As shown in Table 1, the project is expected to generate between 351 and 578 new daily trips. Because the project is expected to generate more than 110 trips per day, it cannot be screened out from requiring a VMT analysis due to size.

Map-Based Screening

Projects located in a low VMT area of a city or region can be considered to have a less than significant impact on VMT. Per the Western Riverside Council of Governments (WRCOG) VMT screening tool,¹ the project is not located in an area with low VMT per service population. Therefore, the project cannot be screened out from requiring a full VMT analysis using map-based screening.

Proximity to High Quality Transit

The Technical Advisory indicates that project can be expected to have a less than significant impact on VMT if the project is located within ½ mile of an “existing major transit stop or an existing stop along a high-quality transit corridor.” A major transit stop is defined as one which serves the “intersection of two or more major bus routes with a frequency interval of 15 minutes or less during the morning and afternoon peak commute periods.” Projects located in such an area are said to be within a Transit Priority Area (TPA).

Based on the definition of an existing major transit stop or stop along a high-quality transit corridor, the project would not be screened out from a full VMT analysis. However, the TPAs are mapped in the WRCOG screening tool, and the map shows that the project site is partially located within a TPA. Specifically, at least part of the building is expected to be within the identified TPA. The guidance is unclear on whether part of or all of a building needs to be within a TPA in order to be considered exempt from VMT analysis; however, logically, if a person arrives at a building after walking, cycling, skating, etc. from a transit stop, whether or not they are yet inside, they are likely to feel as though they have arrived. In addition, future transit improvements are planned which will further enhance transit accessibility to/around campus. Therefore, although the service frequency does not meet the guidelines, the project is located in a TPA and is expected to have a less than significant transportation impact and can be screened out from requiring further VMT analysis.

¹ <https://apps.fehrandpeers.com/WRCOGVMT/>

Affordable Housing

Projects with an affordable housing aspect in an infill location can be considered to have a less than significant impact on transportation. This project does not include any housing and therefore this screening threshold is not applicable.

TDM Strategies for the Reduction of GHG Emissions

As previously noted, one goal of using the VMT metric for evaluation of transportation impacts is to reduce GHG emissions. UCR operates several programs to encourage the use of active transportation modes. The alternative transportation programs are summarized below.

- Carpool incentive program for faculty, staff, and graduate students.
- Ride-share through Zimride. This program promotes ridesharing by matching compatible commuters by origin and destination.
- UPASS: This program is available to students, staff, and faculty, and allows any passenger with a UCR Card to ride any transit routes serviced by Riverside Transit Agency (RTA) for free.
- Vanpool: The vanpool program provides 30 operating routes. These vanpools operate from designated departure sites, allowing a group of students, faculty, and staff to travel to campus together.
- Zipcar: This service provides users access to a shared fleet of vehicles on an as-needed basis at an hourly or mileage rate.
- Point to Point Shuttle: This shuttle is operated by UCR and will take riders to any destination within the service area. It provides one-way transit for riders leaving the University with pick-up every thirty minutes between 6 PM and 11:30 PM, Monday to Friday.
- Cyclist or Walker Program: These programs encourage travel by biking and walking to campus. The campus has provided amenities such as bike parking and bike repair stations. Participants may also utilize the lockers and showers in the Student Recreation Center and Athletics and Dance Building at no cost.
- Emergency Ride Home: This program provides rides to faculty or staff participating in an alternative transportation program when they need a ride home in an emergency situation.
- Resident parking restrictions: Freshman are now restricted from purchasing parking permits.
- Parking pricing: Permit prices are increased annually.
- Parking Management: The parking demand model is updated annually.
- Annual Monitoring and Evaluation: The campus conducts annual monitoring and evaluation program to determine effectiveness of TDM strategies and need for new facilities.

The TDM strategies listed above are consistent with CAPCOA's list of TDM mitigation measures that reduce GHG emissions. Because the proposed project is not anticipated to eliminate or reduce any of the existing UCR TDM measures, the project would have no impact.

Multimodal Transportation

As previously mentioned, another goal of using the VMT metric to evaluate transportation impacts is to facilitate the "development of multi-modal transportation networks." A multi-modal network would provide safe and accessible access to a destination via bicycle, transit, and/or walking. When choices are available, single occupancy vehicle VMT is reduced. This project would not block or alter any multi-modal facilities or access. Further, the proposed project would include a new pedestrian plaza in place of an existing parking lot as well as bicycle racks, both of which encourage non-vehicular travel. Existing pedestrian pathways at the southwest of the project site would be improved to connect to the proposed plaza area. Bicyclists would have access to the site via bike lanes on East Campus Drive. Therefore, the project would have a less than significant impact on VMT based on the multi-modal screening threshold.

Diversity of Land Uses

The VMT metric also aims to aid in the development of "a diversity of land uses." As previously mentioned, the Technical Advisory indicates that "interactions between land use projects, and also between land use and transportation projects, existing and future, together affect VMT." The proposed project is part of a larger plan, the 2005 LRDP. The goals of the 2005 LRDP include:

- Enhance UCR image and identity
- Accommodate planned growth for UCR to 25,000 students while retaining flexibility for unanticipated additional needs in the future
- Recognize teaching and research change, and encourage interdisciplinary endeavors by identifying a flexible academic zone rather than individual college precincts
- Increase the size of the on-campus residential community and thereby improve opportunities for social interaction and socialization: a living/learning environment
- Improve university/town interactions and synergy; encourage new development and intensification of activity on University Avenue
- Emphasize strong connections and ease of access within campus and with the surrounding community
- Create a regional model of planning, design and environmental stewardship, protecting the natural environments and incorporating sustainable planning and design practices.

The LRDP provides direction for growth with the understanding that increased development density and provision of good multi-modal circulation are critical to achieving the goals listed above. Further, the goals help improve upon the campus in a way that will help reduce VMT. The proposed project is consistent with the LRDP and would bring off-campus students, faculty, and staff onto campus. Although the proposed project itself will not provide diversity at its location, it is consistent with the larger LRDP which would provide diverse land uses which are expected to complement one another. Therefore, the proposed project is expected to have a less than significant impact when concerning land use diversity.

Proximity to Transit

OPR suggest that a project can be screened out to have a less than significant impact on VMT if the project is within a half-mile of an “existing major transit stop or an existing stop along a high-quality transit corridor.” A major transit stop is defined as “the intersection of two or more major bus routes with a frequency service interval of 15 minutes or less during the morning and afternoon peak commute periods.”

Based on this definition, the proposed project would not be eligible to be “screened out.” However, as previously discussed, the project site is located in a Transit Priority Area (TPA) according to WRCOG and would be able to be screened out. Therefore, to be conservative, transit accessibility was evaluated since CAPCOA cites transit accessibility as a measure that reduces VMT and GHG emissions.

With implementation of the proposed project, staff members/faculty and students would be able to utilize public bus transit provided by RTA to access the site. The bus stops (which includes bus rapid transit service) along Canyon Crest Drive is approximately 0.45 mile from the project site and approximately 0.5 mile from the SoM modular trailer relocation site at the Corporation Yard. There is also a transit stop at Parking Lot 30 if the SoM modular trailer is relocated to the northwest area of Parking Lot 30.

The proposed project would not remove any transit stops, though through site improvements, the proposed project would improve pedestrian pathways and walking experience to the existing transit stops. No bus stops within a half mile of the project site can be considered a high-quality stop per the definition noted above, however, the existing transit services in proximity to the project site and SoM modular trailer relocation site provide opportunities for staff members/faculty and students to access the project site and SoM modular trailer relocation site without driving.

Regional Transportation Plan/Sustainable Community Strategies Consistency

Metropolitan Planning Organizations (MPOs) are required to develop a Regional Transportation Plan (RTP) and Sustainable Community Strategies (SCS), the purpose of which are to evaluate regional land use patterns and transportation systems to help achieve the State’s GHG emissions reduction goals. The UCR campus is located within the SCAG MPO region.

In September 2020, the SCAG Regional Council adopted Connect SoCal (2020-2045 RTP/SCS). The core vision of the plan “centers on maintaining and better managing the transportation network we have for moving people and goods; expanding mobility choices by locating housing, jobs and transit closer together; and increasing investment in transit and complete streets.” The proposed project is fully accounted for in the growth allocated by the 2005 LRDP, as amended, and is consistent with the land use assumptions in the RTP/SCS. Therefore, the proposed project is consistent with the RTP/SCS and would have a less than significant impact on transportation based on the RTP/SCS screening threshold.

Therefore, using the OPR criteria for evaluating potential transportation impacts, the project is expected to have a less than significant impact on VMT.