Initial Study/Mitigated Negative Declaration

University of California, Riverside
Student Success Center
UCR Project No. 950512

Lead Agency	University of California, Riverside Planning, Design & Construction 1223 University Avenue, Suite 240 Riverside, California 92521
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August 2019

UNIVERSITY OF CALIFORNIA, RIVERSIDE
STUDENT SUCCESS CENTER
PROJECT NO. 950512

Initial Study/Mitigated Negative Declaration

Lead Agency:
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August 2019

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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
BMP	Best Management Practices
CalEEMod	California Emissions Estimator Model
Caltrans	California Department of Transportation
CAO	Cleanup and Abatement Orders
CAP	Climate Action Plan
CARB	California Air Resources Board
CBC	California Building Code
CBSC	California Building Standards Commission
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CHASS	College of Humanities, Arts, and Social Sciences
CHP	California Highway Patrol
CMP	Congestion Management Program
CNEL	Community Noise Equivalent Level
CO	Carbon monoxide
CRHR	California Register or Historic Resources
CWA	Clean Water Act
dBA	decibel
DHS	Department of Health Services
DOC	Department of Conservation
DOT	Department of Transportation
DTSC	Department of Toxic Substances Control
EH&S	Environmental Health and Safety
EIR	Environmental Impact Report
EISA	Energy Independence and Security Act
EMFAC	Emission Factors
EOP	Emergency Operations Plan
FAA	Federal Aviation Administration
FAR	Floor Area Ratio
FHWA	Federal Highway Administration
FICUN	Federal Interagency Committee on Urban Noise
FTE	Full-Time Equivalent

GCAP	Green Campus Action Plan
GHG	Greenhouse gas emissions
Gsf	Gross square feet
HCP	Habitat Conservation Plan
HHRA	Human Health Risk Assessment
HUB	Highlander Union Building
HUD	Department of Housing and Urban Development
ICE	Internal combustion engine
IS/MND	Initial Study/Mitigated Negative Declaration
ITE	Institute of Transportation Engineers
IWWMP	Integrated Wastewater Master Plan
Kwh	Kilowatt hours
lbs	pound
LEED	Leadership in Energy and Environmental Design
L_{eq}	Equivalent Noise Level
LID	Low impact development
LRDP	Long Range Development Plan
LST	Localized significance thresholds
LUST	Leaking Underground Storage Tank
MBTA	Migratory Bird Treaty Act
Mgd	Million gallons per day
MM	Mitigation Measure
MMRP	Mitigation Monitoring and Reporting Program
MOU	Memorandum of Understanding
MS4	Municipal Separate Storm Sewer System Permit
MSHCP	Multiple Species Habitat Conservation Plan
$MTCO_2e$	CO_2 equivalent
MVA	Megavolt amps
MW	Megawatts
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NCCP	Natural Communities Conservation Plan
ND	Negative Declaration
NHPA	National Historic Preservation Action
NOI	Notice of Intent
NOx	Nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
OffRoad	Off-Road Diesel Analysis
PM-10	respirable particulate matter less than 10 micrometers in diameter
PM-2.5	fine particulate matter less than 2.5 micrometers in diameter
ppm	parts per million
ppb	parts per billion
PRC	Public Resources Code
PS	Planning Strategy
RCFA	Riverside County Fire Authority
RCDWR	Riverside County Department of Water Resources
RFD	Riverside Fire Department
RPD	Riverside Police Department
RPS	Renewables Portfolio Standard

RPU	Riverside Public Utilities
RTP/SCS	Regional Transportation Plan/Sustainable Communities Strategy
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
SCG	Southern California Gas Company
SCH	State Clearinghouse
SIGI	Sustainable Integrated Grid Initiative
SIP	State Implementation Plan
SLF	Sacred Lands File
SoCAB	South Coast Air Basin
SOM	School of Medicine
SSC	Student Success Center
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TACS	Toxic air contaminants
TDM	Transportation Demand Management
UC	University of California
UCPD	UC Police Department
UCR	University of California, Riverside
UNET	University Neighborhood Enhancement Team
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Area
USFWS	U.S. Fish and Wildlife Service
UWMP	Urban Water Management Plan
Vdb	*vibration decibels*
VMT	Vehicle miles traveled
VOC	Volatile organic compound
WDR	Waste discharge requirement
WSC	Water Systems Consulting

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STUDENT SUCCESS CENTER
UNIVERSITY OF CALIFORNIA, RIVERSIDE

Project No. 950512

Initial Study and Environmental Checklist Form

I. PROJECT INFORMATION

1. PROJECT TITLE

Student Success Center

2. LEAD AGENCY NAME AND ADDRESS

The Regents of the University of California
1111 Franklin Street, 12th Floor
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 Figures 1 and 2)

5. PROJECT SPONSOR'S NAME AND ADDRESS

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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

"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 3 and online at http://lrdp.ucr.edu/.

Introduction

The environmental analysis for the proposed Student Success Center (SSC) project (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 EIR 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 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 on narrower projects; incorporating by reference the general discussions from the broader EIR; and concentrating the later EIR or negative declaration 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, 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 students[1] by the academic year 2015/2016, for a total of 11.8 million gsf on the UCR campus with 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 in

[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 and for the proposed Amendment 2, 1 FTE = 1 Headcount with the "student" taking full course loads every quarter with graduation in four years.

the 2005 LRDP. The 2005 LRDP Amendment 2 EIR 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) of the State CEQA Guidelines instructs that when tiering, a later EIR or ND 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 that:

> (A) they have been mitigated or avoided as a result of the prior environmental impact report 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 environmental impact report 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, The Regents also adopted a Mitigation Monitoring and Reporting Program (MMRP). The MMRP ensures that 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).

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 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 to Adopt an MND, has been circulated by the State Clearinghouse Office of Planning and Research (SCH) 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. It is anticipated that the proposed project will subsequently be submitted to the Chancellor for consideration in fall 2019.

II. PROJECT DESCRIPTION

UCR proposes to develop the Student Success Center (SSC, herein referred to as project or proposed project), a new 3- to 4- story facility with a maximum building capacity of 80,000 gross square feet (gsf). The project would support the UCR academic mission through its explicit focus on "student success": academic achievement, retention, and timely graduation for students from all backgrounds by providing general assignment classrooms, and student life support spaces in the campus academic core.

In addition to enhancing student success at UCR, the proposed project would help address a shortfall in classroom capacity. The student population at UCR has increased by 36 percent in the past decade and is expected to continue to grow. At the current pace, without significant improvement in capacity, all classroom size categories will exceed 100 percent utilization by 2023.

The project would accomplish these goals by providing three elements essential to student success: (1) general assignment classrooms designed for modern pedagogy and technology, (2) multipurpose student life spaces for use by student organizations and areas for scholarly activity such as tutoring, mentoring, and study, and (3) (shelled) dining services venue. Approximately 1,070 general assignment classroom seats would be provided by constructing lecture halls, and classrooms designed for flexible teaching configurations. These seats represent replacement of current capacity (approximately 620 seats) that would be lost at the end of an off-campus lease at the University Village (1201 University Avenue, Riverside, California) in late 2021. The instructional space would be built to support advances in higher education pedagogy. The project would also provide multipurpose spaces for studying and student organization events and meetings.

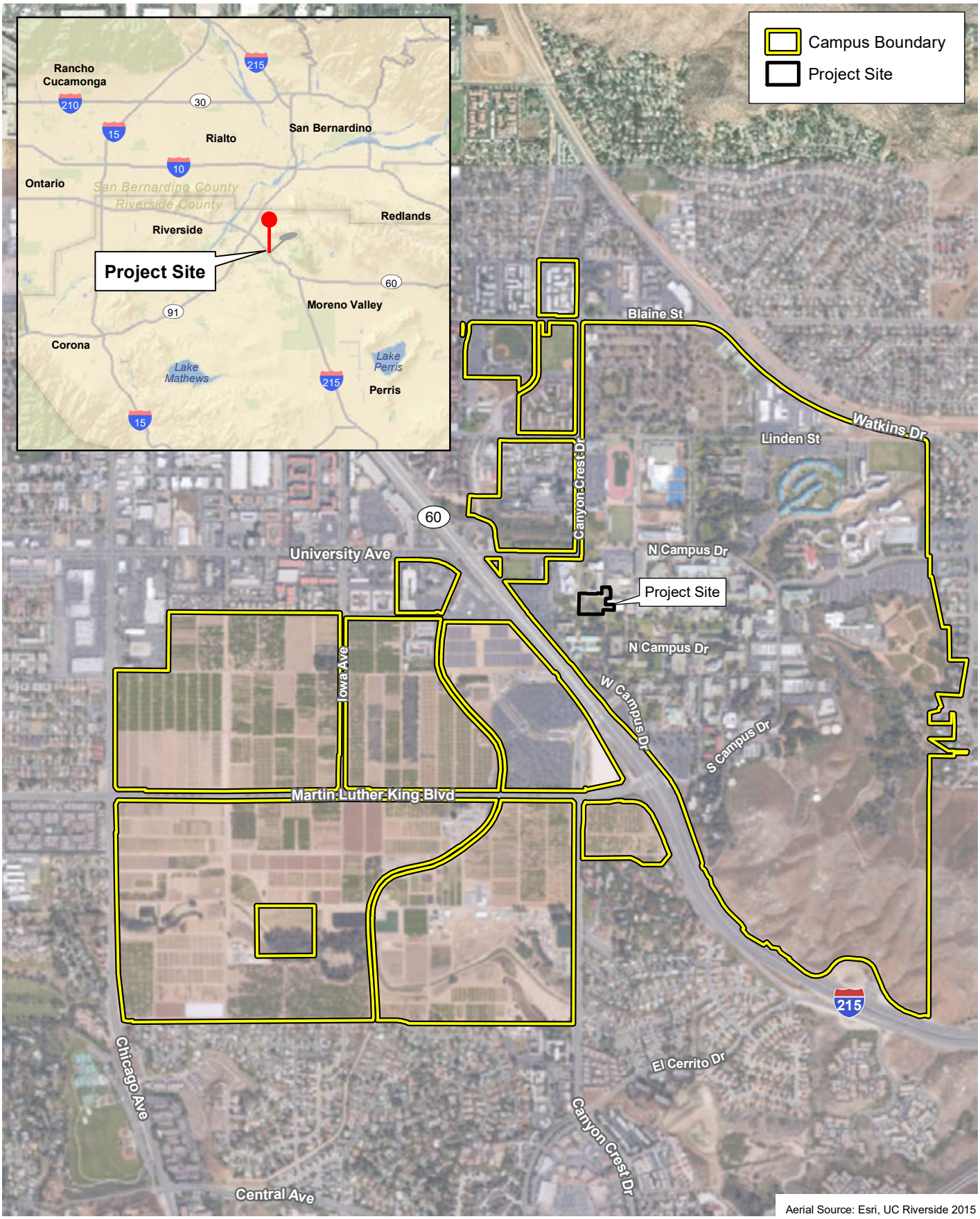
The project is proposed to be sited within the campus's academic core on the western edge of what is known as East Campus. This area was selected largely based on its accessibility to undergraduate students; proximity to other classrooms, the Highlander Union Building (HUB), and other student support functions; and suitability of program based on near-term and long-term campus development plans. The construction of the SSC at this location would assist in the completion of an existing corridor of student-centered facilities.

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

1. PROJECT LOCATION

The proposed project is located west of the Student Services Building and south of the College of Humanities, Arts, and Social Sciences (CHASS) Interdisciplinary Building South on UCR's East Campus. This area of campus is known as the "academic core" and contains a high concentration of classroom and student-centered facilities. The site is located adjacent to two major campus pedestrian/greenway corridors: the Arts Mall to the west and the Carillon Mall to the south. The proximity of these open areas provides accessibility to the site and opportunities for programmatic links to outdoor space. Figure 1 shows the regional location and local vicinity for the proposed project, and Figure 2 provides a map of the UCR campus, including the location of the proposed project.

The project site encompasses approximately 0.8 acre and is shown on the aerial photograph provided on Figure 3.



Regional and Local Vicinity

Figure 1

UCR Student Success Center

1,500 750 0 1,500 Feet

PSOMAS

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Source: UCR 2016

UCR Campus Map

Figure 2

UCR Student Success Center

N W E S

PSOMAS

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Aerial Source: Esri, UC Riverside 2015

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Aerial Photograph

Figure 3

UCR Student Success Center

N
W E
S

120 60 0 120

Feet

PSOMAS

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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 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, Greenhouse Gases (GHG), and Tribal Cultural Resources are incorporated in the environmental settings of that particular environmental topic. Following is a description of the environmental setting for the proposed project and surrounding areas.

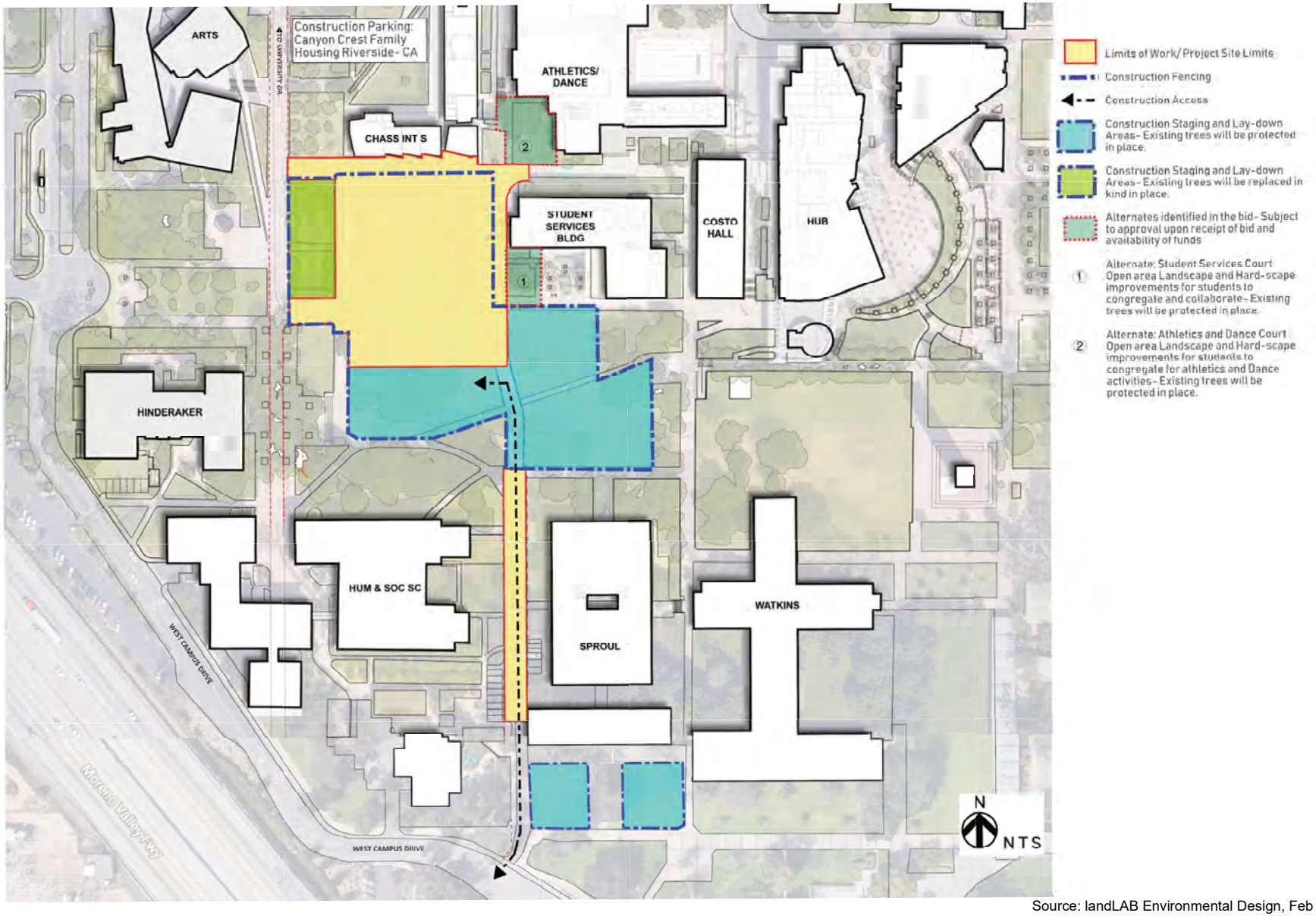
As shown on Figure 3, the proposed project would be constructed on an approximate 0.8-acre site in the western portion of the UCR East Campus. The site is currently covered with grass and landscaping, including trees and is surrounded by existing concrete (paved) walkways.

There is currently no public vehicular access to the project site. Improvements to an existing pathway would enable fire truck access to the project site from both West Campus Drive from the south (new access) and the Arts Mall to the project site from the north (existing access). Additionally, service vehicles will be able to travel to the project site via the new access lane. The closest passenger drop-off and pick-up area and closest parking area is located approximately 320 feet and 450 feet west of the project site along West Campus Drive, respectively. Existing pedestrian pathways are available to the project site via the adjacent Arts Mall and Carillon Mall. With implementation of the proposed project, the existing vehicular access and pedestrian access will remain the same.

Temporary construction staging and laydown areas will be on the existing landscaped grass area immediately west, south, and southeast of the project site, and south of Sproul Hall (refer to Figure 4). The proposed project site supports no existing native vegetation types. Vegetation currently on site consists of turf grass and landscaped areas; the remaining unvegetated portions of the site are developed (hardscape) areas. Mature trees that occur in the project study area include one strawberry tree (*Arbutus unedo*), five western sycamores (*Platanus racemosa*), four holly oaks (*Quercus ilex*), and two southern live oaks (*Quercus virginiana*). Tree species are further discussed in Section V.4, Biological Resources, of this IS/MND. There are no sensitive hydrologic or biological resources within the project site. Based on review of Figure 3.0-8 of the 2005 LRDP Amendment 2 EIR, there is no designated “natural open space” in the vicinity of the project site; however, the Carillon Mall located just south of the site is considered a “campus landmark open space” area.

The project site is relatively flat with a regional gradient of approximately 0.5 percent toward the northwest, with drainage occurring from southeast to northwest. Drainage across the site is by uncontrolled sheet flow to the adjacent sidewalks and drainage course, as well as by infiltration within unpaved areas (Twining 2018). Storm water flows are ultimately collected by the existing 24-inch storm drain beneath the mall, which ultimately discharges to the Gage Detention Basin, north of University Avenue.

The site is underlain by approximately one foot of artificial fill material. The fill material consists of silty sand which is underlain by old alluvial fan deposits composed primarily of silty sands and sand with traces of clay. Groundwater was not encountered at the project site within the maximum exploratory drilling depth of 41.5 feet below ground surface (bgs) (Twining 2018).



Source: landLAB Environmental Design, Feb 2019

Construction Impact Area

Figure 4

UCR Student Success Center

N W E S

Map not to scale

PSOMAS

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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 4.9 miles to the northeast.

3. BACKGROUND AND NEED FOR THE PROPOSED PROJECT

UCR is situated in the heart of the Inland Empire, an area that includes western Riverside and San Bernardino counties, and that is one of the fastest growing regions in California. This growth has brought an increasingly diverse population to the region with resulting diversity in business and industrial development in the surrounding communities. UCR serves as one of the most important economic, educational, and cultural resources for the area. The campus has likewise been experiencing substantial growth which is reflected in the 2005 LRDP Amendment 2.

UCR's Strategic Plan affirms that every student should expect inspirational instruction and personalized faculty mentorship; accessible academic support programs and student services; opportunities for intellectual engagement, including international experiences and undergraduate research and creative activity; experiential learning and career exploration; and training to become a leader in California and the world.

The fundamental goal of this project is to support excellence in undergraduate education as outlined in UCR's Strategic Plan. This would be accomplished by providing high-quality instructional space to support a growing student population, by facilitating student access to other support services, and by providing opportunities for enrichment and engagement via participation in student organizations and other extracurricular activities.

Classroom Capacity

Two drivers related to general assignment classroom space contribute to the need for this project: continuing student enrollment growth which would push the existing inventory of general assignment classrooms at UCR beyond maximum classroom utilization capacity in the very near future, and the impending end of an off-campus lease agreement which contributes a significant portion of that existing classroom inventory.

Recent enrollment growth at UCR has been significant and continued growth is expected. Over the past decade, total enrollment increased 36 percent from 16,875 students in fall 2006 to 22,990 students in fall 2016. Undergraduates currently comprise a large majority of the campus population (86 percent) and are expected to continue to do so in the future. These students would be the primary users of general assignment classrooms and other services housed in the SSC. The campus community has been resourceful and continues to provide quality instruction and student services in aging and overextended facilities; however, this situation is not ideal.

The California Postsecondary Education Commission (CPEC) has established standards for classroom utilization as a measure of productive classroom use. Utilization is calculated based on available classroom stations, number of students taught, and hours per week of active instruction. A utilization rate in excess of 100 percent represents an impact on resources that can negatively affect quality of instruction.

Due to sustained enrollment growth, UCR is reaching, maximum utilization of its general assignment classrooms, with particular demand for both lecture hall and technologically-enhanced and flexibly-configured classrooms. These facilities play an integral role in the delivery of the curriculum for all degree programs at UCR, but most crucially for undergraduate students.

General assignment classrooms are already heavily utilized, with some classroom size categories exceeding 100 percent utilization. Without creation of new general assignment classroom space, enrollment would soon outpace classroom capacity across-the-board. Furthermore, with the current inventory of classrooms, all categories are projected to exceed 100 percent utilization by 2023.

An off-campus lease at a movie theater complex currently supplies the equivalent of 620 general assignment classroom seats in three movie theater auditoriums being used as lecture halls. Hours of use are restricted; classes cannot be scheduled into evening hours due to the shared use of the space as theaters. The leased space was not designed for teaching and consistently receives negative feedback from both students and instructors due to inadequate or nonfunctioning equipment and furnishings, and distance from central campus.

This space was leased beginning in 1997 as part of a partnership with the surrounding community to both support redevelopment of a neighborhood adjacent to campus and to increase the inventory of general assignment classroom space for campus. The partnership to improve the area has largely succeeded and UCR strongly believes that general assignment classrooms appropriately belong on campus. This lease is set to expire at the end of 2021 and, as a consequence, UCR must either continue to lease this space or formulate an alternate strategy for providing the necessary classroom stations currently being provided via this lease.

Alternate facilities appropriate for hosting large undergraduate lectures are difficult to find within reasonable proximity of campus. In addition, leasing incurs significant operating cost without the benefits of ownership. Continuing instruction in this space is highly undesirable; at the same time, if this capacity is lost, the shortage of general-assignment classroom seats becomes even more dire. UCR is currently implementing a multi-year classroom renovation program to improve the quality and efficiency of existing small-to-medium classrooms; however, the need for high- quality medium and large and lecture hall-sized classrooms remains to be addressed.

The project proposes to alleviate campus space constraints and quality concerns by providing about 1,070 seats in new classrooms and lecture halls. Shortages in the larger classroom size categories would be addressed by providing new lecture halls, and in the large classroom size categories through flexibly designed, technologically enhanced “flat floored” classrooms to accommodate a variety of modern pedagogical approaches. High demand for smaller classrooms is anticipated to be accommodated in other near-term development plans.

Multipurpose Student Life Spaces

It is well established that university students benefit greatly from extracurricular activities – out-of-classroom experiences which augment formal instruction and positively impact their emotional, intellectual, social, and interpersonal development. Involvement in student organizations allows opportunities to develop communication, leadership, and social skills, thus improving self-confidence, independence, and the ability to work with diverse groups of people, all tools essential in the real world.

Despite the completion of the new Highlander Union Building (HUB) complex in 2009, which was specifically built to provide space for student organizations and other extracurricular activities, there remains substantial unmet demand for student life space at UCR—demand that would only increase with expected enrollment growth. A HUB Expansion Study was commissioned by UCR in 2014 to identify and quantify the most urgent student life space needs. It was found that multipurpose spaces for meetings, performances, and other student organization activities were

of highest priority. Demand for space to support group/independent study, dining, and student services were also identified.

4. PROJECT GOALS/OBJECTIVES

The goals and objectives of the proposed project are:

- The SSC shall be consistent with the campus's desire to increase the density of the core campus. The building's height and massing shall be consistent with the surrounding context.
- The SSC shall serve as an important anchor at the intersection of the Carillon Mall and the Arts Mall.
- The project design shall establish a distinctive presence that both contributes to the larger public space and engages fully with its immediate neighboring buildings.
- Existing landscape shall not limit the proposed building's functionality or creativity in design. New landscaping shall highlight visual axes to create connections between disjointed areas of the campus.
- The SSC shall provide quality open spaces that are additive to the campus, responsive to the building program, and include the potential to showcase public and/or student art.
- The SSC shall acknowledge and respond to UCR's tradition of building architecture that is uniquely climate-responsive.

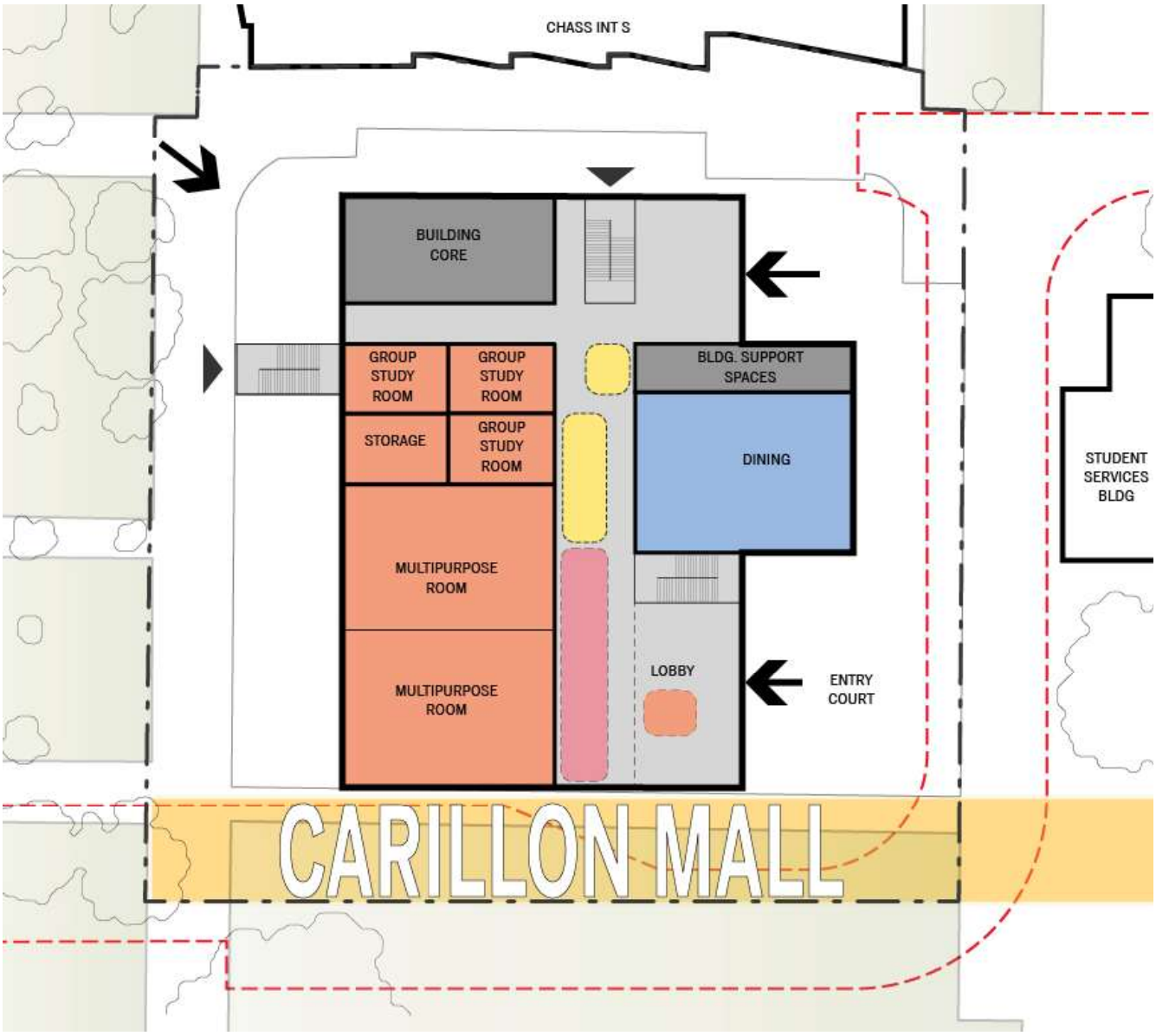
5. PROPOSED PROJECT COMPONENTS

The following project components are described below:

- Project Elements
    - Student affairs
    - General Assignment Classrooms and Scholarly Activity
    - Auxiliary Services
    - Building Support
    - Landscape, Hardscape, and Lighting
- Employee and Student Populations
- Circulation
- Utilities and Infrastructure
- Sustainable Building Features
- Construction Activities

Project Elements

As previously identified, UCR proposes to develop the SSC, a new 3- to 4- story facility with a maximum building capacity of 80,000 gsf. Figure 5 provides the conceptual floor plan for the proposed project. The project will consist of a single multi-story building intended to contain Student Affairs, General Assignment Classrooms and Scholarly Activity, Auxiliary Services, and Building Support.



Ground Floor

LEGEND:

PRIMARY BUILDING ENTRY

SECONDARY BUILDING ENTRY

Source: Steinberg Hart 2019

Conceptual Floor Plan

Figure 5

UCR Student Success Center

N W E S

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Student Affairs

Student Affairs for the SSC would provide amenities for students, faculty, staff and visitors. They include a Lobby, Multipurpose Rooms, Group Meeting Rooms, Group Study Rooms, Student Lounge, and Open Student Study Spaces.

Multipurpose Rooms

Multipurpose space to allow student organizations to meet, hold events, and hold performance rehearsals.

Group Meeting Rooms

Medium-sized meeting rooms for student club organizations. When not reserved for meeting, the space may be used for student study.

Group Study Rooms

Small group study rooms for four to six students provide students work surfaces and a place to study.

A Student Lounge

A social space that provides students a location to connect, engage, interact, and relax. With a small food preparation area, including microwaves, the Student Lounge provides students with an alternative to the food services venue located in the building.

Open Student Study Space

Informal open student study space shall be provided throughout the Student Affairs Space. Types and sizes of study areas shall vary, giving students size, functionality, and location options.

General Assignment Classrooms and Scholarly Activity

The majority of the project's assignable square footage is dedicated to lecture halls and classrooms to help address a shortfall in classroom capacity. Classrooms and lecture halls would be designed to encourage student participation and collaboration. In addition, these spaces would achieve the following practical objectives:

- Meet an appropriate utilization rate
- Provide flexibility and upgraded technology

Instructional Space

Classrooms

Classrooms to accommodate approximately 80 seats at mobile tables and chairs. Classrooms would support a wide range of activities including lecture, small group work, large group work, and class discussion.

Lecture Halls

Active learning lecture halls ranging from large to small would be provided to accommodate lecture, group work, and large group discussions.

Testing Center

The Testing Center is projected to be a multipurpose/multi-function space, utilized mostly as a classroom throughout the weekday. The Testing Center would accommodate uses for online-course exam testing, scheduled orientations, registration events, standardized testing, and copying and printing.

Scholarly Activity Spaces

Scholarly activity spaces would facilitate instructor to student and student peer-to-peer tutoring and mentoring. These study spaces would be provided throughout the SSC. Types and sizes of study areas shall vary, giving students size, functionality, and location options.

Auxiliary Services

The SSC's Auxiliary Services component would provide a shell space for a future dining services venue. Additionally, the seating area would be provided, open to students even when the food station area is closed.

The SSC's dining services venue and seating area would be separate, individual components. The Dining Area would be a secured space. The dining seating would be open and connected to the Lobby. Special consideration would be given to the integration of the dining venue, Dining Seating Area, and the Lobby. As such, dining seating furniture would be complementary with the Lobby's furniture.

Building Support

The building support areas would include, Gender Inclusive Restrooms, Mother's Room, Main Housekeeping, and a Building Trash Room. These rooms are provided in compliance with UCR policies and operational procedures. Additional building support spaces, including but not limited to, restrooms, telecommunications rooms, and general custodial spaces would be provided.

Restrooms

Dedicated men's and women's restrooms would be located in close proximity to the dining services venue. If needed, the Design Build Entity may locate a single restroom inside the Dining space to meet code requirements. Gender-inclusive restrooms would be provided per UCR and the University's Guidelines.

Housekeeping and Trash

A 200-square foot storage space for Building Housekeeping is required to facilitate building maintenance and accommodate custodial activities, supplies, and equipment. In addition to the 200-square foot storage space for Building Housekeeping, a 100-square foot storage space would be provided on each floor with water and a mop sink to support routine cleaning activities. These rooms would be adjacent to the restrooms. Another 200-square foot space for Main Building Trash and Recycling shall be provided to accommodate disposal and collection of trash and general recycling.

Landscape, Hardscape and Lighting

The project is located within a heavily utilized pedestrian area and is surrounded by existing pedestrian walkways, including the Carillon Mall and the Arts Mall. The proposed project would maintain all surrounding hardscape areas (pedestrian walkways) in place. A concrete entry court would be located on the southeastern portion of the site, with additional concrete-paved primary points of entry at the northwestern corner and along the northeastern edge of the proposed SSC building. Secondary concrete-paved entries would be constructed located along the northern and western ends of the proposed SSC building. Landscaped areas containing ornamental shrubs, trees, and turf would be installed in the remaining areas between the building, the existing pedestrian walkways, and the proposed primary and secondary entries. All landscape, hardscape, and lighting elements would comply with applicable UCR Campus Design Guidelines.

Employee and Student Populations

As discussed previously, the proposed project is intended to replace the need for use of the current off-campus movie theater complex, which currently serves as general assignment classroom seats in three movie theater auditoriums being used as lecture halls. The proposed project would result in an increase in the number of students at the project site, but most of these individuals are already on campus for other classes or would be relocated from the classroom facilities at the off-site movie theater complex; therefore, the students would not represent an increase in the campus population. The proposed project would, however, result in an increase of no more than 4 full-time staff positions (employees) and approximately 60-70 existing student employees.

Circulation

Vehicular Circulation

There is currently no public vehicular access to the project site. Improvements to an existing pathway would enable fire truck access to the project site from both West Campus Drive from the south (new access) and the Arts Mall to the project site from the north (existing access). Additionally, service vehicles will be able to travel to the project site via the new access lane. The closest passenger drop-off and pick-up area and closest parking area is located approximately 320 feet and 450 feet west of the project site along West Campus Drive, respectively.

Non-Vehicular Circulation

The site is framed by two major opens spaces—the Arts Mall and Carillon Mall—consisting of existing pedestrian pathways continuing from University Avenue. These open spaces have the capacity to support heavy pedestrian traffic and are anticipated to carry increased foot traffic when the SSC is completed. Smaller pathways perpendicular to the main pedestrian malls connect to existing courtyards and other secondary paths, giving the site opportunities to activate the ground floor. With implementation of the proposed project, the existing pedestrian access will remain the same.

Service Access

Service truck access may coincide with the emergency access lane from West Campus Drive. Access to the trash/ recycling storage may either be at the north or east edges of the site; however, service access for trash and other services would not interfere with pedestrian circulation. No loading docks are proposed.

Emergency Vehicle Access

Improvements to an existing pathway would enable fire truck access from West Campus Drive to the project site. Existing fire truck access will remain from the Arts Mall. UCR would coordinate with Campus Fire Marshal who would be the liaison with the Riverside County Fire Authority (RCFA). The proposed building would include adequate fire truck/fire hose access to perimeter of the structure and to the building Fire Department Connection (FDC). Existing hydrants on the site may need to be relocated to address any fire, life, and safety criteria.

Sustainable Building Features

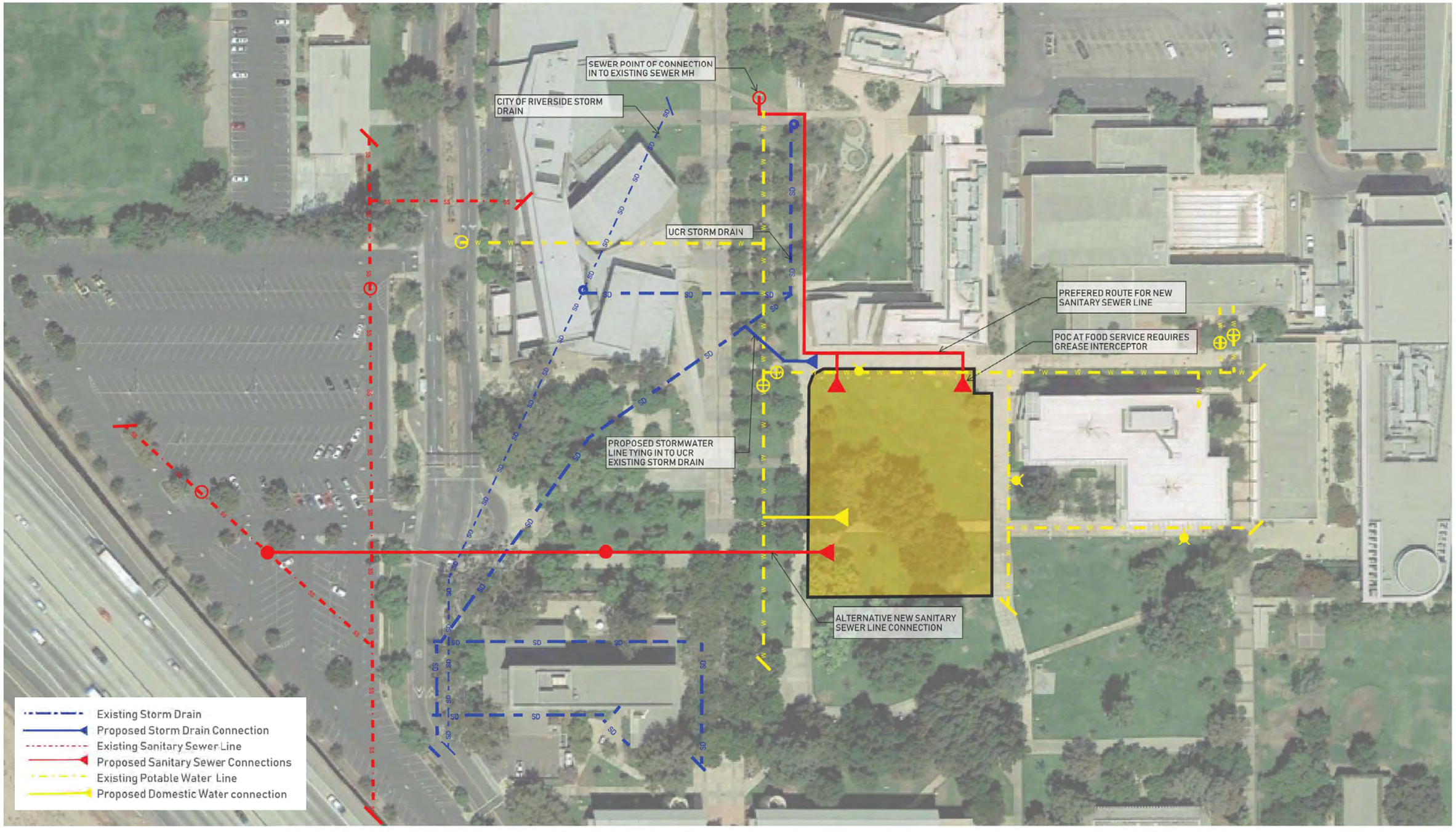
The proposed project would comply with the University of California Policy on Sustainable Practices (Sustainable Practices Policy) and adopt the principles of energy efficiency and sustainability to the fullest extent possible, consistent with budgetary constraints and regulatory and programmatic requirements. Leadership in Energy and Environmental Design (LEED®) is a green building rating system that contains prerequisites and credits in five areas: (1) environmentally sensitive site planning; (2) water conservation; (3) energy efficiency; (4) conservation of materials and resources; and (5) indoor air quality. The Sustainable Practices Policy establishes a minimum standard of a LEED "Silver" for new buildings and identifies that new buildings will strive to achieve certification at a U.S. Green Building Council (USGBC) LEED "Gold" rating or higher, whenever possible within the constraints of program needs and standard budget parameters.

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 2016 California Green Building Standards Code (CalGreen) and the Sustainable Practices Policy to exceed California Building Code Title 24 energy efficiency requirements by 20 percent or greater (for new buildings). Additionally, the proposed project would comply with applicable Sustainable Practices Policy goals for recycling and waste management and University of California, Riverside mandates related to water efficiency and construction waste diversion.

Utilities and Infrastructure

The proposed project would require connections to existing campus utilities, including domestic water, sewer, storm drains, chilled water, and electric systems that are currently located in or adjacent to the project site, as described below. Figures 6a and 6b depict the conceptual utility plans for the proposed project, including existing utilities that would need to be removed or relocated, new utilities to be installed with the proposed project, and the anticipated location of utility connections to serve the proposed project. The final sizing and design of on-site facilities would occur during final building design. Following is a description of proposed utility systems, including water quality Best Management Practices (BMPs).

- **Domestic, Fire, and Irrigation Water.** The proposed project includes a connection to an existing 12-inch domestic water main for water and fire needs that currently runs north to south along the western edge of the project site. There are also two existing fire hydrants which are serviced by a 6-inch lateral off a 12-inch main. There are no recycled water facilities that serve the project site. Consistent with existing conditions, domestic water would be used for irrigation.
- **Sewer.** Sanitary sewer service would be provided via a gravity main sanitary sewer system, which would be designed and constructed within the project limits to pick up domestic effluent from the SSC Building. This system is proposed to discharge to the western-most existing 8-inch campus sanitary sewer main within Parking Lot 1 or northern



Source: UCR 2019

Conceptual Wet Utilities Plan

Figure 6a

UCR Student Success Center

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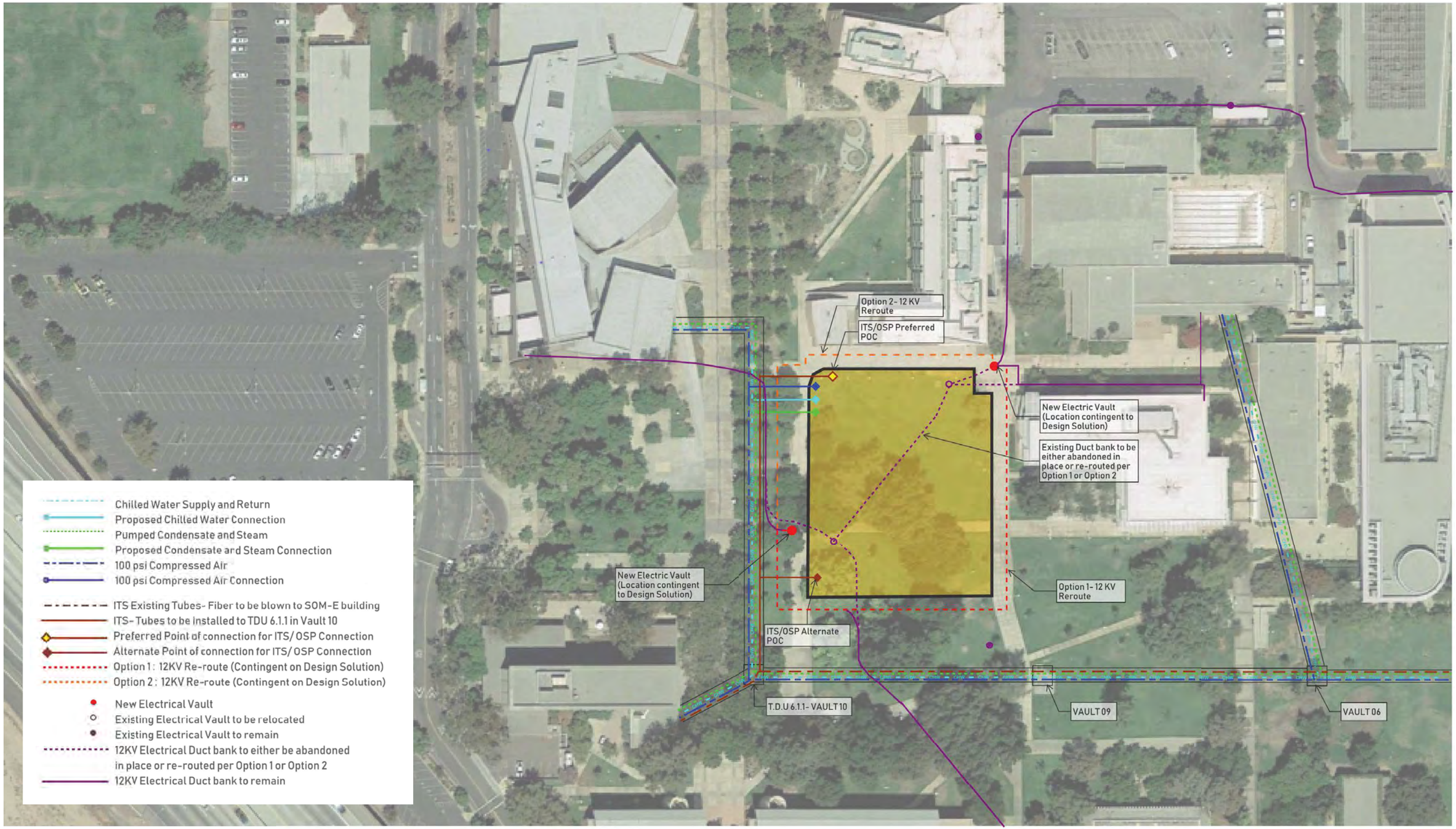

Source: UCR 2019

Conceptual Dry Utilities Plan

Figure 6b

UCR Student Success Center

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existing 8-inch campus sanitary sewer main. A grease interceptor would be installed to accommodate food services.

- **Storm Water and Water Quality.** 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).

  As shown in Figure 6a, Conceptual Wet Utilities Plan, the on-site storm drain system would discharge at a single location in the northwest portion of the project site. As shown on Figure 7 Conceptual Stormwater Management Program, runoff would be managed via several source-control BMPs, including:

  - Rain gardens and flow through planters.
  - Sediment capture;
  - Permeable paving;
  - Vegetated swales;
  - Pervious paving and structural grids;
  - Self-retaining landscape;
  - Grated flow control;
  - Pervious walkways with stabilized aggregate;
  - Suspended pavement;
  - Concrete flush edge walkways; and
  - Bio retention cells or planters.

  All conveyance and treatment facilities would be designed in compliance with Riverside County Flood Control and Water Conservation District requirements in effect at the time of permit issuance.

- **Energy.** Electrical service would be supplied from connections to existing 12 KV electrical duct banks located northeast and southwest of the project site as shown in Figure 6b, Conceptual Dry Utilities Plan. Existing 12KV duct banks that currently traverse the project site as well as existing electrical vaults that are located within the proposed building footprint area would be relocated to avoid interference with the proposed SSC building.

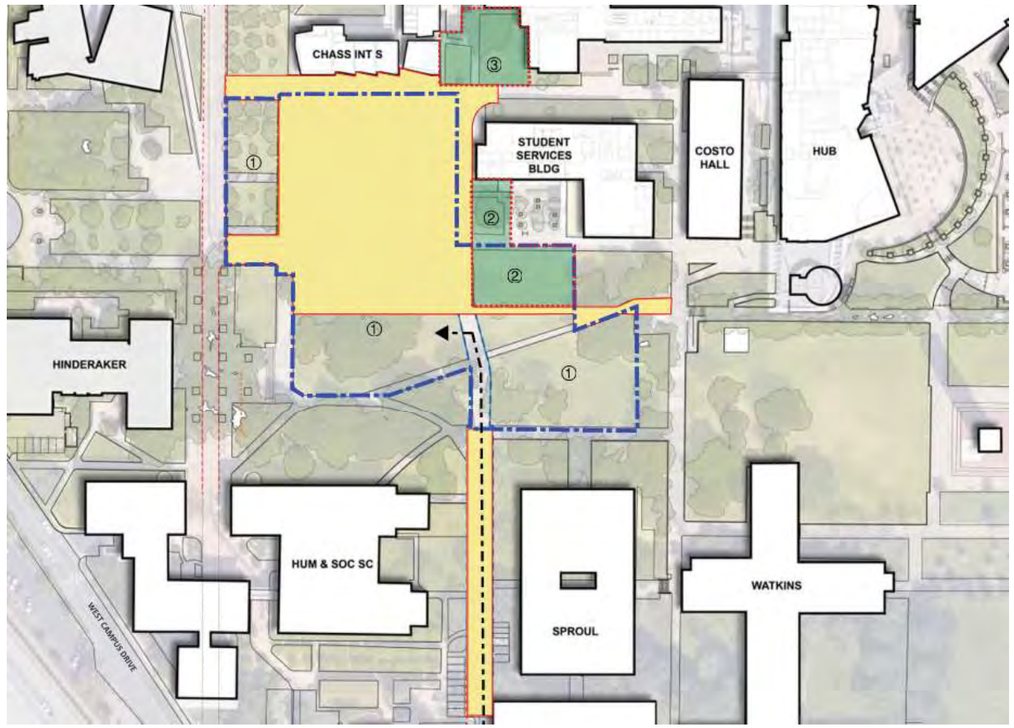
  In accordance with a UC systemwide policy, the project would not include any natural gas connections.

- **Telecommunications.** Telecommunications infrastructure would be supplied to the proposed project via connections to proposed extensions to existing fiber optic tubes located south of the project site. A new connection would be installed west of the project site and a connection point would be located within the proposed SSC building.

Construction Activities

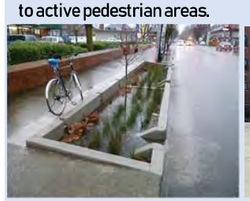
Construction of the proposed project is anticipated to begin in fall 2019 and be completed by mid-2022 (construction duration of approximately 21 months). The generalized construction phasing is projected as follows, with some overlap between phases:

- Demolition, Site Preparation, and Utility Installation (4 months);



Rain gardens and Flow through planters

Rain gardens are shallow depressions that capture and treat stormwater, allowing it to infiltrate in to the ground. Flow through planters use the same treatment technique as raingardens but can be easily be incorporated in to seat walls in to active pedestrian areas.




Sediment Capture (Distributed through out)

Bare soils result in high rates of erosion and sedimentations. Sediment catchments capture and collect sand and fine soils at the entrance of bioretention areas removing them from stormwater. Sediment removal can significantly extend the functional life of these features.


Permeable Paving

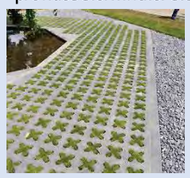
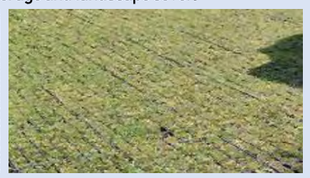
Permeable paving is designed allow water to enter the joints between the pavers and flows through an open graded base, to infiltrate in to the subgrade or be carried out in to the storm system. Pervious paving is designed to decrease stormwater runoff.

Vegetated Swale

Vegetated or Bio swales are stormwater runoff conveyance systems that provide an alternative to piped storm sewers. They can absorb low flows and direct runoff from heavy rains to storm sewer inlets. Vegetated swales can improve water quality of stormwater runoff.

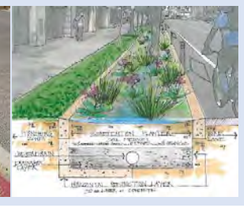
Pervious Paving- Structural Grids

Structural girds also referred to as geocells, consist of concrete interlocking units that allow water to infiltrate through openings filled with either aggregate stone, or topsoil and turf grass. 'Grasscrete' products are a type of structural grid which are proposed for portions of the fire access ways. A compacted and permeable sub-base consisting of porous stone or soil layers, provides stormwater storage and landscape cover.

Self Retaining Landscape

Landscape areas with highly porous, uncompacted soils are utilized to absorb all water that lands on it, treating water through absorption and minimizing runoff by emulating the natural unaltered condition.

Grated Flow Control

Grated Curbs allow for stormwater to be conveyed under pedestrian walkways- which is useful in breaking long spans of impervious pedestrian walkways

Pervious Walkways- Stabilized aggregate

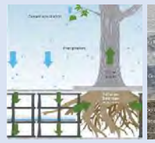
Stabilized aggregate is a mixture of compacted stone, aggregate and a binder used for foot paths and other accessible landscape areas. It allows surface water to penetrate to the sub-grade, reducing (or eliminating) runoff and providing significant storage volume.

Pervious Walkways- Porous Concrete

Single size aggregate known as porous concrete, consists of a special mix design with void spaces that make it highly permeable. About 30%- 40% can be porosity and therefore its permeability is often measured in hundreds of inches per hour. Porous Concrete reduces the velocity and volume of stormwater runoff delivered in to the stormwater system and can reduce the contaminants in the runoff.

Suspended Pavement

Pavement suspended over Silva Cells or Structural Soils is a great way to provide healthy tree growth and improve stormwater treatment. Several trees can be connected beneath paving surface, improving soil and plant health



Concrete Flush Edge walkways

flush edging along impervious paths allows for stormwater to runoff impervious surfaces directly in to landscaped areas and stormwater facilities.


Bio retention cells or planters.

Bioretention cells capture and infiltrate stormwater into the ground below the cell and have an overflow that carries excess stormwater to a discharge point.
Bioretention planters are landscape planters that also store stormwater in porous planting soils and above the soil surface.
Planters may be raised above ground or can be set flush with or even below the ground surface.

Source: UCR 2019

Conceptual Stormwater Management Program

Figure 7

UCR Student Success Center

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- Building Construction and Architectural Coatings (16 months);
- Building Commissioning (1 months).

The project site encompasses approximately 0.8 acres. The project site is currently undeveloped and contains grass and landscaping, including trees. Project implementation would require removal of on-site vegetation, including 34 trees, of which 11 will be replaced near the project site. An additional 18 existing trees will be either protected in place or removed and replaced in place (refer to Figure 12). With the exception of these trees, the analysis in this IS/MND assumes that the entire construction impact area would be subject to ground disturbance.

Figure 4, Construction Impact Area, illustrates the boundaries of the areas that would be impacted by construction activities for the proposed project, including the construction staging and laydown areas which are primarily developed as landscaped areas and pedestrian walkways. During project construction, pedestrian access would be restricted within the fenced construction areas; however, there are alternative pedestrian paths and walkways available in the immediate area to provide ample access to existing buildings.

Demolition would include removal of approximately 65,000 square feet of landscaping and approximately 29,000 square feet of hardscape at the project site. It is estimated that demolition would require the export of approximately 400 to 425 tons of demolition material to a construction and demolition waste disposal site and the grading phase would involve export of approximately 3,000 cubic yards of soil.

As described above, utility lines to serve the proposed project would connect to existing facilities in the vicinity of the project site. Utility connections, and a connection to the generator on the west side of the Humanities and Social Sciences (H&SS) Building would involve temporary disturbance of the travel lanes and sidewalk along West Campus Drive.

Depending on the construction phase, implementation of the proposed project would require common equipment, such as a dozer, tractor/loader/backhoe, grader, crane, forklift, compressor, welder, concrete trucks and pumps, and cement and mortar mixers. Because of the limited size of the site, the number of pieces of equipment on site at any given time would also be limited. As required by existing regulations, soil erosion from the project site during construction would be controlled through the use of several BMPs, including the use of water or soil stabilizers.

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 site is located adjacent to two major campus pedestrian/greenway corridors: the Arts Mall to the west and the Carillon Mall to the south.

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 share footage anticipated, a total of 5.5 million gsf is allocated to “Academic” uses (which includes the proposed project). The existing on-campus development is approximately 7.2 million gsf, and approximately

793,765 gsf of new development has been approved but not yet built.[2] Therefore, there is approximately 6.9 million gsf of development allocation remaining on campus. The proposed project would construct approximately 80,000 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, 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 2018 enrollment is 23,922 students (20,581 undergraduate students and 3,341 graduate students) (UCR 2018). Additionally, there are approximately 4,837 faculty, staff, 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 individuals.[4] The proposed project would provide general assignment classrooms, multipurpose spaces, student support services, and a dining services venue and would accommodate the projected number of staff and students on campus. The proposed project would serve the projected UCR campus population with the addition of approximately four full-time staff positions. Approximately and 60-70 existing students would be employed . 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 anticipated to conflict with the projections for other individuals on campus.

As further discussed in Section V.10, 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, or its delegate, will consider the proposed SSC project, the tiered IS/MND, and UCR's request for project approval. Delegates of The Regents include, but are not limited to, the UCR Chancellor. 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. Anticipated

[2] Approved but not yet built development includes the Dundee Student Housing and Glasgow Dining project, North District Development Phase 1, the Plant Growth Environments Facility, and the Barn Expansion project.

[3] 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.

[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 count to avoid double counting in the campus population.

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, or its Designee

- Adoption of the Final Tiered Initial Study/Mitigated Negative Declaration
- Approval of the Design of the Student Success Center

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

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

☐ 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.

8/15/2019

Jaime Engbrecht
University of California, Riverside
Senior Planner

Date

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. As described previously in Section II, Project Description, of this IS/MND, relevant elements of the proposed project related to aesthetics/visual change include the construction of a multi-story building providing general assignment classrooms, multipurpose student life spaces, and the dining services venue. The proposed building would be up to 4-stories in height and contain a maximum of 80,000 sf of developable space. The project would include landscape and hardscape elements similar to the surrounding areas, and the existing pedestrian walkways would be maintained, providing connectivity to both the Carillon Mall and the Arts Mall. 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 existing trees in the Arts Mall and trees in the Carillon Mall outside of the project scope area would be protected in place. Where trees are disturbed or removed in the Arts Mall, they would be replaced in-kind. The existing oak in the Student Services court (enhancement area) and the existing sycamores in the Athletics/Dance (enhancement area) would be protected in place and integrated into the proposed design. Following construction, these areas would be returned to their original condition.

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.

PS Open Space 5 Retain the Carillon Mall as a major Campus Landmark Open Space, respecting its existing dominant width of approximately 200 feet through its length. Other names malls and walks will be 100 feet wide.

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].)*

PP 4.1-2(b) The Campus shall continue to relocate, where feasible, mature “specimen” trees that would be removed as a result

of construction activities on the campus. *(This is identical to Land Use PP 4.9-1[c].)*

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?	☐	☒	☐	☐	☐

Discussion

As discussed on page 4.1-13 of the 2005 LRDP EIR, scenic vistas may generally be described in two ways: panoramic views (visual access to a large geographic area, for which the field of view can be wide and extend into the distance) and focal views (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 from publicly accessible viewpoints. 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 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 available 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 compliance 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 views of the Box Springs Mountains are available from the Carillon Mall if looking eastward. The project site is located at the intersection of the Arts Mall and Carillon Mall. Development of the proposed project would not interfere with the Carillon Mall (refer to PS Open Space 5). As such, implementation of the proposed project would not affect public views of the Box Springs Mountains from vantage points in Carillon Mall. Additionally, views of the Box Springs Mountains from the project site are obstructed by the mature trees and buildings in areas located east of the site. Therefore, the proposed project would have a less than significant impact on a scenic vista with incorporation of PS Open Space 5 and 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?	☐	☒	☐	☐	☐

Discussion

As identified in the IS for the 2005 LRDP EIR, the UCR campus is bisected by the Interstate 215/State Route 60 (I-215/SR-60) freeway and is generally bound 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 2011). 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 in proximity to the southeast hills. Additionally, the temporary construction staging/equipment laydown area will not be located in proximity 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?	☐	☒	☐	☐	☐

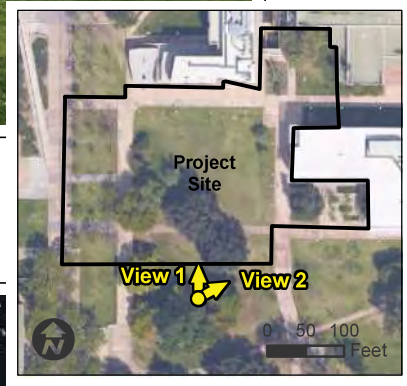
Discussion

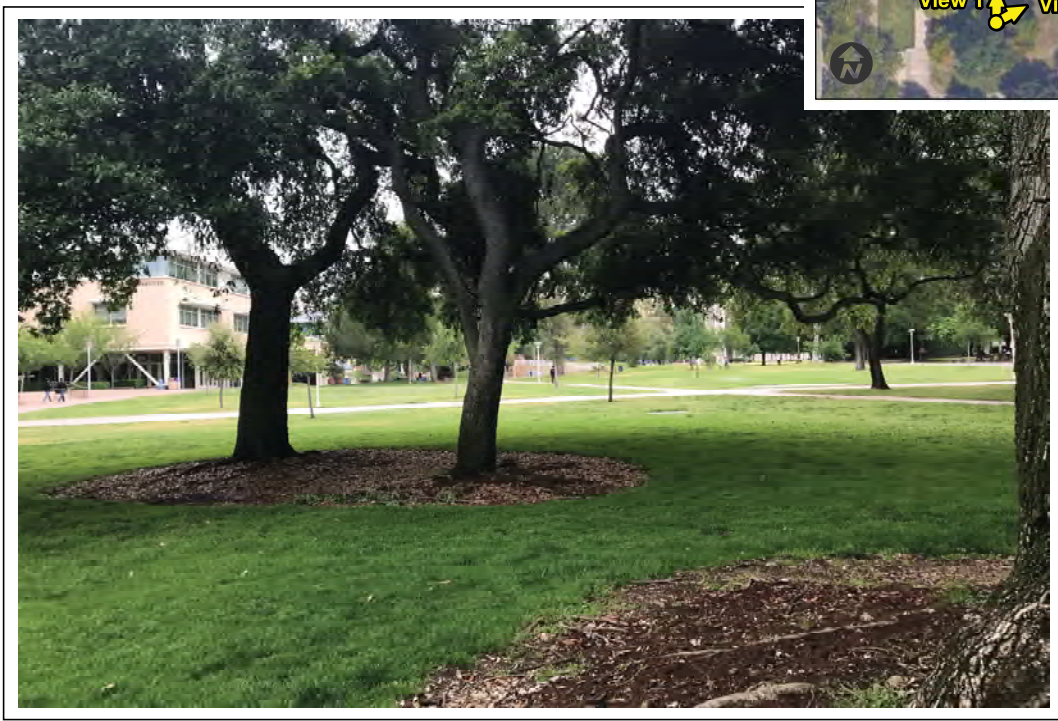
The analysis of Impact 4.1-2 in the 2005 LRDP EIR concluded that, with implementation of PS Land Use 1 through 3, PS Open Space 1 through 7, PS Conservation 1 through 4, PS Campus & Community 1, PS Development Strategy 1 through 3, and PP 4.1-2(a) through PP 4.1-2(d), development under the 2005 LRDP 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 within an urbanized area specifically within the campus' Academic Core, at the intersection of two prominent pedestrian malls; the Arts Mall and the Carillon Mall. It is proximate to other classrooms, the HUB, CHASS Interdisciplinary Building South, and the Student Services Building. The site offers an opportunity for the SSC to utilize the surrounding outdoor space, and complete an existing corridor of student-centered facilities. The primary views of the project area 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.

- **Views 1 and 2 – Views from south of the project site.** These photographs depict the existing condition of the project site as viewed from vantage points south of the project site and south of the CHASS Interdisciplinary Building South (refer to Figure 8a). Partially obstructed views of the Student Services Building to the northeast are in the background (refer to Figure 8a). Existing mature trees on and surrounding the project site are prominent visual features. Additionally, the site can be seen as an open, unencumbered grass lawn framed by paved sidewalks.
- **View 3 – View from the southeast corner of the project site.** This photograph depicts existing views from the paved sidewalk located southeast of the project site (refer to Figure 8b). As shown, the site is an open grass lawn surrounded by existing mature trees and framed by paved sidewalks to the north and east. The CHASS Interdisciplinary Building South can be seen in the background of this photograph.
- **Views 4 and 5 – Views from the eastern boundary of the project site.** View 4 represents views looking northwest toward the project site (refer to Figure 8b). The CHASS Interdisciplinary Building South is visible on the right side of the photograph. Distant views show the Arts building in the background. View 5 represents views looking southwest from the project site, including the sidewalk that bisects the site (refer to Figure 8c). Existing mature trees on and surrounding the project site are prominent visual features in this photograph.
- **View 6 – View from the northeast corner of the project site.** This photograph depicts views from the northeast corner of the project site (refer to Figure 8c). It is representative of views southwest of the project site, including the grass lawn that is framed by paved sidewalks. Mature trees can be seen lining the site. Additionally, distant views include the Hinderaker Hall building which can be seen in background of this photograph.
- **View 7 – View from the northern boundary of the project site.** This photograph depicts views from the northern boundary of the project site standing in front of the CHASS Interdisciplinary Building South (refer to Figure 8d). It is representative of views looking southeast toward the project site. The Student Services Building is visible on the left side of the photograph. The project site can be seen as an open grass lawn framed by paved sidewalks.

View 1





View 2

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Site Photographs

Figure 8a

UCR Student Success Center

PSOMAS

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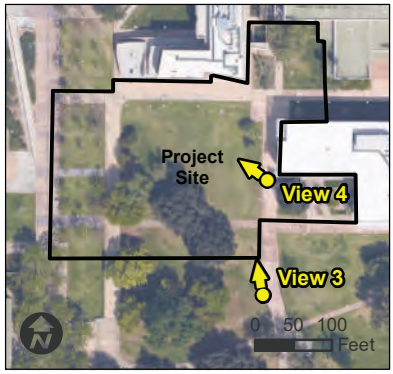
View 3



View 4

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Site Photographs

Figure 8b

UCR Student Success Center

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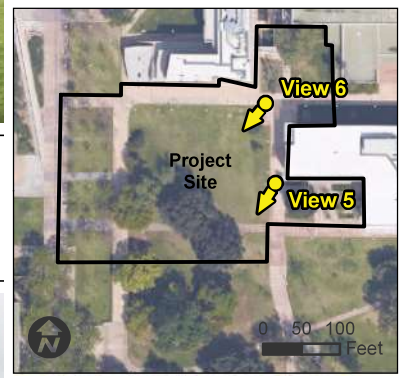
View 5



View 6

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Site Photographs

Figure 8c

UCR Student Success Center

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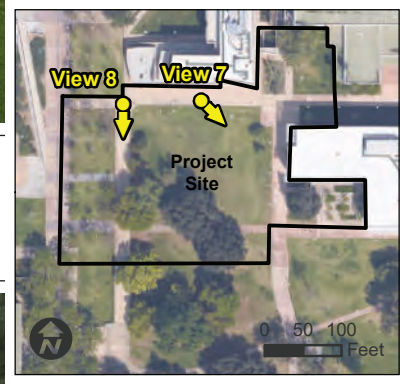
View 7



View 8

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Site Photographs

Figure 8d

UCR Student Success Center

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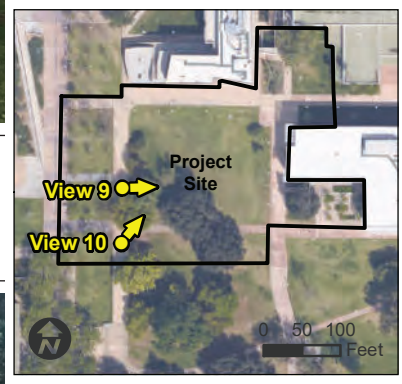
View 9



View 10

Site Photographs

Figure 8e

UCR Student Success Center

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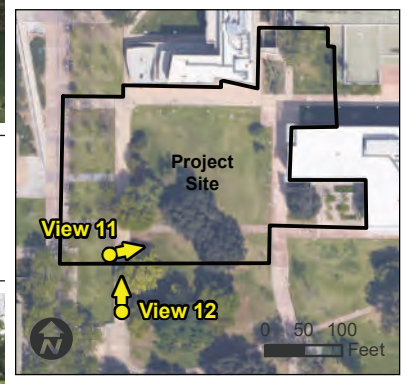
View 11



View 12

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Site Photographs

Figure 8f

UCR Student Success Center

PSOMAS

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- **View 8 – View from the northwestern corner of the project site.** This photograph depicts views from the northwestern corner of the project site standing in front of the CHASS Interdisciplinary Building South (refer to Figure 8d). It is representative of views looking south toward the project site. Existing mature trees on and surrounding the project site are prominent visual features in this photograph as are paved sidewalks that frame the site.
- **Views 9 and 10 – Views from the western boundary of the project site.** View 9 represents the view from the western boundary of the project site. It is representative of views looking east, including the Student Services Building which can be seen in the background of the photograph (refer to Figure 8e). View 10 represents views from the western boundary of the project site, standing south on the sidewalk that bisects the site (refer to Figure 8e). It is representative of views to the east, including the CHASS Interdisciplinary Building South which is visible on the left side of the photograph, and the Student Services building which is visible on the right side of the photograph.
- **Views 11 and 12 – Views from the southwest corner of the project site.** View 11 represents views from the southwest corner of the project site. It is representative of views to the east, including the Student Services Building which can be seen on the left-hand side of the photograph (refer to Figure 8f). Existing mature trees on and surrounding the project site are prominent visual features in this photograph. View 12 also represents views from the southwest corner of the project site, standing south on the sidewalk that bisects the site (refer to Figure 8f). It is representative of views to the north, including the paved sidewalks. The CHASSC Interdisciplinary Building South is shown in the background of this photograph.

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, a Conceptual Rendering is provided on Figure 9, and Conceptual Building Elevations are provided on Figures 10a and 10b. The Conceptual Landscape Plan is provided on Figure 11.

As discussed above, PSs and PPs relevant to project design and visual character have been incorporated into the proposed project. The color and material palette would build upon the campus vernacular with compatible and durable alternatives. Architectural character would reflect UCR's traditions and focus on extending architectural concepts to address exterior circulation and space to create shaded passageways and intimate outdoor courtyard spaces. Building design would reflect UCR's tradition of an integrated architectural expression in response to the regional climate. Visual connections would provide way-finding cues, facilitating a sense of orientation, place, and arrival. All new construction or landscaping would respect and improve upon existing spaces while using landscaping and visual axes to create connections between disjointed areas of the campus. Interior and exterior staircases would be visible from the exterior and easily located. Key to the concept of showcasing student life, activity, and success, all levels would be highly transparent and porous, creating visual connectivity at entries and throughout the interior and exterior spaces.

The character of the SSC would reflect its prominent position within the campus' academic core. 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 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]).

STUDENT SUCCESS CENTER - CEQA RENDERINGS

Source: Steinberg Hart, UC Riverside

Conceptual Rendering

Figure 9

UCR Student Success Center

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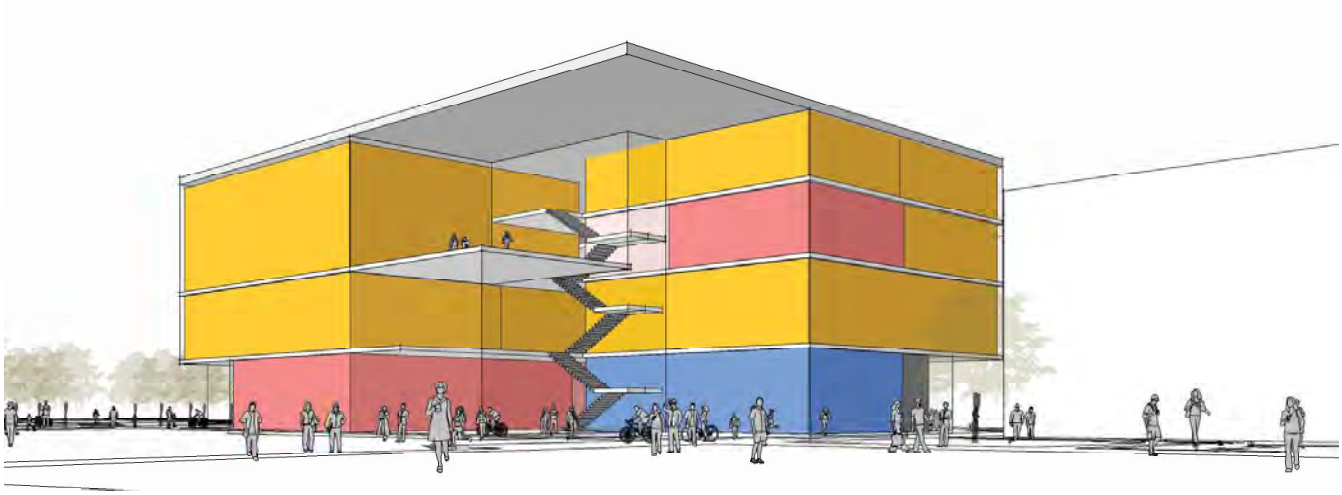

View from Carillon Mall

View from Arts Mall

Source: Steinberg Hart 2019

Conceptual Building Elevations

Figure 10a

UCR Student Success Center

PSOMAS

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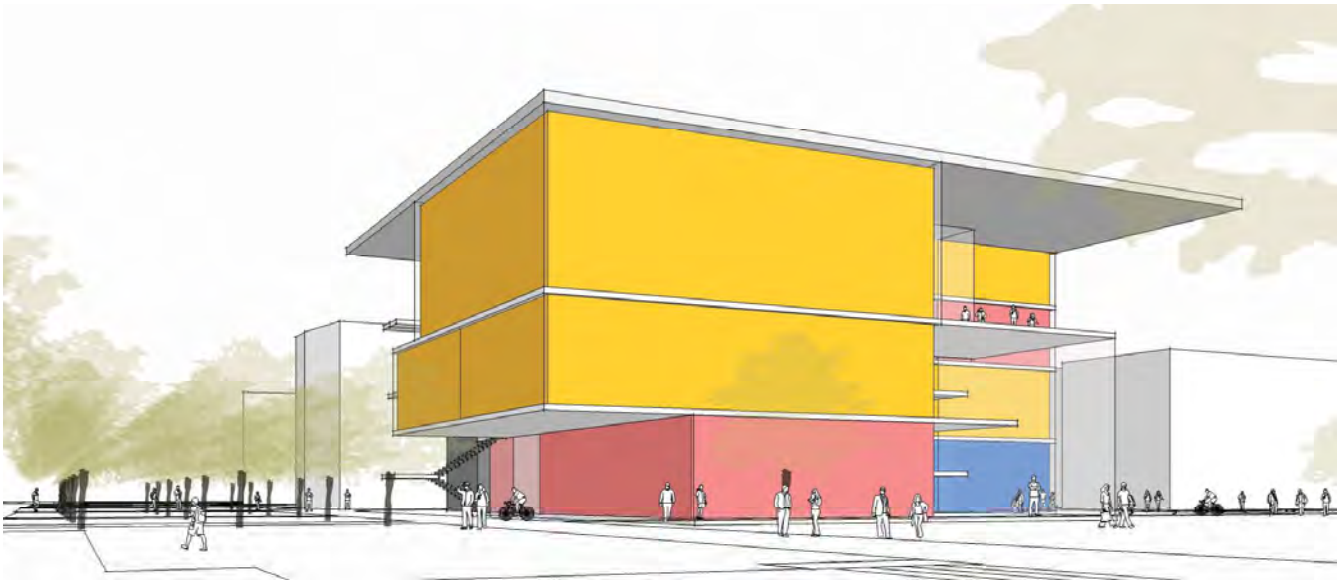
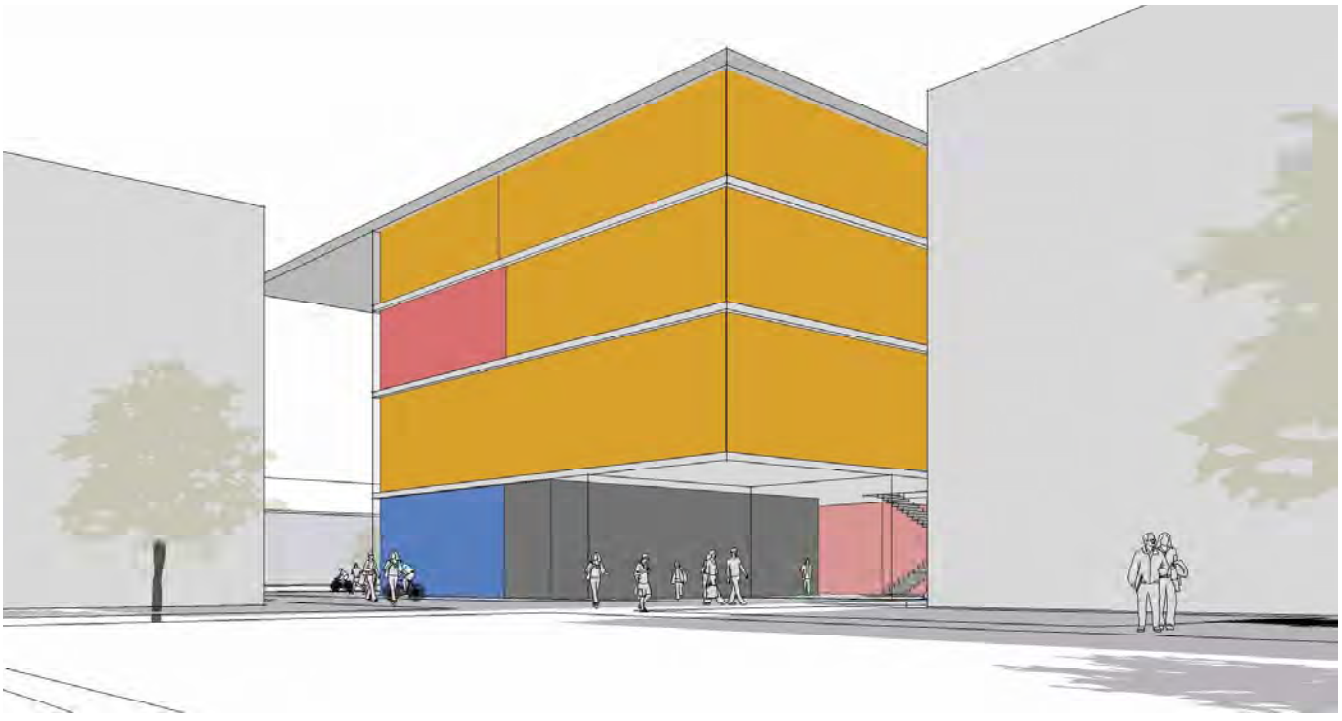


View from Hinderaker



View from Athletics and Dance Court

Source: Steinberg Hart 2019

Conceptual Building Elevations

Figure 10b

UCR Student Success Center

PSOMAS

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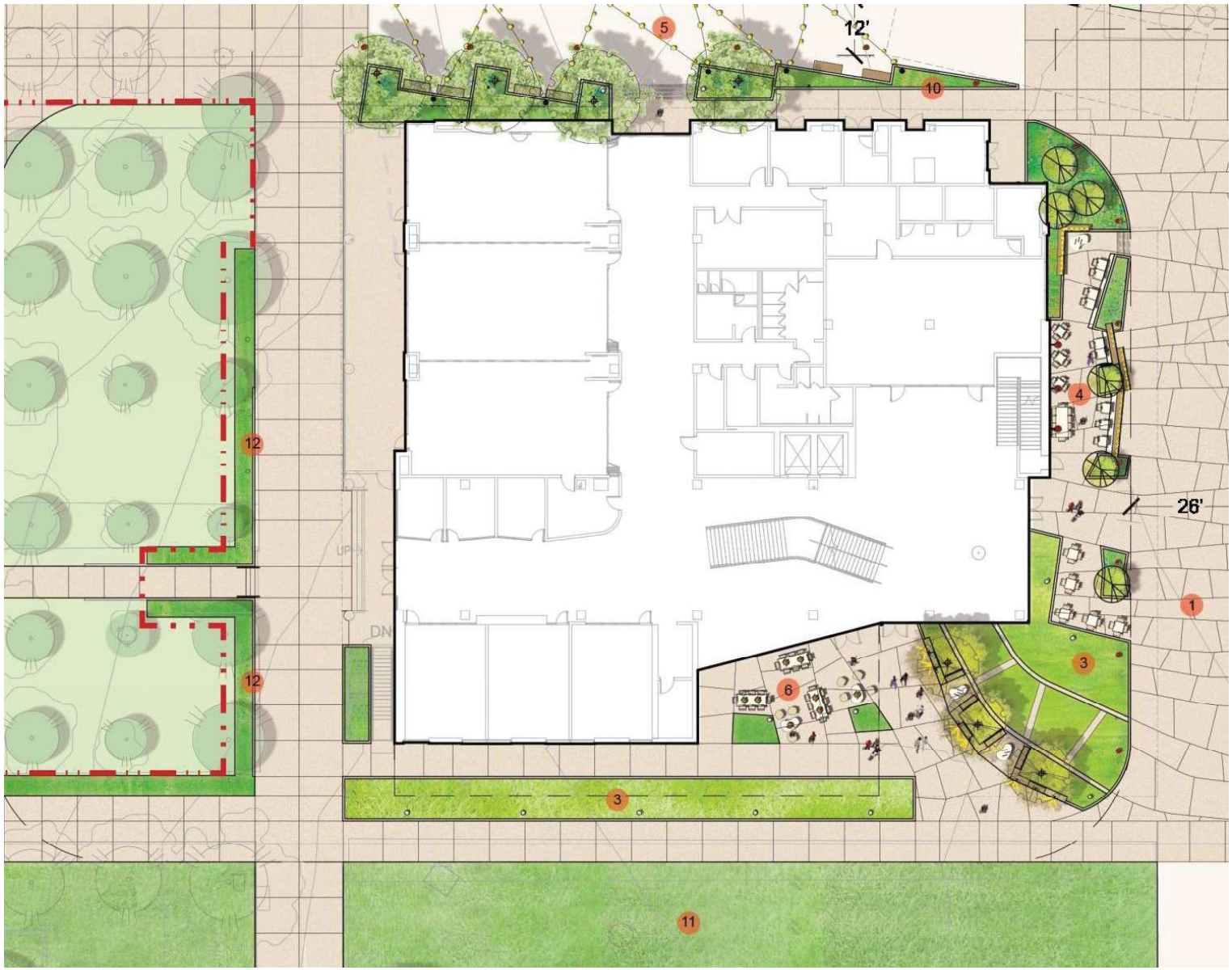

Source: landLAB Environmental Design, Feb 2019

Conceptual Landscape Plan

Figure 11

UCR Student Success Center

N
W
E
S

Map not to scale

PSOMAS

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As a result of the proposed project (refer to Figure 4, Construction Impact Area), 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 Locations. The proposed project includes PP 4.1-2(a), which ensures that project-specific 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 addition, the proposed project incorporates PP 4.1-2(b) which would encourage the relocation of trees, where feasible., where feasible.

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), PP 4.1-2(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 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?	☐	☒	☐	☐	☐

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. The 2005 LRDP EIR identifies that the primary sources of light and glare on the UCR campus include recreation facilities and surface parking lots. There are no recreation facilities in the vicinity of the project site; however, there are surface parking lots. Parking Lot 19 is located northeast of the project

Study Area

Trees/Shrubs to be removed

Trees to be replaced in kind in place

Tree Species

Arbutus unedo
Cercis occidentalis
Cinnamomum camphora
Fraxinus uhdei
Koelreuteria bipinnata
Lagerstroemia indica
Platanus X hispanica
Platanus racemosa
Quercus ilex
Quercus lobata
Quercus virginiana
Robinia sp.
Washingtonia robusta
Tree Canopy

Aerial Source: UCR 2015

Tree Locations

Figure 12

UCR Student Success Center

N W E S

45 22.5 0 45 Feet

PSOMAS

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site and Parking Lot 1 is located west of the project site. These parking lots are intervened by existing buildings or mature landscape. Other light sources in and surrounding the project site include, but are not limited to, street lights along West Campus and I-215/SR-60, exterior lighting at existing buildings, and lighting along pedestrian pathways.

The proposed project is near the western edge of the East Campus and is not in the vicinity of any light-sensitive uses. The lighting design would provide sufficient lighting to ensure visual performance and safety. The quantity of lighting would be determined by adherence to recommended illuminance levels derived from the latest industry standards and Campus Design Guidelines and any applicable code requirements. The lighting control system would provide time-based, sensor-based, and manual lighting control. Outdoor lighting would include the lighting of walkways and areas for security purposes. Emergency/night lighting would be provided by switched and unswitched branch circuits fed from an emergency lighting panel. Exit signs would be provided throughout the building to illuminate egress corridors, stairwells, etc.

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. Therefore, the lighting associated with the proposed project would not adversely affect any existing land uses, which are not considered light-sensitive (such as 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 exterior finishes would include primarily wood, aluminum, steel, and metal. Double-glazed windows would also be installed.

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 PS, PP, and MM 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 agricultural or forestry resources on or near the project area.

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?	☐	☒	☐	☐	☐
b) Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☒	☐	☐	☐
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))?	☐	☒	☐	☐	☐
d) Would the project result in the loss of forest land or conversion of forest land to non-forest use?	☐	☒	☐	☐	☐
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?	☐	☒	☐	☐	☐

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.

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 2017The project area is designated as Urban Built-Up Land and, as such, implementation of the proposed project would not convert Farmland to non-agricultural resources (DOC 2017). 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; it does not contain any forest land or timberland, nor is it under 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. As described previously in Section II, Project Description, of this IS/MND, relevant elements of the proposed 80,000 gsf building related to air quality include the demolition of existing landscaping and pavement, and the use of diesel-powered off-road construction equipment and on-road trucks used for material deliveries/debris hauling would contribute to local and regional emissions. It is anticipated that 3,000 cubic yards of soil would be exported and 904 tons of demolition material would be hauled from the site. The operations phase of the project would result in air pollutant emissions from vehicular trips by the additional 4 staff members, energy related emissions as well as emissions associated with the upkeep of the proposed building and grounds. It is anticipated that the proposed Project would provide facilities for students that are currently using the Regency University Village Theater and would not result in new student-related vehicle trips. The hours of operation will be similar to existing academic facilities on campus.

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 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 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/tao/implementation/soonprogram.htm.

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, 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 federal 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 (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), 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 (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. O_3 is a gas that is formed when VOCs and nitrogen oxides (NOx)—both byproducts of internal combustion engine exhaust—undergo slow photochemical reactions in the presence of sunlight. Thus, VOCs and NOx are O_3 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 (South Coast AQMD) 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)		Extreme Nonattainment
PM-10	Nonattainment	Attainment/Maintenance
PM-2.5	Nonattainment	Moderate Nonattainment
CO	Attainment	Attainment/Maintenance
NO_2	Attainment	Attainment/Maintenance
SO_2	Attainment	Attainment
Lead	Attainment	Attainment/Nonattainment*
All others	Attainment/Unclassified	No Standards

O_3: ozone; PM10: respirable particulate matter 10 micrometers or less in diameter; PM2.5: fine particulate matter 2.5 micrometers or less in diameter; CO: carbon monoxide; NO_2: nitrogen dioxide; SO_2: 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 2018.

In December 2012, the South Coast AQMD adopted the 2012 Air Quality Management Plan (AQMP), which is a regional and multiagency effort (South Coast AQMD, 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 (SIP) (South Coast AQMD 2013). CARB approved the 2012 AQMP on January 25, 2013.

South Coast AQMD updated its AQMP for the SCAB 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 disproportionally 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 South Coast AQMD 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 (NAAQS) (South Coast AQMD 2017):

- 8-hour O_3 (75 parts per billion [ppb]) by 2031[5]
- Annual PM-2.5 (12 micrograms per cubic meter [µg/m^3]) by 2025
- 8-hour O_3 (80 ppb) by 2023
- 1-hour O_3 (120 ppb) by 2022
- 24-hour PM2.5 (35 µg/m^3) by 2019

The SCAG assists by preparing the transportation portion of the AQMP. This includes the preparation of a SCS the 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 South Coast AQMD 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 multi-family residential uses The Windwood Apartment Homes and the Islamic Academy, located along West Linden Street 1,657 feet and 1,613 feet, respectively, to the northwest of the project site. The nearest on-campus sensitive receptors are located at the Student Services Building and the CHASS Interdisciplinary Building South, which are adjacent to the project site (immediately to the north and east of the project site, respectively). Potential impacts to sensitive receptors from construction emissions are assessed under the analysis of Threshold (d) below.

Methods

The South Coast AQMD 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 South Coast AQMD-recommended thresholds that are in place at the time development projects are proposed in order to assess the significance of quantifiable emissions. The current South Coast AQMD thresholds are identified in Table 2 and are applied to the proposed project.

[5] On October 1, 2015, the USEPA lowered the 8-hour O_3 standard to 0.070 parts per million (ppm) (70 ppb). The SIP (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.

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 ≥ 10 in 1 million Cancer Burden > 0.5 excess cancer cases (in areas ≥ 1 in 1 million) Chronic and Acute Hazard Index ≥ 1.0 (project increment)	
Odor	Project creates an odor nuisance pursuant to South Coast AQMD Rule 402	
GHG	10,000 MT/yr CO_2eq for industrial facilities	
Ambient Air Quality Standards for Criteria Pollutants[b, c]		
NO_2 1-hour average annual arithmetic mean	The South Coast AQMD is in attainment; the project is significant if it causes or contributes to an exceedance of the following attainment standards: 0.18 ppm (State) 0.03 ppm (State) and 0.0534 ppm (federal)	
PM-10 24-hour average annual average	10.4 µg/m^3 (construction)[c] and 2.5 µg/m^3 (operation) 1.0 µg/m^3	
PM-2.5 24-hour average	10.4 µg/m^3 (construction)[c] and 2.5 µg/m^3 (operation)	
SO_2 1-hour average 24-hour average	0.25 ppm (State) and 0.075 ppm (federal – 99th percentile) 0.04 ppm (State)	
Sulfate 24-hour average	25 µg/m^3 (State)	
CO 1-hour average 8-hour average	South Coast AQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 20.0 ppm (State) and 35 ppm (federal) 9.0 ppm (State/federal)	
Lead 30-day average Rolling 3-month average	1.5 µg/m^3 (State) 0.15 µg/m^3 (federal)	

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; CO: carbon monoxide; TACs: toxic air contaminants; South Coast AQMD: South Coast Air Quality Management District; GHG: greenhouse gases; MT/yr CO_2eq: metric tons per year of carbon dioxide equivalents; NO_2: nitrogen dioxide; ppm: parts per million; µg/m^3: micrograms per cubic meter.

[a] Source: South Coast AQMD California Environmental Quality Act Handbook (South Coast AQMD 1993).
[b] Ambient air quality thresholds for criteria pollutants based on South Coast AQMD Rule 1303, Table A-2 unless otherwise stated.
[c] Ambient air quality threshold is based on South Coast AQMD Rule 403.

Source: South Coast AQMD 2019.

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?	☐	☒	☐	☐	☐

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 South Coast AQMD AQMPs for O_3 and particulate matter; and there would be a significant and unavoidable impact. This conclusion was based on the forecasted construction emissions that exceed South Coast AQMD CEQA significance mass daily thresholds for VOC, NOx, and PM-10 and operational emissions that exceed the mass daily thresholds for VOC, NOx, 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 (South Coast AQMD 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, NOx, and PM-10 (Impact 4.3-1), and
- Operational emissions of VOC, NOx, 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 O_3 precursors VOC and NOx) 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 November 2019 to late 2021, for a period of approximately 21 months.

Demolition would include removal of approximately 65,000 square feet (sf) of landscaping and 29,000 sf of hardscape at the project site. It is estimated that demolition would require the export of approximately 89 trips to a construction and demolition waste disposal site. The grading phase would involve export of approximately 3,000 cubic yards of soil via 375 truck trips.

Construction and operational emissions for the proposed project were calculated by using the California Emissions Estimator Model (CalEEMod), Version 2016.3.2. CalEEMod is a computer program developed in collaboration with South Coast AQMD and other California Air Districts (CAPCOA 2016). CalEEMod is used to estimate anticipated emissions associated with land development projects in California. The CalEEMod inputs were based on the established construction assumptions (described above and in Section II, Project Description). Where specific information was not known, engineering judgment and default CalEEMod settings and parameters were used. Compliance with South Coast AQMD 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 South Coast AQMD'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
Demolition	1 Concrete/Industrial Saw
	1 Rubber Tired Dozer
	3 Tractors/Loaders/Backhoes
Site Preparation	1 Grader
	1 Rubber Tired Dozer
	1 Tractors/Loaders/Backhoe
Grading	1 Grader
	1 Rubber Tired Dozer
	1 Tractors/Loaders/Backhoe
Building Construction	1 Crane
	1 Forklift
	1 Generator Set
	1 Tractors/Loaders/Backhoe
	3 Welders
Paving	1 Cement and Mortar Mixer
	1 Paver
	1 Paving Equipment
	1 Roller
	1 Tractors/Loaders/Backhoe
Architectural Coating	1 Air Compressor
Source: CalEEMod projections modified by UCR.	

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

TABLE 4
MAXIMUM DAILY REGIONAL CONSTRUCTION EMISSIONS FOR THE PROPOSED PROJECT

Year	Emissions in Pounds per Day				
	VOC	NOx	CO	PM-10	PM-2.5
2019	<1	2	15	<1	<1
2020	1	8	15	3	1
2021	44	5	15	<1	<1
Maximum Daily Emissions	44	8	15	3	1
South Coast AQMD Significance Thresholds (Construction)	75	100	550	150	55
Significant Impact?	**No**	**No**	**No**	**No**	**No**

VOC: volatile organic compound; 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; South Coast AQMD: South Coast Air Quality Management District.

NoteCalculations assume compliance with South Coast AQMD Rules 403 and 1113. Emissions were presented based on the highest emissions occurring for both the winter and summer seasons.

CalEEMod model data sheets are included in Appendix A.

Estimated regional construction emissions would be less than the South Coast AQMD CEQA significance thresholds. Nonetheless, the project contractor would incorporate PP 4.3-2(a), MM 4.3-1(a), and MM 4.3-1(b) 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 2021. 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. The energy source for criteria pollutants is the natural gas used for heating needs. 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 4 employees. The proposed project is anticipated to generate 36 daily trips with 3 trips in the morning peak hour and 3 trips in the evening peak hour. These trips are associated with the four additional employees associated with the development of the Project. Existing vehicular trips attributable to students that are currently using the Regency University Village theater auditoriums would be relocated to the proposed facilities.

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 South Coast AQMD 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' 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 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

Sources	Emissions in Pounds per Day				
	VOC	**NOx**	**CO**	**PM-10**	**PM-2.5**
Area Sources	2	<1	<1	<1	<1
Energy Sources	0	0	0	0	0
Mobile Sources	<1	<1	1	<1	2<1
Peak daily operational emissions	**2**	**<1**	**1**	**<1**	**<1**
South Coast AQMD Significance Thresholds (Operational)	**55**	**55**	**550**	**150**	**55**
Significant Impact?	**No**	**No**	**No**	**No**	**No**

VOC: volatile organic compound; 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; South Coast AQMD: 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.

Note: CalEEMod model data sheets are included in 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 South Coast AQMD 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 anticipated 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. 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. Further, the proposed project would increase the campus population by up to approximately four employees, a negligible increase when considering pollutant emissions. 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. Therefore, 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 South Coast AQMD AQMP; 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 South Coast AQMD pollutant thresholds with incorporation of the 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?	☐	☒	☐	☐	☐

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 O_3 and PM-2.5 and a State nonattainment area for PM-10. Therefore, cumulative regional emissions of VOCs and NOx (which are O_3 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 South Coast AQMD VOC, NOx, and PM-10 mass emissions thresholds in some years. Because of the short duration of peak emissions and the relatively low VOC, NOx, and PM-10 emission rates (Table 4) compared to the South Coast AQMD 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, 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 (Table 5) would be minimal compared to the South Coast AQMD CEQA significance thresholds and would not be cumulatively considerable. The impact would be less than significant, 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 (O_3, PM-10, and PM-2.5). 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?	☐	☒	☐	☐	☐

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 anticipated that there would be a potential increase of approximately four staff. As such, the proposed project would generate a total of 3 trips in the morning peak hour and 3 trips in the evening peak hour. These trips are associated with the four additional employees associated with the development of the project. Existing vehicular trips attributable to students that are currently using the Regency University Village theater auditoriums would be relocated to the proposed facilities. Based on the location of the campus, the Regency University Village theater, and the available parking for the University, it is likely that most drivers will be traveling through the same intersections (i.e., University Avenue at the I-215/SR-60 southbound ramps and the I-215/SR-60 northbound ramps, etc.) with the project as they do currently without the project but will be making different turning movements. Therefore, it is not anticipated that the project will add any new traffic to the study area beyond that which will be generated by the new employees, and no additional analysis is required. 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 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 South Coast AQMD 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 (South Coast AQMD 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 NO_2, 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 area, and the distance to the off-site receptor. For the LST method, 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.

The CHASS Interdisciplinary Building South to the north and Student Services Building to the east are the closest receptors to the proposed project. 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. The project site is approximately 0.8 acre. Therefore, 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. The emissions shown in Table 6 are less than those in Table 4 because Table 4 includes off-site emissions as well as on-site emissions.

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

TABLE 6
LST RESULTS FOR DAILY CONSTRUCTION EMISSIONS

Pollutant	Maximum Daily On-Site Emissions[a] (lbs/day)	LST[b] Thresholds (lbs/day)	Exceed Threshold?
NOx	1	**118**	**No**
CO	15	**602**	**No**
PM-10	2	**4**	**No**
PM-2.5	1	**3**	**No**

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.

[a] CalEEMod model data sheets are included in Appendix A.
[b] LST thresholds for 1 acre at 25 meters (82 feet) from South Coast AQMD 2009.

As shown in Table 6, the proposed project's estimated construction emissions would not exceed the South Coast AQMD 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. As discussed previously, the project would result in an increase of 36 new vehicle trips associated with four new employees. The project would cause a redistribution of trips from students relocating from the Regency University Village theater auditoriums to the proposed facilities. LST analyses evaluate whether air pollutant emissions occurring at the project site would significantly impact the nearest sensitive receptors. 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 (3 morning and 3 evening peak hour). Elevated air pollutant concentrations related to vehicles is generally assessed based on the potential for carbon monoxide hotspots. As discussed previously, CO hotspots are not anticipated to occur at local intersections. CO hotspots at parking lots are likewise not anticipated 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?	☐	☒	☐	☐	☐

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 (such as 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 South Coast AQMD 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 South Coast AQMD 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 complains, 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. As described previously in Section II, Project Description, of this IS/MND, relevant elements of the proposed project related to biological resources include removal, and/or retention of trees and ornamental landscape and vegetation located within the project site.

The following applicable PSs 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.

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 CDFG 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 CDFG.

Additionally, PPs 4.1-2(a) and 4.1-2(b) (included under the Aesthetics analysis, which is Section V.1 of this IS/MND) are 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). PP 4.1-2(b) requires that the campus continue to relocate, where feasible, mature “specimen” trees that would be removed as a result of construction activities on the 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, 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?	☐	☒	☐	☐	☐

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, there are no Natural or Naturalistic open space areas in the vicinity of the project site. The study area has no existing native vegetation types; it currently supports turf grass, trees, landscaped, and developed (hardscape) areas. The list of trees within the project area to be removed, protected in place, or

replaced in-kind is depicted on Figure 12, Tree Locations. The existing trees in the Arts Mall and trees in the Carillon Mall outside of the project scope area would be protected in place. Where trees are disturbed or removed in the Arts Mall, they would be replaced in-kind. The existing oak in the Student Services court (enhancement area) and the existing sycamores in the Athletics/Dance (enhancement area) would be protected in place and integrated into the proposed design.

Based on observations by a Psomas biologist of the project area 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. Reptile species that may occur include western fence lizard (*Sceloporus occidentalis*), side-blotched lizard (*Uta stansburiana*), and southern alligator lizard (*Elgaria multicarinata*). Bird species that may occur include rock pigeon (*Columba livia*), 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*). Mammal species that may occur include Botta's pocket gopher (*Thomomys bottae*), 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. There are no natural or sensitive biological resources present on the project site. Therefore, 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 regulation by the California Department of Fish and Wildlife (CDFW) or by the U.S. Fish and Wildlife Service (USFWS). Impacts are considered to be less than significant, consistent with the findings of the LRDP EIR.

A discussion of impacts to migratory birds is provided under Threshold 4d below.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have less than significant impacts to candidate, sensitive, or special status plant or wildlife species 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 US Fish and Wildlife Service?	☐	☒	☐	☐	☐

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).

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 area 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. The proposed project would have 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 less than significant impacts on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations by the CDFW or the USFWS. 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?	☐	☒	☐	☐	☐

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.

The project site has been previously disturbed and is currently developed with landscape and pavement. The project site does not include wetlands or other areas under the jurisdiction of the CDFW or U.S. Army Corps of Engineers (USACE) as none exist on site. Thus, impacts are considered less than significant, consistent with the findings in the LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have less than significant impacts 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 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?	☐	☒	☐	☐	☐

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 Migratory Bird Treaty Act (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 is located in the western portion of the East Campus and would not involve development within or near the southeast hills. 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 (refer to Figure 11, Conceptual Landscape Plan).

Figure 12, Tree Locations, identifies 22 mature trees (trees with a tree trunk diameter at breast height [dbh] of 12 inches or greater) that were surveyed in and around the project site. As shown, mature trees that occur in the project study area include one strawberry tree (*Arbutus unedo*), five western sycamores (*Platanus racemosa*), four holly oaks (*Quercus ilex*), and two southern live oaks (*Quercus virginiana*). A summary of relevant information for each tree is provided in Appendix B (e.g., type, height, dbh, canopy diameter, health, and aesthetics). Generally, transplantation of the trees in the study area is not recommended due to the size and age of the tree relocation with a likelihood of eventual mortality. Project implementation would require removal of on-site vegetation, including 34 trees, of which 11 will be replaced in proximity to the project site. An additional 18 existing trees will be either protected in place or removed and replaced in place.

As analyzed in the 2005 LRDP EIR, it is anticipated 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), PP 4.1-2(b), 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

There would be a less than significant impact to nesting birds and raptors with the incorporation of the 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
e) Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☒	☐	☐	☐

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), PP 4.1-2(b), MM 4.4-4(a), and MM 4.4-4(b) and would have no impacts to sensitive biological resources. Additionally, the proposed project would have less than significant impacts related to removal of mature trees and associated potential for disturbance of protected birds and raptors with implementation of the above-listed measures. 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), PP 4.1-2(b), 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, 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
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?	☐	☒	☐	☐	☐

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 (NCCP) 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 and 719 of the MSHCP include portions of the UCR campus; however, the project site is not within these Criteria Cells 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

The analysis prepared for this cultural resource study is gathered from the 2005 LRDP EIR and the associated geotechnical study (EIP Associates 2005). The LRDP EIR addresses the cultural impacts in Section 4.5, Cultural Resources (CRM Tech 2002). Although several cultural resources were identified within the LRDP, no resources were identified within the SSC boundaries. Historic aerials illustrate that no structures have been built on the SCC Project site. However, the

surrounding area has been developed as early as the 1950s. Prior to the 1950s, the Project site was most likely disturbed via agricultural practices.

The geologic setting the SSC Project site consists of artificial fill, young alluvium, older alluvium, and granite bedrock. The Project site is situated directly south of a large wash comprised of several tributaries responsible for depositing sandy alluvial deposits. As concluded by EIP (2005), artificial fill and younger alluvial deposits are unsuitable for supporting structures and should be removed and re-compacted. As described previously in Section II, Project Description, of this IS/MND, relevant elements of the proposed project related to cultural resources include earth-moving activities to accommodate the new building pad and for installation of utility infrastructure that could encounter native soils. The project has an increased potential to encountering young alluvial sediment, which is comprised of very sandy sediment and exists to extents up to 50 feet below ground surface (EIP Associates 2005). Currently, there are no known historic, archaeological, or paleontological resources within the SSC project area.

The following applicable PP is incorporated as part of the proposed 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?	☐	☒	☐	☐	☐

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 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. 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.

Although the LRDP planning area contains potentially significant resources, as discussed above, the SSC project area does not contain any known historical resources. As such, the projects' impacts to historical resources, as defined in Section 15064.5, is assessed as no impact, 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 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) Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	☐	☐	☒	☐	☐

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, two archaeological sites have been recorded within the UCR campus: Site CA-RIV-495 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 in the within the southeastern or southwestern portion of the campus and (2) the agricultural fields on the West Campus. However, there are no known archaeological resource located within the project site.

Regarding the East Campus, the majority of the area has been developed for academic purposes. Most of these areas have been previously graded and were replaced with undocumented, artificial fill (EIP 2005). Substantial ground disturbance has, therefore, occurred in these areas, and surface evidence of archaeological resources is not likely to be encountered. Although the Project site has not been developed with structures, the Project site has undergone a considerable amount of landscaping and hardscaping. A graded road bisected the project site during the 1960s

before the surrounding area was developed. Furthermore, the Project site was most likely used for agricultural or farming purposes prior to the development of the surrounding structures, as deduced from historic aerials and maps prior to the 1950s (NetROnline 2019.) It is thereby concluded that the Project has a low potential for impacting previously undisturbed soils.

The proposed project is surrounded by a developed infill located within the East Campus. Also, the project area 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.

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 area. Given the developed nature of the surrounding areas and past activities in the project area as described above, the potential to find intact buried deposits within the project area is considered low. Nevertheless, there is always a possibility of encountering unknown or undocumented 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, presented below. This mitigation measure identifies steps to be taken in the event archaeological resources, including human remains, are discovered during construction activities.

Additional Project-Level Mitigation Measure

MM-CUL 1 If an archaeological resource is discovered during construction, all soil-disturbing work within 100 feet of the find shall cease and the University Representative shall contact a qualified Archaeologist meeting the Secretary of the Interior standards within 24 hours of discovery to inspect the site. If a resource within the project area of potential effect is determined to qualify as a unique archaeological resource (as defined by the California Environmental Quality Act [CEQA]), 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 University shall retain a qualified non-University Archaeologist to 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.

a. If significant Tribal cultural resources are discovered, as determined by the consulting Archaeologist for which a Treatment Plan must be prepared, the contractor or his Archaeologist shall immediately contact the University Representative. The University Representative shall contact the appropriate tribal representatives.

b. If requested by tribal representatives, the University, the contractor, or his project Archaeologist shall, in good faith, consult on the discovery and its disposition (e.g., avoidance, preservation, return of artifacts to tribe).

c. 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.

Level of Significance

The proposed 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.

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?	☐	☒	☐	☐	☐

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.

Although the project site does not contain any standing structures, the project site is currently a developed landscape and hardscape. Historic maps (NetrOnline 2019) show the project area being used as agricultural land as early as 1948. A graded road bisected the project area during the 1960s before the surrounding area was developed. 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 *Public Resources Code* (PRC). In accordance with these requirements, the proposed project incorporates PP 4.5-5, which requires implementation of these provisions if human remains are discovered on campus. Accordingly, the proposed project would result in a less than significant impact related to the disturbance of human remains with incorporation of PP 4.5-5, 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 potential to disturb any human remains, including those interred outside of formal cemeteries with incorporation of the PP 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 MM and PS 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 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 (EISA) 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 SSC 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 California Emissions Estimator Model (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 SSC would result in energy consumption from vehicle trips associated with the proposed project as well as electrical consumption for heating needs.

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 kilovolts (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

UCR currently utilizes natural gas for heating and some cooling needs for research and instructional lab purposes. A high-pressure gas distribution system owned and maintained by SoCalGas provides natural gas to the Central Utility Plant, as well as many individual buildings on campus.

As of June 2019, no new UC buildings or major renovations, except in special circumstances, will use on-site fossil fuel combustion, such as natural gas, for space and water heating.

ENVIRONMENTAL IMPACTS

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?	☐	☐	☐	☒	☐

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 water[7] are used during construction activities. Pursuant to

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

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 California Building Code 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 and building activities. All off-road construction equipment is assumed to use diesel fuel. 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 equipment, from delivery vehicles and haul trucks, and from construction employee vehicles that would use diesel fuel and/or gasoline. The use of these energy resources fluctuates according to the phase of construction and would be temporary, as construction activities are anticipated to occur over an approximately 21-month period. Table 7 quantifies anticipated energy use during construction activities.

TABLE 7
CONSTRUCTION-RELATED ENERGY USE

Source	Gasoline (gallons)	Diesel Fuel (gallons)
Off-road construction equipment	0	25,464
Worker commute trips	7,707	11
Vendor trips	1,665	21
On-road haul trips	18	1,552
Totals	**9,390**	**27,048**
Note: Totals may not add due to rounding.		

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 shall 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 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 the CalEEMod included as Appendix A, the electricity usage from the proposed project would be approximately 1.5 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.

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 generated 89,022 annual vehicle miles traveled (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 2014) model that provides average vehicle emissions rates for California (CARB 2019). It is estimated that the proposed project-generated traffic would use 723 gallons of diesel fuel and 3,689 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 2016 Building Standards for new construction projects. Depending on when the building permit for this project is issued, the project would be subject to either the 2019 Building Standards or the reductions in energy usage within the UC Policy on Sustainable Practices. Regardless, 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. 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 has campus programs and practices as well as mitigation measures which include PP 4.3-1 (TDM program), PP 4.3-2(a) (Construction Best Practices), 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.

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?	☐	☐	☐	☒	☐

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. New buildings proposed to be developed would be energy efficient and meet LEED Silver standards. 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 UCR Sustainability Policies and Measures

As discussed previously, the project is part of the UCR campus which has established numerous sustainability programs. These programs include, but 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. The LRDP stated that future development of the campus under the amended 2005 LRDP would comply with the University policy on sustainability, as well as any future conservation goals or programs enacted by the University of California 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 University of California. The LRDP has campus programs and practices as well as mitigation measures 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; no mitigation is required.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have less than significant energy related impacts related to conflicts with or obstructing a state or local plan for renewable energy or energy efficiency.

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. As described previously in Section II, Project Description, of this IS/MND, 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 Evaluation Report, Proposed Student Success Center, UCR Project No. 950512, University of California, Riverside,* (geotechnical investigation) prepared for the proposed project by Twining and is provided in Appendix C (Twining 2018).

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(b) The campus shall continue to implement its current seismic upgrade program.

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.	☐	☒	☐	☐	☐
ii) Strong seismic ground shaking?	☐	☒	☐	☐	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☒	☐	☐	☐
iv) Landslides?	☐	☒	☐	☐	☐

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 investigation included excavation of 4 geotechnical borings to depths up to 41.5 feet bgs; percolation testing to evaluate the infiltration rate; laboratory testing; and engineering analyses.

According to the geotechnical investigation, earth materials encountered during the subsurface investigation consist of a relatively thin layer of undocumented fill underlain by older alluvium which extend to the total depth of exploration (41.5 ft bgs). Based on field observations, the undocumented fill consists of silty sand on the order of 1 foot in thickness. It should be noted that the undocumented fill thickness may vary across the site. The older alluvium consists predominantly of silty sand and sand with trace of clay. Groundwater was not encountered within the maximum drilling depth of 41.5 feet bgs. Based on a review of the California Water Resource website, the groundwater level is reportedly situated at a depth greater than 150 feet below the ground surface (Twining 2018).

The project site is not located within an Alquist-Priolo Earthquake Fault Zone as established by the California Department of Conservation, California Geologic Survey, or a Riverside County Fault Hazard, and no known active or potentially active faults traverse the campus (Twining 2018). The closest known active fault to the site is the San Jacinto fault, located approximately 6 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 2018). 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 area 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 2016 California Building Code (CBC), the project area 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 2016 CBC standards.

The geotechnical investigation 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 2018). The proposed project incorporates PP 4.6-1(b) to comply with UCR's ongoing program to seismically strengthen existing buildings. The proposed project also 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 are considered to be less than significant.

Other seismic-related hazards investigated in the geotechnical investigation include liquefaction, seismically induced settlement, and landslide potential. The project site is mapped by Riverside County as having low liquefaction potential. Based on the lack of shallow groundwater and the medium dense to very dense consistency of the old alluvium underlying the project site, the geotechnical investigation concludes that liquefaction and seismic settlement would not be a design consideration for the proposed project. The majority of the site is relatively level with no hillsides on or adjacent to the site; therefore, landslides are not a design consideration for the proposed project (Twining 2018). Therefore, there would be less than significant impacts related to seismic-related ground failure or landslides with incorporation of PP 4.6-1(b) and 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 PPs 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?	☐	☒	☐	☐	☐

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 area, 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 South Coast AQMD Rule 403 (PP 4.6-2[a]) and implement BMPs, in compliance with the National Pollutant Discharge Elimination System (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?	☐	☒	☐	☐	☐
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?	☐	☒	☐	☐	☐

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 investigation and as previously discussed, based on the lack of shallow groundwater and the medium dense to very dense consistency of the old alluvium underlying the project site, the geotechnical investigation 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 2018).

Laboratory testing for corrosivity showed that the site would not be classified as corrosive to metal improvements and on-site soils indicated negligible sulfate exposure to concrete structures. As discussed under Threshold 7a, the project site is not subject to landslides (Twining 2018).

The preliminary geotechnical investigation 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 2018). As required by PP 4.6-1(a), the geotechnical recommendations outlined in the geotechnical investigation for the proposed project (i.e., general recommendations and recommendations related to expansive and corrosive soils, earthwork and site preparation, foundations, concrete slabs, subgrade preparation for concrete slabs, retaining walls, drainage control, flexible and rigid pavement design, and stormwater quality control measures) 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?	☐	☒	☐	☐	☐

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. There would be no impact related to the use of septic tanks or alternative waste water 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 waste water disposal systems where sewers are not available for the disposal of waste water. 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?	☐	☒	☐	☐	☐

Discussion

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 the campus are unlikely to be fossil-bearing. However, while the likelihood of encountering paleontological resources is low, the potential for discovery of previously unknown paleontological resources cannot be eliminated. Therefore, there is a potential to encounter unknown paleontological resources cannot be eliminated. Therefore, there is a potential to encounter unknown paleontological resources because the proposed project involves excavation activities. The proposed project incorporates PP 4.5-4, which outlines the necessary steps to take in the event paleontological resources are uncovered during construction activities. Accordingly, the proposed 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. As described previously in Section II, Project Description, of this IS/MND, relevant elements of the proposed project related to GHG emissions include (1) demolition of the existing landscape and hardscape areas and removal of construction spoils from the project site; (2) construction of the new approximately 3- to 4-story 80,000 gsf SSC building, landscape, and associated on-site improvements; (3) construction equipment and workers' vehicles during the construction phase of the project; and (4) the increase in energy use for the SSC. The proposed project includes the construction and operation of an approximately 80,000 gsf building It is estimated that the proposed project would accommodate approximately four full-time staff positions. New buildings and renovated buildings associated with implementation of the proposed project would be designed to achieve a Leadership in Energy and Environmental Design (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 32 (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. Senate Bill 350 was also enacted in 2015 increasing the Renewables Portfolio Standard (RPS) to 50 percent by 2030 and will double the energy savings required in electricity and natural gas end uses.

The following applicable PSs 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 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. **T**he 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?	☐	☒	☐	☐	☐

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 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 $MTCO_2e$ for each year of construction. The estimated construction GHG emissions for the proposed SSC are shown in Table 8.

TABLE 8
ESTIMATED PROJECT CONSTRUCTION GREENHOUSE GAS EMISSIONS

Year	Emissions ($MTCO_2e$)
2019	51
2020	324
2021	118
Total*	**493**
Annual emissions for 30-year amortization	***16***

$MTCO_2e$: metric tons carbon dioxide equivalent.
* Totals may not add due to rounding.
Note: CalEEMod model data sheets are included in Appendix A.

As shown in Table 8, an estimated 493 $MTCO_2e$ would occur from project construction over the course of the estimated construction period. Since the draft South Coast AQMD GHG threshold Guidance document released in October 2008[8] 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 9 below.

[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

Operational GHG emissions attributed to the proposed project include area sources (the use of landscape maintenance equipment, periodic painting, and consumer products); energy sources (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.

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.

TABLE 9
ESTIMATED GROSS ANNUAL GREENHOUSE GAS EMISSIONS – PROPOSED PROJECT

Source	Emissions $MTCO_2e/yr$
Area	<1
Energy	911
Mobile	35
Waste	9
Water	5
Total Operational Emissions – Proposed Project	960
Plus: Amortized construction emissions (Table 8)	16
Total Emissions – Proposed Project	**976**

$MTCO_2e/yr$: metric tons of carbon dioxide equivalent per year.
Totals may not add due to rounding.
Note: Detailed calculations can be found in Appendix A.

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 South Coast AQMD, have either proposed or adopted guidance documents for evaluating the significance of GHG emissions. Beginning in April 2008, the South Coast AQMD 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 South Coast AQMD Working Group presented a revised tiered approach to determining GHG significance for residential and commercial projects (South Coast AQMD 2010). These proposals have not yet been considered by the South Coast AQMD 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 $MTCO_2e/yr$ screening threshold currently applicable to industrial projects where the South Coast AQMD is the lead agency, described above, to other lead agency industrial projects. For residential and commercial projects, the Working Group proposes the

[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 anticipated 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).

following Tier 3 screening values: either (1) a single 3,000-$MTCO_2e$/yr threshold for all land use types or (2) separate thresholds of 3,500 $MTCO_2e$/yr for residential projects, 1,400 $MTCO_2e$/yr for commercial projects, and 3,000 $MTCO_2e$/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 9, the estimated annual operational GHG emissions for the proposed project with GHG reduction features, including amortized construction emissions, is 976 $MTCO_2e$/yr. This value may be compared with the proposed South Coast AQMD Tier 3 screening threshold of 3,000 $MTCO_2e$/yr for all land use types. Therefore, the proposed project would generate a less than significant emission rate of GHG emissions based on the South Coast AQMD 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. 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 conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☒	☐	☐	☐

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 2019).

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 buildings will strive to achieve certification at a USGBC LEED "Gold" rating or higher, whenever possible within the constraints of program needs and standard budget parameters.
- All new building projects will achieve at least two points within the available credits in LEED-BD+C's Water Efficiency category.
- Major Renovations shall outperform CBC energy-efficiency standards by 20 percent.

There are multiple policies and regulatory requirements applicable to development on the UCR campus, including the UC Policy on Sustainable Practices; Assembly Bill 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.

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 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 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

[10] The UC Policy also offers an alternative "energy performance target" method.

incorporation of 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. As described previously in Section II, Project Description, of this IS/MND, relevant elements of the proposed project related to hazards and hazardous materials include removal of existing landscape and hardscape areas and construction of the proposed SSC building and associated on-site improvements. 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 area 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?	☐	☒	☐	☐	☐
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?	☐	☒	☐	☐	☐

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 Department of Transportation (DOT), California Highway Patrol (CHP), and California Department of Health Services (DHS) 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.

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. Neither chlorine nor standard cleaning products (i.e., degreasers, window cleaning products) are used in quantities that would result in adverse health effects either through direct exposure to the skin or inhalation. 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. Additionally, 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?	☐	☒	☐	☐	☐

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 school from the project site is the Islamic Academy of Riverside Elementary School, which is approximately 0.3-mile northwest of the project area at its nearest point. 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 a and 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 a 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?	☐	☒	☐	☐	☐

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 2019a). 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 (LUST) sites, also called GeoTracker; (4) the SWRCB's list of Cease and Desist Orders (CDO) and Cleanup and Abatement Orders (CAO); and (5) the SWRCB's list of solid waste disposal sites with waste constituents above hazardous waste levels outside the waste management unit (CalEPA 2019a, 2019b, 2019c, 2019d, 2019e; DTSC 2019). 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; no impacts would occur, 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 no impact. 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?	☐	☒	☐	☐	☐

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?	☐	☒	☐	☐	☐

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, West 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 area. Notably, as visible on Figure 4, the existing fire access lane along the western side of the project site extending along the Arts Mall will be maintained to allow fire trucks and emergency responders to maneuver on site. Additionally, improvements to the existing pathway would enable fire truck access to the project site from West Campus Drive from the south.

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?	☐	☒	☐	☐	☐

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.

The project area is not located within or near the areas in the southeast portions of campus that are susceptible to wildfires. The proposed project would be designed and constructed in compliance with applicable requirements of the California Fire Code. Specifically, fire sprinklers, fire alarm systems, emergency lighting, emergency response notification systems, and illuminated signage would be installed as required for the SSC building. Therefore, impacts related to wildland fires are considered to be 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 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 described previously in Section II, Project Description, of this IS/MND, relevant elements of the proposed project related to hydrology and water quality include the use of treatment-based low impact development (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 PS and 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 4.8-2(c) The campus shall avoid serving water at food service facilities except upon request. *(This is identical to Utilities PP 4.15-1[d].)*

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?	☐	☒	☐	☐	☐
e) Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☐	☒	☐

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 (CWA) 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 Municipal Separate Storm Sewer System Permits (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.

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 (November through 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 area. 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 2016 California Building Code and 2016 CalGreen Code, which became effective January 1, 2017, 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
- Pervious Paving and Structural Grids
- Grated Flow Control
- Vegetated Swales
- Rain Gardens and Flow Through Planters
- Sediment Capture
- Suspended Pavement
- Self-retaining Landscape
- Bioretention Cells or Planters
- Concrete Flush Edge Walkways

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 SSC 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?	☐	☒	☐	☐	☐

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(c), 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 0.0016million gallons per day[11] (mgd) of potable water. The increased demand for potable water resulting from the proposed project could indirectly increase demand for groundwater, as the RPU supplies domestic water to the campus. The RPU utilizes groundwater wells for potable water. It should be noted that 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; and PP 4.8-2(c), which requires the campus to avoid serving water at food service facilities except upon request.

[11] Indoor water use (232,000 gallons/year) and outdoor water use (357,272 gallons/year) divided by 365 days.

As stated in the 2005 LRDP Amendment 2 EIR, the RPU has indicated that it does not anticipate 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 Sub-basin, nor does the campus serve as a primary source of groundwater recharge within the Sub-basin. 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 0.8-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), PP 4.8-2(b), and PP 4.8-2(c), which 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 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;	☐	☒	☐	☐	☐
ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite; or	☐	☒	☐	☐	☐
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.	☐	☒	☐	☐	☐

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. The existing site generally drains from southeast to northwest. Drainage within the project limits currently sheet flows in this general direction to the Arts Mall, traveling north before being collected by the existing 24-inch storm drain beneath the mall. Storm water from this portion of the campus ultimately discharges to the Gage Detention Basin, north of University Avenue.

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. Storm water flows from the project site would continue to discharge to the storm drain in West Campus Drive and would not directly enter a natural channel or drainage. 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 stormwater surface drains into a series of catch basins connected by underground storm drain pipes. Storm drain pipes would connect to existing campus storm drains or drainage devices, or other locations approved by the University. Portions of the Arts Mall adjacent to the project site that would be impacted by new utility trenching would be replaced and restored in kind. Storm water surface flow would not obstruct pedestrian pathways. Catch basins would be located within planting areas, where possible, except for those planter areas which are intended to be used as event or gathering spaces. Tributary drainage from campus improvements outside the project limits would be accommodated by the project. Existing drainage patterns would also be maintained. The Conceptual Stormwater Management Program is depicted on Figure 7.

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. 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 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 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?	☐	☒	☐	☐	☐

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 nearest upstream dam to the campus is the Seven Oaks Dam, located on the Santa Ana River in the upper Santa Ana Canyon about 8 miles northeast of the City of Redlands and 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 area 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. As the project area is not located in or near these areas, the proposed project would 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. As described previously in Section II, Project Description, of this IS/MND, 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 80,000 gsf, 3- to 4-story SSC building; (3) the introduction of new landscaping and hardscape; and (4) consistency with the 2005 LRDP, as amended. The proposed project would serve the projected UCR campus population with the addition of approximately four full-time staff positions. Approximately 60-70 existing students would be employed. 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.
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].)*

PP 4.9-1(c) The campus shall continue to relocate, where feasible, mature "specimen" trees that would be removed as a result of construction activities on the campus. *(This is identical to Aesthetics PP 4.1-2[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.

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?	☐	☒	☐	☐	☐

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?	☐	☒	☐	☐	☐

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) serving as an important anchor at the intersection of the Carillon Mall and the Arts Mall; (2) establishing a distinctive presence that both contributes to the larger public space and engages fully with its immediate neighboring buildings; and (3) providing quality open spaces that are additive to the campus, responsive to the building program, and include the potential to showcase public and/or student art.

Following is a discussion of the proposed project's consistency with the land use designation, square footage and population assumptions, and Planning Strategies 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 project site is designated as "Academic." 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 western edge of what is known as East Campus. This area was selected largely based on its accessibility to undergraduate students; proximity to other classrooms, the student union, and other student support functions; and suitability of program based on near-term and long-term campus development plans. The construction of the SSC at this location would assist in the completion an existing corridor of student-centered facilities. As such, the proposed project does not conflict with the Academic land use designation and is consistent with the guidance provided in the LRDP for the location of support uses.

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 SSC project). The existing on-campus development is approximately 7.2 million gsf, and approximately 793,765 gsf of new development has been approved but not yet built; therefore, there is approximately 6.9 million gsf of development allocation remaining on campus. The proposed project involves construction of up to 80,000 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, 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. For comparison, the current student population on campus based on the fall 2018 enrollment is 23,922 students (including 20,581 undergraduate students and 3,341 graduate students) (UCR 2019). Additionally, there are approximately 4,837 faculty, staff, 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 individuals.

As discussed previously, the proposed project would serve the projected UCR campus population with the addition of approximately four full-time staff positions. Approximately and 60-70 existing students would be employed. This potential increase in population is within the remaining 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 anticipated to be associated with an enrollment of 25,000, expansion of the campus and its facilities will be guided by a number of Land Use PSs. Most relevant to the proposed project are the following two 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; and
- 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.

These strategies (PS Land Use 1 and PS Land Use 2) are incorporated into the proposed project. The project involves development of the SSC, a new approximately 80,000 gsf, 3- to 4- story academic facility and would be an infill development in the area designated for

[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.

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 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 project site is framed by two major opens spaces—the Arts Mall and Carillon Mall—consisting of existing pedestrian pathways continuing from University Avenue. These open spaces have the capacity to support heavy pedestrian traffic and are anticipated to carry increased foot-traffic when the SSC is completed. Smaller pathways perpendicular to the main pedestrian malls connect to existing courtyards and other secondary paths, giving the site opportunities to activate the ground floor. Careful attention would be placed on enhancing the existing pedestrian linkages to the immediate adjacent pedestrian malls and the remainder of the campus. Implementation of the proposed project would include pathways that would connect to the existing pathways along the Arts Mall and Carillon Mall.

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 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 PP 4.9-1(c), which is in compliance with PS Conservation 2, ensures that mature trees be relocated to the extent feasible and as illustrated on Figure 12.

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 80,000 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. 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. 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 Development Strategy 1, 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?	☐	☒	☐	☐	☐
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?	☐	☒	☐	☐	☐

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 UC Riverside 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. As described previously in Section II, Project Description, of this IS/MND, 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 four persons. Additionally, the proposed project includes use of mechanical equipment (such as 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 area are on-campus residences at Bannockburn Village located approximately 1,150 feet to the northwest of the project site. The nearest off-campus residences are the Windwood Apartment Homes and the Islamic Academy, located along West Linden Street 1,657 feet and 1,613 feet, respectively. The closest buildings to the SSC are academic and administrative facilities, which are not noise-sensitive receptors.

Existing Noise Levels

The dominant source of noise in the project area is the I-215/SR-60 freeway, which is approximately 500 feet southwest of the SSC. There is an approximately 10- to 12-foot-high wall adjacent to the freeway that reduces vehicle noise to the project site. When noise measurements were taken for the 2005 LRDP EIR, the noise level in parking Lot 19 and the tennis courts located to the northwest of the project site was 58.1 A-weighted decibels (dBA) on the Sound Energy Equivalent Noise Level (L_{eq}). The predominant source of noise was automobiles in Parking Lot 19.

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?	☐	☐	☐	☐	☐

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 (FHWA), the Department of Housing and Urban Development (HUD), the Federal Interagency Committee on Urban Noise (FICUN), and the Federal Aviation Administration (FAA). 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 SSC consists of non-residential educational and dining 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.

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. 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 Bannockburn Village approximately 1,150 feet to the northwest of the project site. Construction equipment noise would not be constant because of the variations of power, cycles, and equipment location. Worst-case one-hour noise levels were calculated assuming a bulldozer and loader would be operating near

the northern site boundary during grading activities. Noise associated with construction are shown below in Table 10 for the nearest on- and off-campus residential uses. Additional reduction would occur due to intervening buildings.

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.

TABLE 10
NOISE FROM CONSTRUCTION OF THE PROPOSED PROJECT

Construction Phase	Noise Exposure at the Nearest On-Campus Housing (Bannockburn Village) (dBA L_{eq})	Noise Exposure at the Nearest Off-Campus Housing (The Windwood Apartment Homes) (dBA L_{eq})
Ground Clearing/Demolition	57	54
Excavation (Site Preparation)	62	59
Foundation Construction	51	48
Building Construction	60	57
Paving	62	59
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 D.		

Off-Campus Receptors

As previously noted, the nearest off-campus noise-sensitive receptors (The Windwood Apartment Homes) are residences located on West Linden Street approximately 1,613 feet to the northwest of the project site. Table 10 shows the anticipated noise exposure related SSC 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 would use designated haul routes. As discussed above, construction traffic would use I-215, University Avenue, or Martin Luther King Boulevard to Canyon Crest Drive and West Campus Drive to the project site. There are residences along I-215/SR-60. Therefore, project-generated haul trucks (an average of approximately five trips per day or one to two passbys per hour) may pass off-campus noise-sensitive receptors along I-215/SR-60. The additional truck noise on off-campus roadway segments would be mixed with existing traffic noise from I-215/SR-60. Individual truck passbys may be occasionally noticeable; however, because of the large volume of existing traffic on I-215/SR-60, the change in the overall average noise level would not be perceptible, resulting in a less than significant impact.

Construction activities for the proposed project would result in noise levels of up to 62 dBA L_{eq}. Noise level exposure that are 65 dBA or less are generally considered acceptable for residential uses. The LRDP reported ambient noise levels of 66.9 dBA L_{eq} at the nearest offcampus measurement location and 57.7 at the nearest on-campus measurement proximate to the project site. Because the Project would generate construction related noise that is less than 10 dB above

the ambient noise level, the Project would result in less than significant impacts during construction activities with incorporation of PP 4.10-1(a) and PP 4.10-6 from the LRDP EIR, which would be reduced from the impact finding in the LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have less than significant temporary construction noise impacts to on-campus and off-campus receptors due to construction noise levels being below the significance threshold of plus 10 dBA L_{eq} above ambient background levels. The proposed project's impacts would be reduced from the impact finding in the LRDP EIR.

Permanent Project Related 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 four persons. The project would result in 36 daily trips and 3 a.m. peak hour and 3 p.m. peak hour trips. Existing vehicular trips attributable to students that are currently using the Regency University Village theater auditoriums would be relocated to the proposed facilities. Based on the location of the campus, the Regency University Village theater, and the available parking for the University, it is likely that most drivers will be traveling through the same intersections (i.e. University Avenue at the the I-215/SR-60 southbound ramps and the I-215/SR-60 northbound ramps, etc.) with the Project as they do currently without the project but will be making different turning movements. Therefore, it is not anticipated that the Project will add any new traffic to the study area beyond that which will be generated by the four new employees.

Increases in vehicle trips were evaluated in the 2005 LRDP and thus within the growth projections for the campus. The proposed project would incorporate PS Campus and Community 4 (promote campus-wide non-vehicular transportation), 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. Consequently, the minimal increase in population would be negligible and there would not be a perceptible change in traffic 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 heating, ventilation, and air conditioning (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 Community Noise Equivalent Level (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 housing (The Windwood Apartment Homes) on West Linden Street approximately 1,725 feet to the northwest of the project site. The nearest on-campus noise sensitive uses are the Bannockburn Village residences which are approximately 1,150 feet to the northwest. 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 36 dBA L_{eq} and 43 dBA CNEL at the nearest off-campus noise sensitive uses and 39 dBA L_{eq} and 46 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 SSC 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 not have a substantial permanent increase in ambient noise levels in the project vicinity; impacts are considered to be less than significant with incorporation of PSs and PPs noted above. The proposed project impacts were adequately addressed in the LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have no impact related to exposure of persons to or generation of noise levels in excess of standards established in any applicable plan or noise ordinance, or applicable standards of other agencies.

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?	☐	☐	☒	☐	☐

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 is anticipated to begin in November 2019 with completion in 2021. Construction activities would occur over an approximate 21-month period and would include demolition (removal of landscape and hardscape areas), site preparation, grading, building construction, paving, and the application of architectural coatings.

On-Campus Receptors

Vibration-sensitive uses (e.g., research buildings or residential buildings) are located over 1,000 feet from the project site. The closest research buildings are the greenhouses located approximately 1,750 feet from the project site and the closest on-campus residential buildings are located at Bannockburn, approximately 1,150 feet northwest of the project site. The CHASS Interdisciplinary Building South and the Student Services Building may be exposed to vibration during construction.

Construction activities would include landscape and hardscape removal, excavation and grading, building construction, paving, 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 area. 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 within 50 feet of the CHASS Interdisciplinary Building South and the Student Services Building. 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, additional project 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 West Linden Street (The Windwood Apartment Homes), approximately 1,657 feet northwest of the SSC. 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 area 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 approximately 464 trips to a construction and demolition waste disposal site. Demolition and grading would occur over an approximately 4-month period; there would be an average of approximately 5 trips per day. Construction traffic would use I-215, University Avenue, or Martin Luther King Boulevard to Canyon Crest Drive and West Campus Drive to the project site. Pursuant to PP 4.14-2 from the 2005 LRDP Amendment 2 EIR, the construction schedules or major projects would be coordinated to adjust construction schedules, work hours, and access routes to the extent feasible in order to reduce construction-related traffic congestion. 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, as amended.

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.

With incorporation of PP 4.10-2 (limits on construction hours), MM 4.10-2 (notification of affected persons about the planned construction and potential vibration), and project-level MM VIB-1 (prohibition of heavy equipment use within 50 feet of buildings), the proposed project would have a less than significant impact for temporary construction vibration impacts to occupied on-campus buildings. This impact would be less than the significant and unavoidable impact determined in the 2005 LRDP EIR and 2005 LRDP Amendment 2 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?	☐	☒	☐	☐	☐

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 project area 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 four full-time staff positions.

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)?	☐	☒	☐	☐	☐

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 3- to 4- story SSC building consisting of general assignment classrooms, multipurpose student life spaces, and a dining services venue. There would be no housing on site and employees (staff) generated by the proposed project would be no more than four full-time positions. It is anticipated that these positions would be filled by the local labor pool. As further discussed in Section V.10, 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 an additional four staff positions at the SSC. 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 that anticipated with implementation of 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?	☐	☒	☐	☐	☐

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 (1) displacement of a substantial amount of existing housing that would necessitate the construction of replacement housing or (2) 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. As described previously in Section II, Project Description, of this IS/MND, relevant elements of the proposed project related to public services include the development of 80,000 gsf of building space. 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 stand pipes 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 45,000 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.

PP 4.12-2(b)

The Campus will continue to participate in the "UNET" program (for coordinated police response and staffing of a community service center), which provides law enforcement services in the vicinity of the campus, with equal participation of UCR and City police staffs.

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 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 fire protection?	☐	☒	☐	☐	☐

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.

As discussed in Section II, Project Description, of this IS/MND, implementation of the proposed project would result in approximately 80,000 gsf of building space at the project site. The proposed project would increase the on-campus population by no more than four full-time 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 RFD is responsible for fire suppression, and the UCR EH&S 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.

Emergency vehicles are currently able to access the western side of the site via a pathway that connects from the Arts Mall. This access will remain accessible to emergency vehicles with

implementation of the proposed project. Additionally, improvements to the Carillon Mall would enable fire truck access to the project site from West Campus Drive from the south. UCR would coordinate with Campus Fire Marshal who would be the liaison with the Riverside County Fire Authority (RCFA). The proposed building would include adequate fire truck/fire hose access to perimeter of the structure and to the building FDC. Existing hydrants on the site may need to be relocated to address any fire, life, and safety criteria.

According to the 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 (Jackson 2019). 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) 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 police protection?	☐	☒	☐	☐	☐

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 may be necessary to support the additional patrol personnel. In order to maintain adequate levels of police protection to serve the anticipated 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) and PP 4.12-2(b), 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 anticipated 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 has an MOU with the City of Riverside, whereby the UCPD and the Riverside Police Department (RPD) provide reciprocal assistance to each other. The two departments jointly operate a community policing enterprise known as the University Neighborhood Enhancement Team (UNET) in a 17.5-square-mile area in the City of Riverside. In addition to UNET, the UCR campus officers handle incidents within the City. In turn, RPD provides the UCPD with emergency backup and, infrequently, assists in handling emergency calls.

As discussed above, the proposed project would increase the campus population by up to four full-time 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, and PP 4.12-2(b), which ensures continued UCR participation in the UNET program, are also incorporated into the proposed project. The UCPD has determined that the proposed project can be adequately served without the need for additional staff or expanded police facilities (Freese 2019).

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) and PP 4.12-2(b). 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 PPs 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) 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 schools?	☐	☒	☐	☐	☐

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 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 project proposes to develop a new SSC building consisting of general assignment classrooms, multipurpose student life spaces, and a dining services venue. The project would not include new student, faculty, or staff housing and would not result in a direct increase in new students within the RUSD service area. As stated previously, the project would result in the introduction of up to four full-time staff positions; however, 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 anticipated in 2005 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) 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 parks?	☐	☒	☐	☐	☐

Discussion

The analysis of the proposed project's impacts on parks and other recreation facilities is provided in Section V.15, 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) 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 other public facilities?	☐	☒	☐	☐	☐

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 up to four full-time staff positions. As such, the proposed project would not result in an increased demand for on- or off-campus library services or other public services not anticipated 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 anticipated 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?	☐	☒	☐	☐	☐

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 up to four full-time staff. These positions are expected to be filled by the local labor pool, and this increase would be within the growth projections for the campus. 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 anticipated in the 2005 LRDP EIR. The addition of needed on-campus recreational facilities is planned in order to meet the increased demand for recreational facilities generated by the planned growth in the campus population and would be expected to decrease the reliance on existing off-campus parks and recreational facilities by UCR students, faculty, and staff.

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?	☐	☒	☐	☐	☐

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, as described in Section II, Project Description, of this IS/MND, the proposed project does include new landscape and hardscape improvements throughout the project site in addition to new pedestrian pathways linking existing campus pedestrian pathways along Carillon Mall and Arts Mall to and from the new SSC building.

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 traffic impacts are addressed under Section V.17, Transportation and Traffic. 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 and Traffic

The analysis of transportation and traffic is tiered from the 2005 LRDP Amendment 2 EIR and was addressed in Section 4.14, Transportation and Traffic, of that document, and based on the UC Riverside Student Success Center Project Traffic Evaluation prepared by Psomas for the project in July 2019 and included as Appendix E to this IS/MND. As described previously in Section II, Project Description, of this IS/MND, relevant elements of the proposed project related to transportation and traffic include (1) an increase in staff on campus and a change in traffic patterns associated with relocation of classrooms from the Regency University Village theater to the proposed project site; (2) temporary construction activities that would involve heavy trucks on the identified construction routes; and (3) development and improvements to Carillon Mall would enable emergency vehicle access from the Arts Mall and from West Campus Drive to the project site.

The following applicable PSs, PPs, and MMs 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 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., flagpersons), 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?	☐	☒	☐	☐	☐

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);
- 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, West Campus Drive.

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 anticipated 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. Proposed construction access to the project site would be from I-215, University Avenue, or Martin Luther King Boulevard to Canyon Crest Drive and West Campus Drive to the project site. 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

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 four personnel from existing conditions. These positions are expected to be filled by the local labor pool. The student positions would be filled by students already on campus. The nominal increase in population is not expected to result in long-term operational traffic. Because the project will only include four new employees and would otherwise result in the relocation of existing students from the Regency University Village theater to the new building, a traffic study would not be required under City of Riverside guidelines; the guidelines state that no study is required for a project which generates fewer than 50 peak hour trips. In addition, because the project is on the UCR campus and the University would not require entitlement through the City, a traffic study is not required by the City. Lastly, the UCR LDRP plan showed the project area as an academic building, and therefore, the traffic impacts have already been analyzed and mitigation measures identified.

Trip Generation

Based on the anticipated number of new employees 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 11. As seen in the table, the project is expected to generate 36 daily trips, including 3 in the AM peak hour and 3 in the PM peak hour.

TABLE 11
PROJECT TRIP GENERATION (ITE RATES)

ITE LY 550 (University College)						
Employees			**4**			
Period	**Trips/Units**	**Trips**	**% In**	**% Out**	**Trips In**	**Trips Out**
AM Peak	0.75	3	76%	24%	2	1
PM Peak	0.79	3	33%	67%	1	2
Daily	8.89	36	50%	50%	18	18
Source: Psomas 2019.						

As shown in the table, the project is expected to generate fewer than 50 peak hour trips, which is the threshold for analysis in the City of Riverside guidelines. Therefore, no additional analysis is required.

While the Project is expected to generate a minimal number of new trips, it is also expected that the Project will result in the redistribution of existing traffic volumes; students and faculty who currently travel to the Regency University Village theater auditoriums west of the I-215/SR-60 will now be traveling to campus (east of the I-215/SR-60). In addition, students who may have traveled between the campus and the theater will now be able to remain on campus for all their classes and academic needs.

Based on the location of the campus, the Regency University Village theater, and the available parking for the University, it is likely that most drivers will be traveling through the same intersections (i.e. University Avenue at the I-215/SR-60 southbound ramps and the I-215/SR-60 northbound ramps, etc.) with the Project as they do currently without the project but will be making different turning movements. Therefore, it is not anticipated that the Project will add any new traffic to the study area beyond that which will be generated by the new employees, and no additional analysis is required.

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 academic building on campus and would not impact public transit, bicycle, or pedestrian facilities off campus. With implementation of the proposed project, the SSC would continue to serve existing faculty, staff, and students, and there would be the addition of only four new employees to the on-campus population. The nominal 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 anticipated in the 2005 LRDP Amendment 2 EIR.

Additionally, the proposed project incorporates PS Campus and Community 4 (promote campus-wide non-vehicular transportation) and PS Transportation 3 (provide a campus-wide bicycle network to connect to off-campus bicycle routes) by maintaining and enhancing pedestrian and bicycle access through and surrounding the project site. Notably, pedestrians and bicyclists arriving to the site would have access from all directions. The proposed SSC building would be accessible from various pedestrian paths to the north, east, and south, including from both the Carillon Mall and the Arts Mall.

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 have a less than significant impact for construction-related and operational project-related traffic. 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)?	☐	☐	☐	☒	☐

The analysis of Impacts 4.14-6 and 4.14-7 in the 2005 LRDP Amendment 2 EIR, which addressed the Riverside County Congestion Management Program (CMP) under existing plus project conditions and in 2020, determined that the operating conditions of all freeway segments operating unacceptably would continue to do so with the addition of 2005 LRDP-related traffic. In addition, the freeway segment vehicle miles traveled (VMT) under existing plus project conditions for I-215 northbound, between SR-60 and Central Avenue, and I-215 northbound, between Martin Luther King Boulevard and University Avenue, would increase slightly with the addition of the four new employees (although the overall VMT may decrease because students and faculty will no longer need to travel between the Regency University Village theater and the main campus). There are no feasible mitigation measures available for these impacts, and the EIR concluded there would be a significant and unavoidable impact to the affected freeway segments.

As previously discussed, the proposed project would result in less than significant traffic impacts. University Avenue between Market Street and SR-91 is identified as the closest segment that is part of the County's Arterial CMP. The proposed project would not generate traffic volumes that would impact this CMP facility. The proposed project would not conflict with the Riverside County CMP. No impact would result, and no mitigation is required.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have no impact related to a conflict with an applicable 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)?	☐	☒	☐	☐	☐

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 West Campus Drive, the roadway closest to the project site. However, disruption to West 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 project site is framed by two major opens spaces—the Arts Mall and Carillon Mall— consisting of existing pedestrian pathways continuing from University Avenue. These open spaces have the capacity to support heavy pedestrian traffic and are anticipated to carry increased foot-traffic when the SSC is completed. Smaller pathways perpendicular to the main pedestrian malls connect to existing courtyards and other secondary paths, giving the site opportunities to activate the ground floor. Careful attention would be placed on enhancing the existing pedestrian linkages to the immediate adjacent pedestrian malls and the remainder of the campus.

During construction activities, the existing pathways along the Arts Mall and Carillon Mall near the project site will 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. Access to the trash/recycling storage may either be at the north or east edges of the site; however, service access for trash and other services would not interfere with pedestrian circulation.

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?	☐	☒	☐	☐	☐

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 to the project site is currently provided from the western side of the site via the Arts Mall. This access will remain accessible to emergency vehicles during construction activities. Additionally, improvements to the existing pathway would enable north-south fire truck access to the project site from West Campus Drive from the south. Furthermore, improvements to existing pathways along the northwest and southwest boundaries of the site will enable east-west emergency access from the Arts Mall.

Construction activities associated with the proposed project could result in temporary closure of on-campus traffic lanes or roadway segments along West 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 West Campus Drive would be maintained at all times. .A new emergency access lane will be constructed for both short-term construction activities and permanent emergency and service access from West Campus Drive between The Barn and Sproul Hall sites heading north to the project site. An existing emergency access lane is provided at the Arts Mall from the north of the project site. 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 University Avenue from each of the cardinal directions., as well as Martin Luther King Boulevard to Canyon Crest Drive and West Campus Drive to the project site 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. Development and improvements to Carillon Mall would enable fire truck access from the Arts Mall and West Campus Drive to 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 notice of intent to adopt an MND or ND. Once Native American tribes receive a project notification, they have 30 days to responds 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 two requests for project notification pursuant to AB 52 (From the Agua Caliente Band of Cahuilla 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.

Regional Ethnographies

Ethnography is a cultural anthropologic research method that strives to answer anthropological questions about different cultures' way of life, and the following section describes the ethnographic setting of the UCR site.

Cahuilla

The project area is located within the ancestral territory of the Cahuilla Indians. Although Kroeber (1925) recorded the territories of Southern California Tribes, the ancient territorial borders remain vague for two reasons: first, territorial boundaries were probably more flexible than rigid (Kroeber 1925) and, secondly, the indigenous borders and land use were not recorded until after European contact destroyed native lifeways. Although firm and defining borders cannot be known, archaeological, ethnographic, and historic evidence exists to support the prehistoric use by the Cahuilla Indians and their neighboring tribes, the Serrano.

The Cahuilla Indians were divided into three groups based on their traditional geographic location. The Mountain Cahuilla lived in the San Jacinto and Santa Rosa Mountains, the Desert Cahuilla were lived in the Coachella Valley with occupation up to the southern side of the Salton Sea, and the Pass Cahuilla occupied the San Gorgonio Pass near the Banning/ Beaumont area. Cahuilla subsistence strategies were dependent on the environment they lived in, but were primarily hunters, collectors, and harvesters. Although the three factions illustrate differences based on their physical environment, the Cahuilla shared similar linguistic, social, and religious practices. Prior to contact, the Cahuilla lived in villages near water sources, such as streams or springs. Cahuilla houses consisted of brush thatched structures. Hunting tools included throwing sticks, clubs, arrows, and nets. The Cahuilla developed several types of baskets for the storage, transportation, gathering, and cooking of food. Pottery vessels were made for cooking, food storage, and water storage.

Today, there are nine federally recognized Tribes with Cahuilla cultural affiliation. The Pass Cahuilla are comprised of the Agua Caliente Band of Cahuilla Indians (Palm Springs, CA), the Morongo Band of Cahuilla Mission Indians (Banning, CA), and Mission Creek Band (Desert Hot Springs, CA). The Mountain Cahuilla are comprised of the Cahuilla Band of Mission Indians (Anza, CA), Los Coyotes Band of Cahuilla and Cupeno Indians (Warner Springs, CA), and Santa Rosa Band of Cahuilla Indians (Hemet, CA). The Desert Cahuilla are comprised of the Augustine Band of Cahuilla Indians (Coachella, CA), Cabazon Band of Mission Indians (Indio, CA), and Torres-Martinez Desert Cahuilla Indians (Thermal, CA).

Serrano

The Serrano occupied the areas in and around the San Bernardino Mountains between approximately 450 and 3,350 meters (1,500 to 11,000 feet) amsl. Their territory extended west into the Cajon Pass, east past Twentynine Palms, north past Victorville, and south to Yucaipa Valley. Year-round habitation tended to be located on the desert floor, at the base of the mountains, and up into the foothills, with all habitation areas requiring year-round water sources (Bean and Smith 1978; Kroeber 1908b). Most Serrano lived in small villages located near water sources (Bean and Smith 1978:571). Serrano territory was a trade nexus between inland tribes and coastal tribes. Ethnohistory also suggests that the Serrano played a role in the trade of horses from the southwest to the California coast (Bean and Vane 2002). The Serrano's territory extended over a large geographic area. Additionally, Serrano villages-maintained control of

significant travel corridors (Kroeber 1925:617; Strong 1929:14). As such, trade and exchange were important aspects of the Serrano economy.

Due to the inland location of the territory that Serrano occupied beyond the Cajon Pass, contact between Serrano and Europeans was relatively minimal prior to the early 1876s. As early as 1790, however, Serrano began to be drawn into mission life (Bean and Vane 2002). More Serrano were relocated to Mission San Gabriel in 1811 after a failed indigenous attack on that mission. Most of the remaining western Serrano were moved to an *asistencia* built near Redlands in 1819 (Bean and Smith 1978:573). By 1834, most western Serrano had been moved to the missions, with some Serrano possibly moved to the mission at San Fernando Rey (Kroeber 1908a). Only small groups of Serranos remained in the area northeast of the San Gorgonio Pass and were able to preserve some of their native culture.

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 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 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	☐	☐	☐	☐	☒

Discussion

As previously addressed in the 2005 LRDP EIR, no significant tribal cultural resources were identified within the SSC project area. A Sacred Lands File (SLF) Check was performed in 2003 by the Native American Heritage Commission (NAHC) for the 2005 LRDP EIR and did not indicate the presence of sites of Native American cultural or religious value on the campus. A SLF Check was also conducted by the NAHC in August 2016 for the project area and also had negative results; however, the NAHC identified that the area is sensitive for potential cultural resources.

UCR requested a SLF Check specifically for the SSC project area in April 2019. The SSC project area yielded negative for Tribal Cultural Resources and/or sacred sites on the SSC project site. These results suggest that that although UCR is known to have Tribal Cultural Resources and/or sacred sites, none have been identified within the SSC project area. However, these results should be confirmed via Tribal Consultation.

To date, UCR has received two requests for project notification pursuant to AB 52 (from the Agua Caliente Band of Cahuilla Indians and the Torres Martinez Desert Cahuilla Indians). On April 24, 2019, UCR provided these tribes with notification of the proposed SSC project. On April 29, 2019, the Agua Caliente Band of Cahuilla Indians responded to this request stating that the project area is not located within the boundaries of the Agua Caliente Band of Cahuilla Indians Reservation; however, the project area is within the tribes' traditional use area. The tribe requested copies of

any cultural resource documentation generated in connection with the project. UCR responded that no specific cultural assessments are to be conducted for the project, but tribal cultural resources will be discussed and analyzed in this IS/MND and the tribe will be added to the NOI distribution list. No mitigation from the tribes was requested. No response was received from the Torres Martinez Desert Cahuilla Indians. AB 52 consultation was concluded on May 29, 2019.

Additional Project-Level Mitigation Measures

None. ***Level of Significance***

The proposed project would have no impact related to tribal cultural resources.

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 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 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.	☐	☐	☒	☐	☐

Discussion

The 2005 LRDP EIR did not identify any Tribal Resources based on their 2003 SLF Search. These results were confirmed though past tribal consultation. A Sacred Lands File (SLF) search was performed in 2003 by the Native American Heritage Commission (NAHC) for the 2005 LRDP EIR and did not indicate the presence of sites of Native American cultural or religious value on the campus.

To date, UCR has received two requests for project notification pursuant to AB 52 (from the Agua Caliente Band of Cahuilla Indians and the Torres Martinez Desert Cahuilla Indians). On April 24, 2019, UCR provided these tribes with notification of the proposed SSC project. On April 29, 2019, the Agua Caliente Band of Cahuilla Indians responded to this request stating that the project area is not located within the boundaries of the Agua Caliente Band of Cahuilla Indians Reservation; however, the project area is within the tribes' traditional use area. The tribe requested copies of any cultural resource documentation generated in connection with the project. UCR responded that no specific cultural assessments are to be conducted for the project, but tribal cultural resources will be discussed and analyzed in this IS/MND and the tribe will be added to the NOI distribution list. No mitigation from the tribes was requested. No response was received from the Torres Martinez Desert Cahuilla Indians. AB 52 consultation was concluded on May 29, 2019.

The proposed project is an infill development within the campus core, on an area currently developed with landscape and hardscape. The areas immediately north, northwest, northeast, and east of the project site are developed and contains academic facilities, landscape, and hardscape areas. Areas south of the project site are developed with the Carillon Mall followed by academic facilities, landscaped, and hardscape areas. Areas west of the project site are developed with the Arts Mall followed by a surface parking lot, landscape, and hardscape area. Given the developed nature of the campus core, and the site visit by Psomas on December 7, 2018 and December 11, 2018, the potential to find intact buried deposits is not anticipated. UCR's standard contractor specifications address protection and recovery of buried artifacts, including archaeological resources, and the standard requirements are incorporated into the project as MM CUL-1. This mitigation measure identifies 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 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.

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. As described previously in Section II, Project Description, of this IS, relevant elements of the proposed project related to utilities and service systems include an approximately 80,000 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 proposed project would be designed to achieve, at a minimum, a LEED Silver rating.

The following applicable PS and 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 4.15-1(d) The Campus shall avoid serving water at food service facilities except upon request. *(This is identical to Hydrology PP 4.8-2(c).)*

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?	☐	☒	☐	☐	☐

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) and PP 4.15-1(d). 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 Sustainability 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 Riverside Water Quality Control Plant (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 million gallons per day (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 approximately 80,000 gsf of building space at the project site. With incorporation of PP 4.15-1(b) (implementation of water consumption reduction measures), PP 4.15-1(c) (ensures that leaks in water and irrigation pipes are repaired), and PP 4.15-1(d) (avoid serving water at food service facilities), the proposed project would result in a net increase in water consumption of approximately 0.0016 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 anticipated 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 the existing 12-inch water main and a 6-inch main located west of the project site, along West Campus Drive. There is also an existing fire hydrant which is serviced by a 6-inch lateral off the 12-inch main. Existing flow rates are sufficient with existing main sizes and distribution pumps to allow for connection of the proposed project to the campus water lines. No new or expanded water lines would be necessary beyond those within the project limits to connect the proposed project to existing lines. The impact area for installation of these water lines is within the construction impact limits identified on Figure 4, 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. There are two existing 8-inch sanitary sewer main located within Parking Lot 1, located west of West Campus Drive. These mains travel north,

eventually connecting to a 15-inch main in University Avenue (refer to Figures 6a–b, Conceptual Utility Plan).

A gravity main sanitary sewer system would be designed and constructed within the project limits to pick up domestic effluent from the SSC Building and discharge to the west-most existing 8-inch campus sanitary sewer main within Parking Lot 1 or the northern existing 8-inch campus sanitary sewer main.

Sanitary Sewer Calculations were completed in April 2019 to determine if the existing lines serving the campus have sufficient capacity to accommodate the anticipated increase in wastewater generated by anticipated future development (UCR 2016. The analysis determined that the 8-inch line would be used to serve the proposed project.

Development of campus facilities such as the proposed SSC building was assumed in the 2005 LRDP, as amended. Therefore, the anticipated wastewater collection requirements associated with the proposed SSC building would be within the increase anticipated 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 area to connect the proposed project to the existing sewer main. The impact area for installation of these sewer lines is identified in the Conceptual Utility Plan identified on Figures 6a–b, 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) 4.15-1(c), and PP 4.15-1(d) 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 kilovolt (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 anticipated 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 4,273,160 kilowatt hours (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 Sustainability 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.

A high-pressure gas distribution system owned and maintained by SoCalGas provides natural gas to the Central Utility Plant, as well as many individual buildings on campus. There would be no natural gas in the proposed building. 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 Plan (refer to Figures 6a–b) illustrates a preferred and alternate point of connection to existing telecommunications/optical fiber which would serve the proposed project. There would be a less than significant impact related to connection to existing telecommunications facilities.

Storm Water Drainage

Please refer to the analysis of drainage provided under Section V.9, 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?	☐	☒	☐	☐	☐

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) through PP 4.15-1(d). 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 Sustainability 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) through PP 4.15-1(d). Therefore, because the proposed project (approximately 80,000 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 0.0016 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

There are adequate water supplies to serve the proposed project with incorporation of the PPs noted above, resulting in a less than significant impact. 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?	☐	☒	☐	☐	☐

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 (IWWMP) 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.

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 80,000 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. Consistent with the findings of the 2005 LRDP Amendment 2 EIR, this impact 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. 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?	☐	☒	☐	☐	☐
e) Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☒	☐	☐	☐

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 and is currently processing approximately 2,500 to 3,000 tons of solid waste per day (Burrtec 2019). 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 2019). 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 7 to 8 tons (70 to 80 cubic yards) would be generated per week during the 21-month construction period, for a total of 400 to 425 tons (Sabera-Turad 2019).

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 square feet 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 EIR. Based on the identified solid waste generation factor, the 80,000 gsf of building space would generate approximately 54 tons per year of solid waste.

However, consistent with the UC Sustainability Practices Policy, the UCR campus is currently committed to diverting at least a 75 percent of its solid waste from landfills, and diverting 100 percent by 2020. Currently, UCR currently diverts approximately 68 percent of its solid waste. To accomplish this, 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. Athens Services picks up the recyclable material for recycling. UCR delivers waste, in UCR haul trucks, to the Nelson Transfer Station from which Burrtec then transports 100 percent of the non-recyclable material to a waste-to-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 17.3 tons of solid waste per year.

As discussed in the 2005 LRDP Amendment 2 EIR, it is anticipated that solid waste from UCR would continue to be disposed at the Badlands Landfill, in the City of Moreno Valley, which had an estimated capacity of approximately 6.5 million tons as of October 2016. Based on the current permit, the landfill is expected to close in 2022. The Badlands Landfill is permitted for a maximum of 4,500 tpd for disposal plus 300 tpd for beneficial reuse (CalRecycle 2019). The approximately 54 tons of solid waste per year (0.15 tpd) from the proposed project would represent a negligible amount of the landfill's permitted daily capacity of 4,500 tpd. Therefore, the anticipated solid waste generation from the proposed project can be accommodated within the remaining permitted capacity of the Badlands Landfill, and there would be a less than significant impact related to solid waste disposal, consistent with the findings of the 2005 LRDP Amendment 2 EIR.

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 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
a) If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☒	☐	☐	☐

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 area is not located within or near the areas in the southeast portions of campus that are susceptible to wildfires, therefore, further analysis of the hazards related to wildfire is not warranted (CAL FIRE 2019). However, as discussed in the analysis of emergency response provided under Section V.9, Hazards and Hazardous Materials, of this IS/MND, the analysis concluded that the proposed project would result in a less than significant impact related to emergency response and evacuation on campus with incorporation of PPs 4.7-7(a) and 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?	☐	☐	☐	☒	☐
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?	☐	☐	☐	☒	☐
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?	☐	☐	☐	☒	☐

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 V10, 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 area is not located within or near the areas in the southeast portions of campus that are susceptible to wildfires, therefore, further analysis of the hazards related to wildfire is not warranted (CAL FIRE 2019). Also, the project area is surrounded on all sides by development. There would be a less than significant impact related to wildland fires.

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 impacts were adequately addressed in the LRDP EIR.

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
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):					
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?	☐	☐	☐	☒	☐

Discussion

As discussed in Section V.4, Biological Resources, of this IS/MND, the proposed project would have no potential to impact 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 MM 4.3-1(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. 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, of this IS/MND, there are no historic resources within or adjacent to the project area. Therefore, the proposed project would not have any impacts on historical resources. Compliance with PP 4.5-5 (instruction for discovery of a human remains) from the 2005 LRDP EIR and incorporation of MM CUL-1 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.

Additional Project-Level Mitigation Measures

None required.

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. 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)?	☐	☐	☒	☐	☐

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?	☐	☐	☒	☐	☐

Discussion

As indicated in the analysis presented in this IS/MND, with the exception of construction-related vibration, 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.17 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 Success Center

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)	436.00	Student	1.84	80,135.70	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2022
Utility Company	Riverside Public Utilities				
CO2 Intensity (lb/MWhr)	1325.65	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

UCR Success Center - Riverside-South Coast County, Annual

Project Characteristics -

Land Use - The project development is 60k sf. Number of college students used to derive 80k sf of development.

Construction Phase - Project specific construction duration

Demolition -

Grading -

Vehicle Trips - Trips based on traffic analysis

Energy Use - Project specific energy consumption

Water And Wastewater - Project water consumption

Solid Waste - Project solid waste generation

Construction Off-road Equipment Mitigation - Project mitigation measure

Stationary Sources - Emergency Generators and Fire Pumps -

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	7.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
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
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tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	20.00	63.00
tblConstructionPhase	NumDays	2.00	8.00
tblConstructionPhase	NumDays	4.00	13.00
tblConstructionPhase	NumDays	200.00	307.00
tblConstructionPhase	NumDays	10.00	15.00
tblConstructionPhase	NumDays	10.00	17.00
tblEnergyUse	LightingElect	3.99	9.55
tblEnergyUse	NT24E	1.92	4.60
tblEnergyUse	NT24NG	0.01	0.00
tblEnergyUse	T24E	1.97	4.72
tblEnergyUse	T24NG	13.82	0.00
tblFleetMix	HHD	0.07	5.3020e-003
tblFleetMix	LDA	0.55	0.57
tblFleetMix	LDT1	0.04	0.04
tblFleetMix	LDT2	0.19	0.20
tblFleetMix	LHD1	0.02	0.00
tblFleetMix	LHD2	4.9700e-003	0.00

tblFleetMix	MCY	4.5470e-003	4.8590e-003
tblFleetMix	MDV	0.12	0.13
tblFleetMix	MH	9.6500e-004	0.00
tblFleetMix	MHD	0.02	0.00
tblFleetMix	OBUS	1.3970e-003	0.00
tblFleetMix	SBUS	9.3200e-004	0.00
tblFleetMix	UBUS	1.1600e-003	0.05
tblGrading	AcresOfGrading	4.88	6.75
tblGrading	AcresOfGrading	4.00	4.50
tblGrading	MaterialExported	0.00	3,000.00
tblSolidWaste	SolidWasteGenerationRate	79.57	17.30
tblVehicleTrips	ST_TR	1.30	0.06
tblVehicleTrips	WD_TR	1.71	0.08
tblWater	IndoorWaterUseRate	933,519.60	232,000.00
tblWater	OutdoorWaterUseRate	1,460,120.40	357,272.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.0509	0.4965	0.3318	5.7000e-004	0.0104	0.0277	0.0381	2.0100e-003	0.0259	0.0279	0.0000	50.9237	50.9237	0.0119	0.0000	51.2223
2020	0.2843	2.2261	1.8487	3.7600e-003	0.1163	0.1085	0.2248	0.0441	0.1040	0.1482	0.0000	322.2342	322.2342	0.0519	0.0000	323.5310
2021	0.4653	0.7142	0.6975	1.3800e-003	0.0213	0.0336	0.0549	5.7400e-003	0.0323	0.0380	0.0000	117.0880	117.0880	0.0183	0.0000	117.5445
Maximum	**0.4653**	**2.2261**	**1.8487**	**3.7600e-003**	**0.1163**	**0.1085**	**0.2248**	**0.0441**	**0.1040**	**0.1482**	**0.0000**	**322.2342**	**322.2342**	**0.0519**	**0.0000**	**323.5310**

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					
2019	7.6100e-003	0.0352	0.3281	5.7000e-004	6.3700e-003	8.5000e-004	7.2200e-003	1.4000e-003	8.5000e-004	2.2500e-003	0.0000	50.9237	50.9237	0.0119	0.0000	51.2222
2020	0.0605	0.6420	1.8507	3.7600e-003	0.0799	5.2500e-003	0.0851	0.0265	5.1900e-003	0.0317	0.0000	322.2339	322.2339	0.0519	0.0000	323.5307
2021	0.3941	0.2248	0.7165	1.3800e-003	0.0213	1.7800e-003	0.0231	5.7400e-003	1.7700e-003	7.5100e-003	0.0000	117.0879	117.0879	0.0183	0.0000	117.5444
Maximum	**0.3941**	**0.6420**	**1.8507**	**3.7600e-003**	**0.0799**	**5.2500e-003**	**0.0851**	**0.0265**	**5.1900e-003**	**0.0317**	**0.0000**	**322.2339**	**322.2339**	**0.0519**	**0.0000**	**323.5307**

UCR Success Center - 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	**42.26**	**73.76**	**-0.60**	**0.00**	**27.33**	**95.36**	**63.67**	**35.11**	**95.18**	**80.63**	**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)
3	**10-17-2019**	**1-16-2020**	0.6890	0.0544
4	**1-17-2020**	**4-16-2020**	0.6619	0.1680
5	**4-17-2020**	**7-16-2020**	0.6002	0.1838
6	**7-17-2020**	**10-16-2020**	0.6068	0.1858
7	**10-17-2020**	**1-16-2021**	0.5979	0.1847
8	**1-17-2021**	**4-16-2021**	0.5441	0.1763
9	**4-17-2021**	**7-16-2021**	0.5321	0.4001
		Highest	0.6890	0.4001

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	0.3272	5.0000e-005	5.5700e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0108	0.0108	3.0000e-005	0.0000	0.0115
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	909.2694	909.2694	0.0199	4.1200e-003	910.9930
Mobile	0.0103	0.0414	0.1413	3.5000e-004	0.0357	4.1000e-004	0.0361	9.8500e-003	3.9000e-004	0.0102	0.0000	35.3058	35.3058	7.6100e-003	0.0000	35.4961
Waste						0.0000	0.0000		0.0000	0.0000	3.5117	0.0000	3.5117	0.2075	0.0000	8.7002
Water						0.0000	0.0000		0.0000	0.0000	0.0736	4.2032	4.2768	7.6500e-003	2.0000e-004	4.5270
Total	**0.3375**	**0.0414**	**0.1469**	**3.5000e-004**	**0.0357**	**4.3000e-004**	**0.0361**	**9.8500e-003**	**4.1000e-004**	**0.0103**	**3.5853**	**948.7892**	**952.3745**	**0.2427**	**4.3200e-003**	**959.7278**

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	0.3272	5.0000e-005	5.5700e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0108	0.0108	3.0000e-005	0.0000	0.0115
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	909.2694	909.2694	0.0199	4.1200e-003	910.9930
Mobile	0.0103	0.0414	0.1413	3.5000e-004	0.0357	4.1000e-004	0.0361	9.8500e-003	3.9000e-004	0.0102	0.0000	35.3058	35.3058	7.6100e-003	0.0000	35.4961
Waste						0.0000	0.0000		0.0000	0.0000	3.5117	0.0000	3.5117	0.2075	0.0000	8.7002
Water						0.0000	0.0000		0.0000	0.0000	0.0736	4.2032	4.2768	7.6500e-003	2.0000e-004	4.5270
Total	**0.3375**	**0.0414**	**0.1469**	**3.5000e-004**	**0.0357**	**4.3000e-004**	**0.0361**	**9.8500e-003**	**4.1000e-004**	**0.0103**	**3.5853**	**948.7892**	**952.3745**	**0.2427**	**4.3200e-003**	**959.7278**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	11/1/2019	1/28/2020	5	63	
2	Site Preparation	Site Preparation	1/29/2020	2/7/2020	5	8	
3	Grading	Grading	2/8/2020	2/26/2020	5	13	
4	Building Construction	Building Construction	2/27/2020	5/1/2021	5	307	
5	Paving	Paving	5/2/2021	5/23/2021	5	15	
6	Architectural Coating	Architectural Coating	5/24/2021	6/15/2021	5	17	

Acres of Grading (Site Preparation Phase): 4.5

Acres of Grading (Grading Phase): 6.75

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 120,204; Non-Residential Outdoor: 40,068; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

UCR Success Center - Riverside-South Coast County, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	6.00	187	0.41
Grading	Rubber Tired Dozers	1	6.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Building Construction	Cranes	1	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Paving	Pavers	1	6.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	5	13.00	0.00	89.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	375.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	34.00	13.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	7.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

3.2 Demolition - 2019

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					6.6400e-003	0.0000	6.6400e-003	1.0100e-003	0.0000	1.0100e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0493	0.4875	0.3202	5.2000e-004		0.0277	0.0277		0.0258	0.0258	0.0000	46.0446	46.0446	0.0117	0.0000	46.3377
Total	**0.0493**	**0.4875**	**0.3202**	**5.2000e-004**	**6.6400e-003**	**0.0277**	**0.0343**	**1.0100e-003**	**0.0258**	**0.0269**	**0.0000**	**46.0446**	**46.0446**	**0.0117**	**0.0000**	**46.3377**

3.2 Demolition - 2019

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	1.7000e-004	7.9500e-003	1.0000e-003	2.0000e-005	7.1000e-004	3.0000e-005	7.4000e-004	1.9000e-004	3.0000e-005	2.2000e-004	0.0000	2.2250	2.2250	1.5000e-004	0.0000	2.2286
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3900e-003	1.0100e-003	0.0106	3.0000e-005	3.0700e-003	2.0000e-005	3.0900e-003	8.2000e-004	2.0000e-005	8.3000e-004	0.0000	2.6542	2.6542	7.0000e-005	0.0000	2.6560
Total	**1.5600e-003**	**8.9600e-003**	**0.0116**	**5.0000e-005**	**3.7800e-003**	**5.0000e-005**	**3.8300e-003**	**1.0100e-003**	**5.0000e-005**	**1.0500e-003**	**0.0000**	**4.8791**	**4.8791**	**2.2000e-004**	**0.0000**	**4.8846**

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					2.5900e-003	0.0000	2.5900e-003	3.9000e-004	0.0000	3.9000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.0400e-003	0.0262	0.3165	5.2000e-004		8.1000e-004	8.1000e-004		8.1000e-004	8.1000e-004	0.0000	46.0445	46.0445	0.0117	0.0000	46.3376
Total	**6.0400e-003**	**0.0262**	**0.3165**	**5.2000e-004**	**2.5900e-003**	**8.1000e-004**	**3.4000e-003**	**3.9000e-004**	**8.1000e-004**	**1.2000e-003**	**0.0000**	**46.0445**	**46.0445**	**0.0117**	**0.0000**	**46.3376**

3.2 Demolition - 2019

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	1.7000e-004	7.9500e-003	1.0000e-003	2.0000e-005	7.1000e-004	3.0000e-005	7.4000e-004	1.9000e-004	3.0000e-005	2.2000e-004	0.0000	2.2250	2.2250	1.5000e-004	0.0000	2.2286
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3900e-003	1.0100e-003	0.0106	3.0000e-005	3.0700e-003	2.0000e-005	3.0900e-003	8.2000e-004	2.0000e-005	8.3000e-004	0.0000	2.6542	2.6542	7.0000e-005	0.0000	2.6560
Total	**1.5600e-003**	**8.9600e-003**	**0.0116**	**5.0000e-005**	**3.7800e-003**	**5.0000e-005**	**3.8300e-003**	**1.0100e-003**	**5.0000e-005**	**1.0500e-003**	**0.0000**	**4.8791**	**4.8791**	**2.2000e-004**	**0.0000**	**4.8846**

3.2 Demolition - 2020

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					3.0900e-003	0.0000	3.0900e-003	4.7000e-004	0.0000	4.7000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0213	0.2095	0.1466	2.4000e-004		0.0115	0.0115		0.0108	0.0108	0.0000	21.0677	21.0677	5.4200e-003	0.0000	21.2031
Total	**0.0213**	**0.2095**	**0.1466**	**2.4000e-004**	**3.0900e-003**	**0.0115**	**0.0146**	**4.7000e-004**	**0.0108**	**0.0112**	**0.0000**	**21.0677**	**21.0677**	**5.4200e-003**	**0.0000**	**21.2031**

3.2 Demolition - 2020

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	7.0000e-005	3.4300e-003	4.4000e-004	1.0000e-005	6.4000e-004	1.0000e-005	6.5000e-004	1.6000e-004	1.0000e-005	1.7000e-004	0.0000	1.0243	1.0243	6.0000e-005	0.0000	1.0259
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0000e-004	4.2000e-004	4.4700e-003	1.0000e-005	1.4300e-003	1.0000e-005	1.4400e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.1955	1.1955	3.0000e-005	0.0000	1.1962
Total	**6.7000e-004**	**3.8500e-003**	**4.9100e-003**	**2.0000e-005**	**2.0700e-003**	**2.0000e-005**	**2.0900e-003**	**5.4000e-004**	**2.0000e-005**	**5.6000e-004**	**0.0000**	**2.2198**	**2.2198**	**9.0000e-005**	**0.0000**	**2.2222**

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					1.2100e-003	0.0000	1.2100e-003	1.8000e-004	0.0000	1.8000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.8100e-003	0.0122	0.1472	2.4000e-004		3.7000e-004	3.7000e-004		3.7000e-004	3.7000e-004	0.0000	21.0676	21.0676	5.4200e-003	0.0000	21.2030
Total	**2.8100e-003**	**0.0122**	**0.1472**	**2.4000e-004**	**1.2100e-003**	**3.7000e-004**	**1.5800e-003**	**1.8000e-004**	**3.7000e-004**	**5.5000e-004**	**0.0000**	**21.0676**	**21.0676**	**5.4200e-003**	**0.0000**	**21.2030**

3.2 Demolition - 2020

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	7.0000e-005	3.4300e-003	4.4000e-004	1.0000e-005	6.4000e-004	1.0000e-005	6.5000e-004	1.6000e-004	1.0000e-005	1.7000e-004	0.0000	1.0243	1.0243	6.0000e-005	0.0000	1.0259
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0000e-004	4.2000e-004	4.4700e-003	1.0000e-005	1.4300e-003	1.0000e-005	1.4400e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.1955	1.1955	3.0000e-005	0.0000	1.1962
Total	**6.7000e-004**	**3.8500e-003**	**4.9100e-003**	**2.0000e-005**	**2.0700e-003**	**2.0000e-005**	**2.0900e-003**	**5.4000e-004**	**2.0000e-005**	**5.6000e-004**	**0.0000**	**2.2198**	**2.2198**	**9.0000e-005**	**0.0000**	**2.2222**

3.3 Site Preparation - 2020

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					0.0235	0.0000	0.0235	0.0118	0.0000	0.0118	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.5200e-003	0.0734	0.0308	7.0000e-005		3.2800e-003	3.2800e-003		3.0200e-003	3.0200e-003	0.0000	6.0506	6.0506	1.9600e-003	0.0000	6.0995
Total	**6.5200e-003**	**0.0734**	**0.0308**	**7.0000e-005**	**0.0235**	**3.2800e-003**	**0.0267**	**0.0118**	**3.0200e-003**	**0.0149**	**0.0000**	**6.0506**	**6.0506**	**1.9600e-003**	**0.0000**	**6.0995**

3.3 Site Preparation - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.5000e-004	1.0000e-004	1.1000e-003	0.0000	3.5000e-004	0.0000	3.5000e-004	9.0000e-005	0.0000	1.0000e-004	0.0000	0.2943	0.2943	1.0000e-005	0.0000	0.2945
Total	**1.5000e-004**	**1.0000e-004**	**1.1000e-003**	**0.0000**	**3.5000e-004**	**0.0000**	**3.5000e-004**	**9.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**	**0.2943**	**0.2943**	**1.0000e-005**	**0.0000**	**0.2945**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					9.1500e-003	0.0000	9.1500e-003	4.6200e-003	0.0000	4.6200e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.4000e-004	3.6500e-003	0.0347	7.0000e-005		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	6.0506	6.0506	1.9600e-003	0.0000	6.0995
Total	**8.4000e-004**	**3.6500e-003**	**0.0347**	**7.0000e-005**	**9.1500e-003**	**1.1000e-004**	**9.2600e-003**	**4.6200e-003**	**1.1000e-004**	**4.7300e-003**	**0.0000**	**6.0506**	**6.0506**	**1.9600e-003**	**0.0000**	**6.0995**

3.3 Site Preparation - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.5000e-004	1.0000e-004	1.1000e-003	0.0000	3.5000e-004	0.0000	3.5000e-004	9.0000e-005	0.0000	1.0000e-004	0.0000	0.2943	0.2943	1.0000e-005	0.0000	0.2945
Total	**1.5000e-004**	**1.0000e-004**	**1.1000e-003**	**0.0000**	**3.5000e-004**	**0.0000**	**3.5000e-004**	**9.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**	**0.2943**	**0.2943**	**1.0000e-005**	**0.0000**	**0.2945**

3.4 Grading - 2020

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					0.0331	0.0000	0.0331	0.0166	0.0000	0.0166	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.7700e-003	0.0981	0.0420	9.0000e-005		4.4500e-003	4.4500e-003		4.0900e-003	4.0900e-003	0.0000	8.0532	8.0532	2.6000e-003	0.0000	8.1184
Total	**8.7700e-003**	**0.0981**	**0.0420**	**9.0000e-005**	**0.0331**	**4.4500e-003**	**0.0376**	**0.0166**	**4.0900e-003**	**0.0206**	**0.0000**	**8.0532**	**8.0532**	**2.6000e-003**	**0.0000**	**8.1184**

3.4 Grading - 2020

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	9.9000e-004	0.0455	5.8800e-003	1.4000e-004	3.2300e-003	1.4000e-004	3.3700e-003	8.9000e-004	1.4000e-004	1.0200e-003	0.0000	13.5955	13.5955	8.5000e-004	0.0000	13.6168
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	2.4000e-004	1.7000e-004	1.7900e-003	1.0000e-005	5.7000e-004	0.0000	5.8000e-004	1.5000e-004	0.0000	1.6000e-004	0.0000	0.4782	0.4782	1.0000e-005	0.0000	0.4785
Total	**1.2300e-003**	**0.0456**	**7.6700e-003**	**1.5000e-004**	**3.8000e-003**	**1.4000e-004**	**3.9500e-003**	**1.0400e-003**	**1.4000e-004**	**1.1800e-003**	**0.0000**	**14.0737**	**14.0737**	**8.6000e-004**	**0.0000**	**14.0953**

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					0.0129	0.0000	0.0129	6.4600e-003	0.0000	6.4600e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.1200e-003	4.8600e-003	0.0465	9.0000e-005		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	8.0532	8.0532	2.6000e-003	0.0000	8.1183
Total	**1.1200e-003**	**4.8600e-003**	**0.0465**	**9.0000e-005**	**0.0129**	**1.5000e-004**	**0.0131**	**6.4600e-003**	**1.5000e-004**	**6.6100e-003**	**0.0000**	**8.0532**	**8.0532**	**2.6000e-003**	**0.0000**	**8.1183**

3.4 Grading - 2020

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	9.9000e-004	0.0455	5.8800e-003	1.4000e-004	3.2300e-003	1.4000e-004	3.3700e-003	8.9000e-004	1.4000e-004	1.0200e-003	0.0000	13.5955	13.5955	8.5000e-004	0.0000	13.6168
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	2.4000e-004	1.7000e-004	1.7900e-003	1.0000e-005	5.7000e-004	0.0000	5.8000e-004	1.5000e-004	0.0000	1.6000e-004	0.0000	0.4782	0.4782	1.0000e-005	0.0000	0.4785
Total	**1.2300e-003**	**0.0456**	**7.6700e-003**	**1.5000e-004**	**3.8000e-003**	**1.4000e-004**	**3.9500e-003**	**1.0400e-003**	**1.4000e-004**	**1.1800e-003**	**0.0000**	**14.0737**	**14.0737**	**8.6000e-004**	**0.0000**	**14.0953**

3.5 Building Construction - 2020

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	0.2244	1.6341	1.4573	2.4400e-003		0.0880	0.0880		0.0850	0.0850	0.0000	200.6041	200.6041	0.0372	0.0000	201.5351
Total	**0.2244**	**1.6341**	**1.4573**	**2.4400e-003**		**0.0880**	**0.0880**		**0.0850**	**0.0850**	**0.0000**	**200.6041**	**200.6041**	**0.0372**	**0.0000**	**201.5351**

3.5 Building Construction - 2020

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	4.0800e-003	0.1494	0.0292	3.7000e-004	9.0700e-003	8.4000e-004	9.9200e-003	2.6200e-003	8.1000e-004	3.4300e-003	0.0000	35.3218	35.3218	2.8200e-003	0.0000	35.3924
Worker	0.0173	0.0121	0.1292	3.8000e-004	0.0413	2.5000e-004	0.0416	0.0110	2.3000e-004	0.0112	0.0000	34.5491	34.5491	8.7000e-004	0.0000	34.5707
Total	**0.0214**	**0.1615**	**0.1584**	**7.5000e-004**	**0.0504**	**1.0900e-003**	**0.0515**	**0.0136**	**1.0400e-003**	**0.0146**	**0.0000**	**69.8709**	**69.8709**	**3.6900e-003**	**0.0000**	**69.9631**

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	0.0324	0.4102	1.4502	2.4400e-003		3.3500e-003	3.3500e-003		3.3500e-003	3.3500e-003	0.0000	200.6038	200.6038	0.0372	0.0000	201.5348
Total	**0.0324**	**0.4102**	**1.4502**	**2.4400e-003**		**3.3500e-003**	**3.3500e-003**		**3.3500e-003**	**3.3500e-003**	**0.0000**	**200.6038**	**200.6038**	**0.0372**	**0.0000**	**201.5348**

3.5 Building Construction - 2020

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	4.0800e-003	0.1494	0.0292	3.7000e-004	9.0700e-003	8.4000e-004	9.9200e-003	2.6200e-003	8.1000e-004	3.4300e-003	0.0000	35.3218	35.3218	2.8200e-003	0.0000	35.3924
Worker	0.0173	0.0121	0.1292	3.8000e-004	0.0413	2.5000e-004	0.0416	0.0110	2.3000e-004	0.0112	0.0000	34.5491	34.5491	8.7000e-004	0.0000	34.5707
Total	**0.0214**	**0.1615**	**0.1584**	**7.5000e-004**	**0.0504**	**1.0900e-003**	**0.0515**	**0.0136**	**1.0400e-003**	**0.0146**	**0.0000**	**69.8709**	**69.8709**	**3.6900e-003**	**0.0000**	**69.9631**

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	0.0779	0.5864	0.5547	9.5000e-004		0.0294	0.0294		0.0284	0.0284	0.0000	78.0655	78.0655	0.0139	0.0000	78.4139
Total	**0.0779**	**0.5864**	**0.5547**	**9.5000e-004**		**0.0294**	**0.0294**		**0.0284**	**0.0284**	**0.0000**	**78.0655**	**78.0655**	**0.0139**	**0.0000**	**78.4139**

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	1.3300e-003	0.0521	0.0100	1.4000e-004	3.5300e-003	1.0000e-004	3.6300e-003	1.0200e-003	1.0000e-004	1.1100e-003	0.0000	13.6381	13.6381	1.0400e-003	0.0000	13.6641
Worker	6.2700e-003	4.2200e-003	0.0460	1.4000e-004	0.0161	1.0000e-004	0.0162	4.2700e-003	9.0000e-005	4.3600e-003	0.0000	12.9949	12.9949	3.0000e-004	0.0000	13.0025
Total	**7.6000e-003**	**0.0563**	**0.0561**	**2.8000e-004**	**0.0196**	**2.0000e-004**	**0.0198**	**5.2900e-003**	**1.9000e-004**	**5.4700e-003**	**0.0000**	**26.6330**	**26.6330**	**1.3400e-003**	**0.0000**	**26.6666**

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	0.0126	0.1596	0.5643	9.5000e-004		1.3000e-003	1.3000e-003		1.3000e-003	1.3000e-003	0.0000	78.0654	78.0654	0.0139	0.0000	78.4138
Total	**0.0126**	**0.1596**	**0.5643**	**9.5000e-004**		**1.3000e-003**	**1.3000e-003**		**1.3000e-003**	**1.3000e-003**	**0.0000**	**78.0654**	**78.0654**	**0.0139**	**0.0000**	**78.4138**

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	1.3300e-003	0.0521	0.0100	1.4000e-004	3.5300e-003	1.0000e-004	3.6300e-003	1.0200e-003	1.0000e-004	1.1100e-003	0.0000	13.6381	13.6381	1.0400e-003	0.0000	13.6641
Worker	6.2700e-003	4.2200e-003	0.0460	1.4000e-004	0.0161	1.0000e-004	0.0162	4.2700e-003	9.0000e-005	4.3600e-003	0.0000	12.9949	12.9949	3.0000e-004	0.0000	13.0025
Total	**7.6000e-003**	**0.0563**	**0.0561**	**2.8000e-004**	**0.0196**	**2.0000e-004**	**0.0198**	**5.2900e-003**	**1.9000e-004**	**5.4700e-003**	**0.0000**	**26.6330**	**26.6330**	**1.3400e-003**	**0.0000**	**26.6666**

3.6 Paving - 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	5.8000e-003	0.0581	0.0664	1.0000e-004		3.1100e-003	3.1100e-003		2.8700e-003	2.8700e-003	0.0000	8.8237	8.8237	2.8000e-003	0.0000	8.8937
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**5.8000e-003**	**0.0581**	**0.0664**	**1.0000e-004**		**3.1100e-003**	**3.1100e-003**		**2.8700e-003**	**2.8700e-003**	**0.0000**	**8.8237**	**8.8237**	**2.8000e-003**	**0.0000**	**8.8937**

3.6 Paving - 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	4.2000e-004	2.8000e-004	3.0700e-003	1.0000e-005	1.0700e-003	1.0000e-005	1.0800e-003	2.8000e-004	1.0000e-005	2.9000e-004	0.0000	0.8666	0.8666	2.0000e-005	0.0000	0.8671
Total	**4.2000e-004**	**2.8000e-004**	**3.0700e-003**	**1.0000e-005**	**1.0700e-003**	**1.0000e-005**	**1.0800e-003**	**2.8000e-004**	**1.0000e-005**	**2.9000e-004**	**0.0000**	**0.8666**	**0.8666**	**2.0000e-005**	**0.0000**	**0.8671**

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	1.5300e-003	7.2600e-003	0.0756	1.0000e-004		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004	0.0000	8.8237	8.8237	2.8000e-003	0.0000	8.8937
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.5300e-003**	**7.2600e-003**	**0.0756**	**1.0000e-004**		**2.4000e-004**	**2.4000e-004**		**2.4000e-004**	**2.4000e-004**	**0.0000**	**8.8237**	**8.8237**	**2.8000e-003**	**0.0000**	**8.8937**

3.6 Paving - 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	4.2000e-004	2.8000e-004	3.0700e-003	1.0000e-005	1.0700e-003	1.0000e-005	1.0800e-003	2.8000e-004	1.0000e-005	2.9000e-004	0.0000	0.8666	0.8666	2.0000e-005	0.0000	0.8671
Total	**4.2000e-004**	**2.8000e-004**	**3.0700e-003**	**1.0000e-005**	**1.0700e-003**	**1.0000e-005**	**1.0800e-003**	**2.8000e-004**	**1.0000e-005**	**2.9000e-004**	**0.0000**	**0.8666**	**0.8666**	**2.0000e-005**	**0.0000**	**0.8671**

3.7 Architectural Coating - 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					
Archit. Coating	0.3714					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.8600e-003	0.0130	0.0155	3.0000e-005		8.0000e-004	8.0000e-004		8.0000e-004	8.0000e-004	0.0000	2.1703	2.1703	1.5000e-004	0.0000	2.1740
Total	**0.3733**	**0.0130**	**0.0155**	**3.0000e-005**		**8.0000e-004**	**8.0000e-004**		**8.0000e-004**	**8.0000e-004**	**0.0000**	**2.1703**	**2.1703**	**1.5000e-004**	**0.0000**	**2.1740**

3.7 Architectural Coating - 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	2.6000e-004	1.7000e-004	1.8700e-003	1.0000e-005	6.5000e-004	0.0000	6.6000e-004	1.7000e-004	0.0000	1.8000e-004	0.0000	0.5289	0.5289	1.0000e-005	0.0000	0.5292
Total	**2.6000e-004**	**1.7000e-004**	**1.8700e-003**	**1.0000e-005**	**6.5000e-004**	**0.0000**	**6.6000e-004**	**1.7000e-004**	**0.0000**	**1.8000e-004**	**0.0000**	**0.5289**	**0.5289**	**1.0000e-005**	**0.0000**	**0.5292**

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	0.3714					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.5000e-004	1.0900e-003	0.0156	3.0000e-005		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	2.1703	2.1703	1.5000e-004	0.0000	2.1740
Total	**0.3717**	**1.0900e-003**	**0.0156**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**	**0.0000**	**2.1703**	**2.1703**	**1.5000e-004**	**0.0000**	**2.1740**

3.7 Architectural Coating - 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	2.6000e-004	1.7000e-004	1.8700e-003	1.0000e-005	6.5000e-004	0.0000	6.6000e-004	1.7000e-004	0.0000	1.8000e-004	0.0000	0.5289	0.5289	1.0000e-005	0.0000	0.5292
Total	**2.6000e-004**	**1.7000e-004**	**1.8700e-003**	**1.0000e-005**	**6.5000e-004**	**0.0000**	**6.6000e-004**	**1.7000e-004**	**0.0000**	**1.8000e-004**	**0.0000**	**0.5289**	**0.5289**	**1.0000e-005**	**0.0000**	**0.5292**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0103	0.0414	0.1413	3.5000e-004	0.0357	4.1000e-004	0.0361	9.8500e-003	3.9000e-004	0.0102	0.0000	35.3058	35.3058	7.6100e-003	0.0000	35.4961
Unmitigated	0.0103	0.0414	0.1413	3.5000e-004	0.0357	4.1000e-004	0.0361	9.8500e-003	3.9000e-004	0.0102	0.0000	35.3058	35.3058	7.6100e-003	0.0000	35.4961

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
University/College (4Yr)	36.01	27.38	0.00	89,022	89,022
Total	36.01	27.38	0.00	89,022	89,022

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
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)	0.574895	0.039850	0.196401	0.125668	0.000000	0.000000	0.000000	0.005302	0.000000	0.053023	0.004859	0.000000	0.000000

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	909.2694	909.2694	0.0199	4.1200e-003	910.9930
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	909.2694	909.2694	0.0199	4.1200e-003	910.9930
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
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**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
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**	**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)	1.51216e+006	909.2694	0.0199	4.1200e-003	910.9930
Total		**909.2694**	**0.0199**	**4.1200e-003**	**910.9930**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
University/College (4Yr)	1.51216e+006	909.2694	0.0199	4.1200e-003	910.9930
Total		**909.2694**	**0.0199**	**4.1200e-003**	**910.9930**

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	0.3272	5.0000e-005	5.5700e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0108	0.0108	3.0000e-005	0.0000	0.0115
Unmitigated	0.3272	5.0000e-005	5.5700e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0108	0.0108	3.0000e-005	0.0000	0.0115

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	0.0371					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2896					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	5.2000e-004	5.0000e-005	5.5700e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0108	0.0108	3.0000e-005	0.0000	0.0115
Total	**0.3272**	**5.0000e-005**	**5.5700e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0108**	**0.0108**	**3.0000e-005**	**0.0000**	**0.0115**

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	0.0371					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2896					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	5.2000e-004	5.0000e-005	5.5700e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0108	0.0108	3.0000e-005	0.0000	0.0115
Total	**0.3272**	**5.0000e-005**	**5.5700e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0108**	**0.0108**	**3.0000e-005**	**0.0000**	**0.0115**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	4.2768	7.6500e-003	2.0000e-004	4.5270
Unmitigated	4.2768	7.6500e-003	2.0000e-004	4.5270

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
University/College (4Yr)	0.232 / 0.357272	4.2768	7.6500e-003	2.0000e-004	4.5270
Total		**4.2768**	**7.6500e-003**	**2.0000e-004**	**4.5270**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
University/College (4Yr)	0.232 / 0.357272	4.2768	7.6500e-003	2.0000e-004	4.5270
Total		**4.2768**	**7.6500e-003**	**2.0000e-004**	**4.5270**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	3.5117	0.2075	0.0000	8.7002
Unmitigated	3.5117	0.2075	0.0000	8.7002

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
University/College (4Yr)	17.3	3.5117	0.2075	0.0000	8.7002
Total		**3.5117**	**0.2075**	**0.0000**	**8.7002**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
University/College (4Yr)	17.3	3.5117	0.2075	0.0000	8.7002
Total		**3.5117**	**0.2075**	**0.0000**	**8.7002**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

UCR Success Center

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)	436.00	Student	1.84	80,135.70	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2022
Utility Company	Riverside Public Utilities				
CO2 Intensity (lb/MWhr)	1325.65	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

UCR Success Center - Riverside-South Coast County, Winter

Project Characteristics -

Land Use - The project development is 60k sf. Number of college students used to derive 80k sf of development.

Construction Phase - Project specific construction duration

Demolition -

Grading -

Vehicle Trips - Trips based on traffic analysis

Energy Use - Project specific energy consumption

Water And Wastewater - Project water consumption

Solid Waste - Project solid waste generation

Construction Off-road Equipment Mitigation - Project mitigation measure

Stationary Sources - Emergency Generators and Fire Pumps -

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	7.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final

UCR Success Center - Riverside-South Coast County, Winter

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	20.00	63.00
tblConstructionPhase	NumDays	2.00	8.00
tblConstructionPhase	NumDays	4.00	13.00
tblConstructionPhase	NumDays	200.00	307.00
tblConstructionPhase	NumDays	10.00	15.00
tblConstructionPhase	NumDays	10.00	17.00
tblEnergyUse	LightingElect	3.99	9.55
tblEnergyUse	NT24E	1.92	4.60
tblEnergyUse	NT24NG	0.01	0.00
tblEnergyUse	T24E	1.97	4.72
tblEnergyUse	T24NG	13.82	0.00
tblFleetMix	HHD	0.07	5.3020e-003
tblFleetMix	LDA	0.55	0.57
tblFleetMix	LDT1	0.04	0.04
tblFleetMix	LDT2	0.19	0.20
tblFleetMix	LHD1	0.02	0.00
tblFleetMix	LHD2	4.9700e-003	0.00

tblFleetMix	MCY	4.5470e-003	4.8590e-003
tblFleetMix	MDV	0.12	0.13
tblFleetMix	MH	9.6500e-004	0.00
tblFleetMix	MHD	0.02	0.00
tblFleetMix	OBUS	1.3970e-003	0.00
tblFleetMix	SBUS	9.3200e-004	0.00
tblFleetMix	UBUS	1.1600e-003	0.05
tblGrading	AcresOfGrading	4.88	6.75
tblGrading	AcresOfGrading	4.00	4.50
tblGrading	MaterialExported	0.00	3,000.00
tblSolidWaste	SolidWasteGenerationRate	79.57	17.30
tblVehicleTrips	ST_TR	1.30	0.06
tblVehicleTrips	WD_TR	1.71	0.08
tblWater	IndoorWaterUseRate	933,519.60	232,000.00
tblWater	OutdoorWaterUseRate	1,460,120.40	357,272.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	2.3733	23.0850	15.4134	0.0265	0.4878	1.2885	1.7763	0.0942	1.2038	1.2981	0.0000	2,605.8033	2,605.8033	0.6126	0.0000	2,621.1171
2020	2.2382	22.0004	15.1296	0.0363	5.9553	1.1544	6.7768	2.9846	1.0780	3.7403	0.0000	3,716.5786	3,716.5786	0.6076	0.0000	3,731.4700
2021	43.9492	14.9237	14.1679	0.0286	0.4633	0.6889	1.1522	0.1248	0.6651	0.7899	0.0000	2,667.8510	2,667.8510	0.4140	0.0000	2,677.6782
Maximum	**43.9492**	**23.0850**	**15.4134**	**0.0363**	**5.9553**	**1.2885**	**6.7768**	**2.9846**	**1.2038**	**3.7403**	**0.0000**	**3,716.5786**	**3,716.5786**	**0.6126**	**0.0000**	**3,731.4700**

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					
2019	0.3593	1.6279	15.2375	0.0265	0.2992	0.0397	0.3390	0.0657	0.0396	0.1053	0.0000	2,605.8033	2,605.8033	0.6126	0.0000	2,621.1171
2020	0.5007	7.6625	15.1908	0.0363	2.5817	0.0456	2.6273	1.1785	0.0446	1.2070	0.0000	3,716.5786	3,716.5786	0.6076	0.0000	3,731.4700
2021	43.7600	4.9997	14.3927	0.0286	0.4633	0.0349	0.4982	0.1248	0.0346	0.1594	0.0000	2,667.8510	2,667.8510	0.4140	0.0000	2,677.6782
Maximum	**43.7600**	**7.6625**	**15.2375**	**0.0363**	**2.5817**	**0.0456**	**2.6273**	**1.1785**	**0.0446**	**1.2070**	**0.0000**	**3,716.5786**	**3,716.5786**	**0.6126**	**0.0000**	**3,731.4700**

UCR Success Center - 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	N20	CO2e
Percent Reduction	**8.11**	**76.19**	**-0.25**	**0.00**	**51.58**	**96.16**	**64.30**	**57.27**	**95.97**	**74.75**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.7944	4.1000e-004	0.0446	0.0000		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004		0.0954	0.0954	2.5000e-004		0.1017
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	0.0681	0.2733	0.9187	2.2700e-003	0.2418	2.7700e-003	0.2446	0.0667	2.6000e-003	0.0693		255.2917	255.2917	0.0560		256.6926
Total	**1.8624**	**0.2737**	**0.9633**	**2.2700e-003**	**0.2418**	**2.9300e-003**	**0.2447**	**0.0667**	**2.7600e-003**	**0.0694**		**255.3871**	**255.3871**	**0.0563**	**0.0000**	**256.7943**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.7944	4.1000e-004	0.0446	0.0000		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004		0.0954	0.0954	2.5000e-004		0.1017
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	0.0681	0.2733	0.9187	2.2700e-003	0.2418	2.7700e-003	0.2446	0.0667	2.6000e-003	0.0693		255.2917	255.2917	0.0560		256.6926
Total	**1.8624**	**0.2737**	**0.9633**	**2.2700e-003**	**0.2418**	**2.9300e-003**	**0.2447**	**0.0667**	**2.7600e-003**	**0.0694**		**255.3871**	**255.3871**	**0.0563**	**0.0000**	**256.7943**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	11/1/2019	1/28/2020	5	63	
2	Site Preparation	Site Preparation	1/29/2020	2/7/2020	5	8	
3	Grading	Grading	2/8/2020	2/26/2020	5	13	
4	Building Construction	Building Construction	2/27/2020	5/1/2021	5	307	
5	Paving	Paving	5/2/2021	5/23/2021	5	15	
6	Architectural Coating	Architectural Coating	5/24/2021	6/15/2021	5	17	

Acres of Grading (Site Preparation Phase): 4.5

Acres of Grading (Grading Phase): 6.75

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 120,204; Non-Residential Outdoor: 40,068; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

UCR Success Center - Riverside-South Coast County, Winter

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	6.00	187	0.41
Grading	Rubber Tired Dozers	1	6.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Building Construction	Cranes	1	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Paving	Pavers	1	6.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	5	13.00	0.00	89.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	375.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	34.00	13.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	7.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

3.2 Demolition - 2019

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					0.3091	0.0000	0.3091	0.0468	0.0000	0.0468			0.0000			0.0000
Off-Road	2.2950	22.6751	14.8943	0.0241		1.2863	1.2863		1.2017	1.2017		2,360.7198	2,360.7198	0.6011		2,375.7475
Total	**2.2950**	**22.6751**	**14.8943**	**0.0241**	**0.3091**	**1.2863**	**1.5954**	**0.0468**	**1.2017**	**1.2485**		**2,360.7198**	**2,360.7198**	**0.6011**		**2,375.7475**

3.2 Demolition - 2019

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	8.3400e-003	0.3645	0.0510	1.0600e-003	0.0334	1.3300e-003	0.0347	8.9100e-003	1.2700e-003	0.0102		112.4164	112.4164	7.8400e-003		112.6124
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	0.0699	0.0455	0.4681	1.3300e-003	0.1453	9.0000e-004	0.1462	0.0385	8.3000e-004	0.0394		132.6672	132.6672	3.6000e-003		132.7572
Total	**0.0783**	**0.4100**	**0.5191**	**2.3900e-003**	**0.1787**	**2.2300e-003**	**0.1809**	**0.0475**	**2.1000e-003**	**0.0495**		**245.0836**	**245.0836**	**0.0114**		**245.3696**

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					0.1205	0.0000	0.1205	0.0183	0.0000	0.0183			0.0000			0.0000
Off-Road	0.2811	1.2179	14.7184	0.0241		0.0375	0.0375		0.0375	0.0375	0.0000	2,360.7197	2,360.7197	0.6011		2,375.7475
Total	**0.2811**	**1.2179**	**14.7184**	**0.0241**	**0.1205**	**0.0375**	**0.1580**	**0.0183**	**0.0375**	**0.0557**	**0.0000**	**2,360.7197**	**2,360.7197**	**0.6011**		**2,375.7475**

3.2 Demolition - 2019

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	8.3400e-003	0.3645	0.0510	1.0600e-003	0.0334	1.3300e-003	0.0347	8.9100e-003	1.2700e-003	0.0102		112.4164	112.4164	7.8400e-003		112.6124
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	0.0699	0.0455	0.4681	1.3300e-003	0.1453	9.0000e-004	0.1462	0.0385	8.3000e-004	0.0394		132.6672	132.6672	3.6000e-003		132.7572
Total	**0.0783**	**0.4100**	**0.5191**	**2.3900e-003**	**0.1787**	**2.2300e-003**	**0.1809**	**0.0475**	**2.1000e-003**	**0.0495**		**245.0836**	**245.0836**	**0.0114**		**245.3696**

3.2 Demolition - 2020

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					0.3091	0.0000	0.3091	0.0468	0.0000	0.0468			0.0000			0.0000
Off-Road	2.1262	20.9463	14.6573	0.0241		1.1525	1.1525		1.0761	1.0761		2,322.3127	2,322.3127	0.5970		2,337.2363
Total	**2.1262**	**20.9463**	**14.6573**	**0.0241**	**0.3091**	**1.1525**	**1.4615**	**0.0468**	**1.0761**	**1.1229**		**2,322.3127**	**2,322.3127**	**0.5970**		**2,337.2363**

3.2 Demolition - 2020

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	7.6400e-003	0.3374	0.0483	1.0500e-003	0.0649	1.0800e-003	0.0660	0.0166	1.0300e-003	0.0177		111.2582	111.2582	7.4400e-003		111.4443
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	0.0648	0.0405	0.4240	1.2900e-003	0.1453	8.8000e-004	0.1462	0.0385	8.1000e-004	0.0394		128.4707	128.4707	3.1900e-003		128.5504
Total	**0.0724**	**0.3779**	**0.4724**	**2.3400e-003**	**0.2102**	**1.9600e-003**	**0.2121**	**0.0552**	**1.8400e-003**	**0.0570**		**239.7288**	**239.7288**	**0.0106**		**239.9947**

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					0.1205	0.0000	0.1205	0.0183	0.0000	0.0183			0.0000			0.0000
Off-Road	0.2811	1.2179	14.7184	0.0241		0.0375	0.0375		0.0375	0.0375	0.0000	2,322.3127	2,322.3127	0.5970		2,337.2363
Total	**0.2811**	**1.2179**	**14.7184**	**0.0241**	**0.1205**	**0.0375**	**0.1580**	**0.0183**	**0.0375**	**0.0557**	**0.0000**	**2,322.3127**	**2,322.3127**	**0.5970**		**2,337.2363**

3.2 Demolition - 2020

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	7.6400e-003	0.3374	0.0483	1.0500e-003	0.0649	1.0800e-003	0.0660	0.0166	1.0300e-003	0.0177		111.2582	111.2582	7.4400e-003		111.4443
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	0.0648	0.0405	0.4240	1.2900e-003	0.1453	8.8000e-004	0.1462	0.0385	8.1000e-004	0.0394		128.4707	128.4707	3.1900e-003		128.5504
Total	**0.0724**	**0.3779**	**0.4724**	**2.3400e-003**	**0.2102**	**1.9600e-003**	**0.2121**	**0.0552**	**1.8400e-003**	**0.0570**		**239.7288**	**239.7288**	**0.0106**		**239.9947**

3.3 Site Preparation - 2020

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					5.8659	0.0000	5.8659	2.9609	0.0000	2.9609			0.0000			0.0000
Off-Road	1.6299	18.3464	7.7093	0.0172		0.8210	0.8210		0.7553	0.7553		1,667.4119	1,667.4119	0.5393		1,680.8937
Total	**1.6299**	**18.3464**	**7.7093**	**0.0172**	**5.8659**	**0.8210**	**6.6868**	**2.9609**	**0.7553**	**3.7161**		**1,667.4119**	**1,667.4119**	**0.5393**		**1,680.8937**

3.3 Site Preparation - 2020

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	0.0399	0.0249	0.2609	7.9000e-004	0.0894	5.4000e-004	0.0900	0.0237	5.0000e-004	0.0242		79.0589	79.0589	1.9600e-003		79.1080
Total	**0.0399**	**0.0249**	**0.2609**	**7.9000e-004**	**0.0894**	**5.4000e-004**	**0.0900**	**0.0237**	**5.0000e-004**	**0.0242**		**79.0589**	**79.0589**	**1.9600e-003**		**79.1080**

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					2.2877	0.0000	2.2877	1.1547	0.0000	1.1547			0.0000			0.0000
Off-Road	0.2106	0.9126	8.6714	0.0172		0.0281	0.0281		0.0281	0.0281	0.0000	1,667.4119	1,667.4119	0.5393		1,680.8937
Total	**0.2106**	**0.9126**	**8.6714**	**0.0172**	**2.2877**	**0.0281**	**2.3158**	**1.1547**	**0.0281**	**1.1828**	**0.0000**	**1,667.4119**	**1,667.4119**	**0.5393**		**1,680.8937**

3.3 Site Preparation - 2020

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	0.0399	0.0249	0.2609	7.9000e-004	0.0894	5.4000e-004	0.0900	0.0237	5.0000e-004	0.0242		79.0589	79.0589	1.9600e-003		79.1080
Total	**0.0399**	**0.0249**	**0.2609**	**7.9000e-004**	**0.0894**	**5.4000e-004**	**0.0900**	**0.0237**	**5.0000e-004**	**0.0242**		**79.0589**	**79.0589**	**1.9600e-003**		**79.1080**

3.4 Grading - 2020

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					5.0964	0.0000	5.0964	2.5466	0.0000	2.5466			0.0000			0.0000
Off-Road	1.3498	15.0854	6.4543	0.0141		0.6844	0.6844		0.6296	0.6296		1,365.7183	1,365.7183	0.4417		1,376.7609
Total	**1.3498**	**15.0854**	**6.4543**	**0.0141**	**5.0964**	**0.6844**	**5.7808**	**2.5466**	**0.6296**	**3.1762**		**1,365.7183**	**1,365.7183**	**0.4417**		**1,376.7609**

3.4 Grading - 2020

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	0.1561	6.8901	0.9871	0.0214	0.5046	0.0221	0.5267	0.1383	0.0211	0.1595		2,271.8014	2,271.8014	0.1520		2,275.6012
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	0.0399	0.0249	0.2609	7.9000e-004	0.0894	5.4000e-004	0.0900	0.0237	5.0000e-004	0.0242		79.0589	79.0589	1.9600e-003		79.1080
Total	**0.1959**	**6.9150**	**1.2480**	**0.0222**	**0.5941**	**0.0226**	**0.6167**	**0.1620**	**0.0216**	**0.1837**		**2,350.8603**	**2,350.8603**	**0.1540**		**2,354.7091**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.9876	0.0000	1.9876	0.9932	0.0000	0.9932			0.0000			0.0000
Off-Road	0.1725	0.7475	7.1557	0.0141		0.0230	0.0230		0.0230	0.0230	0.0000	1,365.7183	1,365.7183	0.4417		1,376.7609
Total	**0.1725**	**0.7475**	**7.1557**	**0.0141**	**1.9876**	**0.0230**	**2.0106**	**0.9932**	**0.0230**	**1.0162**	**0.0000**	**1,365.7183**	**1,365.7183**	**0.4417**		**1,376.7609**

3.4 Grading - 2020

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	0.1561	6.8901	0.9871	0.0214	0.5046	0.0221	0.5267	0.1383	0.0211	0.1595		2,271.8014	2,271.8014	0.1520		2,275.6012
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	0.0399	0.0249	0.2609	7.9000e-004	0.0894	5.4000e-004	0.0900	0.0237	5.0000e-004	0.0242		79.0589	79.0589	1.9600e-003		79.1080
Total	**0.1959**	**6.9150**	**1.2480**	**0.0222**	**0.5941**	**0.0226**	**0.6167**	**0.1620**	**0.0216**	**0.1837**		**2,350.8603**	**2,350.8603**	**0.1540**		**2,354.7091**

3.5 Building Construction - 2020

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	2.0305	14.7882	13.1881	0.0220		0.7960	0.7960		0.7688	0.7688		2,001.1595	2,001.1595	0.3715		2,010.4467
Total	**2.0305**	**14.7882**	**13.1881**	**0.0220**		**0.7960**	**0.7960**		**0.7688**	**0.7688**		**2,001.1595**	**2,001.1595**	**0.3715**		**2,010.4467**

3.5 Building Construction - 2020

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	0.0382	1.3306	0.2865	3.2700e-003	0.0833	7.7000e-003	0.0909	0.0240	7.3600e-003	0.0313		344.5556	344.5556	0.0299		345.3026
Worker	0.1694	0.1059	1.1090	3.3700e-003	0.3800	2.3000e-003	0.3823	0.1008	2.1200e-003	0.1029		336.0002	336.0002	8.3500e-003		336.2088
Total	**0.2077**	**1.4364**	**1.3955**	**6.6400e-003**	**0.4633**	**0.0100**	**0.4733**	**0.1248**	**9.4800e-003**	**0.1342**		**680.5558**	**680.5558**	**0.0382**		**681.5114**

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	0.2930	3.7120	13.1241	0.0220		0.0303	0.0303		0.0303	0.0303	0.0000	2,001.1595	2,001.1595	0.3715		2,010.4467
Total	**0.2930**	**3.7120**	**13.1241**	**0.0220**		**0.0303**	**0.0303**		**0.0303**	**0.0303**	**0.0000**	**2,001.1595**	**2,001.1595**	**0.3715**		**2,010.4467**

3.5 Building Construction - 2020

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	0.0382	1.3306	0.2865	3.2700e-003	0.0833	7.7000e-003	0.0909	0.0240	7.3600e-003	0.0313		344.5556	344.5556	0.0299		345.3026
Worker	0.1694	0.1059	1.1090	3.3700e-003	0.3800	2.3000e-003	0.3823	0.1008	2.1200e-003	0.1029		336.0002	336.0002	8.3500e-003		336.2088
Total	**0.2077**	**1.4364**	**1.3955**	**6.6400e-003**	**0.4633**	**0.0100**	**0.4733**	**0.1248**	**9.4800e-003**	**0.1342**		**680.5558**	**680.5558**	**0.0382**		**681.5114**

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	1.8125	13.6361	12.8994	0.0221		0.6843	0.6843		0.6608	0.6608		2,001.2200	2,001.2200	0.3573		2,010.1517
Total	**1.8125**	**13.6361**	**12.8994**	**0.0221**		**0.6843**	**0.6843**		**0.6608**	**0.6608**		**2,001.2200**	**2,001.2200**	**0.3573**		**2,010.1517**

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	0.0322	1.1927	0.2539	3.2400e-003	0.0832	2.3600e-003	0.0856	0.0240	2.2500e-003	0.0262		341.8652	341.8652	0.0283		342.5731
Worker	0.1582	0.0950	1.0147	3.2600e-003	0.3800	2.2400e-003	0.3823	0.1008	2.0600e-003	0.1029		324.7658	324.7658	7.5000e-003		324.9534
Total	**0.1904**	**1.2876**	**1.2686**	**6.5000e-003**	**0.4633**	**4.6000e-003**	**0.4679**	**0.1248**	**4.3100e-003**	**0.1291**		**666.6310**	**666.6310**	**0.0358**		**667.5265**

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	0.2930	3.7120	13.1241	0.0221		0.0303	0.0303		0.0303	0.0303	0.0000	2,001.2200	2,001.2200	0.3573		2,010.1517
Total	**0.2930**	**3.7120**	**13.1241**	**0.0221**		**0.0303**	**0.0303**		**0.0303**	**0.0303**	**0.0000**	**2,001.2200**	**2,001.2200**	**0.3573**		**2,010.1517**

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	0.0322	1.1927	0.2539	3.2400e-003	0.0832	2.3600e-003	0.0856	0.0240	2.2500e-003	0.0262		341.8652	341.8652	0.0283		342.5731
Worker	0.1582	0.0950	1.0147	3.2600e-003	0.3800	2.2400e-003	0.3823	0.1008	2.0600e-003	0.1029		324.7658	324.7658	7.5000e-003		324.9534
Total	**0.1904**	**1.2876**	**1.2686**	**6.5000e-003**	**0.4633**	**4.6000e-003**	**0.4679**	**0.1248**	**4.3100e-003**	**0.1291**		**666.6310**	**666.6310**	**0.0358**		**667.5265**

3.6 Paving - 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	0.7739	7.7422	8.8569	0.0135		0.4153	0.4153		0.3830	0.3830		1,296.8664	1,296.8664	0.4111		1,307.1442
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.7739**	**7.7422**	**8.8569**	**0.0135**		**0.4153**	**0.4153**		**0.3830**	**0.3830**		**1,296.8664**	**1,296.8664**	**0.4111**		**1,307.1442**

3.6 Paving - 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	0.0605	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	**0.0605**	**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**

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	0.2038	0.9684	10.0824	0.0135		0.0320	0.0320		0.0320	0.0320	0.0000	1,296.8664	1,296.8664	0.4111		1,307.1442
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.2038**	**0.9684**	**10.0824**	**0.0135**		**0.0320**	**0.0320**		**0.0320**	**0.0320**	**0.0000**	**1,296.8664**	**1,296.8664**	**0.4111**		**1,307.1442**

3.6 Paving - 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	0.0605	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	**0.0605**	**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**

3.7 Architectural Coating - 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					
Archit. Coating	43.6977					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**43.9166**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

3.7 Architectural Coating - 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	0.0326	0.0196	0.2089	6.7000e-004	0.0782	4.6000e-004	0.0787	0.0208	4.2000e-004	0.0212		66.8636	66.8636	1.5500e-003		66.9022
Total	**0.0326**	**0.0196**	**0.2089**	**6.7000e-004**	**0.0782**	**4.6000e-004**	**0.0787**	**0.0208**	**4.2000e-004**	**0.0212**		**66.8636**	**66.8636**	**1.5500e-003**		**66.9022**

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	43.6977					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0297	0.1288	1.8324	2.9700e-003		3.9600e-003	3.9600e-003		3.9600e-003	3.9600e-003	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**43.7274**	**0.1288**	**1.8324**	**2.9700e-003**		**3.9600e-003**	**3.9600e-003**		**3.9600e-003**	**3.9600e-003**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

3.7 Architectural Coating - 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	0.0326	0.0196	0.2089	6.7000e-004	0.0782	4.6000e-004	0.0787	0.0208	4.2000e-004	0.0212		66.8636	66.8636	1.5500e-003		66.9022
Total	**0.0326**	**0.0196**	**0.2089**	**6.7000e-004**	**0.0782**	**4.6000e-004**	**0.0787**	**0.0208**	**4.2000e-004**	**0.0212**		**66.8636**	**66.8636**	**1.5500e-003**		**66.9022**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0681	0.2733	0.9187	2.2700e-003	0.2418	2.7700e-003	0.2446	0.0667	2.6000e-003	0.0693		255.2917	255.2917	0.0560		256.6926
Unmitigated	0.0681	0.2733	0.9187	2.2700e-003	0.2418	2.7700e-003	0.2446	0.0667	2.6000e-003	0.0693		255.2917	255.2917	0.0560		256.6926

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
University/College (4Yr)	36.01	27.38	0.00	89,022	89,022
Total	36.01	27.38	0.00	89,022	89,022

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
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)	0.574895	0.039850	0.196401	0.125668	0.000000	0.000000	0.000000	0.005302	0.000000	0.053023	0.004859	0.000000	0.000000

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

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

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
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**

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	1.7944	4.1000e-004	0.0446	0.0000		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004		0.0954	0.0954	2.5000e-004		0.1017
Unmitigated	1.7944	4.1000e-004	0.0446	0.0000		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004		0.0954	0.0954	2.5000e-004		0.1017

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	0.2035					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.5867					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	4.1500e-003	4.1000e-004	0.0446	0.0000		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004		0.0954	0.0954	2.5000e-004		0.1017
Total	**1.7944**	**4.1000e-004**	**0.0446**	**0.0000**		**1.6000e-004**	**1.6000e-004**		**1.6000e-004**	**1.6000e-004**		**0.0954**	**0.0954**	**2.5000e-004**		**0.1017**

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	0.2035					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.5867					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	4.1500e-003	4.1000e-004	0.0446	0.0000		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004		0.0954	0.0954	2.5000e-004		0.1017
Total	**1.7944**	**4.1000e-004**	**0.0446**	**0.0000**		**1.6000e-004**	**1.6000e-004**		**1.6000e-004**	**1.6000e-004**		**0.0954**	**0.0954**	**2.5000e-004**		**0.1017**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

UCR Success Center

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)	436.00	Student	1.84	80,135.70	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2022
Utility Company	Riverside Public Utilities				
CO2 Intensity (lb/MWhr)	1325.65	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - The project development is 60k sf. Number of college students used to derive 80k sf of development.

Construction Phase - Project specific construction duration

Demolition -

Grading -

Vehicle Trips - Trips based on traffic analysis

Energy Use - Project specific energy consumption

Water And Wastewater - Project water consumption

Solid Waste - Project solid waste generation

Construction Off-road Equipment Mitigation - Project mitigation measure

Stationary Sources - Emergency Generators and Fire Pumps -

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	7.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
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	20.00	63.00
tblConstructionPhase	NumDays	2.00	8.00
tblConstructionPhase	NumDays	4.00	13.00
tblConstructionPhase	NumDays	200.00	307.00
tblConstructionPhase	NumDays	10.00	15.00
tblConstructionPhase	NumDays	10.00	17.00
tblEnergyUse	LightingElect	3.99	9.55
tblEnergyUse	NT24E	1.92	4.60
tblEnergyUse	NT24NG	0.01	0.00
tblEnergyUse	T24E	1.97	4.72
tblEnergyUse	T24NG	13.82	0.00
tblFleetMix	HHD	0.07	5.3020e-003
tblFleetMix	LDA	0.55	0.57
tblFleetMix	LDT1	0.04	0.04
tblFleetMix	LDT2	0.19	0.20
tblFleetMix	LHD1	0.02	0.00
tblFleetMix	LHD2	4.9700e-003	0.00

tblFleetMix	MCY	4.5470e-003	4.8590e-003
tblFleetMix	MDV	0.12	0.13
tblFleetMix	MH	9.6500e-004	0.00
tblFleetMix	MHD	0.02	0.00
tblFleetMix	OBUS	1.3970e-003	0.00
tblFleetMix	SBUS	9.3200e-004	0.00
tblFleetMix	UBUS	1.1600e-003	0.05
tblGrading	AcresOfGrading	4.88	6.75
tblGrading	AcresOfGrading	4.00	4.50
tblGrading	MaterialExported	0.00	3,000.00
tblSolidWaste	SolidWasteGenerationRate	79.57	17.30
tblVehicleTrips	ST_TR	1.30	0.06
tblVehicleTrips	WD_TR	1.71	0.08
tblWater	IndoorWaterUseRate	933,519.60	232,000.00
tblWater	OutdoorWaterUseRate	1,460,120.40	357,272.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	2.3745	23.0799	15.5153	0.0267	0.4878	1.2885	1.7763	0.0942	1.2038	1.2981	0.0000	2,623.8727	2,623.8727	0.6124	0.0000	2,639.1829
2020	2.2398	21.9398	15.2227	0.0369	5.9553	1.1544	6.7768	2.9846	1.0780	3.7403	0.0000	3,783.9438	3,783.9438	0.6074	0.0000	3,798.5143
2021	43.9498	14.9309	14.3710	0.0291	0.4633	0.6889	1.1522	0.1248	0.6651	0.7898	0.0000	2,718.4616	2,718.4616	0.4144	0.0000	2,728.2445
Maximum	**43.9498**	**23.0799**	**15.5153**	**0.0369**	**5.9553**	**1.2885**	**6.7768**	**2.9846**	**1.2038**	**3.7403**	**0.0000**	**3,783.9438**	**3,783.9438**	**0.6124**	**0.0000**	**3,798.5143**

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					
2019	0.3606	1.6228	15.3393	0.0267	0.2992	0.0397	0.3389	0.0657	0.0396	0.1053	0.0000	2,623.8727	2,623.8727	0.6124	0.0000	2,639.1829
2020	0.5022	7.6019	15.2839	0.0369	2.5817	0.0453	2.6270	1.1785	0.0443	1.2070	0.0000	3,783.9438	3,783.9438	0.6074	0.0000	3,798.5143
2021	43.7606	5.0069	14.5958	0.0291	0.4633	0.0348	0.4981	0.1248	0.0346	0.1593	0.0000	2,718.4616	2,718.4616	0.4144	0.0000	2,728.2445
Maximum	**43.7606**	**7.6019**	**15.3393**	**0.0369**	**2.5817**	**0.0453**	**2.6270**	**1.1785**	**0.0443**	**1.2070**	**0.0000**	**3,783.9438**	**3,783.9438**	**0.6124**	**0.0000**	**3,798.5143**

UCR Success Center - 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	**8.11**	**76.26**	**-0.24**	**0.00**	**51.58**	**96.17**	**64.31**	**57.27**	**95.98**	**74.75**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.7944	4.1000e-004	0.0446	0.0000		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004		0.0954	0.0954	2.5000e-004		0.1017
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	0.0792	0.2628	1.0236	2.4800e-003	0.2418	2.7600e-003	0.2446	0.0667	2.6000e-003	0.0693		276.4715	276.4715	0.0565		277.8841
Total	**1.8736**	**0.2632**	**1.0682**	**2.4800e-003**	**0.2418**	**2.9200e-003**	**0.2447**	**0.0667**	**2.7600e-003**	**0.0694**		**276.5669**	**276.5669**	**0.0568**	**0.0000**	**277.9858**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.7944	4.1000e-004	0.0446	0.0000		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004		0.0954	0.0954	2.5000e-004		0.1017
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	0.0792	0.2628	1.0236	2.4800e-003	0.2418	2.7600e-003	0.2446	0.0667	2.6000e-003	0.0693		276.4715	276.4715	0.0565		277.8841
Total	**1.8736**	**0.2632**	**1.0682**	**2.4800e-003**	**0.2418**	**2.9200e-003**	**0.2447**	**0.0667**	**2.7600e-003**	**0.0694**		**276.5669**	**276.5669**	**0.0568**	**0.0000**	**277.9858**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	11/1/2019	1/28/2020	5	63	
2	Site Preparation	Site Preparation	1/29/2020	2/7/2020	5	8	
3	Grading	Grading	2/8/2020	2/26/2020	5	13	
4	Building Construction	Building Construction	2/27/2020	5/1/2021	5	307	
5	Paving	Paving	5/2/2021	5/23/2021	5	15	
6	Architectural Coating	Architectural Coating	5/24/2021	6/15/2021	5	17	

Acres of Grading (Site Preparation Phase): 4.5

Acres of Grading (Grading Phase): 6.75

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 120,204; Non-Residential Outdoor: 40,068; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	6.00	187	0.41
Grading	Rubber Tired Dozers	1	6.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Building Construction	Cranes	1	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Paving	Pavers	1	6.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	5	13.00	0.00	89.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	375.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	34.00	13.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	7.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

3.2 Demolition - 2019

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					0.3091	0.0000	0.3091	0.0468	0.0000	0.0468			0.0000			0.0000
Off-Road	2.2950	22.6751	14.8943	0.0241		1.2863	1.2863		1.2017	1.2017		2,360.7198	2,360.7198	0.6011		2,375.7475
Total	**2.2950**	**22.6751**	**14.8943**	**0.0241**	**0.3091**	**1.2863**	**1.5954**	**0.0468**	**1.2017**	**1.2485**		**2,360.7198**	**2,360.7198**	**0.6011**		**2,375.7475**

3.2 Demolition - 2019

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	7.9400e-003	0.3609	0.0434	1.0900e-003	0.0334	1.3000e-003	0.0347	8.9100e-003	1.2500e-003	0.0102		115.2750	115.2750	7.1600e-003		115.4541
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	0.0716	0.0439	0.5775	1.4900e-003	0.1453	9.0000e-004	0.1462	0.0385	8.3000e-004	0.0394		147.8779	147.8779	4.1400e-003		147.9814
Total	**0.0795**	**0.4048**	**0.6209**	**2.5800e-003**	**0.1787**	**2.2000e-003**	**0.1809**	**0.0475**	**2.0800e-003**	**0.0495**		**263.1529**	**263.1529**	**0.0113**		**263.4355**

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					0.1205	0.0000	0.1205	0.0183	0.0000	0.0183			0.0000			0.0000
Off-Road	0.2811	1.2179	14.7184	0.0241		0.0375	0.0375		0.0375	0.0375	0.0000	2,360.7197	2,360.7197	0.6011		2,375.7475
Total	**0.2811**	**1.2179**	**14.7184**	**0.0241**	**0.1205**	**0.0375**	**0.1580**	**0.0183**	**0.0375**	**0.0557**	**0.0000**	**2,360.7197**	**2,360.7197**	**0.6011**		**2,375.7475**

3.2 Demolition - 2019

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	7.9400e-003	0.3609	0.0434	1.0900e-003	0.0334	1.3000e-003	0.0347	8.9100e-003	1.2500e-003	0.0102		115.2750	115.2750	7.1600e-003		115.4541
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	0.0716	0.0439	0.5775	1.4900e-003	0.1453	9.0000e-004	0.1462	0.0385	8.3000e-004	0.0394		147.8779	147.8779	4.1400e-003		147.9814
Total	**0.0795**	**0.4048**	**0.6209**	**2.5800e-003**	**0.1787**	**2.2000e-003**	**0.1809**	**0.0475**	**2.0800e-003**	**0.0495**		**263.1529**	**263.1529**	**0.0113**		**263.4355**

3.2 Demolition - 2020

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					0.3091	0.0000	0.3091	0.0468	0.0000	0.0468			0.0000			0.0000
Off-Road	2.1262	20.9463	14.6573	0.0241		1.1525	1.1525		1.0761	1.0761		2,322.3127	2,322.3127	0.5970		2,337.2363
Total	**2.1262**	**20.9463**	**14.6573**	**0.0241**	**0.3091**	**1.1525**	**1.4615**	**0.0468**	**1.0761**	**1.1229**		**2,322.3127**	**2,322.3127**	**0.5970**		**2,337.2363**

3.2 Demolition - 2020

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	7.2700e-003	0.3345	0.0413	1.0800e-003	0.0649	1.0700e-003	0.0659	0.0166	1.0200e-003	0.0177		114.1132	114.1132	6.8000e-003		114.2832
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	0.0662	0.0391	0.5242	1.4400e-003	0.1453	8.8000e-004	0.1462	0.0385	8.1000e-004	0.0394		143.2073	143.2073	3.6700e-003		143.2991
Total	**0.0734**	**0.3736**	**0.5655**	**2.5200e-003**	**0.2102**	**1.9500e-003**	**0.2121**	**0.0552**	**1.8300e-003**	**0.0570**		**257.3204**	**257.3204**	**0.0105**		**257.5822**

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					0.1205	0.0000	0.1205	0.0183	0.0000	0.0183			0.0000			0.0000
Off-Road	0.2811	1.2179	14.7184	0.0241		0.0375	0.0375		0.0375	0.0375	0.0000	2,322.3127	2,322.3127	0.5970		2,337.2363
Total	**0.2811**	**1.2179**	**14.7184**	**0.0241**	**0.1205**	**0.0375**	**0.1580**	**0.0183**	**0.0375**	**0.0557**	**0.0000**	**2,322.3127**	**2,322.3127**	**0.5970**		**2,337.2363**

3.2 Demolition - 2020

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	7.2700e-003	0.3345	0.0413	1.0800e-003	0.0649	1.0700e-003	0.0659	0.0166	1.0200e-003	0.0177		114.1132	114.1132	6.8000e-003		114.2832
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	0.0662	0.0391	0.5242	1.4400e-003	0.1453	8.8000e-004	0.1462	0.0385	8.1000e-004	0.0394		143.2073	143.2073	3.6700e-003		143.2991
Total	**0.0734**	**0.3736**	**0.5655**	**2.5200e-003**	**0.2102**	**1.9500e-003**	**0.2121**	**0.0552**	**1.8300e-003**	**0.0570**		**257.3204**	**257.3204**	**0.0105**		**257.5822**

3.3 Site Preparation - 2020

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					5.8659	0.0000	5.8659	2.9609	0.0000	2.9609			0.0000			0.0000
Off-Road	1.6299	18.3464	7.7093	0.0172		0.8210	0.8210		0.7553	0.7553		1,667.4119	1,667.4119	0.5393		1,680.8937
Total	**1.6299**	**18.3464**	**7.7093**	**0.0172**	**5.8659**	**0.8210**	**6.6868**	**2.9609**	**0.7553**	**3.7161**		**1,667.4119**	**1,667.4119**	**0.5393**		**1,680.8937**

3.3 Site Preparation - 2020

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	0.0407	0.0241	0.3226	8.8000e-004	0.0894	5.4000e-004	0.0900	0.0237	5.0000e-004	0.0242		88.1276	88.1276	2.2600e-003		88.1840
Total	**0.0407**	**0.0241**	**0.3226**	**8.8000e-004**	**0.0894**	**5.4000e-004**	**0.0900**	**0.0237**	**5.0000e-004**	**0.0242**		**88.1276**	**88.1276**	**2.2600e-003**		**88.1840**

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					2.2877	0.0000	2.2877	1.1547	0.0000	1.1547			0.0000			0.0000
Off-Road	0.2106	0.9126	8.6714	0.0172		0.0281	0.0281		0.0281	0.0281	0.0000	1,667.4119	1,667.4119	0.5393		1,680.8937
Total	**0.2106**	**0.9126**	**8.6714**	**0.0172**	**2.2877**	**0.0281**	**2.3158**	**1.1547**	**0.0281**	**1.1828**	**0.0000**	**1,667.4119**	**1,667.4119**	**0.5393**		**1,680.8937**

3.3 Site Preparation - 2020

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	0.0407	0.0241	0.3226	8.8000e-004	0.0894	5.4000e-004	0.0900	0.0237	5.0000e-004	0.0242		88.1276	88.1276	2.2600e-003		88.1840
Total	**0.0407**	**0.0241**	**0.3226**	**8.8000e-004**	**0.0894**	**5.4000e-004**	**0.0900**	**0.0237**	**5.0000e-004**	**0.0242**		**88.1276**	**88.1276**	**2.2600e-003**		**88.1840**

3.4 Grading - 2020

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					5.0964	0.0000	5.0964	2.5466	0.0000	2.5466			0.0000			0.0000
Off-Road	1.3498	15.0854	6.4543	0.0141		0.6844	0.6844		0.6296	0.6296		1,365.7183	1,365.7183	0.4417		1,376.7609
Total	**1.3498**	**15.0854**	**6.4543**	**0.0141**	**5.0964**	**0.6844**	**5.7808**	**2.5466**	**0.6296**	**3.1762**		**1,365.7183**	**1,365.7183**	**0.4417**		**1,376.7609**

3.4 Grading - 2020

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	0.1484	6.8304	0.8428	0.0220	0.5046	0.0218	0.5264	0.1383	0.0208	0.1592		2,330.0979	2,330.0979	0.1389		2,333.5694
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	0.0407	0.0241	0.3226	8.8000e-004	0.0894	5.4000e-004	0.0900	0.0237	5.0000e-004	0.0242		88.1276	88.1276	2.2600e-003		88.1840
Total	**0.1891**	**6.8544**	**1.1653**	**0.0228**	**0.5941**	**0.0223**	**0.6164**	**0.1620**	**0.0213**	**0.1834**		**2,418.2255**	**2,418.2255**	**0.1411**		**2,421.7534**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.9876	0.0000	1.9876	0.9932	0.0000	0.9932			0.0000			0.0000
Off-Road	0.1725	0.7475	7.1557	0.0141		0.0230	0.0230		0.0230	0.0230	0.0000	1,365.7183	1,365.7183	0.4417		1,376.7609
Total	**0.1725**	**0.7475**	**7.1557**	**0.0141**	**1.9876**	**0.0230**	**2.0106**	**0.9932**	**0.0230**	**1.0162**	**0.0000**	**1,365.7183**	**1,365.7183**	**0.4417**		**1,376.7609**

3.4 Grading - 2020

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	0.1484	6.8304	0.8428	0.0220	0.5046	0.0218	0.5264	0.1383	0.0208	0.1592		2,330.0979	2,330.0979	0.1389		2,333.5694
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	0.0407	0.0241	0.3226	8.8000e-004	0.0894	5.4000e-004	0.0900	0.0237	5.0000e-004	0.0242		88.1276	88.1276	2.2600e-003		88.1840
Total	**0.1891**	**6.8544**	**1.1653**	**0.0228**	**0.5941**	**0.0223**	**0.6164**	**0.1620**	**0.0213**	**0.1834**		**2,418.2255**	**2,418.2255**	**0.1411**		**2,421.7534**

3.5 Building Construction - 2020

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	2.0305	14.7882	13.1881	0.0220		0.7960	0.7960		0.7688	0.7688		2,001.1595	2,001.1595	0.3715		2,010.4467
Total	**2.0305**	**14.7882**	**13.1881**	**0.0220**		**0.7960**	**0.7960**		**0.7688**	**0.7688**		**2,001.1595**	**2,001.1595**	**0.3715**		**2,010.4467**

3.5 Building Construction - 2020

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	0.0362	1.3376	0.2447	3.4000e-003	0.0833	7.6100e-003	0.0909	0.0240	7.2800e-003	0.0313		358.0082	358.0082	0.0269		358.6795
Worker	0.1730	0.1023	1.3709	3.7600e-003	0.3800	2.3000e-003	0.3823	0.1008	2.1200e-003	0.1029		374.5421	374.5421	9.6000e-003		374.7822
Total	**0.2093**	**1.4399**	**1.6156**	**7.1600e-003**	**0.4633**	**9.9100e-003**	**0.4732**	**0.1248**	**9.4000e-003**	**0.1342**		**732.5503**	**732.5503**	**0.0365**		**733.4617**

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	0.2930	3.7120	13.1241	0.0220		0.0303	0.0303		0.0303	0.0303	0.0000	2,001.1595	2,001.1595	0.3715		2,010.4467
Total	**0.2930**	**3.7120**	**13.1241**	**0.0220**		**0.0303**	**0.0303**		**0.0303**	**0.0303**	**0.0000**	**2,001.1595**	**2,001.1595**	**0.3715**		**2,010.4467**

3.5 Building Construction - 2020

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	0.0362	1.3376	0.2447	3.4000e-003	0.0833	7.6100e-003	0.0909	0.0240	7.2800e-003	0.0313		358.0082	358.0082	0.0269		358.6795
Worker	0.1730	0.1023	1.3709	3.7600e-003	0.3800	2.3000e-003	0.3823	0.1008	2.1200e-003	0.1029		374.5421	374.5421	9.6000e-003		374.7822
Total	**0.2093**	**1.4399**	**1.6156**	**7.1600e-003**	**0.4633**	**9.9100e-003**	**0.4732**	**0.1248**	**9.4000e-003**	**0.1342**		**732.5503**	**732.5503**	**0.0365**		**733.4617**

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	1.8125	13.6361	12.8994	0.0221		0.6843	0.6843		0.6608	0.6608		2,001.2200	2,001.2200	0.3573		2,010.1517
Total	**1.8125**	**13.6361**	**12.8994**	**0.0221**		**0.6843**	**0.6843**		**0.6608**	**0.6608**		**2,001.2200**	**2,001.2200**	**0.3573**		**2,010.1517**

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	0.0304	1.2030	0.2146	3.3700e-003	0.0832	2.2900e-003	0.0855	0.0240	2.1900e-003	0.0262		355.2263	355.2263	0.0254		355.8617
Worker	0.1612	0.0918	1.2570	3.6300e-003	0.3800	2.2400e-003	0.3823	0.1008	2.0600e-003	0.1029		362.0153	362.0153	8.6300e-003		362.2311
Total	**0.1915**	**1.2948**	**1.4717**	**7.0000e-003**	**0.4633**	**4.5300e-003**	**0.4678**	**0.1248**	**4.2500e-003**	**0.1290**		**717.2416**	**717.2416**	**0.0340**		**718.0928**

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	0.2930	3.7120	13.1241	0.0221		0.0303	0.0303		0.0303	0.0303	0.0000	2,001.2200	2,001.2200	0.3573		2,010.1517
Total	**0.2930**	**3.7120**	**13.1241**	**0.0221**		**0.0303**	**0.0303**		**0.0303**	**0.0303**	**0.0000**	**2,001.2200**	**2,001.2200**	**0.3573**		**2,010.1517**

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	0.0304	1.2030	0.2146	3.3700e-003	0.0832	2.2900e-003	0.0855	0.0240	2.1900e-003	0.0262		355.2263	355.2263	0.0254		355.8617
Worker	0.1612	0.0918	1.2570	3.6300e-003	0.3800	2.2400e-003	0.3823	0.1008	2.0600e-003	0.1029		362.0153	362.0153	8.6300e-003		362.2311
Total	**0.1915**	**1.2948**	**1.4717**	**7.0000e-003**	**0.4633**	**4.5300e-003**	**0.4678**	**0.1248**	**4.2500e-003**	**0.1290**		**717.2416**	**717.2416**	**0.0340**		**718.0928**

3.6 Paving - 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	0.7739	7.7422	8.8569	0.0135		0.4153	0.4153		0.3830	0.3830		1,296.8664	1,296.8664	0.4111		1,307.1442
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.7739**	**7.7422**	**8.8569**	**0.0135**		**0.4153**	**0.4153**		**0.3830**	**0.3830**		**1,296.8664**	**1,296.8664**	**0.4111**		**1,307.1442**

3.6 Paving - 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	0.0616	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	**0.0616**	**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**

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	0.2038	0.9684	10.0824	0.0135		0.0320	0.0320		0.0320	0.0320	0.0000	1,296.8664	1,296.8664	0.4111		1,307.1442
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.2038**	**0.9684**	**10.0824**	**0.0135**		**0.0320**	**0.0320**		**0.0320**	**0.0320**	**0.0000**	**1,296.8664**	**1,296.8664**	**0.4111**		**1,307.1442**

3.6 Paving - 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	0.0616	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	**0.0616**	**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**

3.7 Architectural Coating - 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					
Archit. Coating	43.6977					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**43.9166**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

3.7 Architectural Coating - 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	0.0332	0.0189	0.2588	7.5000e-004	0.0782	4.6000e-004	0.0787	0.0208	4.2000e-004	0.0212		74.5326	74.5326	1.7800e-003		74.5770
Total	**0.0332**	**0.0189**	**0.2588**	**7.5000e-004**	**0.0782**	**4.6000e-004**	**0.0787**	**0.0208**	**4.2000e-004**	**0.0212**		**74.5326**	**74.5326**	**1.7800e-003**		**74.5770**

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	43.6977					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0297	0.1288	1.8324	2.9700e-003		3.9600e-003	3.9600e-003		3.9600e-003	3.9600e-003	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**43.7274**	**0.1288**	**1.8324**	**2.9700e-003**		**3.9600e-003**	**3.9600e-003**		**3.9600e-003**	**3.9600e-003**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

3.7 Architectural Coating - 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	0.0332	0.0189	0.2588	7.5000e-004	0.0782	4.6000e-004	0.0787	0.0208	4.2000e-004	0.0212		74.5326	74.5326	1.7800e-003		74.5770
Total	**0.0332**	**0.0189**	**0.2588**	**7.5000e-004**	**0.0782**	**4.6000e-004**	**0.0787**	**0.0208**	**4.2000e-004**	**0.0212**		**74.5326**	**74.5326**	**1.7800e-003**		**74.5770**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0792	0.2628	1.0236	2.4800e-003	0.2418	2.7600e-003	0.2446	0.0667	2.6000e-003	0.0693		276.4715	276.4715	0.0565		277.8841
Unmitigated	0.0792	0.2628	1.0236	2.4800e-003	0.2418	2.7600e-003	0.2446	0.0667	2.6000e-003	0.0693		276.4715	276.4715	0.0565		277.8841

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
University/College (4Yr)	36.01	27.38	0.00	89,022	89,022
Total	36.01	27.38	0.00	89,022	89,022

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
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)	0.574895	0.039850	0.196401	0.125668	0.000000	0.000000	0.000000	0.005302	0.000000	0.053023	0.004859	0.000000	0.000000

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

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

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
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**

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	1.7944	4.1000e-004	0.0446	0.0000		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004		0.0954	0.0954	2.5000e-004		0.1017
Unmitigated	1.7944	4.1000e-004	0.0446	0.0000		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004		0.0954	0.0954	2.5000e-004		0.1017

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	0.2035					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.5867					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	4.1500e-003	4.1000e-004	0.0446	0.0000		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004		0.0954	0.0954	2.5000e-004		0.1017
Total	**1.7944**	**4.1000e-004**	**0.0446**	**0.0000**		**1.6000e-004**	**1.6000e-004**		**1.6000e-004**	**1.6000e-004**		**0.0954**	**0.0954**	**2.5000e-004**		**0.1017**

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	0.2035					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.5867					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	4.1500e-003	4.1000e-004	0.0446	0.0000		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004		0.0954	0.0954	2.5000e-004		0.1017
Total	**1.7944**	**4.1000e-004**	**0.0446**	**0.0000**		**1.6000e-004**	**1.6000e-004**		**1.6000e-004**	**1.6000e-004**		**0.0954**	**0.0954**	**2.5000e-004**		**0.1017**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Vehicle Fuels

Construction Phase (gallons/construction period	**Gasoline**	**Diesel**
Construction Vehicles	0	25,464
Worker Trips	7,707	11
Vendor Trips	1,665	21
Haul Trucks	18	1,552
Total	9,389	27,048

Operations Phase (gallons/year)		**Gasoline**	**Diesel**	**Natural Gas (kBTU/yr)**	**Electricity (kWh/yr)**
University/College (4Yr)		3,689	723	0	1,512,160
	0	0	0	0	0
All Land Uses		3,689	723	0	1,512,160

Gallons of Gasoline and Diesel

Year 2022

Vehicle Types	MPG by Fuel Type			Population by Fuel Type			
	GAS	DSL	ELEC	GAS	DSL	ELEC	Total
LDA	29.3	39.2		6,198,636	64,644	243,245	6,263,280
LDT1	24.6	27.7		520,172	589	358	520,762
LDT2	22.1	29.7		2,226,122	4,193		2,230,316
LHDT1	11.0	20.7		107,267	94,158		201,425
LHDT2	10.3	19.0		23,469	40,689		64,158
MCY	35.1			300,069			300,069
MDV	16.2	23.0		1,431,409	25,953		1,457,362
MH	7.4	10.3		35,133	9,390		44,523
MHDT	7.1	8.8		19,165	137,999		157,165
HHDT	4.8	5.9		818	89,347		90,166
OBUS	7.2	7.4		8,680	5,632		14,312
SBUS	11.4	7.3		2,435	5,181		7,616
UBUS	5.0	4.9		2,394	4,228		6,622

Trips/Day Land Use	Trips/day Weekday	Trips/day Saturday	Trips/day Sunday	Weekly Total
University	36	27	0	63
Total	**36**	**27**	**0**	**63**

Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH	Total
University/Colleqe (4Yr)	0.574895	0.03985	0.196401	0.125668	0	0	0	0.005302	0	0.053023	0.004859	0	0	100.0%
														0.0%
														0.0%
														0.0%
														0.0%

Vehicle Trips

Weekday Trips	LDA	LDT1	LDT2	MDV	LHDT1	LHDT2	MHDT	HHDT	Obus	Ubus	MCY	Sbus	MH	Total	Daily VMT	Weekday Annual VMT
University	21	1	7	5	0	0	0	0	0	2	0	0	0	36	244.57	63,587
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0
0	0	0	0	0	0	0	0	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	**21**	**1**	**7**	**5**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**36**		**63,587**

Saturday Trips	LDA	LDT1	LDT2	MDV	LHDT1	LHDT2	MHDT	HHDT	Obus	Ubus	MCY	Sbus	MH	Total	Daily VMT	Saturday Annual VMT
University/Colleqe (4Yr)	16	1	5	3	0	0	0	0	0	1	0	0	0	27	245	12,717
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0
0	0	0	0	0	0	0	0	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	**16**	**1**	**5**	**3**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**27**		**12,717**

Sunday Trips	LDA	LDT1	LDT2	MDV	LHDT1	LHDT2	MHDT	HHDT	Obus	Ubus	MCY	Sbus	MH	Total	Daily VMT	Sunday Annual VMT
University/Colleqe (4Yr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	245	12,717
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0
0	0	0	0	0	0	0	0	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**		**12,717**

Gallons of Fuel

Gasoline	LDA	LDT1	LDT2	MDV	LHDT1	LHDT2	MHDT	HHD	Obus	Ubus	MCY	Sbus	MH	Total	
University/Colleqe (4Yr)	1,729	144	789	676	0	0	0	1	0	338	12	0	0	3,689	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1,729	**144**	**789**	**676**	**0**	**0**	**0**	**1**	**0**	**338**	**12**	**0**	**0**	**3,689**	**Total Gallons Gasoline**

Diesel	LDA	LDT1	LDT2	MDV	OBUS	LHDT2	MHDT	HHD	Obus	Ubus	MCY	Sbus	MH	Total	
University/Colleqe (4Yr)	13	0	1	9	0	0	0	79	0	621	0	0	0	723	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	13	**0**	**1**	**9**	**0**	**0**	**0**	**79**	**0**	**621**	**0**	**0**	**0**	**723**	**Total Gallons Diesel**

4,412 **Total Gallons of Diesel and Gasoline**

20 **Average MPG**

Utilities

Land Use	NaturalGas Use kBTU/yr	Electricity Use kWh/yr
University	0	1,512,160
Total	**0**	**1,512,160**

Fuel Use

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Horsepower Category	Load Factor	Num Days	Year	Fuel Consumption Rate (gal/hour)	Total Fuel Consumption (gal/construction period)
Demolition	Concrete/Industrial Saws	1	8	81	100	0.73	63	2019	4.7	1,734
Demolition	Rubber Tired Dozers	1	8	247	300	0.4	63	2019	4.5	899
Demolition	Tractors/Loaders/Backhoes	3	8	97	100	0.37	63	2019	1.6	889
Site Preparation	Graders	1	8	187	175	0.41	8	2019	3.1	83
Site Preparation	Rubber Tired Dozers	1	7	247	300	0.4	8	2019	4.5	100
Site Preparation	Tractors/Loaders/Backhoes	1	8	97	100	0.37	8	2019	1.6	38
Grading	Graders	1	6	187	175	0.41	13	2019	3.1	101
Grading	Rubber Tired Dozers	1	6	247	300	0.4	13	2019	4.5	139
Grading	Tractors/Loaders/Backhoes	1	7	97	100	0.37	13	2019	1.6	54
Building Construction	Cranes	1	6	231	300	0.29	307	2019	3.3	1,763
Building Construction	Forklifts	1	6	89	100	0.2	307	2019	2.0	737
Building Construction	Generator Sets	1	8	84	100	0.74	307	2019	5.2	9,485
Building Construction	Tractors/Loaders/Backhoes	1	6	97	100	0.37	307	2019	1.6	1,083
Building Construction	Welders	3	8	46	50	0.45	307	2019	2.4	8,001
Paving	Cement and Mortar Mixers	1	6	9	25	0.56	15	2019	0.4	20
Paving	Pavers	1	6	130	100	0.42	15	2019	1.7	66
Paving	Paving Equipment	1	8	132	100	0.36	15	2019	1.6	71
Paving	Rollers	1	7	80	100	0.38	15	2019	1.7	68
Paving	Tractors/Loaders/Backhoes	1	8	97	100	0.37	15	2019	1.6	71
Architectural Coating	Air Compressors	1	6	78	100	0.48	17	2019	1.3	65
									Total	**25,464**

Input							**Gasoline Consumption**			**Diesel Consumption**		
Phase Name	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker	Vendor	Haul	Worker	Vendor	Haul
Demolition	13	0	89	14.7	6.9	20						
Site Preparation	8	0	0	14.7	6.9	20						
Grading	8	0	375	14.7	6.9	20						
Building Construction	34	13	0	14.7	6.9	20						
Paving	13	0	0	14.7	6.9	20						
Architectural Coating	7	0	0	14.7	6.9	20						
Adjusted												
Demolition	819	0	89	14.7	6.9	20	543	0	3	1	0	298
Site Preparation	64	0	0	14.7	6.9	20	42	0	0	0	0	0
Grading	104	0	375	14.7	6.9	20	69	0	14	0	0	1,254
Building Construction	10438	3991	0	14.7	6.9	20	6,923	1,665	0	10	21	0
Paving	195	0	0	14.7	6.9	20	129	0	0	0	0	0
Total							**7,707**	**1,665**	**18**	**11**	**21**	**1,552**

APPENDIX B

TREE INVENTORY REPORT

Tree Inventory Report

University of California, Riverside
Student Success Center Project

Prepared for

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May 9, 2018

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EXHIBITS

Exhibit		Follows Page
1	Project Locations	1
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ATTACHMENTS

Attachment	
A	Tree Survey Data
B	Site Photographs

1.0 INTRODUCTION

The purpose of this report is to present the findings of a tree inventory for the Student Success Center project site within the University of California, Riverside (UCR) campus.

The study area for this report consists of the proposed Student Success Center project site, potential outdoor extension areas, and construction areas. In addition, areas adjacent to the study area were included to account for future modifications to the project footprint and to identify trees that might be affected indirectly by project implementation. The project site is located south of the Chass Interdisciplinary South building and west of the Student Services building (Exhibit 1). The study area has no existing native vegetation types and consists of turf grass, landscaped, and developed (hardscape) areas.

Psomas undertook this study to evaluate existing trees in the study area. This Tree Inventory Report will be used to inform project design and to support preparation of environmental documentation pursuant to the California Environmental Quality Act (CEQA). However, no site-specific development plans or physical impact limits have been provided.

2.0 METHODOLOGY

Field surveys in support of this tree report were performed on April 6, 2018, by Psomas Certified Arborist David Hughes (International Society of Arboriculture [ISA] Certificate No. WE-7752A). There are no specific regulations that govern tree removal on campus; UCR removes trees on campus at its own discretion. Campus Programs and Practices (PP) 4.1-2(b) included in the UCR 2005 Long-Range Development Plan (LRDP) Environmental Impact Report (EIR) (State Clearinghouse [SCH] No. 2005041164) requires that the campus continue to relocate, where feasible, mature “specimen” trees that would be removed as a result of construction activities on the campus. Mature trees are considered trees with a trunk diameter at breast height (dbh) of 12-inches or greater. However, to provide a comprehensive evaluation of trees located in the study area, this study includes trees with a trunk dbh of 4-inches or greater.

During the survey, each tree was assigned an individual number and the following data were collected: dbh, tree height, and canopy width. Qualitative ratings for each tree’s overall health and aesthetic quality were also given. The collected data are included in Attachment A and described in more detail below.

2.1 MAPPING

Each tree that was surveyed was mapped on a geo-referenced 1”=50’ aerial photograph. These locations were subsequently digitized into Geographic Information System (GIS) file format.

2.2 DIAMETER

Using a diameter tape, trunk diameters were measured at a height of 4.5 feet above mean natural grade; multiple trunks were measured separately. For multi-trunk trees, the diameter of the largest two trunks was combined to determine the total diameter of each tree. In addition, the total number of trunks was recorded.

2.3 HEIGHT AND CANOPY

The height of each tree was estimated from mean natural grade to the highest branch. Also, the diameter of each tree’s canopy was estimated at its widest point.

Aerial Source: UCR 2015; ESRI 2016

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Project Location

Exhibit 1

Student Center Success Project Site, University of California, Riverside

N
W E
S

1,500 750 0 1,500

Feet

PSOMAS

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2.4 AESTHETICS

Each tree assessed was inspected and compared to an archetype tree (considered excellent on all points mentioned below) of the same species. Tree aesthetics were evaluated with respect to overall form and symmetry, crown balance, branching pattern, and broken branches.

The trees were rated on a scale of 1 to 5, as follows:

1: Very Poor

2: Poor

3: Fair

4: Good

5: Excellent

2.5 HEALTH

The health of each tree was assessed based on a visual examination from the ground. Tree health was evaluated based on evidence of vigor, such as the amount of foliage; leaf color and size; presence of branch or twig dieback; severity of insect infestation; the presence of disease; heart rot; fire damage; mechanical damage; amount of new growth; appearance of bark; and rate of callous development over wounds. The tree's structural integrity was also evaluated with respect to branch attachment, branch placement, root health, and stability. In addition, the health assessment considered such elements as the presence of decay, weak branch attachments, and the presence of exposed roots due to soil erosion.

The trees were rated on the 1 to 5 scale, noted above.

3.0 RESULTS

A total of 94 trees are included in the tree inventory, 22 of which meet the criteria to be considered mature trees (trunk dbh of 12-inches or greater). The locations of all the trees included in this tree survey are provided in Exhibit 2, while Exhibit 3 shows the locations of only the mature trees included in the inventory. In all, 65 trees were mapped inside the project study area limits, though only 12 of these trees are considered mature (i.e., greater than 12 inches dbh). Mature trees that occur in the project study area include one strawberry tree (*Arbutus unedo*), five western sycamores (*Platanus racemosa*), four holly oaks (*Quercus ilex*), and two southern live oaks (*Quercus virginiana*). Table 1 lists all the tree species encountered during the tree survey. A detailed summary of all collected tree data is provided in Attachment A.

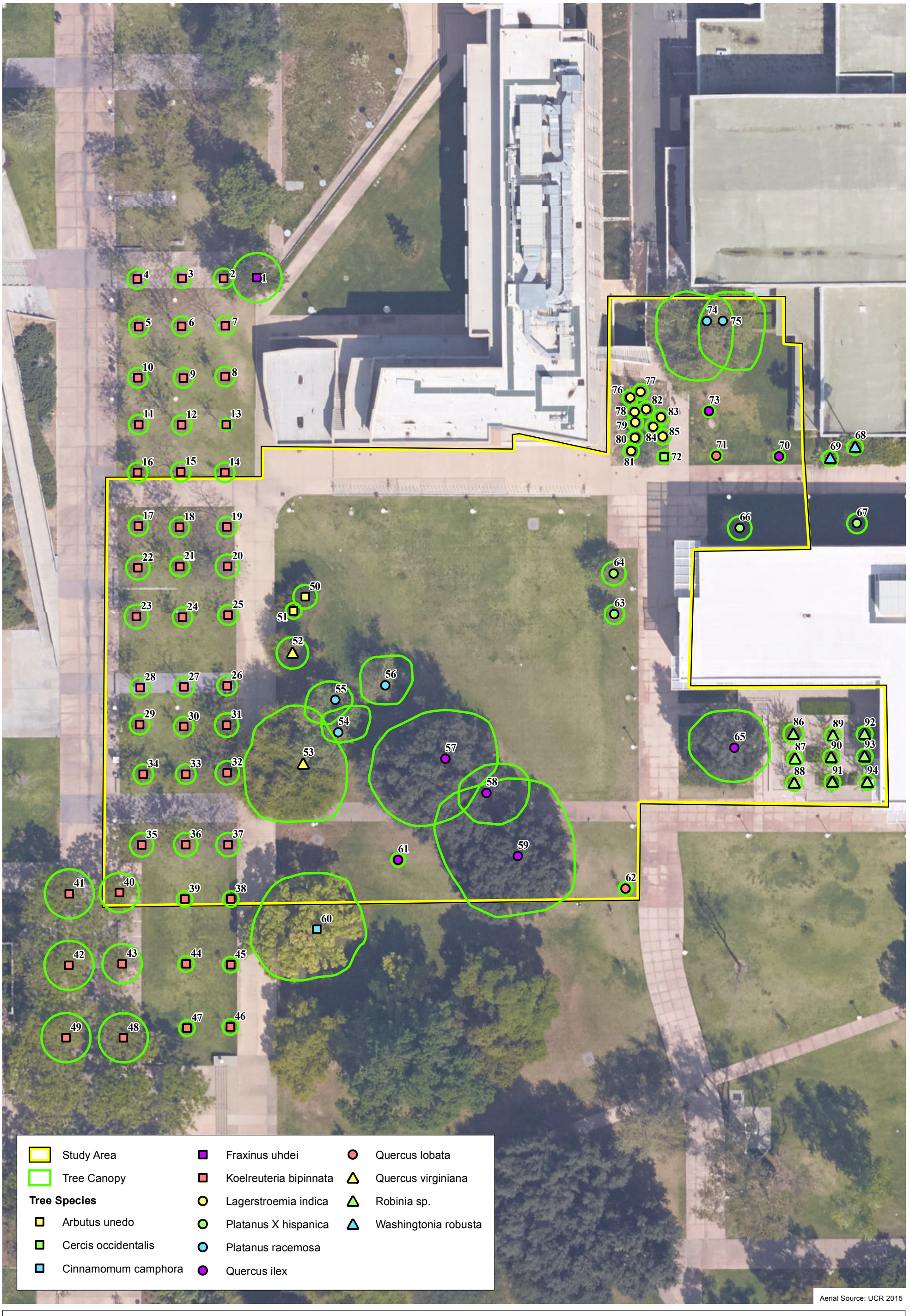
TABLE 1
SUMMARY OF TREE SURVEY RESULTS

Species		Total	Native	Non-Native	Mature Trees	
Common Name	Scientific Name				Within Project Study Area	Outside Project Study Area
strawberry tree	*Arbutus unedo*	2		X	1	
western redbud	*Cercis occidentalis*	1	X			
camphor	*Cinnamomum camphora*	1		X		1
shamel ash	*Fraxinus uhdei*	1		X		1
Chinese flame tree	*Koelreuteria bipinnata*	48		X		6
crape myrtle	*Lagerstroemia indica*	10		X		
western sycamore	*Platanus racemosa*	5	X		5	
London plane	*Platanus X hispanica*	4		X		
holly oak	*Quercus ilex*	7		X	4	
valley oak	*Quercus lobata*	2	X			
southern live oak	*Quercus virginiana*	2		X	2	
locust	*Robinia sp.*	9		X		
Mexican fan palm	*Washingtonia robusta*	2		X		2
Total		**96**	**8**	**88**	**12**	**10**

The tree resources in the study area and the immediate vicinity range from very old mature trees to newly planted trees that appear to have been installed within the last two years. Site photographs are included in Attachment B that provide an overview of site conditions and also show several of the more impressive and conspicuous trees on the site. Noteworthy trees on the project site are discussed below.

Tree 53 is a large southern live oak located in the southwestern portion of the study area and is the largest tree on the site. It overhangs the adjacent walkways and is a particularly impressive and conspicuous tree. Project development should consider avoidance of this tree, if feasible.

Tree 60 is a camphor tree (*Cinnamomum camphora*) that sits outside the project study area but the tree canopy overhangs the project study area. While this tree is outside the project study area, project development has the potential to damage this tree's root zone. This tree sits prominently in the grassy field south of the project study area and is another impressively large tree. Project design should consider avoidance or minimization of impacts to this tree, if feasible.



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Tree Locations

Exhibit 2

Student Center Success Project Site, University of California, Riverside

N
W E
S

45 22.5 0 45 Feet

PSOMAS

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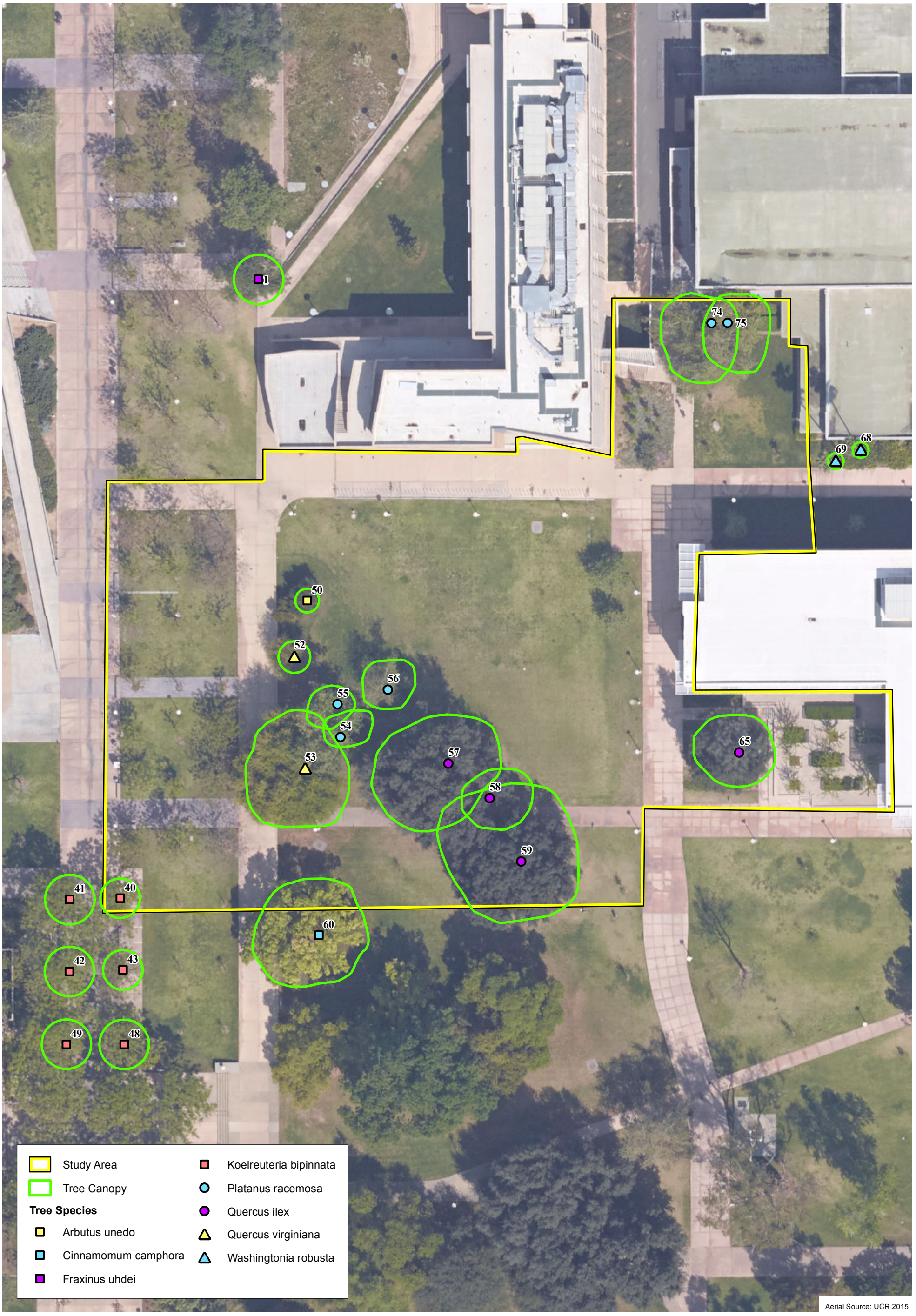

Mature Tree Locations

Exhibit 3

Student Center Success Project Site, University of California, Riverside

N W E S

45 22.5 0 45 Feet

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Trees 57, 58, 59, and 65 are large holly oaks in the southern and southeastern portion of the study area. These are also impressive tree specimens that shade the walkway in the southern portion of the study area. It should be noted that tree 65 has a plaque that dedicates this tree to H. Dean Boen, a physical plant administrator.

The most common tree species in the inventory is Chinese flame tree (*Koelreuteria bipinnata*) that occurs along the western edge of the study area as a uniformly planted stand of trees. Most of these trees are too small to be mature trees, though there are six mature Chinese flame trees near the southwestern corner of the study area. Though most of these trees are small they should be viewed as an assemblage of trees.

There are five western sycamores in the study area. Three are located in the middle of the study area and are in fair health. One of these trees appears to have had some dead branches pruned back. Two larger western sycamores occur in the northeastern corner of the site, on the southern edge of the Athletics and Dance building. These are large trees, but not particularly conspicuous.

Generally, transplantation of the trees in the study area is not recommended as tree relocation is costly with a likelihood of eventual mortality. However, due to their size and landscape position (flat ground, without significant buildings or sidewalks nearby) several trees are potential relocation candidates. Such trees would include the various small Chinese flame trees along the western boundary of the study area (Trees 14 through 39), London plane trees (*Platanus X hispanica*, Trees 63, 64, and 66), and newly planted valley oaks (*Quercus lobata*) and holly oaks (Trees 61, 62, 70, 71, and 73). Tree transplantation will be evaluated on a case-by-case basis to comply with the objective of PP 4.1-2(b) to preserve larger trees. Any trees deemed to be of intrinsic value to the campus can be taken into account prior to construction activities and protected or avoided accordingly.

4.0 RECOMMENDED TREE AVOIDANCE AND MINIMIZATION MEASURES DURING CONSTRUCTION

Future construction activities may have unintended and/or indirect negative effects on trees. For trees that are designated to remain on the site, the following measures are recommended to prevent or minimize damage to them during construction:

1. Brightly colored construction fencing should be placed along or outside the dripline (i.e., outer canopy edge) of any trees to be preserved during construction activities.
2. No stockpiling of materials, vehicle operation, or other soil-disturbing activities shall occur within the driplines of trees that are to be preserved during construction.
3. Changes to the grade or drainage patterns in the areas surrounding the dripline of a protected tree not designated for removal is recommended so that excess water does not drain to these trees.
4. A Certified Arborist should be retained to ensure compliance with any tree protection measures set forth and to work with construction personnel to minimize impacts to trees that are to be preserved during construction.

5.0 REFERENCES

University of California, Riverside (UCR). 2005 (November). *University of California, Riverside 2005 Long Range Development Plan Final Environmental Impact Report* (prepared by EIP Associates). Riverside, CA: UCR. http://lrdp.ucr.edu/UCR%20LRDP%20Volume%20I%20Draft%20EIR.pdf.

ATTACHMENT A

TREE SURVEY DATA

TABLE A
TREE SURVEY DATA
UC RIVERSIDE STUDENT SUCCESS CENTER PROJECT

Tree Tag No.	Common Name	Scientific Name	No. Main Trunks	dbh (in)			Height (ft)	Canopy Diameter (ft)	Health Rating	Aesthetic Rating	Native Tree	Mature Tree	Inside Project Study Area
				1st Trunk	2nd Trunk	Total							
1	shamel ash	*Fraxinus uhdei*	1	23.9		23.9	30	25	4	4		X	
2	Chinese flame tree	*Koelreuteria bipinnata*	1	5.1		5.1	15	10	3	3			
3	Chinese flame tree	*Koelreuteria bipinnata*	1	9.5		9.5	20	10	3	3			
4	Chinese flame tree	*Koelreuteria bipinnata*	1	8.9		8.9	20	10	3	3			
5	Chinese flame tree	*Koelreuteria bipinnata*	1	7.1		7.1	20	10	3	3			
6	Chinese flame tree	*Koelreuteria bipinnata*	1	8.0		8.0	20	10	3	3			
7	Chinese flame tree	*Koelreuteria bipinnata*	1	9.2		9.2	20	10	3	3			
8	Chinese flame tree	*Koelreuteria bipinnata*	1	6.3		6.3	15	10	3	3			
9	Chinese flame tree	*Koelreuteria bipinnata*	1	7.9		7.9	20	10	3	3			
10	Chinese flame tree	*Koelreuteria bipinnata*	1	7.5		7.5	20	10	3	3			
11	Chinese flame tree	*Koelreuteria bipinnata*	1	9.3		9.3	20	10	3	3			
12	Chinese flame tree	*Koelreuteria bipinnata*	1	9.9		9.9	25	10	3	3			
13	Chinese flame tree	*Koelreuteria bipinnata*	1	5.6		5.6	20	6	3	3			
14	Chinese flame tree	*Koelreuteria bipinnata*	1	2.3		2.3	12	10	3	3			
15	Chinese flame tree	*Koelreuteria bipinnata*	1	6.5		6.5	20	10	3	3			
16	Chinese flame tree	*Koelreuteria bipinnata*	1	9.7		9.7	20	10	3	3			
17	Chinese flame tree	*Koelreuteria bipinnata*	1	9.0		9.0	20	10	3	3			X
18	Chinese flame tree	*Koelreuteria bipinnata*	1	7.2		7.2	20	10	3	3			X
19	Chinese flame tree	*Koelreuteria bipinnata*	1	8.1		8.1	20	10	3	3			X
20	Chinese flame tree	*Koelreuteria bipinnata*	1	10.2		10.2	20	12	3	3			X
21	Chinese flame tree	*Koelreuteria bipinnata*	1	8.8		8.8	20	10	3	3			X
22	Chinese flame tree	*Koelreuteria bipinnata*	1	8.6		8.6	20	12	3	3			X
23	Chinese flame tree	*Koelreuteria bipinnata*	1	8.7		8.7	15	12	3	3			X
24	Chinese flame tree	*Koelreuteria bipinnata*	1	5.5		5.5	15	10	3	3			X
25	Chinese flame tree	*Koelreuteria bipinnata*	1	5.1		5.1	15	10	3	3			X
26	Chinese flame tree	*Koelreuteria bipinnata*	1	5.6		5.6	12	10	3	3			X
27	Chinese flame tree	*Koelreuteria bipinnata*	1	6.6		6.6	15	10	3	3			X
28	Chinese flame tree	*Koelreuteria bipinnata*	1	7.4		7.4	20	10	3	3			X

TABLE A
TREE SURVEY DATA
UC RIVERSIDE STUDENT SUCCESS CENTER PROJECT

Tree Tag No.	Common Name	Scientific Name	No. Main Trunks	dbh (in)			Height (ft)	Canopy Diameter (ft)	Health Rating	Aesthetic Rating	Native Tree	Mature Tree	Inside Project Study Area
				1st Trunk	2nd Trunk	Total							
29	Chinese flame tree	*Koelreuteria bipinnata*	1	6.9		6.9	20	10	3	3			X
30	Chinese flame tree	*Koelreuteria bipinnata*	1	4.4		4.4	12	10	3	3			X
31	Chinese flame tree	*Koelreuteria bipinnata*	1	9.5		9.5	20	12	3	3			X
32	Chinese flame tree	*Koelreuteria bipinnata*	1	9.0		9.0	20	12	3	3			X
33	Chinese flame tree	*Koelreuteria bipinnata*	1	6.6		6.6	15	10	3	3			X
34	Chinese flame tree	*Koelreuteria bipinnata*	1	7.8		7.8	15	10	3	3			X
35	Chinese flame tree	*Koelreuteria bipinnata*	1	8.5		8.5	15	12	3	3			X
36	Chinese flame tree	*Koelreuteria bipinnata*	1	7.9		7.9	15	12	3	3			X
37	Chinese flame tree	*Koelreuteria bipinnata*	1	8.1		8.1	15	12	3	3			X
38	Chinese flame tree	*Koelreuteria bipinnata*	1	2.5		2.5	12	8	3	3			X
39	Chinese flame tree	*Koelreuteria bipinnata*	1	2.5		2.5	12	8	3	3			X
40	Chinese flame tree	*Koelreuteria bipinnata*	1	17.1		17.1	25	20	3	4		X	X
41	Chinese flame tree	*Koelreuteria bipinnata*	1	18.8		18.8	25	25	3	4		X	
42	Chinese flame tree	*Koelreuteria bipinnata*	1	17.4		17.4	25	25	3	4		X	
43	Chinese flame tree	*Koelreuteria bipinnata*	1	17.0		17.0	25	20	3	4		X	
44	Chinese flame tree	*Koelreuteria bipinnata*	1	2.1		2.1	12	8	3	3			
45	Chinese flame tree	*Koelreuteria bipinnata*	1	2.8		2.8	12	8	3	3			
46	Chinese flame tree	*Koelreuteria bipinnata*	1	2.3		2.3	12	8	3	3			
47	Chinese flame tree	*Koelreuteria bipinnata*	1	2.5		2.5	12	8	3	3			
48	Chinese flame tree	*Koelreuteria bipinnata*	1	17.5		17.5	25	25	3	4		X	
49	Chinese flame tree	*Koelreuteria bipinnata*	1	19.0		19.0	25	25	3	4		X	
50	strawberry tree	*Arbutus unedo*	2	13.1	5.5	18.6	12	12	4	3		X	X
51	strawberry tree	*Arbutus unedo*	4	3.5	3.0	6.5	9	8	3	3			X
52	southern live oak	*Quercus virginiana*	3	11.3	9.5	20.8	20	16	4	3		X	X
53	southern live oak	*Quercus virginiana*	1	31.0		31.0	35		5	5		X	X
54	western sycamore	*Platanus racemosa*	1	15.3		15.3	35		4	4	X	X	X
55	western sycamore	*Platanus racemosa*	1	16.2		16.2	35		4	4	X	X	X
56	western sycamore	*Platanus racemosa*	1	19.4		19.4	35		3	2	X	X	X

TABLE A
TREE SURVEY DATA
UC RIVERSIDE STUDENT SUCCESS CENTER PROJECT

Tree Tag No.	Common Name	Scientific Name	No. Main Trunks	dbh (in)			Height (ft)	Canopy Diameter (ft)	Health Rating	Aesthetic Rating	Native Tree	Mature Tree	Inside Project Study Area
				1st Trunk	2nd Trunk	Total							
57	holly oak	*Quercus ilex*	1	29.6		29.6	445		5	5		X	X
58	holly oak	*Quercus ilex*	1	21.0		21.0	45		3	4		X	X
59	holly oak	*Quercus ilex*	1	25.5		25.5	35		5	5		X	X
60	camphor	*Cinnamomum camphora*	1	26.8		26.8	35		5	5		X	
61	holly oak	*Quercus ilex*	1	2.1		2.1	10	7	3	2			X
62	valley oak	*Quercus lobata*	1	2.0		2.0	10	7	3	2	X		X
63	London plane	*Platanus X hispanica*	1	6.1		6.1	15	10	3	4			X
64	London plane	*Platanus X hispanica*	1	6.6		6.6	18	12	3	4			X
65	holly oak	*Quercus ilex*	2	19.1	15.9	35.0	45		5	5		X	X
66	London plane	*Platanus X hispanica*	1	6.3		6.3	18	12	3	3			X
67	London plane	*Platanus X hispanica*	1	4.1		4.1	15	10	3	3			
68	Mexican fan palm	*Washingtonia robusta*	1	15.0		15.0	40	8	3	3		X	
69	Mexican fan palm	*Washingtonia robusta*	1	15.0		15.0	40	8	3	3		X	
70	holly oak	*Quercus ilex*	1	2.0		2.0	10	6	3	3			X
71	valley oak	*Quercus lobata*	1	2.0		2.0	8	6	3	3	X		X
72	western redbud	*Cercis occidentalis*	1			0.0	10	7	3	4	X		X
73	holly oak	*Quercus ilex*	3	2.0	2.0	4.0	12	6	3	3			X
74	western sycamore	*Platanus racemosa*	1	21.4		21.4	30		3	3	X	X	X
75	western sycamore	*Platanus racemosa*	1	19.1		19.1	30		3	3	X	X	X
76	crape myrtle	*Lagerstroemia indica*	1	2.0		2.0	10	8	3	3			X
77	crape myrtle	*Lagerstroemia indica*	1	2.0		2.0	10	8	3	3			X
78	crape myrtle	*Lagerstroemia indica*	1	2.0		2.0	10	8	3	3			X
79	crape myrtle	*Lagerstroemia indica*	1	2.0		2.0	10	8	3	3			X
80	crape myrtle	*Lagerstroemia indica*	1	2.0		2.0	10	8	3	3			X
81	crape myrtle	*Lagerstroemia indica*	1	2.0		2.0	10	8	3	3			X
82	crape myrtle	*Lagerstroemia indica*	1	2.0		2.0	10	8	3	3			X
83	crape myrtle	*Lagerstroemia indica*	1	2.0		2.0	10	8	3	3			X
84	crape myrtle	*Lagerstroemia indica*	1	2.0		2.0	10	8	3	3			X

TABLE A
TREE SURVEY DATA
UC RIVERSIDE STUDENT SUCCESS CENTER PROJECT

Tree Tag No.	Common Name	Scientific Name	No. Main Trunks	dbh (in)			Height (ft)	Canopy Diameter (ft)	Health Rating	Aesthetic Rating	Native Tree	Mature Tree	Inside Project Study Area
				1st Trunk	2nd Trunk	Total							
85	crape myrtle	*Lagerstroemia indica*	1	2.0		2.0	10	8	3	3			X
86	locust	*Robinia sp.*	1	2.0		2.0	15	10	3	4			X
87	locust	*Robinia sp.*	1	2.0		2.0	12	8	3	4			X
88	locust	*Robinia sp.*	1	2.0		2.0	12	8	3	4			X
89	locust	*Robinia sp.*	1	2.0		2.0	12	8	3	4			X
90	locust	*Robinia sp.*	1	2.0		2.0	12	8	3	4			X
91	locust	*Robinia sp.*	1	2.0		2.0	12	8	3	4			X
92	locust	*Robinia sp.*	1	2.0		2.0	12	8	3	4			X
93	locust	*Robinia sp.*	1	2.0		2.0	12	8	3	4			X
94	locust	*Robinia sp.*	1	2.0		2.0	12	8	3	4			X
TOTAL											8	22	65

dbh: diameter at breast height; ft: feet.

Aesthetics/Health Rating: 1=Very Poor, 2=Poor, 3=Fair, 4=Good, and 5=Excellent

ATTACHMENT B

SITE PHOTOGRAPHS

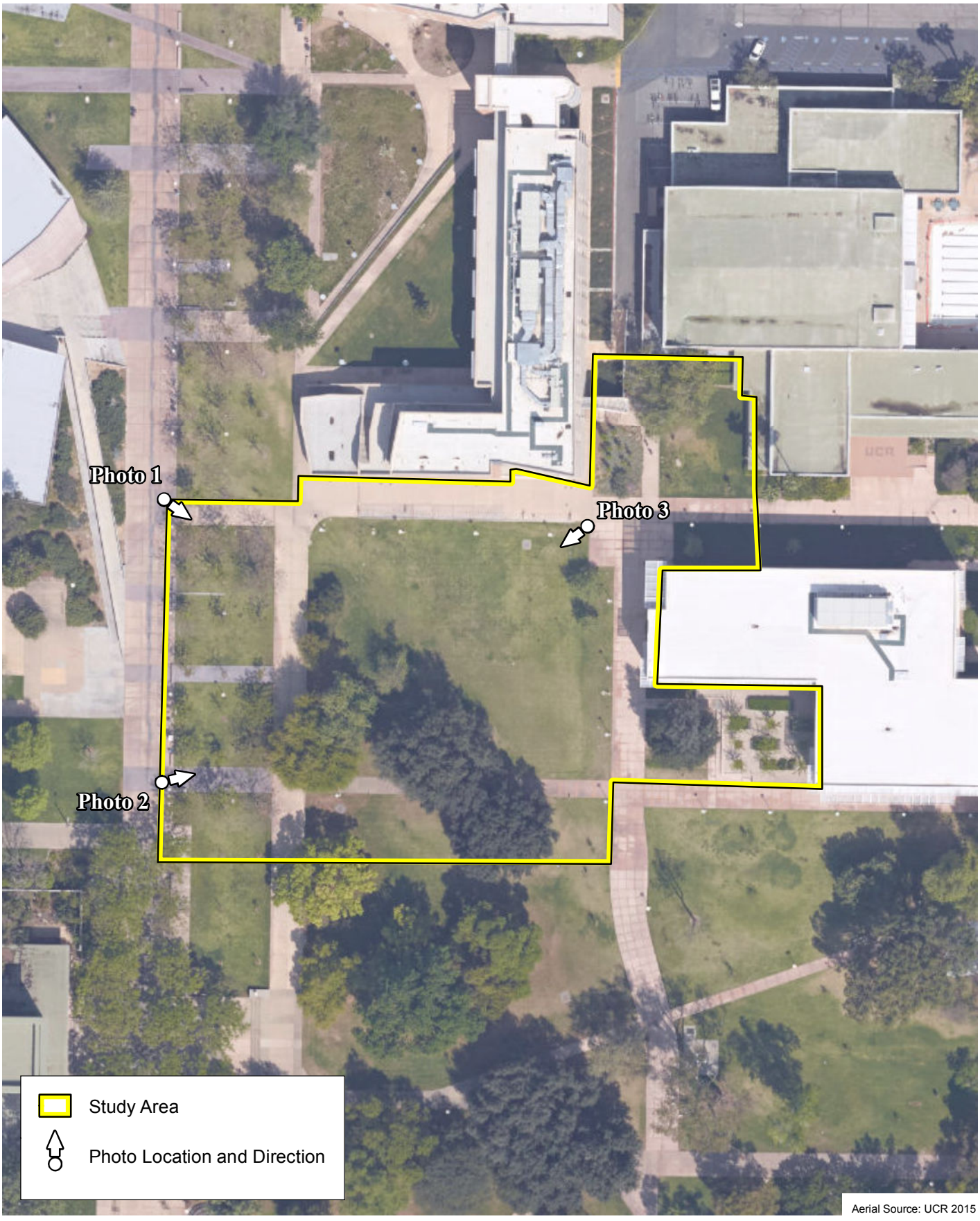

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Photo Locations

Exhibit B-1

Student Center Success Project Site, University of California, Riverside

N
W E
S

80 40 0 80
Feet

PSOMAS

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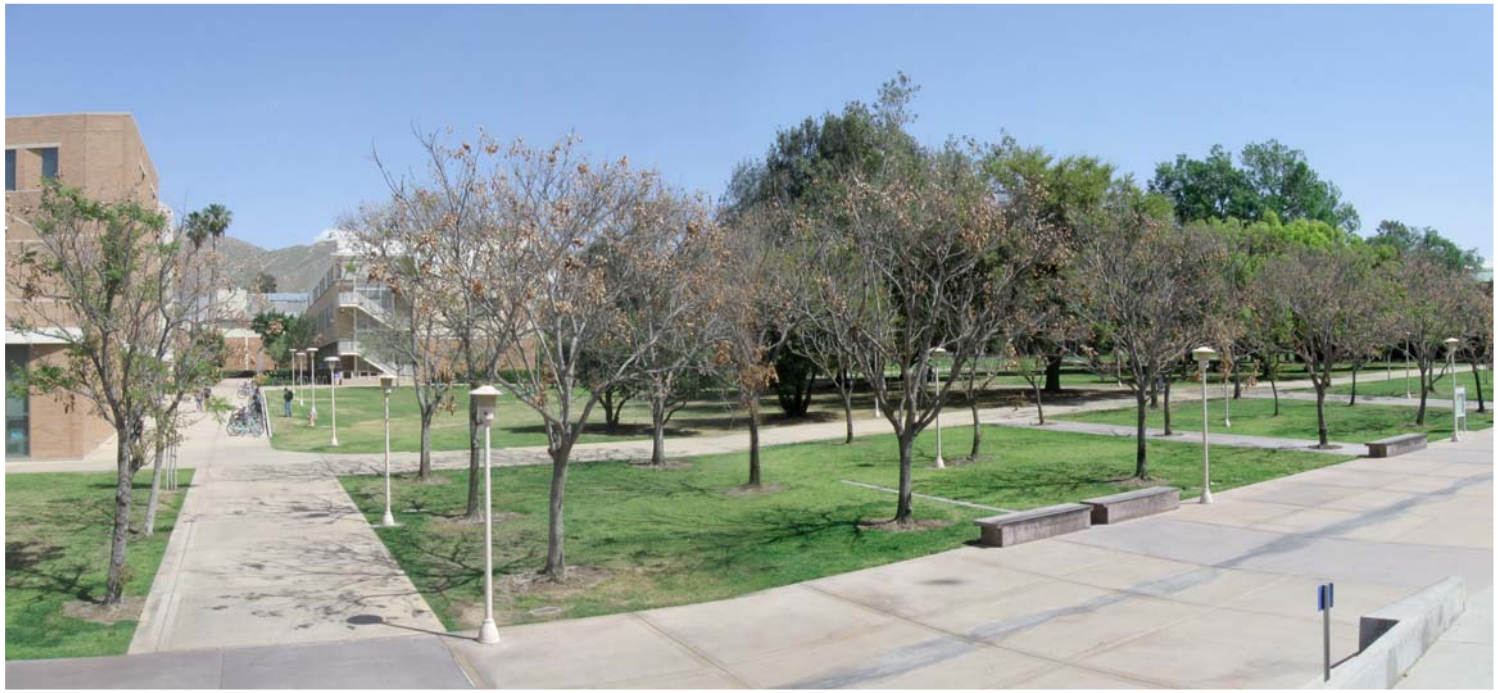

April 12, 2018. Photo location 1, overview of project site from northwest corner of survey area. Foreground shows Chinese lantern trees (*Koelreuteria bipinatta*). Trees 16, 17, and 22 are shown from left to right.

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Site Photos

Exhibit B-2

Student Center Success Project Site, University of California, Riverside

PSOMAS

April 12, 2018. Photo location 2, overview of project site from southwest corner of survey area. Foreground shows Chinese lantern trees (*Koelreuteria bipinatta*). Largest tree in background is Tree 53.

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Site Photos

Exhibit B-3

Student Center Success Project Site, University of California, Riverside

PSOMAS

(04/17/2018 MMD) R:\Projects\UCR\3UCR001000\Graphics\Tree\ex_SP.pdf

April 12, 2018. Photo location 3, overview of project site from northeast portion of survey area, facing southwest. Tree 64, London plane tree (*Platanus X hispanica*), is at left. Largest tree in center of background is Tree 57, holly oak (*Quercus ilex*).

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Site Photos

Exhibit B-4

Student Center Success Project Site, University of California, Riverside

PSOMAS

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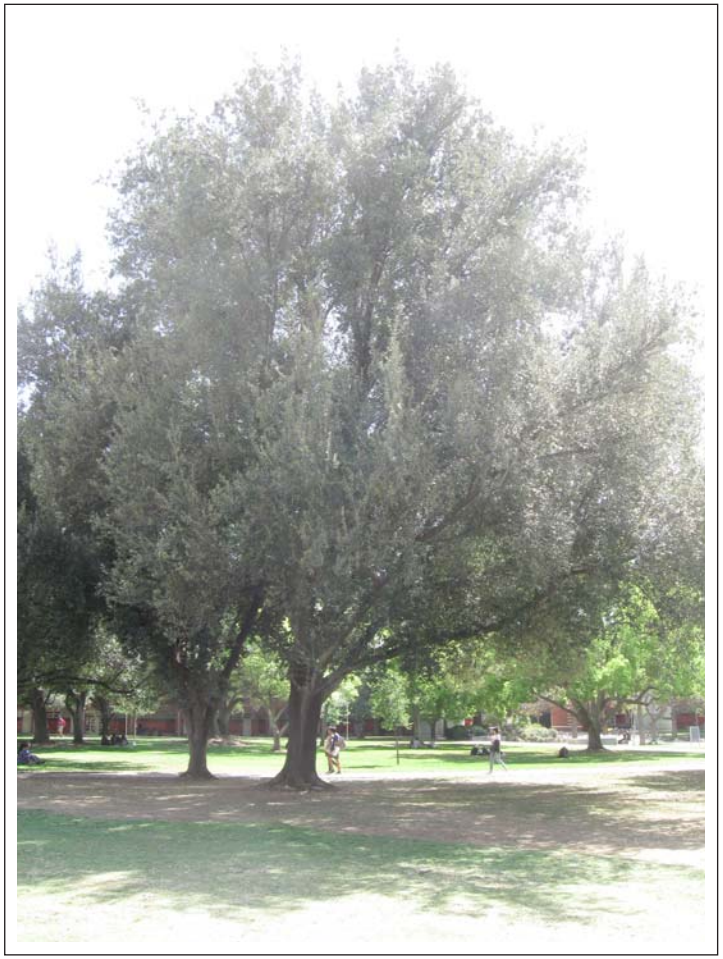
April 12, 2018. View of Tree 53, southern live oak (*Quercus virginiana*).



April 12, 2018. View of Tree 57, holly oak (*Quercus ilex*).

Site Photos

Exhibit B-5

Student Center Success Project Site, University of California, Riverside

PSOMAS

April 12, 2018. View of Tree 59, holly oak (*Quercus ilex*).

April 12, 2018. View of Tree 60, camphor tree (*Cinnamomum camphora*).

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Site Photos

Exhibit B-6

Student Center Success Project Site, University of California, Riverside

PSOMAS

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April 12, 2018. View of Tree 65, holly oak (*Quercus ilex*).

April 12, 2018. View of Trees 74 and 75, western sycamores (*Platanus racemosa*).

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Site Photos

Exhibit B-7

Student Center Success Project Site, University of California, Riverside

PSOMAS

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APPENDIX C

GEOTECHNICAL INVESTIGATION

TWINING

Engineering a Better Tomorrow

Geotechnical Evaluation Report

Proposed Student Success Center
UCR Project No. 958056
University of California, Riverside

Prepared for:

University of California, Riverside
1223 University Avenue
Riverside, California 92507

June 1, 2018
Project No.: 180249.3

TWINING

2883 East Spring Street, Suite 300
Long Beach CA 90806

Tel 562.426.3355
Fax 562.426.6424

June 1, 2018
Project No. 180249.3

Mr. Blythe R. Wilson
Senior Project Manager
University of California, Riverside
1223 University Avenue
Riverside, California 92507

Subject: Geotechnical Evaluation Report
Proposed Student Success Center Project
UCR Project No. 958056
University of California, Riverside
Riverside, California

Dear Mr. Wilson:

In accordance with your request and authorization, we are presenting our Geotechnical Engineering Evaluation Report for the above-referenced project at University of California, Riverside, California. The purpose of this investigation has been to evaluate the subsurface conditions at the site and to provide geotechnical engineering recommendations for the proposed improvements.

Based on our findings, the proposed project is geotechnically feasible, provided that the recommendations in this report are incorporated into the design and are implemented during construction of the project.

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.

Douglas Crayton
Staff Engineer

Sean Lin, P.E. 67109, G.E. 2921
Chief Geotechnical Engineer

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Appendix B – Laboratory Testing
Appendix C – Percolation Testing

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1. INTRODUCTION

This report presents the results of the geotechnical evaluation performed by Twining, Inc. ("Twining") for the proposed Student Success Center project at University of California, Riverside. The purpose of this study has been to evaluate the subsurface conditions at the site and to provide geotechnical recommendations related to the design and construction of the proposed project.

2. SITE AND PROJECT DESCRIPTION

2.1. Site Location and Existing Conditions

The proposed location of the Student Success Center on the campus of the University of California, Riverside is shown on Figure 1, Site Location Map. The project location is bounded by the CHASS Interdisciplinary Building North on the north, by UCR Campus Tour building on the east, and by grassy areas on the west and south. The site is currently covered with grass and some landscaping trees and is surrounded by existing concrete walkways. The property and surrounding vicinity are shown on Figure 2, Site Plan and Boring Location Map.

The site exhibits low relief, with a regional gradient of approximately 0.5 percent toward the northwest. Drainage across the site is by uncontrolled sheet flow to the adjacent sidewalks and drainage course, as well as by infiltration within unpaved areas.

The approximate site coordinates are latitude 33.9741°N and longitude 117.3305°W, and the site is located on the Riverside East, California 7½-Minute Quadrangle (United States Geological Survey, 1980).

2.2. Proposed Project

Based on the preliminary information provided to us, it is our understanding that the proposed project will consist of a new 3- to 4-story building at the site that will be approximately 25,100 square feet. No specific design information is available at the time this report was prepared. The approximate location of the planned building is shown on Figure 2, Site Plan and Boring Location Map.

3. SCOPE OF WORK

To prepare this report, we have performed the following tasks:

3.1. Literature Review

We reviewed readily available background data including available previous geotechnical investigation reports, published geologic maps, topographic maps and aerial photos relevant to the subject site in preparation of this report. A partial list of literature reviewed is presented in the "Selected References" section of this report.

3.2. Field Exploration

Field exploration consisting of drilling of four 6-inch-diameter exploratory borings at the site on May 11, 2018. The borings were advanced to depths between approximately 5 feet and 41½ feet

below the ground surface (bgs). The drilling operation was performed using a truck-mounted, hollow-stem auger drill rig.

The approximate locations of the borings are shown on Figure 2. Detailed descriptions of the soils encountered during drilling are presented in Appendix A – Field Exploration.

3.3. Field Percolation Testing

One of the borings was utilized to perform percolation testing to evaluate the infiltration rate. The results of the percolation testing are presented in Appendix C – Percolation Testing.

3.4. Geotechnical Laboratory Testing

Laboratory tests were performed on selected samples obtained from the borings in order to aid in the soil classification and to evaluate the engineering properties of the foundation soils. The following tests were performed in general accordance with ASTM standards:

- In-situ moisture and density;
- Maximum dry density-optimum moisture content;
- Corrosivity;
- Consolidation; and
- Direct shear test.

The detailed laboratory test results are presented in Appendix B – Laboratory Testing.

3.5. 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 conclusions and recommendations. The analyses included:

- Evaluation of general subsurface conditions and description of types, distribution, and engineering characteristics of subsurface materials;
- Evaluation of geologic hazards, including site seismicity, liquefaction and seismic settlement potential, and preliminary recommendations for appropriate mitigation measures;
- Evaluation of site-specific seismic design parameters in accordance with provisions of the 2016 California Building Code;
- Evaluation of current and historical groundwater conditions at the site and potential impact on the existing structures;
- Evaluation of project feasibility and suitability of on-site soils for foundation support;
- Evaluation of foundation design parameters including soil bearing capacity, lateral resistance, friction coefficient, and seismic considerations;
- Evaluation of the potential for the on-site materials to corrode buried concrete and metals;
- Recommendations for stormwater infiltration facility; and
- Recommendations for pavement structural sections.

4. SITE GEOLOGY AND SUBSURFACE CONDITIONS

4.1. Regional Geologic Setting

According to geologic mapping published by the Dibblee Geological Foundation (Dibblee, 2003), the project site is underlain by Pleistocene alluvial fan deposits (map symbol: Qoa). These deposits are described as "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

Earth materials encountered during our subsurface investigation consist of a relatively thin layer of undocumented fill underlain by older alluvium which extend to the total depth of exploration. Based on our field observations, the undocumented fill consists of silty sand on the order of 1 foot in thickness. It should be noted that the undocumented fill thickness may vary across the site. The older alluvium consists predominantly of silty sand and sand with trace of clay.

Detailed information regarding the exploratory excavations is presented in Appendix A, Field Exploration.

4.3. Groundwater

Groundwater was not encountered within the deepest exploratory boring at a depth of approximately 41½ feet below the existing grade. Based on our review of the California Water Resource website, the groundwater level is reportedly situated at a depth greater than 150 feet below the ground surface. 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.

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 improvements. The hazards associated with seismic activity in the vicinity of the site are discussed in the following sections.

5.1. Surface Fault Rupture and Active Faulting

The subject site is not located within a State of California Earthquake Fault Zone (formerly known as a Special Studies Zone) (Hart and Bryant, 1997). The closest know active fault to the site is the San Jacinto fault, located approximately 6 miles away from the project site. It is our opinion that the likelihood of fault rupture occurring at the site during the design life of the proposed improvements is low.

5.2. Liquefaction and Seismic Settlement Potential

Liquefaction occurs when the pore pressures generated within a soil mass approach the effective overburden pressure. Liquefaction of soils may be caused by cyclic loading such as that imposed by ground shaking during earthquakes. The increase in pore pressure results in a loss of strength, and the soil then can undergo both horizontal and vertical movements, depending on the site conditions. Other phenomena associated with soil liquefaction include sand boils, ground oscillation, and loss of foundation bearing capacity. 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.

The site is located within an area designated as having “Low” liquefaction susceptibility according to the Riverside County (2015) General Plan Safety Element. 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.

Seismic settlement can occur when medium dense granular materials densify during seismic shaking and/or liquefaction. Seismically-induced settlement may occur in dry, unsaturated, as well as saturated soils. Based on the fairly uniform and medium dense to dense subsurface soil profile, the differential seismically-induced dry-sand settlement is negligible.

5.3. Landslides

Based on our review of the referenced geologic maps, literature, and topographic maps, as well as our site investigation, no landslides or related features underlie or are adjacent to the subject site. Due to the relatively level nature of the site and surrounding areas, the potential for landslides at the project site is considered negligible.

5.4. Flooding

The Federal Emergency Management Agency (FEMA) has prepared flood insurance rate maps (FIRMs) for use in administering the National Flood Insurance Program. Based on our review of the FEMA (2008) flood map, the site is outside the 0.2% annual chance (500-year) floodplain.

5.5. CBC Seismic Design Parameters

Our recommendations for seismic design parameters have been developed in accordance with 2016 CBC and ASCE 7-10 (ASCE, 2010) standards. The applicable site class is D based on the results of our field investigation. Table 1 presents the seismic design parameters for the site in accordance with 2016 CBC.

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Table 1 – 2016 California Building Code Design Parameters

Design Parameters	Value
Site Class	D
Mapped Spectral Acceleration Parameter at Period of 0.2-Second, S_s	1.500g
Mapped Spectral Acceleration Parameter at Period 1-Second, S_1	0.606g
Site Coefficient, F_a	1.0
Site Coefficient, F_v	1.5
Adjusted MCE_R[1] Spectral Response Acceleration Parameter at Short Period, S_{MS}	1.500g
1-Second Period Adjusted MCE_R[1] Spectral Response Acceleration, S_{M1}	0.910g
Short Period Design Spectral Response Acceleration, S_{DS}	1.000g
1-Second Period Design Spectral Response Acceleration, S_{D1}	0.606g
Peak Ground Acceleration, PGA_M[2]	0.556g
Seismic Design Category[3]	D

Notes: [1] Risk-targeted maximum considered earthquake
[2] Peak ground acceleration adjusted for site effects
[3] For S_1 greater than or equal to 0.75g, the seismic design category is E

6. GEOTECHNICAL ENGINEERING RECOMMENDATIONS

6.1. General Considerations

Based on the results of our field exploration and engineering analyses, it is our opinion that the proposed development is feasible from a geotechnical standpoint provided that the recommendations in this report are incorporated into the design plans and are implemented during construction.

The following is a list of the geotechnical considerations for this project:

- The site is currently occupied with landscape and mature trees. When the vegetation and trees are removed, the upper 3 to 5 feet of soils will be disturbed. In order to provide uniform support of building pad, we recommend over-excavation and recompaction as remedial site preparation.

- The near surface soil has “very low” expansion potential. Mitigation for expansive soil is not required.

- The near surface soil has a very low infiltration rate. Infiltration BMP facility is not considered feasible.

Our geotechnical engineering analyses performed for this report were based on the earth materials encountered during this and previous subsurface explorations for the site. If the design substantially changes, then our geotechnical engineering recommendations would be subject to revision based on our evaluation of the changes. The following sections present our conclusions and recommendations pertaining to the engineering design for this project.

6.2. Expansive Soils

Expansive soils are characterized by their ability to undergo significant volume changes (shrink or swell) due to variations in moisture content. Changes in soil moisture content can result from rainfall, landscape irrigation, utility leakage, roof drainage, perched groundwater, drought, or other factors, and may cause unacceptable settlement or heave of structures, concrete slabs supported on-grade, or pavements supported over these materials. Depending on the extent and location below finished subgrade, these soils could have a detrimental effect on the proposed construction.

Based on our field soil classification, the near surface soil consists of silty sands and well and poorly graded sands, which are considered to have a “very low” expansion potential. Mitigation for expansive soils is not required.

6.3. Corrosive Soils

In accordance with the Caltrans (2015) criteria, corrosive soil is defined as the soil has minimum resistivity less than 1,000 ohm-centimeters, or chloride concentration greater than 500 ppm, or sulfate concentration in soils greater than 2,000 ppm, or a pH less than 5.5.

The potential for the near-surface on-site materials to corrode buried steel and concrete improvements was evaluated. Laboratory testing was performed on one representative sample of on-site soils 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.

6.3.1. Reinforced Concrete

Laboratory tests indicate that the potential for sulfate attack on concrete in contact with the on-site soils is “negligible” in accordance with ACI 318, Table 4.3.1. As a minimum, we recommend that Type I or II cement and a water-cement ratio of no greater than 0.5 be used on the project.

Test results also indicate that the potential for chloride attack of reinforcing steel in concrete structures and pipes in contact with soil is negligible.

6.3.2. Metallic

Laboratory resistivity testing indicates that the on-site near-surface soils are not considered corrosive to buried ferrous metals. However, a corrosion specialist may be consulted regarding suitable types of piping and appropriate protection for underground metal conduits, if needed.

6.4. Earthwork and Site Preparation

In general, earthwork should be performed in accordance with the recommendations presented in this report. Twining should be contacted for questions regarding the recommendations or guidelines presented herein.

6.4.1. Site Preparation

Site preparation should begin with the removal of utility lines, asphalt, concrete, vegetation, and other deleterious debris from areas to be graded. Tree stumps and roots should be

removed to such a depth that organic material is generally not present. Clearing and grubbing should extend to the outside edges of the proposed excavation and fill areas. We recommend that unsuitable materials such as organic matter or oversized material be selectively removed and disposed offsite. The debris and unsuitable material generated during clearing and grubbing should be removed from areas to be graded and disposed at a legal dump site away from the project area.

6.4.2. Overexcavation

In accordance with Section 6.1 – General Considerations, to prepare a relatively uniform engineered fill for foundation support, overexcavation should be at least 3 feet below the proposed bottom of footings, or at least 5 feet below the ground surface, whichever is deeper. The lateral extent of the overexcavation should be at least 5 feet beyond the edge of the future footings, where space is available. Deeper excavations may be required in areas where soft, saturated, or unsuitable materials, for example, tree root balls or undocumented fill are encountered.

Subgrade for pavement and/or sidewalk areas should be overexcavated to a depth of at least 12 inches below the pavement section and recompacted in accordance with Section 6.4.4 of this report. Deeper removals may be required in areas where soft, saturated or unsuitable materials are encountered.

The extent and depths of removal should be evaluated by Twining's representative in the field based on the materials exposed. Additional removals may be recommended if loose or soft soils are exposed during grading.

6.4.3.Materials for Fill

On-site non-expansive soils with an organic content of less than 3 percent by volume (or 1 percent by weight) are suitable for use as fill. Soil material to be used as fill should not contain contaminated materials, rocks, or lumps over 8 inches in largest dimension, and not more than 40 percent larger than ¾ inch. Utility trench backfill material should not contain rocks or lumps over 3 inches in largest dimension. Larger chunks, if generated during excavation, may be broken into acceptably sized pieces or may be disposed offsite.

Any imported fill material should consist of granular soil having a "very low" expansion potential (that is, expansion index of 20 or less). Import material should also have low corrosion potential (that is, chloride content less than 500 parts per million [ppm], soluble sulfate content of less than 0.1 percent, and pH of 5.5 or higher). Materials to be used as fill should be evaluated by a Twining representative prior to importing or filling.

6.4.4.Compacted Fill

Prior to placement of compacted fill, the contractor should request an evaluation of the exposed excavation bottom by Twining. Unless otherwise recommended, the exposed ground surface should then be scarified to a depth of approximately 6 inches and watered or dried, as needed, to achieve generally consistent moisture contents approximate 2 percent above the optimum moisture content. The scarified materials should then be compacted to 90 percent relative compaction in accordance with the latest version of ASTM Test Method D1557.

Compacted fill should be placed in horizontal lifts of approximately 8 inches in loose thickness. Prior to compaction, each lift should be watered or dried as needed to achieve near optimum

moisture condition, mixed, and then compacted by mechanical methods, using sheepsfoot rollers, multiple-wheel pneumatic-tired rollers, or other appropriate compacting rollers, to a relative compaction of 90 percent as evaluated by ASTM D1557. Successive lifts should be treated in a like manner until the desired finished grades are achieved. Within pavement areas, the upper 12-inches of subgrade soil should be compacted to 95 percent relative compaction evaluated by ASTM D1557.

6.4.5.Temporary Excavations

Temporary excavations for the demolishing, earthwork, footing and utility trench are expected. We anticipate that unsurcharged excavations with vertical side slopes less than 4 feet high will generally be stable; however, some sloughing of cohesionless sandy materials encountered at the site should be expected.

Where the space is available, temporary, unsurcharged excavation sides over 4 feet in height should be sloped no steeper than an inclination of 1H:1V (horizontal:vertical). Where sloped excavations are created, the tops of the slopes should be barricaded so that vehicles and storage loads do not encroach within 10 feet of the top of the excavated slopes. A greater setback may be necessary when considering heavy vehicles, such as concrete trucks and cranes. Twining should be advised of such heavy vehicle loadings so that specific setback requirements can be established. If the temporary construction slopes are to be maintained during the rainy season, berms are recommended to be graded along the tops of the slopes in order to prevent runoff water from entering the excavation and eroding the slope faces.

Excavations shall not undermine the existing adjacent building footings. Where space for sloped excavations is not available, slot-cut or temporary shoring (trench box) may be utilized. For temporary excavations that are less than 6 feet in height adjacent to existing buildings where the excavation extends deeper than the bottom of the existing footing, slot cuts may be utilized. The slots should be no wider than 8 feet and should be excavated in an A-B-C sequence so that there are at least 16 feet spacing between any two excavated slots. The excavated slots should not be left open overnight and should be backfilled on the same day it was excavated before the next set of slots are excavated.

Personnel from Twining should observe the excavations so that any necessary modifications based on variations in the encountered soil conditions can be made. All applicable safety requirements and regulations, including CalOSHA requirements, should be met.

6.4.6.Utility Trench Backfill

Trench excavations to receive backfill shall be free of trash, debris or other unsatisfactory materials at the time of backfill placement. The utility should be bedded with clean sand to at least one foot over the crown. The bedding sand should have a sand equivalent (SE) of 30 or greater. The remainder of trench backfill may be onsite soils compacted to 90 percent of the laboratory maximum dry density as per ASTM Standard D1557.

6.4.7.Rippability

The earth materials underlying the site should be generally excavatable with heavy-duty earthwork equipment in good working condition. Some gravels, cobbles and man-made debris should be anticipated within the fill soils.

6.4.8.Shrinkage/Bulking Due to Compaction

Based on our review of the in-situ soil density data, preliminary volumetric shrinkage on the order of 10 percent as a result of compaction of onsite soil may be assumed.

6.4.9.Excavation Bottom Stability

In general, we anticipate that excavation bottoms of the excavations will be stable and should provide suitable support for the proposed improvements. Unstable bottom conditions may be mitigated by overexcavation of the bottom to suitable depths, and/or replacement with a minimum 6- to 12-inch-thick aggregate base based on the field evaluation. Recommendations for stabilizing excavation bottoms should be based on evaluation in the field by the geotechnical consultant at the time of construction.

6.4.10. Construction Dewatering

Due to the absence of shallow groundwater, dewatering measures are not anticipated to be necessary during excavation operations. If needed, considerations for construction dewatering should include anticipated drawdown, volume of pumping, potential for settlement of nearby structures, and groundwater discharge. Disposal of groundwater should be performed in accordance with guidelines of the Regional Water Quality Control Board.

6.5. Foundation Recommendations

A shallow foundation system may be used for support of the proposed improvements, provided that all the footings are placed on subgrade prepared as described in the “Earthwork and Site Preparation” section of this report. The recommended geotechnical foundation design parameters are presented in Table 2 below.

Table 2 – Geotechnical Foundation Design Parameters

Minimum Footing Dimensions	• Continuous footing: At least 18 inches in width, and at least 24 inches in depth. • Square footing: At least 24 inches in width and at least 24 inches in depth.
Allowable Bearing Pressure	• Footing should be supported on compacted fill. • For building foundations with the minimum dimensions shown above, a soil bearing pressure of 2,500 pounds per square foot (psf) can be used. • Bearing capacity can increase 300 psf for each additional foot of width, and 450 psf for each additional foot of depth to a maximum allowable capacity of 5,000 psf. • The allowable bearing values may be increased by one-third for transient live loads from wind or earthquake.
Estimated Static Settlement	• Less than 0.5 inches total settlement with differential settlement estimated to be less than 0.25 inch over 50 feet. • The static settlement of the foundation system is expected to occur on initial application of loading.
Estimated Seismic Settlement	• Differential settlement estimated to be less than 0.5 inch over 50 feet.
Allowable Coefficient of Friction Below Footings	0.35
Unfactored Lateral Passive Resistance	350 pcf (equivalent fluid pressure)

The passive resistance values may be increased by one-third when considering wind or seismic loading.

6.6. Concrete Slabs

Slabs should be supported on compacted fill. For design of concrete slabs, a modulus of subgrade reaction (*k*) of 150 pounds per cubic inch (pci) may be used. For slabs not supporting heavy loads, we recommend that the concrete have a thickness of at least 4 inches. Floor slabs reinforcement and control joints should be designed and constructed in accordance with recommendations from the structural engineer or architect**.** The subgrade below slabs should be prepared as described in section 6.7 “Subgrade Preparation for Concrete Slabs” below.

6.7. Subgrade Preparation for Concrete Slabs

All under-slab materials should be adequately compacted prior to the placement of concrete. Care should be taken during placement of the concrete to prevent displacement of the under-slab materials. The granular material should be dry to moist, and should not be wetted or saturated prior to the placement of concrete. The concrete slab should be allowed to cure properly prior to placing vinyl or other moisture-sensitive floor covering. Table 3 provides recommendations for various levels of protection against vapor transmission through concrete floor slabs placed over a properly prepared subgrade.

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Table 3 – Options for Subgrade Preparation Below Concrete Floor Slabs

Primary Objective	Recommendation
Enhanced protection against vapor transmission	• Concrete floor slab-on-grade placed directly on a 15-mil-thick moisture vapor retarder that meets the requirements of ASTM E1745 Class C (Stego Wrap or similar) • The moisture vapor retarder membrane should be placed directly on the subgrade (ACI302.1R-67); if required for either leveling of the subgrade or for protection of the membrane from protruding gravel, then place about 2 inches of silty sand[1] under the membrane
Above-standard protection against vapor transmission	This option is available if the slab perimeter is bordered by continuous footings at least 24 inches deep, OR if the area adjacent and extending at least 10 feet from the slab is covered by hardscape without planters: • 2 inches of dry silty sand[1]; over • Waterproofing plastic membrane 10 mils in thickness; over • At least 4 inches of ¾-inch crushed rock[2] or clean gravel[3] to act as a capillary break
Standard protection against vapor transmission	• 2 inches of dry silty sand[1]; over • Waterproofing plastic membrane 10 mils in thickness • If required for either leveling of the subgrade or for protection of the membrane from protruding gravel, place at least 2 inches of silty sand[1] under the membrane.

Notes:

[1] The silty sand should have a gradation between approximately 15 and 40 percent passing the No. 200 sieve and a plasticity index of less than 4. The on-site sandy soils appear to meet these criteria.

[2] The ¾-inch crushed rock should conform to Section 200-1.2 of the latest edition of the "Greenbook" Standard Specifications for Public Works Construction (Public Works Standards, Inc., 2012).

[3] The gravel should contain less than 10 percent of material passing the No. 4 sieve and less than 3 percent passing the No. 200 sieve.

The recommendations presented above are intended to reduce the potential for cracking of slabs; however, even with the incorporation of the recommendations presented herein, slabs may still exhibit some cracking. The occurrence of concrete shrinkage cracks is independent of the supporting soil characteristics.

6.8. Retaining Walls

Based on the preliminary information provided to us, subterranean basement is not proposed. Therefore the following recommendations can be used for structural design for retaining walls less than 6 feet in height for the amenity structures, where applicable.

6.8.1. Lateral Earth Pressure

The values presented below assume that the supported grade is level and do not include surcharge loads. The recommended design lateral earth pressure is calculated assuming that a drainage system will be installed behind the retaining walls and that external hydrostatic pressure will not develop behind the wall.

For walls that are free to rotate at the top (such as cantilevered walls), the lateral earth pressure may be designed for the "active" earth pressure in terms of equivalent fluid pressure (EFP) of 35 pcf. Walls that are supporting earth that are restrained against rotation at the top (such as by a floor deck), may be designed for the "at-rest" earth pressure in terms of EFP of 55 pcf.

6.8.2. Backfill and Drainage of Walls

The backfill material behind walls should consist of granular non-expansive material and should be approved by the project geotechnical engineer. Based on the soil materials encountered during our exploration, the majority of on-site soils should meet this requirement. Retaining walls should be waterproofed and adequately drained in order to limit hydrostatic buildup behind walls. The drains should be placed continuously along the backs of the walls and connected to a 4-inch-diameter perforated pipe with perforation facing down. The pipe should be sloped at least 1% and should be surrounded by 1 cubic foot per foot of ¾-inch crushed rock wrapped in suitable non-woven filter fabric (Mirafi® 140NL or equivalent). The drains should discharge through solid pipes to appropriate outlets or weep holes. Weep holes should be not less than 3-inches in diameter and be installed with spacing no greater 10 feet on center.

6.9. Drainage Control

The control of surface water is essential to the satisfactory performance of the building and site improvements. Surface water should be controlled so that conditions of uniform moisture are maintained beneath the improvements, even during periods of heavy rainfall. The following recommendations are considered minimal:

- Ponding and areas of low flow gradients should be avoided.
- If bare soil within 5 feet of the structure is not avoidable, then a gradient of 5 percent or more should be provided sloping away from the improvement. Corresponding paved surfaces should be provided with a gradient of at least 1 percent.
- The remainder of the unpaved areas should be provided with a drainage gradient of at least 2 percent.
- Positive drainage devices, such as graded swales, paved ditches, and/or catch basins should be employed to accumulate and to convey water to appropriate discharge points.
- Concrete walks and flatwork should not obstruct the free flow of surface water.

- Brick flatwork should be sealed by mortar or be placed over an impermeable membrane.
- Area drains should be recessed below grade to allow free flow of water into the basin.
- Enclosed raised planters should be sealed at the bottom and provided with an ample flow gradient to a drainage device. Recessed planters and landscaped areas should be provided with area inlet and subsurface drain pipes.
- Planters should not be located adjacent to the structures wherever possible. If planters are to be located adjacent to the structures, the planters should be positively sealed, should incorporate a subdrain, and should be provided with free discharge capacity to a drainage device.
- Planting areas at grade should be provided with positive drainage. Wherever possible, the grade of exposed soil areas should be established above adjacent paved grades. Drainage devices and curbing should be provided to prevent runoff from adjacent pavement or walks into planted areas.
- Gutter and downspout systems should be provided to capture discharge from roof areas. The accumulated roof water should be conveyed to off-site disposal areas by a pipe or concrete swale system.
- Landscape watering should be performed judiciously to preclude either soaking or desiccation of soils. The watering should be such that it just sustains plant growth without excessive watering. Sprinkler systems should be checked periodically to detect leakage and they should be turned off during the rainy season.

6.10. Flexible Pavement Design

Our pavement structural design is in accordance with Chapter 600 of the Caltrans Highway Design Manual, which is based on a relationship between the gravel equivalent (GE) of the pavement structural materials, the traffic index (TI), and the R-value of the underlying subgrade soil.

Based on our previous experience on the campus, we assumed an R-value of 40 for the subgrade material for asphalt pavement structural calculations with assumed TI since no traffic study data is available to us. On this basis, Table 3 provides recommended minimum thicknesses for hot mix asphalt (HMA) and aggregate base sections for different traffic indices.

The asphalt pavement section should be constructed on top of properly prepared subgrade and aggregate base section compacted to 95 percent of the maximum dry density in accordance with ASTM D1557.

Table 3 – Recommended Minimum HMA and Base Section Thicknesses

Location	Light Vehicular Parking	Firelane / Truck Drive Way
Traffic Index	**5.0**	**7.0**
HMA Thickness (in)	3.0	4.0
Aggregate Base Thickness (in)	4.0	4.5

6.11. Rigid Pavement Design

Table 4 provides minimum thicknesses for Portland Cement Concrete (PCC) pavement sections constructed on top of properly prepared subgrade and aggregate base section compacted to 95 percent of the maximum dry density in accordance with ASTM D1557.

Table 4 – Recommended Minimum PCC Section Thicknesses

Location	Light Vehicular Parking	Firelane / Truck Drive Way
Traffic Index	**5.0**	**7.0**
PCC Thickness (in)	6.0	6.5

The above pavement section is based on a minimum 28-day Modulus of Rupture (M-R) of 550 psi and a compressive strength of 3,000 psi. Transverse contraction joints should not be spaced more than 15 feet and should be cut to a depth of ¼ the thickness of the slab. Longitudinal joints should not be spaced more than 15 feet apart, however, are not necessary in the pavement adjacent to the curb and gutter section. Positive drainage should be provided away from all pavement areas to prevent seepage of surface and/or subsurface water into the pavement base and/or subgrade. The subgrade surface should be scarified to a depth of approximately 6 inches and watered or dried, as needed, to achieve generally consistent moisture contents at or near the optimum moisture content. The scarified materials should then be compacted to 95 percent relative compaction in accordance with the ASTM Test Method D1557.

6.12. Stormwater Quality Control Measures Recommendations

Based on the percolation results presented in Appendix C, the infiltration rate of 0.03 inch/hour at upper 10 feet of soil is considered very low. The infiltration BMP facility is not considered feasible, and is not recommended. If required, “filtration” type of stormwater BMP facility, such as bio-filtration planter, is recommended.

7. DESIGN REVIEW AND CONSTRUCTION MONITORING

Geotechnical review of plans and specifications is of paramount importance in engineering practice. The poor performance of many structures has been attributed to inadequate geotechnical review of construction documents. Additionally, observation of excavations will be important to the performance of the proposed development. The following sections present our recommendations relative to the review of construction documents and the monitoring of construction activities.

7.1. Plans and Specifications

The design plans and specifications should be reviewed by Twining prior to bidding and construction, as the geotechnical recommendations may need to be reevaluated in the light of the actual design configuration and loads. This review is necessary to evaluate whether the recommendations contained in this report and future reports have been properly incorporated into the project plans and specifications. Based on the work already performed, this office is best qualified to provide such review.

7.2. Construction Monitoring

Site preparation, removal of unsuitable soils, assessment of imported fill materials, fill placement, foundation installation, and other site grading operations should be observed and tested. The substrata exposed during the construction may differ from that encountered in the test excavations. Continuous observation by a representative of Twining during construction allows for evaluation of the soil conditions as they are encountered, and allows the opportunity to recommend appropriate revisions where necessary.

The project engineer should be notified prior to exposure of subgrades. It is critically important that the engineer be provided with an opportunity to observe all exposed subgrades prior to burial or covering.

8. LIMITATIONS

The recommendations and opinions expressed 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. In the event that any of our recommendations conflict with recommendations provided by other design professionals, we should be contacted to aid in resolving the discrepancy.

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, for example, the extent of removal of unsuitable soil, and that additional effort may be required to mitigate them.

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.

Twining's recommendations for this site are, to a high degree, dependent upon appropriate quality control of subgrade preparation, fill placement, and foundation construction. Accordingly, the recommendations are made contingent upon the opportunity for Twining to observe grading operations and foundation excavations for the proposed construction. If parties other than Twining are engaged to provide such services, such parties must be notified that they will be required to assume complete responsibility as the geotechnical engineer of record for the geotechnical phase of the project by concurring with the recommendations in this report and/or by providing alternative recommendations.

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.

This report has been prepared for the exclusive use by the client and its agents for specific application to the proposed project. Land use, site conditions, or other factors may change over time, and additional work may be required with the passage of time. Based on the intended use of this report

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and the nature of the new project, Twining may require that additional work be performed and that an updated report be issued. Non-compliance with any of these requirements by the Client or anyone else will release Twining from any liability resulting from the use of this report by any unauthorized party.

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 and recommendations contained in this report.

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9. SELECTED REFERENCES

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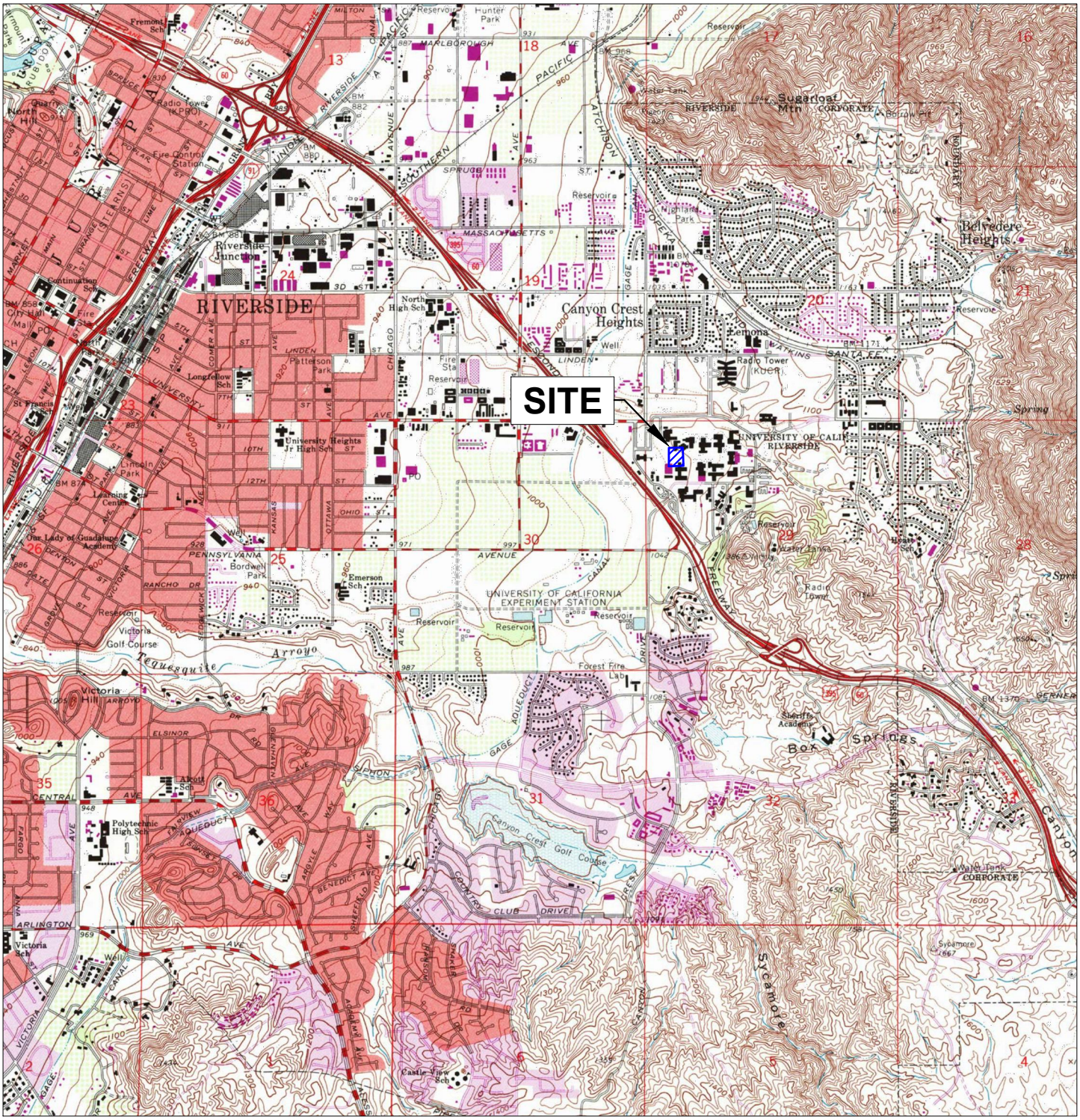
FIGURES



REFERENCE: United States Geological Survey (1980)

TWINING

SITE LOCATION MAP

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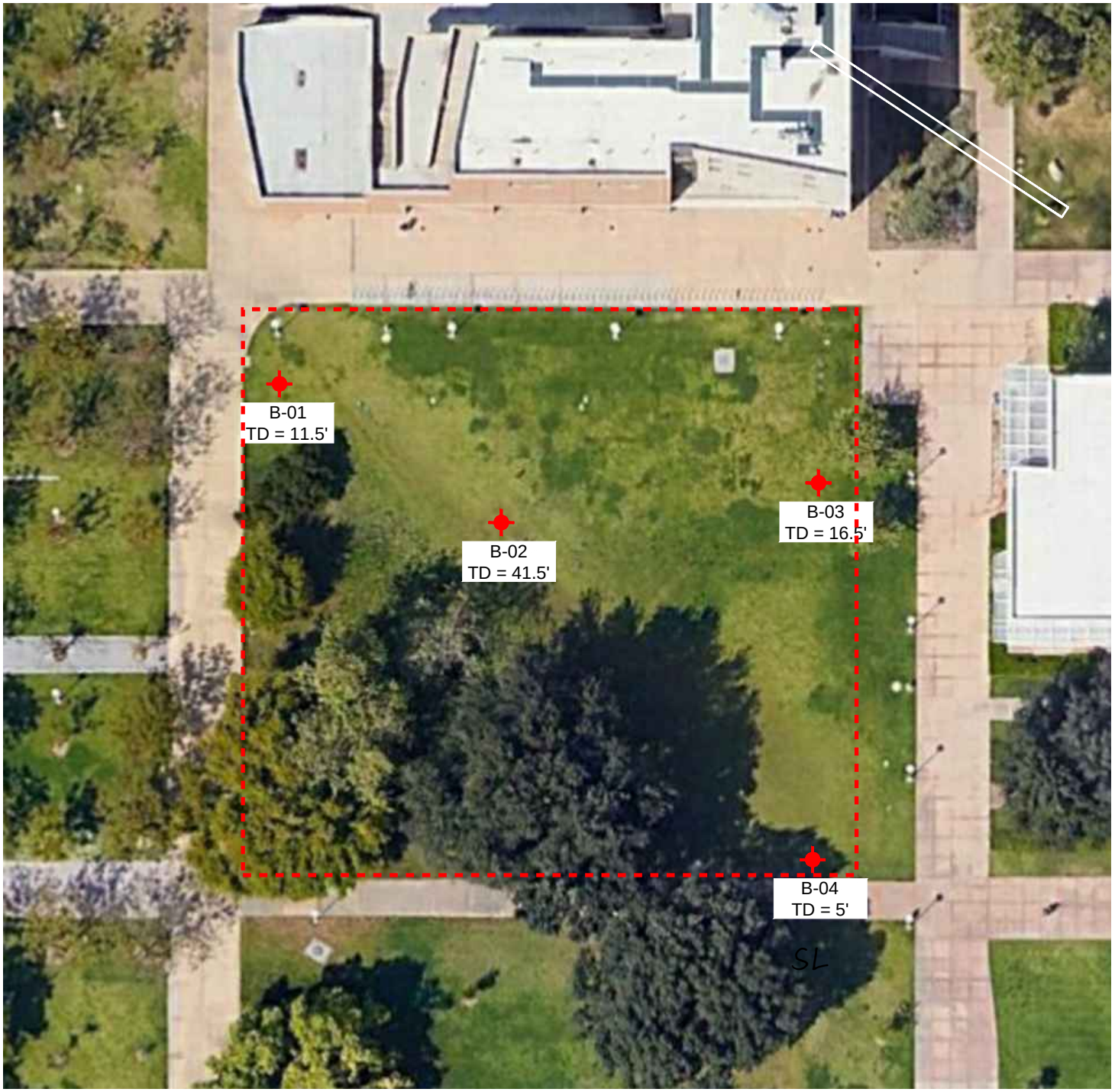
PROJECT NO.	REPORT DATE	FIGURE
180249.3	June 2018	1



B-01
TD = 11.5'

Boring location and total depth of exploration

Building Envelope Limits

N

SCALE IN FEET

0 40 80

REFERENCE: GOOGLE EARTH (2018)

TWINING

SITE PLAN AND BORING LOCATION MAP

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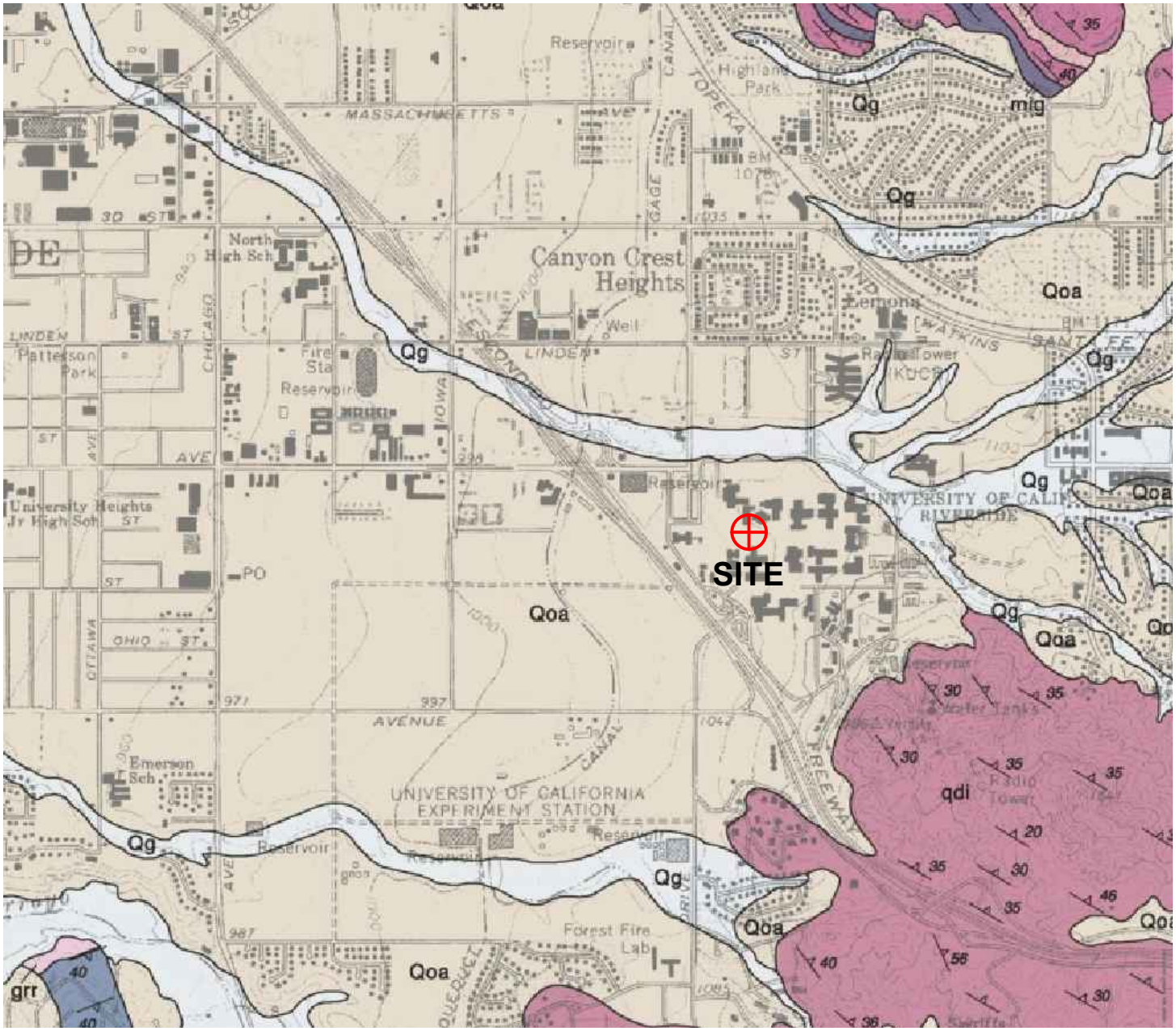
PROJECT NO.	REPORT DATE	FIGURE
180249.3	June 2018	FIGURE 2



EXPLANATION

HOLOCENE	**Qg**	ALLUVIAL GRAVEL AND SAND OF STREAM CHANNELS
	- UNCONFORMITY -	
PLEISTOCENE	**Qoa**	ALLUVIAL FAN DEPOSITS OF SAND, MINOR GRAVEL
	- UNCONFORMITY -	
CRETACEOUS	**grr**	GRANITE
	qdi	QUARTZ DIORITE (TONALITE)
PALEOZOIC	**mlg**	BIOTITE SCHIST AND TONALITIC GRANITIC ROCK
		GEOLOGIC CONTACT

N

SCALE IN MILES

0 1 2

REFERENCE: DIBBLEE (2003)

TWINING

REGIONAL GEOLOGIC MAP

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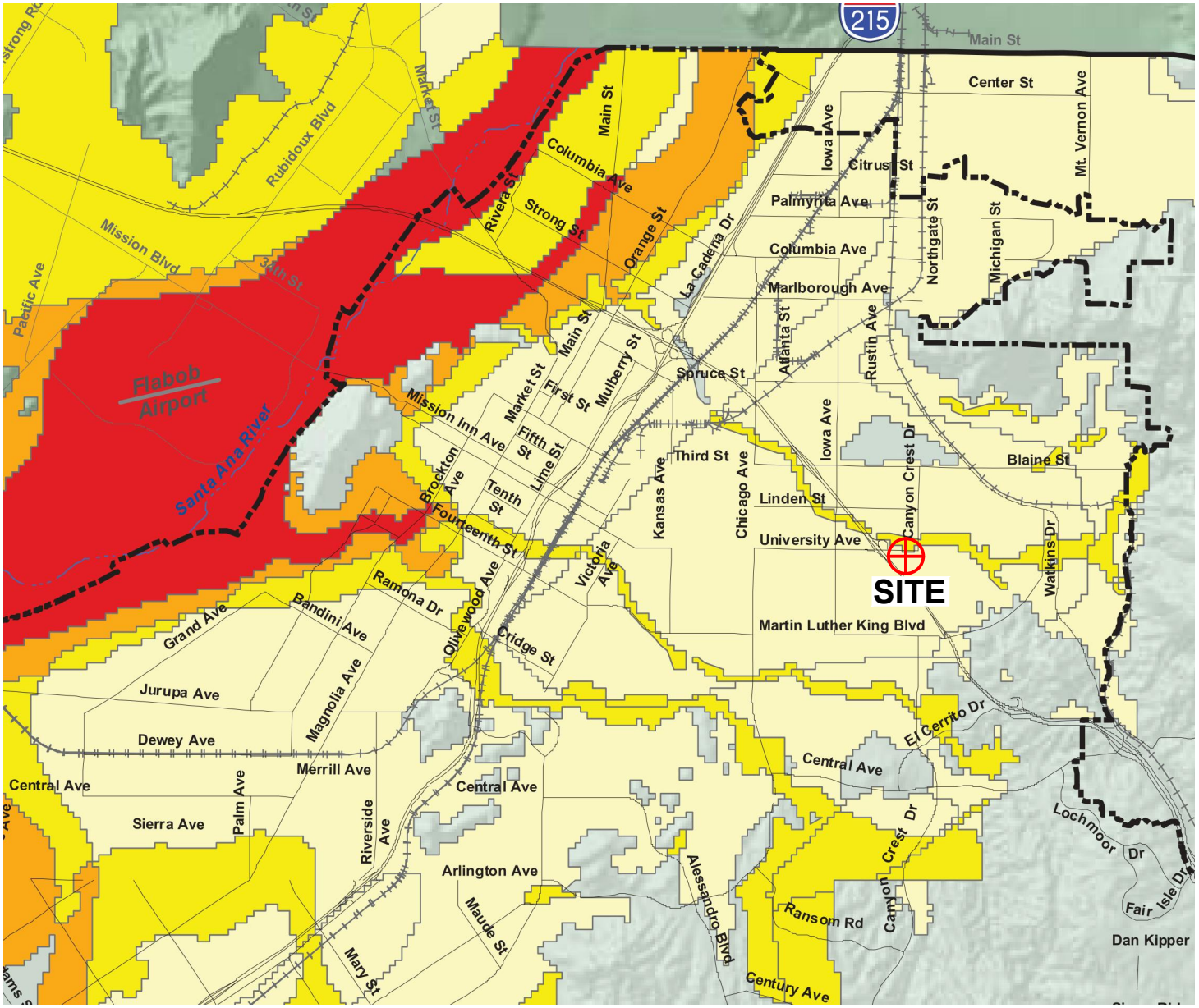
PROJECT NO.	REPORT DATE	FIGURE
180249.3	June 2018	FIGURE 3



LEGEND

- VERY LOW
- LOW
- MODERATE
- HIGH
- VERY HIGH
- RIVERSIDE CITY BOUNDARY
- RIVERSIDE PROPOSED SPHERE OF INFLUENCE

SOURCE: TRANSPORTATION AND LAND MANAGEMENT AGENCY (TLMA) GEOGRAPHIC INFORMATION SERVICES COUNTY OF RIVERSIDE, JANUARY 1, 2005
http://www.tlma.co.riverside.ca.us/index.html

N

SCALE IN FEET
0 5000 10000

TWINING

LIQUEFACTION POTENTIAL MAP

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PROJECT NO.	REPORT DATE	FIGURE
180249.3	June, 2018	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 and logging four 6-inch diameter exploratory borings at the site on May 11, 2018. The borings were advanced to a maximum depth of 41½ feet. The drilling operation was performed using a truck-mounted hollow-stem-auger drill rig and was performed by 2R Drilling of Chino Hill, California.

Drilling and Sampling

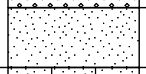
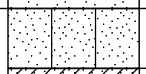
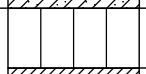
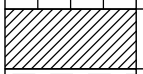
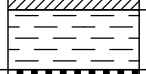
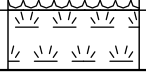
The Boring Logs are presented as Figures A-2 through A-5. An explanation of these logs is presented as Figure A-1. The Boring Logs describe the earth materials encountered, samples obtained, and show the field and laboratory tests performed. The log also shows the boring number, drilling date, and the name of the logger and drilling subcontractor. The borings were logged by an engineer using the Unified Soil Classification System. 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 using a Standard Penetration Sampler (SPT). This sampler consists of a 2-inch O.D., 1.4-inch I.D. split barrel shaft that is advanced into the soil at the bottom of the drilled hole a total of 18 inches. The number of blows required to drive the sampler the final 12 inches is presented on the boring logs. Soil samples obtained by the SPT were retained in plastic bags.

A California modified sampler was used to obtain drive samples of the soil encountered. This sampler consists of a 3-inch outside diameter (O.D.), 2.4-inch inside diameter (I.D.) split barrel shaft that was driven a total of 12-inches into the soil at the bottom of the boring by a safety hammer weighing 140 pounds at a drop height of approximately 30 inches. The soil was retained in brass rings for laboratory testing. Additional soil from each drive remaining in the cutting shoe was usually discarded after visually classifying the soil. The number of blows required to drive the sampler the final 12 inches is presented on the boring logs.

Upon completion of the borings, the boreholes were backfilled with soil from the cuttings.

UNIFIED SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS GRAPH	SYMBOLS LETTER	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
		(LITTLE OR NO FINES)		GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
	MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	GRAVELS WITH FINES		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
		(APPRECIABLE AMOUNT OF FINES)		GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	SAND AND SANDY SOILS	CLEAN SANDS		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
		(LITTLE OR NO FINES)		SP	POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES
	MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	SANDS WITH FINES		SM	SILTY SANDS, SAND - SILT MIXTURES
		(APPRECIABLE AMOUNT OF FINES)		SC	CLAYEY SANDS, SAND - CLAY MIXTURES
FINE GRAINED SOILS	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
MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	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

Relative Density	SPT (blows/ft)	Relative Density (%)
Very Loose	<4	0 - 15
Loose	4 - 10	15 - 35
Medium Dense	10 - 30	35 - 65
Dense	30 - 50	65 - 85
Very Dense	>50	85 - 100

FINE-GRAINED SOILS

Consistency	SPT (blows/ft)
Very Soft	<2
Soft	2 - 4
Medium Stiff	4 - 8
Stiff	8 - 15
Very Stiff	15 - 30
Hard	>30

NOTE: SPT blow counts based on 140 lb. hammer falling 30 inches

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

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

TWINING

EXPLANATION FOR LOG OF BORINGS

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PROJECT NO.	REPORT DATE	FIGURE
180249.3	June 2018	A-1

STANDARD LOG EXPLANATION 180249.3 - UCR STUDENT SUCCESS CENTER.GPJ TWINING LABS.GDT 5/29/18

DATE DRILLED	5/11/18	LOGGED BY	DHC	**BORING NO.**	**B-1**		
DRIVE WEIGHT	140 lbs.	DROP	30 inches	DEPTH TO GROUNDWATER (ft.)	N/E		
DRILLING METHOD	8" HSA	DRILLER	2R Drilling	SURFACE ELEVATION (ft.)	1055 ±(MSL)		

ELEVATION (feet)	DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS / FOOT	MOISTURE (%)	DRY DENSITY (pcf)	ADDITIONAL TESTS	GRAPHIC LOG	U.S.C.S. CLASSIFICATION	DESCRIPTION
									FILL (af): 5" of grass and topsoil
								SM	**Older Alluvium (Qoa):**Silty SAND; reddish brown; moist; trace clay
1050	5		15			#200		SM	-- same; medium dense
1045	10		66	11.0	123.5	DS		SM	-- same; very dense
									Total Depth = 11.5 feet Backfilled on 5/11/2018 No groundwater encountered. Borehole backfilled at the completion of testing with cuttings.
1040	15								
1035	20								
1030	25								
1025	30								
1020	35								

TWINING

LOG OF BORING

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Riverside, California

PROJECT NO.	REPORT DATE	FIGURE
180249.3	June 2018	A - 2

BORING LOG 180249.3 - UCR STUDENT SUCCESS CENTER.GPJ TWINING LABS.GDT 5/31/18

DATE DRILLED	5/11/18	LOGGED BY	DHC	**BORING NO.**	**B-2**		
DRIVE WEIGHT	140 lbs.	DROP	30 inches	DEPTH TO GROUNDWATER (ft.)	N/E		
DRILLING METHOD	8" HSA	DRILLER	2R Drilling	SURFACE ELEVATION (ft.)	1056 ±(MSL)		

ELEVATION (feet)	DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS / FOOT	MOISTURE (%)	DRY DENSITY (pcf)	ADDITIONAL TESTS	GRAPHIC LOG	U.S.C.S. CLASSIFICATION	DESCRIPTION
									FILL (af): 4" of grass and topsoil
						CORR		SM	**Older Alluvium (Qoa):**Silty SAND; reddish brown; moist
1051	5		50 for 2"	8.6	125.5	DS		SM	-- same; very dense
1046	10		17					SP-SM	Silty to poorly graded SAND; medium dense; brown to red to white; moist
1041	15		57	2.7	120.6	GS		SW-SM	Silty to well graded SAND; very dense; brown to reddish brown; moist
1036	20		30					SM	Silty SAND; medium dense; light brown to reddish brown; moist
1031	25		50 for 5.5"	8.9	126.6			SM	-- same; very dense; reddish brown
1026	30		49					SM	-- same; dense; trace clay
1021	35								

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LOG OF BORING

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PROJECT NO.	REPORT DATE	FIGURE
180249.3	June 2018	A - 3

BORING LOG 180249.3 - UCR STUDENT SUCCESS CENTER.GPJ TWINING LABS.GDT 5/31/18

DATE DRILLED	5/11/18	LOGGED BY	DHC	**BORING NO.**	**B-2**
DRIVE WEIGHT	140 lbs.	DROP	30 inches	DEPTH TO GROUNDWATER (ft.)	N/E
DRILLING METHOD	8" HSA	DRILLER	2R Drilling	SURFACE ELEVATION (ft.)	1056 ±(MSL)

ELEVATION (feet)	DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS / FOOT	MOISTURE (%)	DRY DENSITY (pcf)	ADDITIONAL TESTS	GRAPHIC LOG	U.S.C.S. CLASSIFICATION	DESCRIPTION
			50 for 5.5"	7.5	129.2			SM	-- same; very dense; with trace clay and few gravel
1016	40		40					SM	Silty SAND; dense; reddish brown; moist
									Total Depth = 41.5 feet Backfilled on 5/11/2018 No groundwater encountered. Borehole backfilled at the completion of testing with cuttings.
1011	45								
1006	50								
1001	55								
996	60								
991	65								
986	70								

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LOG OF BORING

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PROJECT NO.	REPORT DATE	FIGURE
180249.3	June 2018	A - 3

BORING LOG 180249.3 - UCR STUDENT SUCCESS CENTER.GPJ TWINING LABS.GDT 5/31/18

DATE DRILLED	5/11/18	LOGGED BY	DHC	**BORING NO.**	**B-3**
DRIVE WEIGHT	140 lbs.	DROP	30 inches	DEPTH TO GROUNDWATER (ft.)	N/E
DRILLING METHOD	8" HSA	DRILLER	2R Drilling	SURFACE ELEVATION (ft.)	1057 ±(MSL)

ELEVATION (feet)	DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS / FOOT	MOISTURE (%)	DRY DENSITY (pcf)	ADDITIONAL TESTS	GRAPHIC LOG	U.S.C.S. CLASSIFICATION	DESCRIPTION
									FILL (af): 5" of grass and topsoil
								SM	**Older Alluvium (Qoa):**Silty SAND; reddish brown; moist
1052	5		27					SM	-- same; medium dense
1047	10		50 for 3"	10.8	125.8	C		SM	-- same; very dense
1042	15		68					SM	-- same; very dense; trace clay
1037	20								Total Depth = 16.5 feet Backfilled on 5/11/2018 No groundwater encountered. Borehole backfilled at the completion of testing with cuttings.
1032	25								
1027	30								
1022	35								

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LOG OF BORING

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PROJECT NO.	REPORT DATE	
180249.3	June 2018	FIGURE A - 4

BORING LOG 180249.3 - UCR STUDENT SUCCESS CENTER.GPJ TWINING LABS.GDT 5/31/18

DATE DRILLED	5/11/18	LOGGED BY	DHC	**BORING NO.**	**B-4**
DRIVE WEIGHT	140 lbs.	DROP	30 inches	DEPTH TO GROUNDWATER (ft.)	N/E
DRILLING METHOD	Hand Auger	DRILLER	2R Drilling	SURFACE ELEVATION (ft.)	1057 ±(MSL)

ELEVATION (feet)	DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS / FOOT	MOISTURE (%)	DRY DENSITY (pcf)	GRAPHIC LOG	U.S.C.S. CLASSIFICATION	DESCRIPTION
								FILL (af): 4" of grass and topsoil
							SM	Silty SAND; brown; moist; with chunks of asphalt
							SM	**Older Alluvium (Qoa):**Silty SAND; reddish brown; moist
1052	5							Total Depth = 5.0 feet Backfilled on 5/11/2018 No groundwater encountered. Borehole backfilled at the completion of testing with cuttings.
1047	10							
1042	15							
1037	20							
1032	25							
1027	30							
1022	35							

BORING LOG 180249.3 - UCR STUDENT SUCCESS CENTER.GPJ TWINING LABS.GDT 5/31/18

TWINING

LOG OF BORING

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PROJECT NO.	REPORT DATE	
180249.3	June 2018	FIGURE A - 5

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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 test results are presented on the logs of the exploratory borings in Appendix A.

Wash Sieve

The amount of fines passing the No. 200 sieve was evaluated by the wash sieve. The test procedure was in general accordance with ASTM D 1140. The results are presented in Table B-1.

Grain-Size Distribution

The grain-size distribution of a selected sample was evaluated by sieving. The tests were performed in accordance with ASTM D 422. The result is presented in Figure B-2.

Direct Shear Tests

Direct shear tests were performed on selected remolded and relatively undisturbed soil samples in general accordance with ASTM D 3080 to evaluate the shear strength characteristics of the materials. The samples were inundated during shearing to represent adverse field conditions. The results are summarized in Table B-2. Plots can be found in Figures B-2 and B-3.

Consolidation Test

A consolidation test was performed on a selected driven soil sample in general accordance with the latest version of ASTM D2435. The sample was 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 test are attached to this appendix as Figure B-4.

Corrosivity

Soil pH and resistivity tests were performed by Anaheim Test Lab on a representative soil sample in general accordance with the latest version of California Test Method 643. The chloride content of the selected sample was evaluated in general accordance with the latest version of California Test Method 422. The sulfate content of the selected samples was evaluated in general accordance with the latest version of California Test Method 417. The test results are presented on Table B-3.

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Table B-1
No. 200 Wash Sieve Results

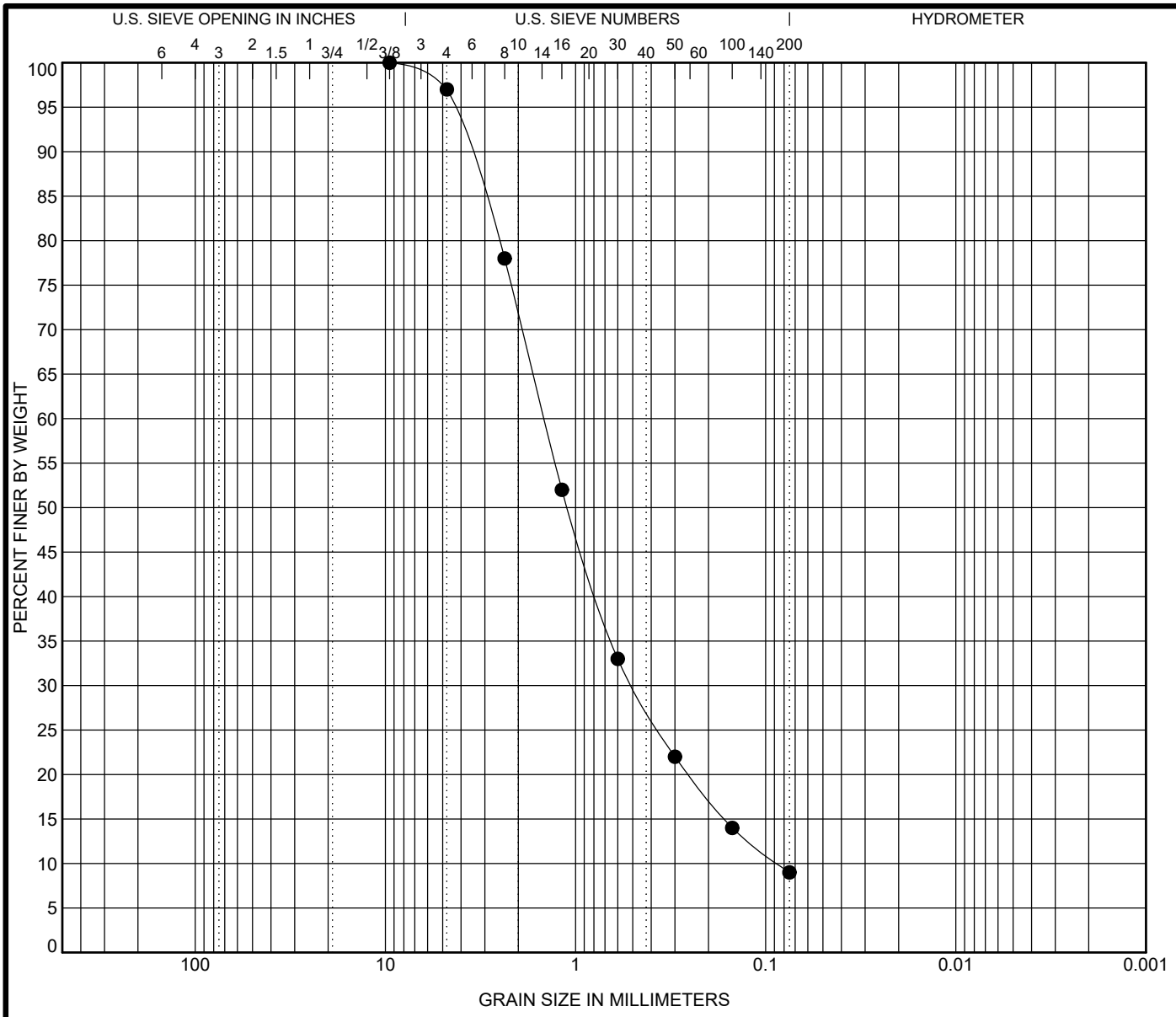
Boring No.	Depth (feet)	Percent Passing #200
B-1	5	39.0

Table B-2
Direct Shear Tests

Boring No.	Depth (feet)	Remolded	Peak		Ultimate	
			C (psf)	ϕ (deg)	C (psf)	ϕ (deg)
B-1	10	No	672	28	500	28
B-2	5	No	476	35	100	34

Table B-3
Soil Corrosivity Test Results

Boring No.	Depth (feet)	pH	Water Soluble Sulfate (ppm)	Water Soluble Chloride (ppm)	Minimum Resistivity (ohm-cm)
B-2	0-5	7.8	320	141	3,200



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Sample Location	U.S.C.S. Classification	Cc	Cu
● **B-2 at 15 ft**	**Well graded SAND with silt**	**1.96**	**16.95**

D_{100}	D_{60}	D_{50}	D_{30}	D_{10}	%Gravel	%Sand	%Silt	%Clay
9.5	**1.461**	**1.099**	**0.497**	**0.086**	**3.0**	**88.0**	**9.0**	

TWINING

GRAIN SIZE DISTRIBUTION

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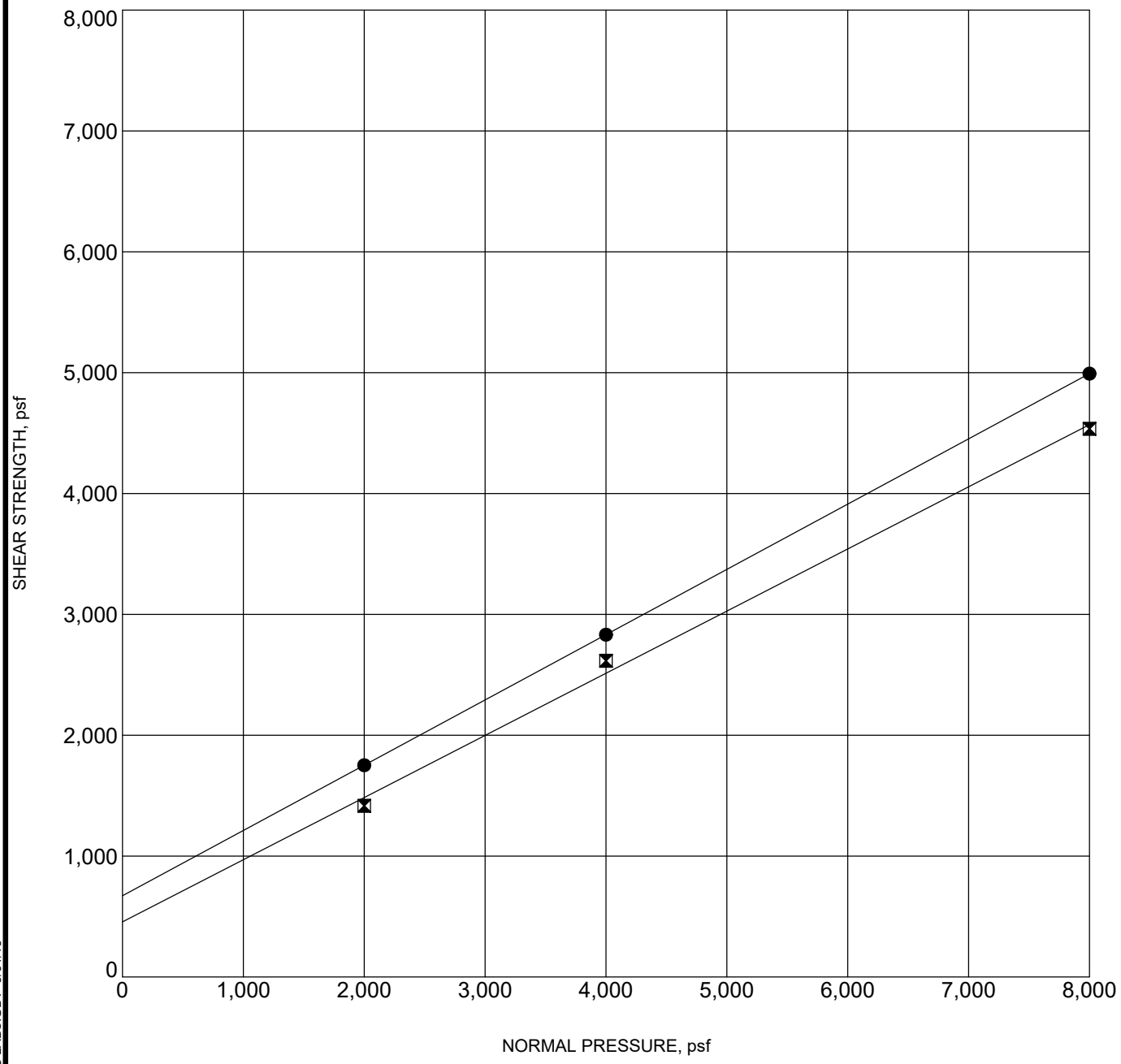
PROJECT NO.	REPORT DATE	FIGURE
180249.3	June 2018	B- 4

GRAIN SIZE 180249.3 - UCR STUDENT SUCCESS CENTER.GPJ TWINING LABS.GDT 5/29/18



Shear Strength Parameters

	Peak	Ultimate
Cohesion, C (psf):	672	500
Friction Angle, Ø (deg):	28	28

Boring No.: B-1
Sample Depth (ft): 10
Sample Description: Silty SAND
Strain Rate (in./min): 0.005
Dry Density (pcf): 123.5

Initial Moisture (%): 11.0
Final Moisture (%): 17.7

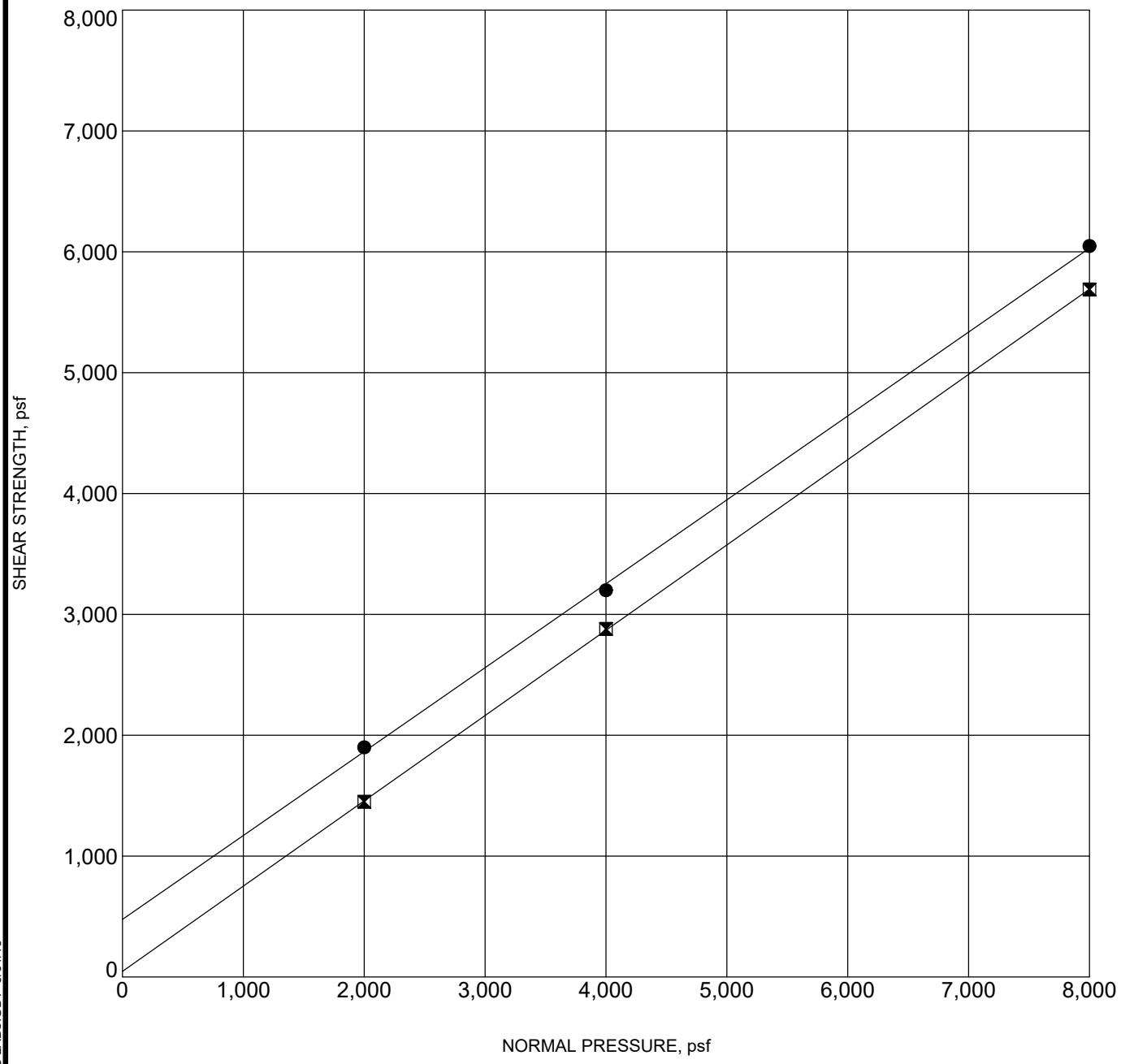
TWINING

DIRECT SHEAR TEST

Student Success Center
UC Riverside
Riverside, California

PROJECT NO.	REPORT DATE	FIGURE
180249.3	June 2018	FIGURE B-4

DIRECT SHEAR 180249.3 - UCR STUDENT SUCCESS CENTER.GPJ TWINING LABS.GDT 5/31/18



Shear Strength Parameters

	Peak	Ultimate
Cohesion, C (psf):	476	100
Friction Angle, Ø (deg):	35	34

Boring No.: B-2
Sample Depth (ft): 5
Sample Description: Silty SAND
Strain Rate (in./min): 0.005
Dry Density (pcf): 125.5

Initial Moisture (%): 8.6
Final Moisture (%): 14.0

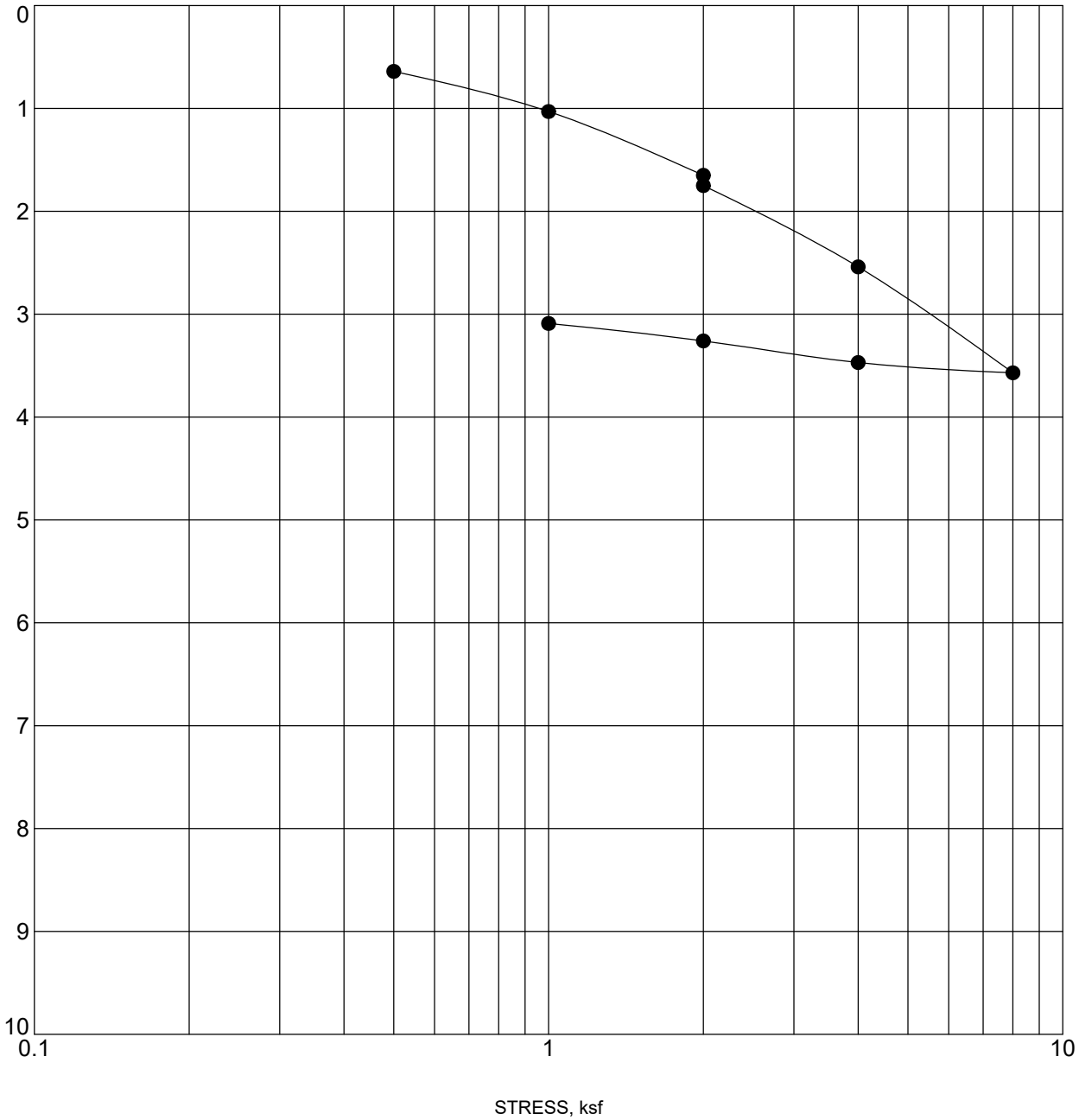
TWINING

DIRECT SHEAR TEST

Student Success Center
UC Riverside
Riverside, California

PROJECT NO.	REPORT DATE	FIGURE
180249.3	June 2018	FIGURE B-2

DIRECT SHEAR 180249.3 - UCR STUDENT SUCCESS CENTER.GPJ TWINING LABS.GDT 5/31/18



Sample Location	Soil Description	Dry Density (pcf)	Moisture Content (%)
● **B-3 at 10 ft**	**Silty SAND**	**125.8**	**10.8**

TWINING

CONSOLIDATION TEST

Student Success Center
UC Riverside
Riverside, California

PROJECT NO.	REPORT DATE	FIGURE
180249.3	June 2018	B-1

TWINING
2883 East Spring Street
Suite 300
Long Beach CA 90806
Tel 562.426.3355
Fax 562.426.6424

Appendix C
Percolation Testing

TWINING
2883 East Spring Street
Suite 300
Long Beach CA 90806
Tel 562.426.3355
Fax 562.426.6424

Appendix C
Percolation Testing

One percolation test was performed at the project site as shown on Figure 2 – Site Location and Exploration Location Map. Percolation testing was on May 11, 2018 in general conformance with the County of Riverside requirements.

The purpose of the tests was to evaluate the infiltration rates of subgrade soils. At the completion of the boring excavation, a 3-inch diameter slotted PVC pipe was inserted in the borehole. The borehole was presoaked prior to testing. After the completion of presoaking, the borings were filled with water to a minimum depth of 12 inches above the bottom of excavation. Upon completion of the borings and testing, the boreholes were backfilled with soil from the cuttings as noted in the Log of Borings.

The lowest reading was used to determine the infiltration rate. A summary of test results is presented in Table C-1 and the detailed test data is attached to this appendix.

Table C-1 - Summary of Percolation Test Results

Test Location	Depth of Test Hole (ft.)	Design Infiltration Rate (in/hr)
B-1	+/- 10	0.03

The infiltration rate of 0.03 inch/hour at upper 10 feet of soil is considered very low. The infiltration BMP facility is not considered feasible, and is not recommended. If required, “filtration” type of stormwater BMP facility, such as bio-filtration planter, is recommended.

Infiltration Rate Calculation Sheet

Project :	UCR - Student Success Center	Project No. :	180249.3	Date :	5/1/2018
Test Hole No.:	B-1	Tested by :	SL		
Depth of Test Hole, D_T (in):	120	USCS Soil Classification :	SM		
Test Hole Dimension (inches)			Length	Width	
Diameter (if round) (inches) =	8	Sides (if rectangular) =			

Sandy Soil Criteria Test*

Trial No.	Start Time	Stop Time	Time Interval (min.)	Initial Depth to Water (in.)	Final Depth to Water (in.)	Change in Water Level (in.)	Greater than or Equal to 6" ? (Y/N)
1	9:50 AM	10:50 AM	60	13.2	18.0	4.8	Y
2	10:51 AM	11:52 AM	60	15.6	21.0	5.4	Y

*If two consecutive measurements show that six inches of water seeps away in less than 25 minutes, the test shall be run for an additional hour with measurements taken every 10 minutes. Otherwise, pre-soak overnight. Obtain at least twelve measurements per hole over at least six hours (approximately 30 minute intervals) with a precision of at least 0.25".

			Δt	H_o	H_f	ΔH	
Trial No.	Start Time	Stop Time	Time Interval (min.)	Initial Water Height (inches)	Final Water Height (inches)	Change in Water Level (inches)	Tested Infiltration Rate
1	11:53 AM	12:23 PM	30	105.60	103.80	1.80	0.1
2	12:23 PM	12:53 PM	30	104.64	102.48	2.16	0.1
3	12:53 PM	1:23 PM	30	104.40	102.48	1.92	0.1
4	1:23 PM	1:53 PM	30	102.48	100.56	1.92	0.1
5	1:53 PM	2:23 PM	30	104.16	102.48	1.68	0.1
6	2:23 PM	2:53 PM	30	103.80	102.00	1.80	0.1
7							
8							
9							
10							
11							
12							
13							
14							
15							

Recommended Infiltration Rate = Min. Tested Rate/2 = 0.03 inch /hr

APPENDIX D

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 Use**[1]	
Ground Clearing/Demolition	84	
Excavation	89	
Foundation Construction	78	
Building Construction	87	
Finishing and Site Cleanup	89	

Oncampus (Bannockburn Village) Noise Exposure		
Maximum Construction Noise (dBA Leq)		1,150
Construction Phase	**All Applicable Equipment in Use**[1]	
Ground Clearing/Demolition	57	
Excavation (Site Preparation)	62	
Foundation Construction	51	
Building Construction	60	
Paving	62	

Offcampus (Linden Street) Noise Exposure		
Maximum Construction Noise (dBA Leq)		1,725
Construction Phase	**All Applicable Equipment in Use**[1]	
Ground Clearing/Demolition	53	
Excavation (Site Preparation)	58	
Foundation Construction	47	
Building Construction	56	
Paving	58	

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.

APPENDIX E

TRAFFIC MEMO

MEMORANDUM

To: Jennifer Marks

From: Darlene Danehy, T.E., PTOE, RSP

Date: August 14, 2019

Subject: UC Riverside Student Success Center Project
Traffic Evaluation

Proposed Project and Location

The proposed Student Success Center Project (Project) is located west of the Student Services Building and south of the Interdisciplinary Building on the University of California, Riverside (UCR) east campus as shown in Figure 1. The Project will include a new 3- to 4-story facility with a maximum of 80,000 square feet. The new facility will include classrooms, student life spaces for activities such as tutoring, mentoring, and studying, and dining services space. The new academic space will serve students who are currently located in the Regency University Village movie theater auditoriums (also shown in Figure 1).

Figure 1. Project Location

Although the Project will add new academic space, it is assumed that the new space will be serving existing students. Therefore, no new trips are expected to be generated by the Project, and a traffic study would not be required under City of Riverside guidelines. In addition, 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. Lastly, 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 applicable mitigation measures identified. Therefore, this memorandum provides a brief discussion on the potential changes in travel patterns due to the Project but does not include any analysis because one is not warranted.

Trip Generation

Based on the anticipated number of new employees 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. As seen in the table, the project is expected to generate 36 new daily trips, including 3 in the AM peak hour and 3 in the PM peak hour.

Table 1. Project Trip Generation (ITE Rates)

ITE LU 550 (University/College)						
Employees			**4**			
Period	**Trips/Unit**	**Trips**	**% In**	**% Out**	**Trips In**	**Trips Out**
AM Peak	0.75	3	76%	24%	2	1
PM Peak	0.79	3	33%	67%	1	2
Daily	8.89	36	50%	50%	18	18

As shown, the project is expected to generate fewer than 50 new peak hour trips. Therefore, no additional analysis is required.

Change in Travel Patterns

While the Project is expected to generate a minimal number of new trips, it is also expected that the Project will result in the redistribution of existing traffic volumes; students and faculty who currently travel to the Regency University Village theater auditoriums west of I-215/SR-60 will now be traveling to campus (east of I-215/SR-60). In addition, students who may have traveled between the campus and the theater will now be able to remain on campus for all their classes and academic needs.

Based on the location of the campus, the Regency University Village theater, and the available parking for the University, it is likely that most drivers will be traveling through the same intersections (i.e. University Avenue at the I-215/SR-60 southbound ramps and I-215/SR-60 northbound ramps, etc.) with the Project as they do currently without the project but will be making different turning movements. Therefore, it is not anticipated that the Project will add any new traffic to the study area beyond that which will be generated by the new employees, and no additional analysis is required.