



Irvine Campus Medical Complex Subsequent Environmental Impact Report

SCH NO. 2020029099

October 2020



Kimley»»Horn

Irvine Campus Medical Complex

Draft Subsequent Environmental Impact Report

SCH 20200029099



Lead Agency:

University of California, Irvine
4199 Campus Drive, Suite 380
Irvine, California 92967

Prepared by:

Kimley»Horn

765 The City Drive, Suite 200
Orange, California 92868

October 2020

TABLE OF CONTENTS

ES	Executive Summary	ES-1
ES.1	Introduction.....	ES-1
ES.2	Project Location and Setting.....	ES-1
ES.3	Project Description Summary.....	ES-2
ES.4	Discretionary Actions and Approvals.....	ES-4
ES.5	Alternatives Analyzed.....	ES-5
ES.6	Issues To Be Resolved.....	ES-7
ES.7	Areas of Controversy.....	ES-7
ES.8	Summary of Significant Environmental Effects.....	ES-7
ES.9	Mitigation Monitoring and Reporting Program.....	ES-9
1.0	INTRODUCTION	1-1
1.1	Purpose of this Environmental Impact Report.....	1-1
1.2	Type of Environmental Impact Report.....	1-2
1.3	Standards of Adequacy Under CEQA.....	1-4
1.4	Review of an EIR.....	1-4
1.5	Scope of the Environmental Impact Report.....	1-5
1.6	Project Sponsors and Contact Persons.....	1-7
1.7	Availability of the Draft EIR.....	1-8
1.8	Comments and Responses and Final EIR.....	1-8
1.9	Mitigation Monitoring and Reporting Program.....	1-8
1.10	UCI Campus, Public and Agency Outreach.....	1-8
1.11	Report Organization.....	1-9
2.0	Project Description	2-1
2.1	Purpose.....	2-1
2.2	Project Location.....	2-1
2.3	On-site and Surrounding Land Uses.....	2-6
2.4	Land Use Designations.....	2-8

2.5	Project Need and Objectives	2-8
2.6	Project Characteristics	2-11
2.7	Sustainability Design Requirements	2-24
2.8	Construction Phasing & Staging.....	2-24
2.9	Intended Use of the SEIR	2-25
3.0	ENVIRONMENTAL ANALYSIS AND MITIGATION.....	3-1
3.1	AESTHETICS	3.1-1
3.1.1	Terminology and Concepts	3.1-1
3.1.2	Regulatory Setting	3.1-3
3.1.3	Existing Conditions.....	3.1-5
3.1.4	Thresholds of Significance	3.1-7
3.1.5	Level of Significance After Mitigation.....	3.1-15
3.1.6	Cumulative Impacts	3.1-15
3.1.7	References	3.1-15
3.2	AIR QUALITY	3.2-1
3.2.1	Introduction.....	3.2-1
3.2.2	Air Pollutants of Concern.....	3.2-1
3.2.3	Regulatory Setting	3.2-3
3.2.4	Existing Conditions.....	3.2-8
3.2.5	Sensitive Air Quality Receptors	3.2-12
3.2.6	Thresholds of Significance	3.2-12
3.2.7	Environmental Impacts.....	3.2-18
3.2.8	Cumulative Impacts	3.2-35
3.2.9	Level of Significance After Mitigation Summary	3.2-35
3.3	BIOLOGICAL RESOURCES	3.3-1
3.3.1	Regulatory Setting	3.3-1
3.3.2	Existing Conditions.....	3.3-6
3.3.3	Thresholds of Significance	3.3-15
3.3.4	Environmental Impacts.....	3.3-17

3.3.5 Cumulative Impacts	3.3-22
3.3.6 Level of Significance After Mitigation Summary	3.3-23
3.3.7 References	3.3-23
3.4 CULTURAL RESOURCES.....	3.4-1
3.4.1 Introduction	3.4-1
3.4.2 Regulatory Setting	3.4-1
3.4.3 Existing Conditions.....	3.4-4
3.4.4 Thresholds of Significance	3.4-7
3.4.5 Environmental Impacts.....	3.4-9
3.4.6 Cumulative Impacts	3.4-13
3.4.7 Level of Significance After Mitigation Summary	3.4-14
3.5 ENERGY.....	3.5-1
3.5.1 Regulatory Setting	3.5-1
3.5.2 Existing Conditions.....	3.5-7
3.5.3 Thresholds of Significance	3.5-10
3.5.4 Environmental Impacts.....	3.5-11
3.5.5 Cumulative Impacts	3.5-20
3.5.6 Level of Significance After Mitigation Summary	3.5-20
3.6 GEOLOGY, SOILS, AND PALEONTOLOGICAL RESOURCES	3.6-1
3.6.1 Regulatory Setting	3.6-1
3.6.2 Existing Conditions.....	3.6-4
3.6.3 Thresholds of Significance	3.6-9
3.6.4 Environmental Impacts.....	3.6-11
3.6.5 Cumulative Impacts	3.6-16
3.6.6 Level of Significance After Mitigation summary.....	3.6-17
3.6.7 References	3.6-18
3.7 GREENHOUSE GAS EMISSIONS	3.7-1
3.7.1 Environmental Setting	3.7-1
3.7.2 Regulatory Setting	3.7-3

3.7.3	Thresholds of Significance	3.7-14
3.7.4	Environmental Impacts.....	3.7-19
3.7.5	Cumulative Impacts	3.7-34
3.7.6	Level of Significance After Mitigation Summary	3.7-34
3.8	HAZARDS AND HAZARDOUS MATERIALS	3.8-1
3.8.1	Introduction.....	3.8-1
3.8.2	Regulatory Setting	3.8-1
3.8.3	Environmental Setting	3.8-7
3.8.4	Thresholds of Significance	3.8-11
3.8.5	Environmental Impacts.....	3.8-12
3.8.6	Cumulative Impacts	3.8-18
3.8.7	References	3.8-19
3.9	HYDROLOGY AND WATER QUALITY	3.9-1
3.9.1	Regulatory Setting	3.9-1
3.9.2	Environmental Setting	3.9-10
3.9.3	Thresholds of Significance	3.9-11
3.9.4	Environmental Impacts.....	3.9-14
3.9.5	Cumulative Impacts	3.9-21
3.9.6	References	3.9-22
3.10	LAND USE AND PLANNING	3.10-1
3.10.1	Regulatory Setting	3.10-1
3.10.2	Environmental Setting.....	3.10-5
3.10.3	Thresholds of Significance	3.10-6
3.10.4	Environmental Impacts	3.10-7
3.10.5	Cumulative Impacts.....	3.10-10
3.10.6	References.....	3.10-15
3.11	NOISE	3.11-1
3.11.1	Acoustic Fundamentals	3.11-1
3.11.2	Regulatory Setting	3.11-7

3.11.3 Existing Conditions	3.11-13
3.11.4 Sensitive Receptors	3.11-16
3.11.5 Thresholds of Significance	3.11-16
3.11.6 Environmental Impacts	3.11-21
3.11.7 Cumulative Impacts	3.11-35
3.11.8 Level of Significance After Mitigation	3.11-38
3.12 POPULATION AND HOUSING	3.12-1
3.12.1 Regulatory Setting	3.12-1
3.12.2 Environmental Setting	3.12-3
3.12.3 Thresholds of Significance	3.12-7
3.12.4 Environmental Impacts	3.12-7
3.12.5 Cumulative Impacts	3.12-9
3.12.6 Level of Significance After Mitigation	3.12-9
3.12.7 References	3.12-9
3.13 PUBLIC SERVICES	3.13-1
3.13.1 Regulatory Setting	3.13-1
3.13.2 Environmental Setting	3.13-3
3.13.3 Thresholds of Significance	3.13-5
3.13.4 Environmental Impacts	3.13-6
3.13.5 Cumulative Impacts	3.13-11
3.13.6 References	3.13-12
3.14 RECREATION	3.14-1
3.14.1 Introduction	3.14-1
3.14.2 Regulatory Setting	3.14-1
3.14.3 Environmental Setting	3.14-3
3.14.4 Thresholds of Significance	3.14-3
3.14.5 Environmental Impacts	3.14-3
3.14.6 Cumulative Impacts	3.14-5
3.14.7 References	3.14-5

3.15 TRANSPORTATION	3.15-1
3.15.1 Regulatory Setting	3.15-1
3.15.2 Existing Conditions	3.15-3
3.15.3 Thresholds of Significance	3.15-7
3.15.4 Environmental Impacts	3.15-13
3.15.5 Cumulative Impacts	3.15-31
3.15.6 Level of Significance After Mitigation Summary	3.15-32
3.15.7 References	3.15-32
3.16 TRIBAL CULTURAL RESOURCES	3.16-1
3.16.1 Regulatory Setting	3.16-1
3.16.2 Environmental Setting	3.16-3
3.16.3 Thresholds of Significance	3.16-4
3.16.4 Environmental Impacts	3.16-5
3.16.5 Cumulative Impacts	3.16-6
3.16.6 Level of Significance After Mitigation Summary	3.16-7
3.17 UTILITIES AND SERVICE SYSTEMS	3.17-1
3.17.1 Regulatory Setting	3.17-1
3.17.2 Environmental Setting	3.17-3
3.17.3 Thresholds of Significance	3.17-7
3.17.4 Environmental Impacts	3.17-7
3.17.5 Cumulative Impacts	3.17-13
3.17.6 References	3.17-14
4.0 OTHER CEQA CONSIDERATIONS	4-1
4.1 Effects Found Not to be Significant	4-1
4.2 Growth Inducement	4-4
4.3 Significant Irreversible Environmental Changes	4-7
4.4 Significant and Unavoidable Environmental Impacts	4-8
4.5 References	4-8

5.0 ALTERNATIVES	5-1
5.1 Introduction	5-1
5.2 Criteria for Selecting Alternatives.....	5-1
5.3 Development Alternatives Considered but Not Carried Forward	5-3
5.4 Alternatives for Analysis	5-4
5.5 Summary of Project Alternatives.....	5-28
5.6 Environmentally Superior Alternative	5-28
6.0 PREPARERS PAGE	6-1
6.1 EIR Preparers/Reviewers	6-1

Tables

Table ES-1: Summary of Significant Impacts and Mitigation Measures	ES-10
Table 1-1: Summary of Written Comments on Notice of Preparation	1-6
Table 2-1: Existing North Campus Land Uses.....	2-7
Table 2-2: ICMC Project Summary	2-11
Table 2-3: Facilities Potentially Impacted by Project Construction	2-15
Table 2-4: Construction Activities by Phase.....	2-24
Table 3.0-1: Cumulative Projects List	3.0-5
Table 3.2-1: Air Contaminants and Associated Public Health Concerns	3.2-1
Table 3.2-2: State and Federal Ambient Air Quality Standards	3.2-4
Table 3.2-3: South Coast Air Basin Attainment Status.....	3.2-10
Table 3.2-4: Ambient Air Quality Data	3.2-11
Table 3.2-5: Sensitive Receptors	3.2-12
Table 3.2 6: SCAQMD Emissions Thresholds	3.2-13
Table 3.2-7: Local Significance Thresholds for Construction/Operations (Maximum Pounds per Day)	3.2-14
Table 3.2-8: Construction-Related Emissions	3.2-21
Table 3.2-9: Unmitigated Operational Emissions.....	3.2-21
Table 3.2-10: Mitigated Operational Emissions	3.2-23

Table 3.2-11: Equipment-Specific Grading Rates.....	3.2-28
Table 3.2-12: Localized Significance of Construction Emissions	3.2-29
Table 3.2-13: Localized Significance of Operational Emissions.....	3.2-30
Table 3.2-14: Construction Risk	3.2-33
Table 3.2-15: Operational Health Risk	3.2-34
Table 3.5-1: UC Energy Services Unit Historical Emissions Factors.....	3.5-8
Table 3.5-2: Electricity Consumption in Orange County 2008-2018.....	3.5-8
Table 3.5-3: Natural Gas Consumption in Orange County 2008-2018.....	3.5-9
Table 3.5-4: Project Energy Use During Construction.....	3.5-12
Table 3.5-5: Project Energy Use During Operations	3.5-14
Table 3.6-1: Summary of Major Active Faults.....	3.6-5
Table 3.7 1: Description of Greenhouse Gases.....	3.7-2
Table 3.7 2: Construction-Related Greenhouse Gas Emissions.....	3.7-19
Table 3.7 3: Project Greenhouse Gas Emissions.....	3.7-20
Table 3.7 4: UCI Climate Action Plan and UC Sustainable Practices Policy Consistency	3.7-21
Table 3.7 5: Regional Transportation Plan/Sustainable Communities Strategy Consistency.....	3.7-27
Table 3.7-6: Project Consistency with Applicable CARB Scoping Plan Measures	3.7-29
Table 3.9-1: Potential Pollutant Activity or Sources List	3.9-15
Table 3.10-1: UCI 2007 Long Range Development Plan Consistency Analysis.....	3.10-11
Table 3.11-1: Typical Noise Levels	3.11-2
Table 3.11-2: Definitions of Acoustical Terms	3.11-3
Table 3.11-3: Human Reaction and Damage to Buildings from Vibrations	3.11-6
Table 3.11-4: City of Irvine Land Use Compatibility Guidelines.....	3.11-8
Table 3.11-5: City of Irvine Noise Ordinance Limits.....	3.11-10
Table 3.11-6: City of Long Beach Land Use Compatibility Guidelines.....	3.11-10
Table 3.11-7: Newport Beach Significant Noise Impact Criteria.....	3.11-12
Table 3.11-8: Newport Beach Allowable Exterior Noise Levels.....	3.11-12
Table 3.11-9: Newport Beach Allowable Interior Noise Levels.....	3.11-12
Table 3.11-10: Existing Traffic Noise	3.11-13

Table 3.11-11: Existing Noise Measurements.....	3.11-14
Table 3.11-12: Sensitive Receptors	3.11-16
Table 3.11-13: Typical Construction Noise Levels	3.11-22
Table 3.11-14: Project Construction Noise Levels.....	3.11-23
Table 3.11-15: Ambient and Project Construction Noise Levels	3.11-25
Table 3.11-16: Existing and Project Traffic Noise	3.11-26
Table 3.11-17: Buildout and Project Traffic Noise.....	3.11-27
Table 3.11-18: Typical Construction Equipment Vibration Levels.....	3.11-34
Table 3.11-19: Cumulative Plus Project Conditions Predicted Traffic Noise Levels	3.11-37
Table 3.12-1: Population Projections for Orange County and Irvine: 2012-2040.....	3.12-3
Table 3.12-2: Housing Units for Orange County and Irvine	3.12-4
Table 3.12-3: 2016 Household Projections for Orange County and Irvine: 2012-2040.....	3.12-4
Table 3.12-4: City of Irvine RHNA Allocation: 2014-2021	3.12-5
Table 3.12-5: Employment Projections for Orange County and Irvine: 2012-2040.....	3.12-5
Table 3.12-6: Jobs to Housing Ratio Projections for Orange County and Irvine: 2012-2040.....	3.12-6
Table 3.12-7: UCI Population Accommodated in 2007 LRDP.....	3.12-6
Table 3.13-3: OC Public Library Facilities in The City of Irvine	3.13-5
Table 3.15-1: VMT Significance Criteria	3.15-9
Table 3.15-2: City of Irvine VMT Significance Thresholds	3.15-11
Table 3.15-3: Bus Boardings Per Week	3.15-15
Table 3.15-4: Project Trip Generation.....	3.15-18
Table 3.15-5: Irvine Transportation Analysis Model VMT Estimates	3.15-23
Table 3.15-6: Project VMT Estimates	3.15-23
Table 3.15-7: VMT Reductions Summary.....	3.15-27
Table 3.15-8: Project VMT with VMT Reductions	3.15-28
Table 3.17-1: OCSW Wastewater Treatment and Capacity	3.17-11
Table 5-1: Summary Analysis for Alternatives to the Proposed Project.....	5-29
Table 5-2: Ability of Alternative to Meet Project Objectives	5-30

Figures

Figure 2-1:	Regional Location Map.....	2-2
Figure 2-2:	Local Vicinity	2-3
Figure 2-3:	UCI Planning Sectors	2-4
Figure 2-4:	Project Site	2-5
Figure 2-5:	Existing LRDP Land Use Designations.....	2-9
Figure 2-6:	Conceptual Site Plan	2-12
Figure 2-7:	Pedestrian and Bicycle Circulation.....	2-17
Figure 2-8:	Conceptual Rendering Looking Northwest	2-19
Figure 2-9:	Conceptual Rendering Looking Southeast	2-20
Figure 2-10:	Conceptual Landscape Zones	2-21
Figure 2-11:	Utility Improvements	2-22
Figure 3.1-1:	Aerial View Looking Southwest.....	3.1-10
Figure 3.1-2:	Conceptual Rendering – View from Entry Driveway.....	3.1-11
Figure 3.1-3:	Conceptual Rendering – View from Campus Drive Looking West	3.1-12
Figure 3.1-4:	Conceptual Rendering – View from Marsh Buffer Looking West	3.1-13
Figure 3.3-1:	Vegetation Communities, Land Uses, and Special-Status Species.....	3.3-8
Figure 3.3-2:	Special-Status Species and Habitat within Five Miles of the Project Site	3.3-11
Figure 3.3-3:	United States Army Corps of Engineers Wetland Jurisdiction	3.3-12
Figure 3.3-4:	California Department of Fish and Wildlife Wetland Jurisdiction.....	3.3-13
Figure 3.6-1:	Fault Locations	3.6-7
Figure 3.9-1:	FEMA 100-year Floodplain	3.9-3
Figure 3.11-1:	Noise Measurement Locations	3.11-15
Figure 3.15-1:	Existing Transit Routes	3.15-5
Figure 3.15-2:	Existing Site Access.....	3.15-8
Figure 3.15-3:	Pedestrian and Bicycle Circulation Plan	3.15-16
Figure 3.15-4:	Proposed Site Access.....	3.15-30
Figure 5-1:	Alternative 3 Conceptual Site Plan.....	5.1-15
Figure 5-2:	Alternative 4 Conceptual Site Plan.....	5.1-22

List of Appendices

- A Notice of Preparation and Comments
- B Air Quality and Greenhouse Gas Emissions Modeling Data
- C-1 Biological Resources Report
- C-2 Jurisdictional Delineation Report
- C-3 Rare Plant Survey
- D Cultural Resources and Tribal Cultural Resources Identification Study
- E Geotechnical Data Report
- F Concept Drainage and Water Quality Technical Memorandum
- G Noise Modelling Data
- H Transportation Study

This Page Intentionally Left Blank

ES EXECUTIVE SUMMARY

ES.1 Introduction

The environmental impact report (EIR) process, as defined by the California Environmental Quality Act (CEQA), requires the preparation of an objective, full-disclosure document in order to (1) inform agency decision-makers and the general public of the direct and indirect potentially significant environmental effects of a proposed action; (2) identify feasible or potentially feasible mitigation measures to reduce or eliminate potentially significant adverse impacts; and (3) identify and evaluate reasonable alternatives to a project. In accordance with Section 15161 of the State CEQA Guidelines (Title 14 of the California Code of Regulations [CCR]), this is a Subsequent EIR (SEIR) that addresses the potential environmental impacts associated with the proposed Project, known as the University of California, Irvine (UCI) Irvine Campus Medical Complex (ICMC).

Each campus of the University of California is required to periodically prepare a Long Range Development Plan (LRDP) that sets forth concepts, principles, and plans to guide future growth of that campus. In November 2007, the Regents of the University of California (Regents) adopted the 2007 LRDP for the University of California Irvine (UCI) campus, which outlines projected development levels and patterns for UCI at all of its main campus sites through the year 2026. The 2007 LRDP EIR was certified by the Regents in November 2007 and includes, among other things, analysis of the potential environmental impacts from then-envisioned approximately 435 residential units and 950,000 gross square feet of mixed-use development in the North Campus. Subsequently, in June 2018, a minor amendment to the LRDP, Amendment #1, was approved to add Clinical uses as a Primary Use to the North Campus' Mixed Use - Commercial land use designation.

This SEIR analyzes the potential environmental impacts related to the implementation of the proposed Project, which is described in Section 2.0, *Project Description*. In accordance with Section 15161 of the State CEQA Guidelines, an EIR “examines the environmental impacts of a specific development project. This type of EIR should focus primarily on the changes in the environment that would result from the development project. The EIR shall examine all phases of the project including planning, construction, and operation”.

This Executive Summary is provided in accordance with CEQA Guidelines Section 15123. As stated in CEQA Guidelines Section 15123(a), “[a]n EIR shall contain a brief summary of the proposed actions and its consequences. The language of the summary should be as clear and simple as reasonably practical.” CEQA Guidelines Section 15123(b) states, “[t]he summary shall identify: 1) each significant effect with proposed mitigation measures and alternatives that would reduce or avoid that effect; 2) areas of controversy known to the Lead Agency, including issues raised by agencies and the public; and 3) issues to be resolved including the choice among alternatives and whether or how to mitigate the significant effects.”

ES.2 Project Location and Setting

The Project site is a part of the University of California, Irvine (UCI) campus located in the city of Irvine, County of Orange, California. Regional access to the UCI campus is provided by Interstate 405 (I-405), State Route 73 (SR-55), and State Route 55 (SR-55).

The 1,475-acre UCI campus is delineated into five planning sectors: Academic Core, East Campus, West Campus, North Campus, and South Campus. These planning sectors are connected through physical linkages, such as pedestrian walkways, bicycle and trail systems, transit routes, and roadways.

The Project site is located within the 144-acre North Campus area. The North Campus is approximately 1.5 miles from the Academic Core and is physically separated from the Main Campus by University Drive, San Diego Creek, and the UC San Joaquin Marsh Reserve. The North Campus is generally bordered by Jamboree Road on the northwest, Campus Drive on the northeast, the UC San Joaquin Marsh Reserve to the south, and MacArthur Boulevard to the west.

The approximately 14.5-acre Project site is generally bordered by the UCI Support Services Facilities, UCI Academic Facilities, UCI Arboretum, and Campus Drive to the northeast; the closed UCI Child Development Center, which will be the site of the approved but yet to be constructed UCI Center for Child Health/Medical Office Building development Project (CCH Project) and Jamboree Road to the west,

ES.3 Project Description Summary

The UCI ICMC proposed Project would allow for the development of an integrated medical campus providing inpatient, ambulatory, and emergency care services space to meet community needs.

- **ICMC Acute Care Hospital.** The ICMC Acute Care Hospital would be an Office of Statewide Health Planning and Development (OSHPD) 1 facility.¹ The hospital would have 96 to 144 inpatient acute beds inclusive of Oncology, Neurosciences, Orthopedics, Spine, General Medicine, Emergency, and Surgical services. Additional services and facilities would include an Emergency Department, surgical services, prep and recovery facilities, diagnostic and inpatient imaging, laboratory services, support services, and an inpatient pharmacy. An Observation Unit would be located adjacent to the Emergency Department. The 350,000-gross square feet (gsf) hospital would have six stories and a basement level.
- **Ambulatory Care Center.** The Ambulatory Care Center would be an OSHPD 3 facility.² The facility is proposed as a 225,000 gsf building with six stories and a basement level. Outpatient services would include Oncology, Neurosciences, Orthopedics, and Spine. Each clinic would have a modular design for flexibility and assignment of rooms, creating a multi-disciplinary, integrated approach for patients and staff. Uses may include medical exam rooms, outpatient surgery services and procedure rooms, 23-hour observation rooms, and diagnostic and imaging services. Additional services and facilities would include the Infusion Center for chemotherapy and non-oncology infusions, as well as an outpatient retail pharmacy and an infusion pharmacy would be in the Ambulatory Care Center.
- **Central Utility Plant.** The OSHPD-compliant Central Utility Plants would be constructed to provide thermal energy service to the Project. Heated hot water, chilled water and steam, as well as back-up power generation would be supplied to the building. The three-story Central Utility Plant would be located adjacent to the parking structure. The Central Utility Plants would include

¹ OSHPD 1 facilities include general acute care hospitals, acute psychiatric hospitals, and general acute care hospitals providing only acute medical rehabilitation center services. A hospital campus may consist of a number of structures, some under OSHPD jurisdiction with the rest under the jurisdiction of the local building authorities.

² While OSHPD is responsible for proposing the building standards for licensed clinics, the authority for review, permitting and construction inspection of “out-patient clinical services”, “primary-care clinics” and “specialty clinics” is typically under the jurisdiction of the local building official.

chillers, cooling towers, boilers, electrical generators, and chilled and high-temperature water distribution systems.

- **Parking.** The majority of patient, staff, and visitor parking would be provided in a free-standing parking structure on the northern edge of the Project Site. The Parking Structure would have approximately 1,400 parking spaces. The parking structure would have six levels of above-grade parking and two level of below-grade parking. A canopy-mounted photovoltaic array will be located on the top level of the parking structure to produce renewable energy to serve the Project. Additional visitor parking, short-term parking, service parking, and drop-off areas would be provided in surface parking areas distributed throughout the site. A temporary, unpaved surface lot would be installed within the existing UCI Support Services Facilities area to accommodate displaced spaces due to Project demolition. These spaces would be utilized by UCI Support Services Facilities.

Access to the Project site would be provided from Jamboree Road at two vehicular access points that would be improved as a part of the UCI Center for Child Health Project (CCH, approved separately by UCI in March 2020). The CCH project site would be accessed from the existing signalized intersection of Jamboree Road at Birch Street and a right-in/right-out access approximately 700 feet west of Birch Street, known as the West Access Road. Birch Street would be extended onto the site. The West Access Road driveway would be improved to two lanes.

The primary entry for visitors would be from the Birch Street access. A central arrival court would serve as the primary destination for visitor and patient drop off, including rideshare traffic. Multiple covered patient drop off zones would be provided. Visitors arriving to the Project site from the West Access Road would use the Esplanade drive on the northern edge of the project site to access the parking structures. The primary entry for staff would be from the West Access Road with access to the parking structure from the south entry. Service and deliveries would access the site from the Birch Street access. A dedicated Emergency Department drop-off for emergency vehicles would be located west of hospital along the access road. A dedicated visitor surface parking lot would be provided near the Emergency Department.

Project implementation would require demolition of storage containers, trailers, and surface parking. In addition, the Project proposes to use approximately 3.5 acres of the existing UCI Arboretum area as a temporary construction staging and equipment laydown area. Use of this area for construction staging would require some grading to create a flat pad. Additional minor grading would occur for the temporary, unpaved surface lot to be located in the existing UCI Support Service Facilities area.

The 2007 LRDP provides the comprehensive framework for the physical development of the UCI campus and is the primary planning document for the campus; no other local land use plans apply to the University. The LRDP contemplated that North Campus redevelopment, to accommodate future LRDP development, would require demolition of existing North Campus facilities and relocation of those uses to other areas of the campus as identified in the LRDP.

The existing LRDP land use designations for the Project site are Mixed Use–Commercial and Open Space. The Mixed Use–Commercial land use designation allows for the construction of facilities for Medical Office, General Office, Research and Development, Academic Uses, Commercial and Retail, Conference Facilities, and Residential uses. The Open Space – General land use designation allows for the construction of pedestrian and bike trails, water quality and drainage structures, food service, interpretive centers, field research facilities, maintenance roads, and support structures.

The Project is consistent with the North Campus development program identified in the 2007 LRDP which allows 950,000 gsf of development and 435 residential units on approximately 46 acres of the 144-acre North Campus sector. While the Project is consistent with the intent of the North Campus development program, the Project proposes an LRDP land use amendment to the 2007 LRDP to allow inpatient clinical uses within the Mixed Use – Commercial land use designation. With this amendment, the land use designation allows inpatient and outpatient clinical uses as well as all of the other proposed uses on the site.

Implementation of the proposed Project would be phased over an approximately 30-month period with demolition and grading activities anticipated to commence in Spring 2021 and construction completed in Fall 2023.

Phase A: Demolition Site Grading, Installation of Utilities	2 months: April 2021 – June 2021
Phase B: Construction of Clinics and Ambulatory Services Building, Parking Structure	12 months: June 2021 – June 2023
Phase C: Construction of Acute Hospital, Central Utility Plant, Surface Parking, Parking Structure	16 months: June 2021 – October 2023

ES.4 Discretionary Actions and Approvals

University of California Board of Regents

- Certification of the UCI Irvine Campus Medical Complex Final SEIR. The Project requires the certification of an environmental document as having been prepared in compliance with CEQA, as amended (Public Resources Code §21000 et seq.), the CEQA Guidelines (California Code of Regulations §15000 et seq.), and in accordance with the University of California Procedures for the Implementation of CEQA.
- Approval of UCI LRDP Amendment #3 to allow Inpatient uses in the North Campus land use designation of Mixed Use – Commercial.
- Approval of the UCI Irvine Campus Medical Complex Project Design.

Responsible Agencies

Federal Emergency Management Agency (FEMA) and City of Irvine. To construct in the FEMA floodplain, a Conditional Letter of Map Revision (CLOMR) is required. The submittal will require approval from the City of Irvine as the local floodplain administrator. Following local approval, approval is required by FEMA.

California Office of Statewide Health Planning and Development (OSHPD). OSHPD is responsible for overseeing all aspects of construction of general acute care hospital, psychiatric hospital, and multiple-story skilled nursing home, and intermediate care facilities in California. This responsibility includes: a) establishing building standards adopted in the California Building Standards Code which govern construction of these types of facilities; b) reviewing plans and specifications for new construction, alteration, renovation, or additions to health facilities; and, c) observing construction in progress to ensure compliance with the approved plans and specifications.

State of California, Water Resources Control Board. Pursuant to the federal Clean Water Act [Section 402(g)] and State General Construction Activity Storm Water Permit, a National Pollution Discharge Elimination System (NPDES) permit will be required for the Project. A NPDES permit will be

required where construction activities will result in the disturbance of equal to or greater than one acre and less than five acres, or for site activities disturbing less than one acre where the activities are a part of a larger common plan of development or sale.

Santa Ana Regional Water Quality Control Board (RWQCB). Issuance of a National Pollution Discharge Elimination System (NPDES) Permit and Construction General Permit. If required, the Santa Ana RWQCB would also issue a Dewatering Permit consistent with the General Permit.

South Coast Air Quality Management District. A permit from the SCAQMD would be required for generators.

Orange County Airport Land Use Commission (ALUC). The Project will be referred to the ALUC for determination of Project consistency with the Airport Environs Land Use Plan (AELUP) for John Wayne Airport.

Federal Aviation Administration (FAA). Based on the location of the Project site and the proposed height of the buildings, the Applicant will file Form 7460-1, Notice of Actual Construction or Alteration, with the FAA. The FAA will use information provided in Form 7460-1 and other data to conduct an aeronautical review for the Project.

Department of Toxic Substance Control (DTSC). Based on preliminary assessment of the Project site, the University intends to enter into a Consultative Services Agreement with DTSC regarding potential soil and soil vapor contaminants.

ES.5 Alternatives Analyzed

In accordance with Section 15126.6 of the State CEQA Guidelines, Section 5.0, Alternatives, of this SEIR addresses alternatives to the proposed Project. Section 5.0 provides descriptions of each alternative; a comparative analysis of the potential environmental effects of each alternative to those associated with the proposed Project; and a discussion of each alternative's ability to meet the Project objectives. Following is a summary description of the alternatives evaluated in this SEIR. In addition to the following alternatives being evaluated, the following alternatives were considered during the scoping and planning process, but were not selected for detailed analysis in this Draft SEIR: Alternative Site - Off-Campus. This alternative is further described and discussed in Section 5.0.

Alternative 1: No Project/No Development (Continuation of Existing Land Uses)

Alternative 1 assumes existing conditions on the Project site as the continued use of the property. As such, the Project site would remain in its current undeveloped condition. Under the Alternative 1 scenario, no improvements would occur. This alternative would not require an amendment to the UCI LRDP.

Alternative 2: Land Uses Consistent with Existing LRDP Designations Alternative

Alternative 2 is the alternative that assumes development of the Project site would be consistent with the existing LRDP land use designations. The 2007 LRDP identifies that the existing LRDP land use designations for the Project site are Mixed Use – Commercial and Open Space – General where permanent structures would be placed. The Mixed Use – Commercial land use designation allows for the construction of up to 950,000 square feet of facilities for Clinical, General Office, Research and Development, Academic Uses,

Commercial and Retail, Conference Facilities, and Residential uses (up to 435 units) within the North Campus area.

The Open Space – General land use designation allows for the construction of pedestrian and bike trails, water quality and drainage structures, food service, interpretive centers, field research facilities, maintenance roads, and support structures. The Open Space – General designation is located on the southern portion of the Project site and is the area that contains the 150-foot development buffer from the UC San Joaquin Marsh Reserve. Consistent with the land use requirements of the 2007 LRDP, development under this alternative would have the same 150-foot buffer from the marsh as the proposed Project.

Anticipated uses under this alternative could include for profit uses such as high-rise market rate residential housing, commercial office space, and support retail. Medical offices could be developed under this alternative, but no inpatient uses would be permitted. It is assumed that development under this alternative would include a similar number of square feet of development area to account for roadway, open space, and parking requirements.

Alternative 3: Jamboree Road and Campus Drive Alternative

Development under Alternative 3: Jamboree Road and Campus Drive Alternative consists of the same programming for a campus medical complex as the proposed Project but located at a different site within the UCI North Campus just to the north of the proposed Project site. The Alternative 3 site is located on Jamboree Road at the southeast corner of the intersection of Campus Drive. The Alternative 3 site is larger at approximately 22 acres compared to 14.5 acres for the proposed Project. As such, development under Alternative 3 would be at a lower intensity with surface parking proposed instead of a parking structure. The majority of surface parking would be developed on the current UCI Arboretum site and the Arboretum would be relocated to another location on the UCI main campus. This site would result in a higher visibility for UCI Health given its location on Jamboree Road. Development in this location would require relocation of the existing UCI support services facilities to another location on the UCI campus. No alternative location for the facilities has been identified at this time but the impact of relocating that use would occur.

Alternative 4: West Campus Alternative

Development under Alternative 4 would be located on the UCI West Campus. Consideration was originally given to locating the Project on the UCI West Campus near the intersection of Bison Avenue at California Avenue. The Project in this location would be adjacent to the College of Health Sciences/Nursing Building development approved in 2019. A site analysis was prepared and site planning options were developed for UCI consideration. Under this alternative, the proposed hospital would be the same size, but would not include an emergency department. The hospital and ambulatory care center would be attached as one building. Under Alternative 4, the ambulatory care center would be a smaller facility at 80,000 to 120,000 square feet compared to 225,000 square feet for the proposed Project. Parking would be a combination of surface parking and a parking structure. Development in this location would require an amendment to the 2007 LRDP to change the existing designation of Open Space – General to Income-Producing Inclusion Area and adding Inpatient use as an allowable use.

ES.6 Issues To Be Resolved

Section 15123(b)(3) of the State CEQA Guidelines requires that an EIR contain a discussion of issues to be resolved, including the choice among alternatives and whether or how to mitigate significant impacts. With respect to the proposed Project, the key issues to be resolved include decisions by the Regents, as Lead Agency, as to:

- Whether this environmental document adequately describes the environmental impacts of the proposed Project;
- Whether the recommended mitigation measures and identified campus programs, practices and procedures should be modified and/or adopted;
- Whether the Project benefits override those environmental impacts that cannot be feasibly avoided or mitigated to a level below significance;
- Whether there are other mitigation measures that should be applied to the Project besides those identified in the EIR; and
- Whether there are any alternatives to the proposed Project that would substantially lessen any of its significant impacts while achieving most of the basic Project objectives.

ES.7 Areas of Controversy

Section 15123(b)(2) of the State CEQA Guidelines indicates that an EIR summary should identify areas of controversy known to the lead agency, including issues raised by agencies and the public. This Draft SEIR has taken into consideration the comments received from the public and various agencies in response to the Notice of Preparation (NOP) and during the public scoping session held on March 9, 2020. Written comments received during the NOP and scoping period are contained in Appendix A of this SEIR. Environmental issues that have been raised during opportunities for public input regarding the Project are summarized in Section 1.5.2, Notice of Preparation, of this SEIR and are addressed in each relevant issue area analyzed in Section 3 of this SEIR.

No areas of controversy are known to UCI at the time this SEIR is prepared. Based on input received from the public during the scoping process, the areas of interest at this time are related to:

- Off-site traffic impacts from trips generated by the Project;
- Impacts on biological resources from development on the Project Site;
- Impacts on hydrology and water quality as a result of development on the Project site;
- Visual impacts as a result of new development on the Project site; and
- Potential impacts on the capacity of existing utilities to serve the proposed Project.

ES.8 Summary of Significant Environmental Effects

Pursuant to Sections 15126.2 and 15126.4 of the State CEQA Guidelines, an EIR is required to identify any potentially significant adverse impacts and recommend mitigation that would eliminate or reduce these impacts to levels of less than significant. The environmental issue areas identified for study in this SEIR are:

- Aesthetics
- Air Quality
- Biological Resources
- Cultural Resources

- Energy
- Geology/Soils
- Greenhouse Gas Emissions
- Hazards/Hazardous Materials
- Hydrology/Water Quality
- Land Use/Planning
- Noise
- Population and Housing
- Public Services
- Recreation
- Transportation
- Tribal Cultural Resources
- Utilities/Service Systems

Sections 3.1 through 3.17 of this SEIR provide the required environmental analysis for these topical issues. Table ES-1 presents a summary of the environmental impacts resulting from the proposed Project. As shown in Table ES-1, even with incorporation of the applicable 2007 LRDP EIR Mitigation Measures, the proposed Project would result in potentially significant cultural and tribal cultural resources impacts (project and cumulative).

For the other topical issues (aesthetics, air quality, biological resources, energy geology and soils, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality, land use and planning, noise, population and housing, public services, recreation, transportation, and utilities and service systems), the proposed Project would have no impact, a less than significant impact, or a less than significant impact with mitigation incorporated.

Even with implementation of Project-specific mitigation measures, significant and unavoidable impacts would result from implementation of the proposed Project. Because unavoidable significant adverse impacts would result from the Project, the Regents, as Lead Agency, must prepare a “Statement of Overriding Considerations” before it can approve the Project. A Statement of Overriding Considerations states that the decision-making body has balanced the benefits of the proposed Project against its unavoidable significant environmental effects and has determined that the benefits of the Project outweigh the adverse effects and, therefore, the adverse effects are considered to be acceptable. A summary of the significant and unavoidable impacts of the proposed Project is included below.

Cultural Resources

The proposed Project would result in a substantial adverse change in the significance of a prehistoric or historic archaeological resource pursuant to CEQA Guidelines Section 15064.5. The previously identified site P30-000115/CA-ORA-115 would be lost because avoidance is not possible and proposed feasible mitigation, Mitigation Measures CUL-1, CUL-2, and CUL-3, which includes recovery of the resource, would not reduce impacts to less than significant. As such potential impacts remain significant and unavoidable. Potential cumulative impacts related to cultural resources would also be significant and unavoidable.

Tribal Cultural Resources

It is possible that unknown buried tribal cultural resources could be present on the Project site and would not be discovered until after construction activities begin. Should buried or otherwise unknown tribal cultural resources, per Public Resources Code Section 5024.1, be encountered and damaged during construction, a potentially significant impact would result. Implementation of Mitigation Measures CUL-1, CUL-2, and CUL-3 would reduce impacts to unknown Tribal Cultural Resources, but due to impacts on archeological site P30-000115/CA-ORA-115, potential impacts remain significant and unavoidable. Potential cumulative impacts related to tribal cultural resources would also be significant and unavoidable.

ES.9 Mitigation Monitoring and Reporting Program

CEQA requires that a public agency adopt a Mitigation Monitoring and Reporting Program (MMRP) for mitigation measures that have been incorporated into the Project to reduce or avoid significant effects on the environment. The MMRP is designed to ensure compliance during Project implementation, as required by Section 21081.6 of the California Public Resources Code. In conjunction with certification of the 2007 LRDP EIR, the Regents also adopted an MMRP. The MMRP ensures that campus programs, practices and procedures (PPs) and mitigation measures (MMs) that are the responsibility of the UC are implemented in a timely manner. Table ES-1, *Summary of Significant Impacts and Mitigation Measures*, provides a summary of the potential environmental effects of the proposed Project, the mitigation measures recommended to ensure that Project impacts are mitigated to the extent feasible, and the expected status of effects following the implementation of the mitigation measures. These mitigation measures will form the basis of the MMRP which will serve to prevent, reduce, and/or fully mitigate potential environmental impacts. The more detailed evaluation of these issues is presented in SEIR Sections 3.1 through 3.17.

Table ES-1: Summary of Significant Impacts and Mitigation Measures				
Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
3.1 Aesthetics				
Impact 3.1-1: Impacts on a Scenic Vistas	There are no identified scenic vistas surrounding the Project site or elsewhere on the UCI campus.	LS	No mitigation is required.	N/A
Impact 3.1-2: Impacts on Visual Character and Quality	The allowable uses under the Mixed Use – Commercial designation are commercial, office, research and development, residential, and clinical uses, which are consistent with existing surrounding on and off-campus land uses. The 2007 LRDP EIR concluded that buildout would not result in a significant visual impact to the area.	LS	No mitigation is required.	N/A
Impact 3.1-3: Lighting and Glare	Project implementation has the potential to create new sources of light and glare that could significantly impact sensitive biological resources in the San Joaquin Marsh Reserve located south of the proposed Project site. There are two primary sources of light that may occur during construction and operations of the Project: light emanating from building interiors passing through windows and light from exterior sources.	PS	<p>AES-1: <i>(This Mitigation Measure implements Mitigation Measure Aes 2A from the 2007 LRDP EIR)</i> Prior to Project design approval for future projects that implement the 2007 LRDP, UCI shall ensure that the projects include design features to minimize glare impacts. These design features shall include use of non-reflective exterior surfaces and low-reflectance glass (e.g., double or triple glazing glass, high technology glass, low-E glass, or equivalent materials with low reflectivity) on all Project surfaces that could produce glare.</p> <p>AES-2: <i>(This Mitigation Measure implements Mitigation Measure Aes 2B from the 2007 LRDP EIR)</i> Prior to approval of construction documents for future projects that implement the 2007 LRDP, UCI shall approve an exterior lighting plan for each project. In accordance with UCI’s Campus Standards and Design Criteria for outdoor lighting, the plan shall include, but not be limited to, the following design features:</p> <ul style="list-style-type: none"> i. Full-cutoff lighting fixtures to direct lighting to the specific location intended for illumination (e.g., roads, walkways, or 	LS

SU = Significant, unavoidable; S = Significant; PS = Potentially Significant, LS = Less than Significant NI=No Impact

Table ES-1: Summary of Significant Impacts and Mitigation Measures				
Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
			recreation fields) and to minimize stray light spillover into adjacent residential areas, sensitive biological habitat, and other light-sensitive receptors; ii. Appropriate intensity of lighting to provide campus safety and security while minimizing light pollution and energy consumption; and iii. Shielding of direct lighting within parking areas, parking structures, or roadways away from adjacent residential areas, sensitive biological habitat, and other light-sensitive receptors through site configuration, grading, lighting design, or barriers such as earthen berms, walls, or landscaping.	
Cumulative Aesthetics Impacts	The Project would not conflict with 2007 LRDP land use designations or result in a substantial change in character of the Project site or surrounding area. With the implementation of the MMS AES-1 and AES-2, impacts on scenic resources including light and glare would be less than significant and not cumulatively considerable.	LS	Implementation of Mitigation Measures AES-1 and AES-2	LS
3.2 Air Quality				
Impact 3.2-1: Conflict with an Applicable Air Quality Plan	The proposed Project would not exceed the SCAQMD's emissions thresholds and would not violate any air quality standards or contribute substantially to an existing or projected air quality violation. Project implementation would not increase the total amount of development that was planned in the LRDP for the North Campus area and	LS	No mitigation is required.	N/A

SU = Significant, unavoidable; S = Significant; PS = Potentially Significant, LS = Less than Significant NI=No Impact

Table ES-1: Summary of Significant Impacts and Mitigation Measures				
Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
	the Project would implement all applicable AQMP control measures.			
Impact 3.2-2: Consistency with Ambient Air Quality Standards	Construction would result in temporary generation of emissions and the Project's operational emissions would be associated with area sources, motor vehicle use, energy sources, and stationary (emergency backup generator) sources. However, The Project's operational emissions would not exceed SCAQMD thresholds with the implementation of MMs AQ-1 and AQ-2, and AQ-3.	PS	<p>AQ-1: <i>(This mitigation measure implements Mitigation Measure Air-2B from the 2007 LRDP EIR)</i> Prior to initiating construction, UCI shall ensure that the project construction contract includes a construction emissions mitigation plan, including measures compliant with SCAQMD Rule 403 (Fugitive Dust), to be implemented and supervised by the on-site construction supervisor, which shall include, but not be limited to, the following BMPs:</p> <ul style="list-style-type: none"> i. During grading and site preparation activities, exposed soil areas shall be stabilized via frequent watering, non-toxic chemical stabilization, or equivalent measures at a rate to be determined by the on-site construction supervisor. ii. During windy days when fugitive dust can be observed leaving the construction site, additional applications of water shall be required at a rate to be determined by the on-site construction supervisor. iii. Disturbed areas designated for landscaping shall be prepared as soon as possible after completion of construction activities. iv. Areas of the construction site that will remain inactive for three months or longer following clearing, grubbing and/or grading shall receive appropriate BMP treatments (e.g., revegetation, mulching, covering with tarps, etc.) to prevent fugitive dust generation. v. All exposed soil or material stockpiles that will not be used within 3 days shall be enclosed, covered, or watered twice daily, or shall be stabilized with approved nontoxic 	LS

SU = Significant, unavoidable; S = Significant; PS = Potentially Significant, LS = Less than Significant NI=No Impact

Table ES-1: Summary of Significant Impacts and Mitigation Measures				
Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
			<p>chemical soil binders at a rate to be determined by the on-site construction supervisor.</p> <ul style="list-style-type: none"> vi. Unpaved access roads shall be stabilized via frequent watering, non-toxic chemical stabilization, temporary paving, or equivalent measures at a rate to be determined by the on-site construction supervisor. vii. Trucks transporting materials to and from the site shall allow for at least two feet of freeboard (i.e., minimum vertical distance between the top of the load and the top of the trailer). Alternatively, trucks transporting materials shall be covered. viii. Speed limit signs at 15 mph or less shall be installed on all unpaved roads within construction sites. ix. Where visible soil material is tracked onto adjacent public paved roads, the paved roads shall be swept and debris shall be returned to the construction site or transported off-site for disposal. x. Wheel washers, dirt knock-off grates/mats, or equivalent measures shall be installed within the construction site where vehicles exit unpaved roads onto paved roads. xi. Diesel-powered construction equipment shall be maintained in accordance with manufacturer's requirements and shall be retrofitted with diesel particulate filters where available and practicable. xii. Heavy-duty diesel trucks and gasoline-powered equipment shall be turned off if idling is anticipated to last for more than 5 minutes. 	

SU = Significant, unavoidable; S = Significant; PS = Potentially Significant, LS = Less than Significant NI=No Impact

Table ES-1: Summary of Significant Impacts and Mitigation Measures				
Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
			xiii. Where feasible, the construction contractor shall use alternatively fueled construction equipment, such as electric or natural gas-powered equipment or biofuel. xiv. Heavy construction equipment shall use low NOx diesel fuel to the extent that it is readily available at the time of construction. xv. To the extent feasible, construction activities shall rely on the campus’s existing electricity infrastructure rather than electrical generators powered by internal combustion engines. xvi. The construction contractor shall develop a construction traffic management plan that includes the following: xvii. Scheduling heavy-duty truck deliveries to avoid peak traffic periods Consolidating truck deliveries. xviii. Where possible, the construction contractor shall provide a lunch shuttle or on-site lunch service for construction workers. xix. The construction contractor shall, to the extent possible, use pre-coated architectural materials that do not require painting. Water-based or low VOC coatings shall be used that are compliant with SCAQMD Rule 1113. Spray equipment with high transfer efficiency, such as the high volume-low pressure spray method, or manual coatings application shall be used to reduce VOC emissions to the extent possible. xx. Project constructions plans and specifications will include a requirement to define and implement a work program that would limit the emissions of reactive organic gases (ROG’s) during the application of architectural coatings to	

SU = Significant, unavoidable; S = Significant; PS = Potentially Significant, LS = Less than Significant NI=No Impact

Table ES-1: Summary of Significant Impacts and Mitigation Measures				
Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
			<p>the extent necessary to keep total daily ROG's for each project to below 75 pounds per day, or the current SCAQMD threshold, throughout that period of construction activity to the extent feasible. The specific program may include any combination of restrictions on the types of paints and coatings, application methods, and the amount of surface area coated as determined by the contractor.</p> <p>xxi. The construction contractor shall maintain signage along the construction perimeter with the name and telephone number of the individual in charge of implementing the construction emissions mitigation plan, and with the telephone number of the SCAQMD's complaint line. The contractor's representative shall maintain a log of any public complaints and corrective actions taken to resolve complaints.</p> <p>AQ-2 (This mitigation measure implements Mitigation Measure Air-2C from the 2007 LRDP EIR) UCI shall ensure that operational air emissions, including area sources, stationary sources, and vehicular emissions, are reduced to the extent possible via the following mitigation measures:</p> <p>i. UCI shall continue to implement and expand its alternative transportation program by continuing to assess new opportunities, programs, and technologies to reduce vehicular trips. This program shall consider the following elements:</p> <ul style="list-style-type: none"> • Significant incentives aimed to expand UCI vanpool, carpool, and other ridesharing programs; 	

SU = Significant, unavoidable; S = Significant; PS = Potentially Significant, LS = Less than Significant NI=No Impact

Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
			<ul style="list-style-type: none"> • Significant incentives aimed to expand UCI public transit use off campus; • Promotion of Express Bus service in the campus vicinity and Express Bus service routes from key UCI commuter locations off campus; • Expansion of campus shuttle and other campus transit systems, including point-to-point shuttles with expanded routes and operations to key destinations, and coordination of the on-campus transit systems with existing and future public transit systems off campus to accommodate routes, transit stops, stations, and other programs and projects as deemed appropriate, including community transit programs in the City of Irvine and City of Newport Beach; • Expansion of UCI bike programs and bicycle infrastructure, including expanded bikeways, BikePorts, and Bike Service Stations; and • Support of alternative transportation organizations. <p>ii. All stationary sources shall comply with the applicable SCAQMD Rules and Regulations, including New Source Review, Best Available Control Technology, and source-specific requirements. Stationary sources shall employ state-of-the-art controls, where applicable, to reduce air emissions to the extent possible.</p> <p>iii. Emissions from area sources (e.g., cooling and heating systems, landscaping, consumer products, etc.) shall be reduced to the extent possible through implementation of UCI’s energy efficiency programs. Energy-saving measures include using central plant cooling and heating systems for buildings in the Academic Core; orienting buildings to the</p>	

SU = Significant, unavoidable; S = Significant; PS = Potentially Significant, LS = Less than Significant NI=No Impact

Table ES-1: Summary of Significant Impacts and Mitigation Measures				
Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
			north for natural cooling and heating; implementing the UCI standard to exceed Title 24 energy efficiency by 20% or more; and increasing insulation in building walls and attics beyond Title 24 requirements. AQ-3 UCI shall use diesel generators with U.S. EPA-certified Tier 4 engine or Engines that use CARB's Level 3 Verified Diesel Emissions Control Strategy (VDECS). The VDECS procedure is described in Title 13, California Code of Regulations, Sections 2700-2710. Level 3 requires emissions to be reduced by at least 85 percent or to achieve PM emission levels of 0.01 grams per brake-horsepower-hour (g/bhp-hr) or less (NO _x VDECS are classified by the percentage of NO _x reduction achieved).	
Impact 3.2-3: Sensitive Receptors	Project implementation would not result in significant concentrations of pollutants at nearby sensitive receptors on the peak day of Project construction or during Project operations.	LS	Implementation of Mitigation Measures AQ-1 through AQ-3.	LS
Impact 3.2-4: Objectionable Odors	Emissions from construction equipment may generate odor, however, these odors would be temporary, are not expected to affect a substantial number of people. Project operations would not include land uses identified as sources of odors.	LS	No mitigation is required.	N/A
Cumulative Air Quality Impacts	Adherence to Southern California Air Quality Management District rules and regulations would alleviate potential impacts related to cumulative conditions on a project-by-project basis. With mitigation, Project operations would not contribute a cumulatively considerable net increase of any	LS	Implementation of Mitigation Measures AQ-1 through AQ-3.	LS

SU = Significant, unavoidable; S = Significant; PS = Potentially Significant, LS = Less than Significant NI=No Impact

Table ES-1: Summary of Significant Impacts and Mitigation Measures				
Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
	nonattainment criteria pollutant. Impacts would be less than significant.			
3.3 Biological Resources				
Impact 3.3-1: Candidate, Sensitive, or Special Status Species	Project implementation could result in impacts to one special-status plant species and two special-status animal species.	PS	<p>BIO-1: Prior to any ground-disturbing activities, a qualified botanist shall conduct a focused rare plant survey within the survey area to confirm the absence of special-status plant species, particularly but not limited to many-stemmed dudleya. The surveys shall be floristic in nature (i.e., identifying all plant species to the taxonomic level necessary to determine rarity), and shall be inclusive of, at a minimum, areas proposed for disturbance.</p> <p>The results of the survey shall be provided to the County of Orange. If special-status plant species are found within the areas proposed for disturbance that are not already covered under the Orange County NCCP/HCP, measures to minimize impacts shall be implemented and, if impacts cannot be avoided and mitigation is required, it will be provided to ensure CEQA compliance. The surveys and reporting shall follow 2018 CDFW and/or 2001 CNPS guidelines.</p> <p>BIO-2: Prior to clearing, mowing, or ground-breaking activities, a qualified biologist shall conduct a focused wildlife clearance survey for special-status wildlife species with the potential to occur within the Project site, which includes least Bell’s vireo, coastal California gnatcatcher, orange-throated whiptail, western mastiff bat, and western pond turtle. Focused surveys shall be inclusive of the entire survey area. Areas immediately adjacent to the San Joaquin Marsh Reserve at the southern area of the Project site have a higher potential to support least</p>	LS

SU = Significant, unavoidable; S = Significant; PS = Potentially Significant, LS = Less than Significant NI=No Impact

Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
			<p>Bell’s vireo and western pond turtle, areas immediately adjacent to CSS have a higher potential to support coastal California gnatcatcher, and the majority of the Project site provides potential habitat for orange-throated whiptail. In addition, all trees and buildings within and near the Project site should be surveyed for roosting bats such as western mastiff bat. If special-status species not already covered by the NCCP/HCP are found within the project site at the time of construction that cannot move on their own, a qualified biologist shall coordinate with CDFW and/or USFWS, as applicable, to determine measures to avoid and minimize impacts and, if impacts cannot be avoided and mitigation is required, it will be provided to ensure CEQA compliance. However, based on the analysis conducted for this project, special-status species that are not covered by the Orange County NCCP/HCP are not expected to occur within the areas proposed for construction.</p> <p>BIO-3: During construction, prior to the end of each work day, all open pipes and trenches shall be covered adequately to prevent wildlife from falling in and getting trapped. Prior to the start of construction each day, the construction site shall be checked, including vegetation, open pipes and trenches, and under staged vehicles, equipment, and materials. If species are found, measures adherent to mitigation measure MM BIO-2 for wildlife species shall be implemented.</p>	
<p>Impact 3.3-2: Riparian Habitat and Other Sensitive Natural Communities</p>	<p>UCI is a participating landowner within the Orange County NCCP/HCP. Therefore, this Project is exempt from any additional mitigation for impacts to “identified” species and their habitat.</p>	<p>LS</p>	<p>No mitigation is required.</p>	<p>N/A</p>

SU = Significant, unavoidable; S = Significant; PS = Potentially Significant, LS = Less than Significant NI=No Impact

Table ES-1: Summary of Significant Impacts and Mitigation Measures				
Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
Impact 3.3-3: Wetlands	The Project would not impact any isolated or other features classified as Waters of the State subject to Section 13263 of the California Porter-Cologne Water Quality Control Act because none occur on the Project site.	LS	No mitigation is required.	N/A
Impact 3.3-4: Wildlife Movement Corridors	Project implementation assumes the mass grading of the Project site, and the site includes suitable habitat for nesting opportunities for various bird species (BIO-4).	PS	<p>BIO-4: Project construction activities involving ground disturbance or vegetation removal shall avoid the bird breeding season (typically January through July for raptors and February through August for other avian species), if feasible. If breeding season avoidance is not feasible, a qualified biologist shall conduct a pre-construction nesting bird survey prior to the commencement of any ground-disturbing activities to determine the presence/absence, location, and status of any active nests on or adjacent to the survey area. The extent of the survey buffer area surrounding the site shall be established by the qualified biologist to ensure that direct and indirect effects to nesting birds are avoided.</p> <p>In the event that active nests are discovered, a suitable buffer (distance to be determined by the biologist based on the specific species found to be nesting, but typical nest buffers are from 500 feet to 300 feet but can be smaller depending on the bird species) shall be established around such active nests, and no construction within the buffer shall be allowed, until the biologist has determined that the nest(s) is no longer active (i.e., the nestlings have fledged and are no longer reliant on the nest) or that it is safe to resume certain construction activities. Avoidance buffers may be reduced in size if a qualified biological monitor is present to observe the birds. The biological monitor must use best professional judgment to</p>	LS

SU = Significant, unavoidable; S = Significant; PS = Potentially Significant, LS = Less than Significant NI=No Impact

Table ES-1: Summary of Significant Impacts and Mitigation Measures				
Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
			ensure that construction activities do not cause “take” (e.g., adults flushing off of a nest, fledglings changing behavior that could put them in harm, or any other form of disturbance).	
Impact 3.3-5: Local Biological Resource Protection	The Project site is located within the Coastal Subregion of the Orange County NCCP/HCP. However, the Project site is not located within the Reserve System or identified special linkage areas.	LS	No mitigation is required.	N/A
Cumulative Biological Resources Impacts	Due to UCI’s continued participation in the NCCP, any impact to these sensitive habitats covered by the NCCP, but located outside the UCI NCCP Reserve Area, would not result in a cumulatively considerable contribution to a significant cumulative impact. With implementation of mitigation, which requires a pre-construction survey for nesting birds with procedures should nesting birds be discovered, cumulative impacts would be less than significant.	LS	Implementation of Mitigation Measures BIO-1, BIO-2, BIO-3, and BIO-4.	N/A
3.4 Cultural Resources				
Impact 3.4-1: Historical Resources	The UCI North Campus and Arboretum appear ineligible for listing in the California Register under Criteria 1, 2, 3, and 4 because they lack association with a historic context.	LS	No mitigation is required.	N/A
Impact 3.4-2: Archaeological Resources	The previously identified site P30-000115/CA-ORA-115 was originally recorded in 1963 and is considered eligible for the CRHR under Criterion 4 as it is likely to yield important information about prehistory. Because previous investigations	S	CUL-1: <i>(This Mitigation Measure implements Mitigation Measure Cul-1B from the 2007 LRDP EIR)</i> UCI shall prepare a Data Recovery Plan for the loss of this significant resource as a result of the site development. Prior to land clearing, grading, or similar land development activities for future projects that	SU

SU = Significant, unavoidable; S = Significant; PS = Potentially Significant, LS = Less than Significant NI=No Impact

Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
	<p>indicate the high likelihood of archeological resources being present in Locus B of P30-000115/CA-ORA-115, and because avoidance is not possible and the site will be destroyed, even with mitigation, this would be a significant and unavoidable impact.</p>		<p>implement the 2007 LRDP and would impact a significant archaeological resource as determined by mitigation measure Cul-1A, a qualified archaeologist shall prepare and implement a data recovery plan. The plan shall include, but not be limited to, the following measures:</p> <ul style="list-style-type: none"> i. Perform appropriate technical analyses; ii. File any resulting reports with the South Coastal Information Center; and iii. Provide the recovered materials to an appropriate repository for curation in consultation with a culturally-affiliated Native American. <p>MM CUL-2: <i>(This Mitigation Measure implements Mitigation Measure 1C from the 2007 LRDP EIR)</i> Prior to land clearing, grading, or similar land development activities for future projects that implement the 2007 LRDP in areas of identified archaeological sensitivity, UCI shall retain a qualified archaeologist and a Native American Monitor to monitor these activities. In the event of an unexpected archeological or tribal cultural resource is discovered during grading, the on-site construction supervisor shall be notified and shall redirect work away from the location of the archaeological find. A qualified archaeologist and/or monitoring archaeologist and Native American monitor shall oversee the evaluation and recovery of archaeological resources, in accordance with the procedures below, after which the on-site construction supervisor shall be notified and shall direct work to continue in the location of the archaeological find. A record of monitoring activity shall be submitted to UCI each month and at the end of monitoring. If the archaeological discovery is determined to be significant,</p>	

SU = Significant, unavoidable; S = Significant; PS = Potentially Significant, LS = Less than Significant NI=No Impact

Table ES-1: Summary of Significant Impacts and Mitigation Measures				
Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
			the archaeologist shall prepare and implement a data recovery plan. The plan shall include, but not be limited to, the following measures: <ul style="list-style-type: none"> i. Perform appropriate technical analyses; ii. File any resulting reports with the South Coastal Information Center; and iii. Provide the recovered materials to an appropriate repository for curation, in consultation with a culturally-affiliated Native American. 	
Impact 3.4-3: Human Remains	Future ground-disturbing activities could encounter buried human remains that were not identified during the cultural resource report conducted for the proposed Project (CUL-2).	PS	CUL-3: UCI shall continuously comply with the following: Any human remains encountered during Project ground-disturbing activities shall be treated in accordance with California Health and Safety Code Section 7050.5. There shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the County coroner has determined the manner and cause of any death, and the recommendations concerning the treatment and disposition of the human remains have been made to the person responsible for the excavation or to his or her authorized representative. Project personnel/construction workers shall not collect or move any human remains and associated materials. If the human remains are of Native American origin, the coroner must notify the NAHC within 24 hours of this identification. The NAHC will immediately identify a Native American most likely descendant to inspect the site and provide recommendations within 48 hours for the proper treatment of the remains and associated grave goods.	LS

SU = Significant, unavoidable; S = Significant; PS = Potentially Significant, LS = Less than Significant NI=No Impact

Table ES-1: Summary of Significant Impacts and Mitigation Measures				
Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
Cumulative Cultural Resources Impacts	The proposed Project would cumulatively contribute to a potentially significant impact even with mitigation incorporated. The LRDP EIR concluded that impacts would be considered significant for recorded resources that have been determined to be significant, including sites P-30-000115/CA-ORA-115-B.	S	Implementation of Mitigation Measures CUL-1, CUL-2, and CUL-3.	SU
3.5 Energy				
Impact 3.5-1: Energy Consumption	The proposed Project does not necessitate the use of construction equipment that would be less energy-efficient than at comparable construction sites in the region or state. Project operations would comply with applicable energy standards and design features, and new capacity would not be required.	LS	No mitigation is required.	N/A
Impact 3.5-2: Conflict with a State or Local Energy Plan	The Project would be constructed to adhere to the UC Policy on Sustainable Practices and includes various sustainable project design features.	LS	No mitigation is required.	N/A
Cumulative Energy Impacts	Given the relatively small percentage of the proposed Project's fuel and energy uses compared to existing fuel and energy use in the region, the Project's less-than-significant incremental impacts related to the use of fuel or energy in a wasteful or inefficient manner would not be expected to combine with the incremental impacts of other projects to cause an adverse cumulative impact.	LS	No mitigation is required.	N/A

SU = Significant, unavoidable; S = Significant; PS = Potentially Significant, LS = Less than Significant NI=No Impact

Table ES-1: Summary of Significant Impacts and Mitigation Measures				
Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
3.6 Geology and Soils				
Impact 3.6-1: Exposure to Seismic-Related Hazards	The Proposed Project would be required to conform to the seismic design requirements of the 2019 CBC, which would reduce anticipated impacts related to the proximity of earthquake faults by requiring structures to be built to withstand seismic ground shaking, and the UC Seismic Safety Policy. Compliance with the CBC, UC Seismic Safety Policy, and implementation of recommendations in the site-specific geotechnical study conducted during the design phase would reduce any potential hazards associated with seismic ground shaking and landslides.	LS	No mitigation is required.	N/A
Impact 3.6-2: Soil Erosion or Topsoil Loss	Implementation of routine construction BMPs would reduce potential construction-related erosion impacts. Project design includes 70 percent impervious surfaces and pervious areas would be landscaped to prevent erosion.	LS	Implementation of Mitigation Measures AIR-1 HYD-1, HYD-2, and HYD-3	N/A
Impact 3.6-3: Soil Stability	Compliance with the CBC, UC Seismic Safety Policy, and implementation of recommendations in the project-specific geotechnical investigation that would be prepared during the design phase would reduce potential hazards associated with liquefaction, lateral spreading, and collapse.	LS	No mitigation is required.	N/A
Impact 3.6-4: Expansive Soils	Compliance with the CBC would ensure that potential impacts associated with expansive soils would be reduced to less than significant.	LS	No mitigation is required.	N/A

SU = Significant, unavoidable; S = Significant; PS = Potentially Significant, LS = Less than Significant NI=No Impact

Table ES-1: Summary of Significant Impacts and Mitigation Measures				
Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
Impact 3.6-5: Paleontological Resources	The majority of the UCI campus, which includes the Project site, is rated as High Sensitivity for vertebrate and invertebrate fossils.	S	<p>GEO-1: <i>(This Mitigation Measure Implements Mitigation Measure CUL-4A from the 2007 LRDP EIR)</i> Prior to grading or excavation for future projects that implement the 2007 LRDP and would excavate sedimentary rock material other than topsoil, UCI shall retain a qualified paleontologist to monitor these activities. In the event fossils are discovered during grading, the on-site construction supervisor shall be notified and shall redirect work away from the location of the discovery. The recommendations of the paleontologist shall be implemented with respect to the evaluation and recovery of fossils, in accordance with mitigation measures Cul-4B and Cul-4C, after which the on-site construction supervisor shall be notified and shall direct work to continue in the location of the fossil discovery. A record of monitoring activity shall be submitted to UCI each month and at the end of monitoring.</p> <p>GEO-2: <i>(This Mitigation Measure Implements Mitigation Measure CUL-4B from the 2007 LRDP EIR)</i> If the fossils are determined to be significant, then mitigation measure Cul-4C shall be implemented.</p> <p>GEO-3: <i>(This Mitigation Measure Implements Mitigation Measure CUL-4C from the 2007 LRDP EIR)</i> For significant fossils as determined by Mitigation Measure Cul-4B, the paleontologist shall prepare and implement a data recovery plan. The plan shall include, but not be limited to, the following measures:</p> <ul style="list-style-type: none"> i. The paleontologist shall ensure that all significant fossils collected are cleaned, identified, catalogued, and permanently curated with an appropriate institution with 	LS

SU = Significant, unavoidable; S = Significant; PS = Potentially Significant, LS = Less than Significant NI=No Impact

Table ES-1: Summary of Significant Impacts and Mitigation Measures				
Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
			a research interest in the materials (which may include UCI); ii. The paleontologist shall ensure that specialty studies are completed, as appropriate, for any significant fossil collected; and iii. The paleontologist shall ensure that curation of fossils are completed in consultation with UCI. A letter of acceptance from the curation institution shall be submitted to UCI.	
Cumulative Geology and Soils Impacts	None of the Project characteristics would affect or influence the geotechnical hazards for off-site development. Similarly, the cumulative projects, which would be required to comply with the California Building Code and regulations, are not expected to have an adverse impact on the Project. For these reasons, no significant cumulative geotechnical impacts would occur for the Project. Paleontological monitoring is required throughout Orange County and the monitoring enables the discovery, recording, and archiving of additional resources, the cumulative impact to paleontological resources is less than significant.	LS	Implementation of Mitigation Measures GEO-1, GEO-2, GEO-3.	LS
3.7 Greenhouse Gas Emissions				
Impact 3.7-1: Greenhouse Gas Emissions	The proposed Project would result in direct emissions of GHGs from construction activities associated with off-road equipment and on-road vehicle trips. The Project’s operational GHG emissions would result from direct emissions such as Project-generated vehicular traffic, on-site combustion of natural gas, and operation of any	S	Implement Mitigation Measures AQ-2. Additionally, the following mitigation is required: GHG-1: Monitor emissions annually and acquire carbon offset credits to achieve and maintain carbon neutrality for Project operations consistent with the terms of UC Climate Protection Policy.	LS

SU = Significant, unavoidable; S = Significant; PS = Potentially Significant, LS = Less than Significant NI=No Impact

Table ES-1: Summary of Significant Impacts and Mitigation Measures				
Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
	landscaping equipment and from indirect sources, such as off-site generation of electrical power, the energy required to convey water to the Project site and wastewater from the Project site, the emissions associated with solid waste generated from the Project site, and any fugitive refrigerants from air conditioning or refrigerators (GHG-1).		<p>As part of this mitigation measure, UCI is making the following separate, though overlapping, GHG emission reduction commitments: (1) Reduction of On-Site Energy Consumption; (2) As a CARB-covered entity, UCI will maintain compliance with CARB’s cap and trade program; (3) Per the Climate Action Plan and current UCI policy, UCI’s Scope 1 and Scope 2 GHG emissions shall, commencing in 2025, be entirely carbon-neutral; (4) Also per existing UC Policy, commencing in 2020, UCI’s Scope 1, Scope 2, and Scope 3 emissions from commuters and air travel shall meet 1990 emission levels; and (5) UCI shall achieve climate neutrality including Scope 3 sources (UCI commuters and University funded air travel) by 2050.</p> <p>Reduce On-Site Energy Consumption: Before the acquisition of carbon offset credits, UCI shall minimize energy consumption to the extent feasible with on-site renewable energy generation. The ICMC shall be built with solar photovoltaic panels on the roofs of the proposed parking structures and installation of a future battery storage system. A hose bib shall be provided at the parking structure roof level to facilitate maintenance and washing of photovoltaic panels. If the Project’s renewable generation is not sufficient to offset the Project’s energy consumption, then UCI shall achieve an equivalent level of GHG emissions reductions to mitigate such shortfall, as described below.</p> <p>Compliance with CARB’s Cap and Trade Program: Any carbon offset credits purchased for the purpose of compliance with CARB’s cap and trade program shall be purchased from an accredited carbon credit market. Such offset credits (or California Carbon Offsets) shall be registered with, and retired by an Offset Project Registry, as defined in 17 California Code</p>	

SU = Significant, unavoidable; S = Significant; PS = Potentially Significant, LS = Less than Significant NI=No Impact

Table ES-1: Summary of Significant Impacts and Mitigation Measures				
Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
			<p>of Regulations § 95802(a), approved by the California Air Resources Board such as, but not limited to, Climate Action Reserve, American or Verra (formerly Verified Carbon Standard) approved by the California Air Resources Board and using protocols that are CARB-approved, as required in 17 Cal. Code Regs. § 95970 (a)(1)-(2). In order to demonstrate that the carbon offset credits provided are real, permanent, additional, quantifiable, verifiable, and enforceable, as those terms are defined in 17 California Code of Regulations § 95802(a), UCI shall document in its annual report: (i) the protocol used to develop those credits, and (ii) the third-party verification report concerning those credits. As and when the credits are retired, UCI shall document in its annual report the unique serial numbers of those credits showing that they have been retired.</p> <p>Compliance with UC Policy: Compliance with UC’s policies for carbon neutrality by 2025 will be accomplished through reductions in direct emissions, the purchase of renewable electricity and possibly biomethane, and the purchase of carbon offset credits. UCI will purchase voluntary carbon offset credits as the final action to reach the GHG emission reduction targets. As part of the UC Carbon Neutrality Initiative, internal guidelines are being developed to ensure that any use of offsets for this purpose will result in additional, verified GHG emissions reductions from actions that align, as much as possible, with UC’s research, teaching, and public service mission. Specifically, any voluntary carbon offset credits used by UCI to mitigate GHG emissions will:</p> <ol style="list-style-type: none"> 1. Be third-party verified by a major registry recognized by CARB such as the Climate Action Reserve (CAR). 	

SU = Significant, unavoidable; S = Significant; PS = Potentially Significant, LS = Less than Significant NI=No Impact

Table ES-1: Summary of Significant Impacts and Mitigation Measures				
Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
			2. Be reported publicly and tracked through the Climate Registry (TCR) as required by UC policy. TCR is a non-profit organization governed by U.S. states and Canadian provinces and territories. UCI's TCR reports will be third-party verified and posted publicly.	
Impact 3.7-2: Conflict with Applicable GHG Emissions Reduction Plan	The proposed Project demonstrates consistency with the LRDP, UCI CAP goals, and would not conflict with any applicable plan, policy, or regulation of an agency adopted to reduce GHG emissions, including Title 24, AB 32, and SB 32. Additionally, MM GHG-1 requires the Project to be carbon neutral per the UCI CAP and the UC Policy on Sustainable Practices.	S	Refer to MM GHG-1 above.	LS
Cumulative Greenhouse Gas Impacts	The proposed Project would be consistent with the LRDP, the UCI CAP, the UC Sustainable Practices Policy, SCAG's 2020 RTP/SCS, and CARB's Scoping Plan. As a result, the Project would not conflict with any GHG reduction plan. Implementation of the Mitigation Measure would require the Project to achieve climate neutrality. Therefore, the Project's cumulative contribution of GHG emissions would be less than significant and the Project's cumulative GHG impacts would also be less than cumulatively considerable.	LS	Implementation of Mitigation Measures AQ-2 and GHG-1.	LS

SU = Significant, unavoidable; S = Significant; PS = Potentially Significant, LS = Less than Significant NI=No Impact

Table ES-1: Summary of Significant Impacts and Mitigation Measures				
Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
3.8 Hazards and Hazardous Materials				
Impact 3.8-1: Transport, Use, or Disposal of Hazardous Materials	Project implementation would increase the use, handling, storage, and disposal of products routinely used in building maintenance and potentially hazardous materials used for clinical and hospital uses. All handling would comply with UCI’s EH&S pursuant to State and Federal regulations.	LS	No mitigation is required.	N/A
Impact 3.8-2: Accidental Release	Project implementation would increase use of hazardous materials, which could increase the chance for accidental release to occur. Compliance with all applicable federal, state, and campus programs would minimize potential for release and provide for effective cleanup if needed.	S	<p>HAZ-1: Prior to the start of any ground disturbance activities, UCI shall retain a licensed hazardous materials professional to further test the vapor encroachment conditions (VEC) on the Project site. If the licensed professional finds that VEC conditions do exist or are likely to occur, the licensed professional at the request of UCI and in consultation with the relevant regulatory agency, shall install a vapor mitigation system (such as a vapor barrier or other mechanism) in order to mitigate potential risks to human health and safety. The plan for implementation and remediation shall conform to all applicable local and state hazardous materials requirements. A complete report of all findings and any measures taken to reduce risk shall be submitted to the relevant regulatory agency for review.</p> <p>HAZ-2: Prior to the issuance of any grading plans, or approval of improvement plans in lieu of grading plans, UCI shall prepare a soil remediation and management plan for the Project site that has been approved by the relevant regulatory agency. The soil remediation and management plan shall include a description of cleanup activities for any soil and soil vapor containing chemicals in concentrations exceeding cleanup goals established by the California Environmental Protection</p>	LS

SU = Significant, unavoidable; S = Significant; PS = Potentially Significant, LS = Less than Significant NI=No Impact

Table ES-1: Summary of Significant Impacts and Mitigation Measures				
Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
			<p>Agency California Human Health Screening Levels (CHHSLs) and the RWQCB Environmental Screening Levels (ESLs). Subject to regulatory review, the clean-up activities shall include:</p> <ul style="list-style-type: none"> Investigation to define preliminary extents of contamination in soil and soil gas. Preparation of Health Risk Assessment (HRA) for the on-site construction workers and future building occupants. Sampling and analysis plan (SAP) and methods to define preliminary soil excavation extents. The soil remediation and management plan SAP shall provide a dynamic process for defining the limits of contamination in soil at the Project site. This approach shall provide site-specific criteria for the soil removal/excavation plan and mitigating pollutants in soil vapor. The SAP shall define sampling objectives; present initial sampling locations rationale; describe field methods and procedures; present the analytical methods and procedures; and data reporting procedures. <p>HAZ-3: Prior to the start of any ground disturbance activities, UCI shall prepare a comprehensive assessment report, signed by a qualified environmental professional, documenting the presence or lack thereof of asbestos-containing materials (ACMs), lead-based paint, polychlorinated biphenyls (PCBs), and any other building materials or stored materials classified as hazardous materials by State or federal law. If lead-based paint, ACMs, PCBs, or any other building materials or stored materials classified as hazardous materials are present, the project applicant shall submit specifications prepared and signed by a qualified environmental professional, for the stabilization and/or removal of the identified hazardous</p>	

SU = Significant, unavoidable; S = Significant; PS = Potentially Significant, LS = Less than Significant NI=No Impact

Table ES-1: Summary of Significant Impacts and Mitigation Measures				
Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
			stabilization and/or removal of the identified hazardous materials in accordance with all applicable laws and regulations. UCI shall implement the approved recommendations for any proposed remedial action and required clearances by the applicable local, state, or federal regulatory agency.	
Impact 3.8-3: Listed Hazardous Materials Sites	There are no recorded hazardous sites on or within the immediate vicinity of the Project site, and no other known hazardous materials sites exist on-site. However, the preliminary site analysis revealed elevated levels of hazardous substances (HAZ-1, HAZ-2, HAZ-3).	PS	Implementation of Mitigation Measures HAZ-1, HAZ-2, and HAZ-3.	LS
Impact 3.8-4: Hazards from Nearby Airports	The Project is located in a Zone 6 Traffic Pattern Zone for John Wayne Airport. The potential for airport-accident occurrences is low and potential noise impacts would be minimal.	LS	No mitigation is required.	N/A
Impact 3.8-5: Emergency Response and Evacuation Plans	Project construction would result in temporary road closures and operational obstructions. Project operations would comply with all adopted emergency response and evacuation plans.	PS	HAZ-4 (<i>This Mitigation Measure implements Mitigation Measure 6A from the 2007 LRDP EIR</i>). Prior to initiating on-site construction for future projects that implement the 2007 LRDP and that would involve a lane or roadway closure, the construction contractor and/or UCI Design and Construction Services shall notify the UCI Fire Marshal. If determined necessary by the UCI Fire Marshal, local emergency services shall be notified of the lane or roadway closure by the Fire Marshal.	N/A

SU = Significant, unavoidable; S = Significant; PS = Potentially Significant, LS = Less than Significant NI=No Impact

Table ES-1: Summary of Significant Impacts and Mitigation Measures				
Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
Impact 3.8-6: Wildland Fires	The Project is surrounded by urban development and is not located within a fire hazard zone. Project design would comply with fire protection requirements outlined in the CBC and verified by the UC Fire Marshal.	LS	No mitigation is required.	N/A
Cumulative Hazards Impacts	With the implementation of Mitigation Measures HAZ-1, HAZ-2, HAZ-3, and HAZ-4 the proposed Project would not result in incremental effects to hazards or hazardous materials that could be compounded or increased when considered together with similar effects from other past, present, and reasonably foreseeable probable future projects.	PS	Implementation of Mitigation Measures HAZ-1, HAZ-2, HAZ-3, and HAZ-4.	LS
3.9 Hydrology and Water Quality				
Impact 3.9-1: Water Quality Standards	Project construction could result in substantial additional sources of polluted runoff which could have short-term impacts on the San Joaquin Marsh Reserve and San Diego Creek water quality. Project operations would not generate any point sources of wastewater or other liquid or solid water contaminants.	PS	HYD-1: <i>(This Mitigation Measure implements Mitigation Measure HYD-2A from the 2007 LRDP EIR)</i> Prior to initiating on-site construction for future projects that implement the 2007 LRDP, UCI shall approve an erosion control plan for project construction. The plan shall include, but not be limited to, the following applicable measures to protect downstream areas from sediment and other pollutants during site grading and construction: <ul style="list-style-type: none"> i. Proper storage, use, and disposal of construction materials. ii. Removal of sediment from surface runoff before it leaves the site through the use of silt fences, gravel bags, fiber rolls or other similar measures around the site perimeter. 	LS

SU = Significant, unavoidable; S = Significant; PS = Potentially Significant, LS = Less than Significant NI=No Impact

Table ES-1: Summary of Significant Impacts and Mitigation Measures				
Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
			<ul style="list-style-type: none"> iii. Protection of storm drain inlets on-site or downstream of the construction site through the use of gravel bags, fiber rolls, filtration inserts, or other similar measures. iv. Stabilization of cleared or graded slopes through the use of plastic sheeting, geotextile fabric, jute matting, tackifiers, hydro-mulching, revegetation (e.g., hydroseeding and/or plantings), or other similar measures. v. Protection or stabilization of stockpiled soils through the use of tarping, plastic sheeting, tackifiers, or other similar measures. vi. Prevention of sediment tracked or otherwise transported onto adjacent roadways through use of gravel strips or wash facilities at exit areas (or equivalent measures). vii. Removal of sediment tracked or otherwise transported onto adjacent roadways through periodic street sweeping. viii. Maintenance of the above-listed sediment control, storm drain inlet protection, slope/stockpile stabilization measures. <p>HYD-2: <i>(This Mitigation Measure implements Mitigation Measure HYD-2B from the 2007 LRDP EIR)</i> Prior to initiating on-site construction for future projects that implement the 2007 LRDP, UCI result in land disturbance of 1 acre or more, the UCI shall ensure that the projects include the design features listed below, or their equivalent, in addition to those listed in mitigation measure HYD-3. Equivalent design features may be applied consistent with applicable MS4 permits (UCI’s Storm Water Management Plan) at that time. All applicable design features shall be incorporated into Project development plans</p>	

SU = Significant, unavoidable; S = Significant; PS = Potentially Significant, LS = Less than Significant NI=No Impact

Table ES-1: Summary of Significant Impacts and Mitigation Measures				
Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
			<p>and construction documents; shall be operational at the time of Project occupancy; and shall be maintained by UCI.</p> <ul style="list-style-type: none"> i. All new storm drain inlets and catch basins within the Project site shall be marked with prohibitive language and/or graphical icons to discourage illegal dumping per UCI standards. ii. Outdoor areas for storage of materials that may contribute pollutants to the storm water conveyance system shall be covered and protected by secondary containment. iii. Permanent trash container areas shall be enclosed to prevent off-site transport of trash, or drainage from open trash container areas shall be directed to the sanitary sewer system. iv. At least one treatment control is required for new parking areas or structures, or for any other new uses identified by UCI as having the potential to generate substantial pollutants. Treatment controls include, but are not limited to, detention basins, infiltration basins, wet ponds or wetlands, bio-swales, filtration devices/inserts at storm drain inlets, hydrodynamic separator systems, increased use of street sweepers, pervious pavement, native California plants and vegetation to minimize water usage, and climate-controlled irrigation systems to minimize overflow. Treatment controls shall incorporate volumetric or flow-based design standards to mitigate (infiltrate, filter, or treat) storm water runoff, as appropriate. 	

SU = Significant, unavoidable; S = Significant; PS = Potentially Significant, LS = Less than Significant NI=No Impact

Table ES-1: Summary of Significant Impacts and Mitigation Measures				
Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
Impact 3.9-2: Groundwater recharge	The Project would not require use of groundwater supplies. Project implementation would increase impervious surfaces on-site; however, the Project stormwater drainage system would provide adequate infiltration for groundwater recharge.	LS	No mitigation is required.	N/A
Impact 3.9-3: Drainage and Hydrology	Project implementation would increase impervious surfaces on-site, increasing the rate and amount of runoff. However, the Project drainage system would be designed to ensure water quality of the marsh is preserved and run-off volumes remain consistent and satisfy requirements of the IRWD (HYD-3). A portion of the Project site could be subject to flooding by a 100-year storm event; however a base flood elevation would have to established for the area (HYD-4).	PS	<p>HYD-3: <i>(This Mitigation Measure implements Mitigation Measure HYD-1A from the 2007 LRDP EIR)</i> As early as possible in the planning process of future projects that implement the 2007 LRDP and would result in land disturbance of 1 acre or greater, and for all development projects occurring on the North Campus in the watershed of the San Joaquin Freshwater Marsh, a qualified engineer shall complete a drainage study. Design features and other recommendations from the drainage study shall be incorporated into project development plans and construction documents. Design features shall be consistent with UCI's Storm Water Management Program, shall be operational at the time of project occupancy, and shall be maintained by UCI. At a minimum, all drainage studies required by this mitigation measure shall include, but not be limited to, the following design features:</p> <p>Site design that controls runoff discharge volumes and durations shall be utilized, where applicable and feasible, to maintain or reduce the peak runoff for the 10-year, 6-hour storm event in the post-development condition compared to the pre-development condition, or as defined by current water quality regulatory requirements.</p> <p>Measures that control runoff discharge volumes and durations shall be utilized, where applicable and feasible, on manufactured slopes and newly-graded drainage channels,</p>	LS

SU = Significant, unavoidable; S = Significant; PS = Potentially Significant, LS = Less than Significant NI=No Impact

Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
			such as energy dissipaters, revegetation (e.g., hydroseeding and/or plantings), and slope/channel stabilizers. HYD-4: Prior to occupancy of the Project, a qualified engineer shall demonstrate that a Conditional Letter of Map Revision (CLMOR) has been approved by the U.S. Federal Emergency Management Agency (FEMA) confirming the Project does not impede or adversely affect the 100-year floodplain.	
Impact 3.9-4: Tsunami, Seiche, and Flood Hazard	The Project site is not located in a tsunami inundation zone or seiche zone.	NI	No mitigation is required.	N/A
Impact 3.9-5: Conflict with Applicable Water Quality or Groundwater Management Plan	The Project would not use groundwater and would not be a substantial source of pollutants with the potential to impact surface water or groundwater quality.	LS	No mitigation is required.	N/A
Cumulative Hydrology and Water Quality Impacts	With the implementation of BMP's and Mitigation Measures HYD-1, HYD-2, HYD-3, and HYD-4, the Project would not contribute significant impacts to flooding, or erosion from excessive runoff. Additionally, the 2007 LRDP EIR also did not identify significant cumulative impacts that would occur in the San Diego Creek Watershed due buildout of the 2007 LRDP.	LS	Implementation of Mitigation Measures HYD-1, HYD-2, HYD-3, and HYD-4.	LS

SU = Significant, unavoidable; S = Significant; PS = Potentially Significant, LS = Less than Significant NI=No Impact

Table ES-1: Summary of Significant Impacts and Mitigation Measures				
Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
3.10 Land Use and Planning				
Impact 3.10-1: Division of an Established Community	Project implementation would not affect the land use pattern of the surrounding community or require a change to the existing land use patterns or roadway networks.	LS	No mitigation is required.	N/A
Impact 3.10-2: Applicable Land Use Plans, Policies and Regulations	Project implementation would require an LRDP Land Use Amendment and would be consistent with UCI LRDP applicable goals and policies. The Project would also be consistent with the AELUP for JWA, the City of Irvine General Plan, and Orange County NCCP.	LS	No mitigation is required.	N/A
3.11 Noise				
Impact 3.11-1: Increase in Ambient Noise	Project implementation would result in temporary construction noise levels that exceed noise standards for the Project area (NOI-2). Project operations would create new sources of noise in the Project area including off-site traffic noise, mechanical equipment, and emergency vehicles (NOI-1).	PS	NOI-1: <i>(This mitigation measure implements Mitigation Measure Noi-1B from the 2007 LRDP EIR. This mitigation measure includes updates specific to the proposed Project and to reflect the latest practices and recommendations.)</i> Prior to issuance of building permits, UCI shall ensure they are designed in a manner that would minimize the exposure of noise-sensitive land uses (i.e., campus housing, classrooms, libraries, and clinical facilities) to noise levels that exceed the following state noise standards: 60 dBA CNEL (single-family campus housing); 65 dBA CNEL (multifamily campus housing, dormitories, lodging); and 70 dBA CNEL (classrooms, libraries, clinical facilities). If the affected noise-sensitive land uses are already exposed to noise levels in excess of these standards, then the new or modified stationary noise sources shall not increase the ambient noise level by more than 3 dBA. These criteria shall be achieved by:	LS

SU = Significant, unavoidable; S = Significant; PS = Potentially Significant, LS = Less than Significant NI=No Impact

Table ES-1: Summary of Significant Impacts and Mitigation Measures				
Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
			<p>i. Implementing the following noise reduction measures into the design of the satellite utility plant, as applicable:</p> <ul style="list-style-type: none"> • Use low-speed fans, baffles, mufflers, or other mechanical system design features to reduce emitted noise; • Increase the distance from the noise source to sensitive receptors with setbacks; • Place equipment inside buildings or within solid enclosures; • Construct earthen berms, noise walls, or other solid barriers for noise attenuation; • Eliminate glass, louvers, openings, or vents in the exterior walls of the plant, particularly those facing noise-sensitive land uses. If openings are necessary, install acoustical louvers or baffles on project components at all exterior openings; • Install silencers on the intake and exhaust system; • Place cooling towers as close to plant buildings as possible to utilize the buildings as noise barriers; and • Install integrated noise barriers on the sides of cooling towers. <p>ii. Implementing the following noise reduction measures into the design of new major HVAC systems, as applicable:</p> <ul style="list-style-type: none"> • Install acoustical shielding (parapet wall or near-field noise barrier) around all new equipment; and 	

SU = Significant, unavoidable; S = Significant; PS = Potentially Significant, LS = Less than Significant NI=No Impact

Table ES-1: Summary of Significant Impacts and Mitigation Measures				
Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
			<ul style="list-style-type: none"> • Place equipment below grade in basement space. <p>iii. Implementing the following noise reduction measures into the design of new parking structures:</p> <ul style="list-style-type: none"> • Incorporate architectural design features that attenuate noise including solid panels at locations facing noise-sensitive land uses; and • Construct earthen berms, noise walls, or other solid barriers between noise-sensitive land uses and parking structures. <p>NOI-2: <i>(This measure implements Mitigation Measure Noi-2A from the 2007 LRDP EIR. This mitigation measure includes updates specific to the proposed Project and to reflect the latest practices and recommendations.)</i> Prior to initiating ground-disturbing activities, UCI shall approve contractor specifications that include measures to reduce construction/ demolition noise to the maximum extent feasible. These measures shall include, but are not limited to, the following:</p> <ul style="list-style-type: none"> i. Noise-generating construction activities occurring Monday through Friday shall be limited to the hours of 7:00 a.m. to 7:00 p.m., except during summer, winter, or spring break at which construction may occur at the times approved by UCI. ii. Noise-generating construction activities occurring on weekends in the vicinity of (can be heard from) off-campus land uses shall be limited to the hours of 9:00 am to 6:00 pm on Saturdays, with no construction occurring on Sundays or holidays. iii. Noise-generating construction activities occurring on weekends in the vicinity of (can be heard from) on-campus 	

SU = Significant, unavoidable; S = Significant; PS = Potentially Significant, LS = Less than Significant NI=No Impact

Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
			<p>residential housing shall be limited to the hours of 9:00 am to 6:00 pm on Saturdays, with no construction on Sundays or holidays. However, as determined by UCI, if on-campus residential housing is unoccupied (during summer, winter, or spring break, for example), or would otherwise be unaffected by construction noise, construction may occur at any time.</p> <ul style="list-style-type: none"> iv. Construction equipment shall be properly outfitted and maintained with manufacturer recommended noise-reduction devices to minimize construction-generated noise. v. Stationary construction noise sources such as generators, pumps or compressors shall be located at least 100 feet from noise-sensitive land uses (i.e., campus housing, classrooms, libraries, and clinical facilities), as feasible. vi. Laydown and construction vehicle staging areas shall be located at least 100 feet from noise-sensitive land uses (i.e., campus housing, classrooms, libraries, and clinical facilities), as feasible. vii. All neighboring land uses that would be subject to construction noise shall be informed at least two weeks prior to the start of each construction project, except in an emergency situation. viii. Loud construction activity such as jackhammering, concrete sawing, asphalt removal, pile driving, and large-scale grading operations occurring within 600 feet of a residence or an academic building shall not be scheduled during any finals week of classes. A finals schedule shall be provided to the construction contractor. 	

SU = Significant, unavoidable; S = Significant; PS = Potentially Significant, LS = Less than Significant NI=No Impact

Table ES-1: Summary of Significant Impacts and Mitigation Measures				
Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
			ix. The Contractor shall comply with all Federal and State sound control and noise level rules, regulations, and ordinances which apply to any work performed pursuant to the contract. In addition, each internal combustion engine, used for any purpose on the job or related to the job, shall be equipped with a properly operating muffler of a type recommended by the manufacturer. No internal combustion engine shall be operated on the project without said muffler.	
Impact 3.11-2: Ground borne Vibration or Noise	Project implementation would result in short-term vibration associated with construction activities. However, construction activities would occur throughout the Project site and would not be concentrated at the point closest to the nearest off-site structure.	LS	No mitigation is required.	N/A
Impact 3.11-3: Exposure to Airport Noise	The Project site is outside the 60 dBA CNEL noise contour for John Wayne Airport, which is consistent with the 70 dBA CNEL noise limit for clinical facilities identified in the 2007 LRDP EIR.	LS	No mitigation is required.	N/A
Cumulative Noise Impacts	The Project would also be required to implement LRDP MM NOI-2 to minimize construction noise. Based on the modeled construction noise levels in Table 3.11-14, this potential cumulative effect would not cause noise levels at the closest sensitive receptors to exceed construction noise standards. Potential vibration impacts associated with the Project combined with vibration from other projects would be less than significant because of	LS	Implement Mitigation Measures NOI-1 and NOI-2.	LS

SU = Significant, unavoidable; S = Significant; PS = Potentially Significant, LS = Less than Significant NI=No Impact

Table ES-1: Summary of Significant Impacts and Mitigation Measures				
Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
	their distances from the Project site. As shown in Table 3.11-19 the proposed Project, in combination with cumulative background traffic noise levels, would result in a less than significant cumulative impact.			
3.12 Population and Housing				
Impact 3.12-1: Inducement of Population Growth	The Project would increase the number of jobs and could exacerbate the jobs/housing imbalance within the County if a number of new employees relocate from outside the region; however, the Proposed Project is within the buildout square footages and population numbers analyzed in the 2007 LRDP EIR.	LS	No mitigation is required.	N/A
Impact 3.12-2: Displacement of People or Housing	The Project site does not currently have any housing or permanent population.	LS	No mitigation is required.	N/A
Cumulative Land Use Impacts	The proposed Project would be consistent with the land use policies of the applicable plans, the Project would not combine with any past, present, or reasonably foreseeable future projects to cause a significant adverse cumulative land use impact based on a conflict with a plan or policy.	LS	No mitigation is required.	N/A
3.13 Public Services				
Impact 3.13-1a: Fire Protection	Project implementation would result in an incremental increase in calls for service due to the nature of on-site uses and addition of employees and visitors. Discussions regarding siting of a new	LS	No mitigation is required.	N/A

SU = Significant, unavoidable; S = Significant; PS = Potentially Significant, LS = Less than Significant NI=No Impact

Table ES-1: Summary of Significant Impacts and Mitigation Measures				
Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
	fire station have occurred with OCFA, which potential impacts would be analyzed in a project-specific CEQA document. Development of the Project is consistent with UCI's campus strategic planning and would not increase demand for fire protection services than analyzed in the LRDP EIR.			
Impact 3.13-1b: Police Protection	Project construction would include security features and lighting to reduce the need for police services. Project implementation would result in an incremental increase in calls for service due to the nature of on-site uses and addition of employees and visitors. Development of the Project is consistent with UCI's campus strategic planning and would not increase demand for police protection services than analyzed in the LRDP EIR.	LS	No mitigation is required.	N/A
Impact 3.13-1c: Schools	The Project would not include residential uses that could directly generate new students. Workers on-site would likely come from surrounding regional areas and would be served by existing school resources.	LS	No mitigation is required.	N/A
Impact 3.13-1d: Parks	Project implementation would not increase the campus population beyond what was planned for in the LRDP EIR. Existing parks have sufficient facilities to support the Project.	LS	No mitigation is required.	N/A
Impact 3.13-1e: Other Public Services	Project implementation would not increase the campus population beyond what was planned for in	LS	No mitigation is required.	N/A

SU = Significant, unavoidable; S = Significant; PS = Potentially Significant, LS = Less than Significant NI=No Impact

Table ES-1: Summary of Significant Impacts and Mitigation Measures				
Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
	the LRDP EIR. Existing library facilities would have sufficient capacity to support the Project.			
Cumulative Public Services Impacts	The proposed Project would not require new or altered fire, police, schools, libraries, parks, or other public services and no physical impacts would occur. The Project is consistent with the 2007 LRDP, and in combination with other proposed projects both on and off the UCI campus would not result in the need for physical improvements to accommodate additional public services improvements.	LS	No mitigation is required.	N/A
3.14 Recreation				
Impact 3.14-1: Deterioration of Parks and Recreational Facilities	The Project would not substantially induce unplanned population growth within the Project area and proposed uses are consistent with the 2007 LRDP EIR. The Project would not increase the use of existing off-campus neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.	LS	No mitigation is required.	N/A
Impact 3.14-2: Construction of New Recreational Facilities	The Proposed Project includes on-site pedestrian and bicycle paths and a recreational trail connection to the UCI and regional trail system. The Proposed Project would use approximately 3.5 acres of the existing Arboretum as temporary construction laydown; however, the Arboretum is	LS	No mitigation is required.	N/A

SU = Significant, unavoidable; S = Significant; PS = Potentially Significant, LS = Less than Significant NI=No Impact

Table ES-1: Summary of Significant Impacts and Mitigation Measures				
Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
	closed to the campus community and the public as a recreational amenity.			
Cumulative Recreation Impacts	The proposed Project would not result in the need for construction or expansion of recreational facilities not analyzed as part of this document, or as part of another environmental review process that would have an adverse physical effect on the environment. The Project, in combination with other projects in the surrounding area does result in the need for expanded recreational facilities. Cumulative impacts are less than significant.	LS	No mitigation is required.	N/A
3.15 Transportation				
Impact 3.15-1: Conflict with a Program, Plan, Ordinance, or Policy, Addressing Transit, Roadway, Bicycle and Pedestrian Facilities	<p>The Proposed Project was accounted for in the City’s growth forecast, the Project would be consistent with the RTP/SCS, however, Project development would contribute to traffic volumes within the Project area (TR-1, TR-2, and TR-3).</p> <p>Project implementation would not impact public transit facilities and would improve pedestrian and bicycle circulation on-site, consistent with UC’s Sustainable Transportation Policy, UCI’s Alternative Transportation Program, and the LRDP.</p>	PS	<p>TR-1: <i>(This Mitigation Measure implements Mitigation Measure TRA-1I from the 2007 LRDP EIR)</i> UCI shall review individual projects proposed under the 2007 LRDP for consistency with UC Sustainable Transportation Policy and UCI Transportation Demand Management goals to ensure that bicycle and pedestrian improvements, transit stops, and other project features that promote alternative transportation are incorporated to the extent feasible.</p> <p>TR-2: <i>This Mitigation Measure implements Mitigation Measure TRA-1A from the 2007 LRDP EIR. This mitigation measure includes updates specific to the proposed Project and to reflect the latest practices and recommendations.)</i> To reduce on- and off-campus vehicle trips and resulting impacts, UCI will continue to implement a range of Transportation Demand Management (TDM) strategies. Program elements will include measures to increase transit and shuttle use, encourage</p>	LS

SU = Significant, unavoidable; S = Significant; PS = Potentially Significant, LS = Less than Significant NI=No Impact

Table ES-1: Summary of Significant Impacts and Mitigation Measures				
Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
			<p>alternative transportation modes including bicycle transportation, implement parking policies that reduce demand, and implement other administrative mechanisms that reduce vehicle trips to and from the campus. Examples of trip reduction measures may include, but are not limited to:</p> <ul style="list-style-type: none"> • transportation marketing services, • short-term bicycle parking, • long-term bicycle parking, • improved access to bike network, • showers and locker rooms, • on-site café, • subsidized transit passes, • shuttle bus service, • carpooling program, • guaranteed ride home, and • parking cash-out program. <p>UCI shall monitor the performance of TDM programs through annual surveys. The required items to be included in the annual progress report are:</p> <ul style="list-style-type: none"> • contact information for the Project TDM coordinator, • sample of marketing materials provided to new employees about the TDM program, • number of employees participating in each TDM measure offered to employees, • commute mode share of employees at the Project site, and • other information demonstrating implementation of specific TDM measures. 	

SU = Significant, unavoidable; S = Significant; PS = Potentially Significant, LS = Less than Significant NI=No Impact

Table ES-1: Summary of Significant Impacts and Mitigation Measures				
Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
			TR-3: <i>(This Mitigation Measure implements Mitigation Measure TRA-1J from the 2007 LRDP EIR) If a campus construction project or a specific campus event requires an on-campus lane or roadway closure, or could otherwise substantially interfere with campus traffic circulation, the contractor or other responsible party will provide a traffic control plan for review and approval by UCI. The traffic control plan shall ensure that adequate emergency access and egress is maintained and that traffic is allowed to move efficiently and safely in and around the campus. The traffic control plan may include measures such as signage, detours, traffic control staff, a temporary traffic signal, or other appropriate traffic controls. If the interference would occur on a public street, UCI shall apply for applicable permits from appropriate jurisdictions.</i>	
Impact 3.15-2: Conflict with CEQA Guidelines Section 15064.3, Subdivision (b)	The Project VMT is lower than the regional average of 48.8 but is greater than the threshold of significance of 41.5 VMT per employee.	PS	Implementation of Mitigation Measures TR-1 and TR-2.	LS
Impact 3.15-3: Design Hazards	The Project’s circulation and access points would be designed in accordance with the standards applied to the campus transportation network. The Proposed Project would not increase hazards due to design features and would propose uses typical of a medical land use.	LS	No mitigation is required	N/A
Impact 3.15-4: Inadequate Emergency Access	Impacts from construction traffic would be limited to occasional and temporary delays to traffic. Internal site circulation and existing on-site	LS	Implementation of Mitigation Measure HAZ-4.	N/A

SU = Significant, unavoidable; S = Significant; PS = Potentially Significant, LS = Less than Significant NI=No Impact

Table ES-1: Summary of Significant Impacts and Mitigation Measures				
Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
	infrastructure, including pedestrian walkways, would be designed to allow emergency access to both the Acute Hospital and the parking structures during Project operation.			
Cumulative Public Services Impact	The Proposed Project is fully accounted for in the growth allocated by the 2007 LRDP. As mentioned above, coordination has been made between the land use assumptions used in the 2007 LRDP and City of Irvine. Therefore, since the Proposed Project was accounted for in the City’s growth forecast, the Project would be consistent with the RTP/SCS and would have a less than significant impact on transportation based on the RTP/SCS screening threshold. Therefore, potential impacts are not considered cumulatively considerable and are less than significant.	LS	No mitigation is required.	N/A
3.16 Tribal Cultural Resources				
Impact 3.16:1: Substantial Adverse Change in the Significance of a Tribal Cultural Resource	The Project site contains archaeological site CA-ORA-115 which is considered eligible for the California Registry of Historic Resources as it is likely to yield important information about prehistory. Additionally, it is possible that unknown buried tribal cultural resources could be present on the Project site and would not be discovered until after construction activities begin.	S	Implement Mitigation Measures CUL-1, CUL-2, and CUL-3.	SU

SU = Significant, unavoidable; S = Significant; PS = Potentially Significant, LS = Less than Significant NI=No Impact

Table ES-1: Summary of Significant Impacts and Mitigation Measures				
Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
Cumulative Tribal Cultural Resources Impacts	Consistent with the findings of the 2007 LRDP EIR, cumulative development is expected to result in significant impacts to identified and recorded cultural, archaeological resources, or historical resources. The proposed Project includes Mitigation Measures CUL-1, CUL-2, and CUL-3 to minimize impacts but impacts would still remain be significant and unavoidable.	S	Implement Mitigation Measures CUL-1, CUL-2, and CUL-3.	SU
3.17 Utilities and Service Systems				
Impact 3.17-1: Water, Wastewater Treatment, Storm Water Drainage, Electric Power, Natural Gas, and Telecommunications Facilities	The Proposed Project would connect to existing utility infrastructure supplying potable water, sanitary sewer, natural gas, electricity, and communications to current UCI facilities in the North Campus.	LS	No mitigation is required.	N/A
Impact 3.17-2: Water Supply Availability	The Irvine Ranch Water District (IRWD) would have sufficient water supplies available to serve the Project and reasonably foreseeable future development during normal, dry, and multiple dry years.	LS	No mitigation is required.	N/A
Impact 3.17-3: Wastewater Treatment Capacity	The Proposed Project is within the square footage and population assumptions analyzed for the North Campus as part of the 2007 LRDP EIR and would be within the treatment capacity of IRWD.	LS	No mitigation is required.	N/A

SU = Significant, unavoidable; S = Significant; PS = Potentially Significant, LS = Less than Significant NI=No Impact

Table ES-1: Summary of Significant Impacts and Mitigation Measures				
Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
Impact 3.17-4: Solid Waste Generation	The Proposed Project would comply with State and local standards for solid waste generation including RCRA, University of California Policy on Sustainable Practices, and UCI’s sustainability goals and would not exceed solid waste capacity at Frank R. Bowerman Landfill.	LS	No mitigation is required.	N/A
Impact 3.17-5: Conflict with Solid Waste Regulations	The Proposed Project would comply with State and local standards for solid waste generation including RCRA, University of California Policy on Sustainable Practices, and UCI’s sustainability goals.	LS	No mitigation is required.	N/A
Cumulative Utilities and Service Systems Impact	The water supply needs of the Project—together with related past, present, and reasonably foreseeable future projects—would not result in the need for new or expanded water entitlements that could result in significant environmental impacts. Given the existing available capacity, the wastewater treatment needs of the Project—together with related past, present, and reasonably foreseeable future projects—would not result in the need for new or expanded wastewater treatment facilities that could result in significant environmental impacts or that could cause the wastewater treatment to exceed the capacity of the wastewater treatment facilities. Future projects in the area would increase solid waste generation and decrease available capacity of the County’s landfills. However, as with the proposed Project, these projects have been, or would be, required to conduct environmental review. Additionally, the	LS	No mitigation is required.	N/A

SU = Significant, unavoidable; S = Significant; PS = Potentially Significant, LS = Less than Significant NI=No Impact

Table ES-1: Summary of Significant Impacts and Mitigation Measures				
Issue	Impact	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation
	Frank R. Bowerman landfill is projected to have sufficient capacity to serve current and future needs until its scheduled closure in December 2053. Furthermore, the Proposed Project would adhere to Zero Waste sustainability goals from the University of California and achieve up to 90 percent diversion. The Project would not combine with other cumulative projects to result in significant impacts to solid waste.			

SU = Significant, unavoidable; S = Significant; PS = Potentially Significant, LS = Less than Significant NI=No Impact

This page intentionally left blank.

SU = Significant, unavoidable; S = Significant; PS = Potentially Significant, LS = Less than Significant NI=No Impact

1 INTRODUCTION

1.1 Purpose of this Environmental Impact Report

To address the current and projected future unmet demand for medical facilities in South Orange County California, the University of California, Irvine (UCI) has identified a potential to develop a UCI Health integrated medical campus providing inpatient, ambulatory, and emergency care services (hereinafter referred to as the ICMC or proposed Project) Proposed buildings include a 6-story Acute Care Hospital, a 6-story Ambulatory Care Center, a 3-story central utility plant, and a parking structure with approximately 1,400 spaces (6 levels above ground and two levels below). Proposed open space improvements include outdoor public spaces and gardens, pedestrian trail improvements, and ornamental landscaping. During construction, the Project proposes to use approximately 3.5 acres of the existing UCI Arboretum area as a temporary construction staging, equipment laydown area, and construction parking area. A temporary, unpaved surface lot would be installed within the adjacent UCI Support Service Facilities area to replace spaces displaced by demolition of existing uses at the ICMC Project site.

The North Campus allows for 435 residential units and 950,000 square feet of Mixed Use - Commercial in the 2007 Long Range Development Plan (LRDP), (hereinafter referred to as the 2007 LRDP). UCI is proposing to amend the 2007 LRDP to allow Inpatient Uses in the Mixed Use – Commercial land use designation. A detailed description of the LRDP Amendment and proposed Project, is provided in Section 2.0, Project Description, of this Draft Subsequent Environmental Impact Report (SEIR).

This Draft SEIR has been prepared to evaluate the potential environmental impacts associated with the proposed Project, and implementation of the proposed student housing and associated actions. This Draft SEIR been prepared in conformance with the California Environmental Quality Act (CEQA, California Public Resources Code, Section 21000 et seq.), the State CEQA Guidelines (Title 14, California Code of Regulations [CCR], Chapter 3, Section 15000 et seq.), and the University of California (UC) Procedures for Implementing CEQA. The UC Board of Regents (The Regents) is the Lead Agency under CEQA and is responsible for preparing the SEIR. The determination that The Regents is the “lead agency” is made in accordance with Sections 15051 and 15367 of the State CEQA Guidelines, which define the lead agency as the public agency that has the principal responsibility for carrying out or approving a project. Further, preparation of this Draft SEIR is subject to Section 21080.09(d) of the California Public Resources Code, which requires that public higher education institutions consider the environmental impacts of academic and enrollment plans.

UCI has prepared this Draft SEIR for the following purposes:

- To satisfy the requirements of CEQA (California Public Resources Code, Sections 21000– 21178), the State CEQA Guidelines (Title 14, CCR, Chapter 14, Sections 15000–15387), and the UC Guidelines for the Implementation of CEQA.
- To inform the general public, the local community, responsible and interested public agencies, and The Regents of the scope of the proposed LRDP Amendment and ICMC Project and to communicate the potential environmental effects, measures to mitigate those effects, and alternatives to the proposed Project.
- To enable The Regents to consider environmental consequences when deciding whether to approve the proposed Project.

- To serve as a source document for responsible agencies to issue permits and approvals, as required, for implementation of the proposed Project.

As described in CEQA and the State CEQA Guidelines, public agencies are charged with the duty to avoid or substantially lessen significant environmental effects, where feasible. In satisfying this duty, a public agency has an obligation to balance the proposed Project's significant effects on the environment with its benefits, including economic, social, technological, legal, and other benefits. This Draft SEIR is an informational document, the purpose of which is to identify the potentially significant effects of the proposed Project on the environment and to indicate the manner in which those significant effects can be avoided or significantly lessened; to identify any significant and unavoidable adverse impacts that cannot be mitigated; and to identify reasonable and feasible alternatives to the proposed Project that would eliminate any significant adverse environmental effects or reduce the impacts to less than significant.

The lead agency is required to consider the information in the SEIR, along with any other relevant information, in making its decisions on the proposed Project. Although the SEIR does not determine the ultimate decision that will be made regarding approval of the proposed LRDP Amendment and ICMC Project, CEQA requires the University to consider the information in the SEIR and make findings regarding each significant and unavoidable effect identified in the SEIR. The Regents will review and consider certification of the Final SEIR prior to any decision on whether to approve the proposed Project.

1.2 Type of Environmental Impact Report

Each campus of the University of California is required to periodically prepare a Long-Range Development Plan (LRDP) that sets forth concepts, principles, and plans to guide future growth of that campus. In November 2007, the Regents of the University of California (Regents) adopted the 2007 LRDP for the University of California Irvine (UCI) campus, which outlines projected development levels and patterns for UCI at all of its main campus sites through the year 2026. The 2007 LRDP Final EIR (FEIR) was certified by the Regents in November 2007 and includes, among other things, analysis of the potential environmental impacts from then-envisioned approximately 435 residential units and 950,000 gross square feet of mixed-use development in the North Campus. Subsequently, in June 2018 a minor amendment to the LRDP, Amendment #1, was approved to add Clinical uses as a Primary Use to the North Campus' Mixed Use - Commercial land use designation.

This SEIR analyzes the potential environmental impacts related to the implementation of the proposed Project, which is described in Section 2.0, *Project Description*. In accordance with Section 15161 of the State CEQA Guidelines, a Project EIR "examines the environmental impacts of a specific development project. This type of EIR should focus primarily on the changes in the environment that would result from the development project. The EIR shall examine all phases of the project including planning, construction, and operation".

This SEIR is further intended to serve as the primary environmental document for all entitlements associated with the proposed Project, including all discretionary approvals requested or required in order to implement the Project. The Lead Agency can approve subsequent actions without additional environmental documentation unless otherwise required by Section 21166 of the CEQA Statutes and Section 15162 of the State CEQA Guidelines. Section 21166 of the CEQA Statutes states that:

When an environmental impact report has been prepared for a project pursuant to this division, no subsequent or supplemental environmental impact report shall be required by the lead agency or by any responsible agency, unless one or more of the following events occurs:

- (a) Substantial changes are proposed in the project which will require major revisions of the environmental impact report.*
- (b) Substantial changes occur with respect to the circumstances under which the project is being undertaken which will require major revisions in the environmental impact report.*
- (c) New information, which was not known and could not have been known at the time the environmental impact report was certified as complete, becomes available.*

Section 15162 of the State CEQA Guidelines states that:

- (a) When an EIR has been certified or a negative declaration adopted for a project, no subsequent EIR shall be prepared for that project unless the lead agency determines, on the basis of substantial evidence in the light of the whole record, one or more of the following:*
 - (1) Substantial changes are proposed in the project which will require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects;*
 - (2) Substantial changes occur with respect to the circumstances under which the project is undertaken which will require major revisions of the previous EIR or Negative Declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or*
 - (3) New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was certified as complete or the Negative Declaration was adopted, shows any of the following:*
 - (A) The project will have one or more significant effects not discussed in the previous EIR or negative declaration;*
 - (B) Significant effects previously examined will be substantially more severe than shown in the previous EIR;*
 - (C) Mitigation measures or alternatives previously found not to be feasible would in fact be feasible, and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; or*
 - (D) Mitigation measures or alternatives which are considerably different from those analyzed in the previous EIR would substantially reduce one*

or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative.

- (b) If changes to a project or its circumstances occur or new information becomes available after adoption of a negative declaration, the lead agency shall prepare a subsequent EIR if required under subdivision (a). Otherwise the lead agency shall determine whether to prepare a subsequent negative declaration, an addendum, or no further documentation.*
- (c) Once a project has been approved, the lead agency's role in project approval is completed, unless further discretionary approval on that project is required. Information appearing after an approval does not require reopening of that approval. If after the project is approved, any of the conditions described in subdivision (a) occurs, a subsequent EIR or negative declaration shall only be prepared by the public agency which grants the next discretionary approval for the project, if any. In this situation no other responsible agency shall grant an approval for the project until the subsequent EIR has been certified or subsequent negative declaration adopted.*
- (d) A subsequent EIR or subsequent negative declaration shall be given the same notice and public review as required under Section 15087 or Section 15072. A subsequent EIR or negative declaration shall state where the previous document is available and can be reviewed.*

1.3 Standards of Adequacy Under CEQA

While Sections 15120 to 15132 of the State CEQA Guidelines generally describe the content of an EIR, CEQA does not contain specific, detailed, quantified standards for the content of environmental documents. Section 15151 of the State CEQA Guidelines states:

An EIR should be prepared with a sufficient degree of analysis to provide decision-makers with information that enables them to make a decision that intelligently takes account of environmental consequences. An evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in light of what is reasonably feasible. Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among the experts. The courts have not looked for perfection but for adequacy, and a good faith effort at full disclosure.

1.4 Review of an EIR

The UC Regents, which has the principal responsibility for processing and approving the Project, along with other public agencies with direct interest in the Project (e.g., responsible agencies), may use this SEIR in their decision-making or permitting processes and will consider the information in this SEIR in combination with other information that may be presented during the CEQA process. In addition, this SEIR provides the analysis in support of the Mitigation Program that will, if the Project is approved, be made conditions of approval for the Project and implemented through the CEQA-mandated Mitigation Monitoring and Reporting Program.

In accordance with CEQA, public agencies are required to make appropriate findings for each potentially significant environmental impact identified in the EIR if it decides to approve the Project. If the EIR identifies significant environmental impacts that cannot be mitigated to a less than significant level through the adoption of mitigation measures or project alternatives, the Lead Agency (and responsible agencies using this CEQA document for their respective permits or approvals) must decide whether the benefits of the proposed Project outweigh any identified significant environmental effects that cannot be mitigated to below a threshold of significance. If the agency decides that the overriding considerations, including project benefits, outweigh the unavoidable impacts, then the agency (Lead Agency or responsible agency) is required to adopt a Statement of Overriding Considerations, which states the reasons that support its actions.

The Lead Agency's actions involved in the implementation of the Project are described in Section 2.0, *Project Description*. Other agencies that may have discretionary approval over the Project, or components thereof, including responsible agencies, are also described in the Project Description.

1.5 Scope of the Subsequent Environmental Impact Report

This SEIR provides a comprehensive evaluation of the reasonably anticipated scope of the proposed Project. It is intended to serve as an informational document for public agency decision-makers and the general public regarding (1) the objectives and components of the Project; (2) any potentially significant environmental impacts (individual and cumulative) that may be associated with the planning, construction, and operation of the Project; (3) an appropriate and feasible Mitigation Program; (4) and alternatives that may be adopted to reduce or avoid these significant impacts.

In compliance with the State CEQA Guidelines, the University has taken steps to maximize opportunities for the public and other public agencies to participate in the environmental review process. The scope of this SEIR includes issues identified during the Notice of Preparation (NOP) comment period, the public scoping meeting, and environmental issues raised by agencies and the general public in response to the scoping process.

1.5.1 Scoping Meeting

Pursuant to Section 21083.9 of the CEQA Statute, the Lead Agency is required to conduct at least one scoping meeting for all projects of statewide, regional, or area-wide significance. A scoping meeting is for jurisdictional agencies and interested persons or groups to provide comments regarding, but not limited to, the range of actions, alternatives, and environmental effects to be analyzed. UCI, on behalf of the UC Regents hosted a Scoping Meeting on March 9, 2020, at 6:00 PM, at the UCI Newkirk Alumni Center, 450 Alumni Court, Irvine, California 92697. Attendees were briefed on the proposed Project, the proposed scope of the EIR, and opportunities to comment during the 30-day public review period. No comment cards were filled out and returned at the Scoping Meeting.

1.5.2 Notice of Preparation (NOP)

Pursuant to Section 15082 of the CEQA Guidelines, as amended, UCI, on behalf of the UC Regents prepared and circulated a Notice of Preparation (NOP) to affected agencies and interested parties for a 30-day public review period beginning on February 28, 2020. Table 1-1 summarizes the comments received from agencies/persons during the NOP process and provides a reference, as applicable, to the

section(s) of this SEIR where the issues are addressed. The NOP and comment letters are provided in Appendix A of this SEIR.

Table 1-1. Summary of Written Comments on Notice of Preparation	
Commenter	Summary of Comment and Where Addressed
Federal Agencies	No federal agencies submitted comments in response to the NOP.
State Agencies	
State of California Natural Resources Agency, Department of Fish and Wildlife (letter dated March 30, 2020)	<p>Project Description</p> <ul style="list-style-type: none"> – Discuss the purpose and need for and a detailed description of the proposed Project. <p>See SEIR Section 2.0, <i>Project Description</i>.</p> <p>Biological Resources</p> <ul style="list-style-type: none"> – Identify design elements that minimize impacts to biological resources. – Identify riparian habitats, public and reserve lands, and open space, discuss Project impacts, and provide adequate mitigation measures. – Detail flora and fauna in the Project area and identify endangered, threatened, sensitive, and locally unique species and habitats. – Include mitigation measures for impacts to nesting birds. <p>See SEIR Section 3.3, <i>Biological Resources</i>.</p> <p>Hydrology and Water Quality</p> <ul style="list-style-type: none"> – Discuss Project-related changes on drainage patterns on and downstream of the Project site. <p>See SEIR Section 3.9, <i>Hydrology and Water Quality</i>.</p>
Local Agencies, Special Districts	
City of Irvine (letter dated March 18, 2020)	<p>Project Description</p> <ul style="list-style-type: none"> – Provide details on the Project construction schedule. – Provide details regarding on-site parking. – Update Figure 2: Conceptual Site Plan. – Analyze Child Health/Medical Office project alongside the Project. <p>See SEIR Section 2.0, <i>Project Description</i>.</p> <p>Energy</p> <ul style="list-style-type: none"> – Detail if the Project will be LEED certified. <p>See SEIR Section 2.0, <i>Project Description</i> and Section 3.5, <i>Energy</i>.</p> <p>Land Use and Planning</p> <ul style="list-style-type: none"> – Comments are related to the City of Irvine General Plan designation for UC Irvine, inclusive of the Project site. EIR discussion should analyze existing and proposed uses on the site and their land use classifications. <p>See SEIR Section 2.0, <i>Project Description</i> and Section 3.10, <i>Land Use and Planning</i>.</p> <p>Public Services</p> <ul style="list-style-type: none"> – Analyze if there are adequate public services to serve the Project site. <p>See SEIR Section 3.13, <i>Public Services</i>.</p> <p>Transportation</p> <ul style="list-style-type: none"> – Comments related to traffic study and analysis scope. <p>See SEIR Section 3.15, <i>Transportation</i>.</p>

Table 1-1. Summary of Written Comments on Notice of Preparation	
Commenter	Summary of Comment and Where Addressed
	<p>Utilities</p> <ul style="list-style-type: none"> – Analyze if there are adequate utilities to serve the Project site. See SEIR Section 3.17, <i>Utilities and Service Systems</i>.
City of Newport Beach (letter dated March 26, 2020)	<p>Aesthetics</p> <ul style="list-style-type: none"> – Include visual impact analysis with visual simulations from appropriate viewpoints. See SEIR Section 3.1, <i>Aesthetics</i>. <p>Transportation</p> <ul style="list-style-type: none"> – Comments related to local traffic impacts, including those within the City of Newport Beach. Analyze and identify necessary roadway improvements and associated fair share fees. See SEIR Section 3.15, <i>Transportation</i>. <p>Utilities</p> <ul style="list-style-type: none"> – Analyze utility capacity and any necessary improvements and/or upgrades, including those that may be required within the City of Newport Beach. See SEIR Section 3.17, <i>Utilities and Service Systems</i>.
Santa Ana Regional Water Quality Control Board (email dated March 4, 2020)	<p>Hydrology and Water Quality</p> <ul style="list-style-type: none"> – Analyze drainage patterns and water management on the Project site. See SEIR Section 3.9, <i>Hydrology and Water Quality</i>.
South Coast Air Quality Management District (letter dated March 17, 2020)	<p>Air Quality</p> <ul style="list-style-type: none"> – Comments related to SCAQMD CEQA Air Quality Handbook guidance for construction and operations related Project analysis. Comment identifies regional and localized significance thresholds for analysis purposes. – Comments related to identification and adoption of mitigation measures. See SEIR Section 3.2, <i>Air Quality</i>.
Interested Parties	
Shopoff Realty Investments (letter dated March 2, 2020)	Comment provides contact information for an interested party to be added to the SEIR mailing list. No comments on the Project were provided.
Yelena Ostrovsky (letter dated February 29, 2020)	<p>Transportation</p> <ul style="list-style-type: none"> – Comments related to traffic on Jamboree Road. See SEIR Section 3.15, <i>Transportation</i>.

1.6 Project Sponsors and Contact Persons

The University of California Board of Regents is the Lead Agency for preparation of this SEIR. Inquiries regarding the SEIR should be directed to the UC Irvine, Office of Physical and Environmental Planning, on behalf of the UC Regents.

Lead Agency: University of California Board of Regents
University of California, Irvine
Office of Physical and Environmental Planning

4199 Campus Drive, Suite 380
Irvine, California 92697
Contact: Lindsey Hashimoto, Senior Planner
(949) 824-8692
Hashimol@uci.edu

1.7 Availability of the Draft SEIR

The Notice of the Availability of the Draft SEIR has been provided to agencies, organizations, and interested groups and persons for comment during a 45-day review period in accordance with Section 15087 of the CEQA Guidelines. The Notice of Completion for the Draft SEIR has also been distributed as required by CEQA. This Draft SEIR and the full administrative record for the Project, including all studies, is available for review on the UCI's website: <https://cpep.uci.edu/environmental/review.php>. Due to the COVID-19 pandemic, if you would like to review a paper copy of the Draft SEIR, please call (949) 824-8692 to schedule an appointment.

The public review period for the Draft SEIR for the proposed Project is from October 2, 2020 through November 16, 2020. UCI encourages agencies and interested parties to submit written comments on the Draft SEIR electronically to Lindsey Hashimoto at hashimol@uci.edu. Written comments may also be submitted via regular mail to:

Lindsey Hashimoto, Senior Planner
University of California, Irvine, Physical and Environmental Planning
4199 Campus Drive, Suite 380
Irvine, California 92697-2325

1.8 Comments and Responses and Final SEIR

UCI, on behalf of the UC Regents, will respond to each environmental comment on the Draft SEIR received in writing during the public review period in a Responses to Comments document published in the Final SEIR. All persons who commented on the Draft SEIR will be notified of the availability of the Final SEIR and the date of the public hearing for the Project. The Final SEIR will be considered by the Regents in a public meeting and certified if it is determined to be in compliance with CEQA. Upon certification of the Final SEIR, the Regents will consider whether to approve the Project and adopt the proposed LRDP amendment.

1.9 Mitigation Monitoring and Reporting Program

Throughout this SEIR, mitigation measures have been described in language that will facilitate establishment of a Mitigation Monitoring and Reporting Program (MMRP). As required under CEQA (see CEQA Guidelines, Section 15097), an MMRP will be prepared and presented to the Regents at the time of certification of the Final SEIR for the proposed Project and will identify the specific timing and roles and responsibilities for implementation of adopted mitigation measures.

1.10 UCI Campus, Public and Agency Outreach

A public scoping meeting was held for the Project on March 9, 2020 on the UCI Campus at the Newkirk Alumni Center Conference Room. The meeting included a presentation of the Project, a discussion of the

environmental process, opportunities to comment, as well as instructions on how to submit comments via electronically and U.S. mail

1.11 Report Organization

Executive Summary, summarizes the environmental impacts that would result from implementation of the proposed CPHP, lists proposed mitigation measures and indicates the level of significance of impacts after mitigation. A summary of the alternatives to the ICMC, and the environmentally superior alternative, is also provided.

Chapter 1, Introduction, provides an introduction and overview of the proposed ICMC; describes the intended uses of the SEIR, including the review and certification process; and discusses the organization of the SEIR.

Chapter 2, Project Description, provides a detailed description of the proposed ICMC Project, including relationship of the Project to the 2007 LRDP; a discussion of Project objectives, and a description of proposed development at the Project site.

Chapter 3, Environmental Analysis and Mitigation, provides with respect to each environmental impact category an introduction to environmental analysis, describes the Project's environmental setting, includes a regulatory framework, discusses the methodology used, provides an impact analysis of the Project and analysis of cumulative impacts; and identifies mitigation measures that would reduce or avoid those impacts as presented.

Chapter 4, Other CEQA Considerations, summarizes significant and unavoidable impacts, significant irreversible environmental changes, and any growth-inducing impacts.

Chapter 5, Alternatives, describes the alternatives to the proposed ICMC Project that could avoid or substantially lessen significant effects and evaluates their environmental effects in comparison to the proposed Project.

Chapter 6, Report Preparation, identifies the persons who prepared the SEIR, and those who were consulted during its preparation.

Appendices. The appendices include the NOP, written and oral comments on the NOP, and various supporting technical information for the Draft SEIR.

INCORPORATION BY REFERENCE

As permitted in Section 15150 of the State CEQA Guidelines, an EIR may reference all or portions of another document that is a matter of public record or is generally available to the public. Information from the documents that have been incorporated by reference has been briefly summarized in the appropriate sections of this SEIR, along with a description of how the public may obtain and review these documents. These documents (along with a description of how the public may obtain and review these documents) include:

- University of California, Irvine 2007 Long Range Development Plan, Available online at: <https://cpep.uci.edu/physical/campus-lrdp.php>

The 2007 LRDP is an appropriate document to incorporate by reference because the LRDP is the governing land use policy document for the UCI campus that provides guidance on the implementation UCI campus buildout.

- University of California, Irvine 2007 Long Range Development Plan Final Environmental Impact Report, Available online at: <https://cpep.uci.edu/environmental/campus-feir.php>
The 2007 LRDP Final EIR is an appropriate document to incorporate by reference because it evaluates the potential environmental effects of the buildout of UCI's 2007 LRDP. The 2007 LRDP EIR evaluates impacts associated with the planned land uses and building intensities and densities described in the 2007 LRDP. This SEIR tiers off of the analysis in the 2007 LRDP Final EIR.

2 PROJECT DESCRIPTION

2.1 Purpose

Each campus of the University of California is required to periodically prepare a Long Range Development Plan (LRDP) that sets forth concepts, principles, and plans to guide future growth of that campus. In November 2007, the Regents of the University of California (Regents) adopted the 2007 LRDP for the University of California, Irvine (UCI) campus, which outlines projected development levels and patterns for UCI at all of its campus sites through the year 2026. The 2007 LRDP Environmental Impact Report (EIR) was certified by the Regents in November 2007 and includes, among other things, analysis of the potential environmental impacts from then-envisioned approximately 950,000 gross square feet of mixed-use development in the North Campus. Subsequently, in June 2018 a minor amendment to the LRDP, Amendment #1, was approved to add Clinical uses as a Primary Use to the North Campus' Mixed Use - Commercial land use designation.

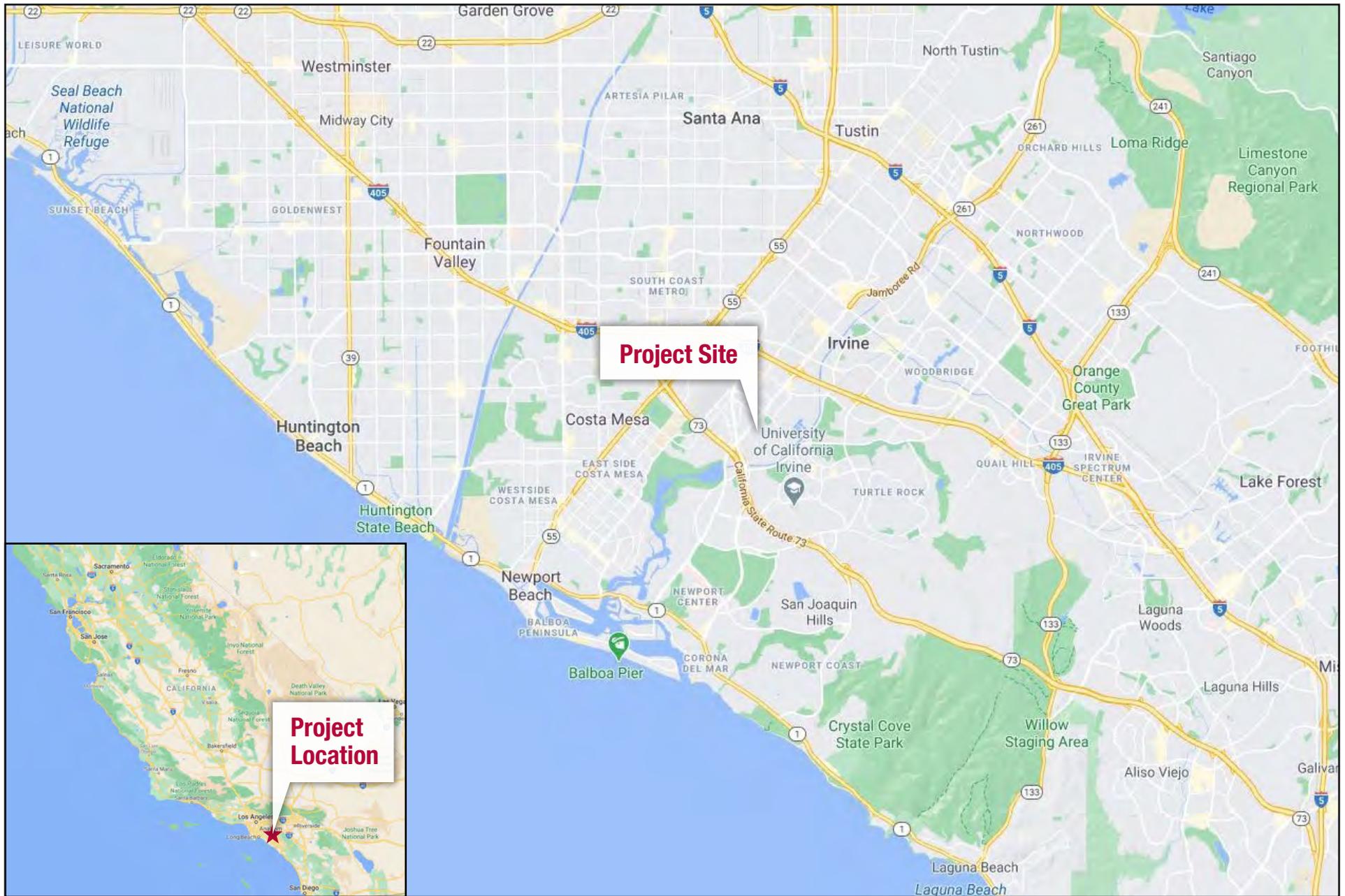
The purpose of the Project Description is to describe the UCI Irvine Campus Medical Complex (ICMC) Project (proposed Project or Project) to allow for meaningful review by agencies, decision-makers, and interested parties. Section 15124 of the CEQA Guidelines requires that a project description for an EIR contain (1) the precise location and boundaries of a project site; (2) a statement of objectives sought by a project including the underlying purpose of the project; (3) a general description of a project's characteristics; and (4) a statement briefly describing the intended uses of the EIR, including a list of the agencies that are expected to use the EIR in their decision making, a list of the permits and other approvals required to implement the project, and a list of related environmental review and consultation requirements required by federal, State, or local laws, regulations, or policies. An adequate project description need not be exhaustive but should supply the detail necessary for project evaluation.

2.2 Project Location

The project site is a part of the University of California, Irvine (UCI) campus located in the City of Irvine, County of Orange, California. **Figure 2-1: Regional Location Map**, and **Figure 2-2: Local Vicinity**, depict the project site in a regional and local context, respectively. Regional access to the UCI campus is provided by Interstate 405 (I-405), State Route 73 (SR-55), and State Route 55 (SR-55).

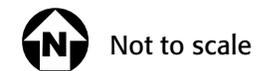
The 1,475-acre UCI campus is delineated into five planning sectors: Academic Core, East Campus, West Campus, North Campus, and South Campus, as depicted on **Figure 2-3: UCI Planning Sectors**. These planning sectors are connected through physical linkages, such as pedestrian walkways, bicycle and trail systems, transit routes, and roadways.

The project site is located within the 144-acre North Campus sector as depicted on **Figure 2-4: Project Site**. The North Campus is approximately 1.5 miles from the Academic Core and is physically separated from the Main Campus by University Drive, San Diego Creek, and the UC San Joaquin Marsh Reserve. The North Campus is generally bordered by Jamboree Road on the northwest, Campus Drive on the northeast, the UC San Joaquin Marsh Reserve to the south, and MacArthur Boulevard to the west.



Source: Google Maps 2020

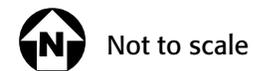
FIGURE 2-1: Regional Location Map
 UCI Irvine Campus Medical Complex EIR
 University of California, Irvine

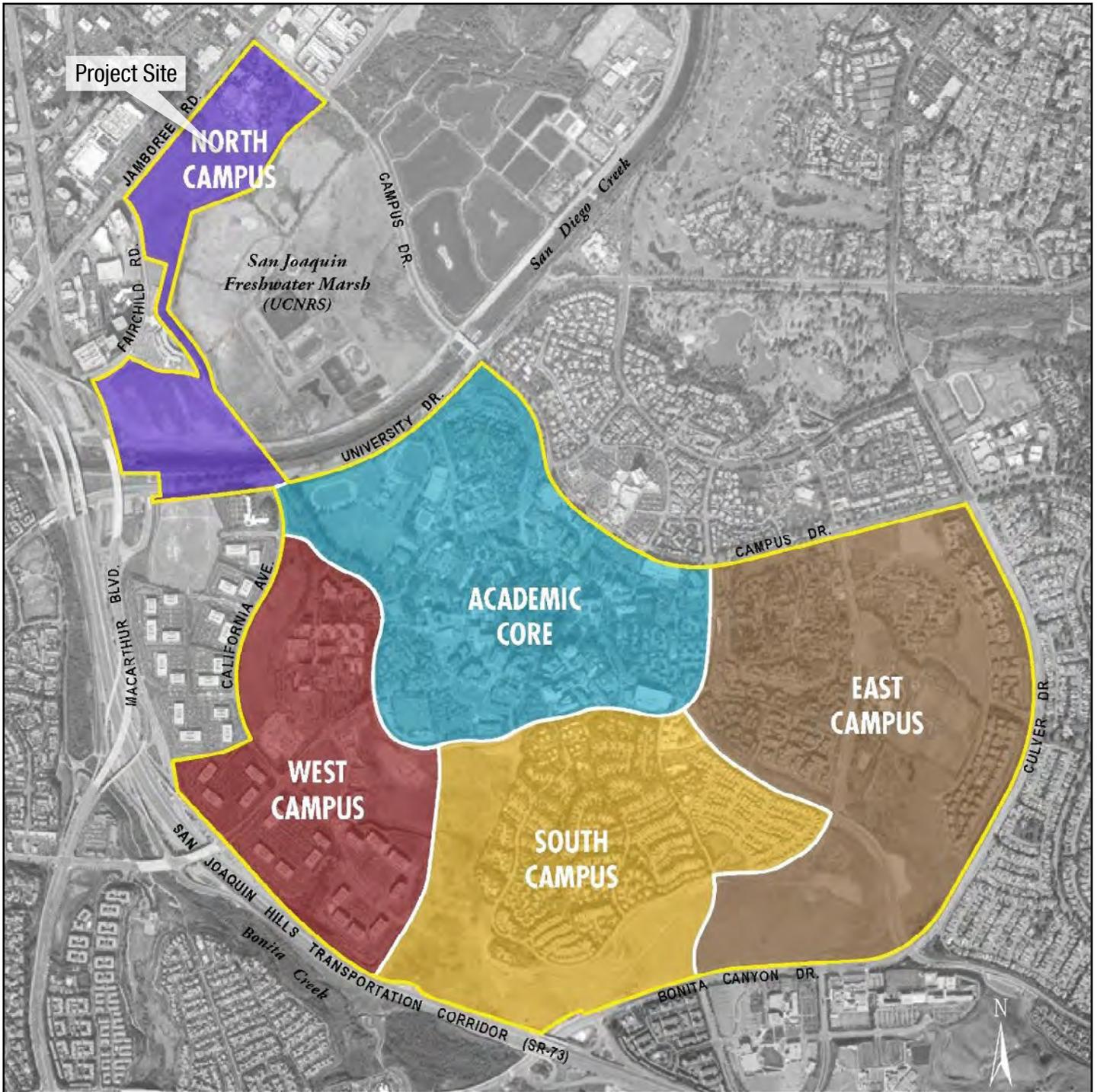




Source: Google Earth

FIGURE 2-2: Local Vicinity Map
 UCI Irvine Campus Medical Complex EIR
 University of California, Irvine



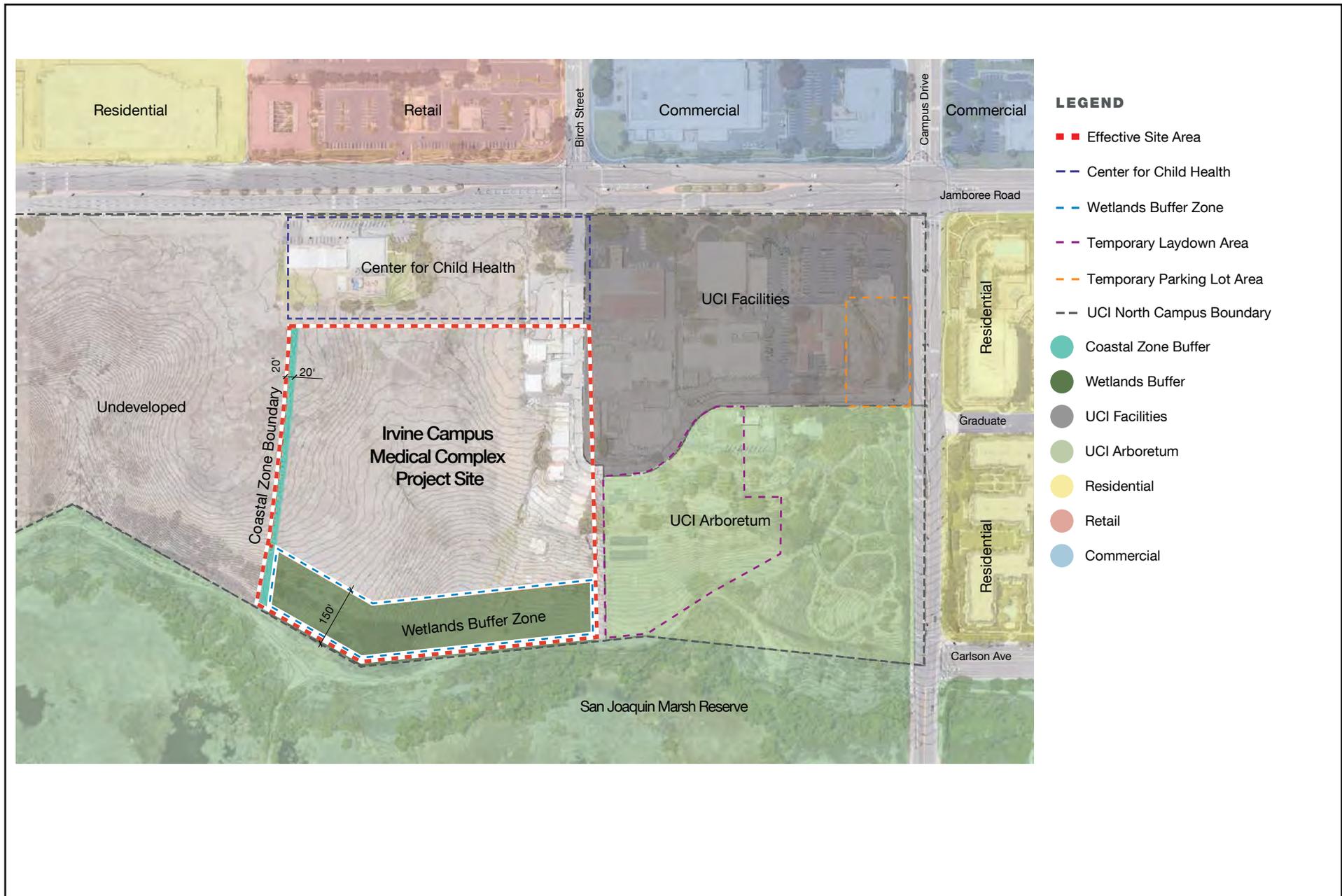


Source: UCI 2007 Long Range Development Plan

FIGURE 2-3: UCI Planning Sectors
 UCI Irvine Campus Medical Complex EIR
 University of California, Irvine



Not to scale



Source: ho+k, 2020

FIGURE 2-4: Project Site

UCI Irvine Campus Medical Complex EIR
University of California, Irvine



Not to scale

Kimley»Horn

The approximately 14.5-acre project site is generally bordered by the UCI Support Services Facilities, UCI Academic Facilities, UCI Arboretum, and Campus Drive to the northeast; the closed UCI Child Development Center, which will be the site of the approved but yet to be constructed UCI Center for Child Health/Medical Office Building Project (Child Health Project) and Jamboree Road to the northwest; and undeveloped land on the UCI North Campus and the San Joaquin Marsh Reserve to the east and south. The project site is primarily undeveloped but includes portions of existing UCI Support Service Facilities area. Existing site topography varies from approximately 47 feet above mean sea level (msl) near Jamboree Road and slopes to the south and toward the UC San Joaquin Marsh Reserve to an elevation of approximately 31 feet above msl.

Vehicular access to the existing land uses in the North Campus proximate to the project site is provided via Jamboree Road and Campus Drive. The primary access into the UCI Support Services Facilities area is provided from the intersection of Jamboree Road at Birch Street, which is a full access signalized T-intersection. There are also three secondary right-in/right-out vehicular access points on Jamboree Road. A right-in/left-in/right-out vehicular access is also provided on Campus Drive near Graduate; Graduate provides access into the residential and retail developments northeast of Campus Drive.

2.3 On-site and Surrounding Land Uses

Existing University land uses adjacent to the Project site include the UCI Child Development Center to the northwest (closed in January 2020), existing UCI Support Services Facilities to the northeast, UC San Joaquin Marsh Reserve to the south, and undeveloped University property to the west. *Table 2-1: Existing North Campus Land Uses*, provides a summary of existing North Campus uses, including square footage, number of floors, and the date of construction.

Building Name	Gross Square Feet	No. of Floors	Year Constructed
Air Pollution Lab 1	4,767	1	1974
Air Pollution Lab 2	2,160	1	1975
Arboretum	1,600	1	1966
Aviary Facility	1,802	1	1992
Aviary Facility 2	678	1	1973
Carpenter Office Trailer	320	1	1968
Child Development Center (closed) ^a	6,500	1	1984
Child Development Center Modular Buildings	6,461	1	2013
Corporation Yard	7,318	1	1965
Experimental Garden Facility	750	1	1970
Facilities Management Building	13,033	1	1962
Facilities Management Annex	1,440	1	2002
Facilities Management Shops	2,105	1	1965
Faculty Research Facility	16,166	1	1964
Garage Manager's Office	564	1	1986
Mail Distribution	4,320	1	1988
Mate Choice 1 Trailer	425	1	1972
Mate Choice 2 Trailer	1,250	1	1972

Building Name	Gross Square Feet	No. of Floors	Year Constructed
Painting Office Trailer 3	300	1	1970
Plumbers' Office Trailer	400	1	1968
Psychiatry Trailer	2,840	1	1987
Receiving Yard ^{a, b.}	21,039	1	1965
Recycling Center ^{a.}	2,400	1	1981
Shops Building	6,561	1	1974
Shops Office Trailer	360	1	1990
Shops Stores Trailer	1,078	1	2017
Storage Containers	10,400	1	1978
Women's Restroom	96	1	1991
Total	117,132	n/a	n/a
a. Uses to be demolished for the Child Health Project.			
b. Receiving Yard is an unenclosed outdoor space with no physical structures.			

UCI Support Services Facilities. Existing North Campus facilities on and adjacent to the project site include campus support services (Facilities Management, Mail Services, Fleet Services, and Distribution), including manufactured buildings, surface parking, trailers, storage containers, overhead shade structures, vehicle maintenance and fueling facilities, and outdoor service areas.

UCI Academic Facilities. Existing academic facilities include the Air Pollution Laboratory, Hydrogen Fuel Cell Research Facility, and Faculty Research Facility.

UCI Arboretum. The approximately 12.5-acre botanical garden and arboretum is located in the North Campus sector adjacent to Campus Drive and southeast of the UCI Support Services Facilities and UCI Academic Facilities area. Access to the UCI Arboretum is provided from Jamboree Road and Campus Drive. The UCI Arboretum has a one-story, multi-purpose building; one greenhouse; shade houses; and two aviaries. The landscaping consists of a mix of exotic and native plant collections, lawns, and an asphalt pathway system. Since 2018, the Arboretum has been closed to public use except for limited access one day per weekend. It is proposed to be relocated to the UCI Main Campus at a future date but is not included as part of this project. If the campus were to proceed with relocation of the Arboretum, project-specific CEQA documentation would be prepared to analyze any potential impacts.

Child Development Center. Approximately 5.5 acres of the North Campus sector, a portion of which was previously occupied by the now closed UCI Child Development Center, would be redeveloped with the UCI Child Health Project. The project would construct a five-story medical office building with approximately 168,000 gsf of clinical space, and a seven-level free-standing parking structure with approximately 800 parking spaces. The facility would provide clinical space to support pediatric primary care, sub-specialty pediatric care, the UCI Center for Autism, pediatric rehabilitation care, outpatient care, and administrative office space. The UC Regents approved the Child Health Project in March 2020. Project construction is anticipated to begin in early 2021 with anticipated completion in late 2022.

UC San Joaquin Marsh Reserve. The San Joaquin Marsh is a 202-acre coastal marsh with riparian and upland habitat. UCI oversees and administers its management in collaboration with the UC Natural

Reserve System, under UCI-NATURE, a program providing access to local and regional reserves and field-based assets.

Uses in the Cities of Irvine and Newport Beach. Off-campus uses surrounding the North Campus sector include residential, commercial, and municipal uses in the cities of Irvine and Newport Beach. The Koll Center office complex; the Harbor Justice Center courthouse facility; and mixed-use residential, office, and retail uses in the Uptown Newport area are located to the north and northwest in the city of Newport Beach. Mixed-use residential and commercial uses in the Irvine Business Complex, including The Plaza Irvine mixed-use community and the Watermarke condominium community are located to the northeast in the city of Irvine.

2.4 Land Use Designations

The 2007 LRDP provides the comprehensive framework for the physical development of the UCI campus and is the primary planning document for the campus; no other local land use plan, general plan, specific plan, local coastal program, or zoning ordinance applies to the project site.

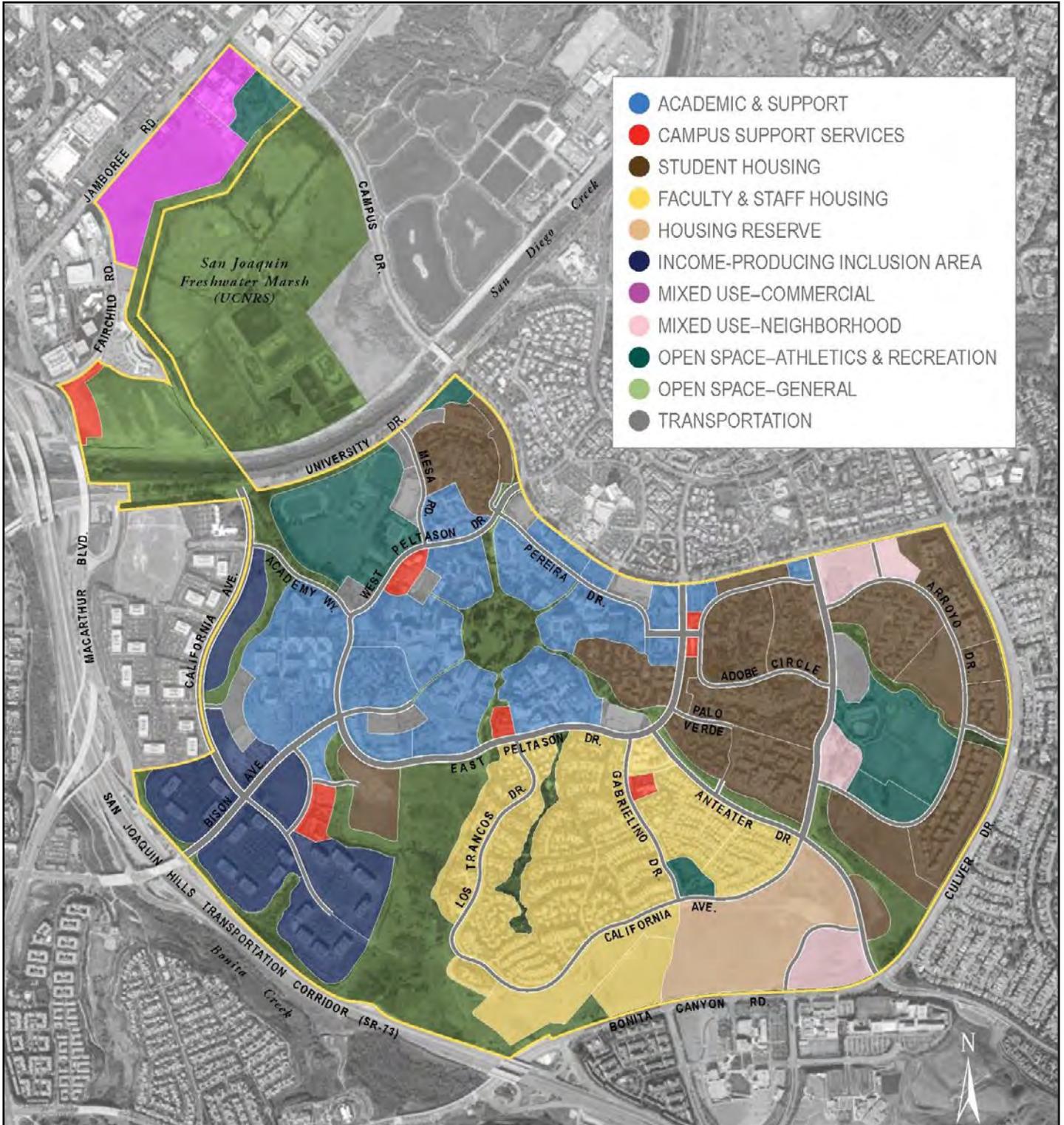
As depicted on **Figure 2-5: Existing 2007 LRDP Land Use Designations**, the 2007 LRDP identifies that the existing LRDP land use designations for the project site is Mixed Use–Commercial and Open Space – General. The Mixed Use–Commercial land use designation allows for the construction of facilities for Medical Office, General Office, Research and Development, Academic Uses, Commercial and Retail, Conference Facilities, Residential uses, and Clinical Uses. The Open Space – General land use designation allows for landscaping, pedestrian and bicycle trails, and water quality and drainage structures. Adjacent to the project site to the east is an Open Space – Athletics and Recreation designation for the area that contains UCI Arboretum, which would be used for temporary construction staging and laydown. The Open Space – Athletics and Recreation land use designation allows for the construction of indoor and outdoor recreation facilities, playfields, courts, trails, parking, food service, office and meeting space, and other support uses.

The Project is consistent with the North Campus development program identified in the 2007 LRDP which allows 950,000 gross square feet (gsf) of development and 435 residential units on approximately 46 acres of the 144-acre North Campus sector. While the Project is consistent with the intent of the North Campus development program, the Project proposes a land use amendment to the 2007 LRDP to allow Inpatient Uses to Mixed Use – Commercial. This designation would allow inpatient uses as well as the other proposed uses on the site. Inpatient services refer to specialized treatment and recovery and may include one or more overnight stays. Please see Section 2.6.1 below regarding the specific uses for the proposed Project.

2.5 Project Need and Objectives

2.5.1 Project Need

UCI Health is UCI's integrated academic healthcare and research enterprise, serving a population of more than 3.3 million in greater Orange County. UCI Health is the only university-based care provider in Orange County and is currently located on two campuses. The academic programs of the Susan & Henry Samueli College of Health Sciences, which include the School of Medicine, the Sue and Bill Gross School of Nursing, the Department of Pharmaceutical Sciences and the Program in Public Health, are located in the West Campus sector of the UCI Main Campus in Irvine.



Source: UCI 2007 Long Range Development Plan

FIGURE 2-5: Existing LRDP Land Use Designation

UCI Irvine Campus Medical Complex EIR
 University of California, Irvine



Not to scale

Kimley»Horn

The UC Irvine Medical Center (UCIMC) is located in the City of Orange, and it is the primary clinical teaching location for the UCI School of Medicine. The UCIMC Orange campus includes the 417-bed acute care Douglas Hospital and an adult Level I/pediatric Level II trauma center. UCIMC provides tertiary and quaternary care, ambulatory and specialty medical clinics, behavioral health, and rehabilitation services. It provides several specialty care centers, including the Chao Comprehensive Cancer Center, the only National Cancer Institute–designated comprehensive cancer center in Orange County. Inpatient bed capacity at UCIMC currently exceeds 80 percent occupancy in general acute units.

Orange County continues to experience population growth, and the City of Irvine’s population growth is the highest in the County. Orange County’s population is expected to grow to 3.5 million by 2023. Overall population is expected to grow with the older adult population (age 65 and older) growing at the fastest rate. UCI Health currently provides outpatient health services in this region, and with UCI Health’s growing academic programs and demand for services in the region, UCI Health seeks to expand health services and to provide acute care services to the community.

The North Campus’s central geographic location provides convenient access and co-location of services to support the Orange County community. The overarching vision for the Project is the development of a healthcare complex that positions UCI Health for the future; a facility with a specialty focus on oncology, neurosurgery, orthopedics, and spine services that serves the needs of the community in a modern, efficient, and accessible manner while building upon UCI’s clinical foundation and reputation in these key specialty areas.

2.5.2 Project Objectives

Section 15124(b) of the State CEQA Guidelines (14 *California Code of Regulations* [CCR]) requires “A statement of objectives sought by the proposed Project. A clearly written statement of objectives would help the lead agency develop a reasonable range of alternatives to evaluate in the EIR and would aid the decision-makers in preparing findings or a statement of overriding considerations, if necessary. The statement of objectives should include the underlying purpose of the project”.

Powered by discovery and innovation, UCI Health’s vision is to advance individual and population health. This focus on meeting the evolving needs of the community and responding to the changing healthcare environment necessitates expanding care access and health education.

The proposed Project is aligned with UC Irvine Health’s strategic planning goals and objectives, including the following:

- Ensure appropriate and adequate access to high-quality health and wellness care to the community through a convenient location in central Orange County.
- Leverage the co-location of UCI Health research, teaching, inpatient and outpatient programs through a location on the Irvine Campus.
- Develop a campus setting providing a full range of on-site health and wellness services.
- Serve as the destination provider for distinctive health care service lines.
- Provide unparalleled quality and value to patients and healthcare customers.
- Provide a site location with high-quality open space connections to provide an environment that promotes healing and wellness.

- Support the stewardship of adjacent UCI open space resources.
- Goal to achieve LEED Gold equivalence or better and building efficiency standards that exceed California’s Title 24 2019 energy code (outpatient) and ASHRAE 90.1-2010 (inpatient) standards.
- Contribute to campus-wide targets related to fossil fuel reduction, water efficiency, waste reduction, and transportation.

2.6 Project Characteristics

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

2.6.1 Proposed Uses

As proposed, the Project would construct an integrated medical campus providing inpatient, ambulatory, and emergency care services space to meet community needs. *Table 2-2: ICMC Project Summary*, provides a summary of the proposed on-site land uses. The Project would include an Acute Care Hospital with up to 144 beds, Ambulatory Care Center, free-standing parking structure and surface parking areas, and a Central Utility Plant.

A conceptual site plan for the proposed Project is depicted on **Figure 2-6: Conceptual Site Plan**. The project would be oriented around a central arrival court on the northeast area of the site, near the Birch Street access road and the proposed Center for Child Health Esplanade Drive. The patient care facilities (Acute Care Hospital and Ambulatory Care Center) would be located in the southeastern area of the site, overlooking the San Joaquin Marsh, to take advantage of the views into this natural area. The parking structure and Central Utility Plant would be located in the northwestern area of the site, along the proposed Esplanade Drive. This organization allows the separation of emergency vehicular traffic from the visitor and patient traffic.

Use	Size and Capacity	No. of Floors
Acute Care Hospital (OSHDP 1)	<ul style="list-style-type: none"> ▪ 350,000 gsf ▪ 96-144 Beds ▪ Diagnostic and treatment spaces 	<ul style="list-style-type: none"> ▪ 6 stories plus basement
Ambulatory Care Center (OSHDP 3)	<ul style="list-style-type: none"> ▪ 225,000 gsf 	<ul style="list-style-type: none"> ▪ 6 stories plus basement
Central Utility Plant (OSHDP 1)	<ul style="list-style-type: none"> ▪ 37,000 gsf ▪ Approximately 2,750 tons of chilling and heating capacity. 	<ul style="list-style-type: none"> ▪ 3 stories
Parking Structure	<ul style="list-style-type: none"> ▪ 1,400 stalls 	<ul style="list-style-type: none"> ▪ 6 levels above ground ▪ 2 levels below ground
OSHDP = Office of Statewide Health Planning and Development; gsf = gross square feet Source: Irvine Campus Medical Complex Detailed Project Program, 2020.		



Source: HENSEL PHELPS CO Architects, 2020

Diagrams are conceptual and subject to change.

FIGURE 2-6: Conceptual Site Plan
 UCI Irvine Campus Medical Complex EIR
 University of California, Irvine



Not to scale

Kimley»Horn

Acute Care Hospital

The Acute Care Hospital would be an OSHPD 1 facility. OSHPD 1 facilities include general acute care hospitals, acute psychiatric hospitals, and general acute care hospitals providing only acute medical rehabilitation center services. A hospital campus may consist of a number of structures, some under OSHPD jurisdiction with the rest under the jurisdiction of the local building authorities.

- **Inpatient Acute Beds.** The Acute Care Hospital would have 96 to 144 inpatient acute beds and would include Oncology, Neurosciences, Orthopedics, Spine, General Medicine, Emergency, and Surgical services.
- **Observation Unit.** The Observation unit would be located in the Acute Hospital, adjacent to the Emergency Department.
- **Interventional Procedures** would be performed in the Acute Care Hospital for inpatient and outpatient cases.
- **Emergency Department.** Operations would be inclusive of rapid assessment and triage, observation, treatment, and discharge. Patients could be sent to the Observation Unit for further evaluation and monitoring prior to a decision of admission or discharge.
- **Laboratory Services** would be provided in the Acute Care Hospital including clinical lab, point-of-care testing, pathology, morgue, and blood banks for surgical and emergent clinical needs.
- **Pharmacy.** The inpatient pharmacy would be in the Acute Care Hospital to support inpatient and surgical needs.

Ambulatory Care Center

The Ambulatory Care Center would be an OSHPD 3 facility. While OSHPD is responsible for proposing the building standards for licensed clinics, the authority for review, permitting, and construction inspection of “outpatient clinical services,” “primary-care clinics”, and “specialty clinics” is typically under the jurisdiction of the local (UCI) building official.

- **Outpatient Clinics.** Outpatient services, inclusive of Oncology, Neurosciences, Orthopedics, and Spine, would be located in the Ambulatory Care Center. Workspaces would include shared workstations, shared offices, consult/telehealth rooms, conference rooms, and teaching areas. Uses may include medical exam rooms, outpatient surgery services and procedure rooms, 23-hour observation rooms, and diagnostic and imaging services.
- The **Infusion Center** would accommodate chemotherapy infusions in addition to non-oncology infusions. The inpatient infusions will be conducted bedside in the Acute Care Hospital.
- **Pharmacy.** An outpatient retail pharmacy and an infusion pharmacy would be in the Ambulatory Care Center.

Building Connector

A Building Connector would link the Acute Care Hospital and Ambulatory Care Center with a garden level connection that would support shared services and access between the facilities. Potential shared services to be located within the Building Connector:

- **Surgical Services** would be required for both the Acute Care Hospital and Ambulatory Care Center.

- **Prep and Recovery** would be required for both the Acute Care Hospital and Ambulatory Care Center.
- **Diagnostic and Imaging Services** would be required for both the Acute Care Hospital and Ambulatory Care Center.

Central Utility Plant

An OSHPD-compliant Central Utility Plant would be constructed to provide thermal energy service to the Project. Heated hot water, chilled water and steam, as well as back-up power generation would be supplied to the building. The Central Utility Plant would be located adjacent and southwest of the Parking Structure. The Central Utility Plant would include chillers, cooling towers, boilers, and electrical generators to provide chilling and heating energy services to the proposed Project.

Parking

Parking Structure

The majority of patient, staff, and visitor parking would be provided in a free-standing parking structure located on the northern edge of the site. The Parking Structure would have approximately 1,400 parking spaces with six levels of parking above grade and two levels of parking below grade. A canopy-mounted photovoltaic array will be located on the top level of the parking structure to produce renewable energy to serve the Project.

Vehicle access to the parking structure would occur from Esplanade Drive, via the Birch Street and West Access Road entrances from Jamboree. Patients and visitors would primarily use the Birch Street access and staff would use both the Birch Street and West Access Drive to enter the Parking Structure.

Surface Parking

Additional visitor parking, short-term parking, service parking, and drop-off areas would be provided in surface parking areas distributed throughout the Project site.

A temporary, unpaved surface lot would be installed within the existing UCI Support Services Facilities area to accommodate displaced spaces due to Project demolition. These spaces would be utilized by UCI Support Services Facilities.

2.6.2 Building and Site Demolition

Implementation of the Project would require the removal or demolition of all uses within the limits of disturbance. The Project would involve the potential removal of multiple storage containers, storage sheds, trailers, and the demolition of existing site infrastructure. *Table 2-3: Facilities Potentially Impacted by Project Construction*, identifies existing facilities potentially impacted or removed by Project construction. In addition, the project proposes to use approximately 3.5 acres of the existing UCI Arboretum area as a temporary construction staging and equipment laydown area. Use of this area for construction staging would require grading to create a flat pad. Additional minor grading would occur for the temporary, unpaved surface lot to be located in the existing UCI Support Service Facilities area. The Project would require the net export of approximately 18,150 cubic yards of soil during the grading/site preparation phases. No import or export of soil is required to prepare the staging area. Existing facilities, supplies, or vegetation that can be relocated to the botanical garden on the Main Campus as part of the future UCI Naturescape project would be preserved.

Building Name	Gross Square Feet	No. of Floors	Year Constructed
Shops Office Trailer	360	1	1990
Shops Stores Trailer	1,078	1	2017
Storage Containers	10,400	1	1978
Total	11,838		

2.6.3 Vehicular and Non-Vehicular Circulation

Vehicular Access

As previously addressed, vehicular access to the existing land uses in the North Campus proximate to the project site is provided from Jamboree Road and Campus Drive. The primary access into the UCI Support Services Facilities area is provided from the intersection of Jamboree Road at Birch Street, which is a full access signalized T-intersection. There are also three unsignalized right-in/right-out vehicular access points on Jamboree Road. A right-in/left-in/right-out vehicular access is also provided on Campus Drive near Graduate; Graduate provides access into the existing off-campus residential and retail developments east of Campus Drive.

Access to the Project site would be provided from Jamboree Road using two vehicular access points that would be improved as a part of the Child Health Project. The Child Health Project site would be accessed from the existing signalized intersection of Jamboree Road at Birch Street and a right-in/right-out access approximately 700 feet west of Birch Street, known as the West Access Road. Birch Street would be extended onto the site and improved with four travel lanes and a left-turn exit pocket. The West Access Road driveway would be improved to two lanes. Additionally, as a part of the Child Health Project, off-site roadways improvements would include the construction of two eastbound right-turn deceleration lanes on Jamboree Road at the Birch Street and West Access Road driveways. The westbound left-turn pocket of Jamboree Road at Birch Street would be restriped and extended to add an additional left-turn lane at the intersection.

The primary entry for visitors would be from the Birch Street access. The central arrival court would serve as the primary destination for visitor and patient drop off, including ride share traffic. Visitors arriving to the project site from the West Access Road would use Esplanade Drive on the northern edge of the project site to access the parking structure. Additional vehicle access points to the parking structure will be provided from the emergency department drop-off and surface parking area.

The primary entry for staff would be from the West Access Road with access to the parking structure from Esplanade Drive.

Service and deliveries would access the site primarily from the West Access Drive. The loading area for the Acute Care Hospital would be from this access road to a dedicated loading area on the southwest side of the Hospital. The loading area for the Ambulatory Care Center would be from a different service road along the northeastern edge of the site.

A dedicated Emergency Department drop-off for emergency vehicles would be located west of the Acute Care Hospital along the West Access Road. A dedicated visitor surface parking lot would be provided to serve the Emergency Department.

Pedestrian

There are existing sidewalks on both sides of Campus Drive between Jamboree Road and Carlson Avenue. There are no existing sidewalks on Jamboree Road adjacent to the project site. However, the approved UCI Child Health Project would construct a sidewalk along the project site's frontage. As depicted on **Figure 2-7: Pedestrian and Bicycle Circulation**, the project will include walkways to provide connections to the proposed Jamboree sidewalk and joint use trail and connections through the site to the proposed joint-use trail identified in the LRDP at the project/buffer zone interface south of the project.

Bicycle

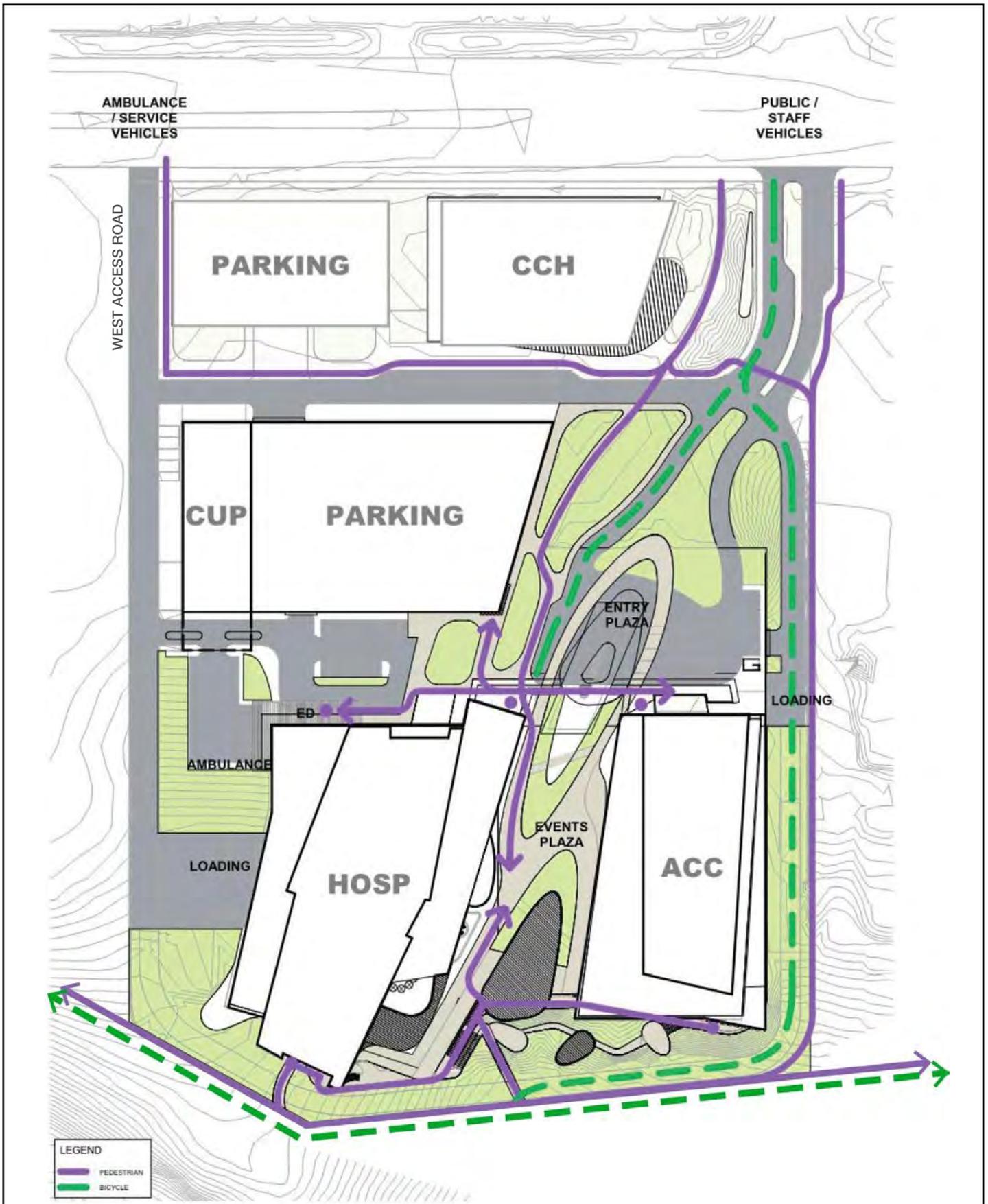
There is an existing Class II bike lane (on-street striped lane) on Campus Drive that connects the project area to the main UCI campus. There are no sidewalks or designated bike lanes on the east side of Jamboree Road adjacent to the project site. Two-way cycling is permitted on the sidewalk along the west side of Jamboree Road, which can be accessed at the signalized intersection of Jamboree Road at Birch Street. Class II bike lanes also exist on Carlson Avenue, Michelson Drive, Von Karman Ave, and Bristol Street North, which are a part of the City of Irvine bicycle network. The UCI Child Health Project will construct a Class 1 (off-street) trail and a Class II bike land along the project's Jamboree frontage.

The Project would provide bicycle paths connecting the site to the proposed Jamboree Class 1 Trail with connections to the proposed trail. The Project would include on-site short-term and long-term bicycle parking (Figure 2-7). Short-term bicycle parking would be provided near building entrances. Long-term bicycle parking would be provided at centralized locations.

Transit

The Orange County Transportation Authority (OCTA) provides bus service in Orange County. There are three bus routes that serve the project area with existing bus stops on Jamboree Road at Birch Street, on Jamboree Road at Fairchild Road, and on Campus Drive at Jamboree Road.

UCI operates a campus shuttle, Anteater Express, to transport students, faculty, and staff around campus or to select destinations. Additionally, UCI has a Medical Center shuttle, which operates between the UCI Main Campus in the City of Irvine and the UCI Medical Center in the City of Orange. The Medical Center shuttle runs Mondays through Fridays.



Source: HENSEL PHELPS CO Architects, 2020

Diagrams are conceptual and subject to change.

FIGURE 2-7: Proposed Pedestrian and Bicycle Circulation

UCI Irvine Campus Medical Complex EIR
 University of California, Irvine



Not to scale

Kimley»Horn

Architecture, Landscaping, and Lighting

The contemporary architecture design concept for the proposed Project is shown on **Figure 2-8: Conceptual Rendering Looking Northwest**, and **Figure 2-9: Conceptual Rendering Looking Southeast**. The buildings would convey an urban character and directly relate architecturally to the approved Child Health Project. Buildings would be constructed primarily of concrete, brick, or stone masonry consistent with the architectural design guidelines in the UCI Physical Design Framework and would incorporate exterior design measures to limit the impacts to birds and other wildlife in the San Joaquin Marsh Reserve. Proposed building materials may include metal panels and trim, curtain walls, and pre-cast panels. Ground level building would incorporate glass and metals.

As depicted in **Figure 2-10: Conceptual Landscape Zones**, landscaping would be provided throughout the project site to connect different areas of the site. Landscaping would be provided in the on-site roadway parkways; adjacent to buildings and the parking structures; in the surface parking areas; along the pedestrian walkways; and in the plazas and gardens. The suggested plant palette would include water-wise plant materials that are regionally and micro-climate appropriate. Planting must be sensitive and non-invasive, compatible with the adjacent wetlands buffer and the sensitive wetland ecosystem.

The site plan concept includes a 150-foot setback between on-site building development and the San Joaquin Marsh Reserve. This buffer zone was identified in the 2007 LRDP to provide a buffer between the proposed building development and the existing operations and management of the San Joaquin Marsh Reserve. The 2007 LRDP includes a pedestrian and bicycle trail at the project/buffer zone interface to provide a recreational trail and sustainable circulation link between the Main Campus and North Campus.

Exterior lighting would be installed on the buildings, parking facilities, roadways, pathways, signs, and other exterior features. Building mounted and site lighting would be integrated with building facades when possible. Light poles, bollards and fixtures would be architecturally compatible with structures and landscaping. Site lighting design and fixtures would follow campus standards: all light sources would be light-emitting diode (LED) with shielded fixtures to minimize light trespass. All site lighting would be designed to reduce impacts on wildlife in the San Joaquin Marsh. The project includes photovoltaic (PV) arrays over the top deck of parking structure which includes canopy-mounted LED lighting fixtures underneath the PV panels.

Utilities

The North Campus has existing utility infrastructure supplying potable water, sanitary sewer, natural gas, electricity, and telecommunications to current UCI facilities. The proposed Project would require extensions to connect to existing systems to serve the Project, with the final sizing and design of on-site facilities to occur during final building design. Proposed utility infrastructure improvements are depicted on **Figure 2-11: Utility Improvements**. Utilities would be principally located in road rights-of-way.



Source: HENSEL PHELPS CO Architects, 2020

Renderings are conceptual and subject to change.

FIGURE 2-8: Conceptual Rendering Looking Northwest

UCI Irvine Campus Medical Complex EIR
University of California, Irvine



Source: HENSEL PHELPS CO Architects, 2020

Renderings are conceptual and subject to change.

FIGURE 2-9: Conceptual Rendering Looking Southeast
UCI Irvine Campus Medical Complex EIR
University of California, Irvine



Source: HENSEL PHELPS CO Architects, 2020

Diagrams are conceptual and subject to change.

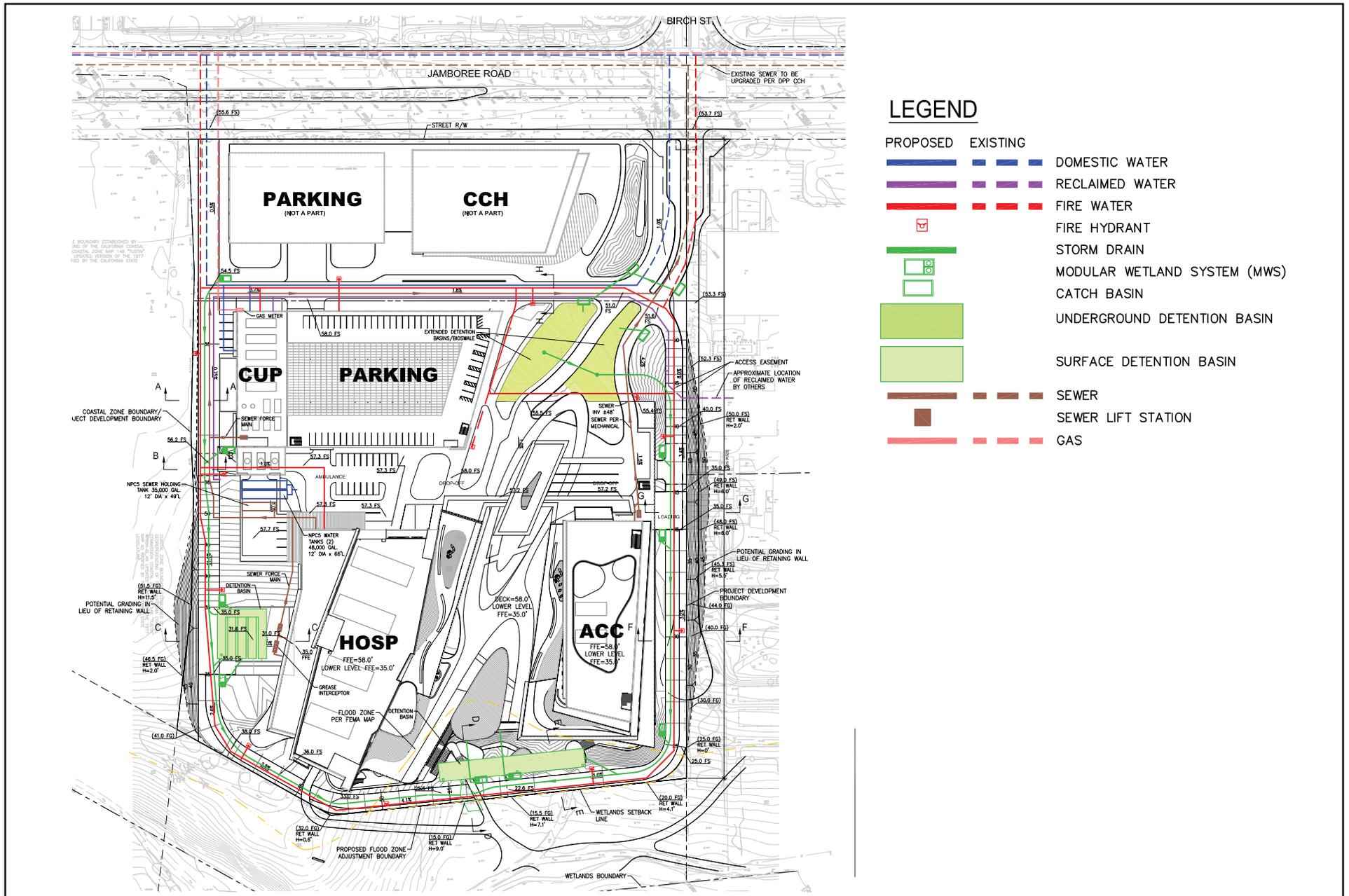
FIGURE 2-10: Conceptual Landscape Zone

UCI Irvine Campus Medical Complex EIR
 University of California, Irvine



Not to scale

Kimley»Horn



Source: HENSEL PHELPS CO Architects, 2020

Diagrams are conceptual and subject to change.

FIGURE 2-11: Proposed Utility Improvements
 UCI Irvine Campus Medical Complex EIR
 University of California, Irvine



Not to scale

Electricity

Southern California Edison Company (SCE) distributes electrical service to the project area including existing land uses in the North Campus sector proximate to the project site. As a part of the Project, 12-kilovolt (kV) power service would be extended to the Project site and connect to the existing 12-kV line in Jamboree Road near the intersection of Jamboree Road at Birch Street.

The Acute Care Hospital and Ambulatory Care Center would each have uninterruptible power distribution systems that do not share systems and equipment with each other. An OSHPD-compliant emergency power system would include diesel-operated engine generators. The engines would operate on a commercial grade ultra-low sulfur diesel fuel oil stored in a main fuel storage tank.

Natural Gas

SoCal Gas provides natural gas service to the project area. The University of California restricts the use of natural gas for space and water heating for new buildings except for acute care hospitals. As a part of the Project, a waiver would be submitted to the UC Regents to allow for the use of natural gas for the Central Utility Plant and Ambulatory Care Center. Natural gas would be extended to the project site from existing off-site infrastructure.

Water Service

The project site is within the service area of the Irvine Ranch Water District (IRWD) which provides potable and recycled (non-potable) water. Potable water would be connected through two feeds, an existing 12-inch line located in Jamboree Road and a 12-inch line connected to Campus Drive.

A six-inch recycled water line would connect to an existing IRWD service line in Campus Drive. Recycled water lines would be installed as a part of the Project to support recycled water use on-site. Recycled water could be used for landscape irrigation, cooling tower water, as well as ambulatory clinic toilets use outside of surgical departments.

Sanitary Sewer

The Project would involve the extension of a 12-inch sewer main from an existing IRWD sewer line in Campus Drive serving the Acute Care Hospital, Ambulatory Care Center, and the Central Utility Plant. Discharge from the sewer system would be directed to the Orange County Sanitation District's (OCSD) treatment plants via the IRWD sewer line.

It is currently assumed that all building levels would be served with gravity sewer systems. If final building design requires that any building floors or basement areas be served with a pump station, a UCI (private) sewer lift station would be installed to serve the Project.

Drainage and Water Quality Treatment

The Project site is primarily undeveloped and abuts a wetland along the southeast boundary line, which eventually discharges to the San Joaquin Marsh Reserve. The site sheet flows from northwest to southeast into the wetland. The southern portion of the project site is within a Federal Emergency Management Agency (FEMA) 100-year floodplain. The floodplain is designated as Zone A, which means no water surface elevation or flows have been established by FEMA. To construct in the FEMA floodplain, a Conditional Letter of Map Revision (CLOMR) is required.

Stormwater runoff from roofs, parking structures and surface parking areas, and landscaping would be collected and treated using Best Management Practices (BMPs) consistent with Orange County Water District requirements and the storm water quality requirements of the UCI Storm Water Management Plan (March 2003; updated August 2014). The project site storm drainage would be designed using Orange County Low Impact Development (LID) standards for urban stormwater management with flow-through planters and biofiltration areas with underdrains for treatment. Overflow from each BMP would discharge to a detention system before conveyance to the San Joaquin Marsh Reserve. Sediment/oil/grease interceptors would be used in all parking areas including parking structures, as well as roadways and all detention storage structures to prevent pollutants from entering the BMPs.

Peak runoff flow rates from the Project site would be limited to pre-developed conditions for the 25-year 24-hour storm event. Underground detention pipes with flow control devices will be provided downstream of the bioretention areas to limit the peak flows into the wetland. Runoff would outfall into the wetland through shallow catch basin bubblers for flow dispersion and erosion control.

2.7 Sustainability Design Requirements

The University of California Policy on Sustainable Practices (UCPSP, 2018) represents the minimum sustainable design requirements for projects; UCI provides additional requirements. Key elements of the University of California and UCI requirements that are applicable to the Project include but are not limited to the following:

- Minimum LEED Silver certification with a goal to obtain LEED Gold certification or better;
- Minimum building energy efficiency requirements: Exceed California Title 24 2019 energy code by 20 percent (outpatient) and ASHRAE 90.1-2010 by 30 percent (inpatient);
- Optimize building and site water efficiency to meet UC sustainability targets; and
- Contributions to campus-wide targets related to fossil fuel reduction, water efficiency, waste reduction, and transportation.

2.8 Construction Phasing & Staging

Implementation of the proposed Project would be phased over an approximately 30-month period with demolition and grading activities anticipated to commence in spring 2021 and construction completed in fall 2023. The Project is conceptually proposed to be constructed in three phases as identified in *Table 2-4, Construction Activities by Phase*.

Construction Phase	Duration
Phase A: Demolition Site Grading, Installation of Utilities	2 months: April 2021 – June 2021
Phase B: Construction of Clinics and Ambulatory Services Building, Parking Structure	12 months: June 2021 – June 2023
Phase C: Construction of Acute Hospital, Central Utility Plant, Surface Parking, Parking Structure	16 months: June 2021 – October 2023
Source: Irvine Campus Medical Complex Detailed Project Program, 2020.	

Site clearing prior to grading would include the demolition and removal of existing structures and utilities within the limits of disturbance. All materials would be sorted for reuse and recycling to the extent feasible, consistent with UC Sustainability Policy and LEED requirements for construction waste management. The project site would be graded, and foundation excavation would require the removal of approximately 18,150 cubic yards (cy) of material. Additionally, grading for the temporary staging area at the Arboretum site will move approximately 9,000 cubic yards of soil with no import or export of soil

A temporary parking area will be located adjacent to Campus Drive, south of the existing Hydrogen Fueling Station Research Project within the existing UCI Support Services Facilities area, during construction. The parking area will require no substantial grading, will utilize a gravel surface, and be unlighted. Additional construction staging or parking, if required, will be provided on the Main Campus in existing construction staging areas on Health Sciences Drive near Bison Avenue.

2.9 Intended Use of the SEIR

Pursuant to Section 15121 of the State CEQA Guidelines (14 CCR), an EIR is primarily an informational document intended to inform the public agency decision-makers and the general public of the potentially significant environmental effects of a project. Prior to taking action on the proposed Project, the University of California Board of Regents (UC Regents) must consider the information in this SEIR and certify the Final SEIR. Anticipated approval authority by the University of California and other public agencies whose action is required (e.g., permits, financing approval, or participation agreement) are identified below.

2.9.1 University of California Board of Regents

- Certification of the UCI Irvine Campus Medical Complex Final SEIR. The Project requires the certification of an environmental document as having been prepared in compliance with CEQA, as amended (Public Resources Code §21000 et seq.), the CEQA Guidelines (California Code of Regulations §15000 et seq.), and in accordance with the University of California Procedures for the Implementation of CEQA.
- Approval of UCI LRDP Amendment #3 to allow Inpatient uses in the North Campus land use designation of Mixed Use – Commercial.
- Approval of the UCI Irvine Campus Medical Complex Project Design.

2.9.2 Responsible Agencies

Federal Emergency Management Agency (FEMA) and City of Irvine. To construct in the FEMA floodplain, a Conditional Letter of Map Revision (CLOMR) is required. The submittal will require approval from the City of Irvine as the local floodplain administrator. Following local approval, approval is required by FEMA.

California Office of Statewide Health Planning and Development (OSHPD). OSHPD is responsible for overseeing all aspects of construction of general acute care hospital, psychiatric hospital, and multiple-story skilled nursing home, and intermediate care facilities in California. This responsibility includes: a) establishing building standards adopted in the California Building Standards Code which govern construction of these types of facilities; b) reviewing plans and specifications for new construction, alteration, renovation, or additions to health facilities; and, c) observing construction in progress to ensure compliance with the approved plans and specifications.

State of California, Water Resources Control Board. Pursuant to the federal Clean Water Act [Section 402(g)] and State General Construction Activity Storm Water Permit, a National Pollution Discharge Elimination System (NPDES) permit will be required for the Project. A NPDES permit will be required where construction activities will result in the disturbance of equal to or greater than one acre and less than five acres, or for site activities disturbing less than one acre where the activities are a part of a larger common plan of development or sale.

Santa Ana Regional Water Quality Control Board (RWQCB): Issuance of a National Pollution Discharge Elimination System (NPDES) Permit and Construction General Permit. If required, the Santa Ana RWQCB would also issue a Dewatering Permit consistent with the General Permit.

South Coast Air Quality Management District. A permit from the SCAQMD would be required for generators.

Orange County Airport Land Use Commission (ALUC): The Project will be referred to the ALUC for determination of Project consistency with the Airport Environs Land Use Plan (AELUP) for John Wayne Airport.

Federal Aviation Administration (FAA): Based on the location of the project site and the proposed height of the buildings, the Applicant will file Form 7460-1, Notice of Actual Construction or Alteration, with the FAA. The FAA will use information provided in Form 7460-1 and other data to conduct an aeronautical review for the Project.

Department of Toxic Substance Control (DTSC). Based on preliminary assessment of the Project site, the University intends to enter into a Consultative Services Agreement with DTSC regarding potential soil and soil vapor contaminants.

3 ENVIRONMENTAL ANALYSIS AND MITIGATION

Terminology

Sections 3.1 through 3.17 of this Subsequent Environmental Impact Report (SEIR) provide an impact analysis for those environmental impact categories where it was determined that the Proposed Project could result in “potentially significant impacts.” Each topical SEIR section includes the following information: regulatory setting; description of the existing environmental setting; identification of thresholds of significance; analysis of potential Project and cumulative effects; identification of a Mitigation Program to reduce the identified significant impacts; and identification of the level of significance of impacts after mitigation, including any unavoidable significant adverse impacts.

For each environmental topical section, the subsection describes the potential environmental impacts of the Proposed Project and, based on the thresholds of significance, concludes whether the environmental impacts would be considered significant, potentially significant, or less than significant. For each issue, applicable standards of significance are identified and potential impacts are discussed in the impacts analysis subsection. Mitigation measures are also included and discussed where applicable.

To assist reviewers in understanding this SEIR, the following terms are defined. Section 8, *Acronyms and Abbreviations* includes a list of acronyms used in the SEIR.

Project means the whole of an action that has the potential for resulting in a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment.

Environment means the physical conditions that exist in the area and which would be affected by a project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historical or aesthetic significance. The area involved is where significant direct or indirect impacts would occur as a result of the project. The environment includes both natural and man-made (artificial) conditions.

Impacts analyzed under CEQA must be related to a physical change to the environment. Impacts are:

- A direct physical change in the environment which is caused by and immediately related to the project; direct or primary impacts that would be caused by a proposed project and would occur at the same time and place; or
- An indirect physical change in the environment which is not immediately related to the project but which is caused indirectly by the project; indirect or secondary impacts that would be caused by a proposed project and would be later in time or farther removed in distance but would still be reasonably foreseeable. Indirect or secondary impacts may include growth-inducing impacts and other effects related to induced changes in the pattern of land use; population density or growth rate; and related effects on air and water and other natural systems.

Significant impact on the environment means a substantial, or potentially substantial, adverse change in any of the physical conditions in the area affected by a proposed project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historical or aesthetic significance. An economic or social change by itself is not considered a significant impact on the environment. A social or economic change related to a physical change may be considered in determining whether the physical change is significant.

This EIR uses a variety of terms to describe the level of significance of adverse impacts and have specific meaning under CEQA. These terms are defined as follows:

Threshold of Significance. A threshold of significance is an identifiable quantitative, qualitative, or performance level of a particular environmental effect, non-compliance with which means the effect will normally be determined to be significant by the agency and compliance with which means the effect normally will be determined to be less than significant.

Less than Significant. An impact that is adverse but that does not exceed the defined thresholds of significance. Less than significant impacts do not require mitigation.

Significant. An impact that exceeds the defined thresholds of significance and would or could cause a substantial adverse change in the environment. Standard Conditions and Requirements and Mitigation Measures are recommended to prevent the impact, eliminate the impact, or reduce it to a level that is considered less than significant.

Less than Significant with Mitigation. An impact is considered less than significant with mitigation if the proposed project could result in a substantial adverse change in the environment when evaluated with respect to one or more thresholds of significance, but feasible mitigation is available that would effectively reduce the impact to a less than significant level.

Significant Unavoidable. An impact that exceeds the defined thresholds of significance and cannot be eliminated or reduced to a less than significant level even through the implementation of mitigation measures.

The SEIR includes a Mitigation Program to avoid or substantially reduce the Proposed Project's significant environmental impacts by:

- (a) Avoiding the impact altogether by not taking a certain action or parts of an action;
- (b) Minimizing impacts by limiting the degree or magnitude of the action and its implementation;
- (c) Rectifying the impact by repairing, rehabilitating, or restoring the affected environment;
- (d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; or
- (e) Compensating for the impact by replacing or providing substitute resources or environments.

The Mitigation Program includes Standard Conditions and Requirements (SCs) and Mitigation Measures (MMs). The components of the Mitigation Program are described below.

Standard Conditions and Requirements. Existing requirements and standard conditions are based on local, State, or federal regulations or laws that are frequently required independently of CEQA review and also serve to offset or prevent specific impacts. Typical SCs include compliance with the provisions of the *California Building Code*, South Coast Air Quality Management District rules, local agency requirements, and other regulations and standards. The University of California Board of Regents (UC Regents) may impose additional conditions including those that are standard to all projects, typical to a project of a particular nature, or specific to the Proposed Project during the approval process, as appropriate.

Mitigation Measures. Where a potentially significant environmental effect has been identified and is not reduced to a level considered less than significant through the application of SCs, project-specific mitigation measures have been recommended. Mitigation measures from the LRDP SEIR are herein incorporated by reference and discussed in detail throughout this EIR, as applicable to the Proposed Project.

Modifications to the Mitigation Program may be made by the UC Regents subject to one of the following findings, documented by evidence included in the administrative record:

- a. The SC or MM included in the Final EIR and MMRP is no longer required because the significant environmental impact identified in the Final EIR has been found not to exist, or to occur at a level which makes the impact less than significant as a result of changes in the Project, changes in conditions of the environment, or other factors; or
- b. The modified or substitute SC or MM to be included in the MMRP provides a level of environmental protection equal to, or greater than that afforded by the SC or MM included in the Final EIR and the MMRP; and
- c. The modified or substitute SC or MM does not have significant adverse effects on the environment in addition to, or greater than that which was considered by the responsible hearing bodies in their decisions on the Final EIR and the Proposed Project; and
- d. The modified or substitute SC or MM is feasible, and the UC Regents, through measures included in the MMRP or other City procedures, can ensure its implementation.

The University of California, Irvine (UCI) shall determine the adequacy of any proposed “modification” and, if determined necessary, may refer said determination to the UC Regents for review and approval. Findings and related documentation supporting the findings involving modifications to any SC and/or MM shall be maintained in the Project file with the MMRP and shall be made available to the public upon request. Determination made by UCI and documentation would be consistent with the requirements of Public Resources Code Section 21166 and CEQA Guidelines Section 15162.

Effects of the Environment on the Project

In 2015, after the certification of the 2007 LRDP EIR, the California Supreme Court held that “CEQA generally does not require an analysis of how existing environmental conditions will impact a project’s future users or residents.” *California Building Industry Association v. Bay Area Air Quality Management District* (2015) 62 Cal.4th 369, 386. The Supreme Court explained that, where existing hazards exist, an agency is only required to analyze the potential impact of such hazards on future residents if the project would exacerbate those existing environmental hazards or conditions. Thus, with respect to such issues as geologic and seismic hazards, exposure to existing levels of air pollution and noise, and the like, CEQA does not require consideration of the effects of bringing a new population into an area where such hazards exist, as long as the project itself would not increase or otherwise affect the conditions that create those hazards.

Economic and Social Effects

Under CEQA, economic and social effects by themselves are not considered to be significant impacts, and are relevant only insofar as they may serve as a link in a chain of cause and effect that may connect the proposed project with a physical environmental effect, or they may be part of the factors considered in

determining the significance of a physical environmental effect.¹ In addition, economic and social factors may be considered in the determination of feasibility of a mitigation measure or an alternative to the proposed project.² As such, the potential effect of the Project on economic and social issues, in and of themselves, such as tax revenues, crime, the cost of public services, or property values are not part of this SEIR. That being said, UCI is not limited in its evaluation of a wide range of factors, including social or economic effects, in its consideration of the merits of the proposed Project.

Assumptions Regarding Cumulative Impacts

CEQA requires that EIRs discuss cumulative impacts, in addition to project impacts. As set forth in State CEQA Guidelines Section 15355, cumulative impacts are two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts.

- (a) The individual effects may be changed resulting from a single project or separate projects.
- (b) The cumulative impact from several projects is the change in the environment that results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over time.

Section 15130(a) of the CEQA Guidelines states that a “cumulative impact consists of an impact which is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts.” Section 15130(a) requires that EIRs discuss the cumulative impacts of a project when the project’s incremental effect is determined to be cumulatively considerable. A project’s cumulative impact is “an impact to which that project contributes and to which other projects contribute as well. The project must make some contribution to the impact; otherwise, it cannot be characterized as a cumulative impact of that project.”³ Therefore, the discussion of cumulative impacts in an EIR evaluates whether the impacts of the project will be significant when considered in combination with other closely related past, present, and reasonably foreseeable probable future projects, and whether the project would make a cumulatively considerable contribution to those impacts.

Section 13130(a) of the CEQA Guidelines recognizes that the analysis of cumulative impacts need not be as detailed as the analysis of project-related impacts, but instead should “be guided by the standards of practicality and reasonableness.” CEQA Guidelines indicate that where a lead agency is examining a project with an incremental effect that is not cumulatively considerable, it need not consider the effect significant but shall briefly describe the basis for its conclusion. As further clarified by Section 15065 of the CEQA Guidelines, “cumulatively considerable” means that the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects. The CEQA Guidelines allow for the proposed project's contribution to be rendered less than cumulatively considerable with implementation of mitigation.

The geographic scope of the cumulative impact analysis varies depending upon the specific environmental issue area being analyzed, and is defined in Sections 3.1 through 3.17 of this EIR. The list of projects in

¹ CEQA Guidelines Section 15131.

² CEQA Guidelines Section 15364.

³ *Sierra Club v. West Side Irrigation Dist.* (2005) 128 Cal.App.4th 690, 700.

Table 3.0-1, *Cumulative Projects List* was used for all cumulative impact discussions in this Draft SEIR with the exception of the analyses that require regional analysis such as air quality.

Table 3.0-1: Cumulative Projects List					
Project		Location	Proposed Use	Project Status	Distance from the Project Site
UCI Campus					
1.	Proposed Project	UCI North Campus, south of Birch Street and south of approved Center for Child Health/Medical Office Building project	New development of 350,000 square feet of Acute Care Hospital, 225,000 square feet of Ambulatory Care Center, a central utility plant, and 1,400-space parking structure.	Proposed	0-mile
2.	Center for Child Health/Medical Office Building	UCI North Campus, south corner of Jamboree Road and Birch Street intersection	168,000 square feet of medical office building and 800-space parking structure.	Approved/Not Constructed	100 feet
3.	Verano 8 Graduate Student Housing	UCI East Campus, southwest corner of Campus Drive and Adobe Circle South intersection	Demolish 6,000-square-foot maintenance facility and construct 1,200 graduate student beds in existing Verano Place graduate housing complex, 1,000-space parking structure, and 15,000-square-foot replacement maintenance facility.	Approved/In Construction	1.8 miles
4.	College of Health Sciences and Nursing Building	UCI's Health Sciences Quad in the West Campus, north corner of California and Bison Avenues intersection	Construct 95,000-square-foot Nursing and Health Sciences Hall (Nursing Building) and 125,000-square-foot College of Health Sciences.	Approved/In Construction	1.5 miles
5.	Interdisciplinary Sciences & Engineering Building	UCI Physical Sciences Quad in the Academic Core, adjacent to East Peltason and South View Circle Drives	200,000-square-foot structure for research and instruction space.	Approved/In Construction	1.57 miles
City of Irvine					
6.	University Drive Widening	University Drive between MacArthur Boulevard and Campus Drive	Widen University Drive with an additional traffic lane in each direction between MacArthur Boulevard and Campus Drive.	Approved/In Construction	0.9 mile

Table 3.0-1: Cumulative Projects List					
Project		Location	Proposed Use	Project Status	Distance from the Project Site
7	2400 Barranca Parkway	2400 Barranca Parkway	Construct two office buildings totaling 272,000 square feet and parking structure on 4.95 acres. Buildings are proposed to be 5 and 6 stories high.	Proposed/Not Approved	2.5 miles
8	Banc and Office Motel	Between Teller Avenue and Jamboree Road	Construct 225-room hotel and 150,000-square-foot office development.	Approved/In Construction	0.72 mile
9	Trilogy Residential	Campus Drive and Von Karman Avenue	876 apartments on 12.6-acres, includes 1 acre publicly accessible private park and accessory retail.	Approved/In Construction	0.5 mile
10	Landmark	Campus Drive and Martin	Two 15-story buildings of a 386-room hotel and a 448,000 square foot office building.	Approved/In Construction	0.77-mile
11	Milani Apartments	18831 Von Karman Irvine	287 apartments on 3.7-acres.	Approved/In Construction	0.68 mile
City of Newport Beach					
12	Uptown Newport Project	4311-4321 Jamboree Road	Construct up to 1,244 residential units, 11,500 square feet of neighborhood-serving retail space, and two acres of park space.	Approved/In Construction	0.19-mile
13	Residence	4440 Von Karman	Construct 312 residential apartment units and 852 stalls within the apartment garage, a detached 278-stall parking structure, and a 0.5-acre public park.	Proposed/Not Approved	0.38-mile
	Newport Crossings Mixed Use Project	1701 Corinthian Way; 1660 Dove Street; 4251, 4253, 4255 Martingale Way	Replace existing MacArthur Square shopping center with 350 residential dwelling units, 2,000 square feet of restaurant space, 5,500 square feet of commercial space, and a 0.5-acre public park.	Approved/Not Constructed	0.57-mile

3.1 AESTHETICS

This section of the SEIR describes the visual setting of the Project site and evaluates the potential for changes in visual character associated with implementation of the proposed Project. This section analyzes the general aesthetic effects from the Project, including the potential loss of existing visual resources, effects on views, compatibility with visual characteristics of surrounding land uses, and the likelihood that these uses would be disturbed by light and glare generated or reflected by new structures.

3.1.1 Terminology and Concepts

When viewing the same landscape, people may have different responses to that landscape and any proposed visual changes based upon their values, familiarity, concern, or expectations for that landscape and its scenic quality. Because each person's attachment to and value for a particular landscape is unique, visual changes to that landscape inherently affect viewers differently. However, generalizations can be made about viewer sensitivity to scenic quality and visual changes. Recreational users (e.g., hikers, equestrians, tourists, and people driving for pleasure) are expected to have high concern for scenery and landscape character. People who are commuting daily through the same landscape generally have a moderate concern for scenery, while people working at industrial sites generally have a lower concern for scenic quality or changes to existing landscape character. The visual sensitivity of a landscape is affected by the viewing distances at which it is seen, such as close-up or far away. The visual sensitivity of a landscape also is affected by the travel speed at which a person is viewing the landscape (high speeds on a highway, low speeds on a hiking trail, or stationary at a residence).

The same project feature can be perceived differently by people depending on the distance between the observer and the viewed object. When a viewer is closer to a viewed object in the landscape, greater detail is visible, and there is greater potential influence of the object on visual quality because of its form or scale (relative size of the object in relation to the viewer). When the same object is viewed at background distances, details may be imperceptible but overall forms of terrain and vegetation are evident, and the horizon and skyline are dominant. In the middle ground, some detail is evident (e.g., the foreground), and landscape elements are seen in context with landforms and vegetation patterns (e.g., the background).

The following terms and concepts are used throughout the section to describe and assess the aesthetic setting and impacts:

1. Scenic Vista: An area that is designated, signed, and accessible to the public for the express purposes of viewing and sightseeing. This includes any such areas designated by a federal, State, or local agency.
2. Scenic Highway: Any stretch of public roadway that is designated as a scenic corridor by a federal, State, or local agency.
3. Sensitive Receptors: Viewer responses to visual settings are inferred from a variety of factors, including distance and viewing angle, types of viewers, number of viewers, duration of view, and viewer activities. The viewer type and associated viewer sensitivity are distinguished among project viewers in recreational, residential, commercial, military, and industrial areas. Viewer activities can range from a circumstance that encourages a viewer to observe the surroundings more closely (such as recreational activities) to one that discourages close observation (such as commuting in heavy

traffic). Viewers in recreational areas are considered to have high sensitivity to visual resources. Residential viewers generally have moderate sensitivity but extended viewing periods. Viewers in commercial, military, and industrial areas are considered to have low sensitivity.

4. Viewshed: A project's viewshed is defined as the surrounding geographic area from which the project is likely to be seen, based on topography, atmospheric conditions, land use patterns, and roadway orientations. "Project viewshed" is used to describe the area surrounding a project site where a person standing on the ground or driving a vehicle can view the project site.
5. Visual character: Landforms, vegetation, water features, and cultural modifications that impart an overall visual impression of an area's landscape. Scenic areas typically include open space, landscaped corridors, and viewsheds. Visual character is influenced by many different landscape attributes including color contrasts, landform prominence, repetition of geometric forms, and uniqueness of textures among other characteristics.
6. Lighting: Effects associated with the use of artificial light during the evening and nighttime hours. There are two primary sources of light: light emanating from building interiors passing through windows and light from exterior sources (i.e., street lighting, architectural building illumination, security lighting, parking lot lighting, landscape lighting, and signage). Light introduction can be a nuisance. Uses such as residences and hotels are considered light-sensitive, since occupants have expectations of privacy during evening hours and may be subject to disturbance by bright light sources. Light spill is typically defined as the presence of unwanted light on properties adjacent to the property being illuminated. With respect to lighting, the degree of illumination may vary widely depending on the amount of light generated, height of the light source, presence of barriers or obstructions, type of light source, and weather conditions.
7. Glare: primarily a daytime occurrence caused by the reflection of sunlight or artificial light on highly polished surfaces such as window glass or reflective materials and, to a lesser degree, from broad expanses of light-colored surfaces. Perceived glare is the unwanted and potentially objectionable sensation as observed by a person as they look directly into the light source of a luminaire. Daytime glare generation is common in urban areas and is typically associated with buildings with exterior facades largely or entirely comprised of highly reflective glass. Glare can also be produced during evening and nighttime hours by the reflection of artificial light sources such as automobile headlights. Glare generation is typically related to either moving vehicles or sun angles, although glare resulting from reflected sunlight can occur regularly at certain times of the year. Glare-sensitive uses include residences, hotels, transportation corridors, and aircraft landing corridors.

Therefore, although assessing potential impacts to visual resources is a subjective process, researchers have identified generally consistent standards among professionals that evaluate visual quality. Modifications in a landscape that repeat the landscape's basic elements are said to be in harmony with their surroundings. Modifications that do not harmonize often appear out of place and are said to contrast, stand out, or be unpleasant. Also, the scenic quality of a landscape varies with the various visual elements that make up a landscape. These basic concepts are applied in the assessment of impacts (UCI LRDP EIR, Aesthetics Section).

3.1.2 Regulatory Setting

Federal Regulations

There are no federal regulations pertaining to this resource area.

State Regulations

California Department of Transportation (Caltrans)

The California Department of Transportation (Caltrans) manages the California Scenic Highway Program, which was created in 1963 by the California legislature to preserve and protect scenic highway corridors from changes that would diminish the aesthetic value of lands adjacent to highways. Caltrans defines a scenic highway as any freeway, highway, road, or other public right-of-way, that traverses an area of exceptional scenic quality. Suitability for designation as a State Scenic Highway is based on vividness, intactness, and unity. There are no designated scenic highways in the vicinity of the Project site.

University of California

UCI 2007 LRDP

UCI's 2007 *Long Range Development Plan Final EIR* (LRDP) provides the comprehensive framework for the physical development of the UCI campus and is the primary planning document for the campus; no other local land use plan, general plan, specific plan, local coastal program, or zoning ordinance applies to the Project site.

Physical Design Framework

The design of all facilities on the UCI Campus are guided by the 2010 UCI Physical Design Framework (PDF), a set of physical planning objectives and design guidelines that support the planning principles identified in the LRDP. PDF planning and design standards are applied to the development of all campus facilities and grounds to ensure consistency with the planning principles identified in the LRDP and UCI's vision for the design character and environmental quality of the campus. This includes design guidelines for site planning, architecture, landscaping, and circulation.

UCI Construction Standards and Costs (Campus Standards and Design Criteria)

The planning principles in the LRDP and design guidelines in the PDF are further supported at the implementation level through design standards identified in the UCI Construction Standards and Costs (Construction Standards), formerly referred to as the UCI Campus Standards and Design Criteria, which outline the requirements of construction and design for new buildings including material standards, building system standards, sustainability and energy efficiency criteria, and site improvement. Buildings are to be designed to achieve the following five goals set in the LRDP:¹

- New buildings must "create a place" rather than constitute stand-alone objects – forming social, aesthetic, contextually sensitive relationships with neighboring buildings and the larger campus.
- New buildings reinforce a consistent design framework of classical contextual architecture, applied in ways that convey a feeling of permanence and quality and interpreted in ways that meet the contemporary and changing needs of a modern research university.

¹ University of California, Irvine. (2007). *Long Range Development Plan Final EIR; Page 4.1-5*. Accessed March 18, 2020.

- New buildings employ materials, systems, and design features that will forestall the expense of major maintenance (defined as less than 1 percent of value) for at least 20 years.
- New buildings attain exemplary sustainability performance, LEED Gold or Platinum, and outperforming California's Title 24 energy efficiency standards by as much as 50 percent.
- Capital construction projects are designed and delivered within the approved project budget, scope, and schedule.

Campus Lighting Policy

The UCI Campus Lighting Policy identified in the 2007 LRDP applies to all UCI projects. The policy applies to all exterior lighting, whether free-standing or attached to buildings or other structures. The Construction Standards referenced above provide guidance in the practical implementation of the policy. The primary goal of the Campus Lighting Policy is to reduce nighttime light pollution radiating from campus facilities, ensure adequate lighting levels for safety and security, and promote energy efficiency. Another important goal of the UCI Lighting Policy is to limit nuisance light and glare impacts to adjacent properties. This limitation of luminosity aims to avoid adverse visual impacts to the surrounding community as UCI facilities are constructed.

UC Irvine Design Review Process

Design review of campus projects takes place throughout the project planning, design, review, and approval processes to sustain valued elements of the campus' visual environment, to ensure new projects contribute to a connected and cohesive campus environment, and to otherwise minimize adverse aesthetics effects as feasible. Campus design review for every major capital campus project includes review by the Campus Physical and Environmental Committee (CPEC), which includes standing members from the Offices of Campus Physical and Environmental Planning, Design and Construction Services, Capital Planning, UCI Academic Senate, and other campus stakeholders concerned with potential aesthetics effects. CPEC is advisory to the UCI Chancellor who has authority for campus-level design approval of UCI capital projects under authority delegated from the UC Regents. Following campus design review, certain projects go through further design review by the UC Office of the President and/or UC Regents.

Campus design standards and plans that provide the basis for design review include the UCI Physical Design Framework and UCI Construction Standards. In particular, the Construction Standards requires that campus projects minimize glare through window sizing, shades, and window glazing.

Local Regulations

As previously addressed in this SEIR, UCI, a constitutionally created State entity, is not subject to municipal regulations of surrounding local governments for uses on property owned or controlled by UCI that are in furtherance of the University's education purposes. However, UCI may consider, for coordination purposes, aspects of local plans and policies for the communities surrounding the campus when it is appropriate and feasible, but it is not bound by those plans and policies in its planning efforts.

City of Irvine General Plan

The City of Irvine General Plan does not specifically dedicate an element to visual resources or aesthetics guidelines. However, there is a policy which addresses hillside character in the Land Use Element. Objective A-3 is to "encourage land use development that preserves the beauty of the natural

environment." Policy (b), in support of Objective A-3, is to "ensure development in the hillside areas retains the character and aesthetic value of the natural landform through the use of the Hillside Development Ordinance." The intent of the Hillside Development Ordinance is to identify which areas of the hillside are safe to build and which should be left as open space. This Ordinance also specifies restrictions on development in designated hillside areas.

3.1.3 Existing Conditions

North Campus

The proposed Project site is in the UCI North Campus, which is located approximately 0.8-mile northwest of the UCI Main Campus. The North Campus is generally bordered by Campus Drive to the northeast and Jamboree Road to the northwest. This area contains UCI support service facilities, academic research facilities, UCI Arboretum, and large areas of undeveloped or underutilized land. Existing UCI facilities are concentrated in the northernmost portion of the North Campus at the corner of Jamboree Road and Campus Drive.

Location, Topography, and Land Uses

The Project site is located in the city of Irvine, approximately 10 miles from the UCI Medical Center in Orange, on the North Campus. The Project site is relatively flat trending downwards to the southeast toward the wetlands buffer zone that leads into the UC San Joaquin Marsh Reserve, dropping approximately 40 feet from the high point of the site. Much of the slope occurs within the southern 2/3rds of the site. Non-native perennial grasses are the predominant plant species on the site. The southeastern portion of the site abuts, but is not within, the Coastal Zone Boundary. The northern corner of the Project site contains existing trailers, storage containers, and surface parking that would be demolished as part of the Project.

The Project site is generally bordered by the approved UCI Child Health/ Medical Office development (Child Health Project) to the west, existing UCI support service facilities and academic research facilities to the north, UCI Arboretum to the east, San Joaquin Marsh Reserve to the south, and undeveloped University property to the west.

Scenic Views and Roadways

The city of Irvine is located within the coastal and foothill region of central Orange County. The major landforms are the 1) Santiago Hills, 2) Northern Flatlands, 3) Central Flatlands, and 4) San Joaquin Hills as identified in the Irvine General Plan Conservation and Open Space Element. The public viewpoints discussed in the Conservation and Open Space Element that are visible from the Project site are the UC San Joaquin Marsh Reserve and San Diego Creek to the south, and the San Joaquin Hills to the far south. The nearest coastal view designated portion of Jamboree Road to the Project site is south of SR-73, approximately 0.66 miles to the southwest. The nearest eligible or designated State Scenic Highway to the Project site is SR-1, which is approximately 4.05 miles to the southwest.²

Light and Glare

Light and glare in the Project area are typical of that found in urban environments caused by commercial and residential land uses. As discussed above, the Project site, and its immediate surrounding area is

² Measurements were estimated using Google Earth. Accessed March 12, 2020.

existing UCI facilities, undeveloped land, and open space. This can result in stationary source lighting of the Project area from both building interior and exterior sources (i.e., building illumination, security lighting, parking lot lighting, and landscape lighting). The Project area is also influenced by light and glare from vehicles traveling on Jamboree Road located to the northwest.

3.1.4 THRESHOLDS OF SIGNIFICANCE

The following significance criteria are from Appendix G of the State CEQA Guidelines. The Project would result in a significant impact related to land use and planning if it would:

- Threshold 3.1-1** **Have a substantial adverse effect on a scenic vista.**
- Threshold 3.1-2** **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.**
- Threshold 3.1-3** **Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.**

As addressed in Section ES.4, *Summary of Effects with No Impact*, the University has determined that the proposed Project would not have a significant impact on the following threshold for the reasons stated below, and that no further analysis was required:

- Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway.

The site is not within a State scenic highway, nor is it visible from any officially designated or eligible scenic highway. This finding is consistent with the UCI 2007 LRDP EIR which concluded that development on the UCI campus would not substantially impact scenic resources within a State scenic highway. Therefore, no impact would occur.

Campus Programs, Practices, and Procedures and Mitigation Measures Carried Forward from the November 2007 LRDP Final EIR

The following applicable Mitigation Measures (MM) were adopted as part of the November 2007 LRDP Final EIR and are incorporated as part of the proposed Project and assumed in the analysis presented in this section.

- MM AES-2A** Prior to Project design approval for future projects that implement the 2007 LRDP, UCI shall ensure that the projects include design features to minimize glare impacts. These design features shall include use of non-reflective exterior surfaces and low-reflectance glass (e.g., double or triple glazing glass, high technology glass, low-E glass, or equivalent materials with low reflectivity) on all Project surfaces that could produce glare.
- MM AES-2B** Prior to approval of construction documents for future projects that implement the 2007 LRDP, UCI shall approve an exterior lighting plan for each project. In accordance with UCI's Campus Standards and Design Criteria for outdoor lighting, the plan shall include, but not be limited to, the following design features:

- i. Full-cutoff lighting fixtures to direct lighting to the specific location intended for illumination (e.g., roads, walkways, or recreation fields) and to minimize stray light spillover into adjacent residential areas, sensitive biological habitat, and other light-sensitive receptors;
- ii. Appropriate intensity of lighting to provide campus safety and security while minimizing light pollution and energy consumption; and
- iii. Shielding of direct lighting within parking areas, parking structures, or roadways away from adjacent residential areas, sensitive biological habitat, and other light-sensitive receptors through site configuration, grading, lighting design, or barriers such as earthen berms, walls, or landscaping.

3.1.4 ENVIRONMENTAL IMPACTS

Threshold 3.1-1:	Would the project have a substantial adverse effect on a scenic vista?
Impact Summary:	Less Than Significant Impact.

There are no identified scenic vistas surrounding the Project site or elsewhere on the UCI campus (LRDP EIR, page 4.1-6). The Project site has a LRDP land use designation of Mixed Use – Commercial, which allows general office, research and development, academic uses, commercial and retail, conference facilities, residential facilities, and clinical. The 150-foot buffer zone between the North Campus and the UC San Joaquin Marsh Reserve is designated as Open Space – General, which allows for the construction of pedestrian and bicycle trails, water quality and drainage structures, food service, interpretive centers, field research facilities, maintenance roads, and support structures. The buffer zone provides for building setbacks, fuel modification, and other protections at the development/habitat interface. The proposed Project would not build any physical structures within the 150-foot buffer zone, and would install landscaping consisting of native plants appropriate to the San Joaquin Marsh Reserve, infrastructure such as water or power service and water quality structures, and a recreational trail segment that would straddle the Project site/buffer zone interface. These proposed uses within the 150-foot buffer zone are consistent with the Open Space – General land use designation.

As part of the proposed Project, the LRDP would be amended to add Inpatient as an allowable use under the Mixed Use – Commercial land use designation in order to construct the Project’s Hospital. Although adding an additional use, the inpatient use is consistent with the already allowed clinical use under Mixed Use – Commercial. In addition, the proposed Project’s uses are consistent with the adjacent on-campus development, such as the approved Center for Child Health/Medical Office Building to be constructed and existing UCI support services and academic research facilities. The uses are also consistent with the adjacent off-campus commercial, retail, mixed-use residential, and the County of Orange facility across Jamboree Road and Campus Drive. Therefore, the proposed Project would not affect a scenic vista and no impact would occur.

Mitigation Measures

No mitigation is required.

Level of Significance After Mitigation

Less than significant impact.

Threshold 3.1-2:	Would the Project, in non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?
Impact Summary:	Less Than Significant Impact

As discussed in the 2007 LRDP EIR, the North Campus viewshed consists of views looking southeast and east towards the campus from Jamboree Road and Fairchild Road. Views from Jamboree Road to the North Campus consist of 17 acres of development and 36 acres of undeveloped land. The undeveloped land at the North Campus is designated in the 2007 LRDP as Mixed Use – Commercial and the LRDP EIR assumed buildout of the 2007 LRDP would be consistent with this land use designation. Because allowable uses under the Mixed Use – Commercial designation are commercial, office, research and development, residential, and clinical uses, which are consistent with existing surrounding on and off-campus land uses, the 2007 LRDP EIR concluded that buildout would not result in a significant visual impact to the area. This same rationale applies to the views from off-campus areas west of the North Campus.

The proposed Project would be constructed on primarily undeveloped and vacant land in an urbanized area and would be primarily located on land designated as Mixed Use – Commercial. As discussed above, additional improvements in the 150-foot buffer zone, which is designated as Open Space – General, would install landscaping consisting of native plants appropriate to the San Joaquin Marsh Reserve, infrastructure such as water or power service and water quality structures, and a recreational trail segment that would straddle the Project site/buffer zone interface. An approximately 3.5-acre of land designated as Open Space – Athletics and Recreation would be used as temporary construction laydown.

Although areas to the south and southwest of the Project site are undeveloped, existing on-campus UCI support service and academic research facilities are located to the northeast. Off-campus multi-story and single-story commercial and mixed use development, such as the Harbor Justice Center – Newport Beach and Uptown Newport, are located to the north and northwest across Jamboree Road, which have a mix of older and more modern architectural styles. Newer residential tower developments are located off-campus across Campus Drive to the northeast. The proposed Project requires an LRDP amendment to add Inpatient as an allowable use to the Mixed Use – Commercial land use designation in order to construct the proposed hospital; however, this is consistent with the already allowed use of clinical at the North Campus. Additionally, the proposed uses are consistent with the surrounding adjacent on-campus uses of existing UCI support services and academic research facilities and the approved Center for Child Health/Medical Office Building, in addition to the adjacent off-campus commercial and mixed uses across Jamboree Road and Campus Drive.

The proposed Project would result in the construction of a new hospital building approximately 95 feet in height above ground, an ambulatory care center approximately 85 feet in height above ground, a parking structure with 6 stories above ground and two stories below ground approximately 60 feet in height above ground, and a central utility plant approximately 35 feet in height above ground. Other features include surface parking and extensive landscaping on the Project site. All parking areas would be screened from the public street view by landscaping or buildings.

The proposed Project has integrated a green design, differentiated rooflines, and different but compatible textures, colors, and materials in order to break up the building massing that would generally be

associated with the facades of six-story buildings and parking structures. The proposed Project has been designed to create greater visual variety, a sense of place, and unobtrusive visual interest. Figure 3.1-1, *Aerial View Looking Southeast*, provides a rendering of the proposed medical complex. This figure shows how the building locations are separated on the Project site to break up the building massing and to provide open areas between each building onsite. These elements and themes would result in an attractively designed commercial Project with diverse architectural forms that would blend with the existing environment. Potential visual impacts would be reduced through the variations in the building design and the decoratively paved pedestrian amenities provided throughout the Project site that break up the building bulk and scale.

The parking structure has been designed to be responsive to surrounding developments for consistency and context. Views of the parking structure from adjacent roadways would be obscured by proposed landscaping and the future UCI Center for Child Health Project (approved as a separate project by UCI in March 2020). The parking structure would have architectural screening fixtures around the exterior of the building to provide visual relief of the building façade and soften the bulk of the building.

The proposed structures are sited to provide functional open spaces, plazas, courtyards and tree-lined walkways. Figure 3.1-2, *Conceptual Rendering – View from Birch Street Entry Driveway*, shows the landscaped entry driveway, the ambulatory care center building and the separation from the hospital building which allows for visual corridors among the buildings on-site. Figure 3.1-3, *Conceptual Rendering – View from Campus Drive Looking West*, shows the proposed medical complex from Campus Drive looking across the San Joaquin Marsh Reserve. Figure 3.1-4, *Conceptual Rendering – View from Healing Garden Looking West* provides a view of the proposed hospital building from the healing garden located near the 150-foot buffer. The figures demonstrate that the Project has been designed to be sensitive to the interface between the development and the San Joaquin Marsh Reserve.

Although UCI is not required to be consistent with the City of Irvine General Plan, integrating the preservation of the UC San Joaquin Marsh Reserve natural open space into the Project design demonstrates consistency with the City's General Plan objectives regarding preserving the natural environment. The intent of Objective A-3 of the City's General Plan is to "encourage land use development that preserves the beauty of the natural environment." While this objective is oriented more for hillside development, the Project is consistent with the objective by developing on land that has been previously disturbed while providing a 150-foot buffer between the edge of the proposed development and the San Joaquin Marsh Reserve. Therefore, potential impacts are less than significant.

Mitigation Measures

No mitigation is required.

Level of Significance After Mitigation

Less than significant impact.



Source: Source: HENSEL PHELPS CO Architects, 2020

Renderings are conceptual and subject to change.

FIGURE 3.1-1: Conceptual Rendering – Aerial View Looking Southeast

UCI Irvine Campus Medical Complex EIR
University of California, Irvine



Source: Source: HENSEL PHELPS CO Architects, 2020

Renderings are conceptual and subject to change.

FIGURE 3.1-2: Conceptual Rendering – View from Birch Street Entry Driveway

UCI Irvine Campus Medical Complex EIR
University of California, Irvine



Source: HENSEL PHELPS CO Architects, 2020

Renderings are conceptual and subject to change.

FIGURE 3.1-3: Conceptual Rendering – View from Campus Drive Looking West

UCI Irvine Campus Medical Complex EIR
University of California, Irvine



Source: HENSEL PHELPS CO Architects, 2020

Renderings are conceptual and subject to change.

FIGURE 3.1-4: Conceptual Rendering – View from Healing Garden Looking West

UCI Irvine Campus Medical Complex EIR
University of California, Irvine

Threshold 3.1-3:	Would the Project create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area?
Impact Summary:	Less Than Significant with Mitigation Incorporated.

As discussed in the 2007 LRDP EIR, buildout of the 2007 LRDP has the potential to create new sources of light and glare that could significantly impact sensitive biological resources in the UC San Joaquin Marsh Reserve located south of the proposed Project site. There are two primary sources of light that may occur during construction and operation of the Project: light emanating from building interiors passing through windows and light from exterior sources (i.e., street lighting, building illumination, security lighting, parking lot lighting, and landscape lighting).

According to the *2019 Irvine Campus Medical Campus Detailed Project Program*, the Project would incorporate the highest quality of light in relation to the lowest lighting energy consumption that would also reduce glare or veil reflections and would be accurately tailored to the specific task requirements with little to no excess capacity.³ Lighting would also be in accordance with the Illumination Engineering Society (IES) lighting handbook, controlled to meet or exceed the requirements set in Title 24 energy code, and comply with the UCI Design Standard and Policies discussed above. Furthermore, implementation of the following mitigation measures identified in the 2007 LRDP EIR would reduce impacts from light and glare to less than significant levels. MM AES-1 and MM AES-2 would reduce potential significant daytime glare impacts and reduce significant night time impacts from new lighting and headlights to less than significant levels. Implementation of MM AES-1 would ensure that building plans were reviewed prior to construction to ensure all exterior windows and glass used on building surfaces would be non-reflective or treated with a non-reflective coating to avoid glare impacts from the sun. Similarly, implementation of MM AES-2 would ensure that the lighting plan for the Project was reviewed prior to construction to ensure that building lights, spotlights, floodlights, reflectors, and other means of illumination are shielded or equipped with special lenses in such a manner as to prevent any glare or direct illumination on any public street or other property including the San Joaquin Marsh Reserve.

Therefore, with the implementation of MM AES-1, MM AES 2 and adherence to the UCI Construction Standards and applicable codes and regulations discussed above, impacts resulting from light and glare would be less than significant.

Mitigation Measures

MM AES-1: *(This Mitigation Measure implements Mitigation Measure Aes 2A from the 2007 LRDP EIR)* Prior to Project design approval for future projects that implement the 2007 LRDP, UCI shall ensure that the projects include design features to minimize glare impacts. These design features shall include use of non-reflective exterior surfaces and low-reflectance glass (e.g., double or triple glazing glass, high technology glass, low-E glass, or equivalent materials with low reflectivity) on all Project surfaces that could produce glare.

MM AES-2: *(This Mitigation Measure implements Mitigation Measure Aes 2B from the 2007 LRDP EIR)* Prior to approval of construction documents for future projects that implement the 2007 LRDP, UCI shall approve an exterior lighting plan for each project. In accordance with UCI's

³ University of California, Irvine. (2019). *Irvine Campus Medical: Complex Detailed Project Program*; page 285. Accessed on March 18, 2020.

Campus Standards and Design Criteria for outdoor lighting, the plan shall include, but not be limited to, the following design features:

- i. Full-cutoff lighting fixtures to direct lighting to the specific location intended for illumination (e.g., roads, walkways, or recreation fields) and to minimize stray light spillover into adjacent residential areas, sensitive biological habitat, and other light-sensitive receptors;
- ii. Appropriate intensity of lighting to provide campus safety and security while minimizing light pollution and energy consumption; and
- iii. Shielding of direct lighting within parking areas, parking structures, or roadways away from adjacent residential areas, sensitive biological habitat, and other light-sensitive receptors through site configuration, grading, lighting design, or barriers such as earthen berms, walls, or landscaping.

3.1.5 Level of Significance After Mitigation

With the implementation of Mitigation Measures AES-1 and AES-2, potential light and glare impacts would be mitigated to a less than significant impact.

3.1.6 Cumulative Impacts

The proposed Project does not anticipate to significantly alter the visual character of the North Campus. The areas north, west, and east of the North Campus is also developed with uses that include a mix of commercial, mixed use development, and high-density residential uses, while the area to the south of the North Campus is dedicated open space (San Joaquin Marsh Reserve) that would not be developed. As concluded above, buildout of the 2007 LRDP would have a less than significant impact on a scenic vista or resource. In terms of light and glare, the Project is regulated by the UCI's Construction Standards, which would implement design features to minimize impacts. Additionally, the Project would implement Mitigation Measures AES-1 and AES-2 to minimize impacts from light had glare. Therefore, the Project would not conflict with 2007 LRDP land use designations with implementation of the LRDP amendment and impacts on scenic resources including light and glare would be less than significant and not cumulatively considerable.

3.1.7 References

City of Irvine. (2015). *City of Irvine General Plan; Land Use Element*. Accessed March 11, 2020. Retrieved from: <https://www.cityofirvine.org/community-development/current-general-plan>

University of California, Irvine. (2007). Long Range Development Plan Final EIR; Page 4.1-6 through 4.1-8. Accessed August 2020.

University of California, Irvine. (2018). UCI Construction Standards and Costs. Accessed August 5, 2020. Retrieved from: https://designandconstruction.uci.edu/documents/UCIConstructionStandardsandCosts_May2018rev.pdf

University of California, Irvine. (2019). *Irvine Campus Medical: Complex Detailed Project Program; page 285*. Accessed on March 18, 2020.

University of California, Irvine. (2020). *UCI Center for Child Health/Medical Office Building, Tiered Initial Study and Mitigate Negative Declaration*.

This page intentionally left blank.

3.2 AIR QUALITY

3.2.1 Introduction

This section of the SEIR provides a discussion of existing air quality, evaluates potential air quality impacts associated with the proposed project, and discusses how mitigation measures applicable to the Project from the 2007 LRDP EIR would reduce air quality impacts. Air quality modeling data and assumptions that are used for quantifying the proposed project's emissions are based on guidance from the South Coast Air Quality Management District (SCAQMD) and the California Air Resources Board (CARB). The air quality technical data and calculations are included in Appendix B to this SEIR. Air quality is addressed in Section 4.2 of the 2007 LRDP EIR (UC Irvine, 2007). Relevant information has been incorporated by reference.

3.2.2 Air Pollutants of Concern

Criteria Air Pollutants

Air pollutants emitted into the ambient air by stationary and mobile sources are regulated by federal and State laws. These regulated air pollutants are known as "criteria air pollutants" and are categorized into primary and secondary pollutants.

Primary air pollutants are those that are emitted directly from sources. Carbon monoxide (CO), reactive organic gases (ROG), nitrogen oxide (NO_x), sulfur dioxide (SO₂), coarse particulate matter (PM₁₀), fine particulate matter (PM_{2.5}), lead, and fugitive dust are primary air pollutants. Of these, CO, SO₂, PM₁₀, and PM_{2.5} are criteria pollutants. ROG and NO_x are criteria pollutant precursors and go on to form secondary criteria pollutants through chemical and photochemical reactions in the atmosphere (for example, ozone (O₃) is formed by a chemical reaction between ROG and NO_x in the presence of sunlight). O₃ and nitrogen dioxide (NO₂) are the principal secondary pollutants. Sources and health effects commonly associated with criteria pollutants are summarized in *Table 3.2-1, Air Contaminants and Associated Public Health Concerns*.

Pollutant	Major Man-Made Sources	Human Health Effects
Particulate Matter (PM ₁₀ and PM _{2.5})	Power plants, steel mills, chemical plants, unpaved roads and parking lots, wood-burning stoves and fireplaces, automobiles and others.	Increased respiratory symptoms, such as irritation of the airways, coughing, or difficulty breathing; asthma; chronic bronchitis; irregular heartbeat; nonfatal heart attacks; and premature death in people with heart or lung disease. Impairs visibility.
Ozone (O ₃)	Formed by a chemical reaction between reactive organic gases/volatile organic compounds (ROG or VOC) ¹ and nitrogen oxides (NO _x) in the presence of sunlight. Motor vehicle exhaust industrial emissions, gasoline storage and transport, solvents, paints and landfills.	Irritates and causes inflammation of the mucous membranes and lung airways; causes wheezing, coughing, and pain when inhaling deeply; decreases lung capacity; aggravates lung and heart problems. Damages plants; reduces crop yield.
Sulfur Dioxide (SO ₂)	A colorless gas formed when fuel containing sulfur is burned and when gasoline is extracted from oil. Examples are petroleum refineries, cement manufacturing, metal processing facilities, locomotives, and ships.	Respiratory irritant. Aggravates lung and heart problems. In the presence of moisture and oxygen, sulfur dioxide converts to sulfuric acid which can damage marble, iron and steel. Damages crops and natural vegetation. Impairs visibility. Precursor to acid rain.

Table 3.2-1. Air Contaminants and Associated Public Health Concerns		
Pollutant	Major Man-Made Sources	Human Health Effects
Particulate Matter (PM ₁₀ and PM _{2.5})	Power plants, steel mills, chemical plants, unpaved roads and parking lots, wood-burning stoves and fireplaces, automobiles and others.	Increased respiratory symptoms, such as irritation of the airways, coughing, or difficulty breathing; asthma; chronic bronchitis; irregular heartbeat; nonfatal heart attacks; and premature death in people with heart or lung disease. Impairs visibility.
Carbon Monoxide (CO)	An odorless, colorless gas formed when carbon in fuel is not burned completely; a component of motor vehicle exhaust.	Reduces the ability of blood to deliver oxygen to vital tissues, affecting the cardiovascular and nervous system. Impairs vision, causes dizziness, and can lead to unconsciousness or death.
Nitrogen Dioxide (NO ₂)	A reddish-brown gas formed during fuel combustion for motor vehicles and industrial sources. Sources include motor vehicles, electric utilities, and other sources that burn fuel.	Respiratory irritant; aggravates lung and heart problems. Precursor to ozone. Contributes to global warming and nutrient overloading which deteriorates water quality. Causes brown discoloration of the atmosphere.
Lead (Pb)	Lead is a metal found naturally in the environment as well as in manufactured products. The major sources of lead emissions have historically been motor vehicles (such as cars and trucks) and industrial sources. Due to the phase out of leaded gasoline, metals processing is the major source of lead emissions to the air today. The highest levels of lead in air are generally found near lead smelters. Other stationary sources are waste incinerators, utilities, and lead-acid battery manufacturers.	Exposure to lead occurs mainly through inhalation of air and ingestion of lead in food, water, soil, or dust. It accumulates in the blood, bones, and soft tissues and can adversely affect the kidneys, liver, nervous system, and other organs. Excessive exposure to lead may cause neurological impairments such as seizures, mental retardation, and behavioral disorders. Even at low doses, lead exposure is associated with damage to the nervous systems of fetuses and young children, resulting in learning deficits and lowered IQ.
Notes:		
1. Volatile Organic Compounds (VOCs or ROGs) are hydrocarbons/organic gases that are formed solely of hydrogen and carbon. There are several subsets of organic gases including ROGs and VOCs. Both ROGs and VOCs are emitted from the incomplete combustion of hydrocarbons or other carbon-based fuels. The major sources of hydrocarbons are combustion engine exhaust, oil refineries, and oil-fueled power plants; other common sources are petroleum fuels, solvents, dry cleaning solutions, and paint (via evaporation).		
Source: California Air Pollution Control Officers Association, <i>Health Effects</i> , www.capcoa.org/health-effects , accessed May 19, 2020.		

Toxic Air Contaminants

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

There are many different types of TACs, with varying degrees of toxicity. Sources of TACs include industrial processes, such as petroleum refining and chrome-plating operations; commercial operations, such as gasoline stations and dry cleaners; and motor vehicle exhaust. Public exposure to TACs can result from emissions from normal operations, as well as from accidental releases of hazardous materials during upset conditions. The health effects associated with TACs are quite diverse and generally are assessed locally, rather than regionally. TACs can cause long-term health effects such as cancer, birth defects, neurological damage, asthma, bronchitis, or genetic damage, or short-term acute effects such as eye-watering, respiratory irritation (a cough), running nose, throat pain, and headaches.

To date, CARB has designated 244 compounds as TACs.¹ Additionally, CARB has implemented control measures for a number of compounds that pose high risks and show potential for effective control. The majority of the estimated health risks from TACs can be attributed to a relatively few compounds, most importantly particulate matter from diesel fuel engines.

CARB identified diesel particulate matter (DPM) as a TAC. DPM differs from other TACs in that it is not a single substance but rather a complex mixture of hundreds of substances. Diesel exhaust is a complex mixture of particles and gases produced when an engine burns diesel fuel. DPM is a concern because it causes lung cancer; many compounds found in diesel exhaust are carcinogenic. Some short-term (acute) effects of diesel exhaust include eye, nose, throat, and lung irritation, and diesel exhaust can cause coughs, headaches, light-headedness, and nausea. DPM poses the greatest health risk among the TACs. Almost all diesel exhaust particle mass is 10 microns or less in diameter. Because of their extremely small size, these particles can be inhaled and eventually trapped in the bronchial and alveolar regions of the lung.

3.2.3 Regulatory Setting

Federal

Clean Air Act

Federal air quality regulations were first established with the federal Clean Air Act (CAA) of 1970. The U.S. Environmental Protection Agency (U.S. EPA) is responsible for setting and enforcing the National Ambient Air Quality Standards (NAAQS) for criteria pollutants. Under the CAA, states retain the option to adopt more stringent standards or to include other specific pollutants. These standards are the levels of air quality considered safe, with an adequate margin of safety, to protect the public health and welfare. They are designed to protect those “sensitive receptors” most susceptible to further respiratory distress such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and persons engaged in strenuous work or exercise. Healthy adults can tolerate occasional exposure to air pollutant concentrations considerably above these minimum standards before adverse effects are observed.

The U.S. EPA has classified air basins (or portions thereof) as being in attainment, nonattainment, or unclassified for each criteria air pollutant, based on whether the NAAQS have been achieved. If an area is designated unclassified, it is because inadequate air quality data were available as a basis for a nonattainment or attainment designation. Federal criteria air pollutants are those identified by the U.S. EPA to be of concern with respect to the health and welfare of the general public. Applicable federal standards are summarized in *Table 3.2-2, State and Federal Ambient Air Quality Standards*.

As a part of its enforcement responsibilities, the U.S. EPA requires each state with federal nonattainment areas to prepare and submit a State Implementation Plan (SIP) that demonstrates the means to attain and maintain federal standards. The SIP must integrate federal, State, and local plan components and regulations to identify specific measures to reduce pollution by using a combination of performance standards and market-based programs within the SIP-identified timeframe.

¹ California Air Resources Board, *Final Staff Report: Update to the Toxic Air Contaminant List, 1999*.

National Emissions Standards for Hazardous Air Pollutants Program

Under federal law, 188 substances are listed as hazardous air pollutants (HAPs). Major sources of specific HAPs are subject to the requirements of the National Emissions Standards for Hazardous Air Pollutants (NESHAPS) program. The U.S. EPA is establishing regulatory schemes for specific source categories and requires implementation of Maximum Achievable Control Technologies (MACTs) for major sources of HAPs in each source category. State law has established the framework for California's TAC identification and control program, which is generally more stringent than the federal program and is aimed at HAPs that are a problem in California. The State has formally identified 244 substances as TACs and is adopting appropriate control measures for each. Once adopted at the State level, each air district will be required to adopt a measure that is equally or more stringent.

State**California Clean Air Act**

The FCAA allows states to adopt ambient air quality standards and other regulations provided that they are at least as stringent as federal standards. As a part of the California Environmental Protection Agency, CARB is responsible for the coordination and administration of federal and State air pollution control programs within California, including setting the California Ambient Air Quality Standards (CAAQS). CARB also conducts research, compiles emission inventories, develops suggested control measures, and provides oversight of local programs. CARB establishes emissions standards for motor vehicles sold in California, consumer products (such as hairspray, aerosol paints, and barbecue lighter fluid), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions. CARB also has primary responsibility for the development of California's SIP, for which it works closely with the federal government and the local air districts. The CAAQS were established in 1969 pursuant to the Mulford-Carrell Act. These standards, included with the NAAQS in Table 3.2-2, are generally more stringent and apply to more pollutants than the NAAQS.

In addition to standards set for the six criteria pollutants, the State has set standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility reducing particles. These standards are designed to protect the health and welfare of the populace with a reasonable margin of safety. Further, in addition to primary and secondary ambient air quality standards, the State has established a set of episode criteria for O₃, CO, NO₂, SO₂, PM₁₀, and PM_{2.5}. These criteria refer to episode levels representing periods of short-term exposure to air pollutants that actually threaten public health.

Pollutant	Averaging Time	State Standards ¹	Federal Standards ²
Ozone (O ₃) ^{2, 5, 7}	8 Hour	0.070 ppm (137 µg/m ³)	0.070 ppm
	1 Hour	0.09 ppm (180 µg/m ³)	NA
Carbon Monoxide (CO)	8 Hour	9.0 ppm (10 mg/m ³)	9 ppm (10 mg/m ³)
	1 Hour	20 ppm (23 mg/m ³)	35 ppm (40 mg/m ³)
Nitrogen Dioxide (NO ₂)	1 Hour	0.18 ppm (339 µg/m ³)	0.10 ppm ¹¹
	Annual Arithmetic Mean	0.030 ppm (57 µg/m ³)	0.053 ppm (100 µg/m ³)
Sulfur Dioxide (SO ₂) ⁸	24 Hour	0.04 ppm (105 µg/m ³)	0.14 ppm (365 µg/m ³)
	1 Hour	0.25 ppm (655 µg/m ³)	0.075 ppm (196 µg/m ³)
	Annual Arithmetic Mean	NA	0.03 ppm (80 µg/m ³)
Particulate Matter (PM ₁₀) ^{1, 3, 6}	24-Hour	50 µg/m ³	150 µg/m ³
	Annual Arithmetic Mean	20 µg/m ³	NA

Pollutant	Averaging Time	State Standards ¹	Federal Standards ²
Fine Particulate Matter (PM _{2.5}) ^{3, 4, 6, 9}	24-Hour	NA	35 µg/m ³
	Annual Arithmetic Mean	12 µg/m ³	12 µg/m ³
Sulfates (SO ₄₋₂)	24 Hour	25 µg/m ³	NA
	30-Day Average	1.5 µg/m ³	NA
Lead (Pb) ^{10, 11}	Calendar Quarter	NA	1.5 µg/m ³
	Rolling 3-Month Average	NA	0.15 µg/m ³
Hydrogen Sulfide (H ₂ S)	1 Hour	0.03 ppm (0.15 µg/m ³)	NA
Vinyl Chloride (C ₂ H ₃ Cl) ¹⁰	24 Hour	0.01 ppm (26 µg/m ³)	NA

Notes:

ppm = parts per million; µg/m³ = micrograms per cubic meter; mg/m³ = milligrams per cubic meter; – = no information available

- California standards for ozone, CO (except Lake Tahoe), sulfur dioxide (1-hour and 24-hour), NO₂, suspended particulate matter - PM₁₀, and visibility reducing particles are values that are not to be exceeded. The standards for sulfates, Lake Tahoe CO, lead, hydrogen sulfide, and vinyl chloride are not to be equalled or exceeded. If the standard is for a 1-hour, 8-hour or 24-hour average (i.e., all standards except for lead and the PM₁₀ annual standard), then some measurements may be excluded. Measurements are excluded that CARB determines would occur less than once per year on the average. The Lake Tahoe CO standard is 6.0 ppm, a level one-half the national standard and two-thirds the state standard.
- National standards shown are the "primary standards" designed to protect public health. National standards other than for ozone, particulates and those based on annual averages are not to be exceeded more than once a year. The 1-hour ozone standard is attained if, during the most recent three-year period, the average number of days per year with maximum hourly concentrations above the standard is equal to or less than one. The 8-hour ozone standard is attained when the 3-year average of the 4th highest daily concentrations is 0.070 ppm or less. The 24-hour PM₁₀ standard is attained when the 3-year average of the 99th percentile of monitored concentrations is less than 150 µg/m³. The 24-hour PM_{2.5} standard is attained when the 3-year average of 98th percentiles is less than 35 µg/m³.
- Except for the national particulate standards, annual standards are met if the annual average falls below the standard at every site. The national annual particulate standard for PM₁₀ is met if the 3-year average falls below the standard at every site. The annual PM_{2.5} standard is met if the 3-year average of annual averages spatially-averaged across officially designed clusters of sites falls below the standard. NAAQS are set by the U.S. EPA at levels determined to be protective of public health with an adequate margin of safety.
- On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm. An area will meet the standard if the fourth-highest maximum daily 8-hour ozone concentration per year, averaged over three years, is equal to or less than 0.070 ppm. U.S. EPA will make recommendations on attainment designations by October 1, 2016, and issue final designations October 1, 2017. Nonattainment areas will have until 2020 to late 2037 to meet the health standard, with attainment dates varying based on the ozone level in the area.
- The national 1-hour ozone standard was revoked by the U.S. EPA on June 15, 2005.
- In June 2002, CARB established new annual standards for PM_{2.5} and PM₁₀.
- The 8-hour California ozone standard was approved by the CARB on April 28, 2005 and became effective on May 17, 2006.
- On June 2, 2010, the U.S. EPA established a new 1-hour SO₂ standard, effective August 23, 2010, which is based on the 3-year average of the annual 99th percentile of 1-hour daily maximum concentrations. The existing 0.030 ppm annual and 0.14 ppm 24-hour SO₂ NAAQS however must continue to be used until one year following U.S. EPA initial designations of the new 1-hour SO₂ NAAQS.
- In December 2012, U.S. EPA strengthened the annual PM_{2.5} NAAQS from 15.0 to 12.0 µg/m³. In December 2014, the U.S. EPA issued final area designations for the 2012 primary annual PM_{2.5} NAAQS. Areas designated "unclassifiable/attainment" must continue to take steps to prevent their air quality from deteriorating to unhealthy levels. The effective date of this standard is April 15, 2015.
- CARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure below which there are no adverse health effects determined.
- National lead standard, rolling 3-month average: final rule signed October 15, 2008. Final designations effective December 31, 2011.

Source: California Air Resources Board, *Ambient Air Quality Standards*, May 6, 2016.

California State Implementation Plan

The FCAA (and its subsequent amendments) requires each state to prepare an air quality control plan referred to as the SIP. The SIP is a living document that is periodically modified to reflect the latest emissions inventories, plans, and rules and regulations of air basins as reported by the agencies with jurisdiction over them. The FCAA Amendments dictate that states containing areas violating the NAAQS revise their SIPs to include extra control measures to reduce air pollution. The SIP includes strategies and control measures to attain the NAAQS by deadlines established by the FCAA. The U.S. EPA has the responsibility to review all SIPs to determine if they conform to the requirements of the FCAA.

State law makes CARB the lead agency for all purposes related to the SIP. Local air districts and other agencies prepare SIP elements and submit them to CARB for review and approval. CARB then forwards SIP revisions to the U.S. EPA for approval and publication in the Federal Register. The *2016 Air Quality Management Plan* (2016 AQMP) is the SIP for the South Coast Air Basin (SCAB). The 2016 AQMP is a

regional blueprint for achieving air quality standards and healthful air in the air basin and those portions of the Salton Sea Air Basin (SSAB) that are under the South Coast Air Quality Management District's (SCAQMD's) jurisdiction.

California Air Toxics "Hot Spots" Information and Assessment Act (AB 2588)

The California Air Toxics "Hot Spots" Information and Assessment Act (Assembly Bill [AB] 2588) is a state-wide program enacted in 1987. AB 2588 requires facilities that exceed recommended Office of Environmental Health Hazard Assessment (OEHHA) levels to reduce risks to acceptable levels.

Typically, land development projects generate diesel emissions from construction vehicles during the construction phase, as well as some diesel emissions from small trucks during the operational phase. Diesel exhaust is mainly composed of particulate matter and gases, which contain potential cancer-causing substances. Emissions from diesel engines currently include over 40 substances that are listed by U.S. EPA as hazardous air pollutants and by CARB as toxic air contaminants. On August 27, 1998, CARB identified particulate matter in diesel exhaust as a TAC, based on data linking diesel particulate emissions to increased risks of lung cancer and respiratory disease.

In September 2000, CARB adopted a comprehensive diesel risk reduction plan to reduce emissions from both new and existing diesel-fueled engines and vehicles. The goal of the plan is to reduce diesel PM emissions and the associated health risk by 75 percent in 2010 and by 85 percent by 2020. As part of this plan, CARB identified Airborne Toxic Control Measures (ATCM) for mobile and stationary emissions sources. Each ATCM is codified in the California Code of Regulations (CCR), including the ATCM to limit diesel-fueled commercial motor vehicle idling, which puts limits on idling time for large diesel engines (13 CCR Chapter 10 Section 2485).

Regional

South Coast Air Quality Management District

The SCAQMD is the air pollution control agency for Orange County and the urban portions of Los Angeles, Riverside, and San Bernardino Counties. The agency's primary responsibility is ensuring that the NAAQS and CAAQS are attained and maintained in the air basin. The SCAQMD is also responsible for adopting and enforcing rules and regulations concerning air pollutant sources, issuing permits for stationary sources of air pollutants, inspecting stationary sources of air pollutants, responding to citizen complaints, monitoring ambient air quality and meteorological conditions, awarding grants to reduce motor vehicle emissions, and conducting public education campaigns, as well as many other activities. All projects are subject to SCAQMD rules and regulations in effect at the time of construction.

The SCAQMD is also the lead agency in charge of developing the AQMP, with input from the Southern California Association of Governments (SCAG) and CARB. The 2016 AQMP represents a new approach, focusing on available, proven, and cost-effective alternatives to traditional strategies, while seeking to achieve multiple goals in partnership with other entities promoting reductions in greenhouse gases and toxic risk, as well as efficiencies in energy use, transportation, and goods movement. The most effective way to reduce air pollution impacts is to reduce emissions from mobile sources. The AQMP relies on a regional and multi-level partnership of governmental agencies at the federal, State, regional, and local level. These agencies (U.S. EPA, CARB, local governments, SCAG, and SCAQMD) are the primary agencies that implement the AQMP programs. The 2016 AQMP incorporates the latest scientific and technical information and planning assumptions, including updated emission inventory methodologies for various

source categories, and SCAG's latest growth forecasts. The 2016 AQMP includes integrated strategies and measures to meet the NAAQS.

The SCAQMD has published the *CEQA Air Quality Handbook* (approved by the SCAQMD Governing Board in 1993 and augmented with guidance for Local Significance Thresholds [LST] in 2008). The SCAQMD guidance helps local government agencies and consultants develop environmental documents required by California Environmental Quality Act (CEQA) and identifies thresholds of significance for criteria pollutants for both construction and operation (see discussion of thresholds below). With the help of the *CEQA Air Quality Handbook* and associated guidance, local land use planners and consultants can analyze and document how existing and proposed projects affect air quality, in order to meet the CEQA review process requirements. The SCAQMD periodically provides supplemental guidance and updates to the handbook on their website.

The following SCAQMD rules apply to construction activities associated with the Project:

- **Rule 201 (Permit to Construct) and Rule 203 (Permit to Operate)** – This rule requires the review of new and modified sources of air pollution through the issuance of permits. Rule 201 specifies that any facility installing nonexempt equipment that causes or controls the emissions of air pollutants must first obtain a permit to construct from the SCAQMD. Rule 203 states that a facility must not operate or use any equipment emitting air pollutants without first obtaining a Permit to Operate from the SCAQMD. The equipment must be operated according to the conditions specified in the Permit to Operate.
- **Rule 401 (Visible Emissions)** – A person shall not discharge into the atmosphere from any single source of emission whatsoever any air contaminant for a period or periods aggregating more than three minutes in any 1 hour that is as dark or darker in shade as that designated No. 1 on the Ringelmann Chart, as published by the United States Bureau of Mines.
- **Rule 402 (Nuisance)** – This rule prohibits the discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property. This rule does not apply to odors emanating from agricultural operations necessary for the growing of crops or the raising of fowl or animals.
- **Rule 403 (Fugitive Dust)** – This rule requires fugitive dust sources to implement best available control measures for all sources, and all forms of visible particulate matter are prohibited from crossing any property line. This rule is intended to reduce PM₁₀ emissions from any transportation, handling, construction, or storage activity that has the potential to generate fugitive dust. PM₁₀ suppression Best Available Control Measures are summarized below.
 - a) Portions of a construction site to remain inactive longer than a period of three months will be seeded and watered until grass cover is grown or otherwise stabilized.
 - b) All on-site roads will be paved as soon as feasible or watered periodically or chemically stabilized.
 - c) All material transported off-site will be either sufficiently watered or securely covered to prevent excessive amounts of dust.

- d) The area disturbed by clearing, grading, earthmoving, or excavation operations will be minimized at all times.
 - e) Where vehicles leave a construction site and enter adjacent public streets, the streets will be swept daily or washed down at the end of the workday to remove soil tracked onto the paved surface.
- **Rule 431.2 (Sulfur Content of Liquid Fuels)** – This rule limits the sulfur content in diesel and other liquid fuels for the purpose of both reducing the formation of sulfur oxides and particulates during combustion and to enable the use of add-on control devices for diesel-fueled internal combustion engines.
 - **Rule 1113 (Architectural Coatings)** – This rule requires manufacturers, distributors, and end-users of architectural and industrial maintenance coatings to reduce ROG emissions from the use of these coatings, primarily by placing limits on the ROG content of various coating categories.
 - **Rule 1403 (Asbestos Emissions from Demolition/Renovation Activities)**—The purpose of this rule is to limit emissions of asbestos, a toxic air contaminant, from structural demolition/renovation activities. The rule requires people to notify the SCAQMD of proposed demolition/renovation activities and to survey these structures for the presence of asbestos-containing materials (ACMs). The rule also includes notification requirements for any intent to disturb ACM; emission control measures; and ACM removal, handling, and disposal techniques. All proposed structural demolition activities associated with Colton Component construction would need to comply with the requirements of Rule 1403.

University of California

Environmental Health and Safety Department

UCI's Environmental Health and Safety (EH&S) Department is responsible for implementing the UCI Clean Air Program which facilitates compliance with air quality laws and regulations. In addition to the permitting programs required by California law and SCAQMD rules, UCI is required to implement a federal operating permit program that meets U.S. EPA regulations adopted pursuant to Title V of the FCAA Amendments. Title V Program activities include assisting with SCAQMD Permit to Operate administration, monitoring, record keeping, reporting activities, and developing regulatory programs and informational guidelines to ensure the campus remains in compliance with State and federal regulations.

Several different departments at UCI are involved with this program. Academic department chairs and directors are responsible for reporting new air emission sources to EHS and maintaining records. The Facilities Management and the Design and Construction Services (D&CS) departments provide building and renovation plans to EHS for review and report new air emission sources to EH&S. The Transportation and Distribution Services department, while not directly involved with the Clean Air Program, reduces air emissions by implementing the Alternative Transportation Program to reduce vehicular traffic and associated emissions.

3.2.4 Existing Conditions

Air quality in a region is determined by the region's topography, meteorology, and existing air pollutant sources. These factors are discussed below, along with the current regulatory structure that applies to the air basin, which encompasses the Project site.

Climate and Meteorology

CARB divides the State into 15 air basins that share similar meteorological and topographical features. The Project is located within the 6,645-square-mile SCAB, which includes the non-desert portions of Los Angeles, Riverside, and San Bernardino counties, as well as all of Orange County. The SCAB is on a coastal plain with connecting broad valleys and low hills, bounded by the Pacific Ocean on the southwest and high mountains forming the remainder of the perimeter.² The SCAB's air quality is determined by natural factors such as topography, meteorology, and climate, in addition to the presence of existing air pollution sources and ambient conditions. These factors along with applicable regulations are discussed below.

The SCAB is part of a semi-permanent high-pressure zone in the eastern Pacific. As a result, the climate is mild and tempered by cool sea breezes. This usually mild weather pattern is occasionally interrupted by periods of extreme heat, winter storms, and Santa Ana winds. The annual average temperature throughout the SCAB ranges from low 60 to high 80 degrees Fahrenheit with little variance. With more oceanic influence, coastal areas show less variability in annual minimum and maximum temperatures than inland areas.

Contrasting the very steady pattern of temperature, rainfall is seasonally and annually highly variable. Almost all annual rainfall occurs between the months of November and April. Summer rainfall is reduced to widely scattered thundershowers near the coast, with slightly heavier activity in the east and over the mountains.

Although the SCAB has a semiarid climate, the air closer to the Earth's surface is typically moist because of the presence of a shallow marine layer. Except for occasional periods when dry, continental air is brought into the SCAB by offshore winds, the "ocean effect" is dominant. Periods of heavy fog are frequent and low clouds known as high fog are characteristic climatic features, especially along the coast. Annual average humidity is 70 percent at the coast and 57 percent in the SCAB's eastern portions.

Wind patterns across the SCAB are characterized by westerly or southwesterly on-shore winds during the day and easterly or northeasterly breezes at night. Wind speed is typically higher during the dry summer months than during the rainy winter.

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

The mountain ranges to the east affect the diffusion of pollutants by inhibiting the eastward transport of pollutants. The SCAB's air quality generally ranges from fair to poor and is like air quality in most of coastal Southern California. The entire region experiences heavy concentrations of air pollutants during prolonged periods of stable atmospheric conditions.

In addition to the characteristic wind patterns that affect the rate and orientation of horizontal pollutant transport, two distinct types of temperature inversions control the vertical depth through which air pollutants are mixed. These inversions are the marine inversion and the radiation inversion. The height of

² South Coast Air Quality Management District, *CEQA Air Quality Handbook*, 1993.

the base of the inversion at any given time is called the “mixing height.” The combination of winds and inversions is a critical determinant leading to highly degraded air quality for the SCAB in the summer and generally good air quality in the winter.

SCAB Attainment Status

As discussed under Regulatory Setting, federal and state governments have established air quality standards to protect public health. The NAAQS and CAAQS attainment status designations for the SCAB are summarized in *Table 3.2-3, South Coast Air Basin Attainment Status*. The SCAB is currently designated as a nonattainment area concerning the State ozone, PM₁₀, and PM_{2.5} standards, as well as the national ozone and PM_{2.5} standards. The SCAB is designated as attainment or unclassified for the remaining State and federal standards.

Pollutant	Federal	State
Ozone (O ₃) (1 Hour Standard)	Non-Attainment (Extreme)	Non-Attainment
Ozone (O ₃) (8 Hour Standard)	Non-Attainment (Extreme)	Non-Attainment
Particulate Matter (PM _{2.5}) (24 Hour Standard)	Non-Attainment (Serious)	--
Particulate Matter (PM _{2.5}) (Annual Standard)	Non-Attainment (Moderate)	Non-Attainment
Particulate Matter (PM ₁₀) (24 Hour Standard)	Attainment (Maintenance)	Non-Attainment
Particulate Matter (PM ₁₀) (Annual Standard)	--	Non-Attainment
Carbon Monoxide (CO) (1 Hour Standard)	Attainment (Maintenance)	Attainment
Carbon Monoxide (CO) (8 Hour Standard)	Attainment (Maintenance)	Attainment
Nitrogen Dioxide (NO ₂) (1 Hour Standard)	Unclassifiable/Attainment	Attainment
Nitrogen Dioxide (NO ₂) (Annual Standard)	Attainment (Maintenance)	Attainment
Sulfur Dioxide (SO ₂) (1 Hour Standard)	Unclassifiable/Attainment	Attainment
Sulfur Dioxide (SO ₂) (24 Hour Standard)	--	Attainment
Lead (Pb) (30 Day Standard)	Unclassifiable/Attainment	--
Lead (Pb) (3 Month Standard)	--	Attainment
Sulfates (SO ₄₋₂) (24 Hour Standard)	--	Attainment
Hydrogen Sulfide (H ₂ S) (1 Hour Standard)	--	Unclassified

Source: South Coast Air Quality Management District, *Air Quality Management Plan*, 2016; U.S. EPA, *Nonattainment Areas for Criteria Pollutants (Green Book)*, May 2020.

Ambient Air Quality

CARB monitors ambient air quality at approximately 250 air monitoring stations across the State. Air quality monitoring stations usually measure pollutant concentrations ten feet above ground level;

therefore, air quality is often referred to in terms of ground-level concentrations. Existing levels of ambient air quality, historical trends, and projections near the Project site are documented by measurements made by the South Coast Air Quality Management District (SCAQMD), the SCAB's air pollution regulatory agency that maintains air quality monitoring stations, which process ambient air quality measurements.

O₃, NO₂, PM₁₀, and PM_{2.5} are pollutants of concern in the SCAB. The closest air monitoring station to the Project site that monitors ambient concentrations for O₃ and NO₂ is the Costa Mesa – Mesa Verde Drive Monitoring Station (located approximately 4.0 miles northwest of the Project). The closest monitoring station that measures PM₁₀, PM_{2.5}, and CO is the Mission Viejo – 26081 Via Pera Monitoring Station (located approximately 10.6 miles east of the Project). Local air quality data from 2016 to 2018 are provided in *Table 3.2-4, Ambient Air Quality Data*. Table 3.2-4 lists the monitored maximum concentrations and number of exceedances of federal or State air quality standards for each year.

Table 3.2-4. Ambient Air Quality Data			
Pollutant	2016	2017	2018
Ozone (O₃)¹			
1-hour Maximum Concentration (ppm)	0.090	0.088	0.121 ²
8-hour Maximum Concentration (ppm)	0.069	0.080	0.088 ²
<i>Number of Days Standard Exceeded</i>			
CAAQS 1-hour (>0.09 ppm)	13	27	10
NAAQS 8-hour (>0.070 ppm)	0	4	9 ²
Carbon Monoxide (CO)²			
1-hour Maximum Concentration (ppm)	1.34	1.40	1.20
<i>Number of Days Standard Exceeded</i>			
NAAQS 1-hour (>35 ppm)	0	0	0
CAAQS 1-hour (>20 ppm)	0	0	0
Nitrogen Dioxide (NO₂)¹			
1-hour Maximum Concentration (ppm)	59.8	45.3	61.7
<i>Number of Days Standard Exceeded</i>			
NAAQS 1-hour (>100 ppm)	0	–	0
CAAQS 1-hour (>0.18 ppm)	0	0	0
Particulate Matter Less Than 10 Microns (PM₁₀)²			
National 24-hour Maximum Concentration	59.0	58.2	55.6
State 24-hour Maximum Concentration	59.3	58.2	55.6
State Annual Average Concentration (20 µg/m ³)	–	18.8	19.1
<i>Number of Days Standard Exceeded</i>			
NAAQS 24-hour (>150 µg/m ³)	0	0	0
CAAQS 24-hour (>50 µg/m ³)	–	7	6
Particulate Matter Less Than 2.5 Microns (PM_{2.5})²			
National 24-hour Maximum Concentration	24.7	19.5	38.9
State 24-hour Maximum Concentration	24.7	19.5	38.9
<i>Number of Days Standard Exceeded</i>			
NAAQS 24-hour (>35 µg/m ³)	0	–	–
Notes: NAAQS = National Ambient Air Quality Standards; CAAQS = California Ambient Air Quality Standards; ppm = parts per million; µg/m ³ = micrograms per cubic meter; -- = not measured			
1. Measurements at Costa Mesa – Mesa Verde Drive Monitoring Station, 2850 Mesa Verde Drive East, Costa Mesa, CA 92626 (CARB# 70112).			
2. Measurements at Mission Viejo – 26081 Via Pera Monitoring Station, 26081 Via Pera, Mission Viejo, CA 92691 (CARB# 30002).			
Source: Pollutant measurements from the CARB Aerometric Data Analysis and Management system database (https://www.arb.ca.gov/adam), accessed June 8, 2020.			

3.2.5 Sensitive Air Quality Receptors

Sensitive populations are more susceptible to the effects of air pollution than the general population. Sensitive receptors in proximity to localized sources of toxics are of particular concern. Land uses considered sensitive receptors include residences, schools, playgrounds, childcare centers, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes. Sensitive land uses surrounding the Project site consist mostly of mixed-use and multi-family residences and recreational facilities. *Table 3.2-5, Sensitive Receptors*, lists the distances and locations of sensitive receptors within the Project vicinity.

Table 3.2-5. Sensitive Receptors	
Receptor Description	Distance and Direction from the Project¹
RESIDENTIAL	
Multi-Family Residential Dwellings	450 feet west, 960 feet northeast, and 1,600 feet north
HEALTH CARE FACILITIES	
UCI Center for Child Health (scheduled to begin construction in early 2021 and be occupied by fall of 2022)	100 feet northwest
RECREATIONAL FACILITIES	
UCI Arboretum (currently closed)	450 feet northeast
Private outdoor recreational facilities	2,400 feet north
1. Distances were measured using Google Earth 2020.	

3.2.6 Thresholds of Significance

The following significance criteria are from Appendix G of the State CEQA Guidelines. A significant impact related to air quality would occur if the proposed Project would:

- Threshold 3.2-1** **Conflict with or obstruct implementation of the applicable air quality plan.**
- Threshold 3.2-2** **Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or State ambient air quality standard.**
- Threshold 3.2-4** **Expose sensitive receptors to substantial pollutant concentrations.**
- Threshold 3.2-5** **Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.**

South Coast Air Quality Management District Thresholds

The SCAQMD significance criteria may be relied upon to make the above determinations. According to the SCAQMD, an air quality impact is considered significant if a proposed project would violate any ambient air quality standard, contribute substantially to an existing or projected air quality violation, or expose sensitive receptors to substantial pollutant concentrations. The SCAQMD has established thresholds of significance for air quality during project construction and operations, as shown in *Table 3.2-6, SCAQMD Emissions Thresholds*. The SCAQMD thresholds have been developed to ensure attainment of the NAAQS and CAAQS. Both the SCAQMD CEQA Handbook and the 2016 AQMP address attaining the NAAQS and CAAQS.

Air Pollutant	Construction Activities (Average Pounds per Day)	Operations (Average Pounds per Day)
Reactive Organic Gases (ROG)	75	55
Carbon Monoxide (CO)	550	550
Nitrogen Oxides (NO _x)	100	55
Sulfur Oxides (SO _x)	150	150
Coarse Particulates (PM ₁₀)	150	150
Fine Particulates (PM _{2.5})	55	55

Source: South Coast Air Quality Management District, South Coast AQMD Air Quality Significance Thresholds, April 2019.

Localized Carbon Monoxide

In addition to the daily thresholds listed above, development associated with the proposed Project would also be subject to the NAAQS and CAAQS. These are addressed through an analysis of localized CO impacts. The significance of localized impacts depends on whether ambient CO levels near the project site are above State and federal CO standards (the more stringent California standards are 20 ppm for 1-hour and 9 ppm for 8-hour). The air basin has been designated as in attainment under the NAAQS and CAAQS for CO.

Localized Significance Thresholds

The SCAQMD has localized significance thresholds (LSTs) for emissions of NO₂, CO, PM₁₀, and PM_{2.5} generated at new development sites; off-site mobile source emissions are not included in the LST analysis. LSTs represent the maximum emissions that can be generated at a project site without expecting to cause or substantially contribute to an exceedance of the most stringent NAAQS or CAAQS. LSTs are based on the ambient concentrations of that pollutant within the project source receptor area (SRA), as demarcated by the SCAQMD, and the distance to the nearest sensitive receptor. A LST analysis for construction is applicable for all projects that disturb five acres or less on a single day.

The Project is located within SCAQMD SRA 20 (Central Orange County Coastal). *Table 3.2-7, Local Significance Thresholds (Construction/Operations)*, shows the LSTs for a 1-acre, 2-acre, and 5-acre project site in SRA 20 with sensitive receptors located approximately 137 meters (450 feet) west of the Project site. Additionally, it should be noted that the UCI Center for Child Health facility is currently under development (scheduled to begin construction in early 2021 and be occupied by the fall of 2022) and would be located approximately 30 meters (100 feet) northwest of the Project site. The Center for Child Health is anticipated open in the fall of 2022, after Project demolition, site preparation, and grading would be complete. The LSTs in Table 3.2-7 conservatively show the thresholds at the 25-meter distance. LSTs associated with all acreage categories are provided in Table 3.2-7 for informational purposes. Table 3.2-7 shows that the LSTs increase as acreages increase. It should be noted that LSTs are screening thresholds and are therefore conservative. The construction LST acreage is determined based on daily acreage disturbed. The operational LST acreage is based on the total area of the Project site. Although the Project site is greater than five acres, the 5-acre operational LSTs are conservatively used to evaluate the Project.

Project Size	Nitrogen Oxide (NO _x)	Carbon Monoxide (CO)	Coarse Particulates (PM ₁₀)	Fine Particulates (PM _{2.5})
1 Acre	93/93	738/738	13/4	5/2
2 Acres	128/128	1,089/1,089	21/6	7/2
5 Acres	190/190	1,864/1,864	44/11	11/3

Source: South Coast Air Quality Management District, *Localized Significance Threshold Methodology*, July 2008.

Methodology

This air quality impact analysis considers construction and operational impacts associated with the Project. Where criteria air pollutant quantification was required, emissions were modeled using the California Emissions Estimator Model version 2016.3.2 (CalEEMod). CalEEMod is a statewide land use emissions computer model designed to quantify potential criteria pollutant emissions associated with both construction and operations from a variety of land use projects. Air quality impacts were assessed according to CARB and SCAQMD recommended methodologies.

Construction equipment, trucks, worker vehicles, and ground-disturbing activities associated with Project construction would generate emissions of criteria air pollutants and precursors. Daily regional construction emissions are estimated by assuming construction occurs at the earliest feasible date (i.e., a conservative estimate of construction activities) and applying off-road, fugitive dust, and on-road emissions factors in CalEEMod.

Project operations would result in emissions of area sources (consumer products such as detergents, cleaning compounds, polishes, floor finishes, disinfectants, sanitizers, aerosol paints, etc.), energy sources (natural gas usage), and mobile sources (motor vehicles from Project generated vehicle trips). Project-generated increases in operational emissions would be predominantly associated with motor vehicle use. The increase of traffic over existing conditions as a result of the Project was obtained from the Project's Transportation Impact Analysis prepared by Stantec (2020). Other operational emissions from area, energy, and stationary sources were quantified in CalEEMod based on land use and stationary source activity data. The stationary source for this Project consists of an emergency diesel backup generator.

As discussed above, the SCAQMD provides significance thresholds for emissions associated with proposed Project construction and operations. The proposed Project's construction and operational emissions are compared to the daily criteria pollutant emissions significance thresholds in order to determine the significance of a Project's impact on regional air quality.

The localized effects from the Project's on-site emissions were evaluated in accordance with the SCAQMD's Localized Significance Threshold (LST) Methodology, which uses on-site mass emissions rate look-up tables and Project-specific modeling. LSTs represent the maximum emissions from a project that are not expected to cause or contribute to an exceedance of the most stringent applicable NAAQS or CAAQS and are developed based on the ambient concentrations of that pollutant for each source receptor area and distance to the nearest sensitive receptor.

The mitigated output from CalEEMod show reductions from existing regulatory requirements and Project design features that are termed "mitigation" within the model; however, those modeling components associated with locational measures and compliance with existing regulations are not considered mitigation under CEQA, but rather are treated as Project design features. The Project would incorporate design features

and would obtain benefits from its location that would reduce Project vehicle miles traveled compared to default values. The measures incorporated into the CalEEMod modeling and mitigation component include:

- **LUT-1 Increase Density:** The Project would construct an integrated medical campus providing inpatient, ambulatory, and emergent care services space to meet community needs and is anticipated to employ 1,150 persons, which would result in 99 employees per acre over the 11.6-acre site. This strategy also provides a foundation for implementation of many other strategies which would benefit from increased densities. For example, transit ridership increases with density, which justifies enhanced transit service.
- **LUT-3 Increase Diversity of Land Uses:** The measure requires at least three different land uses within 0.25 mile. There are residential, retail, and office land uses within this distance from the Project. The Project also proposed medical facilities that would service the community.

The reductions attributable to these measures in CalEEMod are derived from methodologies compiled in the CAPCOA report *Quantifying Greenhouse Gas (GHG) Measures (2010)*. Each measure was assessed to determine its consistency with CAPCOA criteria for the use of the measure.

Additionally, the CalEEMod carbon intensity factor was adjusted within the model to represent Southern California Edison's current emissions rate. This adjustment was made for the purposes of the GHG emissions modeling, which is included in a separate report. The adjustment to the carbon intensity factor only affects GHG emissions and does not affect the criteria pollutant emissions addressed in this report.

Campus Programs, Practices, and Procedures and Mitigation Measures Carried Forward from the November 2007 LRDP Amendment Final EIR

The following applicable Mitigation Measures (MM) were adopted as part of the November 2007 LRDP Final EIR and are incorporated as part of the proposed Project and assumed in the analysis presented in this section.

Air-2A During project-level environmental review of future projects that implement the 2007 LRDP and that could result in a significant air quality impact from construction emissions, UCI shall retain a qualified air quality specialist to prepare an air quality assessment of the anticipated project-related construction emissions. The assessment shall quantify the project's estimated construction emissions with and without implementation of applicable Best Management Practices (BMPs) listed in mitigation measure Air-2B and compare them with established SCAQMD significance thresholds. In addition, the air quality assessment shall include analysis of temporal phasing as a means of reducing construction emissions.

If the estimated construction emissions are under SCAQMD's significance thresholds or if mitigation measure Air-2B would reduce emissions to below established thresholds, then the project's direct impact to air quality would be less than significant and no additional mitigation would be required. If the project's construction emissions would exceed established thresholds with implementation of applicable BMPs listed in mitigation measure Air-2B, and no additional mitigation to reduce the emissions below the threshold is feasible, then the project's direct impact to air quality would remain significant following mitigation.

UCI 2007 LRDP EIR Mitigation Measure (MM) Air-2B states:

- Air-2B** Prior to initiating construction, UCI shall ensure that the project construction contract includes a construction emissions mitigation plan, including measures compliant with SCAQMD Rule 403 (Fugitive Dust), to be implemented and supervised by the on-site construction supervisor, which shall include, but not be limited to, the following BMPs:
- i. During grading and site preparation activities, exposed soil areas shall be stabilized via frequent watering, non-toxic chemical stabilization, or equivalent measures at a rate to be determined by the on-site construction supervisor.
 - ii. During windy days when fugitive dust can be observed leaving the construction site, additional applications of water shall be required at a rate to be determined by the onsite construction supervisor.
 - iii. Disturbed areas designated for landscaping shall be prepared as soon as possible after completion of construction activities.
 - iv. Areas of the construction site that will remain inactive for three months or longer following clearing, grubbing and/or grading shall receive appropriate BMP treatments (e.g., revegetation, mulching, covering with tarps, etc.) to prevent fugitive dust generation.
 - v. All exposed soil or material stockpiles that will not be used within 3 days shall be enclosed, covered, or watered twice daily, or shall be stabilized with approved nontoxic chemical soil binders at a rate to be determined by the on-site construction supervisor.
 - vi. Unpaved access roads shall be stabilized via frequent watering, non-toxic chemical stabilization, temporary paving, or equivalent measures at a rate to be determined by the on-site construction supervisor.
 - vii. Trucks transporting materials to and from the site shall allow for at least two feet of freeboard (i.e., minimum vertical distance between the top of the load and the top of the trailer). Alternatively, trucks transporting materials shall be covered.
 - viii. Speed limit signs at 15 mph or less shall be installed on all unpaved roads within construction sites.
 - ix. Where visible soil material is tracked onto adjacent public paved roads, the paved roads shall be swept and debris shall be returned to the construction site or transported off-site for disposal.
 - x. Wheel washers, dirt knock-off grates/mats, or equivalent measures shall be installed within the construction site where vehicles exit unpaved roads onto paved roads.
 - xi. Diesel powered construction equipment shall be maintained in accordance with manufacturer's requirements and shall be retrofitted with diesel particulate filters where available and practicable.
 - xii. Heavy duty diesel trucks and gasoline powered equipment shall be turned off if idling is anticipated to last for more than 5 minutes.
 - xiii. Where feasible, the construction contractor shall use alternatively fueled construction equipment, such as electric or natural gas-powered equipment or biofuel.

- xiv. Heavy construction equipment shall use low NOx diesel fuel to the extent that it is readily available at the time of construction.
- xv. To the extent feasible, construction activities shall rely on the campus's existing electricity infrastructure rather than electrical generators powered by internal combustion engines.
- xvi. The construction contractor shall develop a construction traffic management plan that includes the following:
 - Scheduling heavy-duty truck deliveries to avoid peak traffic periods Consolidating truck deliveries.
- xvii. Where possible, the construction contractor shall provide a lunch shuttle or on-site lunch service for construction workers.
- xviii. The construction contractor shall, to the extent possible, use pre-coated architectural materials that do not require painting. Water-based or low VOC coatings shall be used that are compliant with SCAQMD Rule 1113. Spray equipment with high transfer efficiency, such as the high volume-low pressure spray method, or manual coatings application shall be used to reduce VOC emissions to the extent possible.
- xix. Project constructions plans and specifications will include a requirement to define and implement a work program that would limit the emissions of reactive organic gases (ROG's) during the application of architectural coatings to the extent necessary to keep total daily ROG's for each project to below 75 pounds per day, or the current SCAQMD threshold, throughout that period of construction activity to the extent feasible. The specific program may include any combination of restrictions on the types of paints and coatings, application methods, and the amount of surface area coated as determined by the contractor.

The construction contractor shall maintain signage along the construction perimeter with the name and telephone number of the individual in charge of implementing the construction emissions mitigation plan, and with the telephone number of the SCAQMD's complaint line. The contractor's representative shall maintain a log of any public complaints and corrective actions taken to resolve complaints.

UCI 2007 LRDP EIR MM Air-2C states:

Air-2C UCI shall ensure that operational air emissions, including area sources, stationary sources, and vehicular emissions, are reduced to the extent possible via the following mitigation measures:

- i. UCI shall continue to implement and expand its alternative transportation program by continuing to assess new opportunities, programs, and technologies to reduce vehicular trips. This program shall consider the following elements:
 - Significant incentives aimed to expand UCI vanpool, carpool, and other ridesharing programs;
 - Significant incentives aimed to expand UCI public transit use off campus;

- Promotion of Express Bus service in the campus vicinity and Express Bus service routes from key UCI commuter locations off campus;
 - Expansion of campus shuttle and other campus transit systems, including point-to-point shuttles with expanded routes and operations to key destinations, and coordination of the on-campus transit systems with existing and future public transit systems off campus to accommodate routes, transit stops, stations, and other programs and projects as deemed appropriate, including community transit programs in the City of Irvine and City of Newport Beach;
 - Expansion of UCI bike programs and bicycle infrastructure, including expanded bikeways, BikePorts, and Bike Service Stations; and
 - Support of alternative transportation organizations.
- ii. All stationary sources shall comply with the applicable SCAQMD Rules and Regulations, including New Source Review, Best Available Control Technology, and source-specific requirements. Stationary sources shall employ state-of-the-art controls, where applicable, to reduce air emissions to the extent possible.
- iii. Emissions from area sources (e.g., cooling and heating systems, landscaping, consumer products, etc.) shall be reduced to the extent possible through implementation of UCI's energy efficiency programs. Energy-saving measures include using central plant cooling and heating systems for buildings in the Academic Core; orienting buildings to the north for natural cooling and heating; implementing the UCI standard to exceed Title 24 energy efficiency by 20% or more; and increasing insulation in building walls and attics beyond Title 24 requirements.

3.2.7 Environmental Impacts

Threshold 3.2-1:	Would the project conflict with or obstruct implementation of the applicable air quality plan?
Impact Summary:	Less Than Significant Impact

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

As previously addressed, the Project site is located within the SCAB, which is under the jurisdiction of the SCAQMD. The SCAQMD is required, pursuant to the FCAA, to reduce emissions of criteria pollutants for which the air basin is in nonattainment. In order to reduce such emissions, the SCAQMD prepared the 2016 AQMP. The 2016 AQMP establishes a program of rules and regulations directed at reducing air pollutant emissions and achieving State and federal air quality standards. The 2016 AQMP is a regional and multi-agency effort including the SCAQMD, the CARB, the Southern California Association of Governments (SCAG), and the U.S. EPA. The 2016 AQMP's pollutant control strategies are based on the latest scientific and technical

information and planning assumptions, including SCAG's RTP/SCS³; updated emission inventory methodologies for various source categories; and SCAG's latest growth forecasts. SCAG's latest growth forecasts were defined in consultation with local governments and with reference to local general plans. Criteria for determining consistency with the AQMP are defined by the following indicators:

- **Consistency Criterion No. 1:** The Project would not result in an increase in the frequency or severity of existing air quality violations, or cause or contribute to new violations, or delay the timely attainment of the AQMP's air quality standards or the interim emissions reductions.
- **Consistency Criterion No. 2:** The Project would not exceed the AQMP's assumptions or increments based on the years of the Project build-out phase.

According to the SCAQMD's CEQA Air Quality Handbook, the purpose of the consistency finding is to determine if a project is inconsistent with the assumptions and objectives of the regional air quality plans, and thus if it would interfere with the region's ability to comply with CAAQS and NAAQS.

With respect to the first criterion, based on the air quality modeling analysis conducted for the proposed Project summarized later in this EIR section and provided in Appendix B, the proposed Project would not exceed the short-term construction standards or long-term operational standards with the implementation of Mitigation Measure (MM) AQ-1, MM AQ-2, and MM AQ-3, and would therefore not violate any air quality standards. As the proposed Project would not exceed the SCAQMD's emissions thresholds, the Project would not violate any air quality standards or contribute substantially to an existing or projected air quality violation. Impacts would be less than significant with mitigation. Thus, no impact is expected, and the Project would be consistent with the first criterion.

Concerning Consistency Criterion No. 2, the AQMP contains air pollutant reduction strategies based on SCAG's latest growth forecasts, and SCAG's growth forecasts were defined in consultation with local governments and with reference to local general plans. As proposed, the Project would construct an integrated medical campus providing inpatient, ambulatory, and emergency care services space to meet community needs. Although the Project proposes a land use amendment to the 2007 LRDP to allow Inpatient Uses under the Mixed Use – Commercial designation, the Project would be consistent with the growth projections for the existing Mixed-Use Commercial designation in the 2007 LRDP and the goals and policies in the UCI Strategic Plan.

In addition, the Project would not require a zone change or a City of Irvine General Plan (General Plan) amendment and would not cause the SCAQMD's population or job growth projections used to develop the AQMP to be exceeded. The Project would also implement all applicable AQMP control measures. For example, equipment such as emergency generators, steam generators, and boilers would be subject to SCAQMD permitting and the Project would be required to implement the Best Available Control Technology (BACT) per SCAQMD new source review requirements. The Project also supports SCAG RTP/SCS and SCAQMD policies promoting infill development to reduce emissions. Thus, a less than significant impact would occur, as the Project is also consistent with the second criterion.

³ SCAG's Regional Council adopted Connect SoCal (2020 - 2045 Regional Transportation Plan/Sustainable Communities Strategy [2020 RTP/SCS]) on September 3, 2020.

Conclusion

There are no new potentially significant impacts associated with the proposed Project. The Project is consistent with the 2007 LRDP. As discussed below, MM AQ-3 is required to ensure stationary source emissions are minimized and that operational emissions do not exceed SCAQMD thresholds.

Mitigation Measures

No mitigation is required for plan consistency. Refer to mitigation measures MM-1 through MM-3 in the under Impact 3.2-2 below regarding mitigation measures to ensure specific air quality thresholds are met.

Level of Significance After Mitigation

Less than significant impact.

Threshold 3.2-2:	Would the Project result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is in nonattainment under an applicable federal or State ambient air quality standard?
Impact Summary:	Less Than Significant Impact with Mitigation Incorporated

Construction Emissions

Construction associated with the proposed Project would generate criteria air pollutant emissions. Construction-generated emissions are relatively short term and of temporary duration, lasting only as long as construction activities occur, but are considered a significant air quality impact if the volume of pollutants generated exceeds the SCAQMD's thresholds of significance.

Construction results in the temporary generation of emissions resulting from demolition, site grading and excavation, road paving, motor vehicle exhaust associated with construction equipment and worker trips, and the movement of construction equipment, especially on unpaved surfaces. Emissions of airborne particulate matter are largely dependent on the amount of ground disturbance associated with site preparation activities as well as weather conditions and the appropriate application of water.

The duration of construction activities for the Project is estimated to be approximately 30 months. Demolition material would be generated by the removal of existing structures and all materials would be sorted for reuse and recycling to the extent feasible. In addition, the Project would require the net export of approximately 18,141 cubic yards of soil during the grading/site preparation phases.

Construction-generated emissions were calculated using CalEEMod, which is designed to model emissions for land use development projects based on typical construction requirements. See Appendix B for more information regarding the construction assumptions used in this analysis. The Project's predicted maximum daily construction-related emissions are summarized in *Table 3.2-8, Construction-Related Emissions*.

Construction Year	Pollutant (pounds per day) ^{1, 2}					
	Reactive Organic Gases (ROG)	Nitrogen Oxide (NO _x)	Carbon Monoxide (CO)	Sulfur Dioxide (SO ₂)	Coarse Particulate Matter (PM ₁₀)	Fine Particulate Matter (PM _{2.5})
2021	9.08	77.87	74.38	0.27	14.91	5.80
2022	8.40	71.79	71.57	0.26	14.60	5.15
2023	42.21	69.86	83.70	0.28	15.44	5.42
Highest of all Years	42.21	77.87	83.70	0.28	15.44	5.80
SCAQMD Significance Threshold	75	100	550	150	150	55
Exceed SCAQMD Threshold?	No	No	No	No	No	No

1. Emissions were calculated using CalEEMod, as recommended by the SCAQMD.
2. SCAQMD Rule 403 Fugitive Dust applied. The Rule 403 reduction/credits include the following: properly maintain mobile and other construction equipment; replace ground cover in disturbed areas quickly; water exposed surfaces three times daily; cover stockpiles with tarps; water all haul roads twice daily; and limit speeds on unpaved roads to 15 miles per hour. Reductions percentages from the SCAQMD CEQA Handbook (Tables XI-A through XI-E) were applied.
Source: CalEEMod version 2016.3.2. Refer to Appendix B for model outputs.

As shown in Table 3.2-8, all criteria pollutant emissions would remain below their respective thresholds. Consistent with the 2007 LRDP EIR MM Air-2A, construction impacts would be less than significant, and no additional construction mitigation is required.

Operational Emissions

The Project's operational emissions would be associated with area sources (such as the use of landscape maintenance equipment and architectural coatings), motor vehicle use, energy sources, and stationary (emergency backup generator) sources. Operational emissions attributable to the Project are summarized in *Table 3.2-9, Unmitigated Operational Emissions*. Note that emissions rates differ from summer to winter due to the formulation of fuel in California for winter and summer blends.

Source	Pollutant (pounds per day)					
	Reactive Organic Gases (ROG)	Nitrogen Oxide (NO _x)	Carbon Monoxide (CO)	Sulfur Dioxide (SO ₂)	Coarse Particulate Matter (PM ₁₀)	Fine Particulate Matter (PM _{2.5})
Summer Emissions						
Area	12.67	0.00	0.17	0.00	0.00	0.00
Energy	0.70	6.37	5.35	0.04	0.48	0.48
Mobile	18.78	33.57	224.87	0.73	75.51	20.49
Stationary	9.29	39.76	31.93	0.10	2.03	2.03
<i>Total Summer Emissions</i>	<i>41.44</i>	<i>79.71</i>	<i>262.32</i>	<i>0.87</i>	<i>78.03</i>	<i>23.01</i>

Table 3.2-9. Unmitigated Operational Emissions						
Source	Pollutant (pounds per day)					
	Reactive Organic Gases (ROG)	Nitrogen Oxide (NO_x)	Carbon Monoxide (CO)	Sulfur Dioxide (SO₂)	Coarse Particulate Matter (PM₁₀)	Fine Particulate Matter (PM_{2.5})
Winter Emissions						
Area	12.67	0.00	0.17	0.00	0.00	0.00
Energy	0.70	6.37	5.35	0.04	0.48	0.48
Mobile	19.55	35.64	215.83	0.71	75.51	20.49
Stationary	9.29	39.76	31.93	0.10	2.03	2.03
<i>Total Winter Emissions</i>	42.22	81.77	253.28	0.84	78.03	23.01
SCAQMD Threshold	55	55	550	150	150	55
Exceed SCAQMD Threshold?	No	Yes	No	No	No	No
Source: CalEEMod version 2016.3.2. Refer to Appendix B for model outputs.						

As noted above, the Project's operational emissions would be associated with mobile sources (i.e., motor vehicle use), energy sources, and area sources. Each of these sources are described below.

- **Area Source Emissions.** Area Source Emissions would be generated due to consumer products, architectural coating, and landscaping that were previously not present on the site. Area source emissions would be generated due to an increased demand for consumer products, architectural coating, and landscaping.
- **Energy Source Emissions.** Energy source emissions would be generated due to the Project's electricity and natural gas usage. The Project's primary uses of electricity and natural gas would be for space heating and cooling, water heating, ventilation, lighting, appliances, and electronics.
- **Mobile Source Emissions.** Mobile sources are emissions from motor vehicles, including tailpipe and evaporative emissions. Depending upon the pollutant being discussed, the potential air quality impact may be of either regional or local concern. For example, ROG, NOPM₁₀M₁₀, and PM_{2.5} are all pollutants of regional concern. NO_x and ROG react with sunlight to form O₃, known as photochemical smog. Additionally, wind currents readily transport PM₁₀ and PM_{2.5}. However, CO tends to be a localized pollutant, dispersing rapidly at the source.
- Project-generated vehicle emissions were estimated using CalEEMod, as recommended by the SCAQMD. The Project's trip generation estimates were obtained from the Irvine Campus Medical Complex Traffic Study (Stantec Inc., September 2020) (Traffic Study). The Project would generate approximately 11,044 average daily trips (ADT) (8,550 net ADT after taking into account internal capture).
- **Stationary Source Emissions.** The proposed Project would also include stationary emissions associated with boilers and backup generators located in the central utility plant building and in the basement of the clinics and ambulatory services building.

Mitigated Operational Emissions

Table 3.2-9 above shows that unmitigated operational emissions would exceed SCAQMD thresholds for NO_x. The previously approved 2007 LRDP EIR included MM Air-2C (included in this EIR as MM AQ-2), the goal of which was to reduce potential operational air quality impacts. MM AQ-2 requires incentives for ridesharing programs and public transit, promotion of bus service in the vicinity of the campus, expansion of campus shuttle and other campus transit systems, expansion of UCI bike programs, and support of alternative transportation organizations. MM AQ-2 also requires the use of BACT for stationary sources and the minimization of area sources through implementation of UCI's energy efficiency programs. MM AQ-3 also requires emergency backup generators to meet Tier 4 emissions standards. *Table 3.2-10, Mitigated Operational Emissions*, identifies operational emissions following the implementation of the 2007 LRDP EIR MM AQ-2 and MM AQ-3.

Table 3.2-10. Mitigated Operational Emissions						
Source	Pollutant (pounds per day)					
	Reactive Organic Gases (ROG)	Nitrogen Oxide (NO_x)	Carbon Monoxide (CO)	Sulfur Dioxide (SO₂)	Coarse Particulate Matter (PM₁₀)	Fine Particulate Matter (PM_{2.5})
Summer Emissions						
Area	12.67	0.00	0.17	0.00	0.00	0.00
Energy	0.40	3.64	3.06	0.02	0.28	0.28
Mobile	17.82	28.54	189.55	0.60	61.28	16.34
Stationary	9.29	4.91	31.93	0.10	0.92	0.92
<i>Total Summer Emissions</i>	<i>40.18</i>	<i>37.09</i>	<i>224.71</i>	<i>0.72</i>	<i>62.48</i>	<i>17.83</i>
Winter Emissions						
Area	12.67	0.00	0.17	0.00	0.00	0.00
Energy	0.40	3.64	3.06	0.02	0.28	0.28
Mobile	18.62	30.97	183.50	0.58	61.28	16.63
Stationary	9.29	4.91	31.93	0.10	0.92	0.92
<i>Total Winter Emissions</i>	<i>40.98</i>	<i>38.86</i>	<i>218.66</i>	<i>0.70</i>	<i>62.48</i>	<i>17.83</i>
SCAQMD Threshold	55	55	550	150	150	55
Exceed SCAQMD Threshold?	No	No	No	No	No	No
Source: CalEEMod version 2016.3.2. Refer to Appendix B for model outputs.						

As noted in the Project's Transportation Impact Analysis, since 2007 UCI has implemented a comprehensive program of transportation demand management (TDM) measures resulting in an average vehicle ridership of 2.11 (based on 2019 survey), the highest of any employer greater than 3,000 in the SCAQMD portion of Orange, Los Angeles, and Riverside Counties. UCI's annual investment in TDM measures is approximately \$5 million. UCI's Transportation and Distribution Services offers a number of sustainable commuting options that include carpool matching, carpool incentive programs, vanpools, Guaranteed Ride Home Program, subsidized transit passes and programs, Zipcar car-sharing program, bicycle programs, among others. As shown in Table 3.2-10, mitigated criteria pollutant emissions would be below their respective thresholds. Consistency with the 2007 LRDP EIR, MM AQ-2 is required.

Additionally, implementation of MM AQ-2 and MM AQ-3 (requiring Tier 4 backup generators) would reduce operational impacts to less than significant levels.

Cumulative Construction Emissions

SCAB is designated nonattainment for O₃, PM₁₀, and PM_{2.5} for State standards and nonattainment for O₃ and PM_{2.5} for federal standards. As discussed above, the Project's construction-related emissions by themselves would not exceed the SCAQMD significance thresholds for criteria pollutants. Appendix D of the SCAQMD White Paper on Potential Control Strategies to Address Cumulative Impacts from Air Pollution (2003) notes that projects that result in emissions that do not exceed the project-specific SCAQMD regional thresholds of significance should result in a less than significant impact on a cumulative basis unless there is other pertinent information to the contrary. Therefore, if a project is estimated to result in emissions that do not exceed the thresholds, the project's contribution to the cumulative impact on air quality in the SCAB would not be cumulatively considerable. As shown in Table 3.2-8 above, Project construction-related emissions by themselves would not exceed the SCAQMD significance thresholds for criteria pollutants. Since these thresholds indicate whether individual Project emissions have the potential to affect cumulative regional air quality, it can be expected that the Project-related construction emissions would not be cumulatively considerable.

The SCAQMD has developed strategies to reduce criteria pollutant emissions outlined in the AQMP pursuant to the FCAA mandates. The analysis assumed fugitive dust controls would be used during construction, including frequent water applications. SCAQMD rules, mandates, and compliance with adopted AQMP emissions control measures would also be imposed on construction projects throughout SCAB, which would include related cumulative projects. As concluded above, the Project's construction-related impacts would be less than significant. Compliance with SCAQMD rules and regulations would further minimize the proposed Project's construction-related emissions. Therefore, Project-related construction emissions, in combination with those from other projects in the area, would not substantially deteriorate the local air quality.

Cumulative Operational Impacts

The SCAQMD has not established separate significance thresholds for cumulative operational emissions. The nature of air emissions is largely a cumulative impact. As a result, no single project is sufficient in size to, by itself, result in nonattainment of ambient air quality standards. Instead, individual project emissions contribute to existing cumulatively significant adverse air quality impacts. The SCAQMD developed the operational thresholds of significance based on the level above which individual project emissions would result in a cumulatively considerable contribution to SCAB's existing air quality conditions. Therefore, a project that exceeds the SCAQMD operational thresholds would also be a cumulatively considerable contribution to a significant cumulative impact and, inversely, emission volumes below the SCAQMD operational thresholds are not cumulatively considerable.

The Project's operational emissions would not exceed SCAQMD thresholds with the implementation of MM AQ-2 and MM AQ-3 (refer to Table 3.2-10). As a result, the Project's operational emissions would not result in a cumulatively considerable contribution to significant cumulative air quality impacts. Adherence to SCAQMD rules and regulations would alleviate potential impacts related to cumulative conditions on a project-by-project basis. With mitigation, Project operations would not contribute a cumulatively considerable net increase of any nonattainment criteria pollutant. Impacts would be less than significant.

Mitigation Measures

Consistent with the 2007 LRDP, the Project would incorporate 2007 LRDP EIR MM AQ-1 and MM AQ-2 related to construction and operational air quality standards. MM AQ-3 is required to minimize emergency backup diesel generator emissions and ensure operational emissions are less than significant.

MM AQ-1 *(This mitigation measure implements Mitigation Measure Air-2B from the 2007 LRDP EIR)*
Prior to initiating construction, UCI shall ensure that the project construction contract includes a construction emissions mitigation plan, including measures compliant with SCAQMD Rule 403 (Fugitive Dust), to be implemented and supervised by the on-site construction supervisor, which shall include, but not be limited to, the following BMPs:

- i. During grading and site preparation activities, exposed soil areas shall be stabilized via frequent watering, non-toxic chemical stabilization, or equivalent measures at a rate to be determined by the on-site construction supervisor.
- ii. During windy days when fugitive dust can be observed leaving the construction site, additional applications of water shall be required at a rate to be determined by the onsite construction supervisor.
- iii. Disturbed areas designated for landscaping shall be prepared as soon as possible after completion of construction activities.
- iv. Areas of the construction site that will remain inactive for three months or longer following clearing, grubbing and/or grading shall receive appropriate BMP treatments (e.g., revegetation, mulching, covering with tarps, etc.) to prevent fugitive dust generation.
- v. All exposed soil or material stockpiles that will not be used within 3 days shall be enclosed, covered, or watered twice daily, or shall be stabilized with approved nontoxic chemical soil binders at a rate to be determined by the on-site construction supervisor.
- vi. Unpaved access roads shall be stabilized via frequent watering, non-toxic chemical stabilization, temporary paving, or equivalent measures at a rate to be determined by the on-site construction supervisor.
- vii. Trucks transporting materials to and from the site shall allow for at least two feet of freeboard (i.e., minimum vertical distance between the top of the load and the top of the trailer). Alternatively, trucks transporting materials shall be covered.
- viii. Speed limit signs at 15 mph or less shall be installed on all unpaved roads within construction sites.
- ix. Where visible soil material is tracked onto adjacent public paved roads, the paved roads shall be swept and debris shall be returned to the construction site or transported off-site for disposal.
- x. Wheel washers, dirt knock-off grates/mats, or equivalent measures shall be installed within the construction site where vehicles exit unpaved roads onto paved roads.

- x. Diesel powered construction equipment shall be maintained in accordance with manufacturer's requirements, and shall be retrofitted with diesel particulate filters where available and practicable.
- xi. Heavy duty diesel trucks and gasoline powered equipment shall be turned off if idling is anticipated to last for more than 5 minutes.
- xii. Where feasible, the construction contractor shall use alternatively fueled construction equipment, such as electric or natural gas-powered equipment or biofuel.
- xiii. Heavy construction equipment shall use low NOx diesel fuel to the extent that it is readily available at the time of construction.
- xiv. To the extent feasible, construction activities shall rely on the campus's existing electricity infrastructure rather than electrical generators powered by internal combustion engines.
- xv. The construction contractor shall develop a construction traffic management plan that includes the following:
 - Scheduling heavy-duty truck deliveries to avoid peak traffic periods
 - Consolidating truck deliveries.
- xvi. Where possible, the construction contractor shall provide a lunch shuttle or on-site lunch service for construction workers.
- xvii. The construction contractor shall, to the extent possible, use pre-coated architectural materials that do not require painting. Water-based or low VOC coatings shall be used that are compliant with SCAQMD Rule 1113. Spray equipment with high transfer efficiency, such as the high volume-low pressure spray method, or manual coatings application shall be used to reduce VOC emissions to the extent possible.
- xviii. Project construction plans and specifications will include a requirement to define and implement a work program that would limit the emissions of reactive organic gases (ROG's) during the application of architectural coatings to the extent necessary to keep total daily ROG's for each project to below 75 pounds per day, or the current SCAQMD threshold, throughout that period of construction activity to the extent feasible. The specific program may include any combination of restrictions on the types of paints and coatings, application methods, and the amount of surface area coated as determined by the contractor.
- xix. The construction contractor shall maintain signage along the construction perimeter with the name and telephone number of the individual in charge of implementing the construction emissions mitigation plan, and with the telephone number of the SCAQMD's complaint line. The contractor's representative shall maintain a log of any public complaints and corrective actions taken to resolve complaints.

MM AQ-2 *(This mitigation measure implements Mitigation Measure Air-2C from the 2007 LRDP EIR)*
UCI shall ensure that operational air emissions, including area sources, stationary sources,

and vehicular emissions, are reduced to the extent possible via the following mitigation measures:

- i. UCI shall continue to implement and expand its alternative transportation program by continuing to assess new opportunities, programs, and technologies to reduce vehicular trips. This program shall consider the following elements:
 - Significant incentives aimed to expand UCI vanpool, carpool, and other ridesharing programs;
 - Significant incentives aimed to expand UCI public transit use off campus;
 - Promotion of Express Bus service in the campus vicinity and Express Bus service routes from key UCI commuter locations off campus;
 - Expansion of campus shuttle and other campus transit systems, including point-to-point shuttles with expanded routes and operations to key destinations, and coordination of the on-campus transit systems with existing and future public transit systems off campus to accommodate routes, transit stops, stations, and other programs and projects as deemed appropriate, including community transit programs in the City of Irvine and City of Newport Beach;
 - Expansion of UCI bike programs and bicycle infrastructure, including expanded bikeways, BikePorts, and Bike Service Stations; and
 - Support of alternative transportation organizations.
- ii. All stationary sources shall comply with the applicable SCAQMD Rules and Regulations, including New Source Review, Best Available Control Technology, and source-specific requirements. Stationary sources shall employ state-of-the-art controls, where applicable, to reduce air emissions to the extent possible.
- iii. Emissions from area sources (e.g., cooling and heating systems, landscaping, consumer products, etc.) shall be reduced to the extent possible through implementation of UCI's energy efficiency programs. Energy-saving measures include using central plant cooling and heating systems for buildings in the Academic Core; orienting buildings to the north for natural cooling and heating; implementing the UCI standard to exceed Title 24 energy efficiency by 20% or more; and increasing insulation in building walls and attics beyond Title 24 requirements.

MM AQ-3 UCI shall use diesel generators with U.S. EPA-certified Tier 4 engine or Engines that use CARB's Level 3 Verified Diesel Emissions Control Strategy (VDECS). The VDECS procedure is described in Title 13, California Code of Regulations, Sections 2700-2710. Level 3 requires emissions to be reduced by at least 85 percent or to achieve PM emission levels of 0.01 grams per brake-horsepower-hour (g/bhp-hr) or less (NO_x VDECS are classified by the percentage of NO_x reduction achieved).

Level of Significance After Mitigation

Less than significant impact.

Threshold 3.2-3:	Would the project expose sensitive receptors to substantial pollutant concentrations?
Impact Summary:	Less Than Significant Impact

The proposed Project could expose sensitive receptors to elevated pollutant concentrations during construction activities if it would cause or contribute significantly to elevated levels. Unlike the mass of construction emissions shown in the regional emissions analysis in Tables 3.2-8 through 3.2-10, described in pounds per day, localized concentrations refer to an amount of pollutant in a volume of air (ppm or $\mu\text{g}/\text{m}^3$) and can be correlated to potential health effects. Exposure to pollutant concentrations in exceedance of the NAAQS or CAAQS are generally considered substantial.

Localized Construction Emissions

The nearest sensitive receptors to the Project site are multi-family residential uses approximately 450 feet (137 meters) to the west. To identify impacts to sensitive receptors, the SCAQMD recommends addressing LSTs for construction. LSTs were developed in response to SCAQMD Governing Boards' Environmental Justice Enhancement Initiative (I-4). The SCAQMD provided the *Final Localized Significance Threshold Methodology* (dated June 2003, revised in 2008) for guidance. The LST methodology assists lead agencies in analyzing localized impacts from Project-specific emissions.

Since CalEEMod calculates construction emissions based on the number of equipment hours and the maximum daily soil disturbance activity possible for each piece of equipment, *Table 3.2-11, Equipment-Specific Grading Rates*, is used to determine the maximum daily disturbed acreage for comparison to LSTs. The appropriate SRA for the localized significance thresholds is the Central Orange County Coastal area (SRA 20) as this area includes the Project site. LSTs apply to CO, NO₂, PM₁₀, and PM_{2.5}. The SCAQMD produced look-up tables for projects that disturb areas less than or equal to 5 acres. Project construction is anticipated to disturb a maximum of 3.5 acres in a single day.

Construction Phase	Equipment Type	Equipment Quantity	Acres Graded per 8-Hour Day	Operating Hours per Day	Acres Graded per Day
Site Preparation	Tractors	4	0.5	8	2.0
	Dozers	3	0.5	8	1.5
Total Acres Graded per Day					3.5

Source: CalEEMod version 2016.3.2. Refer to Appendix B for model outputs.

The SCAQMD's methodology states that "off-site mobile emissions from the Project should not be included in the emissions compared to LSTs." Therefore, for the construction LST analysis, only emissions included in the CalEEMod "on-site" emissions outputs were considered. The nearest sensitive receptors to the Project site are currently the mixed-use residential uses located approximately 450 feet (137 meters) to the west. The Center for Child Health is anticipated open in the fall of 2022, after Project demolition, site preparation, and grading would be complete. Once occupied it would be considered the closest sensitive receptor, located approximately 30 meters away. LST thresholds are provided for distances to sensitive receptors of 25, 50, 100, 200, and 500 meters. Therefore, LSTs for receptors located at 25 meters are conservatively used for this analysis. *Table 3.2-12, Localized Significance of Construction Emissions*, presents the results of localized emissions during Project construction.

Construction Activity	Pollutant (pounds per day) ^{1,2}			
	Nitrogen Oxide (NO _x)	Carbon Monoxide (CO)	Coarse Particulate Matter (PM ₁₀)	Fine Particulate Matter (PM _{2.5})
2021 Demolition Phase A ³	31.44	21.57	1.69	1.46
2021 Site Preparation Phase A ³	40.50	21.15	9.09	5.75
2021 Grading Phase A ³	24.74	15.86	3.74	2.38
2021 Building Construction Phase B	17.43	16.58	0.96	0.90
2022 Building Construction Phase B	15.62	16.36	0.81	0.76
2023 Building Construction Phase B	14.38	16.24	0.70	0.66
2021 Building Construction Phase C	17.43	16.58	0.96	0.90
2022 Building Construction Phase C	15.62	16.36	0.81	0.76
2023 Building Construction Phase C	14.38	16.24	0.70	0.66
2023 Paving Phase B	10.19	14.58	0.51	0.47
2023 Architectural Coating Phase B	1.30	1.81	0.07	0.07
2023 Paving Phase C	10.19	14.58	0.51	0.47
Architectural Coating Phase C	1.30	1.81	0.07	0.07
<i>Maximum Daily Emissions</i>	<i>40.50</i>	<i>21.57</i>	<i>9.09</i>	<i>5.75</i>
SCAQMD Localized Screening Threshold (adjusted for 3.5 acres at 25 meters)	164	1,328	11	7
Exceed SCAQMD Threshold?	No	No	No	No
<p>1. Emissions were calculated using the California Emissions Estimator Model version 2016.3.2 (CalEEMod), as recommended by the SCAQMD. Worst-case seasonal maximum daily emissions are reported.</p> <p>2. SCAQMD Rule 403 Fugitive Dust applied for construction emissions. The Rule 403 reduction/credits include the following: properly maintain mobile and other construction equipment; replace ground cover in disturbed areas quickly; water exposed surfaces three times daily; replace ground cover of area disturbed; water all haul roads twice daily; and limit speeds on unpaved roads to 15 miles per hour. Reductions percentages from the SCAQMD CEQA Handbook (Tables XI-A through XI-E) were applied. No mitigation was applied to construction equipment.</p> <p>3. The Center for Child Health is anticipated open in the fall of 2022, after Project demolition, site preparation, and grading would be complete. Once occupied it would be considered the closest sensitive receptor, located approximately 30 meters away.</p>				
Source: CalEEMod version 2016.3.2. Refer to Appendix B for model outputs.				

Table 3.2-12 shows that the emissions of these pollutants on the peak day of Project construction would not result in significant concentrations of pollutants at nearby sensitive receptors. Therefore, the Project would result in a less than significant impact concerning LSTs during construction activities.

Localized Operational Emissions

As noted above, the nearest receptors to the Project site are the Center for Child Health (anticipated to be occupied by the fall of 2022) located 100 feet (30 meters) to the north and the multi-family residential uses located approximately 450 feet (137 meters) to the west; thus, LSTs are conservatively based on the 25 meters receptor distance for this analysis. In addition, as the Project site is approximately 14.5 acres, the 5-acre LST threshold was conservatively used.⁴ The on-site operational emissions are compared to the LST thresholds in Table 3.2-13, *Localized Significance of Operational Emissions*. Table 3.2-13 shows that the maximum daily emissions of on-site pollutants during Project operations would not result in significant concentrations of pollutants at nearby sensitive receptors. Therefore, the Project would result in a less than significant impact concerning LSTs during operational activities.

⁴ The 25 meter and 5-acre LST is conservative as the thresholds increase with project size and distance.

Table 3.2-13. Localized Significance of Operational Emissions				
Emissions Sources	Pollutant (pounds per day) ¹			
	Nitrogen Oxide (NO_x)	Carbon Monoxide (CO)	Coarse Particulate Matter (PM₁₀)	Fine Particulate Matter (PM_{2.5})
On-Site Emissions (Area, Energy, and Stationary Sources) ²	8.55	35.16	1.19	1.19
SCAQMD Localized Screening Threshold (5 acres at 25 meters)	197	1,711	4	2
Exceed SCAQMD Threshold?	No	No	No	No
1. Emissions were calculated using the California Emissions Estimator Model version 2016.3.2 (CalEEMod), as recommended by the SCAQMD. Worst-case seasonal maximum daily emissions are reported. 2. Area sources include emissions consumer products, architectural coating, and landscaping equipment, energy sources include emissions from natural gas combustion, and stationary sources include emissions from boilers and backup generators.				
Source: CalEEMod version 2016.3.2. Refer to Appendix B for model outputs.				

Criteria Pollutant Health Impacts

On December 24, 2018, the California Supreme Court issued an opinion identifying the need to provide sufficient information connecting a project's air emissions to health impacts or explain why such information could not be ascertained (*Sierra Club v. County of Fresno* [Friant Ranch, L.P.] [2018] Cal.5th, Case No. S219783). The Friant Ranch project was a 942-acre Specific Plan that involved a commercial master planned community of approximately 2,500 dwelling units and extensive commercial supporting development. The anticipated air quality impacts resulting from this development included significant and unavoidable emissions of multiple criteria pollutants (including significant emissions of both primary O₃ precursors [NO_x and ROG_s]) at levels that exceeded the daily thresholds of significance. As noted above and shown in 3.2-10, the Project's operational emissions would not exceed the SCAQMD's significance thresholds with the implementation of MM AQ-1, MM AQ-2, and MM AQ-3.

As previously discussed, Project emissions would be less than significant and would not exceed SCAQMD thresholds (refer to Table 3.2-10). Localized effects of on-site Project emissions on nearby receptors were also found to be less than significant (refer to Table 3.2-12 and Table 3.2-13). The LSTs represent the maximum emissions from a project that are not expected to cause or contribute to an exceedance of the most stringent applicable NAAQS or CAAQS. The LSTs were developed by the SCAQMD based on the ambient concentrations of that pollutant for each SRA and distance to the nearest sensitive receptor. The NAAQS and CAAQS establish levels of air quality necessary, with an adequate margin of safety, to protect public health, including the health of sensitive populations such as asthmatics, children, and the elderly. Project-related emissions would not exceed the regional thresholds or the LSTs, and therefore would not exceed the NAAQS or CAAQS or cause an increase in the frequency or severity of existing violations of those standards. Therefore, sensitive receptors would not be exposed to criteria pollutant levels exceeding the NAAQS or CAAQS.

Carbon Monoxide Hotspots

Intersection Hotspots. An analysis of CO "hot spots" is needed to determine whether the change in the level of service (LOS) of an intersection resulting from the Project would have the potential to result in exceedances of the CAAQS or NAAQS. It has long been recognized that CO exceedances are caused by vehicular emissions, primarily when vehicles are idling at intersections. Vehicle emissions standards have

become increasingly stringent in the last 20 years. Currently, the CO standard in California is a maximum of 3.4 grams per mile for passenger cars. With the turnover of older vehicles, introduction of cleaner fuels, and implementation of control technology on industrial facilities, CO concentrations have steadily declined.

Accordingly, with the steadily decreasing CO emissions from vehicles, even very busy intersections do not result in exceedances of the CO standard. The SCAB was re-designated as attainment in 2007 and is no longer addressed in the SCAQMD's AQMP. The 2003 AQMP is the most recent version that addresses CO concentrations. As part of the SCAQMD *CO Hotspot Analysis*, the Wilshire Boulevard and Veteran Avenue intersection, one of the most congested intersections in Southern California with an average daily traffic (ADT) volume of approximately 100,000 vehicles per day, was modeled for CO concentrations. This modeling effort identified a CO concentration high of 4.6 ppm, which is well below the 35-ppm federal standard. The Project considered herein would not produce the volume of traffic required to generate a CO hot spot in the context of SCAQMD's *CO Hotspot Analysis*. As the CO hotspots were not experienced at the Wilshire Boulevard and Veteran Avenue intersection even as it accommodates 100,000 vehicles daily, it can be reasonably inferred that CO hotspots would not be experienced at any vicinity intersections resulting from 11,044 daily trips (8,550 net daily trips) attributable to the Project.

Parking Structure Hotspots. CO concentrations are a function of vehicle idling time, meteorological conditions, and traffic flow. Parking structures may cause concern regarding CO hotspots, as they may be enclosed and have frequent vehicle operations in cold start mode. Open parking structures above ground would be naturally ventilated, preventing CO hotspots. Approximately 1,400 parking spaces would be constructed within the parking structure. Based on the parking structure description in the Detailed Project Program by UCI (April 2020), the proposed parking structure would be open on all sides, which would allow for sufficient ventilation and CO hotspots would not occur. If areas of the proposed parking structure in the final project design were to be enclosed, it would be required to comply with ventilation requirements of the California Mechanical Code and International Mechanical Code (Section 404 [Enclosed Parking Garages]), which requires mechanical ventilation systems for enclosed parking garages to operate automatically by means of CO and NO₂ detectors. Section 404.2 requires a minimum airflow rate of 0.05 cubic feet per second per square foot (cfs/sf) and the system shall be capable of producing a ventilation airflow rate of 0.75 cfs/sf of floor area⁵. Impacts regarding parking structure CO hotspots would be less than significant.

Construction Diesel Particulate Matter

Construction would result in the generation of DPM emissions from the use of off-road diesel equipment required for grading and excavation, paving, and other construction activities. The amount to which the receptors are exposed (a function of concentration and duration of exposure) is the primary factor used to determine health risk (i.e., potential exposure to TAC emission levels that exceed applicable standards). Health-related risks associated with diesel-exhaust emissions are primarily linked to long-term exposure and the associated risk of contracting cancer.

The use of diesel-powered construction equipment would be temporary and episodic. The duration of exposure would be short and exhaust from construction equipment dissipates rapidly. Current models and methodologies for conducting health risk assessments are associated with longer-term exposure

⁵ International Code Council, International Mechanical Code, Chapter 4 Ventilation, 2015.

<https://codes.iccsafe.org/public/document/IMC2015/chapter-4-ventilation>, accessed August 15, 2018.

periods of 9, 30, and 70 years, which do not correlate with the temporary and highly variable nature of construction activities. The closest sensitive receptors to the Project site are located approximately 450 feet from the Project limits, and further from the major Project construction areas.

Construction is temporary and would be transient throughout the site (i.e., move from location to location) and would not generate emissions in a fixed location for extended periods of time. Construction is subject to and would comply with California regulations (e.g., California Code of Regulations, Title 13, Division 3, Article 1, Chapter 10, Sections 2485 and 2449), which reduce DPM and criteria pollutant emissions from in-use off-road diesel-fueled vehicles and limit the idling of heavy-duty construction equipment to no more than five minutes. These regulations would further reduce nearby sensitive receptors' exposure to temporary and variable DPM emissions. Given the temporary and intermittent nature of construction activities likely to occur within specific locations in the Project site (i.e., construction is not likely to occur in any one location for an extended time), the dose of DPM of any one receptor is exposed to would be limited.

A construction phase Health Risk Assessment (HRA) was conducted based on the SCAQMD's Health Risk Assessment Guidance and the SCAQMD Risk Assessment Procedures and the guidance from the California Office of Environmental Health Hazard Assessment (OEHHA). The construction exhaust emissions were modeled in the U.S. EPA recommended screening model AERSCREEN to determine pollutant concentrations from stationary sources. AERSCREEN is the recommended screening model based on the AERMOD dispersion model. The model produces estimates of worst-case concentrations without the need for hourly meteorological data. According to the U.S. EPA Support Center for Regulatory Atmospheric Modeling (SCRAM) website, AERSCREEN is intended to produce concentration estimates that are equal to or greater than the estimates produced by AERMOD with a fully developed set of meteorological and terrain data.

Note that the concentration estimate developed using this methodology is conservative and is not a specific prediction of the actual concentrations that would occur at the Project site any one point in time. Actual 1-hour and annual average concentrations are dependent on many variables, particularly the number and type of vehicles and equipment operating at specific distances during time periods of adverse meteorology.

A health risk computation was performed to determine the risk of developing an excess cancer risk calculated using age sensitivity factors (exposure starting at the third trimester) and 95th percentile breathing rates using CARB's Risk Assessment Stand Alone Tool. The chronic and carcinogenic health risk calculations are based on the standardized equations contained in the U.S. EPA *Human Health Evaluation Manual* (1991) and the OEHHA Guidance Manual (2015). Only the risk associated with the worst-case location of the Project was assessed.

Based on the AERSCREEN outputs, the highest expected hourly average diesel PM₁₀ concentrations from Project construction near sensitive receptors would be 0.2283 µg/m³. The highest expected annual average diesel PM₁₀ emission concentrations near sensitive receptors would be 0.0228 µg/m³. It should be noted that the Center for Child Health is anticipated to open in the fall of 2022, after Project demolition, site preparation, and grading would be complete. Therefore, the Center for Child Health would have an exposure duration of approximately one year. Table 3.2-14, *Construction Risk*, shows that the highest calculated carcinogenic risk resulting from the Project is 7.23 per million residents. As shown, impacts

related to cancer risk would be less than significant at the closest residences (across Jamboree) as well as the Center for Child Health adjacent to the site.

Acute and chronic impacts are also shown in Table 3.2-14. An acute or chronic hazard index of 1.0 is considered individually significant. The hazard index is calculated by dividing the acute or chronic exposure by the reference exposure level. The highest maximum chronic and acute hazard index from Project construction would be 0.005 and 0.09, respectively. Therefore, non-carcinogenic hazards are calculated to be within acceptable limits. Construction related carcinogenic and noncancer health risk impacts would be less than significant.

Exposure Scenario	Annual Concentration ($\mu\text{g}/\text{m}^3$)	Maximum Cancer Risk (per Million)	Chronic Noncancer Hazard	Acute Noncancer Hazard
Residences	0.023	7.23	0.005	0.09
Workers (Center for Child Health)	0.023	3.68	0.005	0.09
Threshold	N/A	10	1.0	1.0
Threshold Exceeded?	No	No	No	No
1. The Center for Child Health is anticipated to open in the fall of 2022, after Project demolition, site preparation, and grading would be complete. Therefore, it would have an exposure duration of approximately one year.				
Source: U.S. EPA AERSCREEN and CARB Risk Assessment Stand Alone Tool. Refer to Appendix B .				

Operational Stationary Source Emissions

Stationary source emissions associated with the proposed Project would be associated with the Central Utility Plant and emergency generators. As discussed above, stationary sources were included in the operational LST evaluation and localized criteria pollutant thresholds would not be exceeded.

Increases in emissions from central utilities and diesel-fueled emergency engines were evaluated in the 2007 LRDP EIR. The analysis in the 2007 LRDP EIR evaluated incremental cancer risks (i.e., cancer risks above background levels) and non-cancer hazards were calculated for over 2,600 receptors in the UCI campus vicinity. The HRA found incremental cancer risks to be below the SCAQMD significance level of 10 in one million for all receptors and all exposure scenarios. The population cancer burden, based on diesel particulate (the risk driving TAC) was calculated to be 0.0003612, which is well below the SCAQMD's acceptable cancer burden of 0.5. The emissions associated with implementation of the 2007 LRDP was therefore found not to pose a significant incremental cancer risk to the surrounding populations. Additionally, the 2007 LRDP EIR analysis determined that chronic non-cancer hazards and acute hazards would be below the significance threshold of 1.0 for all receptors.

The Project would purchase new back-up diesel generators at the time of installation, which would limit the generators to the Tier 4 Final emissions standards. Additionally, these sources would be subject to SCAQMD permits and would be required to implement BACT that would minimize emissions and risk levels. These standards are also required above per MM 3.2-1.

The stationary equipment was modeled with AERSCREEN to determine pollutant concentrations from stationary sources. An emissions rate in grams per second was calculated from the total annual boiler and emergency backup generator PM_{10} exhaust emissions to use in AERSCREEN to approximate stationary source DPM emissions. As calculated with CalEEMod, the stationary equipment (boilers and backup emergency generators) would generate approximately 0.15 tons per year of PM_{10} and $\text{PM}_{2.5}$, which is 0.0043 grams per second. The stationary sources were modeled in AERSCREEN as a point source with a

20-foot height, a 0.61-meter diameter stack, a velocity of 24.7 meters per second, and a temperature of 673 degrees Kelvin. Although the stationary equipment would be located in both the Central Utility Plant (attached to the Parking Structure) and within the basement of the Clinics and Ambulatory Services Building, one modeled point source was conservatively assumed to be at a location closest to sensitive receptors (approximately 820 feet to the west). Based on these AERSCREEN input parameters described above, the worst-case worker annual concentration would be 0.043 $\mu\text{g}/\text{m}^3$ and the worst-case residential concentration would be 0.007 $\mu\text{g}/\text{m}^3$.

Risk levels were calculated with CARB's Risk Assessment Standalone Tool, following assumptions from the OEHHA guidance document, *Air Toxics Hot Spots Program Risk Assessment Guidelines* (February 2015). Risk levels are based on the pollutant concentrations described above, a 25-year worker exposure duration, a 30-year residential exposure duration, OEHHA recommended age sensitivity and fraction of time at home factors, and 95th percentile breathing rates. The resultant health risks are shown in Table 3.2-15, *Operational Health Risk*. Table 3.2-15 shows that the risk levels would not exceed SCAQMD thresholds of 10 in one million cancer risk and chronic and acute hazard index of 1.0. Impacts would be less than significant.

Table 3.2-15. Operational Health Risk				
Emissions Sources	Annual Concentration ($\mu\text{g}/\text{m}^3$)	Cancer Risk (per million)	Chronic Noncancer Hazard	Acute Noncancer Hazard
Residents	0.007	6.30	0.002	0.029
Workers	0.043	2.66	0.009	0.172
<i>SCAQMD Threshold</i>	<i>N/A</i>	<i>10</i>	<i>1.0</i>	<i>1.0</i>
Threshold Exceeded?	No	No	No	No

Source: U.S. EPA AERSCREEN and CARB Risk Assessment Standalone Tool. Refer to Appendix B for model outputs.

Mitigation Measures

Implementation of Mitigation Measures AQ-1 through AQ-3.

Level of Significance After Mitigation

Impacts would be less than significant.

Threshold 3.2-4: **Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?**

Impact Summary: **Less Than Significant Impact**

Construction

Odors that could be generated by construction activities are required to follow SCAQMD Rule 402 to prevent odor nuisances on sensitive land uses. SCAQMD Rule 402, Nuisance, states:

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

During construction, emissions from construction equipment, such as diesel exhaust, and volatile organic compounds from architectural coatings and paving activities may generate odors. However, these odors would be temporary, are not expected to affect a substantial number of people and would disperse rapidly.

Operations

The SCAQMD *CEQA Air Quality Handbook* (1993) identifies certain land uses as sources of odors. These land uses include agriculture (farming and livestock), wastewater treatment plants, food processing plants, chemical plants, composting facilities, refineries, landfills, dairies, and fiberglass molding. The Project would not include any of these operations. Therefore, impacts associated with odors from Project operation would be less than significant.

Mitigation Measures

No mitigation is required.

Level of Significance After Mitigation

Impacts would be less than significant.

3.2.8 Cumulative Impacts

Please refer to Threshold 3.2-2. The Project would not result in significant construction or operational air quality impacts that would contribute to a cumulatively considerable net increase of any nonattainment criteria pollutant.

3.2.9 Level of Significance After Mitigation Summary

Consistent with the 2007 LRDP EIR, with the implementation of MM AQ-1, MM AQ-2, and MM AQ-3, air quality impacts would be less than significant.

This page intentionally left blank.

3.3 BIOLOGICAL RESOURCES

This section of the SEIR examines the biological resources present on the Project site and its surroundings, as well as identifies and evaluates potential impacts associated with implementation of the Proposed Project. The analysis in this section is largely based on the *Irvine Campus Medical Complex Project, Biological Resources Report, University of California, Irvine, Orange County, California*, prepared by Michael Baker International; included as Appendix C-1 to this SEIR, *Irvine Campus Medical Complex Project, Jurisdictional Delineation Report, University of California, Irvine, Orange County, California*; included as Appendix C-2 of the SEIR; and *Rare Plant Survey Results* prepared by Michael Baker International; which is included as Appendix C-3 of this SEIR.

3.3.1 Regulatory Setting

Federal Regulations

Federal Endangered Species Act

The Federal Endangered Species Act (FESA) provides for the listing of endangered and threatened species of plants and animals and the designation of critical habitat for these listed species. FESA regulates the “taking” of any endangered fish or wildlife species, per Section 9 of the FESA. As development is proposed, the responsible agency or individual landowner is required to consult with the U.S. Fish and Wildlife Service (USFWS) to assess potential impacts on listed species (including plants) or the critical habitat of a listed species, pursuant to Sections 7 and 10 of the FESA. USFWS is required to determine the extent a project would impact a particular species. If the USFWS determines that a project is likely to potentially impact a species, measures to avoid or reduce such impacts must be identified.

Following consultation and the issuance of a Biological Opinion, the USFWS may issue an incidental take statement which allows for the take of a species if it is incidental to another authorized activity and will not adversely affect the existence of the species. Section 10 of the FESA provides for issuance of incidental take permits to non-federal parties in conjunction with the development of a habitat conservation plan (HCP). Section 7 of the FESA provides for permitting of projects where interagency cooperation is necessary to ensure that a federal action/decision does not jeopardize the existence of a listed species.

Migratory Bird Treaty Act (16 USC §703 - 711)

Raptors (e.g., eagles, hawks, and owls) and their nests are protected under both federal and State regulations. With respect to federal regulations, the Migratory Bird Treaty Act of 1918 (MBTA; 16 USC §703 et seq.), as amended in 1972, makes it unlawful, unless permitted by regulations, to “pursue; hunt; take; capture; kill; attempt to take, capture or kill; possess; offer for sale; sell; offer to purchase; purchase; deliver for shipment; ship; cause to be shipped; deliver for transportation; transport; cause to be transported; carry or cause to be carried by any means whatever; receive for shipment, transportation, or carriage; or export, at any time, or in any manner, any migratory bird for the protection of migratory birds or any part, nest, or egg of any such bird” (16 USC §703). In 1972, the MBTA was amended to include protection for migratory birds of prey (e.g., raptors). The provisions of the 1972 amendment to the MBTA protect all species and subspecies of these families.

Rivers and Harbors Appropriation Act of 1899

The Rivers and Harbors Appropriation Act of 1899 (Rivers and Harbors Act; 33 USC §403) prohibits the discharge of any material into navigable waters of the United States, or tributaries thereof, without a permit. The act also makes it a misdemeanor to excavate, fill, or alter the course, condition, or capacity of any port, harbor, or channel; or to dam navigable streams without a permit.

Many activities originally covered by the Rivers and Harbors Act are now regulated under the Clean Water Act (CWA). However, the 1899 Act retains relevance and created the structure under which the U.S. Army Corps of Engineers (USACE) oversees permitting under Section 404 of the CWA.

Clean Water Act

Pursuant to Section 404 of the CWA, the USACE is authorized to regulate any activity that would result in the discharge of dredged or fill material into “waters of the U.S.” (including wetlands), which includes those waters listed in 33 CFR 328.3 (as amended at 80 Federal Register [FR] 37104, June 29, 2015). The USACE, with oversight from the U.S. Environmental Protection Agency (U.S. EPA), has the principal authority to issue CWA Section 404 permits. The USACE would require a Standard Individual Permit for more than minimal impacts to waters of the U.S. as determined by the USACE. Projects with minimal individual and cumulative adverse effects on the environment may meet the conditions of an existing Nationwide Permit.

A water quality certification or waiver pursuant to Section 401 of the CWA is required for all Section 404 permitted actions. The Regional Water Quality Control Board (RWQCB), divisions of the State Water Resources Control Board (SWRCB), provides oversight of the 401-certification process in California. The RWQCB is required to provide “certification that there is reasonable assurance that an activity that may result in the discharge to waters of the United States will not violate water quality standards.” Water Quality Certification must be based on the finding that a proposed discharge will comply with applicable water quality standards.

The National Pollutant Discharge Elimination System (NPDES) is the permitting program for discharge of pollutants into surface waters of the U.S. under Section 402 of the CWA.

State Regulations***State of California Endangered Species Act***

The California Endangered Species Act (CESA), in combination with the California Native Plant Protection Act of 1977 (NPPA; CFGC §1900 et seq.), regulates the listing and take of plant and animal species designated as endangered, threatened, or rare within the state. California also lists Species of Special Concern (SSC) based on limited distribution, declining populations, diminishing habitat, or unusual scientific, recreational, or educational value. CESA defines an endangered species as “a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant which is in serious danger of becoming extinct throughout all, or a significant portion, of its range due to one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, or disease.” CESA defines a threatened species as “a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that, although not presently threatened with extinction, is likely to become an endangered species in the foreseeable future in the absence of the special protection and management efforts required by this chapter. Any animal determined by the commission as rare on or before January 1, 1985 is a threatened

species.” Candidate species are defined as “a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that the commission has formally noticed as being under review by the department for addition to either the list of endangered species or the list of threatened species, or a species for which the commission has published a notice of proposed regulation to add the species to either list.” Candidate species may be afforded temporary protection as though they were already listed as threatened or endangered at the discretion of the California Fish and Game Commission. Unlike the federal ESA, CESA does not list invertebrate species.

CESA Sections 2080 through 2085 address the take of threatened, endangered, or candidate species by stating “no person shall import into this state, export out of this state, or take, possess, purchase, or sell within this state, any species, or any part or product thereof, that the commission determines to be an endangered species or a threatened species, or attempt any of those acts, except as otherwise provided.” Under CESA, “take” is defined as to “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.” Exceptions authorized by the state to allow “take” require permits or memoranda of understanding and can be authorized for endangered species, threatened species, or candidate species for scientific, educational, or management purposes and for take incidental to otherwise lawful activities. CFGC §1901 and §1913 provide that notification is required prior to disturbance. The California Department of Fish and Wildlife (CDFW) is responsible for assessing development projects for their potential to impact listed species and their habitats. State-listed special-status species are addressed through the issuance of a 2081 permit (Memorandum of Understanding).

Nesting Bird Protection (California Fish and Game Code §§3503, 3503.5, and 3513)

Under Sections 3503 and 3503.5 of the California Fish and Game Code, activities that would result in the taking, possessing, or destroying of any birds-of-prey, taking or possessing of any migratory nongame bird as designated in the MBTA, or the taking, possessing, or needlessly destroying of the nest or eggs of any raptors or non-game birds protected by the MBTA, or the taking of any non-game bird pursuant to California Department of Fish and Game Code Section 3800 are prohibited. Section 3513 makes it unlawful to take or possess any migratory non-game bird as designated in the MBTA.

Section 3503.5 explicitly provides protection for all birds-of-prey, including their eggs and nests. Section 3503.5 states it is “unlawful to take, possess, or destroy any birds of prey (in the order *Falconiformes* or *Strigiformes*) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this Code or any regulation adopted pursuant thereto.” Construction-related disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings or otherwise lead to nest abandonment. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered “take” by the CDFW.

California Environmental Quality Act (14 California Code of Regulations §15386; California Fish and Game Code §1802)

The CDFW may play various roles during the CEQA process. As a trustee agency, the CDFW has jurisdiction over certain resources held in trust for the people of California. Trustee agencies are generally required to be notified of CEQA documents relevant to their jurisdiction, whether these agencies have actual permitting authority or approval power over aspects of the underlying project (14 *California Code of Regulations* [CCR] 15386). The CDFW, as a trustee agency, must be notified of CEQA documents regarding projects involving fish and wildlife of the State, as well as Rare and Endangered native plants, wildlife areas, and ecological reserves. Although as a trustee agency the CDFW cannot approve or disapprove a

project, lead and responsible agencies are required to consult with the CDFW, as applicable to a project. The CDFW, as the trustee agency for fish and wildlife resources, shall provide the requisite biological expertise to review and comment upon environmental documents and shall make recommendations regarding those resources held in trust for the people of California (*California Fish and Game Code* §1802).

Regional Habitat Conservation Plan

In 1991, the California Natural Community Conservation Planning Act (NCCP Act; CFGC §1900 et seq.) was approved and the NCCP Coastal Sage Scrub program was initiated in Southern California. California law (CFGC §2800 et seq.) established the NCCP program “to provide for regional protection and perpetuation of natural wildlife diversity while allowing compatible land use and appropriate development and growth.” The NCCP Act encourages preparation of plans that address habitat conservation and management on an ecosystem basis rather than one species or habitat at a time.

California Fish and Game Code Sections 1600-1602

Pursuant to Division 2, Chapter 6, Section 1602 of the CFGC, CDFW regulates all diversions, obstructions, or changes to the natural flow or bed, channel or bank of any river, stream, or lake that supports fish or wildlife. A Notification of Lake or Streambed Alteration must be submitted to CDFW for “any activity that may substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake.” The CDFW has jurisdiction over riparian habitats associated with watercourses and wetland habitats supported by a river, lake, or stream. Jurisdictional waters are delineated by the outer edge of riparian vegetation (i.e., drip line) or at the top of the bank of streams or lakes, whichever is wider. CDFW jurisdiction does not extend to tidal areas or isolated resources. CDFW reviews the proposed actions and, if necessary, submits (to the applicant) a proposal that includes measures to protect affected fish and wildlife resources. The final proposal that is mutually agreed upon by CDFW and the applicant is the Lake or Streambed Alteration Agreement.

California Fish and Game Code Sections 3503, 3511, 3513, 3800, 4700, 5050, and 5515

Within California, fish, wildlife, and native plant resources are protected and managed by CDFW. The California Fish and Game Commission and/or CDFW are responsible for issuing permits for the take or possession of protected species. The following sections of the CFGC address protected species: Section 3511 (birds), Section 4700 (mammals), Section 5050 (reptiles and amphibians), and Section 5515 (fish). In addition, the protection of birds of prey is provided for in Sections 3503, 3513, and 3800 of the California Fish and Game Code.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Act provides for statewide coordination of water quality regulations. The SWRCB was established as the statewide authority and nine separate RWQCBs were developed to oversee water quality on a day-to-day basis. The SWRCB is the primary agency responsible for protecting water quality in California. As discussed above, the RWQCBs regulate discharges to surface waters under the CWA. In addition, the RWQCBs are responsible for administering the Porter-Cologne Act.

Pursuant to the Porter-Cologne Act, California is given authority to regulate “waters of the state,” which are defined as any surface water or groundwater, including saline waters. As such, any person proposing to discharge waste into a water body that could affect its water quality must first file a Report of Waste

Discharge if Section 404 of the CWA is not required for the activity. "Waste" is partially defined as any waste substance associated with human habitation, including fill material discharged into water bodies.

University of California

2007 UCI LRDP. The 2007 LRDP provides the comprehensive framework for the physical development of the UCI campus and is the primary planning document for the campus. The UCI LRDP Open Space Element identifies the following planning objectives applicable to biological resources:

- Preserve and enhance significant habitat resources.

The North Campus Sub-Area is adjacent to the San Joaquin Marsh Reserve, which is managed jointly by UCI and the University of California Natural Reserve System (UCNRS). The San Joaquin Marsh Reserve is not included in the UCI LRDP. A Memorandum of Understanding (MOU) between UCI and UCNRS was developed in 1989 to guide the 1989 LRDP related to protecting Marsh habitat resources during implementation of the 1989 LRDP. With the adoption of the subsequent 2007 LRDP, UCI adopted the principles in the 1989 LRDP MOU as specific mitigation measures in the 2007 LRDP EIR in lieu of a subsequent MOU, including the requirement for a 150' development buffer, stormwater management measures, lighting design requirements, architectural and landscape design requirements, and other guidance to protect Marsh habitat resources during implementation of the 2007 LRDP.

Regional and Local

Natural Community Conservation Planning Act/Habitat Conservation Plan (NCCP/HCP)

The purpose of the NCCP is to provide long-term, regional protection of natural vegetation and wildlife diversity, while allowing compatible land uses and appropriate development and growth for those agencies and private organizations that are enrolled in the program. NCCP participants may enroll their habitat in the program, and, by mutual consent, habitat areas with high conservation value are set aside and may not be developed. Participants also agree to study, monitor, and develop management plans for those habitat areas within the subregional NCCP Reserve System. Parcels with lower conservation values within the enrolled areas, but outside the NCCP Reserve System, are then available for possible development.

In 1991, the State of California passed the NCCP Act, providing for the long-term, regional conservation of natural vegetation and wildlife diversity. The USFWS and CDFW adopted the Orange County Central-Coastal NCCP/HCP in 1996. The Central-Coastal NCCP/HCP area is approximately 208,000 acres of central Orange County. Geographically, the area generally extends along the coast from the mouth of the Santa Ana River in the City of Costa Mesa to the mouth of San Juan Creek in the City of Dana Point. The inland boundaries follow State Route 91 (SR-91) to El Toro Road to the west and Interstate 5 (I-5) to San Juan Creek to the east.

As part of the NCCP/HCP planning process, lands were identified for assembly into the NCCP Reserve System for the conservation of biological resources. The subregional NCCP Reserve System was cooperatively designed by the participating jurisdictions and special districts in partnership with the wildlife agencies (CDFW and USFWS), property owners, and representatives from private industry and environmental groups. The subregional NCCP Reserve System is 37,378 acres and protects more than 18,500 acres of coastal sage scrub habitat, 6,950 acres of chaparral habitat, 5,700 acres of grassland habitat, 1,750 acres of riparian habitat, and 950 acres of woodland habitat.

UCI enrolled in the NCCP in 1996 as a "participating landowner." Participating landowners are public and private landowners contributing significant land and/or funding toward implementation of the subregional NCCP Reserve System and adaptive management program. For these landowners, development activities and uses that are addressed by the NCCP for areas outside the Reserve System, and associated impacts to habitat occupied by listed and other species identified by the NCCP, are considered fully mitigated under the NCCP Act, FESA, and CESA. Satisfactory implementation of the NCCP under the terms of an Implementation Agreement (IA) means that no additional mitigation is required of "participating landowners" for impacts to "identified" species and their habitat, or for species residing in specified non-coastal sage scrub habitats, in areas outside the subregional NCCP Reserve System.

The NCCP provides regulatory coverage for 39 individual species, including 3 target species and 36 other identified species that are not listed under either the FESA or CESA but are found within the subregional coastal sage scrub habitat mosaic. All target and identified species covered in the NCCP are treated as if they were listed on either the State or federal lists. Under the NCCP, regulatory coverage means that future Incidental Take of "target and identified" species would be permitted for new development addressed by the NCCP in areas outside the subregional Reserve System, and that no additional habitat mitigation for such Incidental Take under the FESA and CESA would be required over and above the mitigation provided for by the NCCP.

The NCCP is managed by the Natural Communities Coalition, and as noted, the UC Regents are a signatory to the Implementing Agreement. On the UC Irvine campus, 135 acres of open space are within the Central-Coastal NCCP. In addition to the approximately 415 acres of open space on the main campus, UCI in collaboration with the UC Natural Reserve System manages the adjacent 202-acre San Joaquin Marsh Reserve.

3.3.2 Existing Conditions

Biological resources include common plant and animal species, and special-status plants and animals, as designated by the USFWS, CDFW, and, with respect to plant species, the California Native Plant Society (CNPS). Biological resources also include waters of the United States and of California, as regulated by the USACE and RWQCB, and streambed resources regulated by CDFW.

Literature Review and Database Searches

Prior to conducting fieldwork, literature reviews and database searches were conducted to identify special-status plant and wildlife species, vegetation communities, and other biological resources that have been previously documented within, near, and/or have the potential to occur within the survey area. The survey area is defined as the Project site and a 150-foot development buffer along the San Joaquin Marsh Reserve.

These included the CDFW California Natural Diversity Database (CNDDDB) RareFind 5 and the CNPS Online Inventory of Rare and Endangered Plants. A Species and Resources List was queried from the USFWS Information for Planning and Consultation online system. The CDFW *Special Animals List* and the CDFW *Special Vascular Plants, Bryophytes, and Lichens List* (CDFW 2018b) were reviewed for the current status designations of rare and endangered plant and wildlife species. Other resources reviewed include the CNPS California Rare Plant Rank (CRPR) System; recent aerial photography; the U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) Soil Survey of the Los Angeles County,

California, Southeastern Part (USDA, NRCS 2019); the National Hydric Soils List (USDA, NRCS 2015); and the USFWS National Wetland Inventory (NWI).

General Biological Resources Surveys

On April 11, 2019, biologists, Dan Rosie and Stephen Anderson, conducted a general biological resources survey of the survey area. A second survey was conducted on August 20, 2020 by biologist Stephen Anderson and regulatory specialist Timothy Tidwell. The surveys were conducted to document existing site conditions and biological resources, and to evaluate habitat with the potential to support various special-status plant and wildlife resources, including jurisdictional aquatic or other hydrological features, if present.

Vegetation/Land Use Mapping and Plant Species Inventory

Classification of the on-site vegetation communities and other land uses is based on the descriptions provided in the *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986), with modifications to better represent existing conditions in the field using the *Draft Vegetation Communities of San Diego County* (Oberbauer et al. 2008), an expanded vegetation classification system based on Holland (1986). Plant species nomenclature and taxonomy follow *The Jepson Manual: Vascular Plants of California, second edition* (Baldwin et al. 2012). All plant species encountered were noted and identified at minimum to the lowest possible taxonomic level necessary to determine rarity. A complete list of plant species observed on site is provided in Appendix B, *Plant and Wildlife Species Observed List in the Biological Resources Report* of Appendix C-1 of this SEIR.

Six natural plant communities and three other land uses were identified during the field surveys. Figure 3.3-1, *Vegetation Communities, Land Uses, and Special-Status Species*, and Table 3.3-1, *Project Survey Area Vegetation Communities/Land Uses*, provides the acreages of the mapped classifications observed within the Project site, identifies communities on the Project site and the 150-foot buffer area.

Southern Arroyo Willow Riparian Forest. A portion of the southern arroyo willow riparian forest situated along the fringes of the San Joaquin Marsh is within the survey area. This vegetation community is dominated by black willow (and *S. gooddingii*), with scattered individuals of arroyo willow (*Salix lasiolepis*) and mule fat (*Baccharis salicifolia*). The understory is dominated by willow dock (*Rumex salicifolius*). Poison hemlock (*Conium maculatum*) and California rose (*Rosa californica*) dominate the banks surrounding the marsh, extending the riparian limits where the tree canopy is limited.

Coastal Sage Scrub. A strip of relatively intact coastal sage scrub is present at the southern end of the survey area and the Project site. Dominant species include California encelia (*Encelia californica*), California sagebrush (*Artemisia californica*), black sage (*Salvia mellifera*), California buckwheat (*Eriogonum fasciculatum*), coast prickly pear (*Opuntia littoralis*), and bladderpod (*Peritoma arborea*). Patches of both disturbed coastal sage scrub and restored coastal sage scrub area located within the temporary laydown area and are directly associated with the UCI Arboretum.



Source: Michael Baker International, 2020

FIGURE 3.3-1: Vegetation Communities, Land Uses, and Special-Status Species

UCI Irvine Campus Medical Complex EIR
 University of California, Irvine



Not to scale

Vegetation Community/Land Use	Project Site (Permanent Impact)	Laydown Area and Parking Area (Temporary Impact)	San Joaquin Marsh Reserve Development Buffer	Total
Southern Arroyo Willow Riparian Forest	0.00	0.00	0.18	0.18
Coastal Sage Scrub	0.00	0.05	0.99	1.04
Restored Coastal Sage Scrub	0.00	0.15	0.00	0.15
Disturbed Coastal Sage Scrub	0.00	0.03	0.00	0.03
Disturbed Habitat	8.35	1.87	1.49	11.63
Ornamental	0.18	1.00	0.00	1.18
Developed	1.38	1.19	0.00	2.57
Total	9.91	4.29	2.66	16.86

Note: Totals may not equal sum due to rounding.
Source: Michael Baker, 2020.

Disturbed Habitat. Disturbed areas are lands that are frequently and repeatedly disturbed, and thereby often compacted and dominated by opportunistic, primarily non-native species that often limit the reestablishment of native vegetation. This also includes areas of bare ground consisting of an existing dirt access road that is maintained and/or compacted, thereby precluding vegetation from establishing. Dominants within this non-native vegetation community on-site primarily include black mustard (*Brassica nigra*), poison hemlock, whitestem filaree (*Erodium moschatum*), artichoke thistle (*Cynara cardunculus*), soft chess (*Bromus hordeaceus*), and foxtail barley (*Hordeum murinum*).

Ornamental. Ornamental vegetation consists of landscaped, irrigated, and/or maintained trees, shrubs, and ground cover. Ornamental vegetation includes, but is not limited to, western sycamore (*Platanus racemosa*), lemon scented gum (*Eucalyptus citriodora*), carrotwood (*Cupaniopsis anacardioides*), Brazilian pepper tree (*Schinus terebinthifolius*), pine trees (*Pinus sp.*), and locust (*Robinia sp.*). Also mapped as ornamental within the survey area are all remnant arboretum species present. Although the majority of these individuals are endangered species from around the world, none are either native or natural to this region.

Developed. Developed land is the paved roadways, buildings, and infrastructure associated with existing UCI North Campus facilities.

Special-Status Plant Species

The database record searches and query of the USFWS IPaC online system identified 45 special-status plant species within a 5-mile radius of the Project site, as depicted on Figure 3.3-2, *Special-Status Species and Habitat within Five Miles of the Project Site*. Several of the special-status species with documented occurrences are considered to have a “Low” or “Not Expected” potential for occurrence. Species determined to have a moderate or high potential for occurring, and those observed on the site during the surveys are addressed in this SEIR. No special-status plant species were observed during the surveys. However, based on the literature review/database searches and on-site habitat suitability assessments, the survey area has suitable habitat with a moderate or high potential to support one special-status plant species.

No special-status plant species were observed during the surveys. Of the 45 special-status plant species documented within a 5-mile radius of the Project site, the many-stemmed dudleya was determined to have a moderate potential to occur within the survey area. All other special-status plant species were determined to have a low potential or are not expected to occur within the survey area due to a lack of suitable on-site habitat or the site is outside of the species' known distribution range.

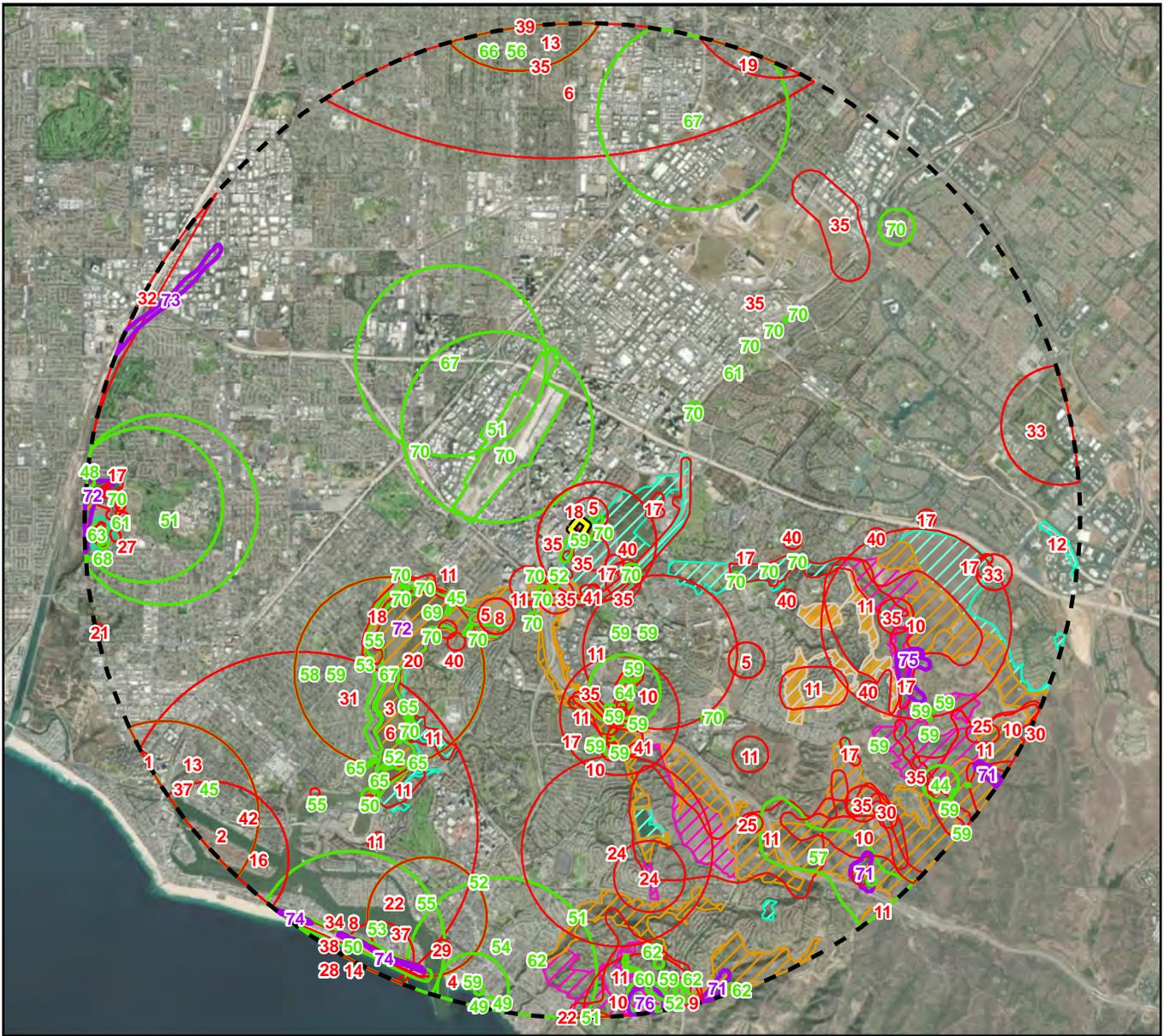
Many-stemmed dudleya. Many-stemmed dudleya (*Dudleya multicaulis*; CRPR 1B.2)¹ is a perennial herb species known to occur on heavy, often clayey soils or grassy slopes in chaparral, coastal scrub, and valley and foothill grassland habitats. Clay soils in coastal sage scrub is marginally present within the survey area. The nearest occurrence for this species is less than 0.5 mile south of the survey area. Therefore, there is a moderate potential for this species to occur within the survey area.

Jurisdictional Hydrological Features

Figure 3.3-3, *United States Army Corps of Engineers Wetland Jurisdiction*, and Figure 3.3-4, *California Department of Fish and Wildlife Wetland Jurisdiction*, depict Waters of the U.S. and Waters of the State, respectively. Within the survey area, the San Joaquin Marsh consists of a fairly open riparian canopy and relatively dense, herbaceous understory. Inundation occurs within the survey area when rainfall and groundwater totals exceed the capacity of the adjacent San Joaquin Marsh Reserve to the southeast during storm events. The Ordinary High Water Mark (OHWM) was delineated by identifying the extent of the present wetland hydrology Primary Indicator, Water-Stained Leaves. Streambanks within the survey area are all exceeded by riparian vegetation. Most areas within the OHWM of this jurisdictional feature within the survey area meet the criteria for USACE wetland Waters of the U.S. and are considered wetland Waters of the U.S. Within the survey area, the outer limits of the riparian vegetation (due to all active banks being exceeded) constitutes the limits of CDFW jurisdictional streambed, banks, and associated riparian vegetation.

Within the survey area, the outer limits of the riparian vegetation (due to all active banks being exceeded) constitutes the limits of CDFW jurisdictional streambed, banks, and associated riparian vegetation.

¹ CRPR 1B.2: California Rare Plant Rank (CRPR): Plants rare, threatened, or endangered in California and elsewhere (1B). Plants rare, threatened, or endangered in California and elsewhere (.2).



Legend

- Project Site
- 5-mile Radius Buffer

Special Status Resources NCCP/HCP

- Animal
- Plant
- Vegetation Community

- Existing Use
- Non-Reserve Open Space
- Reserve
- Special Linkage

Critical Habitat

- Coastal California gnatcatcher
- San Diego fairy shrimp
- Western snowy plover

ID	Animal	ID	Animal	ID	Animal	ID	Plant	ID	Plant	ID	Vegetation Community
1	American badger	14	globose dune beetle	28	sandy beach tiger beetle	44	Allen's pentachaeta	57	intermediate mariposa-lily	71	Southern Coast Live Oak Riparian Forest
2	bank swallow	15	grasshopper sparrow	29	southern California legless lizard	45	aphanisma	58	Los Angeles sunflower	72	Southern Coastal Salt Marsh
3	Belding's savannah sparrow	16	hoary bat	30	southern California rufous-crowned sparrow	46	California Orcutt grass	59	many-stemmed dudleya	73	Southern Cottonwood Willow Riparian Forest
4	big free-tailed bat	17	least Bell's vireo	31	southern California saltmarsh shrew	47	chaparral ragwort	60	mesa horkelia	74	Southern Foredunes
5	burrowing owl	18	light-footed Ridgway's rail	32	steelhead - southern California DPS	48	chaparral sand-verbena	61	mud nama	75	Southern Sycamore Alder Riparian Woodland
6	California black rail	19	Mexican long-tongued bat	33	tricolored blackbird	49	cliff spurge	62	Nuttall's scrub oak	76	Valley Needlegrass Grassland
7	California horned lark	20	mimic tryonia	34	western beach tiger beetle	50	coast woolly-heads	63	prostrate vernal pool navarretia		
8	California least tern	21	monarch	35	western mastiff bat	51	Coulter's goldfields	64	Robinson's pepper-grass		
9	coast horned lizard	22	orange-throated whiptail	37	western snowy plover	52	Coulter's saltbush	65	salt marsh bird's-beak		
10	coastal cactus wren	23	osprey	38	western tidal-flat tiger beetle	53	Davidson's saltscale	66	salt spring checkerbloom		
11	coastal California gnatcatcher	24	Pacific pocket mouse	39	western yellow-billed cuckoo	54	decumbent goldenbush	67	San Bernardino aster		
12	Cooper's hawk	25	red-diamond rattlesnake	40	white-tailed kite	55	estuary seabite	68	San Diego button-celery		
13	Crotch bumble bee	26	Riverside fairy shrimp	42	yellow rail	56	Gambel's water cress	69	south coast saltscale		
		27	San Diego fairy shrimp	43	yellow warbler			70	southern tarplant		
				41	yellow-breasted chat						

Source: Michael Baker International, 2020

FIGURE 3.3-2 Special-Status Species and Habitat within Five Miles of the Project Site

UCI Irvine Campus Medical Complex EIR
University of California, Irvine



Not to scale





Source: Michael Baker International, 2020

FIGURE 3.3-3: United States Army Corps of Engineers Wetland Jurisdiction
 UCI Irvine Campus Medical Complex EIR
 University of California, Irvine



Not to scale



Source: Michael Baker International, 2020

FIGURE 3.3-4: California Department of Fish and Wildlife Wetland Jurisdiction
 UCI Irvine Campus Medical Complex EIR
 University of California, Irvine



Not to scale

Special-Status Wildlife Species

The survey area is not located within any USFWS-designated Critical Habitat. The database record searches and query of the USFWS IPaC online system identified 47 special-status wildlife species within a 5-mile radius of the Project site (Figure 3.3-2). Several of the special-status species with documented occurrences are considered to have a “Low” or “Not Expected” potential for occurrence. Species determined to have a moderate or high potential for occurring, and those observed on the site during the surveys are addressed in this SEIR. Two special-status wildlife species were observed during the surveys: coastal California gnatcatcher and least Bell’s vireo. Of the forty-seven (47) special-status wildlife species documented within the 4-quadrangle search, orange-throated whiptail (SSC), western pond turtle (*Emys marmorata*; SSC), and western mastiff bat (*Eumops perotis californicus*; SSC) were also determined to have a moderate potential to occur within the survey area. All other special-status wildlife species were determined to have a low potential or are not expected to occur within the survey area due to a lack of suitable habitat on-site. Although it is one of the three “target species” of the Orange County NCCP/HCP, there is no suitable habitat on-site for coastal cactus wren and it is not expected to occur within the survey area.

Coastal California Gnatcatcher. An individual coastal California gnatcatcher (*Poliioptila californica*; FT/SSC)² was observed foraging in the intact coastal sage scrub located at the southern end of the Project site and survey area. There is a moderate potential for it to nest on the Project site. The species is covered under the Orange County NCCP/HCP with the UCI as a participating landowner. The survey area is not located within any USFWS-designated Critical Habitat. The nearest Critical Habitat is located over 2 miles to the east, designated for coastal California gnatcatcher (FT/SSC).

Least Bell’s vireo. An individual least Bell’s vireo (*Vireo bellii pusillus*; FE/SE)³ was heard singing in the riparian forest adjacent to the survey area. Suitable nesting habitat (riparian habitat with herbaceous understory) is present within the survey area and barely within the Project site. The potential for nesting is considered moderate. The species is covered under the Orange County NCCP/HCP with UCI as a participating landowner.

Orange-throated whiptail (*Aspidoscelis hyperythra*; SSC)⁴ is a reptile species known to inhabit low-elevation coastal scrub, chaparral, and cismontane woodlands, often found on the edge of intact vegetation and disturbed areas. A strip of mature coastal sage scrub surrounded by disturbed areas is present in the survey area. The nearest occurrence for orange-throated whiptail is approximately four miles to the south of the site. Therefore, there is a moderate potential for this species to occur in the survey area.

Western pond turtle (*Emys marmorata*; SSC) is a reptile species usually found basking near ponds, marshes, rivers, streams, and irrigation ditches with aquatic vegetation. Although no open waters were observed in the survey area, the southern arroyo willow riparian forest along the southeastern boundary of the survey area provides limited basking opportunities adjacent to the freshwater marsh and open waters of the San Joaquin Marsh. The nearest documented occurrence of western pond turtle is less than

² FT/SSC: Federally Threatened/California Species of Special Concern

³ FE/SE: Federally Endangered/State Endangered

⁴ SSC: Species of Special Concern

0.2 mile south of the survey area. Therefore, there is a moderate potential for this species to bask and nest along the eastern edges of the survey area.

Western mastiff bat (*Eumops perotis californicus*; SSC), is primarily a cliff-dwelling mammal species, that occurs in many open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, grasslands, and chaparral. It roosts on cliff faces, high buildings, trees, and tunnels. Marginally suitable roosting habitat (tall buildings and trees) is present in the survey area. The nearest occurrence is adjacent to (east of) the survey area. Therefore, there is a moderate potential for this species to roost in the survey area.

Nesting Birds and Wildlife Movement

The survey area currently provides habitats suitable to provide nesting opportunities for various bird species. Small mammals are likely to use the survey area for foraging. Other ground-moving wildlife tolerant of disturbed native habitats may use the survey area to forage, breed, disperse, and establish new residents. The San Joaquin Marsh Reserve located to the south provides the most potential for supporting wildlife movement through the area, with patches of coastal sage scrub in the southern and eastern portions of the survey area that may provide additional, but limited cover. Jamboree Road and Campus Drive pose the largest threat to these species, having a potential to result in mortalities caused by passing motorists.

3.3.3 Thresholds of Significance

The following significance criteria for biological resources were derived from the Environmental Checklist in State CEQA Guidelines Appendix G. An impact would be considered significant and would require mitigation if it would meet one of the following criteria:

- Threshold 3.3-1** **Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS.**
- Threshold 3.3-2:** **Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the CDFW or USFWS.**
- Threshold 3.3-3:** **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.**
- Threshold 3.3-4** **Interfere substantially with the movement of any native or migratory fish or wildlife species; inhibit established native resident or migratory fish or wildlife corridors; or impede the use of native wildlife nursery sites.**
- Threshold 3.3-5** **Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.**

Campus Programs, Practices, and Procedures and Mitigation Measures Carried Forward from the November 2007 LRDP Amendment Final EIR

The following applicable Mitigation Measures (MM) were adopted as part of the November 2007 LRDP Final EIR and are incorporated as part of the proposed Project and assumed in the analysis presented in this section. **Bio-2B** Prior to initiating on-site construction for future projects that implement the 2007 LRDP and that involve land clearing, grading, or similar land development activities adjacent to habitat areas identified as suitable for sensitive wildlife species, UCI shall retain a qualified biologist to conduct a sensitive wildlife survey of the respective areas within 150 feet of the approved limits of disturbance. If sensitive wildlife species are detected from the survey, then UCI shall approve contractor specifications that include measures to reduce indirect construction and post-construction impacts to the identified species, to the maximum extent feasible. These measures shall include, but are not limited to, the following:

- i. A pre-construction meeting shall be held to ensure that construction crews are informed of the sensitive wildlife and habitats in the vicinity of the construction site. Prior to commencement of clearing or grading activities, a biologist (or other qualified person) shall supervise the installation of temporary construction fencing along the approved limits of disturbance to discourage errant intrusions into the identified sensitive wildlife habitats by construction vehicles or personnel. All construction access and circulation shall be limited to designated construction zones. This fencing shall be removed upon completion of construction activities.
- ii. If suitable habitat for raptors or protected bird species is present and raptors or protected bird species are observed in the vicinity, the pre-construction surveys for active nests shall be performed within 30 calendar days prior to commencement of clearing or grading activities during the breeding season for raptors and protected bird species (generally February 1 through August 31) at locations where suitable nesting habitat exists within 500 feet of the approved limits of disturbance. Construction activities within 500 feet of active raptor nests (300 feet for protected bird species) shall be monitored by the biologist and modified as directed by the biologist until the biologist determines that the nest is no longer active. Construction activity may encroach into the 500-foot buffer area only at the discretion of the biologist.
- iii. Refer to mitigation measure Noi-2A for noise abatement measures during construction.
- iv. Storm water treatment and erosion control measures or facilities shall be maintained in a manner that avoids the discharge of polluted runoff and erosion impacts to the identified sensitive plants.
- v. Refer to mitigation measure Air-2B for dust control measures during construction.
- vi. Night lighting shall be avoided during construction. Any necessary lighting shall be shielded to minimize temporary lighting of the surrounding habitat.
- vii. A biological monitor shall be present on-site on at least a weekly basis during rough grading to ensure that the fenced construction limits are not exceeded.
- viii. Permanent lighting adjacent to natural habitat areas shall be selectively placed, shielded, and directed to minimize impacts to sensitive wildlife.

MM BIO-3D As early as possible in the planning process for future projects that implement the 2007 LRDP and are adjacent to designated campus open space areas containing riparian or

wetland vegetation, UCI shall ensure that the projects include a 50-foot setback from the flow line, to the extent practicable.

3.3.4 Environmental Impacts

Threshold 3.3-1:	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 Wildlife or U.S. Fish and Wildlife Service?
Impact Summary:	Less Than Significant Impact With Mitigation

A substantial adverse effect to special-status plant species would occur if a project would: (1) reduce the population size or reduce the area of occupied habitat of a rare, threatened, or endangered species; or (2) reduce the population size or reduce the area of occupied habitat of a locally uncommon species.

A substantial adverse effect on a special-status wildlife species would occur if a project would: (1) reduce the known distribution of a species; (2) reduce the local or regional population of a species; (3) increase predation of a species, leading to population reduction; (4) reduce habitat availability sufficiently to affect potential reproduction; or (5) reduce habitat availability sufficiently to constrain the distribution of a species and not allow for natural changes in distributional patterns over time.

Special-Status Plants

There is one special-status plant species with moderate potential to occur on the Project site: many-stemmed dudleya (*Dudleya multicaulis*; CRPR 1B.2). Special-status species with a CRPR 1 or 2, such as the many-stemmed dudleya, do not warrant legal protection under federal or State law; although, potential impacts are required to be disclosed under CEQA.

The 2007 LRDP EIR identifies that many-stemmed dudleya is documented within the UCI NCCP Reserve Area in the western portion of the South Campus Sub-Area. A few isolated individuals have been observed within the developed portions of the LRDP Biological Resources Study Area (North Campus Sub-Area, West Campus Sub-Area, East Campus-Northern Sub-Area, and East Campus-Southern Sub-Area). The 2007 LRDP EIR notes that, based on years of focused botanical surveys, it is considered unlikely that this species is present outside the documented sites (none have been documented at the Project site).

The 2007 LRDP EIR states that any incidental take of this species would be a significant impact. The many-stemmed dudleya is not covered under the NCCP. Due to this, the Proposed Project implemented a Project-specific mitigation measure BIO-1, which requires a focused rare plant survey. In compliance with BIO-1, qualified biologists from Michael Baker International performed a focused rare plant survey within the Project survey area in September 2020, and no special-status plant species were found on-site.

Special-Status Animals

The Project has the potential to directly affect one, and indirectly affect one Orange County NCCP/HCP "Target and Identified" Species. An individual of coastal California gnatcatcher (FT/SSC) was observed foraging within the intact coastal sage scrub located at the southern end of the Project site and survey area; however, the area observed is outside of the Project site and will not be directly affected by the Project. Other than construction noise and visual disturbance, no direct impacts to coastal California

gnatcatcher would be expected as a result of the proposed Project's permanent footprint. Although not incidentally observed in this area during Project-related field surveys, coastal California gnatcatcher could still occur in the coastal sage scrub located in the Arboretum, where a temporary laydown area is planned and where up to 0.23 acre of coastal sage scrub may be temporarily impacted. The total patch of coastal sage scrub within the Arboretum is relatively small and is isolated by development to the north and east, riparian habitat and grasslands to the south, and disturbed areas to the west. At approximately 3.5 acres total for the temporary laydown area, it is smaller than the average territory size for gnatcatcher pairs along the coast (5.7 acres), but the entire area could still be used by a single gnatcatcher pair, if present. Any birds that may be present would be unlikely to be actively using the extreme edge of the patch where the laydown area is proposed, and would be more likely to be actively using the heart of the coastal sage scrub in the Arboretum, which is located along the Arboretum's eastern edge bordering Campus Drive and is outside of the laydown area footprint.

UCI is a participating landowner within the Orange County NCCP/HCP. For participating landowners, development activities and uses that are addressed by the Orange County NCCP/HCP are considered fully mitigated under the Natural Community Conservation Planning Act (NCCP Act), FESA, and CESA for impacts to habitats occupied by listed and other species "identified" by the Orange County NCCP/HCP and its associated IA. Therefore, this Project is exempt from any additional mitigation for impacts to "identified" species and their habitat (i.e., coastal California gnatcatcher). The only further action that would be required would be to avoid any active nests, if present (refer to Mitigation Measure BIO-4).

An individual least Bell's vireo (FE/SE) was heard singing in the riparian forest just south of the survey area. Although this species is identified for coverage by the Orange County NCCP/HCP, take is subject to conditions ("impacts to major occurrences outside of the reserve must not have significant long-term conservation value and that provision is made for any other appropriate mitigation"). No direct impacts to this species are expected as a result of the Proposed Project because no suitable nesting habitat was identified on the Project site.

Due to the presence of marginally suitable habitat throughout the survey area, there is a potential for direct impacts to two (orange-throated whiptail and western mastiff bat) and indirect impacts to the other one (western pond turtle) special-status wildlife species present prior to and during construction. Focused pre-construction wildlife clearance surveys prior to the commencement of construction, and monitoring during construction, would be required to determine presence or absence. If special-status wildlife species are detected within proposed impact areas that could result intake, measures including avoidance and/or minimization measures would be required. If take of State- and/or federally-listed species cannot be avoided such as the tricolored blackbird (*Agelaius tricolor*), impacts would be subject to "take" only under the provisions of the CESA and/or FESA, respectively.

With the implementation of Mitigation Measures BIO-1 through BIO-3, potential impacts on special-status plant and wildlife species would be less than significant.

MM BIO-1 Prior to any ground disturbing activities, a qualified botanist shall conduct a focused rare plant survey within the survey area to confirm the absence of special-status plant species, particularly but not limited to many-stemmed dudleya. The surveys shall be floristic in nature (i.e., identifying all plant species to the taxonomic level necessary to determine rarity), and shall be inclusive of, at a minimum, areas proposed for disturbance.

The results of the survey shall be provided to the County of Orange. If special-status plant species are found within the areas proposed for disturbance that are not already covered under the Orange County NCCP/HCP, measures to minimize impacts shall be implemented and, if impacts cannot be avoided and mitigation is required, it will be provided to ensure CEQA compliance. The surveys and reporting shall follow 2018 CDFW and/or 2001 CNPS guidelines.

MM BIO-2

Prior to clearing, mowing, or ground-breaking activities, a qualified biologist shall conduct a focused wildlife clearance survey for special-status wildlife species with the potential to occur within the Project site, which includes least Bell's vireo, coastal California gnatcatcher, orange-throated whiptail, western mastiff bat, and western pond turtle. Focused surveys shall be inclusive of the entire survey area. Areas immediately adjacent to the San Joaquin Marsh Reserve at the southern area of the Project site have a higher potential to support least Bell's vireo and western pond turtle, areas immediately adjacent to CSS have a higher potential to support coastal California gnatcatcher, and the majority of the Project site provides potential habitat for orange-throated whiptail. In addition, all trees and buildings within and near the Project site should be surveyed for roosting bats such as western mastiff bat. If special-status species not already covered by the NCCP/HCP are found within the project site at the time of construction that cannot move on their own, a qualified biologist shall coordinate with CDFW and/or USFWS, as applicable, to determine measures to avoid and minimize impacts and, if impacts cannot be avoided and mitigation is required, it will be provided to ensure CEQA compliance. However, based on the analysis conducted for this project, special-status species that are not covered by the Orange County NCCP/HCP are not expected to occur within the areas proposed for construction

MM BIO-3

During construction, prior to the end of each workday, all open pipes and trenches shall be covered adequately to prevent wildlife from falling in and getting trapped. Prior to the start of construction each day, the construction site shall be checked, including vegetation, open pipes and trenches, and under staged vehicles, equipment, and materials. If species are found, measures adherent to mitigation measure MM BIO-2 for wildlife species shall be implemented.

Level of Significance After Mitigation

With the implementation of mitigation, significant impacts to special status plant and wildlife species would be mitigated to a less than significant level.

Threshold 3.3-2:	Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the CDFW or USFWS?
Threshold 3.3-3:	Would the project have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?
Impact Summary:	Less Than Significant Impact

Seven natural communities of special concern were identified during the CNDDDB records search as potentially occurring within the survey area; none were present. However, two other special-status vegetation communities – southern arroyo willow riparian forest and coastal sage scrub – were observed on the Project site during the survey. No other special-status vegetation communities were observed. Southern arroyo willow riparian forest and coastal sage scrub are located within the 150-foot development buffer between the Project site and the San Joaquin Marsh Reserve. No impacts to the southern arroyo willow riparian forest would occur as development is not proposed that would take this habitat. A small patch of coastal sage scrub is also located within the temporary laydown in the UCI Arboretum. However, as discussed above, UCI is a participating landowner under the NCCP/HCP, which allows take of coastal sage scrub. Therefore, the project would not impact any sensitive natural communities identified on-site or on an identified local or regional plan, plan or policy. Therefore, potential impacts are less than significant, and no mitigation is required.

The San Joaquin Marsh Reserve within the survey area was mapped by the USFWS National Wetlands Inventory as Freshwater Forested/Shrub Wetland, but more specifically as PFO/SSA (Palustrine, Forested, Scrub-Shrub, Temporary Flooded). Habitat types associated with this feature (southern arroyo willow riparian forest) are subject to jurisdiction of the regulatory agencies. The streambed and active banks of the San Joaquin Marsh within the buffer area of the survey area are subject to CDFW jurisdiction pursuant to Sections 1600 et seq. of the California Fish and Game Code, with the southern arroyo willow riparian forest vegetation extending CDFW jurisdiction to the outer limits of the riparian vegetation. The areas within the OHWM of the San Joaquin Marsh Reserve do not meet the three-parameter criteria for wetland Waters of the U.S. but are non-wetland Waters of the U.S. subject to jurisdiction of the USACE pursuant to Section 404 of the CWA and the RWQCB pursuant to CWA Section 401. However, the Project would not impact any isolated or other features classified as Waters of the State subject to Section 13263 of the California Porter-Cologne Water Quality Control Act because none occur on the Project site. No impacts to CDFW, USACE, or RWQCB jurisdiction are expected to occur. Therefore, no significant impacts would occur and no mitigation is required.

Mitigation Program

No mitigation is required.

Level of Significance After Mitigation

No significant impacts would occur.

Threshold 3.3-4: **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?**

Impact Summary: **Less Than Significant Impact With Mitigation Incorporated**

Habitat linkages, or wildlife corridors, are areas of natural habitat that function to join two larger areas of habitat. They serve as connections between habitat patches and help reduce the adverse effects of habitat fragmentation. Habitat linkages may serve both as habitat and avenues of gene flow for small animals such as reptiles, amphibians, and rodents. Habitat linkages may be represented by continuous patches of habitat or by nearby habitat "islands" that function as stepping stones for dispersal and movement (especially for birds and flying insects).

The Project site is located within an urban environment. The site is not within a known movement or travel corridor for native resident species. Consistent with the findings of the 2007 LRDP EIR, the Project would not interfere with wildlife corridors or impede the movement of native species.

Project implementation assumes the mass grading of the Project site, and the site includes suitable habitat for nesting opportunities for various bird species. Native migratory birds and their nests are protected under the provisions of the Migratory Bird Treaty Act and California Department of Fish and Game Code. The loss of any active nests of a native bird during construction would be considered a significant impact. MM BIO-4 requires a preconstruction survey for nesting birds with procedures to follow should nesting birds be discovered. Compliance with this mitigation measure would reduce potential impacts to nesting birds to a less than significant level.

Mitigation Program

MM BIO-4 Project construction activities involving ground disturbance or vegetation removal shall avoid the bird breeding season (typically January through July for raptors and February through August for other avian species), if feasible. If breeding season avoidance is not feasible, a qualified biologist shall conduct a pre-construction nesting bird survey prior to the commencement of any ground disturbing activities to determine the presence/absence, location, and status of any active nests on or adjacent to the survey area. The extent of the survey buffer area surrounding the site shall be established by the qualified biologist to ensure that direct and indirect effects to nesting birds are avoided.

In the event that active nests are discovered, a suitable buffer (distance to be determined by the biologist based on the specific species found to be nesting, but typical nest buffers are from 500 feet to 300 feet but can be smaller depending on the bird species) shall be established around such active nests, and no construction within the buffer shall be allowed, until the biologist has determined that the nest(s) is no longer active (i.e., the nestlings have fledged and are no longer reliant on the nest) or that it is safe to resume certain construction activities. Avoidance buffers may be reduced in size if a qualified biological monitor is present to observe the birds. The biological monitor must use best professional judgment to ensure that construction

activities do not cause “take” (e.g., adults flushing off of a nest, fledglings changing behavior that could put them in harm, or any other form of disturbance).

Level of Significance After Mitigation

Consistent with the findings of the 2007 LRDP EIR, potential impacts to nesting birds would be mitigated to a less than significant level.

Threshold 3.3-5:	Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?
Impact Summary:	Less Than Significant

The Project site is located within the Coastal Subregion of the Orange County NCCP/HCP. However, the Project site is not located within the Reserve System or identified special linkage areas. The nearest designated portion of the Orange County NCCP/HCP Reserve System (Non-Reserve Open Space associated with the San Joaquin Marsh Reserve) is located adjacent to (immediately south and east of, but not within) the Project site. Implementation of the proposed Project will temporarily affect up to 0.23 acre of coastal sage scrub vegetation consisting of small patches of varying quality but is not expected to affect any other covered Orange County NCCP/HCP habitats. Restoration of the temporary disturbance areas (construction laydown area and parking area) is not proposed due to the current deteriorated conditions of these areas. As such, they would be left to revegetate on their own.

Under the Orange County NCCP/HCP, certain patches of coastal sage scrub throughout the Plan Area and outside of the Reserve System were authorized for removal of this habitat.⁵ Although coastal sage scrub is now present within the survey area, this vegetation was not recognized by the NCCP/HCP and based on historical satellite imagery from 1994, this vegetation did not exist and has been established or has developed in the nearly 25 years since the Orange County NCCP/HCP was written. On-site coastal sage scrub is newly restored, will not be permanently impacted, and within the survey area is growing in small disconnected patches of varying quality. In addition, UCI is a participating landowner within the NCCP/HCP Plan Area and the Project site is located outside of the Reserve System and is not within a Special Linkage or Existing Use Area. As a result, mitigation for temporary impacts to these small patches of coastal sage scrub is not required.

Mitigation Program

No mitigation is required.

Level of Significance After Mitigation

Impacts would be less than significant.

3.3.5 Cumulative Impacts

Past, present and reasonably foreseeable future projects are required to implement measures, as set forth in their respective CEQA documents, consistent with federal, State, and local regulations, to avoid adverse effects to existing biological resources or to mitigate for significant impacts to these resources. The types of measures required for projects impacting protected habitat, species, and regulated resources can include

⁵ Figure 31, *Central and Coastal Subregion Natural Community Conservation Plan/Habitat Conservation Plan*.

avoidance, project design features, regulatory approvals, best management practices, and mitigation measures. With implementation of mitigation measures BIO-1, BIO-2, and BIO-3, potential impacts on sensitive plant and wildlife species are less than significant.

The UCI 2007 LRDP EIR states that the cumulative study area for candidate, sensitive, and special status plant and wildlife species includes the subregional NCCP Reserve System for the sensitive plant and wildlife species “covered” under the NCCP/HCP for the County of Orange Central and Coastal sub-region and the Orange County “region” for the sensitive plant species that are not covered under the NCCP. The subregional NCCP Reserve System was established to mitigate significant cumulative impacts to certain sensitive biological resources within the County of Orange Central and Coastal sub-region. Therefore, any impact to biological resources, including sensitive plant species, within the UCI NCCP Reserve Area would result in a cumulatively considerable contribution to a significant cumulative impact. Development areas identified in the 2007 LRDP are designed to avoid direct impacts to the UCI NCCP Reserve Area. Because the Proposed Project would not significantly impact special status plant species, the Project would not cumulatively contribute to impacts. The 2007 LRDP EIR concludes that with mitigation, the 2007 LRDP would not contribute to a cumulatively considerable impact to any sensitive plant species protected by the UCI NCCP Reserve Area.

With respect to wildlife species, the 2007 LRDP EIR concludes that with mitigation, the 2007 LRDP would not contribute to a cumulatively considerable impact to sensitive animal species protected by the UCI NCCP Reserve Area. The Proposed Project’s contribution to cumulatively significant impacts would be less than significant with mitigation.

Due to UCI’s continued participation in the NCCP, any impact to these sensitive habitats covered by the NCCP, but located outside the UCI NCCP Reserve Area, would not result in a cumulatively considerable contribution to a significant cumulative impact.

With implementation of mitigation measure BIO-4, which requires a preconstruction survey for nesting birds with procedures should nesting birds be discovered, cumulative impacts would be less than significant.

3.3.6 Level of Significance After Mitigation Summary

With implementation of the Mitigation Program set forth in this section, potential impacts would be reduced to less than significant.

3.3.7 References:

Michael Baker International. 2020. *Irvine Campus Medical Complex Project Biological Resources Reports*. August.

R.J. Meade Consulting, Inc. 1996. *Central and Coastal Subregion Natural Community Conservation Plan/Habitat Conservation Plan*. Prepared for County of Orange. July.

University of California, Irvine. (2007). Long Range Development Plan Final EIR; Page 4.1-5. Accessed March 18, 2020.

This page intentionally left blank.

3.4 CULTURAL RESOURCES

3.4.1 Introduction

This section of the SEIR describes the historical and archaeological resources present or potentially present at the project sites and evaluates the potential impacts from proposed development to these resources. The analysis provides contextual background information on cultural resources on the project site, including the site's prehistoric, ethnographic, and historical settings. The analysis in this section is based on the *Cultural Resources and Tribal Cultural Resources Identification Study for the Irvine Campus Medical Complex* prepared by Michael Baker International and Cogstone Resource Management, Inc., dated August 2020. The findings of the study are summarized in this section and the study is included in Appendix D to this SEIR. Native American tribal cultural resources are discussed further in Section 3.16, *Tribal Cultural Resources*.

3.4.2 Regulatory Setting

Federal Regulations

National Historic Preservation Act (NHPA)

Pursuant to the National Historic Preservation Act (NHPA) of 1966, as amended, the federal government, acting through the U.S. Department of the Interior's National Park Service, maintains an inventory of properties and structures that have been determined to meet certain criteria as significant historic resources commonly referred to as the "National Register of Historic Places" (NRHP). The NHPA established the Advisory Council on Historic Preservation and provided procedures for the agency to follow if a proposed action affects a property that is included or may be eligible for inclusion, on the NRHP. The NRHP was developed as a direct result of the NHPA.

National Register of Historic Places (NRHP)

The NRHP was established by the NHPA of 1966, as "an authoritative guide to be used by federal, state, and local governments, private groups, and citizens to identify the Nation's cultural resources and to indicate what properties should be considered for protection from destruction or impairment" (*Code of Federal Regulations* [CFR] 36 §60.2). To be eligible for listing in the NRHP, a resource must be significant in American history, architecture, archaeology, engineering, or culture. A property (districts, sites, buildings, structures, and objects of potential significance) is eligible for the NRHP if it is significant under one or more of the following four established criteria:

- **Criterion A:** It is associated with events that have made a significant contribution to the broad patterns of our history.
- **Criterion B:** It is associated with the lives of persons who are significant in our past.
- **Criterion C:** It embodies the distinctive characteristics of a type, period, or method of construction; represents the work of a master; possesses high artistic values; or represents a significant and distinguishable entity whose components may lack individual distinction.
- **Criterion D:** It has yielded, or may be likely to yield, information important in prehistory or history.

In addition to meeting the criteria of significance, a property must have integrity. Integrity is defined as “the ability of a property to convey its significance.” The seven factors that define integrity are location, design, setting, materials, workmanship, feeling, and association.

State Regulations

California Register of Historical Resources (CRHR)

In 1992, then Governor Wilson signed Assembly Bill (AB) 2881 into law establishing the California Register of Historical Resources (CRHR). The CRHR is an authoritative guide in California to be used by State and local agencies, private groups, and citizens to identify the State’s historical resources and to indicate what properties are to be protected, to the extent prudent and feasible, from substantial adverse change. Eligibility for the CRHR is determined by the California Office of Historic Preservation in a formal review process in which a resource is proposed for listing. A resource deemed eligible for the NRHP is typically deemed eligible for the CRHR. Certain resources are determined by the statute to be included in the CRHR, including California properties formally determined eligible for or listed in the NRHP, as well as State Landmarks and State Points of Interest. The CRHR is maintained by the Office of Historic Preservation’s State Historic Preservation Officer.

For a historic resource to be listed, the resource must meet one or more of the following criteria:

- A. Is associated with events that have made a significant contribution to the broad patterns of California’s history and cultural heritage;
- B. Is associated with lives of persons important in our past;
- C. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
- D. Has yielded, or may be likely to yield, information important in prehistory or history.

California Public Resources Code

This cultural resources analysis—including that pertaining to the built environment and archaeological resources—has been prepared to meet the requirements of the CEQA (California Public Resources Code [PRC] §21083.2 and §21084.1) for inclusion in this EIR. CEQA states that it is the policy of the state of California to “take all action necessary to provide the people of this state with historic environmental qualities and preserve for future generations examples of the major periods of California history” (PRC §21001(b),(c)). Under the provisions of CEQA, “a project with an effect that may cause a substantial adverse change in the significance of a historical resource is a project that may have a significant effect on the environment” (14 California Code of Regulations (CCR) §15064.5(b)).

CEQA establishes the definition and criteria for historical resources. “Historical resources,” according to PRC Section 5020.1(j), “includes, but is not limited to, any object, building, site, area, place, record, or manuscript which is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California.” State CEQA Guidelines Section 15064.5(a) defines a “historical resource” as a resource which meets one or more of the following criteria:

- Listed in, or eligible for listing in, the California Register of Historic Resources (PRC § 5024.1).
- Listed in a local register of historical resources (as defined at PRC §5020.1(k)).

- Determined to be a historical resource by a project's lead agency (14 CCR §15064.5(a)(3))
- Identified as significant in a historical resource survey as meeting the requirements of PRC §§ 5020.1 or 5024.1 despite not being listed in, or determined to be eligible for, the California Register or identified in a local register.

CEQA has established statutory requirements for the formal review and analysis of projects that fall under its jurisdiction. CEQA maintains that any property listed in, determined, or found eligible for listing in the CRHR is considered to be a "historical resource" and shall be considered historically significant. According to the State CEQA Guidelines, "[a] project with an effect that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment" (14 CCR §15064.5(b)). Substantial adverse change is defined as "physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historical resource would be materially impaired" (14 CCR §15064.5[b][1]).

Impacts to cultural resources are considered significant if a project (1) physically destroys or damages all or part of a resource; (2) changes the character of the use of the resource or physical feature within the setting of the resource that contributes to its significance; and/or (3) introduces visual, atmospheric, or audible elements that diminish the integrity of significant features of the resource.

The Lead Agency must concurrently determine whether a project will cause damage to a unique archaeological resource (as defined in PRC §21083.2[b]) and, if so, must make reasonable efforts to permit the resources to be preserved in place or left undisturbed. An archaeological resource must be determined to be "unique" or "historic" for an impact to the resource to be considered significant. Section 21083.2(g) of CEQA defines a unique archaeological resource as an archaeological artifact, object, or site about which it can be demonstrated that without merely adding to the existing body of archaeological knowledge, there is a high probability that it meets any of the following criteria:

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

If feasible, adverse effects to the significance of historical resources must be avoided or mitigated (CCR Title 14(3) §15064.5(b)(4)). The significance of a historical resource is impaired when a project demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for the California Register.

If the cultural resource is an archaeological site, CEQA Guidelines Section 15064.5(c)(1) requires that the Lead Agency first determine if the site is a historical resource as defined in CCR Title 14(3) Section 15064.5(a). If the site qualifies as a historical resource, potential adverse impacts must be considered in the same manner as a historical resource. If the archaeological site does not qualify as a historical resource but does qualify as a unique archaeological site, the archaeological site is treated in accordance with PRC Section 21083.2 (CCR Title 14(3) §15069.5(c)(3)). In practice, most archaeological sites that meet the definition of a unique archaeological resource will also meet the definition of a historical resource.

California Health and Safety Code Section 7050.5

California Health and Safety Code Section 7050.5 states that in the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the remains are discovered has determined whether or not the remains are subject to the coroner's authority. If the human remains are of Native American origin, the coroner must notify the Native American Heritage Commission within 24 hours of this identification. The Native American Heritage Commission will identify a Native American most likely descendant to inspect the site and provide recommendations for the proper treatment of the remains and associated grave goods.

University of California

2007 UCI LRDP. The 2007 LRDP provides the comprehensive framework for the physical development of the UCI campus and is the primary planning document for the campus. The UCI LRDP does not identify planning objectives related to cultural resources.

University of California Policy and Procedures on Curation and Repatriation of Human Remains and Cultural Items. This policy established a University Advisory Group on Cultural Affiliation and Repatriation of Human Remains and Cultural Items. This Advisory Group is composed of a University faculty member from each campus that houses collections covered by NAGPRA and two Native American members selected by the President of the University of California. The Vice Provost of Research acts as the liaison between the Advisory Group and the U.C. Office of the President. The Advisory Group reviews campus decisions regarding potential cultural resources and repatriation, makes recommendations to the President, and assists in resolution of disputes. Under this policy, campuses are encouraged to solicit input on policy matters from members of Native American groups and from additional faculty members drawn from a variety of disciplines in which the study, treatment, curation, and repatriation of human remains is relevant.

3.4.3 Existing Conditions

Prehistoric Setting

The prehistoric sequence in the Irvine area is generally defined by four distinct phases. This sequence was initially developed by Wallace (1955) and consists of the Early Man (6500–5500 BC), Millingstone (5500–3000 BC), Intermediate (3000 BC–AD 500), and Late (AD 500–A.D. Historic) horizons.

The Early Man horizon began with the first entry of people into California. These people are believed to have subsisted mainly on big game and minimally processed plant foods and had no trade networks. Current research indicates more sedentism, plant processing, and trading than previously believed. The Millingstone horizon is characterized by the introduction of manos and metates (grinding stones), indicating an increased reliance on hard-shell plant seeds for subsistence. This period also sees an increased reliance on shellfish; an increased use of plant foods; the elaboration of burial and grave goods; and use of increasingly complex trade networks. The Intermediate horizon is marked by reliance on larger foodstuffs, with acorns making a particularly important contribution, as evidenced by the appearance of stone mortars and pestles. The Late horizon had extensive trade networks and complex social structures and institutions; increased use of deep-sea fish and marine mammals for subsistence, clothing and cultural items (jewelry, trade goods, etc.); and the widespread use of the bow and arrow.

Ethnography

The Project site lies in a territory used by both the Gabrielino and Juaneño. Both the Gabrielino and Juaneño fall into the Takic linguistic family. The Gabrielino engaged in seasonal harvesting, fishing, fowling, and hunting, and were organized in kin groups based around permanent coastal sites, and within canyons and valleys. Complex, kinship-based socioeconomic and political networks tied coastal groups to their inland counterparts. Researchers conclude that “with the possible exception of the Chumash, the Gabrielino were the wealthiest, most populous, and most powerful ethnic nationality in aboriginal southern California.”

The Takic-speaking ancestors of the Gabrielino began displacing the indigenous Hokan-speaking groups around 500 BC, and by the time of European contact, the Gabrielino population is estimated to have exceeded 5,000. The other group ethnographically tied to the area, the Juaneño (also referred to as the Luiseño), employed a “more rigid social structure,” and maintained a “greater population density” than their Gabrielino neighbors. The Juaneño subsisted on small game and marine foraging and relied heavily on acorns and other seeds. Researchers report that their social structure centered on sedentary, autonomous villages with areas specifically set aside for hunting, foraging, and fishing.

Historic Setting

Clark Kerr became University of California President in 1957. Kerr prioritized expanding the U.C. system to accommodate more students, and successfully opened three new campuses during his career. The Irvine Company, owners of the 93,000-acre Irvine Ranch, began planning the real estate development of the ranch at the same time the U.C. Regents began searching for a new campus location. In 1960, the Irvine Company sold 1,000 acres to the U.C. Regents for a new campus, which would then anchor a master planned community. Both the campus and planned community were ultimately designed by architect William Pereira. The Irvine Company sold the property, called the San Joaquin foothills, to the U.C. Regents for \$1 because a charter in the company policy stated that real property could not be donated to a public entity.

Pereira’s master plan for the campus preserved wetlands, infused modernist planning principles such as segregation of automotive and pedestrian traffic, and boldly experimented with form. Traditional features such as a central quad and brick-clad buildings were not developed for the campus. Instead, the main campus was designed with a central park and pedestrian walkways and encircled by five academic educational buildings associated with the humanities, engineering, life sciences, physical sciences, and social sciences, as well as a library and administrative offices. Campus construction began in 1961 and opened in 1965.

The Project site is in the 144-acre North Campus sector. While it currently accommodates campus support facilities and is primarily undeveloped, it was the original location of all administrative and faculty services between circa 1961-1965. According to L.E. Cox, UCI’s first Vice Chancellor for Business Affairs, the main campus had yet to be constructed and no utilities or roads were in place. However, along San Joaquin (now Jamboree Road), there were utility lines, a paved, two-lane road, and sufficient access and utilities to accommodate office buildings.

Butler Manufacturing Company designed a 10,000-square-foot (sf) building with office space at Cox’s request; it was redesigned by architect Bob Lee for William Pereira. Currently referred to as Building 92, the building provided a conference room and office space for three vice-chancellors, the chancellor, a few

faculty, and all administrative staff. Subsequent to the construction of Building 92, Butler Manufacturing Company constructed a laboratory building with both wet and dry labs (Building 95) and a warehouse building (Building 91).

Also located in the North Campus is the UCI Arboretum. Approved for implementation in 1967, the Arboretum is now a 12.5-acre botanical garden and research facility used by the School of Biological Sciences as a plant-growing facility for research and teaching purposes. By 1968, records show that the Arboretum was still in the planning stages and was developed between 1972 and 1980. The site was landscaped in the 1990s with expansion in the 2000s. Since 2018, the Arboretum has been closed to public use except for limited access one day per weekend.

Archaeological and Historical Resources

A records search, literature review, interested party's consultation, and an archaeological and built environment field survey were conducted to identify cultural resources and previous cultural resources studies within and adjacent to the Project site. The records search was conducted at the South Central Coastal Information Center of the California Historic Resources Inventory System (CHRIS) in May 2019. The records search was conducted with a half-mile search radius of the Project site. The search included a review of all recorded archaeological and built-environment resources as well as the California Points of Historical Interest, the California Historical Landmarks, the CRHR, the NRHP, and the California State Historic Properties Directory listings. Three off-site historic and one off-site historic resource are recorded within a half-mile radius of the Project site. Eleven cultural resources investigations have been conducted for the UCI campus. One previously recorded cultural resource, P30-000115/CA-ORA-115, is on the Project site.

P30-000115/CA-ORA-115. This site consists of two loci, A and B. When first recorded by the University of California in April 1963, Locus A was recorded as a midden with sparse shell, and Locus B was described simply as a shell midden. Pacific Coast Archaeological Society, Inc. (PCAS) reevaluated Locus B in 1966 and found groundstone, bowl fragments, and primarily water-derived faunal material. When resurveyed in August 1976, Locus A included four mano fragments, a metate fragment, three scrapers, utilized flakes, and fire-cracked rocks; the area was described as favorable for excavation. Shell midden material was found in Locus B and was described as favorable for excavation. Construction of North Campus buildings later destroyed much of Locus A. J. Brock of the Archaeology Advisory Group reevaluated both loci in 1985, noting that some material may remain in peripheral areas of Locus A. Brock described Locus B as in good condition with midden and limited chert lithic material but noted that vegetation limited visibility.

A field survey was conducted by Edgar Alvarez of Cogstone on May 29, 2019 to evaluate existing site conditions. All ground surface areas were examined for artifacts (e.g., flaked stone tools, tool-making debris, stone milling tools or fire-affected rock), soil discoloration that might indicate the presence of a cultural midden, soil depressions and features indicative of the former presence of structures or buildings (e.g., postholes, foundations), or historic-era debris (e.g., metal, glass, ceramics). Existing ground disturbances (e.g., cutbanks, ditches, animal burrows) were visually inspected. Ground visibility varied from poor (10%) to fair (60%) due to hardscaping and building coverage. No cultural material was identified at P30-000115/CA-ORA-115 Locus A because it is almost completely built upon or otherwise disturbed by development. However, Chione clam and cockle shells were observed within the boundaries of Locus B, as well as outside of the site boundaries.

3.4.4 Thresholds of Significance

A project would normally be considered to have a significant impact if it would:

- Threshold 3.4-1** Cause a substantial adverse change in the significance of any object, building, structure, area, place, record, or manuscript that qualifies as a historical resource as defined in CEQA Guidelines Section 15064.5.
- Threshold 3.4-2** Cause a substantial adverse change in the significance of a prehistoric or historic archaeological resource pursuant to CEQA Guidelines Section 15064.5.
- Threshold 3.4-3:** Disturb any human remains, including those interred outside of dedicated cemeteries.

Campus Programs, Practices, and Procedures and Mitigation Measures Carried Forward from the November 2007 LRDP Amendment Final EIR

The following applicable Mitigation Measures (MM) were adopted as part of the November 2007 LRDP Final EIR and are incorporated as part of the proposed Project and assumed in the analysis presented in this section.

MM CUL-1A During preparation of the Initial Study for future projects that implement the 2007 LRDP and are located on sites containing recorded archaeological resources, UCI shall retain a qualified archaeologist to define and survey the area of potential effects (APE) on the project site. The APE shall be based on the extent of ground disturbance and site modification anticipated for the project including an appropriate buffer where specific project boundaries have yet to be established.

During the course of project planning, any recorded archaeological sites within the project APE shall be avoided to the extent feasible. If such sites cannot be avoided through project modifications or redesign, then the archeologist shall evaluate all archaeological resources observed within the project APE for significance in accordance with CEQA Guidelines Section 15064.5(c). This evaluation shall also determine the extent of the archaeological resource, if not already established. If an archaeological resource within the project APE is determined to be significant, then mitigation measure Cul-1B shall be implemented.

MM CUL-1B Prior to land clearing, grading, or similar land development activities for future projects that implement the 2007 LRDP and would impact a significant archaeological resource as determined by mitigation measure Cul-1A, a qualified archaeologist shall prepare and implement a data recovery plan. The plan shall include, but not be limited to, the following measures:

- i. Perform appropriate technical analyses;
- ii. File any resulting reports with the South Coastal Information Center; and
- iii. Provide the recovered materials to an appropriate repository for curation.

MM CUL-1C Prior to land clearing, grading, or similar land development activities for future projects that implement the 2007 LRDP in areas of identified archaeological sensitivity, UCI shall

retain a qualified archaeologist (and, if necessary, a culturally-affiliated Native American) to monitor these activities. In the event of an unexpected archeological discovery during grading, the on-site construction supervisor shall be notified and shall redirect work away from the location of the archaeological find. A qualified archaeologist shall oversee the evaluation and recovery of archaeological resources, in accordance with the procedures below, after which the on-site construction supervisor shall be notified and shall direct work to continue in the location of the archaeological find. A record of monitoring activity shall be submitted to UCI each month and at the end of monitoring. If the archaeological discovery is determined to be significant, the archaeologist shall prepare and implement a data recovery plan. The plan shall include, but not be limited to, the following measures:

- i. Perform appropriate technical analyses;
- ii. File any resulting reports with the South Coastal Information Center; and
- iii. Provide the recovered materials to an appropriate repository for curation, in consultation with a culturally-affiliated Native American.

MM CUL-2A During preparation of the Initial Study for future projects that implement the 2007 LRDP, are located on sites containing facilities that are 50 years of age or older, and are potential historic resources, a qualified professional shall define and survey the Area of Potential Effect (APE) on the project site. The APE shall be based on the extent of ground disturbance and site modification anticipated for the project. If historic resources are present within the project APE, then mitigation measure Cul-2B shall be implemented.

MM CUL-2B Before altering or otherwise affecting historic resources within the project APE as determined by mitigation measure Cul-2A, they shall be evaluated for significance by the architectural historian in accordance with CEQA Guidelines Section 15064.5. The evaluation process shall include the development of appropriate historical background research as context for the assessment of the significance of the historic resources in the history of the U.C. system, UCI, and the region. The historic resources shall be recorded on a California Department of Parks and Recreation DPR 523 form or equivalent documentation. If the historic resources are determined to be significant, then mitigation measure Cul-2C shall be implemented.

MM CUL-2C For historic resources determined to be significant as determined by mitigation measure Cul-2B, UCI shall consider measures that would enable the project to avoid direct or indirect impacts to the significant historic resources. For significant historic resources in which avoidance or reuse on-site is not feasible, mitigation measure Cul-2D shall be implemented.

MM CUL-2D For significant historic resources in which avoidance or reuse on-site is not feasible as determined by mitigation measure Cul-2C, one of the following options shall be implemented:

- i. Remodeling, renovation, or other alterations to significant historic resources within the project APE shall be conducted in compliance with the “Secretary of the Interior’s Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings.”

- ii. Prior to relocation or demolition of significant historic resources within the project APE, a qualified professional shall document the resources, including any buildings, associated landscaping and setting. Documentation shall include still and video photographs (to be provided on a CD-ROM) and a written record in accordance with the standards of the Historic American Building Survey or Historic American Engineering Record, including accurate scaled mapping, architectural descriptions, and scaled architectural plans, if available. The record shall be accompanied by a report containing site-specific history and appropriate contextual information. This information shall be gathered through site-specific and comparative archival research and oral history collection as appropriate. A copy of the record shall be deposited with the UCI archives. Provide the recovered materials to an appropriate repository for curation, in consultation with a culturally-affiliated Native American.
- iii. As appropriate, include features in the design of the new project that reuse or represent features of the historic building or provide interpretative information on the historic resource.

3.4.5 Environmental Impacts

Threshold 3.4-1:	Would the project cause a substantial adverse change in the significance of any object, building, structure, area, place, record, or manuscript that qualifies as a historical resource as defined in CEQA Guidelines Section 15064.5?
Impact Summary:	Less Than Significant Impact

Section 15064.5(c)(1) of the State CEQA Guidelines provides criteria for the determination of significance of impacts to both archaeological and historical resources. The following analysis addresses potential significant impacts to built-environment (man-made) historical resources. Impacts related to Tribal Cultural Resources are discussed in Section 3.16 of this SEIR.

The proposed Project is located within the North Campus. The ICMC Project site contains trailers, housing the Shops Office and Shops Store, and multiple storage containers. The 3.5 acres of the UCI Arboretum proposed to be used for temporary laydown currently consists of former greenhouses, small shelters, and a storage shed, and the proposed site for the temporary parking lot is currently used as uncovered storage and contains no built structures.

The UCI North Campus was developed prior to the main UCI campus. It was developed essentially as ad hoc, temporary, office and laboratory space while the main campus was constructed. Since 1963-1965 when the North Campus had four buildings, approximately 17 buildings or structures and the Arboretum have been added. The North Campus was not part of the original campus master plan. Therefore, the resource does not appear to be associated with the planned development of UCI and is not associated with a significant event or theme in local, state, or national history and, as such, does not appear eligible for listing on the CRHR under Criterion 1.

L.E. Cox, UC Irvine's first Vice Chancellor for Business Affairs, was instrumental to the development of UCI. For eligibility under Criterion 2, a resource must be the best representative example of the person's achievements. The North Campus is not the best representative example of Cox's achievements on the UCI campus because the layouts of the outer UCI campus are more informal and does not have the same

stylized circulation of the main UCI campus¹. Therefore, the North Campus does not appear associated with persons significant in our past and does not appear eligible for listing on the CRHR under Criterion 2.

The buildings associated with the North Campus, including those of the Project site, include prefabricated buildings with minor contemporary style detailing, and other various prefabricated buildings and structures lacking architectural distinction. Research failed to identify information regarding architect Bob Lee or any other associated architects, builders, or landscape designers. Therefore, the UCI North Campus does not maintain the distinctive characteristics of a type, period, and method of construction, is not a work of a master architect, and does not display high artistic value. Therefore, the resource does not appear eligible for listing on the CRHR under Criterion 3.

The UCI North Campus is not likely to yield valuable information that will contribute to our understanding of human history because the resource is not and never was the principal source of important information pertaining to subjects such as mid-20th Century administrative or education buildings or landscapes. Therefore, the property does not appear eligible for listing on the CRHR under Criterion 4.

The UCI North Campus appears ineligible for listing in the California Register under Criteria 1, 2, 3, and 4 because it lacks association with a historic context. Additionally, the resource was evaluated in accordance with the State CEQA Guidelines Section 15064.5(a)(2)–(3) using the criteria outlined in Section 5024.1 of the California Public Resources Code. The North Campus is not a historical resource for the purposes of CEQA. Therefore, impacts would be less than significant.

As discussed above, the Project includes a portion of the Arboretum site for a temporary construction laydown area. The Arboretum also appears ineligible for listing on the CRHR under Criteria 1, 2, 3, and 4. The UCI Arboretum did not become recognizable as a botanical garden until the 1990s and does not appear to have been part of the original campus master plan, nor does research suggest a significant event took place at the Arboretum. Therefore, the resource does not appear associated with a significant event or theme in local, State, or national history and, as such, is not considered eligible for listing under Criterion 1. The Arboretum does not appear to be associated with persons significant in the past and does not appear eligible under Criterion 2. None of the buildings in the Arboretum or the botanical garden embody the distinctive characteristics of a type, period, and method of construction, are works of a master, nor display high artistic value and therefore are not eligible for listing under Criterion 3. Additionally, the Arboretum site would be used for temporary construction staging and parking and use of the site would be limited to the construction impacts phase of the Project. The Arboretum does not yield valuable information that will contribute to understanding of human history since it is not the principal source of important information pertaining to subjects such as botanical gardens, and therefore is not eligible under Criterion 4. Therefore, the proposed Project would not cause a substantial adverse change to a historical resources.

Mitigation Measures

No mitigation is required.

¹ Michael Baker International, *Cultural Resources and Tribal Cultural Resources Identification Study for the Irvine Campus Medical Complex*, Appendix D.

Level of Significance After Mitigation

Impacts would be less than significant.

Threshold 3.4-2:	Would the project cause a substantial adverse change in the significance of a prehistoric or historic archaeological resource pursuant to CEQA Guidelines Section 15064.5?
-------------------------	---

Impact Summary:	Significant and Unavoidable
------------------------	------------------------------------

As required by Mitigation Measure Cul-1A of the 2007 LRDP EIR, UCI retained qualified archaeologists (Michael Baler International and Cogstone) to survey the Project site and prepare a Cultural Resources and Tribal Cultural Resources Identification Study (included as Appendix D to this SEIR). The study included a records search, literature review, interested parties consultation, and an archaeological and built environment pedestrian field survey to identify cultural resources and previous cultural resources studies within and adjacent to the project area. Potential impacts related to Tribal Cultural Resources are discussed in Section 3.16 of this SEIR.

The previously identified site P30-000115/CA-ORA-115 was originally recorded in 1963 and has been investigated several times. The archeological site is considered eligible for the CRHR under Criterion 4 as it is likely to yield important information about prehistory. During the site survey by Cogstone in 2019, the presence of shell at the ground surface and undisturbed soils were observed and corroborate previous investigation findings. Subsurface archaeological deposits may be present in Locus B. The site may contribute to an understanding of Native American subsistence strategies during this period based on the presence of datable carbon and artifacts suggestive of discrete activities within the site. The site has yielded shell beads, which are further evidence of an economy using marine resources. Locus B would be directly impacted by the proposed Project. Due to the high likelihood of archeological resources present in Locus B, Project-specific Mitigation Measure CUL-1 would be implemented which outlines a Data Recovery Plan. The Data Recovery Plan is the systematic recovery of site data, including artifacts, stratigraphy, and cultural features. Data recovery is required within Locus B, but must also take into consideration areas within the Project area that are mapped outside the current archaeological site boundaries. Implementation of this mitigation measure is consistent with UCI's 2007 LRDP EIR Mitigation Measure CUL-1B. However, because Project implementation would destroy the resource and because Locus B covers the majority of the Project site, even partial avoidance is not possible. As such, the impact on cultural resources is considered a significant and unavoidable impact.

After data recovery of the known site, there is a possibility that archaeological remains could occur beneath the ground surface within other areas of the Project site (2007 LRDP EIR, page 4.4-4). Earthmoving activities could possibly uncover previously undetected archaeological remains associated with prehistoric cultures, and a loss of a significant archaeological resource could result if such materials are not properly identified. Therefore, implementation of Mitigation Measure CUL-2 would require monitoring by a qualified archaeologist during earthwork, which would reduce potential impacts due to any unknown archaeological resources.

The 2007 LRDP EIR cultural resources analysis included a discussion of paleontological resources. Paleontological resources are discussed in Section 3.6, Geology and Soils, of this SEIR.

Mitigation Measures

MM CUL-1 (This Mitigation Measure implements 2007 LRDP EIR MM Cul-1B) UCI shall prepare a Data Recovery Plan for the loss of this significant resource as a result of the site development. Prior to land clearing, grading, or similar land development activities for future projects that implement the 2007 LRDP and would impact a significant archaeological resource as determined by mitigation measure Cul-1A, a qualified archaeologist shall prepare and implement a data recovery plan. The plan shall include, but not be limited to, the following measures:

- i. Perform appropriate technical analyses;
- ii. File any resulting reports with the South Coastal Information Center; and
- iii. Provide the recovered materials to an appropriate repository for curation in consultation with a culturally-affiliated Native American.

MM CUL-2 (This Mitigation Measure implements Mitigation Measure 1C from the 2007 LRDP EIR) Prior to land clearing, grading, or similar land development activities for future projects that implement the 2007 LRDP in areas of identified archaeological sensitivity, UCI shall retain a qualified archaeologist and a Native American Monitor to monitor these activities. In the event of an unexpected archeological or tribal cultural resource is discovered during grading, the on-site construction supervisor shall be notified and shall redirect work away from the location of the archaeological find. A qualified archaeologist and/or monitoring archaeologist and Native American monitor shall oversee the evaluation and recovery of archaeological resources, in accordance with the procedures below, after which the on-site construction supervisor shall be notified and shall direct work to continue in the location of the archaeological find. A record of monitoring activity shall be submitted to UCI each month and at the end of monitoring. If the archaeological discovery is determined to be significant, the archaeologist shall prepare and implement a data recovery plan. The plan shall include, but not be limited to, the following measures:

- i. Perform appropriate technical analyses;
- ii. File any resulting reports with the South Coastal Information Center; and
- iii. Provide the recovered materials to an appropriate repository for curation, in consultation with a culturally-affiliated Native American.

Level of Significance After Mitigation

Because previous investigations indicate the high likelihood of archeological resources being present in Locus B, and because avoidance is not possible and the site will be destroyed, even with mitigation, this would be a significant and unavoidable impact.

Threshold 3.4-3:	Would the project disturb any human remains, including those interred outside of formal cemeteries?
Impact Summary:	Less Than Significant with Mitigation Incorporated

There is no indication that there are burials present on the Project site. However, future ground-disturbing activities during grading and construction activities could encounter buried human remains that were not

identified during the cultural resource report conducted for the proposed Project. This could result in damage to unknown, buried human remains and mitigation would be required. Mitigation Measure CUL-3 identifies procedures for recording and treating any human remains should they be discovered during Project construction. The measure requires that remains be protected, preserved, and treated in accordance with applicable laws, regulations and guidelines. With the implementation of Mitigation Measure CUL-3, potential impacts would be less than significant.

Mitigation Measures

MM CUL-3 UCI shall continuously comply with the following: Any human remains encountered during Project ground-disturbing activities shall be treated in accordance with California Health and Safety Code Section 7050.5. There shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the County coroner has determined the manner and cause of any death, and the recommendations concerning the treatment and disposition of the human remains have been made to the person responsible for the excavation or to his or her authorized representative. Project personnel/construction workers shall not collect or move any human remains and associated materials. If the human remains are of Native American origin, the coroner must notify the NAHC within 24 hours of this identification. The NAHC will immediately identify a Native American most likely descendant to inspect the site and provide recommendations within 48 hours for the proper treatment of the remains and associated grave goods.

Level of Significance After Mitigation

Less than significant impact.

3.4.6 Cumulative Impacts

With respect to historic resources, the Project would not impact any known historic resources. Therefore, the Project would not cumulatively contribute to significant impacts to historic resources.

With respect to prehistoric archaeological resources, the cumulative study area would include the sites along coastal Orange County historically used by the Juaneño and the Gabrieliño.

As set forth in the UCI 2007 LRDP EIR, the geographic context for the analysis of cumulative impacts for archaeological resources encompasses Orange County. Evidence of human occupation in Orange County dates from 17,000 B.C. Recorded archeological sites in the County contain artifacts and features of value in reconstructing cultural patterns of prehistoric life. Because prehistoric human occupation was most prevalent in areas where food, water, and shelter were available, subsurface resources are abundant in south Orange County, along the coast, and in creek areas. Development of the cities of Irvine and Newport Beach would include excavation and grading that would potentially impact archaeological resources. Therefore, future development in these cities, at UCI, and throughout Orange County, would have the potential to impact archaeological resources, resulting in a significant cumulative impact.

The UCI campus is built out with the exception of undeveloped areas in the North and South Campus sectors. Some of the known archeological resources that were once present in these areas have been destroyed, damaged, or lost; however, the potential for intact artifacts exists. Therefore, future

development under the 2007 LRDP may uncover and impact unrecorded resources, which could have a cumulatively considerable contribution to the cumulative impact of archeological resources.

The Project—in conjunction with the effects of past projects, other current projects, and probable future projects—may result in the disturbance of archaeological resources throughout the study area. Standard conditions of approval and mitigation measures required for each project may reduce the impacts to a less than significant level. Earthmoving activities could possibly uncover previously undetected archaeological remains associated with prehistoric cultures, and a loss of a significant archaeological resource could result if such materials are not properly identified. Therefore, despite the site-specific nature of the resources, mitigation required for the identification and protection of unknown or undocumented resources may result in cumulative impacts. The proposed Project would cumulatively contribute to a potentially significant impact without mitigation. This determination is consistent with the findings of the 2007 LRDP EIR. The LRDP EIR concluded that impacts would be considered significant for recorded resources that have been determined to be significant, including sites P-30-000115/CA-ORA-115-B.

3.4.7 Level of Significance After Mitigation Summary

With implementation of the Mitigation Program set forth in this section, potential impacts to known archaeological resources would remain significant and unavoidable. Impacts to historical resources would be less than significant.

3.5 ENERGY

This section of the SEIR identifies and evaluates potential energy impacts of the Project, with particular emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy to ensure that energy implications are considered in Project-related decision-making processes. This analysis considers the electricity, natural gas, and transportation fuel (petroleum) demands of the Project. This section is closely related to Section 3.7 Greenhouse Gas Emissions.

3.5.1 Regulatory Setting

Federal

National Energy Policy and Conservation Act

The National Energy Conservation Policy Act serves as the underlying authority for Federal energy management goals and requirements. Signed into law in 1975, it has been regularly updated and amended by subsequent laws and regulations. Pursuant to the act, the National Highway Traffic Safety Administration is responsible for establishing additional vehicle standards. In 2012, new fuel economy standards for passenger cars and light trucks were approved for model years 2017 through 2021 (77 FR 62624–63200). Fuel economy is determined based on each manufacturer’s average fuel economy for the fleet of vehicles available for sale in the United States.

Energy Policy Act of 2005

The Energy Policy Act of 2005 sets equipment energy efficiency standards and seeks to reduce reliance on non-renewable energy resources and provide incentives to reduce current demand on these resources. For example, under the Act, consumers and businesses can attain Federal tax credits for purchasing fuel-efficient appliances and products, including hybrid vehicles; constructing energy-efficient buildings; and improving the energy efficiency of commercial buildings. Additionally, tax credits are available for the installation of qualified fuel cells, stationary micro-turbine power plants, and solar power equipment.

Energy and Independence Security Act of 2007

The Energy and Independence Security Act of 2007 sets Federal energy management requirements in several areas, including energy reduction goals for Federal buildings, facility management and benchmarking, performance and standards for new buildings and major renovations, high-performance buildings, energy savings performance contracts, metering, energy-efficient product procurement, and reduction in petroleum use and increase in alternative fuel use. This act also amends portions of the National Energy Policy and Conservation Act. In addition to setting increased Corporate Average Fuel Economy standards for motor vehicles, the EISA includes the following other provisions related to energy efficiency:

- Renewable Fuel Standard (RFS) (Section 202)
- Appliance and Lighting Efficiency Standards (Sections 301–325)
- Building Energy Efficiency (Sections 411–441)

State

Assembly Bill 32 and Senate Bill 32

California's major initiative for reducing GHG emissions is outlined in Assembly Bill 32 (AB 32), the "California Global Warming Solutions Act of 2006." AB 32 codifies the statewide goal of reducing GHG emissions to 1990 levels by 2020 (essentially a 15 percent reduction below 2005 emission levels; the same requirement as under S-3-05), and required the California Air Resources Board (CARB) to prepare a Scoping Plan that outlines the main State strategies for reducing GHGs to meet the 2020 deadline. In addition, AB 32 required CARB to adopt regulations to require reporting and verification of statewide GHG emissions. Reductions in overall energy consumption have been implemented to reduce emissions. See Chapter 3.7 (Greenhouse Gas Emissions) for a further discussion of AB 32.

In September 2016, the Governor signed into legislation SB 32, which builds on AB 32 and requires the state to cut GHG emissions to 40 percent below 1990 levels by 2030. With SB 32, the Legislature also passed AB 197, which provides additional direction for updating the Scoping Plan to meet the 2030 GHG reduction target codified in SB 32. CARB adopted the second update to the Scoping Plan on December 14, 2017. The 2017 Scoping Plan details how the state will reduce GHG emissions to meet the 2030 target set by SB 32.

Additional energy efficiency measures beyond the current regulations are needed to meet these goals as well as the AB 32 greenhouse gas (GHG) reduction goal of reducing statewide GHG emissions to 1990 levels by 2020 and the SB 32 goal of 40 percent below 1990 levels by 2030 (see Chapter 3.7, Greenhouse Gas Emissions, for a discussion of AB 32 and SB 32). Part of the effort in meeting California's long-term reduction goals include reducing petroleum use in cars and trucks by 50 percent, increasing from one-third to more than one-half of California's electricity derived from renewable sources, doubling the efficiency savings achieved at existing buildings and making heating fuels cleaner; reducing the release of methane, black carbon, and other short-lived climate pollutants, and managing farm and rangelands, forests, and wetlands so they can store carbon.

2008 California Energy Action Plan Update

The 2008 Energy Action Plan Update provides a status update to the 2005 Energy Action Plan II, which is the State's principal energy planning and policy document (CPUC and CEC, 2008). The plan continues the goals of the original Energy Action Plan, describes a coordinated implementation plan for State energy policies, and identifies specific action areas to ensure that California's energy is adequate, affordable, technologically advanced, and environmentally sound. First-priority actions to address California's increasing energy demands are energy efficiency, demand response (i.e., reduction of customer energy usage during peak periods in order to address system reliability and support the best use of energy infrastructure), and the use of renewable sources of power. If these actions are unable to satisfy the increasing energy and capacity needs, the plan supports clean and efficient fossil-fired generation.

Senate Bill 1078 and 107; Executive Order S-14-08, S-21-09, and SB 2X

SB 1078 (Chapter 516, Statutes of 2002) requires retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20 percent of their supply from renewable sources by 2017. SB 107 (Chapter 464, Statutes of 2006) accelerated the due date of the 20 percent mandate to 2010 instead of 2017. These mandates apply directly to investor-owned utilities. In November 2008, the Governor signed Executive Order S-14-08, which expands the state's Renewable Portfolio

Standard to 33 percent renewable power by 2020. In September 2009, Executive Order S-21-09 continued California's commitment to the Renewable Portfolio Standard by signing, which directs the CARB under its AB 32 authority to enact regulations to help the state meet its Renewable Portfolio Standard goal of 33 percent renewable energy by 2020. CARB approved the Renewable Electricity Standard on September 23, 2010 by Resolution 10-23. SBX1-2 (2011) codified the 33 percent by 2020 goal.

Executive Order B-30-15; Senate Bill 100 and 350

In April 2015, the Governor issued Executive Order B-30-15, which established a GHG reduction target of 40 percent below 1990 levels by 2030. SB 350 (Chapter 547, Statutes of 2015) advanced these goals through two measures. First, the law increases the renewable power goal from 33 percent renewables by 2020 to 50 percent by 2030. Second, the law requires the California Energy Commission (CEC) to establish annual targets to double energy efficiency in buildings by 2030. The law also requires the California Public Utilities Commission (CPUC) to direct electric utilities to establish annual efficiency targets and implement demand-reduction measures to achieve this goal. In 2018, SB 100 revised the goal of the program to achieve the 50 percent renewable resources target by December 31, 2026, and to achieve a 60 percent target by December 31, 2030. SB 100 also established a further goal to have an electric grid that is entirely powered by clean energy by 2045.

State Vehicle Standards (AB 1493)

AB 1493 (Pavley Regulations and Fuel Efficiency Standards), enacted on July 22, 2002, required CARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light-duty trucks. Implementation of the regulation was delayed by lawsuits filed by automakers and by the United States Environmental Protection Agency's (U.S. EPA's) denial of an implementation waiver. The U.S. EPA subsequently granted the requested waiver in 2009, which was upheld by the U.S. District Court for the District of Columbia in 2011. The regulations establish one set of emission standards for model years 2009 to 2016 and a second set of emissions standards for model years 2017 to 2025. By 2025, when all rules will be fully implemented, new automobiles will emit 34 percent fewer CO₂e emissions and 75 percent fewer smog-forming emissions.

AB 1007 (Pavley)-Alternative Fuel Standards

Assembly Bill 1007 (Pavley, Chapter 371, Statutes of 2005) required the CEC to prepare a state plan to increase the use of alternative fuels in California (State Alternative Fuels Plan). The CEC prepared the State Alternative Fuels Plan in partnership with the CARB and in consultation with other state, federal, and local agencies. The final State Alternative Fuels Plan, published in December 2007, attempts to achieve an 80 percent reduction in GHG emissions associated with personal modes of transportation, even as California's population increases.

Low Carbon Fuel Standard

The Low Carbon Fuel Standard (LCFS), established in 2007 through Executive Order S-1-07 and administered by CARB, requires producers of petroleum-based fuels to reduce the carbon intensity of their products that started with a 0.25 percent reduction in 2011, and culminated in a 10 percent total reduction in 2020. In September 2018, CARB extended the LCFS program to 2030, making significant changes to the design and implementation of the program, including a doubling of the carbon intensity reduction to 20 percent by 2030.

Petroleum importers, refiners, and wholesalers can either develop their own low carbon fuel products or buy LCFS credits from other companies that develop and sell low carbon alternative fuels, such as biofuels, electricity, natural gas, and hydrogen.

Sustainable Communities Strategy

The Sustainable Communities and Climate Protection Act of 2008, or SB 375, coordinates land use planning, regional transportation plans, and funding priorities to help California meet its GHG emissions reduction mandates. As codified in California Government Code Section 65080, SB 375 requires metropolitan planning organizations (e.g., SCAG) to include a Sustainable Communities Strategy in their regional transportation plan. The main focus of the Sustainable Communities Strategy is to plan for growth in a fashion that will ultimately reduce GHG emissions, but the strategy is also part of a bigger effort to address other development issues, including transit and VMT, which influence the consumption of petroleum-based fuels. Developed by SCAG, Connect SoCal is a regional transportation plan/sustainable communities that seeks to balance future mobility and housing needs with economic, environmental, and public health goals by 2045.

Renewable Portfolio Standard

In 2002, California established its Renewable Portfolio Standard program with the goal of increasing the annual percentage of renewable energy in the state's electricity mix by the equivalent of at least 1 percent of sales, with an aggregate total of 20 percent by 2017. The California Public Utilities Commission subsequently accelerated that goal to 2010 for retail sellers of electricity (Public Utilities Code Section 399.15(b)(1)). The Governor signed Executive Order S-14-08 in 2008, increasing the target to 33 percent renewable energy by 2020. In September 2009, the Governor continued California's commitment to the Renewable Portfolio Standard by signing Executive Order S-21-09, which directs the CARB under its AB 32 authority to enact regulations to help the State meet its Renewable Portfolio Standard goal of 33 percent renewable energy by 2020. In September 2010, the CARB adopted its Renewable Electricity Standard regulations, which require all of the state's load-serving entities to meet this target. In October 2015, the Governor signed into legislation Senate Bill 350, which requires retail sellers and publicly owned utilities to procure 50 percent of their electricity from eligible renewable energy resources by 2030. Signed in 2018, SB 100 revised the goal of the program to achieve the 50 percent renewable resources target by December 31, 2026, and to achieve a 60 percent target by December 31, 2030. SB 100 also established a further goal to have an electric grid that is entirely powered by clean energy by 2045.

California Building Standards

California Green Building Standards Code

The California Green Building Standards Code (California Code of Regulations, Title 24, Part 11), commonly referred to as the CALGreen Code, is a statewide mandatory construction code that was developed and adopted by the California Building Standards Commission and the California Department of Housing and Community Development. CALGreen standards require new residential and commercial buildings to comply with mandatory measures under five topical areas: planning and design; energy efficiency; water efficiency and conservation; material conservation and resource efficiency; and environmental quality. CALGreen also provides voluntary measures (CALGreen Tier 1 and Tier 2) that local governments may adopt which encourage or require additional measures in the five green building topics. The most recent update to the CALGreen Code was adopted in 2016 and went into effect January 1, 2017.

Among the key mandatory provisions are requirements that new buildings:

- Reduce indoor potable water use by at least 20 percent below current standards;
- Recycle or salvage at least 50 percent of construction waste;
- Utilize low VOC-emitting finish materials and flooring systems;
- Install separate water meters tracking non-residential buildings' indoor and outdoor water use;
- Utilize moisture-sensing irrigation systems for larger landscape areas;
- Receive mandatory inspections by local officials of building energy systems, such as heating, ventilation, and air conditioning (HVAC) and mechanical equipment, to verify performance in accordance with specifications in non-residential buildings exceeding 10,000 square feet; and
- Earmark parking for fuel-efficient and carpool vehicles.

Building Energy Efficiency Standards

The Energy Efficiency Standards for Residential and Nonresidential Buildings, as specified in Title 24, Part 6, of the California Code of Regulations, were established in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. The 2016 Title 24 standards are the current applicable building energy efficiency standards and became effective on January 1, 2017. The 2019 Building Energy Efficiency Standards will continue to improve upon the 2016 Standards for new construction of, and additions and alterations to, residential and nonresidential buildings. The 2019 Building Energy Efficiency Standards were adopted on May 9, 2018 and take effect on January 1, 2020. Under the 2019 standards, homes will use about 53 percent less energy and nonresidential buildings will use about 30 percent less energy than buildings under the 2016 Title 24 standards.

2006 Appliance Efficiency Regulations

The California Energy Commission adopted Appliance Efficiency Regulations (Title 20, of the California Code of Regulations Sections 1601 through 1608) on October 11, 2006. The regulations were approved by the California Office of Administrative Law on December 14, 2006. The regulations include standards for both Federally regulated appliances and non-Federally regulated appliances. While these regulations are now often viewed as "business-as-usual," they exceed the standards imposed by all other states and they reduce GHG emissions by reducing energy demand.

University of California

UC Irvine Climate Action Plan

The UCI Climate Action Plan (CAP) was initially adopted in 2007 (updated in 2016) and provides an array of climate action protection strategies for projects to reduce UCI GHG emissions. The CAP provides guidance for UCI to achieve its institutional climate protection commitments in support of UC sustainability policy and campus sustainability goals. These commitments include reduction of GHG emissions to 1990 levels by the year 2020 (a reduction of approximately 49 percent from projected emissions), climate neutrality by the year 2025 (for on-site combustion of fossil fuels and purchased electricity), and climate neutrality by the year 2050 (for UCI commuters and university-funded air travel).

UC Irvine Long Range Development Plan

The UCI LRDP, adopted in 2007, provides the comprehensive framework for the physical development of the UCI campus and is the primary planning document for the campus. As a general land use plan, the 2007 LRDP does not guide enrollment decisions or implementation of capital projects that could impact the on-campus population. The 2007 LRDP generally outlines the physical development needed to meet projected demand based on near-term enrollment projections. The Infrastructure Element outlines the expansion of utility infrastructure required to meet the program needs identified in the 2007 LRDP. The element acknowledges UCI's commitment to environmental stewardship and its goal to reduce dependence on non-renewable energy sources. Key planning objectives for the Infrastructure Element include:

- Adopt efficient, "green" energy systems to conserve resources, manage energy costs, and promote environmentally beneficial practices.

University of California Policy on Sustainable Practices

The UC Policy on Sustainable Practices establishes goals in nine areas including: green building, clean energy, transportation, climate protection, sustainable operations, waste reduction and recycling, environmentally preferable purchasing, sustainable food service, and sustainable water systems.

The University of California's system-wide goal is to achieve carbon neutrality by 2025, using the following strategies:

- Annual two percent reduction in energy use;
- Cost-effective renewable energy installations; and
- System-wide purchasing pool for clean energy, biogas, and offsets by 2025.

Further policies include:

- The energy performance of new buildings must exceed Title 24 requirements by 20 percent;
- The energy performance of new buildings should exceed Title 24 requirements by 30 percent; and
- No new combustion is allowed for buildings and retrofits after June 30, 2019.

Healthcare buildings are subject to the same Title 24 requirements and are also subject to the overall carbon neutrality goal.

UCI Strategic Energy Plan

The SEP is a cooperative project involving the University of California (UC), California State University (CSU), and the Investor-Owned Utility (IOU) Partnership. The UC/CSU/IOU Partnership is a statewide energy efficiency program designed to achieve cost-effective immediate and persistent electricity peak energy and demand savings and natural gas savings. UC Irvine is served by two of the investor own utilities (IOU), Southern California Edison and Southern California Gas. There are 33 UC and CSU campuses in the program. The UCI SEP program for 2010-11 included energy efficiency Heating Ventilating and Air Conditioning (HVAC) retrofits, lighting retrofits, and centralized demand controlled ventilation.

UCI TDM Program

The UCI Sustainable Transportation Program includes several Transportation Demand Management (TDM) components, including the "University Pass" transit program; rebates on commuter train passes;

incentivized vanpool, carpool, and ridesharing programs; Zipcar car-sharing program; “ZotWheels” bike-sharing system; deployment of electric vehicle (EV) charging network; deployment of hydrogen fueling station for fuel cell vehicles; deployment of fuel cell bus for campus shuttle system; and a fully electric UCI shuttle fleet that reduce UCI’s reliance on fossil fuel-based transportation.

3.5.2 Existing Conditions

Californians consumed 284,436 gigawatt hours (GWh)¹ of electricity in 2018, which is the most recent year for which data is available. Of this total, Orange County consumed 20,197 GWh². In 2018, the California electricity mix included natural gas (34.91 percent), coal (3.3 percent), large hydroelectric plants (10.68 percent), nuclear (9.05 percent), oil (0.01 percent), petroleum coke/waste heat (0.15 percent) and unspecified sources of power (10.54 percent). The remaining 31.36 percent was supplied from renewable resources, such as wind, solar, geothermal, biomass, and small hydroelectric facilities³. In 2018, the state consumed 2,136,907 million cubic feet⁴ of natural gas.⁵

Energy usage is typically quantified using the British Thermal Unit (BTU). Total energy usage in California was 7,881 trillion BTU in 2017 (the most recent year for which this specific data is available), which equates to an average of 200 million BTU per capita⁶. Of California’s total energy usage, the breakdown by sector is 40 percent transportation, 23 percent industrial, 19 percent commercial, and 18 percent residential. Electricity and natural gas in California are generally consumed by stationary users such as residences and commercial and industrial facilities, whereas petroleum consumption is generally accounted for by transportation-related energy use. In 2019, taxable gasoline sales (including aviation gasoline) in California accounted for 15,338,758,756 gallons of gasoline.⁷

Current Energy Power Providers

Electricity

Electricity in Orange County is primarily provided by Southern California Edison (SCE). SCE transmission facilities deliver power through a distribution network consisting of overhead lines (38,000 line-miles) and underground lines (38,000 line-miles) ranging from 33 kV to 500 kV and approximately 800 substations. SCE has ownership interests of approximately 3,000 megawatts in generating and energy storage facilities with 7,000 megawatts of net capacity.⁸

¹ A watt hour is a unit of energy equivalent to one watt of power expended for one hour. For example, a typical light bulb is 60 watts, meaning that if it is left on for one hour, 60-watt hours have been used. One kilowatt equals 1,000 watts. The consumption of electrical energy by homes and businesses is usually measured in kilowatt hours (kWh). Some large businesses and institutions also use megawatt hours (MWh), where one MWh equals 1,000 kWh. One gigawatt equals 1,000 megawatts, or 1,000,000 kilowatts. The energy output of large power plants over long periods of time, or the energy consumption of jurisdictions, can be expressed in gigawatt hours (GWh).

² California Energy Commission, *California Energy Conservation Database*, 2020.

³ California Energy Commission, *Total System Electric Generation*, 2019

⁴ 100 cubic feet (CCF) is approximately the energy equivalent to burning 100 cubic feet of natural gas. 100 CCF of natural gas equals 103,700 a British Thermal Unit (BTU). A BTU is the amount of energy needed to raise the temperature of one pound of water by one degree Fahrenheit. A kBTU is 1,000 BTUs. A therm is 100,000 BTUs.

⁵ U.S. EIA, *California Natural Gas Total Consumption*, 2020.

⁶ U.S. EIA, *California Consumption and Expenditures*, 2020

⁷ California Department of Tax and Fee Administration, *Fuel Taxes Statistics & Reports: Motor Vehicle Fuel 10 Year Reports*, 2020

⁸ Edison International and Southern California Edison Annual Report, 2020.

SCE would distribute electricity to the Project area through existing facilities on Jamboree Road but power would be purchased through the UC Energy Services Unit (ESU). The ESU was established in 2015 to purchase electricity for participating UC campuses. The ESU power mix is currently 100 percent GHG free. The ESU has established projects and programs to provide utility-scale supply of renewable electricity and biomethane to support UC's sustainability goals. These efforts include investment in the development of 80 megawatts (MW) of solar energy supply by 2020 to provide long term sources of renewable power and development of 17 million therms of biomethane to provide renewable fuel to partially replace natural gas combustion on campuses. The ESU supplies UC campuses under direct access. *Table 3.5.1, UC Energy Services Unit Historical Emissions Factors*, shows a declining trend reaching GHG free energy in 2019.

The Regents of the University of California - ESP #1389						
Emissions Factor	2015 Verified	2016 Verified	2017 Verified	2018 Verified	2019 Submitted	2018 CAMX
MT CO ₂ /MWh	0.326	0.224	0.095	0.063	0.000	0.225
lbs CO ₂ /MWh	719.05	493.6	208.5	139.2	0.0	496.5

MT = metric tons; lbs = pounds; CO₂ = carbon dioxide; MWh = Megawatt hour

The electricity consumption attributable to Orange County from 2008 to 2018 is shown in *Table 3.5-2, Electricity Consumption in Orange County 2008-2018*. As indicated in Table 3.5-1, energy consumption in Orange County remained relatively constant between 2008 and 2018, with no substantial increase.

It should be noted that as part of the ESU supplied via direct access, UCI relies on a 19-MW combined heat and power (CHP) system with a natural gas-driven turbine to provide the majority of electrical power and thermal energy to serve the campus. Grid-purchased electricity and on-site photovoltaic (PV) systems supplement CHP-produced energy to serve UCI's remaining electrical energy needs, including facilities located in the North Campus. The on-site PV systems currently total 4.2 MW of generation capacity.

Year	Electricity Consumption (in millions of kilowatt hours)
2008	21,545
2009	20,687
2010	19,820
2011	19,933
2012	20,417
2013	20,293
2014	20,749
2015	20,675
2016	20,140
2017	20,310
2018	20,197

Source: CEC, Energy Consumption Database, 2020.

Natural Gas

Southern California Gas Company (SoCalGas) is the natural gas provider in the City of Irvine. SoCalGas is the nation's largest natural gas distribution utility, providing natural gas to 21.8 million consumers in more than 500 communities.

The natural gas consumption in Orange County from 2008 to 2018 is shown in *Table 3.5-3, Natural Gas Consumption in Orange County 2008-2018*. Similar to electricity consumption, natural gas consumption in Orange County remained relatively constant between 2008 and 2018, with no substantial increase. UCI's CHP system described above currently relies on natural gas as its energy source.

Year	Natural Gas Consumption (in millions of therms)
2008	633
2009	611
2010	636
2011	640
2012	613
2013	636
2014	545
2015	544
2016	570
2017	576
2018	575

Source: CEC, Energy Consumption Database, 2020.

The California Public Utilities Commission (CPUC) regulates California natural gas rates and natural gas services, including in-state transportation over transmission and distribution pipeline systems, storage, procurement, metering, and billing. Most of the natural gas used in California comes from out-of-state natural gas basins.

California's regulated utilities do not own any natural gas production facilities. All natural gas sold by these utilities must be purchased from suppliers or marketers. The price of natural gas sold by suppliers and marketers was deregulated by the Federal Energy Regulatory Commission in the mid-1980s and is determined by market forces. However, the CPUC decides whether California's utilities have taken reasonable steps to minimize the cost of natural gas purchased on behalf of its core customers.

As indicated in the preceding discussion, natural gas is available from a variety of in-state and out-of-state sources and is provided throughout the state in response to market supply and demand. Complementing available natural gas resources, biogas may soon be available through existing delivery systems, thereby increasing the availability and reliability of resources.

Transportation Fuels

California's transportation sector uses roughly half of the energy consumed in the state. In 2018, Californians consumed approximately 15.5 billion gallons of gasoline and 3 billion gallons of diesel fuel⁹. Orange County annual gasoline fuel use in 2018 was 1.2 billion gallons and diesel use was 152 million gallons. Automotive fuel consumption was estimated using CARB Emissions Factor (EMFAC) 2017 computer program for typical daily fuel use in Orange County.

3.5.3 Thresholds of Significance

The following significance criteria for Energy were derived from the Environmental Checklist in State CEQA Guidelines Appendix G. An impact of the Project would be considered significant and would require mitigation if it would:

Threshold 3.5-1 Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.

Threshold 3.5-2 Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

Methodology

In determining whether implementation of the Project would result in the inefficient, wasteful or unnecessary use of fuel or energy, this analysis considers the recommendations of Appendix F to the CEQA Guidelines. CEQA Guidelines Appendix F does not prescribe a threshold for the determination of significance. Rather, Appendix F focuses on reducing and minimizing inefficient, wasteful, and unnecessary consumption of energy. The analysis below generally follows Appendix F of the State CEQA Guidelines, which states that the goal of conserving energy includes decreasing overall per capita energy consumption; decreasing reliance on fossil fuels such as coal, natural gas, and oil; and increasing reliance on renewable energy. CEQA Guidelines Appendix F states that environmental impact analyses of energy conservation may include:

1. The project's energy requirements and its energy use efficiencies by amount and fuel type for each stage of the project's life cycle including construction, operation, maintenance and/or removal. If appropriate, the energy intensiveness of materials may be discussed.
2. The effects of the project on local and regional energy supplies and on requirements for additional capacity.
3. The effects of the project on peak and base period demands for electricity and other forms of energy.
4. The degree to which the project complies with existing energy standards.
5. The effects of the project on energy resources.
6. The project's projected transportation energy use requirements and its overall use of efficient transportation alternatives.

⁹ California Department of Tax and Fee Administration, Fuel Taxes Statistics & Reports: *Taxable Diesel Gallons 10 Year Reports, 2020*

This section analyzes energy use on three sources of energy that are relevant to the Project, including electricity, natural gas, and transportation fuel for vehicle trips associated with new development, as well as the fuel necessary for Project construction. The analysis of Project electricity and natural gas use is based on the California Emissions Estimator Model (CalEEMod), which quantifies energy use. The results of CalEEMod are included in the Air Quality and Greenhouse Gas Emissions Data located in Appendix B. The amount of operational fuel use was estimated using CalEEMod outputs for the Project and the California Air Resources Board (CARB) Emissions Factor (EMFAC) computer program for typical daily fuel use in Orange County. Construction fuel was calculated based on CalEEMod emissions outputs and conversion ratios from the Climate Registry.

Campus Programs, Practices and Procedures, and Mitigation Measures Carried Forward from the November 2007 LRDP Amendment Final EIR

No Mitigation Measures specific to Energy were adopted as part of the November 2007 LRDP Final EIR.

3.5.4 Environmental Impacts

Threshold 3.5-1:	Would the project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during Project construction or operation?
Impact Summary:	Less Than Significant Impact

Construction

The energy associated with Project construction includes electricity use associated with water utilized for dust control, diesel fuel from on-road hauling trips, vendor trips, and off-road construction diesel equipment, as well as gasoline fuel from on-road worker commute trips. The methodology for each category is discussed below. This analysis relies on the construction equipment list and operational characteristics, as stated in Section 3.2, *Air Quality* and Section 3.7, *Greenhouse Gas Emissions*. Quantifications of construction energy are provided for the Project below.

Electricity

Water Use

Electricity use associated with water use for construction dust control is calculated based on total water use and the energy intensity for supply, distribution, and treatment of water. The total number of gallons of water used is calculated based on acreage disturbed during grading and site preparation, as well as the daily watering rate per acre disturbed.

- The total acres disturbed are calculated using the methodology described in Chapter 4.2 of Appendix A of the CalEEMod User's Guide, available at: <http://www.caleemod.com/>.
- The water application rate of 3,020 gallons per acre per day is from the Air and Waste Management Association's Air Pollution Engineering Manual (1992).
- The energy intensity value is based on the CalEEMod default energy intensity per gallon of water for Orange County.

As summarized in *Table 3.5-4: Project Energy Use During Construction*, the total electricity associated with water use for construction dust control would be approximately 0.0063 GWh over the duration of Project construction.

Table 3.5-4. Project Energy Use During Construction			
Project Source	Total Construction Energy	Orange County Annual Energy	Percentage Increase Countywide
Electricity Use		GWh	
Water Use ¹	0.0063	20,197	0.00003%
Diesel Use		Gallons	
On-Road Construction Trips ²	297,625	152,622,518	0.1950 %
Off-Road Construction Equipment ³	146,038		0.0957 %
Construction Diesel Total	443,663		0.2907 %
Gasoline		Gallons	
On-Road Construction Trips	291,731	1,243,966,214	0.0235 %
¹ Construction water use based on acres disturbed per day per construction sequencing and estimated water use per acre. ² On-Road mobile source fuel use based on VMT from CalEEMod and fleet-average fuel use in MPG from EMFAC in Orange County. ³ Construction fuel use was calculated based on CalEEMod emissions outputs and conversion ratios from the Climate Registry. Source: Refer to energy calculations in Appendix B			

Diesel Use

On-Road Diesel Construction Trips

The diesel fuel associated with on-road construction mobile trips is calculated based on vehicle miles traveled (VMT) from vehicle trips (i.e., worker, vendor, and hauling), the CalEEMod default diesel fleet percentage, and vehicle fuel efficiency in miles per gallon (MPG). VMT for the entire construction period is calculated based on the number of trips multiplied by the trip lengths for each phase shown in CalEEMod. Construction fuel was calculated based on CalEEMod emissions outputs and conversion ratios from the Climate Registry. As summarized in Table 3.5-4, the total diesel fuel associated with on-road construction trips would be approximately 297,625 gallons over the duration of buildout of the Project.

Off-Road Diesel Construction Equipment

Similarly, the construction diesel fuel associated with the off-road construction equipment is calculated based on CalEEMod emissions outputs and conversion ratios from the Climate Registry. As summarized in Table 3.5-4, the total diesel fuel associated with off-road construction equipment is approximately 146,038 gallons for duration of buildout of the Project.

Gasoline

On-Road Gasoline Construction Trips

The gasoline fuel associated with on-road construction mobile trips is calculated based on VMT from vehicle trips (i.e., worker, vendor, and hauling), the CalEEMod default gasoline fleet percentage, and vehicle fuel efficiency in MPG using the same methodology as the construction on-road trip diesel fuel calculation discussed above. As summarized in Table 3.6-4, the total gasoline fuel associated with on-road construction trips would be approximately 291,731 gallons over the duration of buildout of the Project.

Construction Energy Use Analysis

In total, construction of the Project would use approximately 0.0063 GWh of electricity, 291,731 gallons of gasoline, and 443,663 gallons of diesel. Californians used 285,436 GWh of electricity in 2018, of which Orange County used 20,197 GWh. Project construction electricity use would represent approximately 0.000001 percent of current electricity use in the state, and 0.00003 percent of the current electricity use in Orange County. Therefore, there is adequate capacity to meet the anticipated electricity demand associated with construction.

In 2018, Californians used approximately 15,517,383,271 gallons of gasoline and approximately 3,073,917,507 gallons of diesel fuel¹⁰. Orange County annual gasoline fuel use in 2018 was 1,243,966,214 gallons and diesel use was 152,622,518 gallons. Total Project construction gasoline fuel would represent 0.0235 percent of annual gasoline used in the County, and total Project construction diesel fuel would represent 0.2907 percent of annual diesel used in the County. Based on the total Project's relatively low construction fuel use proportional to annual state and County use, the Project would not substantially affect existing energy fuel supplies or resources. New capacity or additional sources of construction fuel are not anticipated to be required.

In addition, some energy conservation would occur during construction through compliance with state requirements that equipment not in use for more than five minutes be turned off. Project construction equipment would also be required to comply with the latest U.S. EPA and CARB engine emissions standards. These engines use highly efficient combustion engines to minimize unnecessary fuel use.

The Project would entail construction activities that would use energy, primarily in the form of diesel fuel (e.g., mobile construction equipment) and electricity (e.g., power tools). Contractors would be required to monitor air quality emissions of construction activities using applicable regulatory guidance such as from SCAQMD CEQA Guidelines. This requirement indirectly relates to construction energy conservation because when air pollutant emissions are reduced from the monitoring and the efficient use of equipment and materials, energy use is reduced. There are no aspects of the Project that would foreseeably result in the inefficient, wasteful, or unnecessary use of energy during construction activities.

Due to increasing transportation costs and fuel prices, Contractors and Owners have a strong financial incentive to avoid wasteful, inefficient, and unnecessary use of energy during construction. There is growing recognition among developers and retailers that sustainable construction is not prohibitively expensive and that there is a significant cost-savings potential in green building practices. Substantial reduction in energy inputs for construction materials can be achieved by selecting building materials composed of recycled materials that require substantially less energy to produce than non-recycled materials. The Project-related incremental increase in the use of energy bound in construction materials such as asphalt, steel, concrete, pipes, and manufactured or processed materials (e.g., lumber and gas) would not substantially increase demand for energy compared to overall local and regional demand for construction materials. It is reasonable to assume that production of building materials such as concrete, steel, etc., would employ all reasonable energy conservation practices in the interest in minimizing the costs of business.

¹⁰ CDTFA. (2019). *Fuel Taxes and Statistics & Reports, Motor Vehicle Fuel and Diesel Fuel*. Retrieved from CDTFA Website: <https://www.cdtfa.ca.gov/taxes-and-fees/spftrpts.htm>. Accessed December 17, 2019.

As described above, the Project's fuel use for the entire construction period would increase fuel use in the County by less than one percent. It should be noted that the CEQA Guideline Appendix G and Appendix F criteria requires the Project's effects on local and regional energy supplies and on the requirements for additional capacity to be addressed. A less than one percent increase in construction fuel demand is not anticipated to trigger the need for additional capacity. Additionally, use of construction fuel would be temporary and would cease once the Project is fully developed. As such, Project construction would have a nominal effect on the local and regional energy supplies.

As stated above, there are no unusual characteristics that necessitate the use of construction equipment that would be less energy-efficient than at comparable construction sites in the region or state. Therefore, it is expected that construction fuel use associated with the Project would not be any more inefficient, wasteful, or unnecessary than other similar development projects of this nature. Therefore, potential impacts are considered less than significant.

Operations

The energy consumption associated with Project operations would occur from building energy (electricity and natural gas) use, water use, and transportation-related fuel use. The methodology for each category is discussed below. Quantifications of operational energy use are provided for the Project.

Petroleum Fuel

The gasoline and diesel fuel associated with on-road vehicular trips is calculated based on total VMT calculated for the analyses within Section 3.2, *Air Quality*, and Section 3.7, *Greenhouse Gas Emissions*, and average fuel efficiency from the EMFAC model. The EMFAC fuel efficiency data incorporates the Pavley Clean Car Standards and the Advanced Clean Cars Program¹¹. As summarized in *Table 3.5-5: Project Annual Energy Use During Operations*, the total gasoline and diesel fuel associated with on-road trips would be approximately 1,098,742 gallons per year and 150,122 gallons per year, respectively.

Table 3.5-5. Project Energy Use During Operations			
Project Source	Annual Operational Energy	Orange County Annual Energy	Percentage Increase Countywide
Electricity Use		GWh	
Area ¹	8.153	20,197	0.0404 %
Water ¹	0.204		0.0010 %
Total Electricity	8.357		0.0414 %
Natural Gas Use		Therms	
Area ¹	135,461	575,000,000	0.0236 %
Diesel Use		Gallons	
Mobile ²	150,122	152,622,518	0.0984 %
Gasoline Use		Gallons	
Mobile ²	1,098,742	1,243,966,214	0.0883 %
¹ The electricity, natural gas, and water usage are based on Project-specific estimates and CalEEMod defaults. ² Calculated based on the mobile source fuel use based on VMT and fleet-average fuel consumption MPG from EMFAC. Source: Refer to energy calculations in Appendix B.			

¹¹ The CARB EMFAC 2017 Technical Documentation from March 2018 notes that emissions are estimated with all current controls active, except Low Carbon Fuel Standards (LCFS). The reason for excluding LCFS is that most of the emissions benefits due to the LCFS come from the production cycle (upstream emissions) of the fuel rather than the combustion cycle (tailpipe). As a result, LCFS is assumed to not have a significant impact on CO₂ emissions from EMFAC's tailpipe emission estimates.

Electricity

The electricity use during Project operations is based on calculations in CalEEMod. As summarized in Table 3.5-5, the hospital, medical office building, and parking areas would use approximately 8.357 GWh of electricity per year. It should be noted that the Project is designed to achieve a minimum of U.S. Green Building Council Leadership in Energy and Environmental Design (LEED) Silver” standards at minimum and strive to achieve LEED “Gold” or higher. Under LEED certification, the Project would use 20 to 30 percent less energy than a building built under the Title 24 2019 standard.

The electricity associated with operational water use is estimated based on the annual water use and the energy intensity factor is the CalEEMod default energy intensity per gallon of water for Orange County. Project area water use is based on the CalEEMod default rates. The Project would use approximately 40 million gallons annually of water annually which would require approximately 0.204 GWh per year for conveyance and treatment.

Natural Gas

The methodology used to calculate the natural gas use associated with the Project is based on CalEEMod. As summarized in Table 3.5-5, the building envelope would use 13,546,130 thousand British Thermal Units (kBTU), or approximately 135,461 therms of natural gas per year.

Operational Energy Use Analysis

Operation of the Project would annually use approximately 8.357 GWh of electricity, 135,461 therms of natural gas, 1,098,742 gallons of gasoline, and 150,122 gallons of diesel.

Californians used 284,436 GWh of electricity in 2018, of which Orange County used 20,197 GWh. The Project’s operational electricity use would represent 0.003 percent of electricity used in the state, and 0.04 percent of the energy use in Orange County. Regarding natural gas, Californians used 12,666 million therms of natural gas and 575 million therms of natural gas in Orange County in 2018. Therefore, the Project’s operational natural gas use would represent 0.0001 percent of the natural gas use in the state and 0.002 percent of the natural gas use in the County.

In 2018, Californians used approximately 15,589,042,965 gallons of gasoline and approximately 3,107,823,655 gallons of diesel fuel. Orange County annual gasoline fuel use in 2018 was 1,243,966,214 gallons and diesel fuel use was 152,622,518 gallons. Expected Project operational use of gasoline and diesel would represent 0.008 percent of current gasoline use and 0.005 percent of current diesel use in the state. Project operational use of gasoline and diesel would represent 0.08 percent of gasoline use and 0.09 percent of diesel use in the County.

None of the Project energy uses exceed one percent of their corresponding County use. Project operations would not substantially affect existing energy or fuel supplies or resources. The Project would comply with applicable energy standards and new capacity would not be required. Impacts would be less than significant in this regard.

Energy Requirements and Energy Use Efficiencies

As noted above, one of the CEQA Guidelines Appendix F guidance factors include analysis of energy use efficiencies by amount and fuel type for each stage of the project including construction, operation, maintenance and/or removal. If appropriate, the energy intensiveness of materials may be discussed.

The energy inventories for the proposed Project include electricity and natural gas, and fuels used for construction and operations. The estimated energy use levels for construction and operations are provided in Table 3.5-4 and Table 3.5-5. The UC Policy on Sustainable Practices includes energy efficiency requirements depending on building type and campus location. Based on these requirements the Project has been designed to meet or exceed the following criteria:

Acute Hospital Building

- Outperform Title 24, part 6 Energy Efficiency Standards 2019 (Title 24) by 20 percent or meet energy use intensity (EUI) stretch goal of 115 kBtu/sf/yr
- Energy performance target: EUI of 160 kBtu/sf/yr

Clinics and Ambulatory Services

- Outperform ASHRAE 90.1-2010 by at least 30 percent or meet EUI stretch goal of 62 kBtu/sf/yr
- Energy performance target: EUI of 87 kBtu/sf/yr

Central Utility Plant

- Outperform Title 24, part 6 Energy Efficiency Standards 2019 (Title 24) by 20 percent

Parking Structures

- Outperform relevant sections of Title 24, part 6 Energy Efficiency Standards 2019 (Title 24) by 20 percent

The electrical systems are planned to incorporate high efficiency LED lighting with comprehensive digital controls; lower ambient light levels augmented by task lighting that complies with UCI standards, and integration of the occupancy sensors into the HVAC system for unoccupied temperature and ventilation setbacks where approved by UCI.

UCI's Climate Action Plan includes goals to provide utility-scale supply of renewable electricity and biomethane, which would further reduce the use of non-renewable energy sources. Greening UCI's power supply with a goal of 100 percent carbon free energy would reduce energy demand and further reduce the effects on local and regional energy supplies.

The UC system is a registered Electric Service Provider (ESP) that directly manages the percentage of renewable energy provided in its purchased electricity supply. The Main Campus and Medical Center have direct access accounts, allowing access to UC ESP-provided electricity which is 100 percent GHG free.

In addition to the energy efficiency requirements in the UC Policy on Sustainable Practices, the Project will be designed to achieve a minimum of LEED Silver certification and strive to achieve LEED Gold or higher. MM GHG-1 requires the installation of solar photovoltaic panels on the roofs of the two parking structures, and installation of a future battery storage system; refer to Section 3.7, Greenhouse Gas Emissions.

Regarding water energy conservation, the Project would include water-efficient plumbing fixtures, medical equipment, kitchen equipment and irrigation. The landscape shall be designed to achieve a minimum of 50 percent water savings in accordance with LEED calculation methods.

UCI's Sustainable Transportation Program utilizes various Transportation Demand Management (TDM) measures and was created with the goal to reduce the total number of vehicle trips made to the campus by faculty, staff and students and reduce transportation energy consumption. Employees of the Project would be eligible to utilize the TDM services provided by the UCI Transportation and Distribution Service. Additionally, the Project site is designed to accommodate multimodal transportation systems, including sidewalks/walking trails, bicycle infrastructure, municipal bus service, and campus shuttles. The Project would connect to a campus-wide network of bicycle/pedestrian trails.

In addition to direct construction- and operation-related energy consumption, indirect energy use would be involved to produce electricity, refine fuels, and make the materials and components used in construction, including the energy used for extraction of raw materials, manufacturing, and transportation. Energy intensiveness of electricity generation, fuel refining, and materials, also referred to as the energy "lifecycle," is not addressed in this analysis because the California Natural Resources Agency (CNRA) has indicated that lifecycle analyses are not required under CEQA.¹² The CNRA explained in the context of greenhouse gas emissions, that: (1) there exists no standard regulatory definition for lifecycle, and (2) even if a standard definition for lifecycle existed, the term might be interpreted to refer to emissions beyond those that could be considered 'indirect effects' as defined by CEQA Guidelines, and therefore, beyond what an EIR is required to estimate and mitigate.¹³ This reasoning was reaffirmed in Section 15126.2(b) of the November 2018 CEQA Guidelines, which cautions that the analysis of energy impacts is subject to the rule of reason, and must focus on energy demand caused by the project, signaling that a full "lifecycle" analysis that would account for energy used in building materials and consumer projects will generally not be required.¹⁴

Nonetheless, recycling reduces indirect energy consumption associated with making materials and components, and reduces the energy used for extraction of raw materials, manufacturing, and transportation. California has a statewide goal of 75 percent waste diversion by 2020. The proposed Project would require recycling containers to be located within public areas, and a waste diversion and recycling program to divert all non-hazardous and non-health care related waste that can be safely recycled or composted. Project operations would comply with the state goal by implementing waste diversion policies and infrastructure. With regard to the construction phases of the project, the Project would comply with the requirements of the CALGreen mandatory measures. These recycling efforts would reduce the effects of the project's indirect energy use.

The Project would be required to adhere to all federal and state requirements for energy efficiency, including the latest Title 24 standards. Considering these requirements and design features, the Project would not result in the inefficient, wasteful, or unnecessary use of building energy. Therefore, potential impacts are considered less than significant.

¹² California Natural Resources Agency (CNRA), *Final Statement of Reasons for Regulatory Action: Amendments to the State CEQA Guidelines Addressing Analysis and Mitigation of Greenhouse Gas Emissions Pursuant to SB97*, pages 71 and 72, December 2009. http://resources.ca.gov/ceqa/docs/Final_Statement_of_Reasons.pdf. Accessed September 22, 2020.

¹³ Ibid.

¹⁴ California Natural Resources Agency (CNRA), *Final Statement of Reasons for Regulatory Action, Amendments to the State CEQA Guidelines*, page 41. http://resources.ca.gov/ceqa/docs/2018_CEQA_Final_Statement_of%20Reasons_111218.pdf. November 2018. Accessed September 22, 2020.

Local and Regional Energy Supplies

CEQA Guidelines Appendix F guidance factors include an analysis of project effects on local and regional energy supplies and on requirements for additional capacity. As noted above, SCE would distribute electricity to the Project area through existing facilities on Jamboree Road, but power would be purchased through the UC ESU. The ESU power mix is currently 100 percent GHG free (i.e., renewable). The ESU has established projects and programs to provide utility-scale supply of renewable electricity and biomethane to support UC's sustainability goals. The ESU supplies UC campuses under direct access.

Additionally, Project operations would benefit from LEED design that would occur pursuant to the UC *Policy on Sustainable Practices* as well as exceeding Title 24 energy standards, which would further reduce electricity demand. Based on the analysis above and the low proportion of energy and fuel consumption compared to regional demand, the Project would not affect peak and base period demands for electricity and other forms of energy.

The proposed Project would not require additional power generation plants, natural gas transmission facilities, or fuel refineries to be constructed. Through use of renewable energy, energy efficiency standards, and electric vehicle charging infrastructure, the proposed Project would minimize impacts on the local and regional energy supply. The Project would comply with applicable energy standards and new capacity would not be required. Impacts would be less than significant in this regard.

Peak and Base Period Demands

CEQA Guidelines Appendix F guidance factors include an analysis of project effects on peak and base period demands for electricity and other forms of energy. Peak period electrical demand is the short period of time during which electrical power is needed when electricity is in highest demand. Base period electrical load is the minimum amount of electrical demand needed over a 24-hour time period. Wasteful, inefficient, or unnecessary consumption or use of energy during the peak period of electrical demand has greater potential to cause adverse environmental effects compared to during the base period because of the higher demand during the peak period. The proposed Project would not have a substantial impact on the peak and base period demands for electricity or other forms of energy. The proposed Project's base energy consumption compared to regional and statewide energy consumption is discussed above.

Energy Resources

CEQA Guidelines Appendix F guidance factors include an analysis of project effects on energy resources. The proposed Project's energy use, including electricity, natural gas, gasoline, and diesel consumption, would primarily be associated with construction activities, vehicle travel, building operations, and emergency generator testing and maintenance.

Total energy use requirements for construction and operations are shown in Table 3.5-4 and Table 3.5-5. Refer to the discussions, above for the effects that the proposed Project would have on energy resources. The Project's use of energy would not have a substantial adverse effect on statewide or regional energy resources relative to wasteful, inefficient, or unnecessary use of energy.

Transportation Energy Use

CEQA Guidelines Appendix F guidance factors include an analysis of project effects on projected transportation energy use requirements and its overall use of efficient transportation alternatives.

As discussed above, UCI's Sustainable Transportation Program utilizes various TDM measures and was created with the goal to reduce the total number of vehicle trips made to the campus by faculty, staff and students and reduce transportation energy consumption. MM AQ-2 (refer to Section 3.2) requires TDM measures to reduce mobile source emissions. Pursuant to UCI's TDM program, the proposed Project would include reductions in transportation and associated energy usage.

Impact Conclusion Summary

Based on the above analysis, the proposed Project would not result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of fuel or energy.

Mitigation Measures

No Mitigation Required

Level of Significance After Mitigation

Impacts would be less than significant.

Threshold 3.5-2:	Would the project conflict with or obstruct a State or Local plan for renewable energy or energy efficiency?
Impact Summary:	Less Than Significant Impact

The Project would be constructed to adhere to the UC Policy on Sustainable Practices, which implements system-wide building standards to reduce energy use through green building design and clean energy. The UC Policy on Sustainable Practices includes goals in various areas of sustainable practices including green building design, clean energy, climate protection, sustainable transportation, sustainable building operations for campuses, zero waste, sustainable procurement, sustainable food services, sustainable water systems and sustainability at UC Health.

Although the Project would increase the amount of energy use, as described above, the Project includes various sustainable project design features (e.g., greenhouse gas mitigation measures, water conservation measures, achieve a minimum of LEED Silver certification and strive to achieve LEED Gold, exceed Title 24 by 20 percent, etc.) in compliance with the UC Policy on Sustainable Practices. In addition, Project level mitigation measures for greenhouse gas emission reduction (Section 3.7) include annual monitoring and procurement of carbon offsets to achieve carbon neutrality for the Project. In order for the campus to reach the carbon neutrality goal of zero emissions of scope 1 and 2 sources by 2025 and scope 3 sources by 2050 as required by the Carbon Neutrality Initiative and the UC Policy on Sustainable Practices, the campus has identified a tiered set of strategies. These strategies include low-carbon growth through green building programs, reducing existing emissions through deep energy efficiency, replacing fossil fuel-based energy by deploying of on-site renewable energy and procuring off-site renewable energy, and mitigating the remaining carbon emissions through offset programs. Furthermore, the proposed project would not impede the campus' ability to reduce energy usage as it would outperform Title 24 by twenty percent to thirty percent depending on space type in accordance with UC policy. Therefore, in compliance with the UC Policy on Sustainable Practices, the proposed Project would not result in inefficient or unnecessary consumption of energy nor would it conflict with a State or local plan for renewable energy or energy efficiency, and impacts would be less than significant.

Mitigation Measures

No Mitigation Required

Level of Significance After Mitigation

Impacts would be less than significant.

3.5.5 Cumulative Impacts

Construction and operations associated with implementation of the Project would result in the consumption of fuel and energy, but it would not do so in a wasteful manner. The consumption of fuel and energy would not be substantial in comparison to countywide electricity, natural gas, gasoline, and diesel demand; refer to Table 3.5-4 and Table 3.5-5. New capacity or supplies of energy resources would not be required. Additionally, the Project would be subject to compliance with all federal, state, and University requirements for energy efficiency.

As noted in Section 3.2, Air Quality, the Project is consistent with the intent of the North Campus development program and the growth projections in the 2007 LRDP. The implementation of the proposed Project does not increase the total amount of development that was planned in the 2007 LRDP for the North Campus area. These growth projections are also used in regional planning documents such as SCAG's RTP/SCS. The anticipated Project impacts, in conjunction with cumulative development in the site vicinity, would increase urbanization and result in increased energy consumption. Project energy impacts require evaluation on a case-by-case basis. Each cumulative project would require separate discretionary approval and CEQA assessment, which would address potential energy consumption impacts and identify necessary mitigation measures, where appropriate. Given the relatively small percentage of the proposed Project's fuel and energy uses compared to existing fuel and energy use in the region, the Project's less-than-significant incremental impacts related to the use of fuel or energy in a wasteful or inefficient manner would not be expected to combine with the incremental impacts of other projects to cause an adverse cumulative impact.

As noted above, the Project would not result in significant energy consumption impacts. The Project would not be considered inefficient, wasteful, or unnecessary with regard to energy. Thus, the Project and identified cumulative projects are not anticipated to result in a significant cumulative impact. Therefore, potential cumulative energy impacts are considered less than significant.

3.5.6 Level of Significance After Mitigation Summary

The proposed Project would not result in any energy-related impacts and does not require any mitigation. Potential impacts would be considered less than significant.

3.6 GEOLOGY, SOILS, AND PALEONTOLOGICAL RESOURCES

This section of the EIR describes the geologic and soil characteristics of the Project site and analyzes the potential physical environmental effects associated with the construction and operation of the proposed Project related to seismic hazards, underlying soil characteristics, slope stability, erosion, and excavation and export of soils. Potential effects of soil conditions on air and water quality as a result of construction-related activities are discussed in Section 3.2, *Air Quality*, and Section 3.9, *Hydrology and Water Quality*, respectively. The geology and soils analysis in this section is largely based on the *Geotechnical Data Report for the UCI North Campus at University of California, Irvine*, prepared by Ninyo and Moore (November, 2019), which is included as Appendix E of this EIR. Geologic and soil conditions on campus are generally as described in the 2007 LRDP EIR which is incorporated by reference.

This section also evaluates potential impacts to paleontological resources. The *Irvine Campus Medical Complex Project Cultural Resources Identification Study* (Michael Baker International and Cogstone Resource Management, Inc. [Cogstone], 2020) was prepared to evaluate the potential impacts of the proposed Project on historic, archaeological, paleontological, and tribal cultural resources. The applicable findings of the study are summarized in this section and the study is included in Appendix D to this EIR.

3.6.1 Regulatory Setting

Federal Regulations

International Building Code

Published by the International Code Council, the scope of this code covers major aspects of construction and design of structures and buildings, except for 3-story one- and two-family dwellings and townhomes. In 2000, the 1997 Uniform Building Code was replaced by the International Building Code (IBC) and contained provisions for structural engineering design. Published by the International Conference of Building Officials, the 2018 International Building Code addresses the design and installation of structures and building systems through requirements that emphasize performance. The IBC includes codes governing structural as well as fire- and life-safety provisions covering seismic, wind, accessibility, egress, occupancy, and roofs.

Earthquake Hazards Reduction Act

The Earthquake Hazards Reduction Act of 1977 established the National Earthquake Hazards Reduction Program (NEHRP). Under the NEHRP, four federal agencies have responsibility for long-term earthquake risk reduction: the U.S. Geological Survey (USGS), the National Science Foundation, the Federal Emergency Management Agency (FEMA), and the National Institute of Standards and Technology. NEHRP's mission includes improved understanding, characterization, and prediction of hazards and vulnerability; improvements of building codes and land use practices; risk reduction through post-earthquake investigation and education; development and improvement of design and construction techniques; improvement of mitigation capacity; and accelerated application of research results.

State Regulations

California Building Code

The California Building Code (CBC) is another name for the body of regulations known as the California Code of Regulations (CCR), Title 24, Part 2, which is a portion of the California Building Standards Code and establishes minimum requirements for a buildings structural strength and stability to safeguard the public health, safety and general welfare. Title 24 is assigned to the California Building Standards Commission, which, by law, is responsible for coordinating all building standards. Under state law, all building standards must be centralized in Title 24 or they are not enforceable.

Published by the International Conference of Building Officials, the Uniform Building Code (UBC) is a widely adopted model building code in the United States. The CBC incorporates by reference the 2006 International Building Code, with necessary California amendments.

California Office of Statewide Health Planning and Development

Since 1973, all hospital construction has been governed by the provisions of the Alfred E. Alquist Hospital Facilities Seismic Safety Act (HSSA). The State preempted local building departments to ensure statewide uniformity in health facility construction standards. The standards are intended to ensure that vulnerable patients are safe in an earthquake and that the facilities remain functional after such a disaster, thereby being capable of providing care for injured persons in the community.

Pursuant to the HSSA, the Office of Statewide Health Planning and Development (OSHPD) is responsible for overseeing all aspects of the design and construction of general acute care hospital, psychiatric hospital, and skilled nursing home and intermediate care facility construction in California. Its responsibilities include establishing building standards that govern construction of these types of facilities; reviewing the plans and specifications for new construction, alteration, renovation, or additions to health facilities; and observing construction in progress to ensure compliance with the approved plans and specifications. OSHPD design requirements are more stringent than CBC requirements.

Buildings are separated into two categories: those that fall under the building code of OSHPD, and those that do not (non-OSHPD). OSHPD buildings provide acute-care inpatient medical services, with non-OSHPD buildings providing sub-acute care, outpatient, support, and administrative services. Building permits are issued by OSHPD.

The Alquist-Priolo Earthquake Fault Zoning Act of 1972

The Alquist-Priolo Earthquake Fault Zoning Act (Alquist-Priolo Act) was passed in 1972 to regulate development and construction of buildings intended for human occupancy to avoid the hazard of surface fault rupture along known active faults. Under the Alquist-Priolo Act, the California State Geologist identifies areas that are at risk of surface fault rupture. The primary purpose of the Alquist-Priolo Act is to reduce the threat to life and property, specifically from surface fault rupture, by preventing the construction of buildings used for human occupancy on the surface trace of active faults. An active fault is defined by the State Mining and Geology Board as one which has “had surface displacement within Holocene time (about the last 11,000 years).” This definition does not mean that faults that lack evidence of surface displacement within Holocene times are necessarily inactive. A fault may be presumed to be inactive based on satisfactory geologic evidence; however, the evidence necessary to prove inactivity is sometimes difficult to obtain and locally may not exist.

The State of California Geological Survey (CGS), previously known as the California Division of Mines and Geology, has compiled Special Publication 42 – Fault Rupture Hazard Zones that delineates and defines active fault traces and zones that require specific studies to address rupture hazards with respect to “structure[s] for human occupancy” (CGS, 2007) Any project that involves the construction of buildings or structures for human occupancy is subject to the Alquist-Priolo Act, and any structures for human occupancy must be located at least 50 feet from any active fault.

Seismic Hazards Mapping Act

In accordance with Public Resources Code, Chapter 7.8, Division 2, the CGS is directed to delineate Seismic Hazard Zones through the Seismic Hazards Zonation Program. The purpose of the Seismic Hazards Mapping Act is to reduce the threat to public health and safety and to minimize the loss of life and property by identifying and mitigating seismic hazards, such as those associated with strong ground shaking, liquefaction, landslides, other ground failures, or other hazards caused by earthquakes. Cities, counties, and State agencies are directed to use seismic hazard zone maps developed by CGS in their land-use planning and permitting processes. In accordance with the Seismic Hazards Mapping Act, site-specific geotechnical investigations must be performed prior to permitting most urban development projects within seismic hazard zones. The Geotechnical Data Report for the UCI North Campus at University of California, Irvine prepared by Ninyo and Moore (November 2019) is a preliminary geotechnical report. An additional project-specific geotechnical report would be prepared during the design phase of the proposed Project.

Paleontological Resources Regulations

CEQA Guidelines Appendix G (Part VII) provides guidance relative to significant impacts on paleontological resources, stating that a project will normally result in a significant impact on the environment if a project would “directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.” PRC Section 5097.5 specifies that any unauthorized removal of paleontological remains is a misdemeanor, and California Penal Code Section 622.5 sets the penalties for the damage or removal of paleontological resources.

University of California

University of California Seismic Safety Policy

It is the policy of the University of California (UC), as set forth in the *University of California Seismic Safety Policy*, to provide an acceptable level of earthquake safety for students, employees, and the public who occupy university facilities and leased facilities, to the extent feasible by present earthquake engineering practice (source: *University of California Seismic Safety Policy*, 1975, effective date 2017). Feasibility is determined by balancing the practicality and the cost of protective measures, depending on the forecasted severity and probability of injury resulting from seismic activity.

University of California Irvine Emergency Management Plans

The Emergency Management Program at UCI establish emergency response procedures across the campus. The goal of these plans is to allow for rapid and efficient mobilization of University resources necessary to handle emergencies. Emergency response is activated when the University and/or its surrounding community may have been exposed to a major emergency situation, casualties, or events that have exceeded or impacted the resources normally available. These emergencies include

earthquakes, civil disturbance or demonstration, airplane crash, bomb threats, and hazardous material incidents.

3.6.2 Existing Conditions

The Geotechnical Data Report includes the findings of subsurface exploration conducted for the Project site by Ninyo & Moore from May 28, 2019 through June 11, 2019. The subsurface evaluation consisted of drilling, logging, and sampling of 35 small-diameter borings (B-1 through B-35) to depths ranging from approximately 16.5 feet to 61.5 feet below the ground surface (bgs), and 16 backhoe excavated test pits (TP-1 through TP-16) to depths ranging from approximately 4.0 to 10.3 feet bgs. Four percolation test borings (P-1 through P-4) were drilled to a depth of approximately 10 feet bgs. Information collected in the test borings were used to develop a subsurface profile of the soil and bedrock conditions at the Project site.

Regional Geology

Regionally, the Project site is situated along the northern portion of the San Joaquin Hills, within the Peninsular Ranges Geomorphic Province of Southern California. This province consists of a series of ranges separated by northwest-trending valley, sub-parallel to branches of the San Andreas Fault. The Peninsular Ranges Geomorphic Province, one of the largest geomorphic units in western North American, extends from the Transverse Ranges Geomorphic Province and the Los Angeles basin, south to Baja California. It is bound on the west by the Pacific Ocean, on the south by the Gulf of California, and on the east by Colorado Desert Province. The Peninsular Ranges are essentially a series of northwest-southeast oriented fault blocks. Major fault zones and subordinate fault zones found in the Peninsular Ranges Province typically tend in a northwest-southeast direction.

Project Site Characteristics

The elevation of the Project site ranges from approximately 35 feet above mean sea level (msl) to approximately 50 feet above msl. In general, the overall Project site ground surface is relatively level with a gentle slope to the south. On-site superficial clayey soils have low to medium potential for expansion.

Soils and Geology

The Project site and surrounding area is predominantly underlain by late Pleistocene-age marine terrace deposits and the Miocene-age Topanga Formation. Soil has been identified by the United States Department of Agriculture – National Resources Conservation Service as belonging to a mixture of clay loams of the Alo series at 9 to 15 percent slopes. The soils of the Alo series consist of well-drained soils. These have very high runoff and very slow permeability.

Subsurface conditions encountered at the Project site consisted of asphalt pavement and base, fill, alluvium, marine deposits, and Topanga Formation. Fill materials were encountered in borings B-1 through B-3, B-5, B-10, B-11, 20, B-22, B-23, B-26 through B-28 and extended to a depth of approximately 1 to 13 feet below ground surface (bgs) across the Project site. In general, the fill was composed of clays, gravel, construction debris, and other debris.

Alluvium was encountered beneath pavement and/or fill, or at the surface in borings B-16 through B-21, B-34, and B-35 on the southeastern portion of the Project site. The alluvium consists of moist, stiff to hard, sandy to lean clay, and moist, medium dense to dense, silty and clayey sand, and poorly graded sand with

variable amount of gravel. The alluvium grades into the terrace deposits going from the southeast to the northwestern side of the Project site.

Terrace deposits were encountered at the surface or beneath the fill and/or alluvium. The deposits generally consisted of moist, medium dense to dense, sandy silt, silty sand, and poorly graded sand, and moist to wet, stiff to hard, sandy clay, and lean to fat clay and extended to a total depth of approximately 61.5 feet bgs. The terrace deposits grade into alluvial soils on the southeastern portion of the site.

Topanga Formation was encountered in boring B-30 beneath terrace deposits. The depth to the Topanga Formation was observed to be approximately 18 feet below the ground surface. The Topanga Formation encountered consisted of moist, moderately to strongly indurated claystone, and, moist, moderately weathered, sandstone.

Groundwater

Groundwater borings encountered groundwater at depths ranging from approximately 23 to 49 feet below the existing ground surface. Historical high groundwater is mapped at the site at approximately 10 feet below the ground surface.¹ Fluctuations in the level of groundwater may occur due to variations in ground surface topography, subsurface stratification, rainfall, irrigation practices, groundwater pumping, and other factors which may not have been evident at the time of our field evaluation.

Geologic Hazards

Faulting and Seismicity

Most of Southern California is subject to ground shaking (ground motion) as a result of movement along active and potentially active fault zones in the region. **Figure 3.6-1, Fault Locations**, shows the approximate locations of major faults in the Project area. The Project site is not located within an Alquist-Priolo Earthquake Fault Zone as defined by the State (Ninyo & Moore, 2019). *Table 3.6-1, Summary of Major Active Faults* identifies active fault zones that could have a considerable effect on the site in the event significant activity is experienced.

Blind thrust faults are low-angle faults at a depth that do not break the surface. Although blind thrusts do not have a surface trace, they can be capable of generating damaging earthquakes. The nearest active blind thrust fault is the San Joaquin Hills Blind Thrust, is approximately 1.8 miles north of the Project site and included in Table 3.6-1. While not considered a Major Active Fault, an unnamed, inferred fault (a subsurface fault where the location is not precisely known), also referred to as the UCI Campus Fault is approximately 1.25 miles southeast of the Project site. A study conducted by Petra Geotechnical, Inc. in 1991 concluded that the UCI Campus Fault is potentially active.

Fault Name	Approximate Distance from Site (miles)	Maximum Moment Magnitude
San Joaquin Hills Blind Thrust	1.8	7.1
Newport-Inglewood	5.7	7.5
Puente Hills Blind Thrust	14.8	6.9
Elsinore	16.4	7.9
Palos Verdes	17.4	7.7

¹ Ninyo and Moore, 2019.

Fault Name	Approximate Distance from Site (miles)	Maximum Moment Magnitude
Chino	19.8	6.8
San Jose	25.3	6.7
Coronado Bank	26.2	7.4
Elysian Park	31.3	6.7
San Andreas	47.5	8.2

Source: Ninyo & Moore, 2019.

Surface Fault Rupture

Ground surface rupture along an earthquake fault may cause damage to aboveground infrastructure and other features. The State of California has mapped known active faults that may cause surface fault rupture in inhabited areas as part of the Alquist-Priolo Earthquake Fault Zoning Act. There are no known active faults crossing the Project site and the site is not located within an Alquist-Priolo Earthquake Fault Zone as defined by the State. The likelihood of surface fault rupture at the site is relatively low. However, lurching or cracking of the ground surface as a result of nearby seismic events is possible.

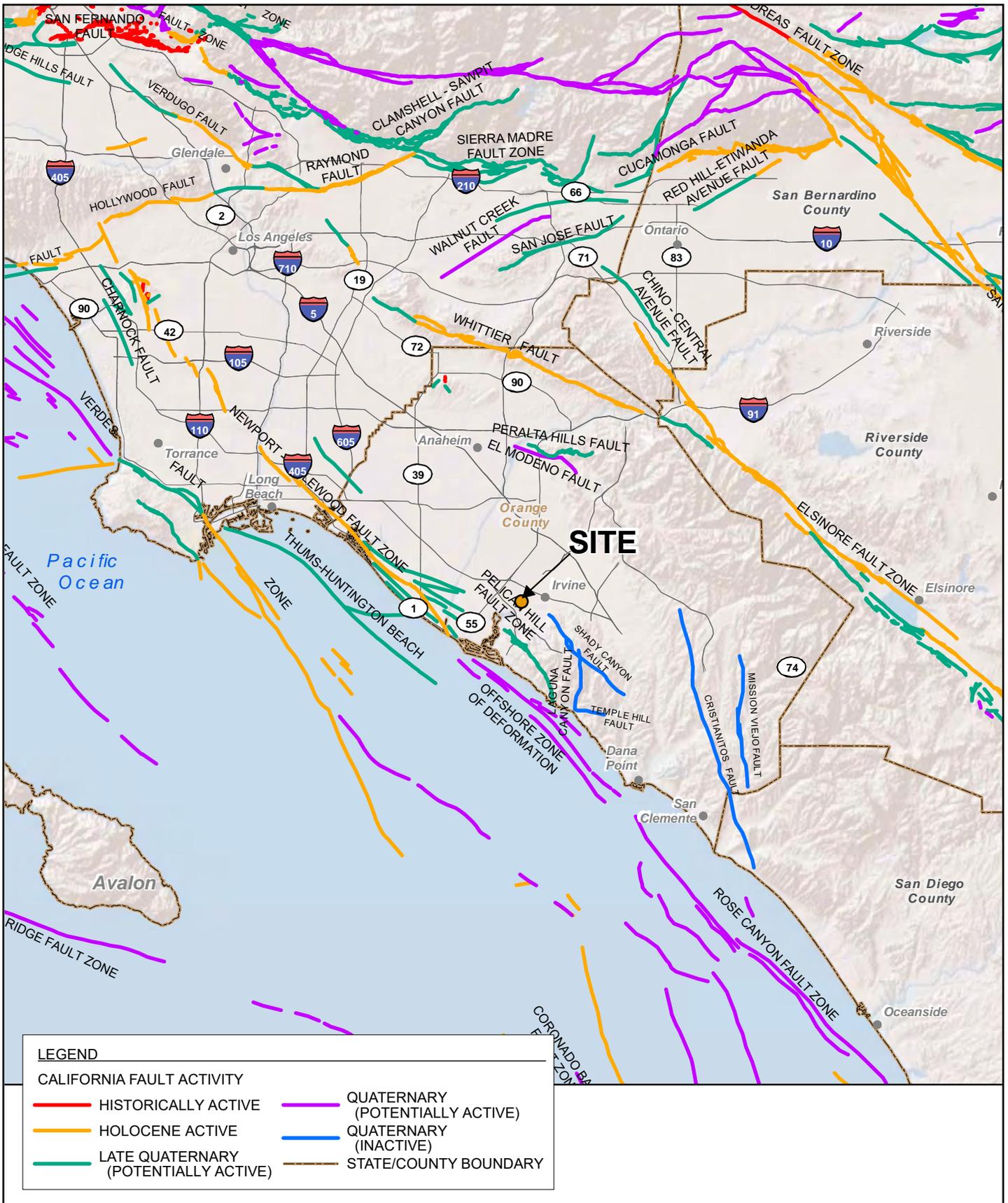
Seismically-Induced Ground Shaking

Strong ground shaking from an earthquake can result in damage associated with landslides, ground lurching, structural damage, and liquefaction. The Project site is subject to fairly high levels of seismically-induced ground shaking due to its proximity to active faults capable of producing a maximum moment magnitude of 6.0 or more (Table 3.6-1). Each of these active faults is capable of generating severe ground shaking at the Project site. The 2019 California Building Code, amended per the UC Seismic Safety Policy, was used to evaluate seismic loads for the design of buildings and other structures on the Project site. The horizontal peak ground acceleration that corresponds to the MCE_R for the Project area was calculated to be $0.51g^2$ using the 2019 Structural Engineers Association of California (SEAOC)/Office of Statewide Health Planning and Development (OSHPD) seismic design tool (web-based).

Liquefaction and Lateral Spreading

Liquefaction is the loss of soil strength or stiffness due to a build-up of water pressure between soil particles during severe ground shaking or other rapid loading. This condition is associated primarily with loose (low density), saturated, fine- to medium-grained, cohesionless soils that often make up alluvial materials. Lateral spreading is the finite, horizontal movement of material associated with pore pressure build-up or liquefaction. This process can occur in a shallow underlying deposit during an earthquake in areas susceptible to liquefaction. In order to occur, lateral spreading requires the existence of a continuous and laterally unconstrained liquefiable zone.

² Site acceleration during a seismic event is measured as a percent of gravity, or "g". For instance, $0.51g$ is 51 percent of the force of gravity.



Source: Ninyo and Moore, 2019

FIGURE 3.6-1: Fault Locations

UCI Irvine Campus Medical Complex EIR
University of California, Irvine



Not to scale

Kimley»Horn

Based on the *Geotechnical Data Report*, the southeastern portion of the Project site adjacent to the marsh is located in an area mapped as being susceptible to liquefaction. However, exploratory borings conducted at the Project site concluded that due to the relatively dense and cohesive nature of the shallow terrace deposits and depth to groundwater, liquefaction is not considered a design concern for development at the Project site.

Lateral Spreading

Lateral spreading is the finite, horizontal movement of material associated with pore pressure build-up or liquefaction. This process can occur in a shallow underlying deposit during an earthquake in areas susceptible to liquefaction. In order to occur, lateral spreading requires the existence of a continuous and laterally unconstrained liquefiable zone. Lateral spreading can occur on gently sloping and on flat ground close to rivers and lakes.

Landslides

Landslides are gravity-driven movements of earth materials that may include rock, soil, unconsolidated sediment, or combinations of such materials. The primary factors influencing the stability of a slope are the nature of the underlying soil or bedrock, the geometry of the slope (height and steepness), and rainfall. The presence of historic landslide deposits is a good indicator of future landslides. Landslides are commonly triggered by unusually high rainfall and the resulting soil saturation, by earthquakes, or a combination of these conditions. The Project area is not mapped in an area susceptible to seismically induced landslides. The majority of the Project site is located on relatively level terrain. The relatively steep slopes along the southeastern edge of the Project site adjacent to the San Joaquin Marsh Reserve may be subject to instability. No observations of landslides were encountered during Ninyo & Moore's site reconnaissance or background research.

Paleontological Setting

Paleontological resources are nonrenewable scientific and educational resources. Projects subject to CEQA must determine whether a project would "directly or indirectly destroy a unique paleontological resource." An impact to paleontological resources would be considered a significant impact if a project results in the direct or indirect destruction of a unique or important paleontological resource or site. A project site is deemed paleontologically sensitive if (1) it has fossils that have previously been recovered from a particular geologic unit; (2) there are recorded fossil localities within the same geologic units as occur within the project area; and (3) the types of fossil materials that have been recovered from the geologic unit are unique or important.

Paleontological Resources

A paleontological records search conducted by the Los Angeles County Museum of Natural History (LACM), indicated that no vertebrate fossil localities have been identified within the on-site or off-site Project areas. The on-site and off-site Project areas are identified on the Riverside County General Plan (2008) Paleontological Sensitivity Map in order to determine whether or not it overlies areas of high, low, or undetermined sensitivity. The records search indicated that at least three vertebrate localities were identified from within very old Quaternary alluvial deposits in Riverside County from within the vicinity of the on-site and off-site Project areas. During the cultural resource field reconnaissance survey, the very old alluvial fan deposits were confirmed to be present at approximately 2 meters below ground surface (bgs), extending to approximately 4 meters bgs, within a drainage cut that transects the on-site Project

area. These Pleistocene sediments consisted of moderately to well consolidated, tan to dark brown, moderately sorted mud (silt-dominated) to fine-grained sand, with scant granules. The deposits are variably massive to weakly bedded, with alternating mud and granular-sand beds (1- to 5-centimeter thickness) when a bedded fabric is present, with evidence of root casts, comprised of light tan mud. Below 4 meters bgs, sediments consist of tan to dark brown mud and fine-grained, well to moderately sorted arkosic sand. The geologic units underlying the on-site Project area as well as the off-site improvement areas are noted as High B according to the Paleontological Sensitivity Map in the Riverside County General Plan (2008), and is also mapped as a High Sensitivity area within the 2007 LRDP EIR, indicating that they have a high potential for significant fossil resources at shallow depth.

In February 2020, Michael Baker International (MBI) prepared a Cultural Resources assessment (*Cultural Resources Identification Study for The Irvine Campus Medical Complex Project*) for the Project. The assessment consisted of archival research, records search, Native American Heritage Commission (NAHC) Sacred Lands File search, historical society consultation, and California Register of Historical Resources evaluation of two built environment resources. Cogstone Resource Management, Inc. (Cogstone) conducted the cultural resources field survey and geoarchaeological sensitivity analysis for the Project. Cogstone's findings were incorporated in MBI's Cultural Resources assessment.

In the vicinity of the UCI campus, the Topanga Formation is best known for its vertebrate assemblage. Within the UCI campus, fossil plants and vertebrate material have been reported from two locations in the Topanga Formation. The Topanga Formation is considered to have a high paleontological sensitivity.

3.6.3 Thresholds of Significance

The following significance criteria are from Appendix G of the State CEQA Guidelines. The Project would result in a significant impact related to geology and soils if it would:

- Threshold 3.6-1** **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) **Landslides**
- Threshold 3.6-2** **Result in substantial soil erosion or the loss of topsoil.**
- Threshold 3.6-3** **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.**
- Threshold 3.6-4** **Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property.**
- Threshold 3.6-5** **Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.**

Campus Programs, Practices and Procedures, and Mitigation Measures Carried Forward from the November 2007 LRDP Amendment Final EIR

LRDP EIR CUL-4A Prior to grading or excavation for future projects that implement the 2007 LRDP and would excavate sedimentary rock material other than topsoil, UCI shall retain a qualified paleontologist to monitor these activities. In the event fossils are discovered during grading, the on-site construction supervisor shall be notified and shall redirect work away from the location of the discovery. The recommendations of the paleontologist shall be implemented with respect to the evaluation and recovery of fossils, in accordance with mitigation measures Cul-4B and Cul-4C, after which the on-site construction supervisor shall be notified and shall direct work to continue in the location of the fossil discovery. A record of monitoring activity shall be submitted to UCI each month and at the end of monitoring.

LRDP EIR CUL-4B If the fossils are determined to be significant, then mitigation measure Cul-4C shall be implemented.

LRDP EIR CUL-4C For significant fossils as determined by Mitigation Measure Cul-4B, the paleontologist shall prepare and implement a data recovery plan. The plan shall include, but not be limited to, the following measures:

- a. The paleontologist shall ensure that all significant fossils collected are cleaned, identified, catalogued, and permanently curated with an appropriate institution with a research interest in the materials (which may include UCI);
- b. The paleontologist shall ensure that specialty studies are completed, as appropriate, for any significant fossil collected; and
- c. The paleontologist shall ensure that curation of fossils are completed in consultation with UCI. A letter of acceptance from the curation institution shall be submitted to UCI.

Items Not Discussed Further

The proposed Project would not have a significant impact on the following threshold for the reasons stated below, and that no further analysis was required:

- Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater.

The Project will use the existing public sewer service from the Orange County Sanitation District and Irvine Ranch Water District. The Project does not require septic tanks or alternative wastewater disposal systems. Therefore, the Project does not require soils capable of supporting septic tanks or alternative wastewater disposal systems and the Project will have no impact in this regard.

3.6.4 Environmental Impacts

Threshold 3.6-1:	<p>Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:</p> <p>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.</p> <p>ii) Strong seismic ground shaking</p> <p>iii) Landslides</p>
Impact Summary:	Less Than Significant Impact.

Fault Rupture

The Project site is not located within an Alquist-Priolo Earthquake Fault Zone and no known active faults cross the site. The *Geotechnical Data Report* determined that the likelihood of surface fault rupture at the site is relatively low.

A site-specific analysis of the Project site's potential to experience significant seismic ground motion was conducted and concludes that, although the site is not located within a designated Alquist-Priolo Earthquake Fault Zone, strong ground shaking due to regional seismic activity is anticipated. While no active or potentially active earthquake faults have been identified on the UCI campus, a locally mapped fault trace, the UCI Campus Fault, traverses the campus. Through design review by the Campus Building Official, UCI enforces the Restricted Use Zone (RUZ), a 50-foot setback for occupied buildings on either side of the UCI Campus Fault. Development is restricted within the RUZ, which prevents increased hazards to people who live on campus. The RUZ does not extend into the Project site.

Construction of the proposed Project would be required to conform to the seismic design requirements of the 2019 CBC, which would reduce anticipated impacts related to the proximity of earthquake faults by requiring structures to be built to withstand seismic ground shaking. Additionally, the Project would need to comply with the UC Seismic Safety Policy which would require anchorage for seismic resistance of nonstructural building elements such as furnishings, fixtures, material storage facilities, and utilities that could create a hazard if dislodged during an earthquake. With compliance with the CBC and the UC Seismic Safety Policy, impacts associated with fault ruptures would be less than significant.

Seismic Ground Shaking

The Project site is subject to fairly high levels of seismically-induced ground shaking due to its proximity to active faults capable of producing a maximum movement magnitude of 6.0 or more. Given that each of the active faults shown in Table 3.6-1 are capable of generating severe ground shaking at the Project site in the event of an earthquake, seismic shaking is anticipated to occur during the lifetime of the Project. However, the Project would be designed and constructed to withstand the magnitude of an earthquake in order to minimize seismic impacts.

As discussed in the Environmental Setting, an analysis of seismic parameters and peak-ground acceleration was calculated to quantify the peak ground acceleration that could be expected at the Project

site. The analysis concluded that the horizontal peak ground acceleration that corresponds to the MCE_R for the Project area is approximately 0.51g. Table 3 in Appendix E of this SEIR provides seismic design parameters for the Project site in accordance with the CBC guidelines and adjusted MCE_R . The Project would be subject to the CBC seismic safety standards and UC Seismic Safety Policy in order to minimize seismic impacts. Therefore, compliance with the CBC, UC Seismic Safety Policy, and implementation of recommendations in the site-specific geotechnical study conducted during the design phase would reduce any potential hazards associated with seismic ground shaking to a less than significant level.

Landslides

Based on the *Geotechnical Data Report*, the Project site is not mapped in an area susceptible to seismically induced landslides. The majority of the Project site is located on relatively level terrain. While the relatively steep slopes along the southeastern edge of the Project site adjacent to the marsh may be subject to instability, no observations of landslides were encountered during Ninyo & Moore's site reconnaissance or background review. The Project would be subject to CBC guidelines and UC Seismic Safety Policy, which would ensure that the structures and associated improvements are designed and constructed to withstand potential hazards, such as landslides. Compliance with the CBC, UC Seismic Safety Policy, and implementation of recommendations in the site-specific geotechnical study conducted during the design phase would reduce any impacts associated with landslides to a less than significant level.

Mitigation Measures

No mitigation is required.

Level of Significance After Mitigation

Not applicable.

Threshold 3.6-2:	Would the project result in substantial soil erosion or the loss of topsoil?
Impact Summary:	Less Than Significant Impact With Mitigation Incorporated.

Soil erosion occurs when surface materials are worn away from the earth's surface due to land disturbance and/or natural factors such as wind and precipitation. The potential for soil erosion is determined by characteristics including texture and content, surface roughness, vegetation cover, and slope grade and length. Wind erosion typically occurs when fine-grained non-cohesive soils are exposed to high-velocity winds, while water erosion tends to occur when loose soils on moderate to steep slopes are exposed to high-intensity storm events.

Short-Term Construction

The Project site is currently developed with existing UCI support service facilities, portions of the North Campus Arboretum which consists of landscaping, and undeveloped real property. The Project site would be graded, and foundation excavation would require the export of approximately 18,150 cubic yards (cy) plus grading approximately 9,000 cy for the temporary staging area at the Arboretum site. The proposed Project would involve the localized removal of topsoil and Topanga Formation materials (e.g., claystone and moderately cemented sandstone) grading associated with the construction of buildings, parking structures, infrastructure, and roads. The loosening and exposure of soil would make the Project site susceptible to erosion by rainfall and wind during construction. However, earth-disturbing activities associated with Project construction would be temporary.

The Project would be required to comply with Chapter 29 of the CBC, which regulates excavation activities and the construction of foundations and retaining walls, and Chapter 70 of the CBC, which regulates grading activities, including drainage and erosion control. Additionally, the Project would be required to comply with the National Pollutant Discharge Elimination System (NPDES) permitting process for construction activities, which requires preparation of an erosion control plan and implementation of construction best management practices (BMPs) to prevent soil erosion. With implementation of these routine construction BMPs, potential construction-related erosion impacts would be less than significant.

Long-Term Operations

The proposed Project design is approximately 70 percent or 10.45 acres of impervious surfaces. Upon completion, the Project would include three buildings, a parking structure, and surface parking. Pervious areas would be landscaped to prevent soil erosion; the remainder of the Project site would be impervious and therefore not subject to soil erosion. While the proposed Project would increase impermeable surfaces on the Project site, soil erosion is not anticipated to occur during operation. As discussed further in Section 3.2, Air Quality, UCI would implement Mitigation Measure (MM) AIR-1, which would require dust control measures consistent with South Coast Air Quality Management District (SCAQMD) regulations. Additionally, as stated in Section 3.9, Hydrology and Water Quality, UCI would implement MM HYD-1, which would reduce stormwater runoff velocities to pre-existing conditions to the extent feasible. Other MMs, such as HYD-2 and HYD-3, which would implement site design and treatment control design measures to reduce pollutants of concern in runoff would also be implemented as appropriate. With compliance with all existing permit requirements and regulations and implementation of MM HYD-1A, HYD-2A, and HYD-2B, the Project would have a less than significant impact on the loss of topsoil and soil erosion.

Mitigation Measures

The Project would result in less than significant impacts with the implementation of 2007 LRDP EIR Mitigation Measure AIR-1 related to dust control measures and Mitigation Measures HYD-1, HYD-2, and HYD-3 related to BMPs and stormwater runoff during Project construction and operation. No additional mitigation beyond that required by the 2007 LRDP EIR is required.

Level of Significance After Mitigation

Less than significant

Threshold 3.6-3:	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?
Impact Summary:	Less Than Significant Impact.

As described in the *Geotechnical Data Report*, Ninyo & Moore conducted 35 small-diameter borings and 16 backhoe excavated test pits at the Project site with a truck-mounted drill rig to collect soil samples. An additional four percolation test borings were conducted to develop a subsurface profile of the soil and bedrock conditions at the Project site. Based on Ninyo & Moore's site-specific investigation, development of the Project site was determined to be feasible from a geotechnical perspective.

Landslides

See landslide discussion under Threshold 3.6-1 above.

Liquefaction and Subsidence

Ground effects related to liquefaction include vertical settlement, ground subsidence or voids below structures, soil bearing failure, and sand boils. Based on the Geotechnical Data Report, the southeastern portion of the Project site adjacent to the marsh is located in an area mapped as being susceptible to liquefaction. However, the exploratory borings conducted for the Project site determined that due to the relatively dense and cohesive nature of the shallow terrace deposits and depth to groundwater table, liquefaction is not considered a design consideration for the Project site. Therefore, compliance with the CBC, UC Seismic Safety Policy, an implementation of recommendations in the project-specific geotechnical investigation that would be prepared during the design phase would reduce potential hazards associated with liquefaction to a less than significant level.

Lateral spreading

In regard to lateral spreading, Ninyo & Moore identified that temporary shoring in accordance with OSHA regulations would need to be implemented during construction to minimize the potential for lateral movement of soils during grading activities. The Project would be subject to CBC guidelines and recommendations in the geotechnical investigation, which would ensure that the structures and associated improvements are designed and constructed to withstand potential hazards, such as lateral spreading. Compliance with CBC guidelines during Project design would reduce potential impacts to a less than significant level.

Collapse

Strong seismic shaking is anticipated to occur during the design life of the Project. To mitigate the shaking effects, all structures would be required to comply with the CBC requirements and UC Policy on Seismic Safety. Compliance with the CBC requirements and UC Policy on Seismic Safety would reduce potential impacts related to collapse to a less than significant level.

Mitigation Measures

No mitigation is required.

Level of Significance After Mitigation

Not applicable.

Threshold 3.6-4:	Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?
Impact Summary:	Less than Significant Impact.

Soils that expand and contract in volume (“shrink-swell” pattern) are considered to be expansive and may cause damage to aboveground infrastructure as a result of density changes that shift overlying materials. Fine-grain clay sediments are most likely to exhibit shrink-swell patterns in response to changing moisture levels. Expansive top soils are prevalent on the UCI campus and are generally a dark brown sandy clay,

clayey sand, or lean clay. The top soil located through the UCI campus is generally highly expansive. However, laboratory test results of the borings indicated that the on-site surficial clayey soils have expansion index values ranging from approximately 29 to 73, which is an indication of low to medium potential for expansion for the soils on this site.

The CBC includes provisions for construction on expansive soils. Proper fill selection, moisture control, and compaction during construction can prevent these soils from causing significant damage. Expansive soils can be treated by removal (typically the upper three feet below finish grade) and replacement with low expansive soils, lime-treatment, and/or moisture conditioning. Thus, compliance with the CBC would ensure that potential impacts associated with expansive soils would be less than significant.

Mitigation Measures

No mitigation is required.

Level of Significance After Mitigation

Not applicable.

Threshold 3.6-5:	Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?
Impact Summary:	Less Than Significant Impact With Mitigation Incorporated.

Paleontological sensitivity is defined as the potential for a geologic unit to produce scientifically significant fossils. This is determined by rock type, past history of the geologic unit in producing significant fossils, and fossil localities recorded from that unit.

The UCI campus is underlain by various geologic units with varying potential to contain fossils. The Topanga Formation geologic units under the campus are regionally considered to be of high paleontological sensitivity. As shown in Figure 4.4-1 in the 2007 LRDP EIR, the majority of the UCI campus, which includes the Project site, is rated as High Sensitivity for vertebrate and invertebrate fossils. The 2007 LRDP EIR determined any project involving excavation into either the Topanga Formation or the terrace deposits would have an adverse effect on paleontological resources. Therefore, development that occurs from the implementation of the Project site that involves earthwork would significantly impact paleontological resources. Implementation of 2007 LRDP EIR MMs CUL-4A, CUL-4B, and CUL-4C, which require monitoring during grading and proper recovery if fossils are found, would reduce impacts to paleontological resources to a less than significant level.

Mitigation Measures

The Project would result in less than significant impacts with the implementation of the 2007 LRDP EIR Mitigation Measure CUL-4A, CUL-4B, and CUL-4C related to monitoring unrecorded subsurface resources and collecting discovered resources during Project construction and operation. No additional mitigation beyond that required by the 2007 LRDP EIR is required.

GEO-1 *(This Mitigation Measure Implements Mitigation Measure CUL-4A from the 2007 LRDP EIR)* Prior to grading or excavation for future projects that implement the 2007 LRDP and would excavate sedimentary rock material other than topsoil, UCI shall retain a qualified paleontologist to monitor these activities. In the event

fossils are discovered during grading, the on-site construction supervisor shall be notified and shall redirect work away from the location of the discovery. The recommendations of the paleontologist shall be implemented with respect to the evaluation and recovery of fossils, in accordance with mitigation measures Cul-4B and Cul-4C, after which the on-site construction supervisor shall be notified and shall direct work to continue in the location of the fossil discovery. A record of monitoring activity shall be submitted to UCI each month and at the end of monitoring.

GEO-2 *(This Mitigation Measure Implements Mitigation Measure CUL-4B from the 2007 LRDP EIR)* If the fossils are determined to be significant, then mitigation measure Cul-4C shall be implemented.

GEO-3 *(This Mitigation Measure Implements Mitigation Measure CUL-4C from the 2007 LRDP EIR)* For significant fossils as determined by Mitigation Measure Cul-4B, the paleontologist shall prepare and implement a data recovery plan. The plan shall include, but not be limited to, the following measures:

- i. The paleontologist shall ensure that all significant fossils collected are cleaned, identified, catalogued, and permanently curated with an appropriate institution with a research interest in the materials (which may include UCI);
- ii. The paleontologist shall ensure that specialty studies are completed, as appropriate, for any significant fossil collected; and
- iii. The paleontologist shall ensure that curation of fossils are completed in consultation with UCI. A letter of acceptance from the curation institution shall be submitted to UCI.

Level of Significance After Mitigation

Less than significant.

3.6.5 Cumulative Impacts

Southern California is a seismically active region with a range of geologic and soil conditions. These conditions can vary widely within a limited geographical area due to factors, including differences in landforms and proximity to fault zones, among others. Therefore, while geotechnical impacts may be associated with cumulative development, by the very nature of the impacts (i.e., landslides and expansive and compressible soils), the constraints are typically site-specific and there is typically little, if any, cumulative relationship between the development of a proposed project and development within a larger cumulative area, such as citywide development. Additionally, while seismic conditions are regional in nature, seismic impacts on a given project site are site-specific. For example, development within the site or surrounding area would not alter geologic events or soil features/characteristics (such as ground-shaking, seismic intensity, or soil expansion); therefore, the Project would not affect the level of intensity at which a seismic event on an adjacent site is experienced. However, Project development and future development in the area may expose more persons to seismic hazards.

In accordance with the thresholds of significance, impacts associated with seismic events and hazards would be considered significant if the effects of an earthquake on a property could not be mitigated by an engineered solution. The significance criteria do not require elimination of the potential for structural damage from seismic hazards. Instead, the criteria require an evaluation of whether the seismic conditions on a site can be overcome through engineering design solutions that would reduce to less than significant the substantial risk of exposing people or structures to loss, injury, or death.

State and local regulatory code requirements and their specific mandatory performance standards are designed to ensure the integrity of structures during maximum ground shaking and seismic events. The proposed Project would be constructed in compliance with all applicable codes, which are designed to reduce the exposure of people or structures to substantial risk of loss, injury, or death related to geological conditions or seismic events. Therefore, Project impacts would be less than significant. Current building codes, the UC Seismic Safety Policy and regulations would apply to all present and reasonably foreseeable future projects, which could also be subject to even more rigorous requirements. Therefore, the Project—in combination with past, present, and reasonably foreseeable future projects—would not result in a cumulatively significant impact by exposing people or structures to risks related to geologic hazards, soils, or seismic conditions.

The proposed Project's compliance with the CBC, UC Seismic Safety Policy, and recommendations from the geotechnical investigation would ensure that geology and soil impacts would be less than significant. As such, potential impacts would be reduced to a less than significant level with implementation of applicable standard engineering practices and construction requirements. The Project's incremental contribution to cumulative geotechnical and seismic impacts would be less than significant. None of the Project characteristics would affect or influence the geotechnical hazards for off-site development. Similarly, the cumulative projects, which would be required to comply with the California Building Code and regulations, are not expected to have an adverse impact on the Project. For these reasons, no significant cumulative geotechnical impacts would occur for the Project.

The 2007 LRDP EIR defines the geographic context for the analysis of cumulative impacts to paleontological resources to be Orange County. As previously described, the geologic units that occur under the UCI campus are also present in many other areas of the Orange County region. Development of the Orange County region has resulted in disturbance to these geologic units and the fossils that they contain. However, development has also led to the discovery of many fossil sites that have been documented and which have added to the natural history record for the region. Development of the Orange County area will continue and will have the potential to continue to disturb these geologic units; however, monitoring for paleontological resources is now typically required for projects that require significant earthwork in geologic units with higher paleontological sensitivities, such as the UCI campus. Implementation of Mitigation Measures GEO-1, GEO-2, and GEO-3 require monitoring and recovery of paleontological resources if found. Therefore, because paleontological monitoring is required throughout Orange County and the monitoring enables the discovery, recording, and archiving of additional resources, the cumulative impact to paleontological resources is less than significant.

3.6.6 Level of Significance After Mitigation summary

With implementation of the Mitigation Program set forth in this section, potential geology and soils impacts would be reduced to a level considered less than significant.

3.6.7 References

Michael Baker International (MBI). 2020. *Cultural Resources Identification Study for the Irvine Campus Medical Complex Project*.

Michael Baker International (MBI). 2020. *Irvine Campus Medical Complex Project Concept Drainage and Water Quality Technical Memorandum*.

Natural Resources Conservation Service (NRCS). 2020. Soil Survey of Monterey County, California. Available at: <https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>. Accessed April 3, 2020.

Ninyo & Moore. 2019. *Geotechnical Data Report for the UCI North Campus at University of California, Irvine*.

Occupational Safety and Health Administration (OSHA). Soil Classification. Available at: https://www.osha.gov/dts/vtools/construction/soil_testing_fnl_eng_web_transcript.html. Accessed on April 8, 2020.

PBS&J. 2007. *UCI 2007 Long Range Development Plan Final EIR*.

3.7 GREENHOUSE GAS EMISSIONS

This section of the SEIR evaluates greenhouse gas (GHG) emissions associated with the proposed Project and analyzes Project compliance with applicable regulations. Consideration of the Project's consistency with applicable plans, policies, and regulations, as well as the introduction of new sources of GHGs, is provided. The GHG technical data and calculations are included in Appendix B to this EIR.

3.7.1 Environmental Setting

Greenhouse Gas and Climate Change

Certain gases in the earth's atmosphere, classified as greenhouse gases (GHGs), play a critical role in determining the earth's surface temperature. Solar radiation enters the earth's atmosphere from space. A portion of the radiation is absorbed by the earth's surface and a smaller portion of this radiation is reflected back toward space. This absorbed radiation is then emitted from the earth as low-frequency infrared radiation. The frequencies at which bodies emit radiation are proportional to temperature. Because the earth has a much lower temperature than the sun, it emits lower-frequency radiation. Most solar radiation passes through GHGs; however, infrared radiation is absorbed by these gases. As a result, radiation that otherwise would have escaped back into space is instead "trapped," resulting in a warming of the atmosphere. This phenomenon, known as the greenhouse effect, is responsible for maintaining a habitable climate on earth.

The primary GHGs contributing to the greenhouse effect are carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O). Fluorinated gases also make up a small fraction of the GHGs that contribute to climate change. Fluorinated gases include chlorofluorocarbons, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, and nitrogen trifluoride; however, it is noted that these gases are not associated with typical land use development. Human-caused emissions of these GHGs in excess of natural ambient concentrations are believed to be responsible for intensifying the greenhouse effect and leading to a trend of unnatural warming of the earth's climate, known as global climate change or global warming.

GHGs are global pollutants, unlike criteria air pollutants and toxic air contaminants, which are pollutants of regional and local concern. Whereas pollutants with localized air quality effects have relatively short atmospheric lifetimes (about one day), GHGs have long atmospheric lifetimes (one to several thousand years). GHGs persist in the atmosphere for long enough time periods to be dispersed around the globe. Although the exact lifetime of any particular GHG molecule is dependent on multiple variables and cannot be pinpointed, it is understood that more CO₂ is emitted into the atmosphere than is sequestered by ocean uptake, vegetation, or other forms. Of the total annual human-caused CO₂ emissions, approximately 55 percent is sequestered through ocean and land uptakes every year, averaged over the last 50 years, whereas the remaining 45 percent of human-caused CO₂ emissions remains stored in the atmosphere.¹ *Table 3.7-1, Description of Greenhouse Gases*, describes the primary GHGs attributed to global climate change, including their physical properties.

¹ Intergovernmental Panel on Climate Change, *Carbon and Other Biogeochemical Cycles*. In: *Climate Change 2013: The Physical Science Basis, Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*, 2013. https://www.ipcc.ch/site/assets/uploads/2018/02/WG1AR5_all_final.pdf.

Greenhouse Gas	Description
Carbon Dioxide (CO ₂)	CO ₂ is a colorless, odorless gas that is emitted naturally and through human activities. Natural sources include decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungus; evaporation from oceans; and volcanic outgassing. Anthropogenic sources are from burning coal, oil, natural gas, and wood. The largest source of CO ₂ emissions globally is the combustion of fossil fuels such as coal, oil, and gas in power plants, automobiles, and industrial facilities. The atmospheric lifetime of CO ₂ is variable because it is readily exchanged in the atmosphere. CO ₂ is the most widely emitted GHG and is the reference gas (Global Warming Potential of 1) for determining Global Warming Potentials for other GHGs.
Nitrous Oxide (N ₂ O)	N ₂ O is largely attributable to agricultural practices and soil management. Primary human-related sources of N ₂ O include agricultural soil management, sewage treatment, combustion of fossil fuels, and adipic and nitric acid production. N ₂ O is produced from biological sources in soil and water, particularly microbial action in wet tropical forests. The atmospheric lifetime of N ₂ O is approximately 120 years. The Global Warming Potential of N ₂ O is 298.
Methane (CH ₄)	CH ₄ , a highly potent GHG, primarily results from off-gassing (the release of chemicals from nonmetallic substances under ambient or greater pressure conditions) and is largely associated with agricultural practices and landfills. Methane is the major component of natural gas, approximately 87 percent by volume. Human-related sources include fossil fuel production, animal husbandry, rice cultivation, biomass burning, and waste management. Natural sources of CH ₄ include wetlands, gas hydrates, termites, oceans, freshwater bodies, non-wetland soils, and wildfires. The atmospheric lifetime of CH ₄ is approximately 12 years and the Global Warming Potential is 25.
Hydrofluorocarbons (HFCs)	HFCs are typically used as refrigerants for both stationary refrigeration and mobile air conditioning. The use of HFCs for cooling and foam blowing is increasing, as the continued phase out of CFCs and HCFCs gains momentum. The 100-year Global Warming Potential of HFCs range from 124 for HFC-152 to 14,800 for HFC-23.
Perfluorocarbons (PFCs)	PFCs have stable molecular structures and only break down by ultraviolet rays approximately 60 kilometers above Earth's surface. Because of this, they have long lifetimes, between 10,000 and 50,000 years. Two main sources of PFCs are primary aluminum production and semiconductor manufacturing. Global Warming Potentials range from 6,500 to 9,200.
Chlorofluorocarbons (CFCs)	CFCs are gases formed synthetically by replacing all hydrogen atoms in methane or ethane with chlorine and/or fluorine atoms. They are nontoxic, nonflammable, insoluble, and chemically unreactive in the troposphere (the level of air at the earth's surface). CFCs were synthesized in 1928 for use as refrigerants, aerosol propellants, and cleaning solvents. The Montreal Protocol on Substances that Deplete the Ozone Layer prohibited their production in 1987. Global Warming Potentials for CFCs range from 3,800 to 14,400.
Sulfur Hexafluoride (SF ₆)	SF ₆ is an inorganic, odorless, colorless, and nontoxic, nonflammable gas. It has a lifetime of 3,200 years. This gas is manmade and used for insulation in electric power transmission equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas. The Global Warming Potential of SF ₆ is 23,900.
Hydrochlorofluorocarbons (HCFCs)	HCFCs are solvents, similar in use and chemical composition to CFCs. The main uses of HCFCs are for refrigerant products and air conditioning systems. As part of the Montreal Protocol, HCFCs are subject to a consumption cap and gradual phase out. The United States is scheduled to achieve a 100 percent reduction to the cap by 2030. The 100-year Global Warming Potentials of HCFCs range from 90 for HCFC-123 to 1,800 for HCFC-142b.
Nitrogen Trifluoride (NF ₃)	NF ₃ was added to Health and Safety Code section 38505(g)(7) as a GHG of concern. This gas is used in electronics manufacture for semiconductors and liquid crystal displays. It has a high global warming potential of 17,200.
Source: Compiled from U.S. EPA, Overview of Greenhouse Gases, April 11, 2019 (https://www.epa.gov/ghgemissions/overview-greenhouse-gases); U.S. EPA, Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2017, 2019; Intergovernmental Panel on Climate Change, Climate Change 2007: The Physical Science Basis, 2007; National Research Council, Advancing the Science of Climate Change, 2010; U.S. EPA, Methane and Nitrous Oxide Emission from Natural Sources, April 2010.	

Potential Effects from Climate Change

Fossil fuel combustion, especially for the generation of electricity and powering of motor vehicles, has led to substantial increases in CO₂ emissions (and thus substantial increases in atmospheric concentrations). In 1994, atmospheric CO₂ concentrations were found to have increased by nearly 30 percent above preindustrial (circa 1860) concentrations.

There is international scientific consensus that human-caused increases in GHGs have contributed and would continue to contribute to global warming. Potential climate change impacts in California may include, but are not limited to, loss in snowpack, sea-level rise, more extreme heat days per year, more high ozone days, more large forest fires, and more drought years. Secondary effects are likely to include the displacement of thousands of coastal businesses and residences, impacts on agriculture, changes in disease vectors, and changes in habitat and biodiversity. As the CARB Climate Change Scoping Plan noted, the legislature in enacting Assembly Bill (AB) 32 found that global warming would cause detrimental effects to some of the State's largest industries, including agriculture, winemaking, tourism, skiing, commercial and recreational fishing, forestry, and the adequacy of electrical power generation. The Climate Change Scoping Plan states as follows: "The impacts of global warming are already being felt in California. The Sierra snowpack, an important source of water supply for the State, has shrunk 10 percent in the last 100 years. It is expected to continue to decrease by as much as 25 percent by 2050. World-wide changes are causing sea levels to rise – about 8 inches of increase has been recorded at the Golden Gate Bridge over the past 100 years – threatening low coastal areas with inundation and serious damage from storms." AB 32 is discussed further below under Regulatory Setting.

3.7.2 Regulatory Setting

The following sections provide federal, State, and local regulations for GHGs and global climate change. These agencies work jointly, as well as individually, to understand and regulate the effects of GHG emissions and resulting climate change through legislation, regulations, planning, policymaking, education, and a variety of programs.

Federal

To date, national standards have not been established for nationwide GHG reduction targets, nor have any regulations or legislation been enacted specifically to address climate change and GHG emissions reduction at the project level. Various efforts have been promulgated at the federal level to improve fuel economy and energy efficiency to address climate change and its associated effects.

Energy Independence and Security Act of 2007

The Energy Independence and Security Act of 2007 (December 2007), among other key measures, requires the following, which would aid in the reduction of national GHG emissions:

- Increase the supply of alternative fuel sources by setting a mandatory Renewable Fuel Standard requiring fuel producers to use at least 36 billion gallons of biofuel in 2022.
- Set a target of 35 miles per gallon for the combined fleet of cars and light trucks by model year 2020 and direct the National Highway Traffic Safety Administration (NHTSA) to establish a fuel economy program for medium- and heavy-duty trucks and create a separate fuel economy standard for work trucks.

- Prescribe or revise standards affecting regional efficiency for heating and cooling products and procedures for new or amended standards, energy conservation, energy efficiency labeling for consumer electronic products, residential boiler efficiency, electric motor efficiency, and home appliances.

U.S. Environmental Protection Agency Endangerment Finding

The U.S. Environmental Protection Agency's (U.S. EPA) authority to regulate GHG emissions stems from the U.S. Supreme Court decision in *Massachusetts v. EPA* (2007). The Supreme Court ruled that GHGs meet the definition of air pollutants under the existing Federal Clean Air Act (FCAA) and must be regulated if these gases could be reasonably anticipated to endanger public health or welfare. Responding to the Court's ruling, the U.S. EPA finalized an endangerment finding in December 2009. Based on scientific evidence, it found that six GHGs (CO₂, CH₄, N₂O, HFCs, PFCs, and SF₆) constitute a threat to public health and welfare. Thus, it is the Supreme Court's interpretation of the existing FCAA and the U.S. EPA's assessment of the scientific evidence that form the basis for the U.S. EPA's regulatory actions.

Federal Vehicle Standards

In response to the U.S. Supreme Court ruling discussed above, Executive Order 13432 was issued in 2007 directing the U.S. EPA, the Department of Transportation, and the Department of Energy to establish regulations that reduce GHG emissions from motor vehicles, non-road vehicles, and non-road engines by 2008. In 2009, the NHTSA issued a final rule regulating fuel efficiency and GHG emissions from cars and light-duty trucks for model year 2011, and in 2010, the U.S. EPA and NHTSA issued a final rule regulating cars and light-duty trucks for model years 2012–2016.

In 2010, an Executive Memorandum was issued directing the Department of Transportation, Department of Energy, U.S. EPA, and NHTSA to establish additional standards regarding fuel efficiency and GHG reduction, clean fuels, and advanced vehicle infrastructure. In response to this directive, the U.S. EPA and NHTSA proposed stringent, coordinated federal GHG and fuel economy standards for model years 2017–2025 light-duty vehicles. The proposed standards projected to achieve 163 grams per mile of CO₂ in model year 2025, on an average industry fleet-wide basis, which is equivalent to 54.5 miles per gallon if this level were achieved solely through fuel efficiency. The final rule was adopted in 2012 for model years 2017–2021, and NHTSA intends to set standards for model years 2022–2025 in a future rulemaking. On January 12, 2017, the U.S. EPA finalized its decision to maintain the current GHG emissions standards for model years 2022–2025 cars and light trucks. It should be noted that the U.S. EPA is currently proposing to freeze the vehicle fuel efficiency standards at their planned 2020 level (37 miles per gallon), canceling any future strengthening (currently 54.5 miles per gallon by 2026).

In addition to the regulations applicable to cars and light-duty trucks described above, in 2011, the U.S. EPA and NHTSA announced fuel economy and GHG standards for medium- and heavy-duty trucks for model years 2014–2018. The standards for CO₂ emissions and fuel consumption are tailored to three main vehicle categories: combination tractors, heavy-duty pickup trucks and vans, and vocational vehicles. According to the U.S. EPA, this regulatory program will reduce GHG emissions and fuel consumption for the affected vehicles by 6 to 23 percent over the 2010 baselines.

In August 2016, the U.S. EPA and NHTSA announced the adoption of the phase two program related to the fuel economy and GHG standards for medium- and heavy-duty trucks. The phase two program will apply to vehicles with model year 2018 through 2027 for certain trailers, and model years 2021 through

2027 for semi-trucks, large pickup trucks, vans, and all types and sizes of buses and work trucks. The final standards are expected to lower CO₂ emissions by approximately 1.1 billion metric tons and reduce oil consumption by up to 2 billion barrels over the lifetime of the vehicles sold under the program.

In 2018, the President and the U.S. EPA stated their intent to halt various federal regulatory activities to reduce GHG emission, including the phase two program. California and other states have stated their intent to challenge federal actions that would delay or eliminate GHG reduction measures and have committed to cooperating with other countries to implement global climate change initiatives. On September 27, 2019, the U.S. EPA and the NHTSA published the “Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule Part One: One National Program.” (84 Fed. Reg. 51,310 (Sept. 27, 2019.)) The Part One Rule revokes California’s authority to set its own GHG emissions standards and set zero-emission vehicle mandates in California. On March 31, 2020, the U.S. EPA and NHTSA finalized rulemaking for SAFE Part Two sets CO₂ emissions standards and corporate average fuel economy (CAFE) standards for passenger vehicles and light-duty trucks, covering model years 2021-2026.

Clean Power Plan and New Source Performance Standards for Electric Generating Units

On October 23, 2015, the U.S. EPA published a final rule (effective December 22, 2015) establishing the carbon pollution emission guidelines for existing stationary sources: electric utility generating units (80 Federal Register [FR] 64510–64660), also known as the Clean Power Plan (CPP). These guidelines prescribe how states must develop plans to reduce GHG emissions from existing fossil-fuel-fired electric generating units. The guidelines establish CO₂ emission performance rates representing the best system of emission reduction for two subcategories of existing fossil-fuel-fired electric generating units: one fossil-fuel-fired electric utility steam-generating unit and two stationary combustion turbines. Concurrently, the U.S. EPA published a final rule (effective October 23, 2015) establishing standards of performance for GHG emissions from new, modified, and reconstructed stationary sources: electric utility generating units (80 FR 64661–65120). The rule prescribes CO₂ emission standards for newly constructed, modified, and reconstructed affected fossil-fuel-fired electric utility generating units. The U.S. Supreme Court stayed implementation of the CPP pending resolution of several lawsuits. Additionally, in March 2017, the federal government directed the U.S. EPA Administrator to review the CPP to determine whether it is consistent with current executive policies concerning GHG emissions, climate change, and energy.

Presidential Executive Order 13783

Presidential Executive Order 13783, *Promoting Energy Independence and Economic Growth* issued on March 28, 2017, orders all federal agencies to apply cost-benefit analyses to regulations of GHG emissions and evaluations of the social cost of CO₂, N₂O, and CH₄.

State of California

California Air Resources Board

The California Air Resources Board (CARB) is responsible for the coordination and oversight of State and local air pollution control programs in California. Various statewide and local initiatives to reduce California’s contribution to GHG emissions have raised awareness about climate change and its potential for severe long-term adverse environmental, social, and economic effects. California is a significant emitter of CO₂ equivalents (CO₂e) in the world and produced 459 million gross metric tons of CO₂e in 2013. In California, the transportation sector is the largest emitter of GHGs, followed by industrial operations such as manufacturing and oil and gas extraction.

The State of California legislature has enacted a series of bills that constitute the most aggressive program to reduce GHGs of any state in the nation. Some legislation, such as the landmark Assembly Bill (AB) 32, *California Global Warming Solutions Act of 2006*, was specifically enacted to address GHG emissions. Other legislation, such as Title 24 building efficiency standards and Title 20 appliance energy standards, were originally adopted for other purposes such as energy and water conservation, but also provide GHG reductions. This section describes the major provisions of the legislation.

Assembly Bill 32 (California Global Warming Solutions Act of 2006)

AB 32 instructs the CARB to develop and enforce regulations for the reporting and verification of statewide GHG emissions. AB 32 also directed CARB to set a GHG emissions limit based on 1990 levels, to be achieved by 2020. It set a timeline for adopting a scoping plan for achieving GHG reductions in a technologically and economically feasible manner.

CARB Scoping Plan

CARB adopted the Scoping Plan to achieve the goals of AB 32. The Scoping Plan establishes a framework for the measures that would be adopted to reduce California's GHG emissions. CARB determined that achieving the 1990 emissions level would require a reduction of GHG emissions of approximately 29 percent below what would otherwise occur in 2020 in the absence of new laws and regulations (referred to as "business-as-usual")². The Scoping Plan evaluates opportunities for sector-specific reductions, integrates early actions and additional GHG reduction measures by both CARB and the State's Climate Action Team, identifies additional measures to be pursued as regulations, and outlines the adopted role of a cap-and-trade program³. Additional development of these measures and adoption of appropriate regulations occurred through the end of 2013. Key elements of the Scoping Plan include:

- Expanding and strengthening existing energy efficiency programs, as well as building and appliance standards.
- Achieving a statewide renewables energy mix of 33 percent by 2020.
- Developing a California cap-and-trade program that links with other programs to create a regional market system and caps sources contributing 85 percent of California's GHG emissions (adopted in 2011).
- Establishing targets for transportation-related GHG emissions for regions throughout California and pursuing policies and incentives to achieve those targets (several sustainable community strategies have been adopted).
- Adopting and implementing measures pursuant to existing State laws and policies, including California's clean car standards, heavy-duty truck measures, the Low Carbon Fuel Standard (amendments to the Pavley Standard adopted 2009; Advanced Clean Car standard adopted 2012), goods movement measures, and the Low Carbon Fuel Standard (adopted 2009).

² CARB defines business-as-usual in its Scoping Plan as emissions levels that would occur if California continued to grow and add new GHG emissions but did not adopt any measures to reduce emissions. Projections for each emission-generating sector were compiled and used to estimate emissions for 2020 based on 2002–2004 emissions intensities. Under CARB's definition of business-as-usual, new growth is assumed to have the same carbon intensities as was typical from 2002 through 2004.

³ The Climate Action Team, led by the secretary of the California Environmental Protection Agency, is a group of State agency secretaries and heads of agencies, boards, and departments. Team members work to coordinate statewide efforts to implement global warming emissions reduction programs and the State's Climate Adaptation Strategy.

- Creating targeted fees, including a public goods charge on water use, fees on gasses with high global warming potential, and a fee to fund the administrative costs of California's long-term commitment to AB 32 implementation.

In 2012, CARB released revised estimates of the expected 2020 emissions reductions. The revised analysis relied on emissions projections updated considering current economic forecasts that accounted for the economic downturn since 2008, reduction measures already approved and put in place relating to future fuel and energy demand, and other factors. This update reduced the projected 2020 emissions from 596 million metric tons of CO₂e (MMTCO₂e) to 545 MMTCO₂e. The reduction in forecasted 2020 emissions means that the revised business-as-usual reduction necessary to achieve AB 32's goal of reaching 1990 levels by 2020 is now 21.7 percent, down from 29 percent. CARB also provided a lower 2020 inventory forecast that incorporated State-led GHG emissions reduction measures already in place. When this lower forecast is considered, the necessary reduction from business-as-usual needed to achieve the goals of AB 32 is approximately 16 percent.

CARB adopted the first major update to the Scoping Plan on May 22, 2014. The updated Scoping Plan summarizes the most recent science related to climate change, including anticipated impacts to California and the levels of GHG emissions reductions necessary to likely avoid risking irreparable damage. It identifies the actions California has already taken to reduce GHG emissions and focuses on areas where further reductions could be achieved to help meet the 2020 target established by AB 32.

Senate Bill 32 (California Global Warming Solutions Act of 2006: Emissions Limit)

Signed into law in September 2016, SB 32 codifies the 2030 GHG reduction target in Executive Order B-30-15 (40 percent below 1990 levels by 2030). The bill authorizes CARB to adopt an interim GHG emissions level target to be achieved by 2030. CARB also must adopt rules and regulations in an open public process to achieve the maximum, technologically feasible, and cost-effective GHG reductions.

With SB 32, the Legislature passed companion legislation, AB 197, which provides additional direction for developing the Scoping Plan. On December 14, 2017 CARB adopted a second update to the Scoping Plan⁴. The 2017 Scoping Plan details how the State will reduce GHG emissions to meet the 2030 target set by Executive Order B-30-15 and codified by SB 32. Other objectives listed in the 2017 Scoping plan are to provide direct GHG emissions reductions; support climate investment in disadvantaged communities; and, support the Clean Power Plan and other federal actions.

Senate Bill 375 (The Sustainable Communities and Climate Protection Act of 2008)

Signed into law on September 30, 2008, SB 375 provides a process to coordinate land use planning, regional transportation plans, and funding priorities to help California meet the GHG reduction goals established by AB 32. SB 375 requires metropolitan planning organizations to include sustainable community strategies in their regional transportation plans for reducing GHG emissions, aligns planning for transportation and housing, and creates specified incentives for the implementation of the strategies.

Assembly Bill 1493 (Pavley Regulations and Fuel Efficiency Standards)

AB 1493, enacted on July 22, 2002, required CARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light-duty trucks. Implementation of the regulation was delayed by

⁴ California Air Resources Board, *California's 2017 Climate Change Scoping Plan*, https://www.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf, accessed January 2, 2019.

lawsuits filed by automakers and by the U.S. EPA's denial of an implementation waiver. The U.S. EPA subsequently granted the requested waiver in 2009, which was upheld by the U.S. District Court for the District of Columbia in 2011. The regulations establish one set of emission standards for model years 2009–2016 and a second set of emissions standards for model years 2017 to 2025. By 2025, when all rules will be fully implemented, new automobiles will emit 34 percent fewer CO₂e emissions and 75 percent fewer smog-forming emissions.

Senate Bill 1368 (Emission Performance Standards)

SB 1368 is the companion bill of AB 32, which directs the California Public Utilities Commission (CPUC) to adopt a performance standard for GHG emissions for the future power purchases of California utilities. SB 1368 limits carbon emissions associated with electrical energy consumed in California by forbidding procurement arrangements for energy longer than 5 years from resources that exceed the emissions of a relatively clean, combined cycle natural gas power plant. The new law effectively prevents California's utilities from investing in, otherwise financially supporting, or purchasing power from new coal plants located in or out of the State. The CPUC adopted the regulations required by SB 1368 on August 29, 2007. The regulations implementing SB 1368 establish a standard for baseload generation owned by, or under long-term contract to publicly owned utilities, for 1,100 pounds of CO₂ per megawatt-hour.

Senate Bill 1078 and X1-2 (Renewable Electricity Standards)

SB 1078 (2002) required California to generate 20 percent of its electricity from renewable energy by 2017. In 2005, SB 107 accelerated the due date of the 20 percent mandate to 2010 instead of 2017. These mandates apply directly to investor-owned utilities. On November 17, 2008, Executive Order S-14-08 established a Renewable Portfolio Standard target for California requiring that all retail sellers of electricity serve 33 percent of their load with renewable energy by 2020. Executive Order S-21-09 also directed CARB to adopt a regulation by July 31, 2010, requiring the State's load-serving entities to meet a 33 percent renewable energy target by 2020. CARB approved the Renewable Electricity Standard on September 23, 2010 by Resolution 10-23. SB X1-2 (2011) codified the 33 percent by 2020 goal.

Senate Bill 350 (Clean Energy and Pollution Reduction Act of 2015)

Signed into law on October 7, 2015, SB 350 implements the goals of Executive Order B-30-15. The objectives of SB 350 are to increase the procurement of electricity from renewable sources from 33 percent to 50 percent (with interim targets of 40 percent by 2024, and 45 percent by 2027) and to double the energy efficiency savings in electricity and natural gas end uses of retail customers through energy efficiency and conservation. SB 350 also reorganizes the Independent System Operator to develop more regional electricity transmission markets and improve accessibility in these markets, which will facilitate the growth of renewable energy markets in the western United States.

Assembly Bill 398 (Market-Based Compliance Mechanisms)

Signed on July 25, 2017, AB 398 extended the duration of the Cap-and-Trade program from 2020 to 2030. AB 398 required CARB to update the Scoping Plan and for all GHG rules and regulations adopted by the State. It also designated CARB as the statewide regulatory body responsible for ensuring that California meets its statewide carbon pollution reduction targets, while retaining local air districts' responsibility and authority to curb toxic air contaminants and criteria pollutants from local sources that severely impact public health. AB 398 also decreased free carbon allowances over 40 percent by 2030 and prioritized Cap-and-Trade spending to various programs including reducing diesel emissions in impacted communities.

Senate Bill 150 (Regional Transportation Plans)

Signed on October 10, 2017, SB 150 aligns local and regional GHG reduction targets with State targets (i.e., 40 percent below their 1990 levels by 2030). SB 150 creates a process to include communities in discussions on how to monitor their regions' progress on meeting these goals. The bill also requires the CARB to regularly report on that progress, as well as on the successes and the challenges regions experience associated with achieving their targets. SB 150 provides for accounting of climate change efforts and GHG reductions and identify effective reduction strategies.

Senate Bill 100 (California Renewables Portfolio Standard Program: Emissions of Greenhouse Gases)

Signed into Law in September 2018, SB 100 increased California's renewable electricity portfolio from 50 to 60 percent by 2030. SB 100 also established a further goal to have an electric grid that is entirely powered by clean energy by 2045.

Cap and Trade Program

Initially authorized by the California Global Warming Solutions Act of 2006 (AB 32), and extended through the year 2030 with the passage of Assembly Bill 398 (2017), the California Cap-and-Trade Program is a core strategy that the State is using to meet its GHG reduction targets for 2020 and 2030, and ultimately achieve an 80 percent reduction from 1990 levels by 2050. CARB designed and adopted the California Cap-and-Trade Program to reduce GHG emissions from "covered entities"⁵ (e.g., electricity generation, petroleum refining, cement production, and large industrial facilities that emit more than 25,000 metric tons CO₂e per year), setting a firm cap on statewide GHG emissions and employing market mechanisms to achieve reductions.⁶ Under the Cap-and-Trade Program, an overall limit is established for GHG emissions from capped sectors. The statewide cap for GHG emissions from the capped sectors commenced in 2013. The cap declines over time. Facilities subject to the cap can trade permits to emit GHGs.⁷

Up to eight percent of a covered entity's compliance obligation can be met using carbon offset credits, which are created through the development of projects, such as renewable energy generation or carbon sequestration projects, that achieve a reduction of emissions or an increase in the removal of carbon from the atmosphere from activities not otherwise regulated, covered under the cap, or resulting from government incentives. Offsets are verified reductions of emissions whose ownership can be transferred to others. As required by AB 32, any reduction of GHG emissions used for compliance purposes must be real, permanent, quantifiable, verifiable, enforceable, and additional. Offsets used to meet regulatory requirements must be quantified according to CARB-adopted methodologies, and CARB must adopt a regulation to verify and enforce the reductions. The criteria developed will ensure that the reductions are quantified accurately and are not double-counted within the system (CARB, 2008).⁸

⁵ "Covered Entity" means an entity within California that has one or more of the processes or operations and has a compliance obligation as specified in subarticle 7 of the Cap-and-Trade Regulation; and that has emitted, produced, imported, manufactured, or delivered in 2008 or any subsequent year more than the applicable threshold level specified in section 95812 (a) of the Regulation.

⁶ 17 CCR §§ 95800 to 96023.

⁷ See generally 17 CCR §§ 95811, 95812.

⁸ Climate Reserve Tonnes (CRTs). When CRTs are transferred to a retirement account in the Reserve System, they are considered retired. Retirement accounts are permanent and locked to prevent a retired CRT from being transferred again.

If California's direct regulatory measures reduce GHG emissions more than expected, then the Cap-and-Trade Program will be responsible for relatively fewer emissions reductions. If California's direct regulatory measures reduce GHG emissions less than expected, then the Cap-and-Trade Program will require relatively more emissions reductions. In other words, the Cap-and-Trade Program can be adaptively managed by the State to ensure achievement of California's 2020 and 2030 GHG emissions reduction mandates, depending on whether other regulatory measures are more or less effective than anticipated.

Executive Orders Related to GHG Emissions

California's Executive Branch has taken several actions to reduce GHGs using executive orders. Although not regulatory, they set the State's tone and guide the actions of State agencies.

Executive Order S-3-05

Executive Order S-3-05 was issued on June 1, 2005, which established the following GHG emissions reduction targets:

- By 2010, reduce GHG emissions to 2000 levels.
- By 2020, reduce GHG emissions to 1990 levels.
- By 2050, reduce GHG emissions to 80 percent below 1990 levels.

The 2050 reduction goal represents what some scientists believe is necessary to reach levels that will stabilize the climate. The 2020 goal was established to be a mid-term target. Because this is an executive order, the goals are not legally enforceable for local governments or the private sector.

Executive Order S-01-07

Issued on January 18, 2007, Executive Order S-01-07 mandates that a statewide goal be established to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020. The order established a Low Carbon Fuel Standard (LCFS) and directed the Secretary for Environmental Protection to coordinate the actions of the California Energy Commission, CARB, the University of California (UC), and other agencies to develop and propose protocols for measuring the "life-cycle carbon intensity" of transportation fuels. CARB adopted the LCFS on April 23, 2009.

Executive Order S-13-08

Issued on November 14, 2008, Executive Order S-13-08 facilitated the California Natural Resources Agency development of the 2009 California Climate Adaptation Strategy. Objectives include analyzing risks of climate change in California, identifying and exploring strategies to adapt to climate change, and specifying a direction for future research.

Executive Order S-14-08

Issued on November 17, 2008, Executive Order S-14-08 expands the State's Renewable Energy Standard to 33 percent renewable power by 2020. Additionally, Executive Order S-21-09 (signed on September 15, 2009) directs CARB to adopt regulations requiring 33 percent of electricity sold in the State come from renewable energy by 2020. CARB adopted the Renewable Electricity Standard on September 23, 2010, which requires 33 percent renewable energy by 2020 for most publicly-owned electricity retailers.

Executive Order S-21-09

Issued on July 17, 2009, Executive Order S-21-09 directs CARB to adopt regulations to increase California's RPS to 33 percent by 2020. This builds upon SB 1078 (2002), which established the California RPS program, requiring 20 percent renewable energy by 2017, and SB 107 (2006), which advanced the 20 percent deadline to 2010, a goal which was expanded to 33 percent by 2020 in the 2005 Energy Action Plan II.

Executive Order B-30-15

Issued on April 29, 2015, Executive Order B-30-15 established a California GHG reduction target of 40 percent below 1990 levels by 2030 and directs CARB to update the Climate Change Scoping Plan to express the 2030 target in terms of MMTCO₂e. The 2030 target acts as an interim goal on the way to achieving reductions of 80 percent below 1990 levels by 2050, a goal set by Executive Order S-3-05. The executive order also requires the State's climate adaptation plan to be updated every three years and for the State to continue its climate change research program, among other provisions. With the enactment of SB 32 in 2016, the Legislature codified the goal of reducing GHG emissions by 2030 to 40 percent below 1990 levels.

Executive Order B-55-18

Issued on September 10, 2018, Executive Order B-55-18 establishes a goal to achieve carbon neutrality as soon as possible, and no later than 2045, and achieve and maintain net negative emissions thereafter. This goal is in addition to the existing statewide targets of reducing GHG emissions. The executive order requires CARB to work with relevant State agencies to develop a framework for implementing this goal. It also requires CARB to update the Scoping Plan to identify and recommend measures to achieve carbon neutrality. The executive order also requires State agencies to develop sequestration targets in the Natural and Working Lands Climate Change Implementation Plan.

California Regulations and Building Codes

California has a long history of adopting regulations to improve energy efficiency in new and remodeled buildings. These regulations have kept California's energy consumption relatively flat, even with rapid population growth.

Title 20 Appliance Efficiency Regulations

The appliance efficiency regulations (California Code of Regulations [CCR] Title 20, Sections 1601-1608) include standards for new appliances. Twenty-three categories of appliances are included in the scope of these regulations. These standards include minimum levels of operating efficiency, and other cost-effective measures, to promote the use of energy- and water-efficient appliances.

Title 24 Building Energy Efficiency Standards

California's Energy Efficiency Standards for Residential and Nonresidential Buildings (CCR Title 24, Part 6), was first adopted in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy-efficient technologies and methods. Energy-efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases GHG emissions. The 2016 Building Energy Efficiency Standards approved on January 19, 2016 went into effect on January 1, 2017. The 2019 Building Energy Efficiency Standards were adopted on May 9, 2018 and went into effect on January 1, 2020. Under

the 2019 standards, homes will use approximately 53 percent less energy and nonresidential buildings will use approximately 30 percent less energy than buildings under the 2016 standards.

Title 24 California Green Building Standards Code

The California Green Building Standards Code (CCR Title 24, Part 11 code) commonly referred to as CALGreen, is a statewide mandatory construction code developed and adopted by the California Building Standards Commission and the Department of Housing and Community Development. The CALGreen standards require new residential and commercial buildings to comply with mandatory measures under the topics of planning and design, energy efficiency, water efficiency/conservation, material conservation and resource efficiency, and environmental quality. CALGreen also provides voluntary tiers and measures that local governments may adopt that encourage or require additional measures in the five green building topics. The most recent update to CALGreen went into effect January 1, 2017. Updates to the 2016 CALGreen Code went into effect on January 1, 2020 (2019 CALGreen). The 2019 CALGreen standards will continue to improve upon the existing standards for new construction of, and additions and alterations to, residential and nonresidential buildings.

University of California

University of California Policy on Sustainable Practices

The UC Policy on Sustainable Practices establishes goals in nine areas including: green building, clean energy, transportation, climate protection, sustainable operations, waste reduction and recycling, environmentally preferable purchasing, sustainable foodservice, and sustainable water systems.

University of California Carbon Neutrality Initiative

In November 2013, UC announced the Carbon Neutrality Initiative, which commits the UC to achieving climate neutrality from Scope 1 and 2 sources by 2025 and progressing toward climate neutrality from specific Scope 3 sources by 2050 or sooner. Scope 1 emission sources include direct emissions from sources owned or controlled by the UC, such as emissions from stationary combustion, process emissions, and fugitive emissions; while Scope 2 sources include indirect emissions from purchased electricity and purchased cogeneration for heating or cooling. Scope 3 sources include emissions from all other sources that occur as a result of university operations but occur from sources not owned or controlled. UC is improving its energy efficiency, developing new sources of renewable energy and enacting a range of related strategies to cut carbon emissions. To help in the implementation of this initiative, UC formed the Global Climate Leadership Council (GCLC) in 2014 to advise UC leadership and to “connect carbon neutrality to UC’s teaching, research, and public service mission.”

Second Nature Carbon Commitment

UC is a signatory of Second Nature’s Carbon Commitment, formerly known as the American College and University President’s Climate Commitment (ACUPCC). This commitment focuses on reduction of GHG emissions with the goal of reaching carbon neutrality as soon as possible.

Energy Services Unit

The UC Energy Services Unit (ESU) has established projects and programs to provide utility-scale supply of renewable electricity and biomethane to support UC’s sustainability goals. These efforts include investment in the development of 80 megawatts (MW) of solar energy supply by 2020 to provide long

term sources of renewable power and development of 17 million therms of biomethane to provide renewable fuel to partially replace natural gas combustion on campuses. As a result, the ESU is greening the power supply to UC campuses with a goal of 100 percent GHG-free power supply to UC campuses that are served by the ESU under direct access.

UC Irvine Climate Action Plan

The UCI Climate Action Plan (CAP) was initially adopted in 2007 (updated in 2016) and provides an array of climate action protection strategies for projects to reduce UCI GHG emissions. The CAP provides guidance for UCI to achieve its institutional climate protection commitments in support of UC sustainability policy and campus sustainability goals. These commitments include reduction of GHG emissions to 1990 levels by the year 2020 (a reduction of approximately 49 percent from projected emissions), climate neutrality by the year 2025 (for on-site combustion of fossil fuels and purchased electricity), and climate neutrality by the year 2050 (for UCI commuters and university-funded air travel).

CAP implementation actions prioritize low carbon growth, deep energy efficiency and green building to minimize energy use, deployment of on-site renewable energy systems, and procuring off-site clean and renewable energy to replace fossil-fuel energy sources. Additional CAP actions include UC-catalyzed or UC-supported off-site actions that result in verified, mission-consistent carbon offsets to fill the gap between existing emission levels and annual targets. However, the CAP is not considered a qualified GHG reduction plan under CEQA Guidelines Section 15183.5 as a formal CEQA document was not prepared.

UC Irvine Long Range Development Plan

The UC Irvine Long Range Development Plan (LRDP), adopted in 2007, provides the comprehensive framework for the physical development of the UCI campus and is the primary planning document for the campus. As a general land use plan, the LRDP does not guide enrollment decisions or implementation of capital projects that could impact the on-campus population. The LRDP generally outlines the physical development needed to meet projected demand based on near-term enrollment projections. The Infrastructure Element outlines the expansion of utility infrastructure required to meet the program needs identified in the LRDP. The element acknowledges UCI's commitment to environmental stewardship and its goal to reduce dependence on non-renewable energy sources. Key planning objectives for the Infrastructure Element include:

- Adopt efficient, "green" energy systems to conserve resources, manage energy costs, and promote environmentally beneficial practices.

Regional

South Coast Air Quality Management District Thresholds

In October 2008, the South Coast Air Quality Management District (SCAQMD) released *Draft Guidance Document – Interim CEQA Greenhouse Gas (GHG) Significance Threshold (2008)*. This guidance document discussed various approaches for establishing a significance threshold for GHG emissions but was not adopted or approved by the SCAQMD Governing Board. In December 2008, the SCAQMD adopted an interim 10,000 MTCO₂e per year screening level threshold for stationary source/industrial projects for which the SCAQMD is the lead agency.

The SCAQMD formed a GHG California Environmental Quality Act (CEQA) Significance Threshold Working Group to provide guidance to local lead agencies on determining significance for GHG emissions in their

CEQA documents. As of the last Working Group meeting (Meeting 15) held in September 2010, the SCAQMD is proposing to adopt a tiered approach for evaluating GHG emissions for development projects where SCAQMD is not the lead agency.

With the tiered approach, a project is compared with the requirements of each tier sequentially and would not result in a significant impact if it complies with any tier. Tier 1 excludes projects that are specifically exempt from SB 97 from resulting in a significant impact. Tier 2 excludes projects that are consistent with a GHG reduction plan that has a certified final CEQA document and complies with AB 32 GHG reduction goals. Tier 3 excludes projects with annual emissions lower than a screening threshold. The SCAQMD is proposing a screening threshold of 10,000 metric tons of CO₂e (MTCO₂e) per year for industrial projects and 3,000 MTCO₂e for non-industrial projects. SCAQMD concluded that projects with emissions less than the screening threshold would not result in a significant cumulative impact.

Tier 4 consists of three decision tree options. Under the Tier 4 first option, SCAQMD initially outlined that a project would be excluded if design features and/or mitigation measures resulted in emissions 30 percent lower than business as usual emissions. However, the Working Group did not provide a recommendation for this approach. The Working Group folded the Tier 4 second option into the third option. Under the Tier 4 third option, a project would be excluded if it was below an efficiency-based threshold of 4.8 MTCO₂e per service population per year or 3.0 MTCO₂e/SP/year for projects opening after 2020. Tier 5 would exclude projects that implement offsite mitigation (GHG reduction projects) or purchase offsets to reduce GHG emission impacts to less than the proposed screening level. The SCAQMD proposed GHG significance threshold for development projects have not been finalized or formally adopted.

Southern California Association of Governments

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

3.7.3 Thresholds of Significance

Based upon the criteria derived from CEQA Guidelines Appendix G, a project normally would have a significant effect on the environment if it would:

- Threshold 4.6-1 **Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.****
- Threshold 4.6-2 **Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.****

The Appendix G thresholds for GHG emissions do not prescribe specific methodologies for performing an assessment, do not establish specific thresholds of significance, and do not mandate specific mitigation measures. Rather, the CEQA Guidelines emphasize the lead agency's discretion to determine the appropriate methodologies and thresholds of significance consistent with the manner in which other impact areas are handled in CEQA.⁹

Addressing GHG emissions generation impacts requires an agency to determine what constitutes a significant impact. CEQA Guidelines Section 15064.4(a) states that lead agencies "shall make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate" GHG emissions resulting from a project. The CEQA Guidelines specifically allow lead agencies to determine thresholds of significance that illustrate the extent of an impact and are a basis from which to apply mitigation measures. This means that each agency is left to determine whether a project's GHG emissions would have a "significant" impact on the environment.

CEQA Guidelines Section 15064.4(b) notes that an agency has the discretion to either quantify a project's GHG emissions or rely on a "qualitative analysis or other performance based standards." A lead agency may use a "model or methodology" to estimate GHG emissions and has the discretion to select the model or methodology it considers "most appropriate to enable decision-makers to intelligently take into account the project's incremental contribution to climate change." (CEQA Guidelines Section 15064.4[c]). CEQA Guidelines Section 15064.4(b) provides that the lead agency should consider the following when determining the significance of impacts from GHG emissions on the environment:

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

In addition, CEQA Guidelines Section 15064.7(c) specifies that "[w]hen adopting or using thresholds of significance, a lead agency may consider thresholds of significance previously adopted or recommended by other public agencies, or recommended by experts, provided the decision of the lead agency to adopt such thresholds is supported by substantial evidence."

The California Governor's Office of Planning and Research (OPR) Technical Advisory, *CEQA and Climate Change: Addressing Climate Change through California Environmental Quality Act (CEQA) Review (2008)* states that "public agencies are encouraged but not required to adopt thresholds of significance for environmental impacts. Even in the absence of clearly defined thresholds for GHG emissions, the law requires that such emissions from CEQA projects must be disclosed and mitigated to the extent feasible whenever the lead agency determines that the project contributes to a significant, cumulative climate change impact". Furthermore, the Technical Advisory indicates that "in the absence of regulatory standards for GHG emissions or other scientific data to clearly define what constitutes a 'significant

⁹ California Natural Resources Agency, *Final Statement of Reasons for Regulatory Action: Amendments to the State CEQA Guidelines Addressing Analysis and Mitigation of Greenhouse Gas Emissions Pursuant to SB97*, December 2009.

impact,' individual lead agencies may undertake a project-by-project analysis, consistent with available guidance and current CEQA practice.”

Methodology

Because of the global nature of climate change, it is generally the case that an individual project is of insufficient magnitude by itself to influence climate change or result in a substantial contribution to the global GHG inventory. GHG impacts are recognized as cumulative impacts. Often, estimates of GHG emissions are presented in carbon dioxide equivalents (CO₂e), which weight each gas by its global warming potential (GWP). Expressing GHG emissions in CO₂e takes the contribution of all GHG emissions to the greenhouse effect and converts them to a single unit equivalent to the effect that would occur if only CO₂ were being emitted.

The Project's GHG emissions are evaluated consistent with CEQA Guidelines Sections 15183.5, 15064.4(a)(2), and 15064.4(b) by considering whether the Project complies with the CARB Scoping Plan. The CARB Scoping Plan provides a framework for actions to reduce California's GHG emissions and requires CARB and other State agencies to adopt regulations and other initiatives to reduce GHGs. As noted above, the UCI CAP is not considered a qualified GHG reduction plan under CEQA Guidelines Section 15183.5 as a formal CEQA document was not prepared. However, analysis of consistency with the UCI CAP is provided for informational purposes. The Project's construction and operational emissions were calculated using the California Emissions Estimator Model version 2016.3.2 (CalEEMod). The primary purpose of quantifying the Project's GHG emissions is to satisfy CEQA Guidelines Section 15064.4(a)(1), which calls for a good-faith effort to describe and calculate emissions. However, the significance of the Project's GHG emissions impacts is not based on the amount of GHG emissions resulting from the Project. For this project, as a land use development project, the most directly applicable adopted regulatory plans to reduce GHG emissions are the 2017 Scoping Plan and the 2020 RTP/SCS, which are designed to achieve regional GHG reductions from the land use and transportation sectors as required by SB 32 and SB 375 and achieve the State's long-term climate goals.

Details of the modeling assumptions and emission factors are provided in Appendix B, *Air Quality and Greenhouse Gas Data*. For construction, CalEEMod calculates emissions from off-road equipment usage and on-road vehicle travel associated with haul, delivery, and construction worker trips. The Project's construction-related GHG emissions were forecasted based on the proposed construction schedule and applying the mobile-source and fugitive dust emissions factors derived from CalEEMod. The Project's construction-related GHG emissions would be generated from off-road construction equipment, on-road hauling and vendor (material delivery) trucks, and worker vehicles. The Project's operations-related GHG emissions would be generated by vehicular traffic, area sources (e.g., landscaping maintenance, consumer products), electrical generation, natural gas consumption, water supply and wastewater treatment, and solid waste.

It should be noted that CalEEMod emission factors incorporate compliance with some, but not all, applicable rules and regulations regarding energy efficiency and vehicle fuel efficiency, and other GHG reduction policies, as described in the CalEEMod User's Guide (November 2017). The reductions obtained from each regulation and the source of the reduction amount used in the analysis are described below.

The following regulations are incorporated into the CalEEMod emission factors:

- Pavley I motor vehicle emission standards

- Low Carbon Fuel Standard (LCFS)
- 2016 Title 24 Energy Efficiency Standards

The following regulations have not been incorporated into the CalEEMod emission factors and require alternative methods to account for emission reductions provided by the regulations:

- Pavley II (LEV III) Advanced Clean Cars Program (extends to model year 2025)
- Renewable Portfolio Standards (RPS)
- Green Building Code Standards (indoor water use)
- California Model Water Efficient Landscape Ordinance (Outdoor Water)
- 2019 Title 24 Energy Efficiency Standards (effective January 1, 2020)

Pavley II/LEV III standards have not been incorporated in the latest version of CalEEMod. Reductions from standards are calculated by adjusting the CalEEMod GHG passenger car and light truck emission factors by CARB's estimated three percent reduction expected from the vehicle categories subject to the regulation by 2020.

RPS is not accounted for in the current version of CalEEMod. Reductions from RPS are addressed by revising the electricity emission intensity factor in CalEEMod to account for the utility complying with the 33 percent renewable mandate by 2020. As of 2017, Southern California Edison's (SCE) power mix was at 32 percent renewable energy¹⁰ and will be required to achieve the 60 percent renewable energy goal by 2030 established by SB 100. The CalEEMod carbon intensity factor was adjusted within the model to represent Southern California Edison's current emissions rate. However, energy is anticipated to be provided to the Project site by the UC Energy Services Unit which provides GHG-free energy.

Energy savings from water conservation resulting from the Green Building Code Standards for indoor water use and California Model Water Efficient Landscape Ordinance for outdoor water use are not included in CalEEMod. The Water Conservation Act of 2009 mandates a 20 percent reduction in urban water use that is implemented with these regulations. Benefits of the water conservation regulations are applied in the CalEEMod mitigation component. Adjustments were also made for Project design features that would reduce GHG emissions. The proposed Project would also be constructed in conformance with CALGreen, which requires high-efficiency water fixtures for indoor plumbing and water-efficient irrigation systems.

The 2019 Building Energy Efficiency Standards (adopted on May 9, 2018) took effect on January 1, 2020. Under the 2019 standards, homes would use about 53 percent less energy and nonresidential buildings would use about 30 percent less energy than buildings under the 2016 standards. Adjustments were made for Project design features that would reduce GHG emissions.

The mitigated output from CalEEMod show reductions from existing regulatory requirements and Project design features that are termed "mitigation" within the model; however, those modeling components associated with locational measures and compliance with existing regulations are not considered mitigation under CEQA, but rather are treated as Project design features. The Project would incorporate design features and would obtain benefits from its location that would reduce Project vehicle miles

¹⁰ California Energy Commission, *2017 Power Content Label*, July 2018.

traveled (VMT) compared to default values. The measures incorporated into the CalEEMod modeling and mitigation component include:

- **LUT-1 Increase Density:** The Project would construct an integrated medical campus providing inpatient, ambulatory, and emergent care services space to meet community needs and is anticipated to employ 1,150 persons, which would result in 99 employees per acre over the 11.6-acre site (not including the 2.9 acre buffer area). This strategy also provides a foundation for implementation of many other strategies which would benefit from increased densities. For example, transit ridership increases with density, which justifies enhanced transit service.
- **LUT-3 Increase Diversity of Land Uses:** The measure requires at least three different land uses within 0.25 mile. There are residential, retail, and office land uses within this distance from the Project. The Project also proposed medical facilities that would service the community.

The emissions modeling also includes mitigation measures that have been identified in Section 3.2, Air Quality. LRDP EIR Mitigation Measure (MM) Air-2C requires Transportation Demand Management (TDM) measures such as incentives for ridesharing programs and public transit, promotion of bus service in the vicinity of the campus, expansion of campus shuttle and other campus transit systems, expansion of UCI bike programs, and support of alternative transportation organizations. The reductions attributable to these measures in CalEEMod are derived from methodologies compiled in the CAPCOA report Quantifying GHG Measures. Each measure was assessed to determine its consistency with CAPCOA criteria for the use of the measure.

Campus Programs, Practices and Procedures, and Mitigation Measures Carried Forward from the November 2007 LRDP Amendment Final EIR

No Mitigation Measures specific to greenhouse gas emissions were adopted as part of the November 2007 LRDP Final EIR. However, the 2007 LRDP EIR did note that buildout of the LRDP would incorporate principles of energy and efficiency from State Of California, UC, and UCI reduction strategies. While no specific greenhouse gas emission thresholds had been adopted at that time, the EIR concluded that:

Implementation of the 2007 LRDP would result in increased greenhouse gas emissions associated with campus construction and operation. However, the campus would institute emission reduction strategies through continuation of existing programs that reduce greenhouse gas emissions, compliance with the UC Policy on Sustainable Practices, and compliance with existing and future emission reduction strategies set forth by the State of California. Together, these emission reduction practices would substantially lessen UCI's contribution to global climate change.¹¹

¹¹ UCI 2007 LRDP EIR, page 5-12

3.7.4 Environmental Impacts

Threshold 4.6-1:	Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?
Threshold 4.6-2:	Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gas emissions?
Impact Summary:	Less Than Significant Impact With Mitigation Incorporated

Construction GHG Emissions

The proposed Project would result in direct emissions of GHGs from construction activities associated with off-road equipment and on-road vehicle trips (from workers, vendor, and haul trucks). The approximate quantity of daily GHG emissions generated by construction equipment associated with the proposed Project is identified in *Table 3.7-2, Construction-Related Greenhouse Gas Emissions*. Table 3.7-2 shows that Project construction would result in the generation of approximately 7,356 metric tons of CO₂e over the course of construction. Once construction is complete, the generation of these GHG emissions would cease. The SCAQMD recommends that construction emissions be amortized over a 30-year project lifetime, then added to the operational emissions.¹² Therefore, Project construction GHG emissions have been quantified and amortized over 30 years. The amortized Project emissions would be 245 MTCO₂e per year and are added to the annual average operational emissions below.

Construction Year	MTCO₂e
2021	1,821
2022	3,099
2023	2,153
<i>Total Construction</i>	<i>7,073</i>
30-Year Amortized Construction	236

Source: CalEEMod version 2016.3.2. Refer to Appendix B for model outputs.

Operational GHG Emissions

Operational GHG emissions would occur over the proposed Project's lifetime. The Project's operational GHG emissions would result from direct emissions such as Project-generated vehicular traffic, on-site combustion of natural gas, and operation of any landscaping equipment. Operational GHG emissions would also result from indirect sources, such as off-site generation of electrical power, the energy required to convey water to the Project site and wastewater from the Project site, the emissions associated with solid waste generated from the Project site, and any fugitive refrigerants from air conditioning or refrigerators. *Table 3.7-3, Project Greenhouse Gas Emissions*, summarizes the GHG emissions associated with proposed Project operations and compares Project GHG emissions from three modeling scenarios: (1) without Project Design Features and Mitigation; (2) with Design Features; and (3)

¹² The project lifetime is based on the standard 30-year assumption of the South Coast Air Quality Management District (South Coast Air Quality Management District, *Minutes for the GHG CEQA Significance Threshold Stakeholder Working Group #13*, August 26, 2009).

with Design Features and Mitigation required in MM AQ-2 (refer to Section 3.2, Air Quality). As described in the Methodology Section above, the Project design features include land use and site enhancement features (i.e., the Project is an infill development that has a higher employment density than average). MM AQ-2 requires TDM measures such as incentives for ridesharing programs and public transit, promotion of bus service in the vicinity of the campus, expansion of campus shuttle and other campus transit systems, expansion of UCI bike programs, and support of alternative transportation organizations. Additionally, MM GHG-1 requires the Project to be carbon neutral per the UCI CAP and the UC Policy on Sustainable Practices. Implementation of MM GHG-1 would eliminate the energy source GHG emissions depicted in Table 3.7-3.

Emissions Source	MTCO ₂ e per Year		
	Unmitigated	With Design Features ¹	With Design Features and Mitigation ²
Construction Amortized over 30 Years	236	236	236
Area Source	0.05	0.05	0.05
Energy ³	3,682	2,702	2,702
Mobile	9,703	8,751	7,909
Stationary	2,354	2,354	2,354
Waste	1,434	717	717
Water & Wastewater	207	168	168
Total Emissions	17,616	14,928	14,086
<ol style="list-style-type: none"> 1. Project Design Features include land use and site enhancement features described in the Methodology section (i.e., the Project is an infill development and has a higher employment density than average). 2. Mitigation includes the TDM measures required in MM AQ-2; refer to Section 3.2, Air Quality. 3. The Project would obtain electricity from the UC Energy Services Unit which provides GHG-free energy. However, standard energy rates have been used for modeling purposes to be conservative. MM GHG-1 requires the Project to be carbon neutral per the UCI CAP and the UC Policy on Sustainable Practices. Implementation of MM GHG-1 would eliminate the energy source GHG emissions depicted above. 			
Source: CalEEMod version 2016.3.2. Refer to Appendix B for model outputs.			

Table 3.7-3 shows that total emissions without considering design features or mitigation would total 17,616 MTCO₂e annually, Project emissions with design features would total 14,928 MTCO₂e annually, and Project emission with design features and the TDM program required in the MM AQ-2 emissions would total 14,086 MTCO₂e annually. MM GHG-1 requires the Project to be carbon neutral per the UCI CAP and the UC Policy on Sustainable Practices. Implementation of MM GHG-1 would reduce and fully offset the GHG emissions shown in Table 3.7-3.

UCI Climate Action Plan and UC Sustainable Practices Policy Consistency Analysis

UCI's CAP includes an array of climate action protection strategies and projects to reduce UCI's GHG emissions. As noted above, the UCI Cap is not a qualified GHG reduction plan under CEQA Guidelines Section 15183.5. Therefore, this discussion is for informational purposes only and is not determinative of significance. The purpose of the CAP is to identify UCI's long-term vision and commitment to reduce its GHG emissions in support of the Policy on Sustainable Practices and campus sustainability goals. These commitments include reducing GHG emissions to 1990 levels by the year 2020 (a reduction of

approximately 49 percent from projected emissions), climate neutrality for Scope 1 and 2 sources (on-site combustion of fossil fuels and purchased electricity) by the year 2025, and climate neutrality for scope 3 sources (UCI commuters and university-funded air travel) by the year 2050. The CAP does not contain project-specific GHG thresholds.

The CAP contains existing (2015) baseline and future business-as-usual (BAU) GHG emissions for the UCI campus, including the Project site. The future BAU forecasts include an estimate of emissions from future building growth based on the plans and growth strategies outlined in the 2007 LRDP and the *UCI Strategic Plan* (2016) (Strategic Plan). The Project would construct an integrated medical campus providing inpatient, ambulatory, and emergency care services space to meet community needs. The Project would be consistent with the Mixed-Use Commercial designation in the LRDP and the goals and policies in the UCI Strategic Plan. While the Project is consistent with the intent of the North Campus development program, the Project proposes a land use amendment to the 2007 LRDP to allow Inpatient Uses under the Mixed Use – Commercial designation. The proposed Project is consistent with the 2007 North Campus Development Program and the Academic and Support land use designation because it would introduce clinical and research facilities, support existing UCI Medical Center uses, and provide associated parking and utility infrastructure. The implementation of the proposed Project does not increase the total amount of development that was planned in the LRDP for the North Campus area and the number of parking spaces to accommodate anticipated parking demand is decreased. Therefore, the Project is consistent with the approved 2007 LRDP.

As discussed in the CAP, UCI is making progress to achieve the 2020 and 2025 GHG reduction targets through implementation of sustainable programs that reduce VMT and GHG emissions, such as UCI's Sustainable Transportation Program. The Sustainable Transportation Program includes several Transportation Demand Management (TDM) components, including the "University Pass" transit program; rebates on commuter train passes; incentivized vanpool, carpool, and ridesharing programs; Zipcar car-sharing program; "ZotWheels" bike-sharing system; deployment of electric vehicle (EV) charging network; deployment of hydrogen fueling station for fuel cell vehicles; deployment of fuel cell bus for campus shuttle system; and a fully electric UCI shuttle fleet that reduce UCI's mobile GHG emissions. In addition to TDM-based GHG reductions, statewide regulatory requirements, as well as improving vehicle technology, fuel types, and fuel efficiency will further reduce UCI's future mobile GHG emissions.

Other UCI sustainable efforts/programs such as green building and renewable energy measures have also aided in reducing UCI's carbon footprint in recent years through implementation of the CAP and Policy on Sustainable Practices. Although substantial progress is being made toward meeting the CAP's 2020 and 2025 GHG reduction targets, the CAP acknowledges that achievement of these goals will require participation in off-site carbon abatement actions. The goals outlined in the CAP are listed in *Table 3.7-4, UCI Climate Action Plan and UC Sustainable Practices Policy Consistency*. The proposed Project is evaluated for consistency with these goals. As shown in the table, the proposed Project would contribute to campus-wide targets related to fossil fuel reduction, water efficiency, waste reduction, and transportation and would be consistent with the goals of the CAP and the UC Policy on Sustainable Practices.

Table 3.7-4. UCI Climate Action Plan and UC Sustainable Practices Policy Consistency		
CAP Actions	UC SP Policies	Compliance
Scope 1 & 2 Actions		
Minimize Energy Use		

Table 3.7-4. UCI Climate Action Plan and UC Sustainable Practices Policy Consistency		
CAP Actions	UC SP Policies	Compliance
<p>Deep Energy Efficiency. Implement all feasible energy efficiency projects.</p>	<p>Policy A: Green Building Design</p>	<p>Consistent. UC requires detailed energy performance thresholds by building type and campus location. The Project would be subject to the Policy on Sustainable Practices, which includes goals in various areas of sustainable practices including energy efficiency. The Policy requires acute care/hospital facilities and medical office buildings shall be designed, constructed, and commissioned to outperform efficiency standards by at least 30 percent or meet the whole-building energy performance targets listed in the Policy.</p> <p>The electrical systems are planned to incorporate high efficiency LED lighting with comprehensive digital controls; lower ambient light levels augmented by task lighting that complies with UCI standards, and integration of the occupancy sensors into the HVAC system for unoccupied temperature and ventilation setbacks where approved by UCI.</p> <p>Acute Hospital building would outperform American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) 90.1-2010 by at least 30 percent or meet energy use intensity (EUI) stretch goal of 115 thousand British thermal units per square foot per year (kBtu/sf/yr) and have an EUI of 160 kBtu/sf/yr. The Clinics and Ambulatory Services would outperform ASHRAE 90.1-2010 by at least 30 percent or meet EUI stretch goal of 62 kBtu/sf/yr and have an EUI of 87 kBtu/sf/yr. The Central Utility Plant and parking structures would also outperform Title 24, Part 6 Energy Efficiency Standards 2019 (Title 24) by 20 percent.</p> <p>The proposed Project include water-efficient plumbing fixtures, medical equipment, kitchen equipment and irrigation. The landscape is designed to achieve a minimum of 50 percent water savings in accordance with LEED calculation methods.</p> <p>Recycled water piping would be provided for irrigation and cooling tower water. Recycled water lines would be extended to the Project during phase 1. The Project would also evaluate the cost effectiveness of using recycled water to flush toilets and urinals in the Clinics, outside of surgical departments.</p>
<p>Energy Conservation. Broaden and strengthen energy conservation through behavior and business practices.</p>	<p>Policy A: Green Building Design</p>	
<p>Green Building. Construct planned facilities at LEED Gold or Platinum level (50 percent reduction goal).</p>	<p>Policy A: Green Building Design</p>	<p>Consistent. The proposed Project would achieve a minimum of LEED Silver with a goal to obtain LEED Gold or higher certification based on the rating system version and building type applicable at the time of project registration. Numerous recent UCI projects have achieved or are on track to achieve LEED Platinum certification. The Project would evaluate potential strategies and costs to achieve LEED Platinum certification.</p> <p>In addition to UC carbon neutrality requirements, emissions from embodied carbon of building materials would be addressed in accordance with Assembly Bill 262, Buy Clean California (AB 262).</p>

Table 3.7-4. UCI Climate Action Plan and UC Sustainable Practices Policy Consistency		
CAP Actions	UC SP Policies	Compliance
Optimize Campus Microgrid		
Optimize CoGen and Distributed Generation. Implement microgrid projects (efficiency, energy storage, integration of renewable energy).	Policy B: Clean Energy	Consistent. Per the UC Sustainability Policy, heat recovery chillers (HRC), air source heat pumps, heat recovery and/or solar thermal would be used to generate heating hot water and domestic hot water. Thermal storage tanks would be added to enhance the system performance. HRC would capture waste heat from refrigeration processes and used to produce supplemental heating hot water for space heating and domestic hot water. The Project would implement “electrification” solutions for the project heating systems, which may include heat recovery chillers with the most efficient operation using the lowest condensing water temperature possible to ensure peak energy performance for the life of the facility.
Deploy On-Site Renewable Energy		
Solar. Implement second phase parking structure solar arrays (3 MW).	Policy B: Clean Energy	Consistent. The Project is designed with infrastructure to accommodate installation of future solar photovoltaic panels on the roofs of the parking structures, and installation of a future battery storage system. At minimum, infrastructure shall include structural, electrical and plumbing systems. MM GHG-1 requires the Project to go beyond the just including infrastructure and requires the installation of photovoltaic solar panels to be installed.
Off Site Renewable Energy. Purchase 100 percent GHG-free electricity.	Policy B: Clean Energy	Consistent. As a registered Electric Service Provider (ESP) the UC system directly manages the percentage of GHG-free energy provided in its purchased electricity supply. The Project would not conflict with the CAP goal of achieving 100 percent renewable off-site energy. In addition, operation of the proposed Project would benefit from the implementation off-site renewable electricity, which would also serve the Project site. The Main Campus and Medical Center have direct access accounts, allowing access to UC ESP-provided electricity. ESP electricity is 100 percent GHG-free energy. However, the Project would also potentially obtain power from Southern California Edison (SCE). Therefore, MM GHG-1 requires the Project to be carbon neutral per the UCI CAP and the UC Policy on Sustainable Practices.
Biomethane		
Procure Biomethane. Procure biomethane to replace 10 percent of Central Plant emissions.	Policy B: Clean Energy	Consistent. This action involves converting the use of natural gas at UCI’s combined heat and power (CHP) plant to renewable fuel through the use of biomethane. The Project involves the construction of energy-efficient buildings and would not conflict with the ability to procure biomethane for the CHP.
Optimize Efficiency of Shuttle and Fleet		
Optimize Fleet. Implement fuel switching for half of existing fleet operations and convert 20 diesel buses to EV.	Policy D: Sustainable Transportation	Consistent. UCI has replaced its diesel bus fleet with an all-electric fleet, to reduce GHG emissions. The proposed Project would not conflict with fleet optimization. In addition, operation of the proposed Project would benefit from the implementation of an optimized fleet, which would also server the Project site.
Carbon Offset Measures		
CARB Compliant	Policy C: Climate	Consistent. The CAP requires UCI to participate in off-site carbon

Table 3.7-4. UCI Climate Action Plan and UC Sustainable Practices Policy Consistency		
CAP Actions	UC SP Policies	Compliance
Offsets. Maximize CARB compliant offsets through Cap and Trade Program.	Protection	abatement actions. The proposed Project would not conflict with the CAP action to obtain CARB compliant offsets or verifiable voluntary offsets as outlined in MM GHG -1.
Voluntary Offsets. Catalyze or procure mission-consistent offsets for remaining Scope 1 and 2 emissions.	Policy C: Climate Protection	
Scope 3 Actions		
Transportation Demand Management. Implement TDM programs.	Policy D: Sustainable Transportation	Consistent. UCI's Sustainable Transportation Program utilizes various TDM measures and was created with the goal to reduce the total number of vehicle trips made to the campus by faculty, staff and students and reduce commute emissions. The Project would not eliminate or reduce any existing TDM measures offered by UCI's Transportation and Distribution Service. Employees of the Project would be eligible to utilize the TDM services provided by the UCI Transportation and Distribution Service. Additionally, the Project site is designed to accommodate multimodal transportation systems, including sidewalks/walking trails, bicycle infrastructure, municipal bus service, and campus shuttles. The Project would connect to a campus-wide network of bike/pedestrian trail system.
Voluntary Offsets. Secure mission-consistent offsets for remaining Scope 3 emissions.	Policy C: Climate Protection	Consistent. As noted above, the proposed Project would not conflict with the CAP action to obtain voluntary offsets.
N/A	Policy F: Zero Waste	Consistent. The UC Sustainable Practices Zero Waste Policy requires the University to achieve divert 90 percent of municipal solid waste from landfills. UC supports the integration of waste, climate and other sustainability goals, including the reduction of embodied carbon in the supply chain through the promotion of a circular economy and the management of organic waste to promote atmospheric carbon reduction. In support of this goal, waste reporting includes tracking estimated scope 3 GHG emissions. The Project design includes storage for waste and recyclables. The Zero Waste goals in the UC Sustainable Practices Policy do not apply to health locations.
1. Scope 1 emissions are direct emissions located on-site and controlled by the university. Scope 2 emissions are indirect emissions resulting from purchased electricity and grid inefficiencies. Scope 3 emissions include all other indirect emissions, such as emissions associated with transportation to the site, construction of the building, and ongoing use of durable goods.		
Source: UCI Climate Action Plan, 2016 and University of California, <i>Policy on Sustainable Practices</i> , 2020.		

The proposed Project consists of an integrated medical campus providing inpatient, ambulatory, and emergent care services space to meet community needs. The Project is consistent with the amount of development that was planned in the LRDP for the North Campus area. As such, the Project's GHG emissions are accounted for and are consistent with the buildout emissions included in the CAP BAU emissions forecasts. In addition, the Project is located in UCI's North Campus and is considered an infill

project per CEQA Guidelines Section 21061.3. The Project site is located adjacent to Orange County Transportation Authority (OCTA) bus stop for route 472, approximately 1,000 feet from the Campus-Jamboree bus stop (accessed by OCTA bus routes 59 and 178), and within 0.25-mile of several other OCTA bus stops (i.e., for routes 59, 212, and 178).

An existing Class II Bicycle Lane on Campus Drive connects the Project site to the main UCI campus. Two-way cycling is permitted on the sidewalk along the west side of Jamboree Road in front of the Project site, which can be accessed by a signalized crossing at the Birch Street intersection. On-street marked bicycle lanes are also provided on Carlson Avenue, Michelson Drive, Von Karman Ave and Bristol Street North. The bike lanes on the streets noted above connect to the City of Irvine's larger bicycle network.

The Project would not remove any pedestrian or bicycle facilities, or transit stops. Rather, the Project would enhance transit access and construct sidewalks and pedestrian amenities such as lighting, trash receptacles, and benches. The Project would also provide landscaping which enhance the pedestrian experience by providing shade for walking or resting.

The Project would also provide on-site bicycle parking and is situated in an urban area near a mix of residential, commercial, office, and institutional uses. As such, employees would have ample alternative transportation options to access the Project site and would have access to local businesses via walking or bicycling, which would help reduce the Project's mobile GHG emissions (comprising approximately 63 percent of total GHG emissions).

The Project would also be required to comply with the GHG reduction efforts outlined in the CAP and all of UCI's sustainability programs, including the TDM program, green building design, renewable energy, and energy efficiency measures, among others, to reduce its carbon footprint. Additionally, MM GHG-1 requires the Project to be carbon neutral per the UCI CAP and the UC Policy on Sustainable Practices. Therefore, the Project would not hinder the ability for UCI to achieve its GHG reduction targets and would not conflict with the CAP.

The UCI Main Campus emissions currently meet CARB's threshold for participation in the California Cap and Trade Program requiring annual reporting and acquisition of Carbon Emission Allowances. UCI compiles annual GHG emission inventories consistent with The Climate Registry (TCR) protocols. UCI tracks emissions for the six classes of greenhouse gases identified in the Kyoto Protocol as contributors to climate change. UCI GHG emission inventories undergo third-party verification and are publicly reported through TCR, Second Nature, and UC Regents. Certain Scope 1 emissions are also reported to U.S. EPA and CARB in compliance with federal and State requirements.

Projected GHG emissions resulting from major UCI building projects are quantified and published as part of the environmental analysis conducted in compliance with CEQA. This includes characterization of construction and operational GHG emissions resulting from each project, determination of significance levels, and identification and monitoring of any project-level GHG mitigation measures. Following occupancy, emissions from building operations are measured and reported through the CAP's annual inventory and reporting process.

The UC Carbon Neutrality Initiative sets a goal of emitting net zero GHG from its buildings, operations, and vehicle fleet by 2025. The campuses are investing in 100 percent carbon-free electricity by 2025, building efficiency improvements, building electrification, and biogas procurement in order to meet this goal. UC reduced its emissions by approximately 36 percent per student from 2010 to 2018 and expects

direct emissions to be reduced to carbon neutrality by 2025. In addition, UC expects to procure offsets as the final step to reach net zero emissions.

UC is using their research capacity to develop a portfolio of high-quality carbon offset projects. Their offset program has two tracks: developing UC-initiated offset projects and performing research and due diligence on offsets on the voluntary market. By releasing guidance materials and publishing research, UC intends to advance understanding of how institutions can identify and support high-quality offset projects.

The UCI CAP goals require that UCI participate in off-site carbon abatement actions in addition to on-campus actions. This may include UC or UCI-catalyzed actions, or third-party actions supported by UCI that result in authentic carbon mitigation. These actions may result in local carbon offsets or environmental attributes such as tradable Carbon Offsets or Renewable Energy Certificates (RECs). Consistent with CAP principles, any environmental attributes developed or acquired as part of UCI's CAP portfolio must result from projects that support UCI's mission and values and must be "additional" (i.e., GHG reduction measures that would not otherwise have been undertaken). Examples of projects that produce environmental attributes include off-site renewable energy projects, destruction of ozone depleting substances and forestry programs. This may include actions on-campus, in the local community, or global efforts.

Consistency with UC Sustainable Practices Policy

The UC Policy on Sustainable Practices establishes goals for all ten UC campuses, five medical centers, and other University properties in nine areas of sustainable practices, including climate protection. Consistent with this policy, each UC campus must adopt and implement a CAP to achieve specific GHG reduction targets for 2020, 2025, and 2050. The UC Policy on Sustainable Practices was most recently updated in 2015. The current policy goals are:

1. Reduce GHG emissions to year 1990 levels by 2020.
2. Achieve climate neutrality for Scope 1 (combustion) and 2 (purchased electricity) emissions by 2025 (UC President's Carbon Neutrality Initiative).
3. Achieve climate neutrality for Scope 3 (commuting and University-funded air travel) emissions by 2050 or sooner.

The Project would be subject to the Policy on Sustainable Practices, which includes goals in various areas of sustainable practices including green building design, clean energy, climate protection, sustainable transportation, sustainable building operations for campuses, zero waste, sustainable procurement, sustainable food services, sustainable water systems and sustainability at UC Health. Specific to the Project, all new buildings are required to outperform the California Building Code energy-efficiency standards (Title 24) by at least 20 percent or meet whole-building energy performance targets identified in the Policy on Sustainable Practices. On-site fossil fuel combustion is prohibited in most cases, and buildings are required to achieve U.S. Green Building Council Leadership in Energy and Environmental Design (LEED) "Silver" standards at minimum and strive to achieve LEED "Gold" or higher. The Project would not conflict with any of the measures within the Policy on Sustainable Practices, including campus-wide clean energy, energy efficiency, and renewable energy, and sustainable transportation. Project consistency with the applicable policies is evaluated above in Table 3.7-4. Additionally, MM GHG-1 requires the Project to be carbon neutral per the UCI CAP and the UC Policy on Sustainable Practices.

Consistency with the SCAG RTP/SCS

On September 3, 2020, SCAG’s Regional Council adopted Connect SoCal (2020 - 2045 Regional Transportation Plan/Sustainable Communities Strategy [2020 RTP/SCS]). The RTP/SCS is a long-range visioning plan that balances future mobility and housing needs with economic, environmental, and public health goals. The RTP/SCS embodies a collective vision for the region’s future and is developed with input from local governments, county transportation commissions, tribal governments, nonprofit organizations, businesses, and local stakeholders in the counties of Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura. SCAG’s RTP/SCS establishes GHG emissions goals for automobiles and light-duty trucks for 2020 and 2035 as well as an overall GHG target for the Project region consistent with both the target date of AB 32 and the post-2020 GHG reduction goals of Executive Orders 5-03-05 and B-30-15.

The RTP/SCS contains over 4,000 transportation projects, ranging from highway improvements, railroad grade separations, bicycle lanes, new transit hubs and replacement bridges. These future investments were included in county plans developed by the six county transportation commissions and seek to reduce traffic bottlenecks, improve the efficiency of the region’s network, and expand mobility choices for everyone. The RTP/SCS is an important planning document for the region, allowing project sponsors to qualify for federal funding.

The plan accounts for operations and maintenance costs to ensure reliability, longevity, and cost-effectiveness. The RTP/SCS is also supported by a combination of transportation and land use strategies that help the region achieve State GHG emissions reduction goals and FCAA requirements, preserve open space areas, improve public health and roadway safety, support our vital goods movement industry, and utilize resources more efficiently. GHG emissions resulting from development-related mobile sources are the most potent source of emissions, and therefore project comparison to the RTP/SCS is an appropriate indicator of whether the proposed Project would inhibit the post-2020 GHG reduction goals promulgated by the State. The proposed Project’s consistency with the RTP/SCS goals is analyzed in detail in *Table 3.7-5, Regional Transportation Plan/Sustainable Communities Strategy Consistency*.

Table 3.7-5. Regional Transportation Plan/Sustainable Communities Strategy Consistency	
SCAG Goals	Compliance with Goal
GOAL 1: Encourage regional economic prosperity and global competitiveness.	Not Applicable. This is not a project-specific policy and is therefore not applicable.
GOAL 2: Improve mobility, accessibility, reliability, and travel safety for people and goods.	Not Applicable. This is not a transportation improvement project and is therefore not applicable.
GOAL 3: Enhance the preservation, security, and resilience of the regional transportation system.	Not Applicable. This is not a transportation improvement project and is therefore not applicable.
GOAL 4: Increase person and goods movement and travel choices within the transportation system.	Not Applicable. This is not a transportation improvement project and is therefore not applicable.
GOAL 5: Reduce greenhouse gas emissions and improve air quality.	Consistent. As discussed above, the Project involves the development of health facilities that would serve the surrounding community, thereby reducing the need to travel further for these services. UCI Health serves greater Orange County and the UCI Medical Center inpatient bed capacity exceeds 80 percent occupancy. Orange County will continue to experience population growth, with the City of Irvine’s population growth as the highest in the County. The Project is

Table 3.7-5. Regional Transportation Plan/Sustainable Communities Strategy Consistency	
SCAG Goals	Compliance with Goal
	an infill development within an urbanized/developed area consisting of an integrated medical campus providing inpatient, ambulatory, and emergency care services space to meet community needs. As such, the Project is anticipated to reduce the need to travel long distances for some residents and reducing associated air quality and GHG emissions. Additionally, MM AQ-2 requires TDM measures to reduce mobile source emissions and MM GHG-1 requires the Project to be carbon neutral through on-site energy generation and CARB-approved carbon offsets.
GOAL 6: Support healthy and equitable communities	Consistent. As noted above, the Project involves the development of health facilities that would serve the surrounding community. Additionally, the TDM requirements of MM AQ-2 would improve accessibility to the Project site.
GOAL 7: Adapt to a changing climate and support an integrated regional development pattern and transportation network.	Not Applicable. This is not a transportation improvement project and is therefore not applicable.
GOAL 8: Leverage new transportation technologies and data-driven solutions that result in more efficient travel	Not Applicable. This is not a transportation improvement project and is therefore not applicable.
GOAL 9: Encourage development of diverse housing types in areas that are supported by multiple transportation options.	Not Applicable. The Project involves medical and health facilities and is not a housing development. The proposed health facilities would serve the surrounding community. Additionally, the TDM requirements of MM AQ-2 support multiple transportation options.
GOAL 10: Promote conservation of natural and agricultural lands and restoration of habitats.	Not Applicable. This the Project is not located on agricultural lands. The Project site is located within the Coastal Subregion of an Orange County Natural Community Conservation Planning Act/Habitat Conservation Plan (NCCP/HCP) area. However, the site is not within the Reserve System or identified special linkage areas. The nearest designated portion of the Orange County NCCP/HCP Reserve System (Non-Reserve Open Space associated with the San Joaquin Marsh) is immediately east of but not within the Project site. Therefore, the Project would preserve adjacent habitat areas.
Source: Southern California Association of Governments, <i>Connect SoCal 2020 - 2045 Regional Transportation Plan/Sustainable Communities Strategy</i> , 2020.	

Compliance with applicable State standards would ensure consistency with State and regional GHG reduction planning efforts. The goals stated in the RTP/SCS were used to determine consistency with the planning efforts previously stated. As shown in Table 3.7-5, the proposed Project would be consistent with the stated goals of the RTP/SCS. Therefore, the proposed Project would not result in any significant impacts or interfere with SCAG's ability to achieve the region's post-2020 mobile source GHG reduction targets.

Consistency with the CARB Scoping Plan

The California State Legislature adopted AB 32 in 2006. AB 32 focuses on reducing GHGs (carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride) to 1990 levels by the year 2020. Pursuant to the requirements in AB 32, CARB adopted the *Climate Change Scoping Plan* (Scoping Plan) in 2008, which outlines actions recommended to obtain that goal. The Scoping Plan provides a range of GHG reduction actions that include direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, market-based mechanisms such as the cap-and-trade program, and an AB 32 implementation fee to fund the program. As shown in *Table 3.7-6, Project Consistency with Applicable CARB Scoping Plan Measures*, the proposed Project is consistent with most of the strategies, while others are not applicable to the proposed Project.

Scoping Plan Sector	Scoping Plan Measure	Implementing Regulations	Project Consistency
Transportation	California Cap-and-Trade Program Linked to Western Climate Initiative	Regulation for the California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanism October 20, 2015 (CCR 95800)	Not Applicable. The Cap-and-Trade Program applies to large industrial sources such as power plants, refineries, and cement manufacturers. However, the regulation indirectly affects people who use the products and services produced by these industrial sources when increased cost of products or services (such as electricity and fuel) are transferred to the consumers. The Cap-and-Trade Program covers the GHG emissions associated with electricity consumed in California, generated in-state or imported. Accordingly, GHG emissions associated with CEQA projects' electricity usage are covered by the Cap-and-Trade Program. The Cap-and-Trade Program also covers fuel suppliers (natural gas and propane fuel providers and transportation fuel providers) to address emissions from such fuels and combustion of other fossil fuels not directly covered at large sources in the Program's first compliance period.
	California Light-Duty Vehicle Greenhouse Gas Standards	Pavley I 2005 Regulations to Control GHG Emissions from Motor Vehicles Pavley I 2005 Regulations to Control GHG Emissions from Motor Vehicles	Consistent. This measure applies to all new vehicles starting with model year 2012. The proposed Project would not conflict with its implementation as it would apply to all new passenger vehicles purchased in California. Passenger vehicles, model year 2012 and later, associated with construction and operation of the proposed Project would be required to comply with the Pavley emissions standards.
		2012 LEV III California GHG and Criteria Pollutant Exhaust and Evaporative Emission Standards	Consistent. The LEV III amendments provide reductions from new vehicles sold in California between 2017 and 2025. Passenger vehicles associated with the site would comply with LEV III standards.
	Low Carbon Fuel Standard	2009 readopted in 2015. Regulations to Achieve Greenhouse Gas Emission Reductions Subarticle 7. Low Carbon Fuel Standard CCR 95480	Consistent. This measure applies to transportation fuels utilized by vehicles in California. The proposed Project would not conflict with implementation of this measure. Motor vehicles associated with construction and operation of the proposed Project would utilize low carbon transportation fuels as required under this measure.
	Regional Transportation-Related	SB 375. Cal. Public Resources Code §§	Consistent. The proposed Project would provide development in the region that is consistent with the growth projections in the Regional Transportation

Table 3.7-6. Project Consistency with Applicable CARB Scoping Plan Measures			
Scoping Plan Sector	Scoping Plan Measure	Implementing Regulations	Project Consistency
	Greenhouse Gas Targets	21155, 21155.1, 21155.2, 21159.28	Plan/Sustainable Communities Strategy (RTP/SCS). The Project would construct an integrated medical campus providing inpatient, ambulatory, and emergency care services space to meet community needs. The Project would be consistent with the LRDP and the goals and policies in the UCI Strategic Plan. With the City of Irvine's population growth as the highest in the County, the Project's location in Irvine is ideal since residents living in Irvine, adjacent cities, and South Orange County cities receiving care from UCI health services could drive to the Irvine site rather than driving a further distance to the City of Orange or other regional locations, thereby reducing VMT. The Project would also promote walkability and contribute to a jobs/housing balance. The Project includes mitigation to further reduce VMT, which would also reduce mobile-source GHG emissions. MM AQ-2 requires TDM measures to reduce mobile emissions. Single-occupancy vehicle trips would be discouraged and alternative modes of transportation such as carpooling, taking transit, walking, and biking would be encouraged and facilitated.
	Goods Movement	Goods Movement Action Plan January 2007	Not applicable. The proposed Project does not propose any changes to maritime, rail, or intermodal facilities or forms of transportation.
	Medium/Heavy-Duty Vehicle	2010 Amendments to the Truck and Bus Regulation, the Drayage Truck Regulation and the Tractor-Trailer Greenhouse Gas Regulation	Consistent. This measure applies to medium and heavy-duty vehicles that operate in the State. The proposed Project would not conflict with implementation of this measure. Medium and heavy-duty vehicles associated with construction and operation of the proposed Project would be required to comply with the requirements of this regulation.
	High Speed Rail	Funded under SB 862	Not applicable. This is a statewide measure that cannot be implemented by a project applicant or Lead Agency.
Electricity and Natural Gas	Energy Efficiency	Title 20 Appliance Efficiency Regulation	Consistent. The proposed Project would not conflict with implementation of this measure. The proposed Project would comply with the latest energy efficiency standards. As noted above, the Project's goals are to exceed these standards.
		Title 24 Part 6 Energy Efficiency Standards for Residential and Non-Residential Building	
		Title 24 Part 11 California Green Building Code Standards	
	Renewable Portfolio Standard/Renewable Electricity Standard.	2010 Regulation to Implement the Renewable Electricity Standard (33% 2020)	Consistent. The Project would obtain electricity from the UC Energy Services Unit which provides GHG-free energy. Additionally, SCE is the electric utility in the area. SCE obtained 36 percent of its power supply from renewable sources in 2018. Additionally, MM GHG-1 requires the Project to be carbon neutral per the UCI CAP and the UC Policy on Sustainable Practices.
	Million Solar Roofs Program	SB 350 Clean Energy and Pollution Reduction Act of 2015 (50% 2030)	

Scoping Plan Sector	Scoping Plan Measure	Implementing Regulations	Project Consistency
	Million Solar Roofs Program	Tax Incentive Program	Consistent. This measure is to increase solar throughout California, which is being done by various electricity providers and existing solar programs. The program provides incentives that are in place at the time of construction.
Water	Water	Title 24 Part 11 California Green Building Code Standards	Consistent. The proposed Project would comply with the California Green Building Standards Code, which requires a 20 percent reduction in indoor water use. The proposed Project include water-efficient plumbing fixtures, medical equipment, kitchen equipment and irrigation. The landscape is designed to achieve a minimum of 50 percent water savings in accordance with LEED calculation methods.
		SBX 7-7—The Water Conservation Act of 2009	
		Model Water Efficient Landscape Ordinance	
Green Buildings	Green Building Strategy	Title 24 Part 11 California Green Building Code Standards	Consistent. The State is to increase the use of green building practices. The proposed Project would implement required green building strategies through existing regulation that requires the proposed Project to comply with various CalGreen requirements. The proposed Project includes sustainability design features that support the Green Building Strategy.
Industry	Industrial Emissions	2010 CARB Mandatory Reporting Regulation	Not applicable. The Mandatory Reporting Regulation requires facilities and entities with more than 10,000 MTCO _{2e} of combustion and process emissions, all facilities belonging to certain industries, and all-electric power entities to submit an annual GHG emissions data report directly to CARB. As shown above, the majority of GHG emissions would be mobile sources, and stationary Project GHG emissions would not exceed 10,000 MTCO _{2e} . Therefore, this regulation would not apply.
Recycling and Waste Management	Recycling and Waste	Title 24 Part 11 California Green Building Code Standards	Consistent. The proposed Project would not conflict with implementation of these measures. The proposed Project is required to achieve the recycling mandates via compliance with the CALGreen code. The City has consistently achieved its State recycling mandates.
		AB 341 Statewide 75 Percent Diversion Goal	
Forests	Sustainable Forests	Cap and Trade Offset Projects	Not applicable. The proposed Project site is in an area designated for urban uses. No forested lands exist on-site.
High Global Warming Potential	High Global Warming Potential Gases	CARB Refrigerant Management Program CCR 95380	Not applicable. The regulations are applicable to refrigerants used by large air conditioning systems and large commercial and industrial refrigerators and cold storage system. The proposed Project would not conflict with the refrigerant management regulations adopted by CARB.
Agriculture	Agriculture	Cap and Trade Offset Projects for Livestock and Rice Cultivation	Not applicable. The Project site is designated for urban development. No grazing, feedlot, or other agricultural activities that generate manure occur currently exist on-site or are proposed by the Project.

Source: California Air Resources Board, *California's 2017 Climate Change Scoping Plan*, 2017 and CARB, *Climate Change Scoping Plan*, 2008.

The 2017 Scoping Plan Update identifies additional GHG reduction measures necessary to achieve the 2030 target. These measures build upon those identified in the first update to the Scoping Plan in 2013. Although a number of these measures are currently established as policies and measures, some measures have not yet been formally proposed or adopted. It is expected that these actions to reduce GHG emissions will be adopted as required to achieve statewide GHG emissions targets. As such, impacts related to consistency with the Scoping Plan would be less than significant.

The Project proposes to incorporate energy efficiency design features that exceed Title 24 and CALGreen standards that are consistent with the CAP's efficiency measures. Because Title 24 and CALGreen standards require energy conservation features in new construction (e.g., high-efficiency lighting, high-efficiency heating, ventilating, and air-conditioning (HVAC) systems, thermal insulation, double-glazed windows, water-conserving plumbing fixtures), they indirectly regulate and reduce GHG emissions.

As noted above, approximately 63 percent of the Project's emissions are from energy and mobile sources. The Project's mobile emissions estimate is conservative given employees of the Project would use the TDM services provided by the UCI Transportation and Distribution Service and that the Project would serve the existing community. It is noted that UCI has no control over vehicle emissions.

UCI Health serves a population of more than 3.3 million in greater Orange County. UCI Health offers services on two campuses, the academic programs and clinical uses on the UCI main campus and the UCI Medical Center located in the City of Orange, in addition to off-campus clinics located throughout Orange County. Currently, the UCI Medical Center inpatient bed capacity exceeds 80 percent occupancy. Orange County will continue to experience population growth, with the City of Irvine's population growth as the highest in the County. The Project is an infill development within an urbanized/developed area consisting of an integrated medical campus providing inpatient, ambulatory, and emergency care services space to meet community needs. As such, the Project is anticipated to reduce the need to travel long distances for some residents and reducing associated GHG emissions.¹³

Project emissions would be further reduced by implementation of the 2017 Scoping Plan measures. These emissions would decline in the future due to statewide measures including the reduction in fuels' carbon content, CARB's advanced clean car program, CARB's mobile source strategy, fuel efficiency standards, cleaner technology, and fleet turnover. SCAG's RTP/SCS is also expected to help California reach its GHG reduction goals, with reductions in per capita transportation emissions of 8 percent by 2020 and 19 percent by 2035.¹⁴

Regarding goals for 2050 under Executive Order S-3-05, at this time it is not possible to quantify the emissions savings from future regulatory measures, as they have not yet been developed; nevertheless, it can be anticipated that operation of the proposed Project would benefit from the implementation of current and potential future regulations (e.g., improvements in vehicle emissions, SB 100/renewable electricity portfolio improvements, etc.) enacted to meet an 80 percent reduction below 1990 levels by 2050.

¹³ The California Air Pollution Control Officers Association, *Quantifying Greenhouse Gas Mitigation Measures* (August 2010) identifies that infill developments, such as the proposed Project reduce vehicle miles traveled which reduces fuel consumption. Infill projects such as the proposed Project would have an improved location efficiency.

¹⁴ Southern California Association of Governments, *Final 2020–2045 RTP/SCS*, May 2020, p. 9.

The proposed Project demonstrates consistency with the LRDP, UCI CAP goals, and would not conflict with any applicable plan, policy, or regulation of an agency adopted to reduce GHG emissions, including Title 24, AB 32, and SB 32. Additionally, MM GHG-1 requires the Project to be carbon neutral per the UCI CAP and the UC Policy on Sustainable Practices. Therefore, Project impacts would be less than significant.

Mitigation Measures

Implementation of MM AQ-2. Additionally, the following mitigation is required:

GHG-1 Monitor emissions annually and acquire carbon offset credits to achieve and maintain carbon neutrality for Project operations consistent with the terms of UC Climate Protection Policy.

As part of this mitigation measure, UCI is making the following separate, though overlapping, GHG emission reduction commitments: (1) Reduction of On-Site Energy Consumption; (2) As a CARB-covered entity, UCI will maintain compliance with CARB's cap and trade program; (3) Per the Climate Action Plan and current UCI policy, UCI's Scope 1 and Scope 2 GHG emissions shall, commencing in 2025, be entirely carbon neutral; (4) Also per existing UC Policy, commencing in 2020, UCI's Scope 1, Scope 2, and Scope 3 emissions from commuters and air travel shall meet 1990 emission levels; and (5) UCI shall achieve climate neutrality including Scope 3 sources (UCI commuters and University-funded air travel) by 2050.

Reduce On-Site Energy Consumption: Before the acquisition of carbon offset credits, UCI shall minimize energy consumption to the extent feasible with on-site renewable energy generation. The ICMC shall be built with solar photovoltaic panels on the roofs of the proposed parking structures and installation of a future battery storage system. A hose bib shall be provided at the parking structure roof level to facilitate maintenance and washing of photovoltaic panels. If the Project's renewable generation is not sufficient to offset the Project's energy consumption, then UCI shall achieve an equivalent level of GHG emissions reductions to mitigate such shortfall, as described below.

Compliance with CARB's Cap and Trade Program: Any carbon offset credits purchased for the purpose of compliance with CARB's cap and trade program shall be purchased from an accredited carbon credit market. Such offset credits (or California Carbon Offsets) shall be registered with, and retired by an Offset Project Registry, as defined in 17 California Code of Regulations § 95802(a), approved by the California Air Resources Board such as, but not limited to, Climate Action Reserve, American or Verra (formerly Verified Carbon Standard) approved by the California Air Resources Board and using protocols that are CARB-approved, as required in 17 Cal. Code Regs. § 95970 (a)(1)-(2). In order to demonstrate that the carbon offset credits provided are real, permanent, additional, quantifiable, verifiable, and enforceable, as those terms are defined in 17 California Code of Regulations § 95802(a), UCI shall document in its annual report: (i) the protocol used to develop those credits, and (ii) the third-party verification report concerning those credits. As and when the credits are retired, UCI shall document in its annual report the unique serial numbers of those credits showing that they have been retired.

Compliance with UC Policy: Compliance with UC’s policies for carbon neutrality by 2025 will be accomplished through reductions in direct emissions, the purchase of renewable electricity and possibly biomethane, and the purchase of carbon offset credits. UCI will purchase voluntary carbon offset credits as the final action to reach the GHG emission reduction targets. As part of the UC Carbon Neutrality Initiative, internal guidelines are being developed to ensure that any use of offsets for this purpose will result in additional, verified GHG emissions reductions from actions that align, as much as possible, with UC’s research, teaching, and public service mission. Specifically, any voluntary carbon offset credits used by UCI to mitigate GHG emissions will:

1. Be third-party verified by a major registry recognized by CARB such as the Climate Action Reserve (CAR).
2. Be reported publicly and tracked through the Climate Registry (TCR) as required by UC policy. TCR is a non-profit organization governed by U.S. states and Canadian provinces and territories. UCI’s TCR reports will be third-party verified and posted publicly.

Level of Significance After Mitigation

Impacts would be less than significant.

3.7.5 Cumulative Impacts

Climate change is a global problem. GHGs are global pollutants, unlike criteria air pollutants and toxic air contaminants, which are pollutants of regional and local concern. Whereas pollutants with localized air quality effects have relatively short atmospheric lifetimes (approximately one day), GHGs have much longer atmospheric lifetimes of one year to several thousand years that allow them to be dispersed around the globe.

It is generally the case that an individual project of the proposed Project’s size and nature is of insufficient magnitude by itself to influence climate change or result in a substantial contribution to the global GHG inventory. GHG impacts are recognized as exclusively cumulative impacts; there are no non-cumulative GHG emission impacts from a climate change perspective. The additive effect of Project-related GHG emissions would not result in a reasonably foreseeable cumulatively considerable contribution to global climate change. In addition, the proposed Project as well as other cumulative related projects, would be subject to all applicable regulatory requirements, which would further reduce GHG emissions. The proposed Project would be consistent with the LRDP, the UCI CAP, the UC Sustainable Practices Policy, SCAG’s 2020 RTP/SCS, and CARB’s Scoping Plan. As a result, the Project would not conflict with any GHG reduction plan. Therefore, with the implementation of Mitigation Measures AQ-2 and GHG-1 the Project’s cumulative contribution of GHG emissions would be less than significant and the Project’s cumulative GHG impacts would also be less than cumulatively considerable.

3.7.6 Level of Significance After Mitigation Summary

With implementation of the Mitigation Program set forth in this section as well as MM AQ-2 in Section 3.2, Air Quality, potential impacts would be reduced to a level considered less than significant.

This page intentionally left blank.

3.8 HAZARDS AND HAZARDOUS MATERIALS

3.8.1 Introduction

This section of the SEIR analyzes the potential hazardous material impacts as a result of developing the proposed Project. The information presented in this section was obtained from available public resources including *Google Earth*, Department of Toxic Substances Control Envirostor website (<http://www.envirostor.dtsc.ca.gov/public/>), State Water Resources Control Board's (SWRCB) Geotracker website (<http://geotracker.waterboards.ca.gov/>), the *City of Irvine General Plan (Irvine GP)*, the *City of Irvine Municipal Code (Irvine MC)*, and the *Orange County General Plan (Orange GP)*. A preliminary assessment of Project site conditions was conducted to evaluate potential soil and groundwater hazards at the Project site.

3.8.2 Regulatory Setting

Federal Regulations

Toxic Substances Control Act/Resource Conservation and Recovery Act/Hazardous and Solid Waste Act

The Federal Toxic Substances Control Act of 1976 and Resource Conservation and Recovery Act (RCRA) established a program administered by the USEPA for the regulation of the generation, transportation, treatment, storage, and disposal of hazardous waste. This includes regulated medical waste (RMW), such as cultures, pathological waste, human blood, handling of sharps, animal waste, isolation waste, and chemotherapy waste. RCRA was amended in 1984 by the Hazardous and Solid Waste Act (HSWA), which affirmed and extended the “cradle to grave” system of regulating hazardous wastes.

Comprehensive Environmental Response, Compensation, and Liability Act/Superfund Amendments and Reauthorization Act

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), commonly known as Superfund, was enacted by Congress on December 11, 1980. This law (U.S. Code Title 42, Chapter 103) provides broad Federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment. CERCLA establishes requirements concerning closed and abandoned hazardous waste sites; provides for liability of persons responsible for releases of hazardous waste at these sites; and establishes a trust fund to provide for cleanup when no responsible party can be identified. CERCLA also enables the revision of the National Contingency Plan (NCP). The NCP (Title 40, Code of Federal Regulation [CFR], Part 300) provides the guidelines and procedures needed to respond to releases and threatened releases of hazardous substances, pollutants, and/or contaminants. The NCP also established the National Priorities List. CERCLA was amended by the Superfund Amendments and Reauthorization Act on October 17, 1986.

Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) and the National Priorities List

The USEPA also maintains the Comprehensive Environmental Response Compensation (CERCLIS) and Liability Information System list. This list contains sites that are either proposed to be or on the National Priorities List (NPL), as well as sites that are in the screening and assessment phase for possible inclusion on the NPL. The NPL is a list of the worst hazardous waste sites that have been identified by Superfund. There are no NPL sites on the Project site.

Emergency Planning and Community Right-to-Know Act

The Federal Emergency Planning and Community Right-To-Know Act (EPCRA) was enacted to inform communities and residents of chemical hazards in their area. Businesses are required to report the locations and quantities of chemicals stored on-site to both State and local agencies. EPCRA requires the USEPA to maintain and publish a digital database list of toxic chemical releases and other waste management activities reported by certain industry groups and Federal facilities. This database, known as the Toxic Release Inventory, gives the community more power to hold companies accountable for their chemical management.

Hazardous Materials Transportation Act

The U.S. Department of Transportation (DOT) receives authority to regulate the transportation of hazardous materials from the Hazardous Materials Transportation Act, as amended and codified (49 U.S.C. 5101 et seq.). The DOT is the primary regulatory authority for the interstate transport of hazardous materials, including RMW, and establishes regulations for safe handling procedures (i.e., packaging, marking, labeling and routing).

In California, Section 31303 of the California Vehicle Code states that any hazardous material being moved from one location to another must use the route with the least travel time. This, in practice, means major roads and highways, although secondary roads are permitted to be used for local delivery. These policies are enforced by both the California Highway Patrol and the California Department of Transportation (Caltrans).

Clean Water Act/SPCC Rule

The Clean Water Act (CWA) (33 U.S.C. Section 1251 et seq., formerly the Federal Water Pollution Control Act of 1972), was enacted with the intent of restoring and maintaining the chemical, physical, and biological integrity of the waters of the United States. The CWA requires states to set standards to protect, maintain, and restore water quality through the regulation of point source and certain non-point source discharges to surface water. Those discharges are regulated by the National Pollutant Discharge Elimination System (NPDES) permit process (CWA Section 402). In California, NPDES permitting authority is delegated to, and administered by, the nine Regional Water Quality Control Boards (RWQCBs). The proposed Project is within the jurisdiction of the Santa Ana RWQCB.

Section 402 of the Clean Water Act authorizes the California SWRCB to issue NPDES General Construction Storm Water Permit (Water Quality Order 99-08-DWQ), referred to as the "General Construction Permit." Construction activities can comply with and be covered under the General Construction Permit provided that they:

- Develop and implement a Storm Water Pollution Prevention Plan (SWPPP) which specifies Best Management Practices (BMPs) that will prevent all construction pollutants from contacting stormwater and with the intent of keeping all products of erosion from moving off-site into receiving waters;
- Eliminate or reduce non-stormwater discharges to storm sewer systems and other waters of the nation; and
- Perform inspections of all BMPs.

NPDES regulations are administered by the RWQCB. Projects that disturb one or more acres are required to obtain NPDES coverage under the Construction General Permits.

As part of the CWA, the USEPA oversees and enforces the Oil Pollution Prevention regulation contained in Title 40 of the CFR, Part 112 (Title 40 CFR, Part 112), which is often referred to as the “SPCC rule” because the regulations describe the requirements for facilities to prepare, amend, and implement Spill Prevention and Countermeasures (SPCC) Plans. A facility is subject to SPCC regulations if a single oil (or gasoline, or diesel fuel) storage tank has a capacity greater than 660 gallons, the total above ground oil storage capacity exceeds 1,320 gallons, or the underground oil storage capacity exceeds 42,000 gallons, and if, due to its location, the facility could reasonably be expected to discharge oil into or upon the “Navigable Waters” of the United States.

Occupational Safety and Health Administration (OSHA)

Congress passed the Occupational and Safety Health Act to ensure worker and workplace safety. Their goal was to make sure employers provide their workers a place of employment free from recognized hazards to safety and health, such as exposure to toxic chemicals, excessive noise levels, mechanical dangers, heat or cold stress, or unsanitary conditions. To establish standards for workplace health and safety, OSHA also created the National Institute for Occupational Safety and Health as the research institution for OSHA. The Administration is a division of the U.S. Department of Labor that oversees the administration of OSHA and enforces standards in all states. OSHA standards are listed in Title 29 CFR Part 1910.

OSHA’s Hazardous Waste Operations and Emergency Response Standard applies to five groups of employers and their employees. This includes any employees who are exposed or potentially exposed to hazardous substances and waste, including RMW, and who are engaged in clean-up operations; corrective actions; voluntary clean-up operations; operations involving hazardous wastes at treatment, storage, and disposal facilities; and emergency response operations.

State Regulations

California Environmental Protection Agency

CalEPA has jurisdiction over hazardous materials and wastes at the State level. DTSC is the department of CalEPA responsible for implementing and enforcing California’s own hazardous waste laws, which are known collectively as the Hazardous Waste Control Law. DTSC regulates hazardous waste in California primarily under the authority of the Federal RCRA and the California Health and Safety Code (primarily Division 20, Chapters 6.5 through 10.6, and Title 22, Division 4.5). Although similar to RCRA, the California Hazardous Waste Control Law and its associated regulations define hazardous waste more broadly and regulate a larger number of chemicals. Hazardous wastes regulated by California but not by the USEPA are called “non-RCRA hazardous wastes.” Other laws that affect hazardous waste are specific to handling, storage, transportation, disposal, treatment, reduction, cleanup, and emergency planning. Government Code Section 65962.5 (commonly referred to as the Cortese List) includes DTSC-listed hazardous waste facilities and sites, Department of Health Services lists of contaminated drinking water wells, sites listed by the State Water Resources Control Board (SWRCB) as having underground storage tank leaks and have had a discharge of hazardous wastes or materials into the water or groundwater, and lists from local regulatory agencies of sites that have had a known migration of hazardous waste/material.

Enforcement of directives from DTSC is handled at the local level, in this case the San Bernardino County DEH. The RWQCB also has the authority to implement regulations regarding the management of soil and groundwater investigation.

California Department of Forestry and Fire Protection (CAL FIRE)

CAL FIRE has mapped fire threat potential throughout California. CAL FIRE ranks fire threats based on the availability of fuel and the likelihood of an area burning (based on topography, fire history, and climate). The rankings include no fire threat, moderate, high, and very high fire threat.

California Fire Code

California Code of Regulations, Title 24, also known as the California Building Standards Code, contains the California Fire Code (CFC), included as Title 24, Part 9. The CFC includes provisions and standards for emergency planning and preparedness, fire service features, fire protection systems, hazardous materials, fire flow requirements, and fire hydrant locations and distribution.

Hazardous Materials Release Response Plans and Inventory Act of 1985

The California Health and Safety Code, Division 20, Chapter 6.95, known as the Hazardous Materials Release Response Plans and Inventory Act or the Business Plan Act, requires businesses using hazardous materials to prepare a plan that describes their facilities, inventories, emergency response plans, and training programs. Businesses must submit this information to the County DEH. The Environmental Health Division verifies the information and provides it to agencies responsible for protection of public health and safety and the environment. Business Plans are required to include emergency response plans and procedures in the event of a reportable release or threatened release of a hazardous material, including, but not limited to, all of the following:

- Immediate notification to the administering agency and to the appropriate local emergency rescue personnel.
- Procedures for the mitigation of a release or threatened release to minimize any potential harm or damage to persons, property, or the environment.
- Evacuation plans and procedures, including immediate notice, for the business site.

Business Plans are also required to include training for all new employees, and annual training, including refresher courses, for all employees in safety procedures in the event of a release or threatened release of a hazardous material.

Hazardous Waste Control Act

The Hazardous Waste Control Act created the State hazardous waste management program, which is similar to, but more stringent than, the Federal RCRA program. The act is implemented by regulations contained in Title 26 of the CCR, which describes the following required aspects for the proper management of hazardous waste: identification and classification; generation and transportation; design and permitting of recycling, treatment, storage, and disposal facilities; treatment standards; operation of facilities and staff training; and closure of facilities and liability requirements. These regulations list more than 800 materials that may be hazardous and establish criteria for identifying, packaging, and disposing of such waste. Under the Hazardous Waste Control Act and Title 26, the generator of hazardous waste

must complete a manifest that accompanies the waste from generator to transporter to the ultimate disposal location. Copies of the manifest must be filed with the DTSC.

Unified Hazardous Waste and Hazardous Materials Management Regulatory Program

The Unified Hazardous Waste and Hazardous Materials Management Regulatory Program (Unified Program) required the administrative consolidation of six hazardous materials and waste programs (Program Elements) under one agency, a Certified Unified Program Agency (CUPA). The Program Elements consolidated under the Unified Program are Hazardous Waste Generator and On-site Hazardous Waste Treatment Programs (a.k.a. Tiered Permitting); Aboveground Petroleum Storage Tank SPCC; Hazardous Materials Release Response Plans and Inventory Program (a.k.a. Hazardous Materials Disclosure or “Community-Right-To-Know”); California Accidental Release Prevention Program (Cal ARP); Underground Storage Tank (UST) Program; and Uniform Fire Code Plans and Inventory Requirements.

The Unified Program is intended to provide relief to businesses complying with the overlapping and sometimes conflicting requirements of formerly independently managed programs. The Unified Program is implemented at the local government level by CUPAs. Most CUPAs have been established as a function of a local environmental health or fire department. Some CUPAs have contractual agreements with another local agency, a participating agency, which implements one or more Program Elements in coordination with the CUPA. The Project site is located within Orange County. The CUPA designated for Orange County is the Orange County Health Care Agency, Environmental Health Division (OCHCA-EH).

Department of Toxic Substance Control (DTSC)

DTSC is a department of CalEPA and is the primary agency in California that regulates hazardous waste, cleans up existing contamination, and looks for ways to reduce the hazardous waste produced in California. DTSC regulates hazardous waste in California primarily under the authority of the Federal RCRA and the California Health and Safety Code (primarily Division 20, Chapters 6.5 through 10.6, and Title 22, Division 4.5). Other laws that affect hazardous waste are specific to handling, storage, transportation, disposal, treatment, reduction, cleanup, and emergency planning. Government Code Section 65962.5 (commonly referred to as the Cortese List) includes DTSC-listed hazardous waste facilities and sites, Department of Health Services lists of contaminated drinking water wells, sites listed by the SWRCB as having UST leaks and have had a discharge of hazardous wastes or materials into the water or groundwater, and lists from local regulatory agencies of sites that have had a known migration of hazardous waste/material.

State Water Resources Control Board (SWRCB)

The SWRCB has primary responsibility to protect water quality and supply through the respective RWQCBs. As described in Section 4.9, Hydrology and Water Quality, RWQCBs are authorized by the Porter-Cologne Water Quality Control Act of 1969 to protect the waters of the state. The RWQCBs provide oversight for sites where the quality of groundwater or surface waters is threatened. Extraction and disposal of contaminated groundwater due to investigation/remediation activities or due to dewatering during construction require a permit from the RWQCBs if the water were discharged to storm drains, surface water, or land. California Code of Regulations Title 23, Chapter 15, requires that non-hazardous liquid (greater than 42 gallons) or solid (greater than 10 cubic yards) waste must be reported to the RWQCB. Domestic wastewater and refuse releases are required to be reported under different non-Chapter 15 regulations.

California Office of Emergency Services (OES)

To protect the public health and safety and the environment, the California OES is responsible for establishing and managing statewide standards for business and area plans relating to the handling and release or threatened release of hazardous materials. Basic information on hazardous materials handled, used, stored, or disposed of (including location, type, quantity, and the health risks) needs to be available to firefighters, public safety officers, and regulatory agencies. The information must be included in these institutions' business plans to prevent or mitigate the damage to the health and safety of persons and the environment from the release or threatened release of these materials into the workplace and environment.

These regulations are covered under Chapter 6.95 of the California Health and Safety Code Article 1 – Hazardous Materials Release Response and Inventory Program (Sections 25500 to 25520) and Article 2 – Hazardous Materials Management (Sections 25531 to 25543.3). CCR Title 19, Public Safety, Division 2, Office of Emergency Services, Chapter 4 – Hazardous Material Release Reporting, Inventory, and Response Plans, Article 4 (Minimum Standards for Business Plans) establishes minimum statewide standards for Hazardous Materials Business Plans (HMBP). These plans shall include the following: (1) a hazardous material inventory in accordance with Sections 2729.2 to 2729.7; (2) emergency response plans and procedures in accordance with Section 2731; and (3) training program information in accordance with Section 2732. Business plans contain basic information on the location, type, quantity, and health risks of hazardous materials stored, used, or disposed of in the state. Each business shall prepare a HMBP if that business uses, handles, or stores a hazardous material or an extremely hazardous material in quantities greater than or equal to the following: 500 pounds of a solid substance, 55 gallons of a liquid, 200 cubic feet of compressed gas, a hazardous compressed gas in any amount, or hazardous waste in any quantity.

California Occupational Safety and Health Administration

The California Occupational Safety and Health Administration (Cal/OSHA) is the primary agency responsible for worker safety in the handling and use of chemicals in the workplace. Cal/OSHA standards are generally more stringent than Federal regulations. The employer is required to monitor worker exposure to listed hazardous substances and notify workers of exposure (8 CCR Sections 337-340). The regulations specify requirements for employee training, availability of safety equipment, accident-prevention programs, and hazardous substance exposure warnings.

In addition, Cal/OSHA regulates medical/infectious waste, including management of sharps, requirements for containers that hold or store medical/infectious waste, labeling of medical/infectious waste bags/containers, and employee training.

California Department of Public Health

California's medical waste disposal regulations are overseen by the CDPH, Environmental Management Branch. The Medical Waste Management Program within the Environmental Management Branch regulates the generation, handling, storage, treatment, and disposal of medical waste. The Medical Waste Management Program also implements the large quantity generator inspector inspection program. A large quantity generator is a medical waste generator that generates more than 200 pounds of medical waste per month in any month of a 12-month period. A small quantity generator is a medical waste generator that generates less than 200 pounds per month of medical waste. Small quantity generators are subject to all of the requirements under Chapter 4 of the Medical Waste Management Act, Health and

Safety Code section 117915 through 117946. Medical waste must be picked up by a registered medical waste hauler or if appropriate sent for treatment through a mail back program.

Medical Waste Management Act

Within the regulatory framework of the Medical Waste Management Act, the Medical Waste Management Program of the California Department of Health Services (CDHS) ensures the proper handling and disposal of medical waste by permitting and inspecting medical waste offsite treatment facilities and transfer stations throughout the state. The CDHS also oversees all medical waste transporters.

University of California

UCI Emergency Management Program

The Emergency Management Program provides guidance for UCI's response to extraordinary emergency situations from natural disasters, technological incidents, and national security emergencies. This plan determines the actions to be taken by UCI to prevent disasters where possible; reduce the vulnerability of the students, faculty, and staff to any disasters; protect students, faculty, and staff from the effects of disasters; respond effectively to the actual occurrence of disasters; and provide for recovery in the aftermath of an emergency. It establishes an organizational structure of the Incident Command System (ICS). This organizational structure responds to various levels of emergencies ranging in complexity and provides the flexibility needed to respond to an incident as it escalates in severity. It outlines campus evacuation guidelines and describes the conditions to which the campus could be closed as a result of a serious risk to the health, safety, or security of the University.

UCI Environmental Health and Safety Office (EH&S)

UCI Environmental Health & Safety (EH&S) Office ensures that UCI complies with applicable health, safety and environmental laws, regulations and requirements; and, that campus activities are conducted in a manner that protects students, faculty, staff, visitors, the public, property, and the environment. EH&S outlines procedures for general environmental health and safety, such as hazardous waste management, occupational health, lab safety, biological safety, radiation and laser safety, maintenance and construction safety, and food safety.

3.8.3 Environmental Setting

This section of the EIR identifies and evaluates potential impacts related to existing hazards in the Project area and potential hazardous materials to be generated by the Project.

Site Reconnaissance

Karina Fidler with Kimley-Horn and Associates conducted a reconnaissance of the site on March 25, 2020. Ms. Fidler made the following observations on-site during field reconnaissance.

- The Project site consists mostly of disturbed and undeveloped lands.
- The vast majority of the site consists of disturbed land which is comprised of vacant land that is dominated by non-native plant species.
- The northwestern portion of the site consists of several modular structures and several shipping containers associated with the existing UCI North Campus facilities. The interior of the modular

structures and shipping containers were not accessible; however, from the exterior the modular structures appeared to be offices. The contents of the shipping containers are unknown with the exception of three that were open during the site visit. The open containers appeared to store desks, chairs, traffic cones etc.

- Several stone and marble slabs and statutes were located in the northwestern portion of the site adjacent to the modular structures.
- No drums, tanks, pools of liquid, odors or stressed vegetation was observed on-site. No recognized environmental conditions (REC)s were observed in association with the subject property during the site reconnaissance.

Jennifer Steen with Kimley-Horn and Associates conducted a subsequent site reconnaissance on September 18, 2020, to observe conditions associated with the proposed Contractor laydown area and temporary surface parking lot.

Ms. Steen made the following observations regarding the UCI Arboretum area to be used for temporary construction laydown:

- The proposed laydown area consists of former greenhouses and shelters used in conjunction with the UCI Arboretum and Ecology and Evolutionary Biology courses. The greenhouse and shelters were in various states of disrepair. Dr. Peter Bowler, Ph.D., works for UCI at the Arboretum. Dr. Bowler indicated the structures could be removed.
- Dr. Bowler noted that pesticides, herbicides, and insecticides were never used, mixed, or stored within the Arboretum area.
- A storage shed situated in the southeastern corner of the proposed laydown area was still in use and stored non-hazardous materials associated with the Arboretum such as hand tools, paperwork, and watering cans.
- A trailer mounted water tank was observed in the northern portion of the proposed staging area. According to Dr. Bowler, this tank was used by Marine Biology faculty and students to transport sea water.
- No drums, tanks, pools of liquid, odors or stressed vegetation was observed on-site. No recognized environmental conditions (REC)s were observed in association with the subject property during the site reconnaissance completed by Ms. Steen.

Ms. Steen made the following observations regarding the location of the proposed temporary surface parking lot within the UCI Support Services Facilities area:

- The proposed temporary surface parking lot is situated south of the Hydrogen Fuel Station. The northern portion of the proposed lot area is fenced and used for storing bicycles, trash cans, traffic control devices and miscellaneous items. The southern portion of the area is vacant disturbed land populated with dry non-native grasses. A drainage channel bisects the area, flowing from west to east. The drainage was dry, and vegetation within the channel matched that of the surrounding flatlands.

- No drums, tanks, pools of liquid, odors or stressed vegetation was observed on-site. No recognized environmental conditions (REC)s were observed in association with the subject property during the site reconnaissance completed by Ms. Steen.

Database Review

A regulatory database search of the Department of Toxic Substances Control Envirostor website¹ and the State Water Resources Control Board's (SWRCB) Geotracker website² to identify hazardous material regulated facilities within or proximate to the site.

Review of the referenced databases also considered the potential or likelihood of contamination from adjoining and nearby sites. To evaluate which of the adjoining and nearby sites identified in the regulatory database search present an environmental risk to the subject property, the following criteria were considered:

- The topographic position of the property relative to the subject property;
- The direction and distance of the identified facility from the subject property;
- Local soil conditions in the subject property area;
- The known and/or inferred groundwater flow direction and depth in the subject property area;
- The status of the respective regulatory agency-required investigations and/or cleanup associated with the identified facility; and
- Surface and subsurface obstructions and diversions (e.g., buildings, roads, sewer systems, utility service lines, rivers, lakes, and ditches) located between the identified site and the subject property.

Only those sites that are judged to present a potential environmental risk to the subject property and/or warrant additional clarification were further evaluated. Using the referenced criteria, and based upon a review of readily available information contained within the regulatory database search, Kimley-Horn did not identify adjoining (i.e., bordering) or nearby sites (e.g., properties within a 0.25-mile radius) listed in the regulatory database report that were judged to present a potential environmental risk to the subject property with the exception of the two regulated facilities that warrant further discussion. A brief summary of those records:

UCI-Fleet Service (19182 Jamboree Road, immediately adjacent to the Project site to the northwest) - This facility is listed on the SWRCB geotracker website as a leaking underground storage tank (LUST) case. The potential contaminant of concern is gasoline, and the potential media affected is groundwater (other than drinking water). The site is listed as case closed on June 8, 2012. Given its case closure status, this facility is not considered an environmental concern for the subject site.

Conexant Systems, Inc. (Former Rockwell International Semi-Conductor Division) (4311 Jamboree Road approximately 0.20 miles to the northeast of the Project site) - This facility is listed on the SWRCB Geotracker website as a leaking underground storage tank (LUST) case. The potential media affected is groundwater (uses other than drinking water). According to the latest document for the facility included

¹ <http://www.envirostor.dtsc.ca.gov/public/> accessed on April 21, 2020

² (<http://geotracker.waterboards.ca.gov/> accessed on April 21, 2020

on the geotracker website (*In-Situ Groundwater Bioremediation Pilot Test Assessment Report* dated February 12, 2019 and prepared by GeoSyntec), the facility is an active manufacturing facility with surrounding industrial and office buildings. The historical source area at the north end of the facility (furthest away from the Project site) is where a number of solvent and hydrocarbon underground storage tanks were formerly located. The results of previous investigations indicate that the groundwater beneath the site has been impacted by elevated concentrations of PCE and TCE, extending down gradient of the site. The VOC-affected groundwater has been identified in two groundwater zones. The VOC-affected groundwater in the deeper groundwater zone extends off-site to the northwest, and has migrated off-site across MacArthur Blvd to the north-northwest. The current pollutants of concerns include 1,1-dichloroethane, 1,1-dichloroethene, cis-1,2-dichloroethene, trans-1,2-dichloroethene, and vinyl chloride. Assessment of soil and groundwater conditions began at the facility as early as 1984, and a soil vapor extraction system has been located at this site since 2008. According to the *In-Situ Groundwater Bioremediation Pilot Test Assessment Report*, bioremediation activities have resulted in significant reductions of chlorinated ethenes in the groundwater impacted by this facility. There is a small area of shallow groundwater that continues to exhibit elevated concentrations of acetone, chlorinated benzenes, and 1,4-dioxane, which were not affected by the in-situ degradation process. A portion of the facility (at the south end of the facility) has undergone demolition and has been redeveloped into a mixed use and multi-unit residential complex.

Wildland Fire Hazards

Wildfires are large-scale brush and grass fires in undeveloped areas. Wildfires are often caused by human activities, such as equipment use and smoking, and can result in loss of valuable wildlife habitat, soil erosion, and damage to life and property. The level of wildland fire risk is determined by a number of factors, including:

- Frequency of critical fire weather;
- Percentage of slope;
- Existing fuel (vegetation, ground cover, building materials);
- Adequacy of access to fire suppression services; and
- Water supply and water pressure.

The California Department of Forestry and Fire Protection (CAL FIRE) has mapped the relative wildfire risk in areas of large population by intersecting residential housing density with proximate fire threat according to three risk levels, namely Moderate, High, and Very High. These risk levels are determined based on vegetation density, adjacent wildland Fire Hazard Severity Zone (FHSZ) scores and distance from wildland area. Each area of the map gets a score for flame length, embers and the likelihood of the area burning. The City of Irvine is categorized as a Local Responsibility Area (LRA) by CAL FIRE. The Project site is mapped as outside of a Very High FHSZ area.³

Airport Proximity

There are no private airstrips located immediately adjacent to or near the Project site. The Project site is approximately 0.87 miles southeast of John Wayne Airport (JWA) and is in the Airport Environs Land Use

³ https://osfm.fire.ca.gov/media/5884/c30_irvine_vhfhsz.pdf. Accessed on April 22, 2020.

Plan (AELUP) for the airport. According to the AELUP, the Project site is in the notification area of JWA and the Federal Aviation Regulation (FAR) Part 77 obstruction imaginary surfaces area. Per FAR Part 77, Section 77.13(a), notice to the Federal Aviation Administration (FAA) is required for any proposed structure more than 200 feet above the ground level (AGL) of its site. Notices to the FAA provide a basis for evaluating Project impacts on operational procedures and air navigation. Coinciding with the FAA regulation, the Airport Land Use Commission (ALUC) also requires notification of all such proposals.

Division of Oil, Gas and Geothermal Resources Map

According to Division of Oil, Gas and Geothermal Resource (DOGGR) records available online, the Project site is not within or near the administrative boundary of an oil field (DOGGR, April 22, 2020) and there are no active oil or natural gas wells within 1 mile of the Project site.

3.8.4 Thresholds Of Significance

The following significance criteria are from Appendix G of the State CEQA Guidelines. The Project would result in a significant impact related to land use and planning if it would:

- | | |
|------------------------|---|
| Threshold 3.8-1 | Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. |
| Threshold 3.8-2 | 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. |
| Threshold 3.8-3 | 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, create a significant hazard to the public or the environment. |
| Threshold 3.8-4 | 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, result in a safety hazard or excessive noise for people residing or working in the project area. |
| Threshold 3.8-5 | Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. |
| Threshold 3.8-6 | Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires. |

As previously discussed in the Executive Summary, UCI has determined that the proposed Project would not have a significant impact on the following threshold for the reasons stated below, and that no further analysis was required:

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

There are no existing or known proposed schools within 0.25 mile of the Project site. The UCI Main Campus is approximately 0.85-mile northwest of the Project site. Therefore, the proposed Project would not emit large hazardous emissions in proximity to a school and no impact would occur. No mitigation is required.

Campus Programs, Practices, and Procedures and Mitigation Measures Carried Forward from the November 2007 LRDP Amendment Final EIR

The following applicable Mitigation Measures (MM) were adopted as part of the November 2007 LRDP EIR and are incorporated as part of the proposed Project and assumed in the analysis presented in this section.

MM HAZ-6A Prior to initiating on-site construction for future projects that implement the 2007 LRDP and that would involve a lane or roadway closure, the construction contractor and/or UCI Design and Construction Services shall notify the UCI Fire Marshal. If determined necessary by the UCI Fire Marshal, local emergency services shall be notified of the lane or roadway closure by the Fire Marshal.

3.8.5 Environmental Impacts

Threshold 3.8-1:	Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?
-------------------------	---

Impact Summary:	Less Than Significant
------------------------	------------------------------

As discussed in the 2007 LRDP EIR, implementation would include development of facilities that use hazardous materials in clinical uses (page 4.6-25). Also, 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. This, in turn, would result in an increase in the amount of hazardous materials that are used, stored, transported, and disposed and could increase the potential for an accident or accidental release of hazardous materials or wastes.

As discussed in the 2007 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.

The proposed facilities would be similar to those already present within the UCI campus, specifically within the Health Sciences Quad of the West Campus, which includes a number of existing clinical facilities. In addition, a clinical facility, the approved Center for Child Health/Medical Office Building project, will be constructed northwesterly adjacent to the proposed Project in the North Campus. The proposed Project would include transport, handling, storage, and disposal of hazardous materials, which may include solvents, oxidizers, compressed gases, corrosives, reactives, toxics, biohazards, radioactive materials, and fuels used for maintenance, pesticides, laboratories, clinical and hospital uses, and medications. Various chemicals that may be used may pose different levels of hazards in their use if not managed appropriately. Operations would comply with all hazardous materials regulatory requirements and protocols as detailed above in the Regulatory Setting section. UCI's Environmental Health & Safety (EH&S) is responsible for assessing and facilitating compliance with federal and State regulation and is implemented through

programs within EH&S, such as the Hazardous Waste Management Program and Occupational Health Program.

The proposed Project would be expected to have limited hazardous materials and substances on-site, such as medical waste, cleaners, paints, solvents, and fertilizers and pesticides for site landscaping. The proposed Project would not create a significant impact through the transport, use, or disposal of hazardous materials because the facilities are required to comply with all applicable Federal, State, and regional regulations which are intended to avoid impacts to the public and environment.

Mitigation Measure

No mitigation measures are required to reduce potential impacts.

Level of Significance After Mitigation

The proposed Project would result in a less than significant impact from the routine transport, use, or disposal of hazardous materials.

Threshold 3.8-2:	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?
Impact Summary:	Less Than Significant With Mitigation Incorporated.

Temporary Impact Analysis

Temporary, short-term related hazards for the Project would include transport, storage, use, and disposal of asphalt, fuels, solvents, paints, thinners, acids, curing compounds, grease, oil, fertilizers, coating materials, and other hazardous substances used during construction. The contractor ensures responsibility, as part of their contract, that hazardous materials and waste are handled, stored, and disposed of in accordance with all applicable Federal, State, and local laws and regulations and routine construction control measures (2007 LRDP EIR, page 4.6-7).

As noted in Section 3.8.3 above, historical records have documented that offsite pollutants from the Conexant Systems, Inc. site have been released into the soil and groundwater on properties located offsite and upgradient to the UCI campus and the proposed Project site. Additionally, the closed UCI – Fleet Services site, which previously leaked gasoline into the soil and groundwater, is located to the northeast of the Project site; however, the USTs were removed and a dual-phase soil and groundwater remediation system was constructed and connected to extraction wells in 2006. After monitoring and sampling, the groundwater and soil vapor were found to be at permissible levels by the RWQCB, and it was recommended in 2008 for closure and the system was shut down. The LUST case has been closed since 2012.

A preliminary assessment of Project site conditions was conducted at the North Campus on January 21 and 22, 2020. Hazardous pollutants above regulatory screening levels were detected in soil vapor and groundwater samples obtained from four soil boring locations, three located northwest of the Project site and one on the northeast edge of the Project site. Elevated levels of PCE, benzene, 1,1-Dichloroethene, Bromodichloromethane, and chloroform were detected in soil vapor samples, and elevated levels of chloroform was detected in groundwater samples. Based on the preliminary results of the site conditions,

UCI is conducting a Supplemental Phase II Environmental Site Assessment, including additional soil borings and testing on the Project site in compliance with mitigation measures HAZ-1 and HAZ-2.

Additionally, in compliance with mitigation measure HAZ-3, prior to the demolition of any structures or disturbance of utilities on site (including the temporary staging area of the Arboretum), a survey for lead-based paint and asbestos-containing materials would be conducted and a hazardous waste management plan would be prepared.

Therefore, compliance with Federal, State, and local regulation and implementation of mitigation measures HAZ-1 through HAZ-3 would reduce potential impacts involving the release of hazardous materials during construction to less than significant.

Operational Impact Analysis

Once constructed, the Project would comply with UCI policies and programs discussed in the 2007 LRDP EIR (page 4.6-29) to prevent, control, and contain the release of hazardous materials. UCI has an Emergency Management Program, which addresses the campus community's planned response to various levels of human-made or natural emergency situations, including the release of hazardous materials, to be specifically handled by EH&S. EH&S is responsible for assessing and facilitating compliance with federal and State regulation and is implemented through different programs within the unit, including the Hazardous Waste Management and Occupational Health programs, which would be responsible for all hazardous waste including regulated medical waste and radioactive waste. Responsible units providing technical expertise in containment and cleanup of spill chemicals, radioactive, biological, asbestos-containing, or other regulated materials are EH&S, Orange County Fire Authority, County HAZMAT (if available), and outside contractors. A Hazardous Materials Business Plan also addresses emergency and spill response procedures which include, but is not limited to, specific emergency response instructions, locations of personnel and equipment resources (i.e., telephone numbers, fire extinguishers, spill kits, safety showers/eyewashes, first aid kits, etc.), and specialty hazard instructions as well as appropriate training.

Compliance with all applicable federal and State laws, as well as campus programs, practices, and procedures related to the transportation, storage, and use of hazardous materials would continue under the 2007 LRDP, minimizing the potential for a release and providing for prompt and effective cleanup if an accidental release occurs. Therefore, the impacts related to accidental release due to the increased transportation, storage, or use of hazardous materials once the Project is operational would be less than significant.

Mitigation Measures

MM HAZ-1: Prior to the start of any ground disturbance activities, UCI shall retain a licensed hazardous materials professional to further test the vapor encroachment conditions (VEC) on the Project site. If the licensed professional finds that VEC conditions do exist or are likely to occur, the licensed professional at the request of UCI and in consultation with the relevant regulatory agency, shall install a vapor mitigation system (such as a vapor barrier or other mechanism) in order to mitigate potential risks to human health and safety. The plan for implementation and remediation shall conform to all applicable local and state hazardous materials requirements. A complete report of all findings and any measures taken to reduce risk shall be submitted to the relevant regulatory agency for review.

MM HAZ-2: Prior to the issuance of any grading plans, or approval of improvement plans in lieu of grading plans, UCI shall prepare a soil remediation and management plan for the Project site in consultation with the relevant regulatory agency. The soil remediation and management plan shall include a description of cleanup activities for any soil and soil vapor containing chemicals in concentrations exceeding cleanup goals established by the California Environmental Protection Agency California Human Health Screening Levels (CHHSLs) and the RWQCB Environmental Screening Levels (ESLs). Subject to regulatory review, the clean-up activities shall include:

- Investigation to define preliminary extents of contamination in soil and soil gas.
- Preparation of Health Risk Assessment (HRA) for the on-site construction workers and future building occupants.
- Sampling and analysis plan (SAP) and methods to define preliminary soil excavation extents. The soil remediation and management plan SAP shall provide a dynamic process for defining the limits of contamination in soil at the Project site. This approach shall provide site-specific criteria for the soil removal/excavation plan and mitigating pollutants in soil vapor. The SAP shall define sampling objectives; present initial sampling locations rationale; describe field methods and procedures; present the analytical methods and procedures; and data reporting procedures.

MM HAZ-3 Prior to the start of any ground disturbance activities, UCI shall prepare a comprehensive assessment report, signed by a qualified environmental professional, documenting the presence or lack thereof of asbestos-containing materials (ACMs), lead-based paint, polychlorinated biphenyls (PCBs), and any other building materials or stored materials classified as hazardous materials by State or federal law. If lead-based paint, ACMs, PCBs, or any other building materials or stored materials classified as hazardous materials are present, the Project applicant shall submit specifications prepared and signed by a qualified environmental professional, for the stabilization and/or removal of the identified hazardous materials in accordance with all applicable laws and regulations. UCI shall implement the approved recommendations for any proposed remedial action and required clearances by the applicable local, state, or federal regulatory agency.

Level of Significance After Mitigation

With the implementation of mitigation measures HAZ-1 through HAZ-3, potential impacts from the release of hazardous materials into the environment would be mitigated to less than significant because the hazardous materials would be removed and safely disposed of prior to building operation.

Threshold 3.8-3:	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, create a significant hazard to the public or the environment?
Impact Summary:	Less Than Significant with Mitigation Incorporated

The 2007 LRDP EIR concluded that there are no recorded hazardous sites on or within the immediate vicinity of the Project site, and according to the UCI Office of Environmental Health and Safety, no other known hazardous materials sites exist on-site (2007 LRDP EIR, page 4.6-32).

The Project site is not included on the hazardous sites list compiled pursuant to California Government Code Section 65962.5.⁴ In addition, a regulatory database search of the Department of Toxic Substances Control Envirostor website⁵ and the State Water Resources Control Board's (SWRCB) Geotracker website⁶ was performed on April 22, 2020 to identify hazardous material regulated facilities within or proximate to the site. As discussed in threshold 3.8-2, an open LUST case is located northwest of the Project site. During preliminary assessment of Project site conditions, elevated levels of PCE, benzene, 1,1-Dichloroethene, Bromodichloromethane, and chloroform were discovered in the soil boring samples, and elevated levels of chloroform was detected in the groundwater samples. Therefore, with the incorporation of mitigation measures HAZ-1 through HAZ-3 described above, impacts would be reduced to a less than significant level.

Mitigation Measure

Refer to HAZ-1, HAZ-2, and HAZ-3 in Threshold 3.8-2 above.

Level of Significance After Mitigation

With the implementation of mitigation measures HAZ-1 through HAZ-3, on-site hazardous materials would be removed and safely disposed of prior to building occupancy. Potential impacts from creating a significant hazard to the public would be mitigated to less than significant.

Threshold 3.8-4:	For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?
Impact Summary:	Less Than Significant

There are no private airstrips located immediately adjacent to or near the Project site. The Project site is approximately 0.87 miles southeast of JWA. The Project site is located in a Zone 6 Traffic Pattern Zone, which is the lowest zone category with the likelihood of an airport accident-related occurrence.⁷ No accidents related to JWA have occurred near the campus within the past 26 years (page 4.6-33).

According to the AELUP, the Project site is in the notification area of JWA. UCI would notify ALUC for determination of Project consistency with the AELUP for JWA, and file Form 7460-1, Notice of Actual Construction or Alteration, with the FAA. The FAA will use information provided in Form 7460-1 and other data to conduct an aeronautical review for the Project.

As discussed in the 2007 LRDP EIR (page 4.9-33), JWA's 60 CNEL contour does not extend to the UCI campus and excessive noise due to the airport would not occur on the Project site.

Therefore, the proposed Project is not anticipated to be exposed to airport hazards, affect aircraft operations, or create an airport safety hazard for people residing in the Project area. The Project is

⁴ California, State of, Department of Toxic Substances Control, DTSC's Hazardous Waste and Substances site List - site Cleanup (Cortese List). Available at: <https://dtsc.ca.gov/dtscs-cortese-list/>. Accessed: April 22, 2020.

⁵ (<http://www.envirostor.dtsc.ca.gov/public/>)

⁶ (<http://geotracker.waterboards.ca.gov/>)

⁷ http://www.ocair.com/commissions/aluc/docs/jwa_aelup-april-17-2008.pdf. Table 9B. Accessed August 30, 2020.

anticipated to be consistent with the surrounding properties; therefore, the proposed Project is anticipated to be compatible with the JWA AELUP. Impacts would therefore be less than significant.

Mitigation Measure

No mitigation measures are required to reduce potential impacts.

Level of Significance After Mitigation

The proposed Project would not result in a safety hazard or excessive noise for people working in the Project area.

Threshold 3.8-5:	Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?
Impact Summary:	Less Than Significant Impact with Mitigation Incorporated

The proposed Project would not impair or physically interfere with an adopted emergency response or evacuation plan, including the UCI Emergency Management Program. The purpose of the Emergency Management Program is to provide guidance for UCI's response to extraordinary emergency situations associated with natural disasters, technological incidents, and national security emergencies in or affecting the UCI campus. The Emergency Management Program includes the organizational structure, roles, and responsibilities of UCI staff in the event of an emergency. It also outlines campus evacuation guidelines and describes the conditions to which the campus could be closed as a result of a serious risk to the health, safety, or security of the University.

In the event of a road closure, prior to the start of construction, the contractor would comply with 2007 LRDP EIR mitigation measure HAZ-4 to ensure sufficient notification to the UCI Fire Marshal to allow coordination of emergency services that may be affected (2007 LRDP EIR, page 4.6-34).

Mitigation Measures

The Project would result in less than significant impacts with the implementation of the following 2007 LRDP EIR Mitigation Measure associated with construction-related road closures and operational obstructions. No additional mitigation beyond that required by the 2007 LRDP EIR is required.

MM HAZ-4 *(This Mitigation Measures implements Mitigation Measure 6A from the 2007 LRDP EIR).* Prior to initiating on-site construction for future projects that implement the 2007 LRDP and that would involve a lane or roadway closure, the construction contractor and/or UCI Design and Construction Services shall notify the UCI Fire Marshal. If determined necessary by the UCI Fire Marshal, local emergency services shall be notified of the lane or roadway closure by the Fire Marshal.

Level of Significance After Mitigation

With the implementation of mitigation measure HAZ-4, consistent with the 2007 LRDP EIR, potential impacts to emergency access points would be mitigated to less than significant.

Threshold 3.8-6:	Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?
Impact Summary:	Less Than Significant

The 2007 LRDP EIR concluded that areas prone to wildfire within the campus are vegetation communities, such as coastal sage scrub and grassland (4.6-35), which are flashy fuels that can easily ignite during dry conditions. The proposed Project site is located in the North Campus and surrounded by urban development along two sides. To the south is the San Joaquin Freshwater Marsh containing wetland and upland habitats as discussed in Section 4.3, Biological Resources.

However, although the proposed Project is located adjacent to open space, the final design would be reviewed by the UC Fire Marshal and would comply with the California Building Code, which includes fire protection. A fire access road would be constructed on-site and a fire water line and numerous fire hydrants would be installed throughout the Project site. Additionally, the area adjacent to the majority of the north and west of the Project site would be developed areas with irrigated landscaping which would minimize the amount of fuel available for wildfires. Therefore, the proposed Project would not subject people or structures to a significant risk of loss, injury, or death involving wildland fires and impacts would be less than significant. No mitigation is required.

Mitigation Measure

No mitigation measures are required to reduce potential impacts.

Level of Significance After Mitigation

The proposed Project would not result in a significant risk of loss, injury or death involving wildland fires.

3.8.6 Cumulative Impacts

Impacts associated with hazardous materials are often site-specific and localized. The EIR evaluates hazardous environmental concerns in connection with the Project site and surrounding area. The database searches document the findings of state governmental database searches regarding properties with known or suspected releases of hazardous materials or petroleum hydrocarbons in the vicinity of the Project site and serves as the basis for defining the cumulative impacts study area.

Although some of the cumulative projects and other future projects associated with buildout of the surrounding communities also have potential impacts associated with hazardous materials, the environmental concerns associated with hazardous materials are typically site-specific.

Each project is required to address any issues related to hazardous materials or wastes. Projects must adhere to applicable regulations for the use, transport, and disposal of hazardous materials and implement mitigation in compliance with federal, State, and local regulations to protect against site contamination by hazardous materials. Compliance with all applicable federal, State, and local regulations related to hazardous materials would ensure that the routine transport, use, or disposal of hazardous materials would not result in adverse impacts. The incremental effects of the proposed Project related to hazards and hazardous materials, if any, are anticipated to be minimal, and any effects would be site-specific. Therefore, with the implementation of Mitigation Measures HAZ-1, HAZ-2, HAZ-3, and HAZ-4, the proposed Project would not result in incremental effects to hazards or hazardous materials that could be

compounded or increased when considered together with similar effects from other past, present, and reasonably foreseeable probable future projects. The proposed Project would not result in cumulatively considerable impacts to or from hazards or hazardous materials.

3.8.7 References

Airport Land Use Commission, Airport Environs Land Use Plan (AELUP) for John Wayne Airport, amended: April 17, 2008.

California, State of, Department of Toxic Substances Control, DTSC's Hazardous Waste and Substances Site List - Site Cleanup (Cortese List). Available at: <https://dtsc.ca.gov/dtscs-cortese-list/>. Accessed: April 22, 2020.

California, State of, Department of Toxic Substances Control Envirostor website. Available at: <http://www.envirostor.dtsc.ca.gov/public/>. Accessed April 21, 2020

California Department of Forestry and Fire Protection (CAL FIRE), Fire Hazard Severity Zone (FHSZ). Available at: https://osfm.fire.ca.gov/media/5884/c30_irvine_vhfhsz.pdf. Accessed April 22, 2020.

California, State of, State Water Resources Control Board's (SWRCB) Geotracker website. Available at: <http://geotracker.waterboards.ca.gov>. Accessed April 21, 2020

Division of Oil, Gas and Geothermal Resource (DOGGR) records. Available at: <https://maps.conservation.ca.gov/doggr/WellFinder>. Accessed: April 22, 2020.

University of California, Irvine. (2007). *Long Range Development Plan Final EIR, Section 4.7 Hydrology and Water Quality*. Accessed March 18, 2020. Retrieved from: <https://www.ceplanning.uci.edu/environmental/pdf/volume-I/TOC.pdf>

UCI, Emergency Operations Plan, revised January 2017.

This page intentionally left blank.

3.9 HYDROLOGY AND WATER QUALITY

This section examines the hydrologic and water quality conditions on and around the proposed Project site and evaluates whether the Project will result in adverse effects to such resources. The setting, context, and impact analysis in this section is based on the *Irvine Campus Medical Complex Project Concept Drainage and Water Quality Technical Memorandum (WQTM)* completed by Michael Baker International in 2020 and included as Appendix F of this SEIR.

Additional information presented in this section was obtained from available public resources including the *County of Orange General Plan (Orange GP)*; the *City of Irvine General Plan (Irvine GP)*; the *City of Irvine Municipal Code (Irvine MC)*; the *University of California, Irvine: Irvine Campus Medical Complex Detailed Project Program Volume One (Program One)*; the *UCI Storm Water Management Plan (SWMP)*; the *UCI Sewer System Management Plan*; the *UCI Clean Water Program*; and the *2007 Long Range Development Plan Final EIR, Section 4.7 Hydrology*.

3.9.1 Regulatory Setting

Federal

Federal Clean Water Act

The Project is subject to federal permit requirements under the Federal Clean Water Act (CWA). The primary goal of the CWA is to maintain the chemical, physical, and biological integrity of the nation's waters and to make all surface waters fishable and swimmable. The CWA forms the basic national framework for the management of water quality and the control of pollution discharges; it provides the legal framework for several water quality regulations, including the National Pollutant Discharge Elimination System (NPDES), effluent limitations, water quality standards, pretreatment standards, antidegradation policy, nonpoint source discharge programs, and wetlands protection. The United States Environmental Protection Agency (U.S. EPA) has delegated the administrative responsibility for portions of the CWA to state and regional agencies. In California, the State Water Resources Control Board (SWRCB) administers the NPDES permitting program and is responsible for developing NPDES permitting requirements. The SWRCB works in coordination with the Regional Water Quality Control Boards (RWQCB) to preserve, protect, enhance, and restore water quality.

Under the NPDES permit program, the U.S. EPA establishes regulations for discharging stormwater by municipal and industrial facilities and construction activities. Section 402 of the CWA prohibits the discharge of pollutants into Waters of the United States from any point source unless the discharge is in compliance with an NPDES Permit.

The Anti-degradation Policy under the U.S. EPA's Water Quality Standards Regulations (48 F.R. 51400, 40 CFR 131.12, November 8, 1983), requires states and tribes to establish a three-tiered anti-degradation program to prevent a decrease in water quality standards.

- Tier 1—Maintains and protects existing uses and water quality conditions that support such uses. Tier 1 is applicable to all surface waters.
- Tier 2—Maintains and protects “high quality” waters where existing conditions are better than necessary to support “fishable/swimmable” waters. Water quality can be lowered in such waters but not to the point at which it would interfere with existing or designated uses.

- Tier 3—Maintains and protects water quality in outstanding national resource waters. Water quality cannot be lowered in such waters except for certain temporary changes.

Anti-degradation was explicitly incorporated into the federal CWA through 1987 amendments, codified in Section 303(d)(4)(B), requiring satisfaction of anti-degradation requirements before making certain changes in NPDES permits.

303(d) of the CWA requires the SWRCB to list impaired water bodies that are too polluted or otherwise degraded to meet the water quality standards set by states, territories, or authorized tribes. The law requires that these jurisdictions establish priority rankings for waters on the lists and develop Total Maximum Daily Loads (TMDL) for these waters.

Section 404 of the CWA is administered and enforced by the U.S. Army Corps of Engineers (USACE). Section 404 establishes a program to regulate the discharge of dredged and fill material into Waters of the United States, including wetlands and coastal areas below the mean high tide. USACE administers the day-to-day program, and reviews and considers individual permit decisions and jurisdictional determinations. The USACE also develops policy and guidance and enforces Section 404 provisions.

Federal Emergency Management Agency (FEMA)

FEMA's primary missions are to reduce the loss of life and property and protect the nation from all hazards, including flooding. FEMA is responsible for administering the National Flood Insurance Program (NFIP). The NFIP enables property owners in participating communities to purchase insurance as protection against flood losses in exchanges for State and community floodplain management regulations that reduce future flood damages. In communities that participate in the NFIP, mandatory flood insurance purchase requirements apply to all properties within Zone A, which are communities subject to a 100-year flood event. In addition to providing flood insurance and reducing flood damages through floodplain management regulations, the NFIP identifies and maps the floodplains of Flood Insurance Rate Maps (FIRM). The FEMA 100-year floodplain is shown in Figure 3.9-1, *FEMA 100-year Floodplain*.

State

California Porter-Cologne Water Quality Control Act (Porter-Cologne Act)

The State Water Resources Control Board (SWRCB) regulates water quality through the Porter-Cologne Water Quality Act of 1969, which contains a complete framework for the regulation of waste discharges to both surface waters and groundwater of the State. The Porter-Cologne Act (California Water Code Section 13000 et seq) is the principal law governing water quality regulation in California. It established a comprehensive program to protect water quality and the beneficial uses of water. The Porter-Cologne Act applies to surface waters, wetlands, and ground water and to both point and nonpoint sources of pollution. Pursuant to the Porter-Cologne Act the policy of the State is as follows:

- That the quality of all the waters of the state shall be protected,
- That all activities and factors affecting the quality of water shall be regulated to attain the highest water quality within reason, and
- That the state must be prepared to exercise its full power and jurisdiction to protect the quality of water in the state from degradation.



Source: Michael Baker International, 2020

FIGURE 3.9-1: FEMA 100-Year Flood Plain

UCI Irvine Campus Medical Complex EIR
 University of California, Irvine



Not to scale

Through the SWRCB, the Porter-Cologne Act established nine RWQCB's (based on watershed boundaries as defined by their surrounding mountain chains and ridges). The RWQCB are charged with implementing its provisions and which have primary responsibility for protecting water quality in California. The proposed Project is in the boundaries of the Santa Ana RWQCB's and is subject to its Water Quality Control Plan (Basin Plan), which is discussed in additional detail below. The SWRCB provides program guidance and oversight, allocates funds, and reviews RWQCB decisions. In addition, the SWRCB allocates rights to the use of surface water. The RWQCB have primary responsibility for individual permitting, inspection, and enforcement actions within each of nine hydrology regions. The SWRCB have numerous nonpoint source¹ pollution-related responsibilities, including monitoring and assessment, planning, financial assistance, and management.

The RWQCB regulates discharges to waters through issuance of NPDES permits for point source discharges for contaminants and waste discharge requirements for nonpoint source discharges. Anyone discharging or proposing to discharge materials that could affect water quality (other than to a community sanitary sewer system regulated by an NPDES permit) must file a report of waste discharge. The SWRCB and the RWQCBs can make their own investigations or may require dischargers to carry out water quality investigations and report on water quality issues. The Porter-Cologne Act provides several options for enforcing waste discharge requirements and other orders, including cease and desist orders, cleanup and abatement orders, administrative civil liability orders, civil court actions, and criminal prosecutions.

The Porter-Cologne Act also implements many provisions of the CWA, such as the NPDES permitting program. Section 401 of the CWA gives the SWRCB the authority to review any proposed federally permitted or federally licensed activity that may impact water quality and to certify, condition, or deny the activity if it does not comply with state water quality standards. If the SWRCB imposes a condition on its certification, those conditions must be included in the federal permit or license. Except for dredge and fill activities, injection wells, and solid waste disposal sites, waste discharge requirements may not "specify the design, location, type of construction, or particular manner in which compliance may be had...." (Porter-Cologne Act Section 13360). Thus, waste discharge requirements ordinarily specify the allowable discharge concentration or load or the resulting condition of the receiving water, rather than the manner by which those results are to be achieved. However, the RWQCB may impose discharge prohibitions and other limitations on the volume, characteristics, area, or timing of discharges and can set discharge limits such that the only practical way to comply is to use management practices. RWQCB can also waive waste discharge requirements for a specific discharge or category of discharges on the condition that management measures identified in a water quality management plan approved by the SWRCB or RWQCB are followed.

The Porter-Cologne Act also requires adoption of water quality control plans that contain the guiding policies of water pollution management in California. A number of statewide water quality control plans have been adopted by the SWRCB. In addition, regional water quality control plans (basin plans) have been adopted by each of the RWQCB and are updated as necessary and practical. These plans identify the existing and potential beneficial uses of waters of the state and establish water quality objectives to protect these uses. The basin plans also contain implementation, surveillance, and monitoring plans.

¹ According to the U.S. EPA, "NPS (*nonpoint source*) pollution generally results from land runoff, precipitation, atmospheric deposition, drainage, seepage or hydrologic modification." NPS pollution has many diffuse sources whereas point source pollution has a single, identified source. Retrieved from U.S. EPA Website: <https://www.epa.gov/nps/basic-information-about-nonpoint-source-nps-pollution>. Accessed March 18, 2020.

Statewide and regional water quality control plans include enforceable prohibitions against certain types of discharges, including those that may pertain to nonpoint sources. Portions of water quality control plans, the water quality objectives and beneficial use designations, are subject to review by the U.S. EPA. When approved, they become water quality standards under the CWA.

The Porter-Cologne Act establishes a comprehensive program for the protection of beneficial uses of the waters of the state. California Water Code Section 13050(f) describes the beneficial uses of surface and groundwaters that may be designated by the state or regional boards for protection as follows: “Beneficial uses of the waters of the state that may be protected against quality degradation include, but are not necessarily limited to, domestic, municipal, agricultural and industrial supply; power generation; recreation; aesthetic enjoyment; navigation; and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves.” Waterbodies with substantial evidence indicating that the waterbody supports rare, threatened, or endangered species are identified as RARE. Twenty-three beneficial uses are now defined statewide.

State Water Resources Control Board

The SWRCB administers water rights, water pollution control, and water quality functions throughout the state, while the RWQCBs conduct planning, permitting, and enforcement activities. The Project site lies within the jurisdiction of the Santa Ana RWQCB.

The NPDES permit is broken up into two phases: I and II. Phase I requires medium and large cities, or certain counties with populations of 100,000 or more to obtain NPDES permit coverage for their stormwater discharges. Phase II requires regulated small municipal separate storm sewer systems (MS4s) in urbanized areas, as well as small MS4s outside the urbanized areas that are designated by the permitting authority, to obtain NPDES permit coverage for their stormwater discharges. Concerning the proposed Project, the NPDES permit is divided into two parts: construction and post-construction. The construction permitting is administered by the SWRCB, while the post-construction permitting is administered by the RWQCB. Development projects typically result in the disturbance of soil that requires compliance with the NPDES General Permit. This Statewide General Construction Permit regulates discharges from construction sites that disturb one or more acres of soil.

The SWRCB has issued and periodically renews a statewide General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (General Permit) and a statewide General Industrial Activities Stormwater Permit (Industrial Permit) for projects that do not require an individual permit for these activities. The General Permit was adopted in 2009 and further revised in 2012 (Order No. 2012-0006-DWQ). The most recent Industrial Permit (Order No. 2014-0057-DWQ) was adopted in 2014 and requires dischargers to develop and implement a Stormwater Pollution Prevention Plan (SWPPP) to reduce or prevent industrial pollutants in stormwater discharges, eliminate unauthorized non-storm discharges, and conduct visual and analytical stormwater discharge monitoring to verify the effectiveness of the SWPPP and submit an annual report.

By law, all stormwater discharges associated with construction activity where clearing, grading, and excavation results in soil disturbance of at least one acre of total land area must comply with the provisions of this NPDES General Permit and develop and implement an effective SWPPP. The SWPPP is required to contain a site map, which shows the construction site perimeter, existing and proposed buildings, lots, roadways, stormwater collection and discharge points, general topography both before

and after construction, and drainage patterns across the Project site. The SWPPP is required to list Best Management Practices (BMPs) the discharger would use to protect stormwater runoff and the placement of those BMPs. Examples of BMPs include temporary vegetation, silt fences, and vegetative filter strips. Additionally, the SWPPP must contain the following elements: a visual monitoring program; a chemical monitoring program for “non-visible” pollutants to be implemented if there is a failure of BMPs; and a sediment monitoring plan if the site discharges directly to a water body listed on the 303(d) list for sediment. Construction General Permit Section A describes the elements that must be contained in an SWPPP. A project applicant must submit a Notice of Intent (NOI) to the SWRCB to be covered by the NPDES General Permit and prepare the SWPPP before beginning construction. SWPPP implementation starts with the commencement of construction and continues through project completion. Upon project completion, the applicant must submit a Notice of Termination (NOT) to the SWRCB to indicate that construction is completed.

The Municipal Stormwater Permitting Program regulates stormwater discharges from MS4s. Most of these permits are issued to a group of co-permittees encompassing an entire metropolitan area. The MS4 permits require the discharger to develop and implement a Stormwater Management Plan/Program with the goal of reducing the discharge of pollutants to the maximum extent practicable (MEP). MEP is the performance standard specified in CWA Section 402(p). The management programs specify what BMPs will be used to address certain program areas. The program areas include public education and outreach; illicit discharge detection and elimination; construction and post-construction; and good housekeeping for municipal operations.

For construction activities that would result in the disturbance of one or more acres, permittees must develop, implement, and enforce a program to reduce pollutant runoff in stormwater. This includes: (1) a program to prevent illicit stormwater discharges; (2) structural and non-structural BMPs to reduce pollutants in runoff from construction sites; and (3) preventing discharges from causing or contributing to violations of water quality standards. Permittees are required to review construction site plans to determine potential water quality impacts and ensure proposed controls are adequate. These include preparation and submission of an Erosion and Sediment Control Plan (ESCP) with elements of an SWPPP, prior to issuance of building or grading permits. The 2012 MS4 permit requires that the ESCP be developed by a Qualified SWPPP Developer. Permittees are required to develop a list of BMPs for a range of construction activities.

Industrial Storm Water Permits

Pursuant to Phase I of the NPDES permit program, storm water runoff from industrial facilities with certain Standard Industrial Classification (SIC) Codes is governed by the SWRCB under Water Quality Order 97-03-DWQ/NPDES Permit Number CAS000001. These regulations prohibit discharges of polluted storm water unless the discharge is in compliance with the general NPDES permit requirements. The nine individual RWQCBs also enforce the General Industrial Storm Water Permit within their respective regions.

To receive coverage under the General Industrial Storm Water Permit, the owner or operator of an industrial facility must submit a NOI to comply with the permit to the SWRCB, prepare an SWPPP, and conduct monitoring and reporting. An industrial facility has the option to request an individual, site-specific NPDES permit instead of the general permit. RWQCBs, however, typically only adopt individual permits when the facility has exceptional characteristics or poses a considerable threat to storm water.

Under the General Industrial Storm Water Permit, dischargers are required to control and eliminate sources of pollutants in storm water through the development and implementation of an SWPPP. The SWPPP is to be used as a tool for recognizing and evaluating potential sources of pollutants associated with industrial activities that may affect the quality of storm water discharges and authorized non-storm water discharges from the facility. The SWPPP is also used as a guide to help identify site-specific BMPs, which are to be implemented to reduce or prevent pollutants associated with industrial activities in storm water discharges and authorized non-storm water discharges.

UCI has obtained coverage under the General Industrial Storm Water Permit for discharge associated with the North Campus landfill site. To comply with the General Industrial Permit, UCI's Environmental Health & Safety (EH&S) Department implements and maintains the campus SWMP in compliance with NPDES Phase II requirements, along with the San Joaquin Landfill SWPPP, including BMPs.

California Fish and Game (CDFG) Code Sections 1602

The California Department of Fish and Wildlife (CDFW) is public trustee agencies with a shared role in protecting water quality that related to CDFG code Section 1602. CDFW coordinates with the SWRCB and uses the needs of fish and wildlife inform water policy, legislation, and execution of water quality policy and management. CDFW participates in the development of high-profile water quality policies with statewide implications (e.g., Statewide Policies, Sacramento-San Joaquin River Delta) through coordinate with regional and local agencies regarding water quality standards policy and permitting processes. In part, CDFW accomplishes this is through ensuring compliance with Division 2, Chapter 6, Section 1602 of the CFGC, CDFW regulates all diversions, obstructions, or changes to the natural flow or bed, channel or bank of any river, stream, or lake that supports fish or wildlife. The specific requirements of these regulations as they pertain to the proposed Project are discussed in additional detail in Chapter 3.3 Biological Resources.

Cobey-Alquist Flood Plain Management Act (Cal. Water Code, Section 8400 et seq.)

The Cobey-Alquist Flood Plain Management Act encourages local governments to adopt and enforce land use regulations to accomplish floodplain management. It also provides state assistance and guidance for flood control.

Sustainable Groundwater Management Act (Cal. Water Code, Section 113, 10720, 10750.1, 10927, 10933, 12924)

On September 16, 2014 Governor Edmund G. Brown, Jr. signed legislation to strengthen local management and monitoring of groundwater basins. It establishes requirements for locally controlled groundwater sustainability agencies to adopt groundwater sustainability plans for high-and medium-priority basins depending on whether a basin is in critical overdraft. The Sustainable Groundwater Management Act (SGMA) established a new structure for managing groundwater resources at a local level by local agencies. It requires, by June 30, 2017, the formation of locally controlled groundwater sustainability agencies in the state's high- and medium-priority groundwater basins and sub basins. The act phases the adoption of groundwater sustainability plans. Plans are due by January 31, 2020 for all high- or medium-priority basins in overdraft condition and by January 31, 2022 for all other high- and medium-priority basins unless the basin is legally adjudicated or otherwise managed sustainably.

Regional

Santa Ana RWQCB

The Santa Ana RWQCB's Water Quality Control Plan (Basin Plan) for the Santa Ana River Basin: identifies water quality objectives for constituents that could potentially cause an adverse effect or impact on the beneficial uses of water. More specifically, the Santa Ana River Basin Plan is designed to accomplish the following:

- Designate beneficial uses for surface and ground waters.
- Set the narrative and numerical objectives that must be attained or maintained to protect the designated beneficial uses and conform to the state's antidegradation policy;
- Describe implementation programs to protect the beneficial uses of all waters within the region; and
- Describe surveillance and monitoring activities to evaluate the effectiveness of the Basin Plan.

The Basin Plan incorporates by reference all applicable SWRCB and RWQCB plans and policies.

University of California

University of California Office of the President Sustainable Practices Policy

The University of California Office of the President (UCOP) Sustainable Practices Policy establishes goals in several areas of sustainable practices, including, but not limited to, green building, climate protection, sustainable operations, and sustainable water systems. Under procedures for Sustainable Water Systems, the Sustainable Practices Policy indicates that each campus will develop and maintain a Water Action Plan that identifies long term strategies for achieving sustainable water systems. Each Water Action Plan includes a section on Stormwater Management developed in conjunction with the location stormwater regulatory specialist that:

- a. Addresses stormwater management from a watershed perspective in a location-wide, comprehensive way that recognizes stormwater as a resource and aims to protect and restore the integrity of the local watershed(s);
- b. References the location's best management practices for preventing stormwater pollution from activities that have the potential to pollute the watershed (e.g., construction; trenching; storage of outdoor equipment, materials, and waste; landscaping maintenance; outdoor cleaning practices; vehicle parking);
- c. Encourages stormwater quality elements such as appropriate source control, site design (low impact development), and stormwater treatment measures to be considered during the planning stages of projects in order to most efficiently incorporate measures to protect stormwater quality;
- d. If feasible, cites relevant and current location stormwater-related plans and permits;
- e. Includes, to the extent feasible, full cost evaluation of stormwater management initiatives.

Storm Water Management Plan and Sewer System Management Plan²

Polluted storm water runoff is often transported to MS4s and ultimately discharged into local waterways (rivers, streams, lakes, and bays) without treatment. The U.S. EPA's Storm Water Phase II Rule establishes an MS4 storm water management program that is intended to improve the nation's waterways by reducing the quantity of pollutants that storm water picks up and carries into storm sewer systems during storm events. Common pollutants include oil and grease from roadways and parking lots, pesticides from lawns, sediment from construction sites, and carelessly discarded trash, such as cigarette butts, paper wrappers and plastic bottles. These pollutants are deposited into nearby waterways, discouraging recreational use of the resource, and interfering with the habitat for fish, other aquatic organisms, and wildlife.

The purpose of the SWMP is: (1) to identify pollutant sources potentially affecting the quality and quantity of storm water discharges; (2) to provide BMPs for municipal and small construction activities implemented by UC Irvine staff and contractors and; (3) provide measurable goals for the implementation of this SWMP to reduce the discharge of the identified pollutants into the storm drain system and associated water ways.

The Sewer System Management Plan (SSMP) is required under Waste Discharge Requirements (WDR) Order No. 2006-0003-DWQ, issued by the SWRCB. The purpose of the SSMP is to: 1) Provide a plan and schedule to properly manage, operate, and maintain all parts of the sanitary sewer system. This will help reduce and prevent Sanitary Sewer Overflows (SSOs), as well as mitigate any SSOs that do occur in order to provide reliable service in the future, and 2) Minimize infiltration/inflow to reduce and prevent SSOs.

UCI Long Range Development Plan

UCI's 2007 LRDP provides the comprehensive framework for the physical development of the UCI campus and is the primary planning document for the campus. As a general land use plan, the 2007 LRDP does not guide enrollment decisions or implementation of capital projects that could impact the on-campus population. The 2007 LRDP generally outlines the physical development needed to meet projected demand based on near-term enrollment projections. The 2007 LRDP Open Space element outlines the University's initiatives for preservation and maintenance of on-campus open space. Key planning objectives in the Open Space Element related to hydrology and water quality include:

- Encourage environmental enhancement, including promotion of water resource and water quality systems.

University of California Natural Reserve System

The University of California Natural Reserve System (UCNRS) consists of protected wildland sites throughout California, preserved to support University research and teaching programs. The UC San Joaquin Marsh Reserve is a natural wetland reserve owned by the University and managed by UCI as part of the UCNRS. The San Joaquin Marsh Reserve supports a variety of wetland habitats, including marshlands, shallow ponds, and channels. A Memorandum of Understanding (MOU) between UCI and UCNRS was developed in 1989 to guide the 1989 LRDP related to protecting Marsh habitat resources during implementation of the 1989 LRDP. With the adoption of the subsequent 2007 LRDP, UCI adopted

² University of California, Irvine. (2018). *Storm Water Management Plan*; page 3. Retrieved from: https://www.ehs.uci.edu/programs/enviro/stormwater/UCI_StormWater_ManagementPlan.pdf. Accessed March 18, 2020.

the principles in the 1989 LRDP MOU as specific mitigation measures in the 2007 LRDP EIR in lieu of a subsequent MOU, including the requirement for a 150' development buffer, stormwater management measures, lighting design requirements, architectural and landscape design requirements, and other guidance to protect Marsh habitat resources during implementation of the 2007 LRDP.

Local

Irvine Ranch Water District Sub Area Master Plan for UCI North Campus

The Sub Area Master Plan (SAMP) assesses the impact of development of the North Campus within the UCI 2007 LRDP on the Irvine Ranch Water District's (District) potable water, recycled water, and sewer systems. Section 6.0 of the SAMP notes that water quality treatment for development within the UCI North Campus will be addressed through project-specific Stormwater Pollution Prevention Plans (SWPPPs).

3.9.2 Environmental Setting

Existing Hydrology

The Project area is located within the Santa Ana River Hydrologic Unit as shown in the 2007 LRDP EIR. The Santa Ana River Hydrologic Unit covers approximately 300 square miles within Orange County in which four watersheds exist, including the San Diego Creek Watershed. The San Diego Creek Watershed consists of two primary drainages consisting of Peters Canyon Wash and the San Diego Creek located south of the Project site. Both San Diego Creek and Peters Canyon Wash join at the lowlands of the watershed to form the San Diego Creek main channel and flows through flat lowlands to Upper Newport Bay and then to the Pacific Ocean. The entire drainage ranges from sea level to approximately 1,700 feet above mean sea level (amsl).

The UC San Joaquin Marsh Reserve is located to south and east of the Project site. The San Joaquin Marsh Reserve covers approximately 202 acres, is hydrologically separated from San Diego Creek, and is artificially supported through pumping and by discharge of tertiary wastewater from the IRWD.³ The Marsh also receives run-off from the North Campus directly through culverts or surface flow. Existing drainage patterns shown in (Appendix F of this SEIR) identify that most of the Project area drains south into the San Joaquin Marsh Reserve and a small portion drains north and east toward adjacent streets before ultimately discharging to another section of the San Joaquin Marsh Reserve. The Project site is mainly undeveloped and moderately slopes towards to the San Joaquin Marsh Reserve and San Diego Creek. Under pre-development conditions, there are no existing storm drainpipes to tie into, but the Memorandum created hydrology models to minimize discharge from future operations and natural occurrences.

The Project site is shown on the U.S. Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) on Map Number 06059C0286J. The Project site is within two zones: Zone X and Zone A. Most of the proposed development area is within Zone X, and most of the 150-foot buffer area and proposed temporary staging area is within Zone A. Zone X reflects an area of minimal flood hazard, and Zone A reflects an area where no base flood elevation has been determined.

³ University of California, Irvine. (2007). *Long Range Development Plan Final EIR, Section 4.7 Hydrology and Water Quality; page 4.7-10*. Accessed March 18, 2020.

Water Quality

The Project is located within the Santa Ana RWQCB jurisdiction, and it is considered a priority project because the proposed development would construct more than 10,000 square feet of impervious surface. As a priority project, the Project would require a final water quality management plan (WQMP), which, when implemented, would minimize the effects of urbanization on site hydrology, runoff flow rates or velocities, and pollutant loads. The site is tributary to the UC San Joaquin Marsh Reserve which drains to Lower San Diego Creek. San Diego Creek then drains to Newport Bay before reaching the Pacific Ocean. The amount of pollutants in the surface runoff is determined by the quantity of a material in the environment and its characteristics. In an urban environment, the quantity of certain pollutants in the stormwater systems is generally associated with the intensity of land use.

General hydrologic characteristics, land uses, and activities that involve pollutants have the greatest impact on water quality runoff. UCI has implemented the SWMP, SSMP, and Clean Water Program to comply with the General Small MS4 Storm Water Permits issued by the RWQCB under the Phase II NPDES requirements, discussed above, which contains information that identifies pollutant sources negatively affecting the quality and quantity of storm water discharges, BMPs, and measurable goals for the implementation of the plans and programs to reduce the discharge of pollutants into the nearby waterways.

According to the 2007 LRDP EIR, a water quality assessment identified that San Diego Creek contains traces of sedimentation/siltation, nutrients, metals, unknown toxicity, pathogens, and pesticides and does not meet state water quality standards as defined by the SWRCB. Based on the SWRCB listing of impaired water bodies pursuant to Section 303(d) of the CWA, Reach 1 of San Diego Creek to the south of the Project site contains listed pollutants. This includes a listing for effects on benthic communities; listing for Dichlorodiphenyltrichloroethane (DDT) which is being addressed by an EPA approved total maximum daily load (TMDL), malathion, selenium, toxicity, and nutrients, sedimentation/siltation, and toxaphene, which also are being addressed by the US EPA for an approved TMDL (SWRCB, 2020).

3.9.3 Thresholds of Significance

The following significance criteria are from Appendix G of the State CEQA Guidelines. The Project would result in a significant impact related to land use and planning if it would:

- Threshold 3.9-1** **Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality.**
- Threshold 3.9-2** **Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Project may impede sustainable groundwater management of the basin;**
- Threshold 3.9-3** **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 off-site?**

- 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?**
 - iv. **Impede or redirect flood flows?**
- Threshold 3.9-4** **In flood hazard, tsunami, or seiche zones, risk release of pollutants due to Project inundation;**
- Threshold 3.9-5** **Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?**

Campus Programs, Practices, and Procedures and Mitigation Measures Carried Forward from the November 2007 LRDP Amendment Final EIR

The following applicable Mitigation Measures (MM) were adopted as part of the November 2007 LRDP EIR and are incorporated as part of the proposed Project and assumed in the analysis presented in this section.

MM HYD-1A: As early as possible in the planning process of future projects that implement the 2007 LRDP and would result in land disturbance of 1 acre or greater, and for all development projects occurring on the North Campus in the watershed of the San Joaquin Freshwater Marsh, a qualified engineer shall complete a drainage study. Design features and other recommendations from the drainage study shall be incorporated into project development plans and construction documents. Design features shall be consistent with UCI's Storm Water Management Program, shall be operational at the time of project occupancy, and shall be maintained by UCI. At a minimum, all drainage studies required by this mitigation measure shall include, but not be limited to, the following design features:

Site design that controls runoff discharge volumes and durations shall be utilized, where applicable and feasible, to maintain or reduce the peak runoff for the 10-year, 6-hour storm event in the post-development condition compared to the pre-development condition, or as defined by current water quality regulatory requirements.

Measures that control runoff discharge volumes and durations shall be utilized, where applicable and feasible, on manufactured slopes and newly-graded drainage channels, such as energy dissipaters, revegetation (e.g., hydroseeding and/or plantings), and slope/channel stabilizers.

MM HYD-2A Prior to initiating on-site construction for future projects that implement the 2007 LRDP, UCI shall approve an erosion control plan for project construction. The plan shall include, but not be limited to, the following applicable measures to protect downstream areas from sediment and other pollutants during site grading and construction:

- i. Proper storage, use, and disposal of construction materials.
- ii. Removal of sediment from surface runoff before it leaves the site through the use of silt fences, gravel bags, fiber rolls or other similar measures around the site perimeter.
- iii. Protection of storm drain inlets on-site or downstream of the construction site through the use of gravel bags, fiber rolls, filtration inserts, or other similar measures.

- iv. Stabilization of cleared or graded slopes through the use of plastic sheeting, geotextile fabric, jute matting, tackifiers, hydro-mulching, revegetation (e.g., hydroseeding and/or plantings), or other similar measures.
- v. Protection or stabilization of stockpiled soils through the use of tarping, plastic sheeting, tackifiers, or other similar measures.
- vi. Prevention of sediment tracked or otherwise transported onto adjacent roadways through use of gravel strips or wash facilities at exit areas (or equivalent measures).
- vii. Removal of sediment tracked or otherwise transported onto adjacent roadways through periodic street sweeping.
- viii. Maintenance of the above-listed sediment control, storm drain inlet protection, slope/stockpile stabilization measures.

MM HYD-2B Prior to initiating on-site construction for future projects that implement the 2007 LRDP, UCI result in land disturbance of 1 acre or more, the UCI shall ensure that the projects include the design features listed below, or their equivalent, in addition to those listed in mitigation measure Hyd-1A. Equivalent design features may be applied consistent with applicable MS4 permits (UCI's Storm Water Management Plan) at that time. All applicable design features shall be incorporated into project development plans and construction documents; shall be operational at the time of project occupancy; and shall be maintained by UCI.

- i. All new storm drain inlets and catch basins within the Project site shall be marked with prohibitive language and/or graphical icons to discourage illegal dumping per UCI standards.
- ii. Outdoor areas for storage of materials that may contribute pollutants to the storm water conveyance system shall be covered and protected by secondary containment.
- iii. Permanent trash container areas shall be enclosed to prevent off-site transport of trash, or drainage from open trash container areas shall be directed to the sanitary sewer system.
- iv. At least one treatment control is required for new parking areas or structures, or for any other new uses identified by UCI as having the potential to generate substantial pollutants. Treatment controls include, but are not limited to, detention basins, infiltration basins, wet ponds or wetlands, bio-swales, filtration devices/inserts at storm drain inlets, hydrodynamic separator systems, increased use of street sweepers, pervious pavement, native California plants and vegetation to minimize water usage, and climate controlled irrigation systems to minimize overflow. Treatment controls shall incorporate volumetric or flow-based design standards to mitigate (infiltrate, filter, or treat) storm water runoff, as appropriate.

3.9.4 Environmental Impacts

Impact 3.9-1:	Would the Project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?
Impact Summary:	Less Than Significant With Mitigation Incorporated

Construction

Project construction could result in substantial additional sources of polluted runoff which could have short-term impacts on the San Joaquin Marsh Reserve and San Diego Creek water quality through activities such as, clearing and grading, stockpiling of soils and materials, construction equipment, concrete pouring, painting, and asphalt surfacing. Construction utilizes various types of equipment such as cranes, dozers, scrapers, backhoes, dump trucks, trucks, concrete mixers, and generators for lighting. Pollutants that may result from construction activity and demolition could impact water quality if the pollutants run off into the San Joaquin Marsh Reserve and San Diego Creek by storm and non-storm water or blown from winds heading downwind the Project site. Implementation of construction BMPs to control construction pollutants from leaving the Project site would reduce the amount of pollutants in receiving waters.

Construction BMPs would include, but not limited to, the following:

- Minimization of disturbed areas to the portion of the Project site necessary for construction;
- Stabilization of exposed or stockpiled soils and cleared or graded slopes;
- Establishment of permanent re-vegetation or landscaping as early as is feasible;
- Removal of sediment from surface runoff before it leaves the Project site by silt fences or other similar devices around the site perimeter;
- Diversion of upstream runoff around disturbed areas of the Project site;
- Protection of all storm drain inlets on-site or downstream of the Project site to eliminate entry of sediment;
- Prevention of tracking soils and debris off-site through use of a gravel strip or wash facilities, which will be located at all construction exits from the Project site;
- Proper storage, use, and disposal of construction materials, such as solvents, wood, and gypsum; and
- Continual inspection and maintenance of all BMPs through the duration of construction.

The proposed Project would comply with the General Construction Storm Water Permit program, which would implement construction control measures to be specified in the Project's Storm Water Pollution Prevention Plan (SWPPP) and install and maintain the post-construction best management practices (BMPs) to be specified in the Project's Water Quality Management Plan (WQMP). Compliance with the permit would ensure that runoff from the developed site does not violate any water quality standards. Potential impacts from construction activities would be less than significant.

In terms of general water quality impacts from storm water and other runoff, the SWMP provided a list of potential pollutants that occur within the vicinity of the Project site, which are included in *Table 3.9-1, Potential Pollutant Activity or Sources List*.

Table 3.9-1: Potential Pollutant Activity or Sources List	
Activity/Source	Pollutants of Concern
Chemical spills	Various cleaning compounds, diesel, paint, hazardous materials, vehicle fluids
Construction activities	Concrete, drywall, paint, sediment
Erosion	Sediment, organic matter
Food service operations	Wash-water, food residue, oil and grease
Grounds maintenance	Green waste, fuel, oil, pesticides, herbicides, sediment
Impervious areas	Increased flows and pollutant loading
Irrigation runoff	Chloramines, fertilizers, pesticides
Litter and debris	Litter and debris
Loading/unloading areas	Petroleum products, fertilizers, pesticides, herbicides, cleaning solutions, paint
Outdoor storage of raw materials	Sand, asphalt, soil, pesticides, herbicides, fertilizer, paint, solvents, fuel
Parking lot runoff	Oil/grease, litter, heavy metals
Roof runoff	Particulate matter and associated pollutants
Trash storage areas	Organic materials, hazardous materials
Vehicle and equipment washing (staff)	Cleaning products, oil/grease, vehicle fluids
Source: UCI SWMP, 2018	

Post Construction

The proposed Project would not generate any point sources of wastewater or other liquid or solid water contaminants. Wastewater generated would by the proposed Project would be discharged into the Irvine Ranch Water District's (IRWD) wastewater collection system and then conveyed to Orange County Sanitation District's (OCS) treatment facility. Therefore, impacts due to wastewater flows would not violate water quality standards, waste discharge requirements, or otherwise substantially degrade surface or groundwater quality.

A portion of surface runoff from the North Campus is conveyed to the San Joaquin Marsh Reserve via a system of culverts and surface flow, and the proposed Project would construct a storm drain system that would release runoff into the San Joaquin Marsh Reserve. This runoff could result in significant impacts if it carries sediment or other pollutants to the San Joaquin Marsh Reserve; however, 2007 LRDP EIR mitigation measures Hyd-2A, and Hyd-2B would be implemented for the Project. These mitigation measures require preparation of an erosion control plan during the design phase and implementation of design features to prevent contaminants from entering the storm system, including installation of water quality structures to treat stormwater prior to release into the San Joaquin Marsh Reserve. These mitigation measures are consistent with the UCI MS4 permit, which requires that post construction design features be included as part of the Project and be operational prior to occupancy of the structures. The post construction design features listed in Hyd-2B below provide a variety of methods that would allow for treatment, settlement, and continued infiltration and controlled runoff of stormwater to the San Joaquin Marsh Reserve to maintain the needed flow regime. Accordingly, all treatment controls would

have volumetric and/or flow-based design, and would be finalized during the progressive design build phase.

Therefore, in compliance with the storm water permits described above and implementation of 2007 LRDP EIR mitigation measures Hyd-2A, and Hyd-2B, construction and post construction impacts to water quality standards, waste discharge requirements, or substantial degradation of surface or groundwater quality would not occur. These impacts would be less than significant.

Mitigation Measures

MM HYD-1: *(This Mitigation Measure implements Mitigation Measure HYD-2A from the 2007 LRDP EIR)* Prior to initiating on-site construction for future projects that implement the 2007 LRDP, UCI shall approve an erosion control plan for project construction. The plan shall include, but not be limited to, the following applicable measures to protect downstream areas from sediment and other pollutants during site grading and construction:

- i. Proper storage, use, and disposal of construction materials.
- ii. Removal of sediment from surface runoff before it leaves the site through the use of silt fences, gravel bags, fiber rolls or other similar measures around the site perimeter.
- iii. Protection of storm drain inlets on-site or downstream of the construction site through the use of gravel bags, fiber rolls, filtration inserts, or other similar measures.
- iv. Stabilization of cleared or graded slopes through the use of plastic sheeting, geotextile fabric, jute matting, tackifiers, hydro-mulching, revegetation (e.g., hydroseeding and/or plantings), or other similar measures.
- v. Protection or stabilization of stockpiled soils through the use of tarping, plastic sheeting, tackifiers, or other similar measures.
- vi. Prevention of sediment tracked or otherwise transported onto adjacent roadways through use of gravel strips or wash facilities at exit areas (or equivalent measures).
- vii. Removal of sediment tracked or otherwise transported onto adjacent roadways through periodic street sweeping.
- viii. Maintenance of the above-listed sediment control, storm drain inlet protection, slope/stockpile stabilization measures.

MM HYD-2: *(This Mitigation Measure implements Mitigation Measure HYD-2B from the 2007 LRDP EIR)* Prior to initiating on-site construction for future projects that implement the 2007 LRDP, UCI result in land disturbance of 1 acre or more, the UCI shall ensure that the projects include the design features listed below, or their equivalent, in addition to those listed in mitigation measure HYD-3. Equivalent design features may be applied consistent with applicable MS4 permits (UCI's Storm Water Management Plan) at that time. All applicable design features shall be incorporated into Project development plans and

construction documents; shall be operational at the time of Project occupancy; and shall be maintained by UCI.

- i. All new storm drain inlets and catch basins within the Project site shall be marked with prohibitive language and/or graphical icons to discourage illegal dumping per UCI standards.
- ii. Outdoor areas for storage of materials that may contribute pollutants to the storm water conveyance system shall be covered and protected by secondary containment.
- iii. Permanent trash container areas shall be enclosed to prevent off-site transport of trash, or drainage from open trash container areas shall be directed to the sanitary sewer system.
- iv. At least one treatment control is required for new parking areas or structures, or for any other new uses identified by UCI as having the potential to generate substantial pollutants. Treatment controls include, but are not limited to, detention basins, infiltration basins, wet ponds or wetlands, bio-swales, filtration devices/inserts at storm drain inlets, hydrodynamic separator systems, increased use of street sweepers, pervious pavement, native California plants and vegetation to minimize water usage, and climate controlled irrigation systems to minimize overflow. Treatment controls shall incorporate volumetric or flow-based design standards to mitigate (infiltrate, filter, or treat) storm water runoff, as appropriate.

Level of Significance After Mitigation

With the implementation of BMPs, mitigation measures, and adherence to UCI’s Plans, Project impacts would be mitigated to less than significant.

Impact 3.9-2:	Would the Project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Project may impede sustainable groundwater management of the basin?
Impact Summary:	Less Than Significant Impact

As discussed in the 2007 LRDP Initial Study, UCI does not withdraw groundwater and instead is provided water by the IRWD; therefore, it did not require further analysis in the 2007 LRDP EIR (page 4.7-27).

The proposed Project, however, would introduce new impermeable surfaces to the Project site reducing the potential for groundwater infiltration and recharge. To reduce these effects, the Proposed Project includes permeable landscaping throughout the Project site and a stormwater drainage system that, in addition to removing pollutants, would also preserve flow regimes and encourage continued infiltration of water into the groundwater table. Thus, the potential for groundwater recharge would not be substantially changed. Therefore, the proposed Project would not significantly affect groundwater tables, nor conflict with the Sustainable Groundwater Management Act (SGMA), and impacts would be less than significant. No mitigation is required.

Mitigation Measures

No mitigation is required.

Level of Significance After Mitigation

Less than significant impact.

Impact 3.9-3:	<p>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:</p> <ul style="list-style-type: none"> i. Result in substantial erosion or siltation on- or off-site? ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site? iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff? iv. Impede or redirect flood flows?
Impact Summary:	Less Than Significant Impact With Mitigation Incorporated.

Erosion and Siltation

Control features for run-off volumes and durations to minimize or eliminate erosion and siltation would be depicted on final construction plans. Drainage control measures would be implemented during rough grading to ensure that discharge volumes and durations are controlled on newly graded channels. Standard construction strategies such as desiltation basins, rip-rap, sandbag chevrons, straw wattles, etc. would be incorporated into the Project's SWPPP both during and after grading. Therefore, potential erosion or siltation impacts during and following construction would be reduced to less than significant levels through compliance with the conditions of the General Construction Storm Water Permit and 2007 LRDP EIR mitigation measures HYD-2A and HYD-2B. Therefore, impacts due to erosion would be reduced to a less than significant level.

Rate and Amount of Surface Runoff

With regard to amount of surface water runoff, the Project site is currently partially undeveloped and would be converted to mostly impervious surfaces increasing the rate and amount of runoff. To avoid significant flooding impacts on- or off-site, the proposed storm drain system would be designed in accordance with the drainage criteria set forth in the Mitigation Measures HYD-2 and HYD-3. The drainage system would be built to maintain or reduce peak runoff from 25-year and 100-year storm events. As discussed in Impact 3.9-1 and 3.9-2 above, the proposed Project would be designed to ensure water quality released into the San Joaquin Marsh Reserve is preserved and run-off volumes would not be significantly altered. The proposed mitigation is consistent with the UCI MS4 permit, which includes measures that would allow for treatment, settlement, and continued infiltration and control of stormwater runoff. In addition, these measures also would consider the existing flow regime, and treatment controls would be designed with features to manage volume and flowrates. In addition, some

features, such as the bio-swales and infiltration and detention basins, would ensure the volume of water currently able to infiltrate the ground is not substantially changed.

Additional hydrological analysis would be conducted as part of the final design process to specify all primary and secondary drainage control facilities required to satisfy flood control criteria, as well as site design, mechanical, structural, and non-structural measures to filter pollutants from site runoff prior to discharge into the existing storm drain network. Therefore, with implementation of Mitigation Measures HYD-2 and HYD-3, impacts to the alteration of the drainage pattern would be reduced to less than significant.

Storm Drainage Capacity

With regard to storm drain capacity as a result of the Project, surface water would be collected and treated on-site through best management practices (BMPs), then conveyed to the campus storm drain system and to the San Joaquin Marsh Reserve south of the site consistent with existing drainage patterns. Low impact development (LID) features may be implemented in compliance with UCI's MS4 permit to retain stormwater flows to the south of the Project site before release into the San Joaquin Marsh Reserve, which would be determined during the final design phase.

Due to the increase in impervious surfaces for the proposed Project, additional runoff would be calculated during the design phase, through implementation of Mitigation Measure HYD-3, and the collection system would be upgraded to increase capacity, if needed. The on-site drainage system, which may include on-site retention basins or LID features, would be designed to provide sufficient capacity to manage the level of water runoff anticipated upon completion of construction.

Stormwater Flows

A preliminary Concept Drainage and Water Quality Memorandum was prepared for the proposed Project based on the programmatic design; however, Project-specific features would be incorporated during the progressive design build phase to account for the final Project design. With implementation of Mitigation Measure HYD-3, a drainage study would be prepared and incorporate appropriate runoff discharge control measures into the final design.

The Concept Drainage and Water Quality Memorandum considered the existing drainage patterns and recommended features that would maintain drainage patterns, flows regimes, and provide water treatment features. This includes the use of, but not limited to, dry extended detention basins and bio retention planters incorporated to landscaping design. The Memo also recommended the use of, when feasible, planter boxes to encourage evapotranspiration, reservation of space for flood control, and the use of underdrains to meet LID and hydromodification requirements. With implementation of Mitigation Measure HYD-3, potential impacts associated with an increase in surface water runoff would be less than significant.

The limits of the existing 100-year FEMA Floodplain were evaluated to determine if the Project would impede or redirect flood flows. The FEMA FIRM maps identify nearly all of the Project site to be located in Zone X; an area of minimal flood hazard. A small portion of the southern development area on the Project site and the southeasterly portion of the proposed temporary staging area on the Arboretum site is within the area mapped as Zone A on the FEMA FIRM map; which means that these areas are subject to flooding by a 100-year storm event; however, a base flood elevation has not been established for this

area, because a detailed hydraulic analysis for the site has not been performed. As such, the proposed Project would require approval of Conditional Letter of Map Revision (CLMOR) from FEMA as a portion of the development area would be located within this floodplain area. As such, implementation of Mitigation Measure HYD-4 is required to establish a base flood elevation for this site and to have the Zone A floodplain designation removed from the building area on the Project site. The 150-foot development buffer, as required in the 2007 LRDP EIR is within the Zone A designated area, but would not be impacted during development and would not be affected by a change in the floodplain mapping.

With the implementation of BMPs and required surface water retention areas the Project site would discharge no more than the existing condition so the existing floodplain limits would not be adversely affected, and the Project would not impede or redirect flood flows. As discussed, above, this would reduce the potential for sediments and pollutants to be carried into the marsh and would help maintain flows regimes and encourage water infiltration. Once the FEMA floodplain map has been revised, the Project would no longer be identified as being within a flood hazard area.

Therefore, with the implementation of Mitigation Measures HYD-3 and HYD-4, potential impacts would be reduced to less than significant.

Mitigation Measures

MM HYD-3: *(This Mitigation Measure implements Mitigation Measure HYD-2B from the 2007 LRDP EIR)* As early as possible in the planning process of future projects that implement the 2007 LRDP and would result in land disturbance of 1 acre or greater, and for all development projects occurring on the North Campus in the watershed of the San Joaquin Freshwater Marsh, a qualified engineer shall complete a drainage study. Design features and other recommendations from the drainage study shall be incorporated into project development plans and construction documents. Design features shall be consistent with UCI's Storm Water Management Program, shall be operational at the time of project occupancy, and shall be maintained by UCI. At a minimum, all drainage studies required by this mitigation measure shall include, but not be limited to, the following design features:

Site design that controls runoff discharge volumes and durations shall be utilized, where applicable and feasible, to maintain or reduce the peak runoff for the 10-year, 6-hour storm event in the post- development condition compared to the pre-development condition, or as defined by current water quality regulatory requirements.

Measures that control runoff discharge volumes and durations shall be utilized, where applicable and feasible, on manufactured slopes and newly-graded drainage channels, such as energy dissipaters, revegetation (e.g., hydroseeding and/or plantings), and slope/channel stabilizers.

MM HYD-4: Prior to occupancy of the Project, a qualified engineer shall demonstrate that a Conditional Letter of Map Revision (CLMOR) has been approved by the U.S. Federal Emergency Management Agency (FEMA) confirming the Project does not impede or adversely affect the 100-year floodplain.

Level of Significance After Mitigation

With the proposed BMPs, and implementation of Mitigation Measures HYD-3 and HYD-4, potential impacts would result in a less than significant impact.

Impact 3.9-4:	Would the Project, in flood hazard, tsunami, or seiche zones, risk release of pollutants due to Project inundation?
Impact Summary:	No Impact

The Project site is inland and is not at risk for inundation due to a tsunami as it is approximately 5 miles from the Pacific Ocean and outside the tsunami inundation area.⁴ The Project site is not within a seiche zone as no large bodies of water border the Project site; thus, no impact is anticipated regarding inundation by tsunami or seiche.

Mitigation Measure

No mitigation measures are required to reduce potential impacts.

Level of Significance After Mitigation

The proposed Project would result in no impact on flood hazards, tsunami, or seiche zones due to inundation.

Impact 3.9-5:	Would the Project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?
Impact Summary:	Less Than Significant Impact

Groundwater is not used on the campus as a source of water; thus, the Project is not subject to the requirements of a groundwater management plan.

As described in responses provided above, the proposed Project would not be a substantial source of pollutants that would result in significant impacts to surface water or groundwater quality. Additionally, the Proposed Project would implement and comply with the UCI SWP as required by MS4 permit requirements under the Clean Water Act. All projects constructed on the campus are subject to review by the Office of Environmental Health and Safety, who ensure Project compliance with the SWP and NPDES permit. Therefore, in compliance with the UCI SWP, the proposed Project would not conflict with a water quality control plan or groundwater management plan and potential impact would be less than significant. No mitigation is required.

Mitigation Measure

No mitigation measures are required to reduce potential impacts.

Level of Significance After Mitigation

The proposed Project would result in a less than significant impact on groundwater management plans.

⁴ California Department of Conservation. (2015). CGS Information Warehouse: Tsunami. Accessed March 2020. Retrieved from: <https://maps.conservation.ca.gov/cgs/informationwarehouse/index.html?map=tsunami>.

3.9.5 Cumulative Impacts

The geographic context for the cumulative impact analysis concerning drainage and hydrology and water quality is the San Diego Creek Watershed within which the Project area is located. Urban development within the San Diego Creek Watershed would consequently increase storm water runoff and erosion runoff which could result in flooding, overloading of drainage systems, and increase the amount and rate of surface water runoff throughout the watershed which will eventually flow into the Pacific Ocean. Developments are required by the State and City to maximize hydrologic and water quality mitigation efforts and are reviewed by other jurisdictions for hydrologic impacts. However, implementation of the mandated measures to control hydrology cannot be guaranteed by the University of California on these projects because they fall within other jurisdictions. Nevertheless, with the implementation of BMP's and Mitigation Measures HYD-1, HYD-2, HYD-3, and HYD-4, the Project would not contribute significant impacts to flooding, or erosion from excessive runoff. Additionally, the 2007 LRDP EIR did not identify significant cumulative impacts that would occur in the San Diego Creek Watershed due to buildout of the 2007 LRDP.

3.9.6 References

- U.S. EPA. (2018). *Basic Information about Nonpoint Source (NPS) Pollution*. Retrieved from U.S. EPA Website: <https://www.epa.gov/nps/basic-information-about-nonpoint-source-nps-pollution>. Accessed March 18, 2020.
- U.S. FEMA. (2020) FEMA Flood Map Service Center. Retrieved from US FEMA Website: <https://msc.fema.gov/portal/search?AddressQuery=UC%20Irvine#searchresultsanchor>. Accessed August 27, 2020
- City of Irvine. (2015). *City of Irvine General Plan; Integrated Waste Management Element*. Accessed March 18, 2020. Retrieved from: <https://www.cityofirvine.org/community-development/current-general-plan>
- City of Irvine. (2015). *City of Irvine General Plan; Conservation and Open Space Element*. Accessed March 18, 2020. Retrieved from: <https://www.cityofirvine.org/community-development/current-general-plan>
- City of Irvine. (2019). *City of Irvine Municipal Code*. Accessed March 18, 2020. Retrieved from: https://library.municode.com/ca/irvine/codes/code_of_ordinances?nodeId=TIT5PL_DIV9BURE_CH5UNSECO_S5-9-521COSIVAPRSE
- County of Orange. (2015). *County of Orange General Plan; Figure IX-9*. Accessed March 19, 2020. Retrieved from County website at: <http://www.ocpublicworks.com/civicax/filebank/blobdload.aspx?blobid=8599>
- County of Orange. (2013). *County of Orange General Plan; Chapter III Flood Hazard Map*. Accessed March 19, 2020. Retrieved from: <https://www.ocgov.com/civicax/filebank/blobdload.aspx?blobid=40237>
- Michael Baker International. (2020). *Irvine Campus Medical Complex Concept Drainage and Water Quality Technical Memorandum*.
- University of California, Irvine. (2019) *Irvine Campus Medical Complex Detail Project Program Volume One; page 217*. Accessed March 19, 2020.

University of California, Irvine. (2007). *Long Range Development Plan Final EIR, Section 4.7 Hydrology and Water Quality*. Accessed March 18, 2020. Retrieved from: <https://cpep.uci.edu/environmental/pdf/volume-I/hydrology.pdf>

University of California, Irvine. (2018). *Storm Water Management Plan; page 3*. Retrieved from: https://www.ehs.uci.edu/programs/enviro/stormwater/UCI_StormWater_ManagementPlan.pdf
Accessed March 18, 2020.

This page intentionally left blank.

3.10 LAND USE AND PLANNING

This section of the SEIR describes the affected environment and regulatory setting for land use and planning on the proposed Project site. It also describes the impacts on land use and planning that would result from implementation of the proposed Project, including an evaluation of consistency with relevant plans and programs that have jurisdiction within the Project area and on the Project site. The evaluation includes a discussion of the proposed Project's compatibility with surrounding land uses, and provides mitigation measures that would reduce these impacts, as appropriate.

3.10.1 Regulatory Setting

Federal

There are no federal regulations pertaining to this resource area.

State

UCI Long Range Development Plan

The 2007 LRDP provides the comprehensive framework for the physical development of the UCI campus and is the primary planning document for the campus. As a general land use plan, the 2007 LRDP outlines the physical development needed to meet projected long-term program needs to serve UCI's strategic mission. No other local land use plan, general plan, specific plan, local coastal program, or zoning ordinance applies to the campus.

The 2007 LRDP contains the following elements: Land Use, Circulation, Housing, Open Space, and Infrastructure. A discussion of the proposed Project's consistency with applicable goals and policies in the 2007 LRDP is provided later in this section.

Land Use Element. The 2007 LRDP Land Use Element outlines the University's approach to meet campus land use objectives through the 2025-2026 horizon year. Key objectives focus on balancing program needs and environmental conditions, allocating sufficient land to meet academic objectives, promoting land use compatibility, and providing planning flexibility to respond to changing requirements. The element designates the general distribution, location, and allowable uses for eleven land use categories: academic and support, campus support services, student housing, faculty and staff housing, housing reserve, mixed use-commercial, mixed use – neighborhood, income-producing inclusion area, transportation, open space – athletics and recreation, and open space – general. Key planning objectives for the Land Use Element include:

- Establish a land use configuration that balances program needs and environmental and site conditions to create a cohesive campus environment;
- Allocate sufficient land area to campus land use categories to enable UCI's academic strategic planning objectives;
- Provide compatibility between campus land use zones and off-campus land uses, and establish land use buffers where appropriate; and
- Provide planning flexibility to enable UCI to respond to changing academic needs and off-campus circumstances through the planning horizon year.

Circulation Element. The Circulation Element provides an approach to meet campus transportation objectives through the 2025-2026 academic year. The Circulation Element designates the general location and extent of existing and proposed transportation routes, including vehicular, bicycle, and pedestrian circulation systems. These systems not only serve the campus, but also provide connections to the local and regional circulation network.

Housing Element. Development of housing on the UC Irvine campus is guided by the goals and objectives outlined in the Housing Element. Population and housing projections utilized in the 2007 LRDP are based on near-term enrollment projections and the 2007 LRDP generally outlines the physical development needed to meet projected demand. The 2007 LRDP Housing Element outlines the University's initiative to identify on- and off-campus solutions to meet the campus population's housing needs. The 2007 LRDP Student Housing Amendment, approved in September 2019, increased the 2007 LRDP goal of housing up to 50 percent of student enrollment to 60 percent by pursuing higher density student housing. Additionally, under the 2007 LRDP, the University can provide 1,700 faculty and staff housing units on the Main Campus to support strategic recruitment needs and up to 435 residential housing units at the North Campus. To meet this goal, the 2007 LRDP permits the development of faculty and staff housing at additional sites in the South Campus, East Campus, and North Campus. To make further progress on housing affordability and availability, the University pursues off-campus housing opportunities through cooperation with local agencies and local housing programs.

Open Space Element. The Open Space Element outlines the University's initiatives for preservation and maintenance of on-campus open space. The Open Space Element recognizes that open space is key to UCI's visual cohesion, whether developed through landscaping or a natural state. To promote visual structure and image, the Open Space Element identifies an open space network consisting of interconnected parks, athletic fields, recreational facilities, trail systems, open space corridors, and habitat areas. Under the 2007 LRDP, approximately 415 acres, or 28 percent, of the UCI campus will remain as open space.

Infrastructure Element. The Infrastructure Element outlines the expansion of utility infrastructure required to meet the program needs identified in the 2007 LRDP. UCI will collaborate with public utility providers to plan and monitor campus utility demand and implement the expansion of distribution systems as needed. Additionally, the element acknowledges UCI's commitment to environmental stewardship and its goal to reduce dependence on non-renewable energy sources.

Regional and Local

Southern California Association of Governments

The Southern California Association of Governments (SCAG) is a council of governments representing Orange, Los Angeles, Ventura, Riverside, San Bernardino, and Imperial counties. SCAG is the federally recognized Metropolitan Planning Organization (MPO) for this region. SCAG is a regional planning agency and a forum for addressing regional issues concerning transportation, the economy, community development, and the environment. SCAG is also the regional clearinghouse for projects requiring environmental documentation under federal and State law. In this role, SCAG reviews proposed development and infrastructure projects to analyze their impacts on regional planning programs. As the Southern California region's MPO, SCAG cooperates with the SCAQMD, Caltrans, and other agencies in preparing regional planning documents.

Regional Transportation Plan/Sustainable Communities Strategy

The 2016-2040 *Regional Transportation Plan/Sustainable Communities Strategy* (RTP/SCS) was adopted in April 2016 (SCAG 2016). Major themes in the 2016 RTP/SCS include integrating strategies for land use and transportation; striving for sustainability; protecting and preserving existing transportation infrastructure; increasing capacity through improved systems managements; providing more transportation choices; leveraging technology; responding to demographic and housing market changes; supporting commerce, economic growth, and opportunity; promoting the links between public health, environmental protection, and economic opportunity; and incorporating the principles of social equity and environmental justice.

The RTP/SCS outlines a development pattern for the region, which, when integrated with the transportation network and other transportation measures and policies, would reduce GHG emissions from transportation (excluding goods movement). Land use strategies to achieve the region's targets include planning for new growth around high-quality transit areas and livable corridors and creating neighborhood mobility areas to integrate land use and transportation and plan for more active lifestyles (SCAG 2016).

Airport Environs Land Use Plan for John Wayne Airport

In 1975, the Airport Land Use Commission (ALUC) of Orange County adopted an Airport Environs Land Use Plan (AELUP, amended April 17, 2008) that included John Wayne Airport (JWA), Fullerton Municipal Airport, and the Joint Forces Training Base Los Alamitos. The AELUP is a land use compatibility plan that is intended to protect the public from adverse effects of aircraft noise, to ensure the people and facilities are not concentrated in areas susceptible to aircraft accidents, and to ensure that no structures or activities adversely affect navigable space. The AELUP identifies standards for development in the airport's planning area based on noise contours, accident potential zone, and building heights. ALUC is an agency authorized under State law to assist local agencies in ensuring compatible land uses near airports. Primary areas of concern for ALUC are noise, safety hazards, and airport operational integrity.

ALUCs are not implementing agencies in the manner of local governments, nor do they issue permits for a project such as those required by local governments. However, pursuant to California Public Utilities Code Section 21676, local governments are required to submit all general plan amendments and zone changes that occur in the ALUC planning areas for consistency review by the ALUC. If such an amendment or change is deemed inconsistent with the ALUC plan, a local government may override the ALUC decision by a two-thirds vote of its governing body, if it makes specific findings that the proposed action is consistent with the purposes stated in Section 21670(a)(2) of the Public Utilities Code: "to protect public health, safety, and welfare by ensuring the orderly expansion of airports and the adoption of land use measures that minimize the public's exposure to excessive noise and safety hazards in areas around public airports to the extent that these areas are not already devoted to incompatible uses."

The Project site is approximately 0.87 mile southeast of JWA and is in the airport influence area. As shown in the AELUP Airport Safety Zone Map, the Project site is within Safety Zone 6: Traffic Pattern Zone of JWA. A Clear Zone/Runway Protection Zone is defined as "a trapezoidal area off each end of a runway used to enhance the protection of people and property on the ground. The innermost of the safety zones." Safety Zone 6 has a "generally low likelihood of accident occurrence at most airports; risk concern primarily is with uses for which potential consequences are severe." The "Zone includes all other portions of regular

traffic patterns and pattern entry routes.” With respect to land uses in Zone 6, residential uses and most nonresidential uses are allowable.

The overall Project site is in the Federal Aviation Regulation (FAR) Part 77 Obstruction Imaginary Surface Zone and the FAR Part 77 Notification Area of JWA, as identified in the AELUP for JWA (ALUC 2008). Certain restrictions on development are enforced within the Part 77 zone, including building height.

Regional

Natural Communities Conservation Planning (NCCP) Program

The Natural Communities Coalition (NCC) was established in 1996 as one of the first implementation steps following the signing of a landscape-scale habitat planning and conservation effort—the Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP) for the Central and Coastal Subregion of Orange County, California. The purpose of the NCCP/HCP Program for the Orange County Central and Coastal sub-region is to provide long-term, regional protection of natural vegetation and wildlife diversity, while allowing compatible land uses and appropriate development and growth for those agencies and private organizations that are enrolled in the program. NCCP participants may enroll their habitat in the program, and, by mutual consent, habitat areas with high conservation value are set aside and may not be developed. Participants also agree to study, monitor, and develop management plans for those "reserve" areas. Parcels with lower conservation values within the enrolled areas, but outside the reserves, are then available for possible development.

Geographically, the NCCP study area covers approximately 208,000 acres that include the central portion of Orange County. The sub-region extends along the coast from the mouth of the Santa Ana River in Costa Mesa to the mouth of San Juan Creek in Dana Point. The inland boundaries of the sub-region follow SR-91 along the west to El Toro Road and I-5 to San Juan Creek to the east.

The campus enrolled in the NCCP program in 1996 as a "participating landowner." Participating landowners are those public and private landowners contributing significant land and/or funding toward implementation of the Reserve system and adaptive management program. For these landowners, development activities and uses that are addressed by the NCCP are considered fully mitigated under the NCCP Act and the State and Federal ESAs for impacts to habitat occupied by listed and other species "identified" by the NCCP and the Implementation Agreement. Satisfactory implementation of the NCCP under the terms of the Implementation Agreement means that no additional mitigation will be required of "participating landowners" for impacts to "identified" species and their habitat, or for species residing in specified non-coastal sage scrub habitats (County of Orange, 1996).

It should be noted, that in 2003, the Nature Reserve of Orange County created a habitat restoration and enhancement plan for the Central and Coastal Subregion. The plan identifies and prioritizes potential restoration areas within the reserve and provides detailed information on the most effective methods of associated costs of restoration activities. This area, however, does not include the Project site. A revision of the plan is expected in late 2020.

City of Irvine

City of Irvine General Plan

The City of Irvine General Plan was most recently updated in June of 2012 and is a comprehensive long term plan for development within the City. The General Plan also contains elements which address a

broad range of issues including resource preservation, circulation, housing, noise, safety, etc. Specific to this section of the SEIR, the General Plan contains the Land Use element, which contains the general goal to “promote land use patterns which maintain safe residential neighborhoods, bolster economic prosperity, preserve open space, and enhance the overall quality of life in Irvine.” The Land Use Element consists of land use categories that guide future development and growth within the community, ranging from an office building or single-family home, to the number of parks and open space areas in the city. The proposed Project site is designated within the Land Use Element as Planning Area 29, which is identified as UCI-North Campus. Accordingly, the Project site is designated as Education/Public Facilities and specifically labeled as UCI on the General Plan land use map. The areas adjacent to the Project site include additional UCI designated property to the west, Preservation area to the south, and UCI and Urban and industrial designations to the east. City of Newport Beach property is located across Jamboree Road to the northwest (City of Irvine, 2012).

City of Newport Beach General Plan

The City of Newport Beach borders the proposed Project site to the northwest across Jamboree Road, and the campus is demarcated from the City of Newport Beach by MacArthur Boulevard to the west. A portion of Jamboree Road which runs parallel to the North Campus lies within City of Newport Beach jurisdiction. The Newport Beach General Plan designates the areas adjacent to Jamboree Road as primarily Mixed-Use Horizontal, with some General Commercial and Public Facilities areas. Mixed-Use Horizontal is a designation which provides development of areas for a horizontally distributed mix of uses, which may include general or neighborhood commercial, commercial offices, multi-family residential, and visitor-serving and marine-related uses (Newport Beach, 2020).

3.10.2 Environmental Setting

Existing and Surrounding Uses

The Project site is located in the UCI North Campus which is generally bordered by Jamboree Road on the northwest, Campus Drive on the northeast, the UC San Joaquin Marsh Reserve to the south, and MacArthur Boulevard to the west. The approximately 14.5-acre Project site is generally bordered by the approved UCI Child Health/ Medical Office development (Child Health Project) to the west, existing UCI North Campus Support Service Facilities and Academic Facilities to the north, UCI Arboretum to the east, San Joaquin Marsh Reserve to the south, and undeveloped University property to the west.

Additional surrounding land uses are as follows:

Northwest	Jamboree Road, The California Superior Court Harbor Justice Center – Newport Beach
Northeast	Campus Drive, Carlson Avenue, Watermarke Condominium Community, The Plaza Condominium Community, Restaurants, and Retail
Southeast	UC San Joaquin Marsh Reserve and wetlands, Campus Drive, and San Diego Creek beyond
Southwest/West	Jamboree Road, One Uptown Newport Apartments, low-rise, two-story office buildings with surface parking south of Birch Street in Koll Center Newport, fast-food restaurants along Jamboree Road in Koll Center Newport.

2007 LRDP Land Use Designations

The 2007 LRDP identifies that the existing 2007 LRDP land use designations for the Project site are Mixed Use –Commercial and Open Space – General. The Mixed Use – Commercial land use designation allows for the construction of facilities for Medical Office, General Office, Research and Development, Academic Uses, Commercial and Retail, Conference Facilities, Residential uses, and Clinical uses. The Open Space – General land use designation allows for the construction of pedestrian and bike trails, water quality and drainage structures, food service, interpretive centers, field research facilities, maintenance roads, and support structures.

The Project is consistent with the North Campus development program identified in the 2007 LRDP, which allows for 950,000 gross square feet (gsf) of development and 435 residential units on approximately 46 acres of the 144-acre North Campus sector.

3.10.3 Thresholds of Significance

The following significance criteria are from Appendix G of the State CEQA Guidelines. The Project would result in a significant impact related to land use and planning if it would:

Threshold 3.10-1 Physically divide an established community?

Threshold 3.10-2 Cause a significant environmental impact with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

Campus Programs, Practices, and Procedures and Mitigation Measures Carried Forward from the November 2007 LRDP Amendment Final EIR

The following applicable Mitigation Measures (MM) were adopted as part of the November 2007 LRDP Final EIR and are incorporated as part of the proposed Project and assumed in the analysis presented in this section.

MM Lan-2A As early as possible in the planning process for future projects that implement the 2007 LRDP and are located along the interface between the North Campus and the San Joaquin Marsh Reserve, UCI shall enter into consultation with representatives of the University of California Natural Reserve System (UCNRS) to ensure that project planning and design includes features to avoid impacts to the SJFM Reserve from incompatible adjacent land uses, such as mixed use development. These planning and design features shall include, but are not limited to, the following:

- Site planning that establishes building setbacks, circulation, open space and other uses along the development interface to limit impacts on teaching and research activities, and that reduces the need for fuel modification in the buffer zone.
- Site planning that retains the integrity of the San Joaquin Marsh Reserve buffer zone including features that limit the need for construction activities and fuel modification within the buffer zone.

3.10.4 Environmental Impacts

Threshold 3.10-1: Would the Project physically divide an established community?

Impact Summary: Less Than Significant

The physical division of an established community typically refers to the construction of a physical feature, such as an interstate highway or railroad tracks, or removal of access such as roads or bridges. The proposed Project does not involve any such features and would not remove any means of access or impact mobility. Project implementation would maintain and improve upon existing site access through the construction of pedestrian and bicycle paths, which would provide connections to adjacent uses including existing North Campus uses.

The proposed Project would not affect the land use pattern of the surrounding community, either on- or off-campus. No existing residences would be removed or relocated as part of the proposed Project. No off-campus improvements are proposed that would require a change to the existing land use patterns or roadway networks within the cities of Newport Beach or Irvine. As such, the proposed Project would not result in the division of an established community. Thus, a less than significant impact would occur and no mitigation is required.

Mitigation Measures

No mitigation measures are required to reduce potential impacts.

Level of Significance After Mitigation

The proposed Project would result in a less than significant impact as a result of dividing an established community.

Threshold 3.10-2: Would the Project cause a significant environmental impact with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigation an environmental effect?

Impact Summary: Less Than Significant

UCI 2007 Long Range Development Plan Consistency

The planned buildout for the 2007 LRDP includes developing a comprehensive academic community of teaching and research facilities, residential neighborhoods, community support space, and private sector uses in order to promote campus vitality during both daytime and evening hours. The 2007 LRDP's vision for the North Campus, inclusive of the Project site, is focused on mixed-use development consisting of both commercial and residential components. The North Campus is comprised of three designated land uses, Mixed Use – Commercial, Open Space – Athletics and Recreation, and Open Space – General.

A primary objective of the 2007 LRDP is to implement development that represents the best possible relationship between UCI's academic goals, the character of the site, and appropriate integration with the surrounding community. To achieve these objectives, the 2007 LRDP North Campus Development program allows for 950,000 gsf of development and 435 residential uses on approximately 46 acres of the 144-acre North Campus Sector.

North Campus uses north and east of the Project site, UCI Support Services, UCI Academic Facilities, and the UCI Arboretum, are designated as Mixed Use – Commercial and Open Space – Athletics and Recreation. The Mixed Use – Commercial land use designation provides for intermixing of uses that may include general office, research and development, academic uses, commercial and retail, conference facilities, residential facilities, and clinical uses. The Open Space – Athletics and Recreation designation allows for facilities to accommodate intercollegiate athletics and campus recreation, such as indoor and outdoor athletic and recreation facilities, playfields, courts, and jogging trails.

The Project site has a 2007 LRDP land use designation of Mixed Use – Commercial, allowed uses listed above, and the 150-foot buffer zone between the North Campus and the UC San Joaquin Marsh Reserve is designated as Open Space – General. The Open Space – General land use designation allows for the construction of pedestrian and bicycle trails, water quality and drainage structures, food service, interpretive centers, field research facilities, maintenance roads, and support structures. The buffer zone provides for building setbacks, fuel modification, and other protections at the development/habitat interface. The proposed Project would not build any physical structures within the 150-foot buffer zone, and would install landscaping consisting of native plants appropriate to the San Joaquin Marsh Reserve, infrastructure such as water or power service and water quality structures, and a recreational trail segment that would straddle the Project site/buffer zone interface. These proposed uses within the 150-foot buffer zone are consistent with the Open Space – General land use designation.

While the Project is consistent with the intent of the North Campus development program, the Project proposes a land use amendment to the 2007 LRDP to include Inpatient uses to the Mixed Use – Commercial land use designation. The proposed Project would construct an Acute Care Hospital, Ambulatory Care Center, parking structure and surface parking areas, and Central Utility Plant to provide an integrated medical campus for inpatient, ambulatory, and emergent care services. The proposed Project is consistent with the 2007 LRDP North Campus development program and, with the adoption of Amendment #3, the Mixed Use – Commercial land use designation.

Additionally, the proposed Project would utilize approximately 3.5 acres of the UCI Arboretum for temporary construction staging and laydown for construction. The Arboretum is designated as Open Space – Athletics and Recreation in the 2007 LRDP, which allows for facilities to accommodate intercollegiate athletics and campus recreation, such as indoor and outdoor athletic and recreation facilities, playfields, courts, and jogging trails; however, this use is temporary and would not conflict with the 2007 LRDP land use designation.

An analysis of the proposed Project's consistency with the applicable 2007 LRDP objectives is provided in *Table 3.10-1: UCI Long Range Development Plan Consistency Analysis* at the end of this section. The analysis concludes that the proposed Project would be consistent with applicable 2007 LRDP goals and policies. Upon approval of the 2007 LRDP Amendment #3, the proposed Project would not result in significant land use impacts related to relevant 2007 LRDP planning objectives. Therefore, the proposed Project, with the adoption of the 2007 LRDP Amendment #3, would not conflict with the 2007 LRDP.

UC Natural Reserve System Consultation

UCI NRS representatives were consulted on-site planning opportunities and constraints during the programming of the proposed Project and will continue to be consulted during the progressive design build process. Site planning considerations during consultation included location of the recreational trail, marsh access, support facilities, and landscaping. In order to retain the integrity of the marsh buffer,

proposed building development would be limited to within the Project site boundary, except for infrastructure improvements including water quality improvements, and the potential for the recreational trail segment at the Project/Buffer Zone interface. Native landscaping would be utilized along the recreational trail and within the Project/Buffer interface and the plant palette would be reviewed by UCNRS representatives. Marsh access and support facilities will be maintained for the duration of Project construction.

John Wayne Airport Land Use Consistency

The Project site is within Safety Zone 6: Traffic Pattern Zone of John Wayne Airport. Risk factors associated with Safety Zone 6 generally include a low likelihood of accident occurrence. The main concern is primarily related to uses for which potential consequences are severe. Allowed uses in this safety zone include residential and most nonresidential uses, with the exception of outdoor stadiums and similar uses with very high intensities. The Project's proposed land uses are consistent with those outlined in Safety Zone 6 and its applicable land use restrictions. Therefore, the proposed Project's uses are not considered inconsistent with or impact to the standards and operations of Safety Zone 6.

The Project site is in the FAR Part 77 Obstruction Imaginary Surfaces and the FAR Part 77 Notification Area of John Wayne Airport, as identified in the AELUP for JWA (ALUC 2008). Building height limits in these restricted zones are determined in accordance with the standards outlined in FAR Part 77 (Objects Affecting Navigable Airspace) of the FAA regulations. ALUC has incorporated these standards and FAR Part 77 definitions into the AELUP as guidelines for determining building height limits. As outlined in the AELUP, projects that fall within the FAR Part 77 Notification Area are required to file Form 7460-1 (Notice of Proposed Construction or Alteration) with FAA, which directs FAA to conduct an aeronautical study.

The proposed Project is consistent with the building height limitations set forth under the current civilian airport standards in the AELUP and would not adversely affect John Wayne Airport's aeronautical operations or navigational-aid siting criteria, including interference with navigational aids or published flight paths and procedures.

City of Irvine General Plan Consistency

The proposed Project is consistent with the City of Irvine General Plan and the land uses designated for Planning Area 29, which is identified as UCI – North Campus. In addition, the project site is designated as Education/Public Facilities and specifically labeled as UCI on the General Plan map. Accordingly, the proposed Project would be consistent with the public facilities designation as it would be a medical center and provide a public-serving use.

NCCP/HCP Consistency

As discussed above, the proposed Project would be located within the UCI North Campus, which is developable land under the 2007 LRDP, and the proposed uses are consistent with the 2007 LRDP land use designation with adoption of Amendment #3 to add Inpatient to the Mixed Use – Commercial designation. As a Participating Landowner in the NCCP/HCP, UCI has set aside NCCP/HCP Reserve Area land, including the UCI Ecological Preserve and other campus land areas. The proposed Project would not construct within or take any Reserve Area land, and therefore, would not affect or inhibit the function of the NCCP.

Therefore, the proposed Project would not induce a significant environmental impact with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. No mitigation is required.

Mitigation Measures

No mitigation measures are required to reduce potential impacts.

Level of Significance After Mitigation

The proposed Project would not result in a significant conflict with a land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.

3.10.5 Cumulative Impacts

The Project is consistent with applicable 2007 LRDP planning objectives. Although other changes in land use plans and regulations may have occurred with past and present projects in the area and may be necessary for individual future projects, such changes have been, and would be, required to demonstrate consistency with the 2007 LRDP such that no significant adverse cumulative impact has occurred or would occur from such changes. Given that the proposed Project would be consistent with the land use policies of the applicable plans, the Project would not combine with any past, present, or reasonably foreseeable future projects to cause a significant adverse cumulative land use impact based on a conflict with a plan or policy. Any associated physical impacts are covered in the individual topic sections. It is also anticipated that regional growth, outside of the UC Irvine campus, would be subject to review for consistency with adopted land use plans and policies by the County of Orange, City of Irvine, and other cities in Orange County, in accordance with the requirements of CEQA, the State Zoning and Planning Law, and the State Subdivision Map Act, all of which require findings of plan and policy consistency prior to approval of entitlements for development. Therefore, no significant cumulative impacts associated with plans and policies are anticipated. In addition, the contribution of the proposed Project to any such cumulative impacts would be less than significant because present and probable future projects are consistent with applicable plans, policies, and regulations. The proposed Project would not contribute to any cumulative impacts associated with plan or policy inconsistency.

Table 3.10-1. UCI 2007 Long Range Development Plan Consistency Analysis	
Applicable UC Irvine Long Range Development Plan Objectives	Project Consistency
Key Planning Objectives for the North Campus	
Objective 1. Support UCI and community residential goals by creating a work-live environment within a mixed use setting.	Consistent. The proposed Project would introduce additional employment demand to the area and would integrate into the existing North Campus. Within the Project site vicinity are several multi-family residences, further promoting the work-live environment.
Objective 2. Recognize and be sensitive to the site’s location between its urban neighbors and the San Joaquin Freshwater Marsh.	Consistent. The UCI North Campus is primarily undeveloped. Retail, Office, and Multi-family residential uses along Jamboree Road and Campus Drive border the North Campus, along with the San Joaquin Marsh Reserve. Project implementation would maintain access to these uses throughout construction and operation. Impacts to surrounding uses would be limited by maintaining a 150-foot buffer zone between the San Joaquin Marsh Reserve and design and massing and siting would be consistent with surrounding development. Further, as discussed above, UCNRS marsh reserve representatives were consulted during the programming of the proposed Project and will continue to be consulted during the progressive design build process.
Objective 3. Adopt an architectural landscape vocabulary that promotes an affinity within the UCI campus.	Consistent. The Project site plan has been designed following principles from the UCI Physical Design Framework (2010). The Project adheres to the key objectives including consistent material, color and tripartite architectural layering. Materials and masses shall reinforce connection to campus through the use of durable exterior materials including composite metal panel, terracotta rain screen, and curtain wall. The color palette shall be contextual to the main campus. Materials may differ for the Central Utility Plant, but its façade shall compliment the Acute Hospital aesthetics and proportions. Where concrete or concrete masonry may be exposed, color, aggregates and finish will be subject to approval by UCI. Lighting, walls and fences, parking structures, and public plazas will follow design guidelines and will be architecturally compatible with on-site structures and campus standards.
Objective 4. Provide physical linkages to the main campus, including a pedestrian bridge and bicycle and pedestrian trail connections.	Consistent. The proposed Project would include pedestrian paths that connect to the campus-wide pedestrian trail network. The Pedestrian circulation configuration would allow for future trail connections to the Marsh Reserve and the rest of the North Campus.
Objective 5. Minimize development impacts to the San Joaquin Freshwater Marsh.	Consistent. The proposed Project would maintain the 150-foot buffer zone between the Reserve and proposed Project and would work cooperatively with the Reserve to assure no net loss of water supply and quality of surface water discharge during construction or operation. Further, as discussed above, UCNRS representatives were consulted during the programming of the proposed Project and will continue to be consulted during the progressive design build process.

Table 3.10-1. UCI 2007 Long Range Development Plan Consistency Analysis	
Applicable UC Irvine Long Range Development Plan Objectives	Project Consistency
Objective 6. Incorporate planning and design features for the North Campus consistent with it being an important gateway between the City of Irvine and the UCI Campus.	Consistent. The proposed project would incorporate high-quality design features reflective of a state-of-the-art healthcare facility. Site and building design are guided by the UCI Physical Design Framework and adhere to its objectives.
Land Use Element	
Objective 1. Establish a land use configuration that balances program needs and environmental and site conditions to create a cohesive campus environment.	Consistent. As noted above, the proposed Project is consistent with the 2007 LRDP. The addition of clinical and inpatient hospital uses on-site would promote the expansion of the UCI Health enterprise while maintaining connections and integrating with the surrounding area. Project implementation would limit impacts to surrounding natural communities, provide connections to the UCI Main Campus, and be compatible with surrounding uses.
Objective 3. Provide compatibility between campus land use zones and off-campus land uses and establish land use buffers where appropriate.	Consistent. The proposed Project would maintain a 150-foot wetland buffer with the San Joaquin Marsh Reserve along plan southern property line and a 20-foot coastal zone buffer along plan western project boundary. In addition, the proposed Project is consistent with the City of Irvine General Plan and the land uses designated for Planning Area 29, which is identified as UCI-North Campus. The project would occur in an area designated as Education/Public Facilities and which would be consistent with the adjacent uses including additional UCI designated property to the west, preservation area to the south, and UCI and Urban and industrial designations to the east.
Circulation Element	
Objective 2. Provide convenient access for campus commuters and visitors while limiting vehicle impacts on the pedestrian quality of the campus.	Consistent. The proposed Project would provide primary site access through a driveway at Jamboree Road at Birch Street intersection. The Esplanade would serve as the primary destination for visitor and patient drop-off, including rideshare traffic. Visitor and staff parking would be accommodated in Parking Structure 2A and 2B. Pedestrian access from adjacent roadways and on-site parking structures would be directly connected to sidewalks, paths, and pedestrian plazas that lead directly to building entrances to minimize automobile-pedestrian conflicts. Pedestrian crossing would be limited along emergency vehicles pathways. Mitigation Measure Tra-1I from the 2007 LRDP EIR states: UCI shall review individual projects proposed under the 2007 LRDP for consistency with UC Sustainable Transportation Policy and UCI Transportation Demand Management goals to ensure that bicycle and pedestrian improvements, transit stops, and other project features that promote alternative transportation are incorporated to the extent feasible. This mitigation measures has been incorporated into this SEIR as mitigation measure MM TR-1.

Table 3.10-1. UCI 2007 Long Range Development Plan Consistency Analysis	
Applicable UC Irvine Long Range Development Plan Objectives	Project Consistency
Objective 4. Enhance the campus pedestrian and bicycle network, including grade-separated crossings at key points to limit conflicts with vehicular roadways.	Consistent. The proposed Project would allow for future connection to the Marsh Reserve and the rest of the North Campus. Wide pedestrian crossing areas would be provided. Crosswalks would be clearly defined with enhanced safety features including high-visibility crosswalks, in-pavement flashing beacons, rectangular rapid flashing beacons, and dedicated bicycle facilities. Safe bicycle routes to building entries would be provided from public transit nodes, the approved bicycle lane along Jamboree Road, and the recreational trail located within the 150-foot buffer zone. Major vehicular intersections would be avoided.
Objective 5. Promote non-automobile transportation modes, including pedestrian, bicycle, electric scooter, and other modes of travel to enhance the pedestrian and bicycle experience, improve safety and increase the efficiency of vehicular roadways.	Consistent. The proposed Project would provide pedestrian and bicycle connections from existing and planned transit nodes at Jamboree Road. To promote bicycle travel, short term bicycle parking would be provided at all public entries with clear access and protection from the elements where feasible. Long-term bicycle parking would be provided at centralized locations on site. This SEIR includes Mitigation Measures TR-1 and TR-2 which require UCI to implement measures to increase transit and shuttle use, encourage bicycle transportation, use parking policies to reduce demand, and implement other administrative mechanisms that reduce vehicle trips to and from the proposed Project.
Housing Element	
Objective 5. Expand neighborhood support uses to enhance residential life.	Consistent. The proposed Project’s location is accessible to the community, providing convenience and co-location of services. The overarching vision for the Project is the development of a healthcare complex that positions UCI Health for the future; a facility with a specialty focus on oncology, neurosurgery, orthopedics, and spine services that serves the needs of the community in a modern, efficient, and accessible manner while building upon UCI’s strong clinical foundation and reputation in these key specialty areas.
Open Space Element	
Objective 1. Dedicate and manage open space to provide visual relief, buffer development, and promote active and passive recreation.	Consistent. The proposed Project would satisfy design objectives that aim to engage and provide pedestrian connections to wetlands and take advantage of open space and garden opportunities. The proposed Project would connect building entries, plazas, transitional landscape and provide connections to the recreational trail. Pedestrian paths would allow for future connection to trails at the San Joaquin Marsh Reserve. UCNRS Marsh Reserve representatives were consulted on-site planning opportunities and constraints during the programming of the proposed Project and will continue to be consulted during the progressive design build process.

Table 3.10-1. UCI 2007 Long Range Development Plan Consistency Analysis	
Applicable UC Irvine Long Range Development Plan Objectives	Project Consistency
Objective 6. Develop a network of pedestrian trails in campus open space areas to encourage passive recreation.	Consistent. The proposed Project would include pedestrian circulation that is clear and intuitive, accessible to all and encouraging an active lifestyle. Pedestrian paths would allow for future connection to trails at the San Joaquin Marsh Reserve.
Infrastructure Element	
Objective 1. Provide utility infrastructure in cooperation with public utility providers to enable the physical growth of the campus consistent with UCI’s strategic academic objectives.	Consistent. The proposed Project would connect to existing utility infrastructure in the North Campus for potable water, sanitary sewer, natural gas, electricity, and communications. The Acute Hospital, the Clinics and Ambulatory Services building will each have uninterruptible power distribution systems that do not share systems and equipment with each other. An OSHPD-compliant emergency power system would include diesel-operated engine generators. As a part of the Project, a waiver would be submitted to the UC Regents to allow for the use of natural gas for the Central Utility Plan and at the Clinics and Ambulatory Service Building from existing off-site infrastructure. Potable water would be provided via existing lines in Jamboree Road and a non-potable water line would be installed. The Project would involve the extension of a 10-inch sewer main from an existing IRWD sewer line in Campus Drive, to serve the Hospital, ACC, and the Central Utility Plant.
Objective 2. Adopt efficient, “green” energy systems to conserve resources, manage energy costs, and promote environmentally beneficial practices.	Consistent. The proposed Project would comply with the University of California Policy on Sustainable Practices (UCPSP, 2018) which represents the minimum sustainable design requirements for projects; UCI provides additional requirements. Key elements of the University of California and UCI requirements that are applicable to the Project include but are not limited to the following: <ul style="list-style-type: none"> ▪ LEED Gold certification or better; ▪ Minimum building energy efficiency requirements: Exceed California Title 24 2019 energy code by 20 percent (outpatient) and ASHRAE 90.1-2010 by 30 percent (inpatient); ▪ Minimum building and site water efficiency; and ▪ Contributions to campus-wide targets related to fossil fuel reduction, water efficiency, waste reduction, and transportation.
Objective 3. Pursue energy self-sufficiency through cogeneration and other means in order to acquire a reliable supply of energy and to reduce impacts on local utility systems.	Consistent. The proposed Project would be designed and built with infrastructure to accommodate installation of future solar photovoltaic panels on the roofs of Parking Structure 2A and 2B, and installation of a future battery storage system. The Project would comply with University of California and UCI requirements for energy efficiency and green building, as outlined above, to reduce energy demand and impact on utility systems.
Source: Kimley-Horn, 2020.	

3.10.6 References:

City of Irvine, 2012. Current General Plan. Available: <https://www.cityofirvine.org/community-development/current-general-plan> Accessed: September 17, 2020.

Newport Beach, 2020 – Newport Beach Map Viewer. Available: <https://nbgis.newportbeachca.gov/NewportHTML5Viewer/?viewer=publicsite> Accessed: September 17, 2020.

This page intentionally left blank.

3.11 NOISE

This section provides a discussion of existing noise sources, evaluates potential noise impacts associated with the proposed Project, and identifies mitigation measures recommended for potentially significant impacts. Noise data that are used for quantifying the proposed Project's emissions are included in Appendix G of this SEIR.

3.11.1 Acoustic Fundamentals

Sound and Environmental Noise

Acoustics is the science of sound. Sound can be described as the mechanical energy of a vibrating object transmitted by pressure waves through a medium (e.g., air) to the human ear. If the pressure variations occur frequently enough (at least 20 times per second), they can be heard and are called sound. The number of pressure variations per second is called the frequency of sound and is expressed as cycles per second, or hertz (Hz).

Noise is defined as loud, unexpected, or annoying sound. In acoustics, the fundamental model consists of a noise source, a receptor, and the propagation path between the two. The loudness of the noise source, obstructions, or atmospheric factors affecting the propagation path, determine the perceived sound level and noise characteristics at the receptor. Acoustics deal primarily with the propagation and control of sound. A typical noise environment consists of a base of steady background noise that is the sum of many distant and indistinguishable noise sources. Superimposed on this background noise is the sound from individual local sources. These sources can vary from an occasional aircraft or train passing by to continuous noise from traffic on a major highway. Perceptions of sound and noise are highly subjective from person to person.

Measuring sound directly in terms of pressure would require a large range of numbers. To avoid this, the decibel (dB) scale was devised. The dB scale uses the hearing threshold of 20 micropascals (μPa) as a point of reference, defined as 0 dB. Other sound pressures are then compared to this reference pressure, and the logarithm is taken to keep the numbers in a practical range. The dB scale allows a million-fold increase in pressure to be expressed as 120 dB, and changes in levels correspond closely to human perception of relative loudness. *Table 3.11-1, Typical Noise Levels*, provides typical noise levels.

Table 3.11-1. Typical Noise Levels		
Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	– 110 –	Rock Band
Jet fly-over at 1,000 feet		
	– 100 –	
Gas lawnmower at 3 feet		
	– 90 –	
Diesel truck at 50 feet at 50 mph		Food blender at 3 feet
	– 80 –	Garbage disposal at 3 feet
Noisy urban area, daytime		
Gas lawnmower, 100 feet	– 70 –	Vacuum cleaner at 10 feet
Commercial area		Normal Speech at 3 feet
Heavy traffic at 300 feet	– 60 –	
		Large business office
Quiet urban daytime	– 50 –	Dishwasher in next room
Quiet urban nighttime	– 40 –	Theater, large conference room (background)
Quiet suburban nighttime		
	– 30 –	Library
Quiet rural nighttime		Bedroom at night, concert hall (background)
	– 20 –	
		Broadcast/recording studio
	– 10 –	
Lowest threshold of human hearing	– 0 –	Lowest threshold of human hearing

Source: California Department of Transportation, *Technical Noise Supplement to the Traffic Noise Analysis Protocol*, September 2013.

Noise Descriptors

The dB scale alone does not adequately characterize how humans perceive noise. The dominant frequencies of a sound have a substantial effect on the human response to that sound. Several rating scales have been developed to analyze the adverse effect of community noise on people. Because environmental noise fluctuates over time, these scales consider that the effect of noise on people is largely dependent on the total acoustical energy content of the noise, as well as the time of day when the noise occurs. The equivalent noise level (L_{eq}) is the average noise level averaged over the measurement period, while the day-night noise level (L_{dn}) and Community Equivalent Noise Level (CNEL) are measures of energy average during a 24-hour period, with dB weighted sound levels from 7:00 p.m. to 7:00 a.m. Most commonly, environmental sounds are described in terms of an average level (L_{eq}) that has the same acoustical energy as the summation of all the time-varying events. Each is applicable to this analysis and defined in *Table 3.11-2, Definitions of Acoustical Terms*.

The scientific instrument used to measure noise is the sound level meter. Sound level meters can accurately measure environmental noise levels to within about plus or minus 1 dBA. Various computer models are used to predict environmental noise levels from sources, such as roadways and airports. The accuracy of the predicted models depends on the distance between the receptor and the noise source.

Table 3.11-2. Definitions of Acoustical Terms	
Term	Definitions
Decibel (dB)	A unit describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure. The reference pressure for air is 20.
Sound Pressure Level	Sound pressure is the sound force per unit area, usually expressed in μPa (or 20 micronewtons per square meter), where 1 pascals is the pressure resulting from a force of 1 newton exerted over an area of 1 square meter. The sound pressure level is expressed in dB as 20 times the logarithm to the base 10 of the ratio between the pressures exerted by the sound to a reference sound pressure (e.g., 20 μPa). Sound pressure level is the quantity that is directly measured by a sound level meter.
Frequency (Hz)	The number of complete pressure fluctuations per second above and below atmospheric pressure. Normal human hearing is between 20 Hz and 20,000 Hz. Infrasonic sound are below 20 Hz and ultrasonic sounds are above 20,000 Hz.
A-Weighted Sound Level (dBA)	The sound pressure level in dB as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise.
Equivalent Noise Level (L_{eq})	The average acoustic energy content of noise for a stated period of time. Thus, the L_{eq} of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure. For evaluating community impacts, this rating scale does not vary, regardless of whether the noise occurs during the day or the night.
Maximum Noise Level (L_{max}) Minimum Noise Level (L_{min})	The maximum and minimum dBA during the measurement period.
Exceeded Noise Levels (L_{01} , L_{10} , L_{50} , L_{90})	The dBA values that are exceeded 1%, 10%, 50%, and 90% of the time during the measurement period.
Day-Night Noise Level (L_{dn})	A 24-hour average L_{eq} with a 10-dBA weighting added to noise during the hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity at nighttime. The logarithmic effect of these additions is that a 60 dBA 24-hour L_{eq} would result in a measurement of 66.4 dBA L_{dn} .
Community Noise Equivalent Level (CNEL)	A 24-hour average L_{eq} with a 5-dBA weighting during the hours of 7:00 a.m. to 10:00 a.m. and a 10-dBA weighting added to noise during the hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity in the evening and nighttime, respectively. The logarithmic effect of these additions is that a 60 dBA 24-hour L_{eq} would result in a measurement of 66.7 dBA CNEL.
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.
Intrusive	That noise which intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends on its amplitude, duration, frequency, and time of occurrence and tonal or informational content as well as the prevailing ambient noise level.

A-Weighted Decibels

The A-weighted decibel (dBA) sound level scale gives greater weight to the frequencies of sound to which the human ear is most sensitive. Because sound levels can vary markedly over a short period of time, a method for describing either the average character of the sound or the statistical behavior of the variations must be used. Most commonly, environmental sounds are described in terms of an average level that has the same acoustical energy as the summation of all the time-varying events.

The perceived loudness of sounds is dependent on many factors, including sound pressure level and frequency content. However, within the usual range of environmental noise levels, perception of loudness is relatively predictable and can be approximated by dBA values. There is a strong correlation between dBA and the way the human ear perceives sound. For this reason, the dBA has become the standard tool of environmental noise assessment. All noise levels reported in this document are in terms of dBA, but are expressed as dB, unless otherwise noted.

Addition of Decibels

The dB scale is logarithmic, not linear, and therefore sound levels cannot be added or subtracted through ordinary arithmetic. Two sound levels 10 dB apart differ in acoustic energy by a factor of 10. When the standard logarithmic dB is A-weighted, an increase of 10 dBA is generally perceived as a doubling in loudness. For example, a 70 dBA sound is half as loud as an 80 dBA sound and twice as loud as a 60 dBA sound.¹ When two identical sources are each producing sound of the same loudness, the resulting sound level at a given distance would be 3 dBA higher than one source under the same conditions.² Under the dB scale, three sources of equal loudness together would produce an increase of 5 dBA.

Sound Propagation and Attenuation

Sound spreads (propagates uniformly outward in a spherical pattern, and the sound level decreases (attenuates) at a rate of approximately 6 dB for each doubling of distance from a stationary or point source. Sound from a line source, such as a highway, propagates outward in a cylindrical pattern. Sound levels attenuate at a rate of approximately 3 dB for each doubling of distance from a line source, such as a roadway, depending on ground surface characteristics.³ No excess attenuation is assumed for hard surfaces like a parking lot or a body of water. Soft surfaces, such as soft dirt or grass, can absorb sound, so an excess ground-attenuation value of 1.5 dB per doubling of distance is normally assumed. For line sources, an overall attenuation rate of 3 dB per doubling of distance is assumed.

Noise levels may also be reduced by intervening structures; generally, a single row of buildings between the receptor and the noise source reduces the noise level by about 5 dBA, while a solid wall or berm reduces noise levels by 5 to 10 dBA.⁴ The way older homes in California were constructed generally provides a reduction of exterior-to-interior noise levels of about 20 to 25 dBA with closed windows. The exterior-to-interior reduction of newer residential units is generally 30 dBA or more.⁵

Human Response to Noise

The human response to environmental noise is subjective and varies considerably from individual to individual. Noise in the community has often been cited as a health problem, not in terms of actual physiological damage, such as hearing impairment, but in terms of inhibiting general well-being and contributing to undue stress and annoyance. The health effects of noise in the community arise from

¹ FHWA, *Noise Fundamentals*, 2017.

Available at: https://www.fhwa.dot.gov/environMent/noise/regulations_and_guidance/polguide/polguide02.cfm

² Ibid.

³ California Department of Transportation, *Technical Noise Supplement to the Traffic Noise Analysis Protocol*, Page 2-29, September 2013.

⁴ James P. Cowan, *Handbook of Environmental Acoustics*, 1994.

⁵ HUD, *Noise Guidebook*, 2009. Available at: <https://www.hudexchange.info/resource/313/hud-noise-guidebook/>

interference with human activities, including sleep, speech, recreation, and tasks that demand concentration or coordination. Hearing loss can occur at the highest noise intensity levels.

Noise environments and consequences of human activities are usually well represented by median noise levels during the day or night or over a 24-hour period. Environmental noise levels are generally considered low when the CNEL is below 60 dBA, moderate in the 60 to 70 dBA range, and high above 70 dBA. Examples of low daytime levels are isolated, natural settings with noise levels as low as 20 dBA and quiet, suburban, residential streets with noise levels around 40 dBA.⁶ Noise levels above 45 dBA at night can disrupt sleep. Examples of moderate-level noise environments are urban residential or semi-commercial areas (typically 55 to 60 dBA) and commercial locations (typically 60 dBA). People may consider louder environments adverse, but most will accept the higher levels associated with noisier urban residential or residential-commercial areas (60 to 75 dBA) or dense urban or industrial areas (65 to 80 dBA). Regarding increases in dBA, the following relationships should be noted⁷:

- Except in carefully controlled laboratory experiments, a change of 1 dBA cannot be perceived by humans.
- Outside of the laboratory, a 3-dBA change is considered a just-perceivable difference.
- A minimum 5 dBA is required before any noticeable change in community response would be expected. A 5-dBA increase is typically considered substantial.
- A 10-dBA change is subjectively heard as an approximate doubling in loudness and would almost certainly cause an adverse change in community response.

Effects of Noise on People

While physical damage to the ear from an intense noise impulse is rare, a degradation of auditory acuity can occur even within a community noise environment. Hearing loss occurs mainly due to chronic exposure to excessive noise but may be due to a single event such as an explosion. Natural hearing loss associated with aging may also be accelerated from chronic exposure to loud noise. The Occupational Safety and Health Administration has a noise exposure standard that is set at the noise threshold where hearing loss may occur from long-term exposures. The maximum allowable level is 90 dBA averaged over 8 hours. If the noise is above 90 dBA, the allowable exposure time is correspondingly shorter.

Attitude surveys are used for measuring the annoyance felt in a community for noises intruding into homes or affecting outdoor activity areas. In these surveys, it was determined that causes for annoyance include interference with speech, radio and television, house vibrations, and interference with sleep and rest. A noise level of about 55 dBA L_{dn} is the threshold at which a substantial percentage of people begin to report annoyance⁸

Groundborne Vibration

Sources of groundborne vibrations include natural phenomena (earthquakes, volcanic eruptions, sea waves, landslides, etc.) or man-made causes (explosions, machinery, traffic, trains, construction equipment, etc.). Vibration sources may be continuous (e.g. factory machinery) or transient (e.g.,

⁶ Compiled from James P. Cowan, *Handbook of Environmental Acoustics*, 1994 and Cyril M. Harris, *Handbook of Noise Control*, 1979.

⁷ Compiled from California Department of Transportation, *Technical Noise Supplement to the Traffic Noise Analysis Protocol*, September 2013, and FHWA, *Noise Fundamentals*, 2017.

⁸ Federal Interagency Committee on Noise, *Federal Agency Review of Selected Airport Noise Analysis Issues*, 1992.

explosions). Ground vibration consists of rapidly fluctuating motions or waves with an average motion of zero. Several different methods are typically used to quantify vibration amplitude. One is the peak particle velocity (PPV); another is the root mean square (RMS) velocity. The PPV is defined as the maximum instantaneous positive or negative peak of the vibration wave. The RMS velocity is defined as the average of the squared amplitude of the signal. The PPV and RMS vibration velocity amplitudes are used to evaluate human response to vibration.

Table 3.11-3, Human Reaction and Damage to Buildings from Vibrations, displays the reactions of people and the effects on buildings produced by continuous vibration levels. The annoyance levels shown in the table should be interpreted with care since vibration may be found to be annoying at much lower levels than those listed, depending on the level of activity or the sensitivity of the individual. To sensitive individuals, vibrations approaching the threshold of perception can be annoying. Low-level vibrations frequently cause irritating secondary vibration, such as a slight rattling of windows, doors, or stacked dishes. The rattling sound can give rise to exaggerated vibration complaints, even though there is very little risk of actual structural damage. In high noise environments, which are more prevalent where groundborne vibration approaches perceptible levels, this rattling phenomenon may also be produced by loud airborne environmental noise-causing induced vibration in exterior doors and windows.

Peak Particle Velocity (in/sec)	Approximate Vibration Velocity Level (VdB)	Human Reaction	Effect on Buildings
0.006-0.019	64-74	Range of threshold of perception	Vibrations unlikely to cause damage of any type
0.08	87	Vibrations readily perceptible	Recommended upper level to which ruins and ancient monuments should be subjected
0.1	92	Level at which continuous vibrations may begin to annoy people, particularly those involved in vibration-sensitive activities	Virtually no risk of architectural damage to normal buildings
0.2	94	Vibrations may begin to annoy people in buildings	Threshold at which there is a risk of architectural damage to normal dwellings
0.4-0.6	98-104	Vibrations considered unpleasant by people that are subjected to continuous vibrations and unacceptable to some people walking on bridges	Architectural damage and possibly minor structural damage

Source: California Department of Transportation, Transportation and Construction Vibration Guidance Manual, 2013.

Ground vibration can be a concern in instances where buildings shake, and substantial rumblings occur. However, it is unusual for vibration from typical urban sources such as buses and heavy trucks to be perceptible. Common sources for groundborne vibration are planes, trains, and construction activities such as earth-moving which requires the use of heavy-duty earth moving equipment. For the purposes of this analysis, a PPV descriptor with units of inches per second (in/sec) is used to evaluate construction-generated vibration for building damage and human complaints.

3.11.2 Regulatory Setting

Federal

Occupational Safety and Health Administration

Under the Occupational Safety and Health Act of 1970 (29 U.S.C. § 651 et seq.), the United States Department of Labor, Occupational Safety and Health Administration (OSHA) adopted regulations (29 CFR § 1910.95) designed to protect workers against the effects of occupational noise exposure. These regulations identify limits on noise exposure levels as a function of the amount of time during which the worker is exposed. The regulations further specify requirements for a hearing conservation program (§ 1910.95(c)), a monitoring program (§ 1910.95(d)), an audiometric testing program (§ 1910.95(g)), and hearing protection (§ 1910.95(i)). There are no federal laws governing community noise.

State of California

California Government Code

California Government Code Section 65302(f) mandates that the legislative body of each county and city adopt a noise element as part of its comprehensive general plan. The local noise element must recognize the land use compatibility guidelines established by the State Department of Health Services. The guidelines rank noise land use compatibility in terms of “normally acceptable,” “conditionally acceptable,” “normally unacceptable,” and “clearly unacceptable” noise levels for various land use types. Single-family homes are “normally acceptable” in exterior noise environments up to 60 CNEL and “conditionally acceptable” up to 70 CNEL. Multiple-family residential uses are “normally acceptable” up to 65 CNEL and “conditionally acceptable” up to 70 CNEL. Schools, libraries, and churches are “normally acceptable” up to 70 CNEL, as are office buildings and business, commercial, and professional uses.

Title 24 – Building Code

The State’s noise insulation standards are codified in the California Code of Regulations, Title 24: Part 1, Building Standards Administrative Code, and Part 2, California Building Code. These noise standards are applied to new construction in California for interior noise compatibility from exterior noise sources. The regulations specify that acoustical studies must be prepared when noise-sensitive structures, such as residential buildings, schools, or hospitals, are located near major transportation noise sources, and where such noise sources create an exterior noise level of 65 dBA CNEL or higher. Acoustical studies that accompany building plans must demonstrate that the structure has been designed to limit interior noise in habitable rooms to acceptable noise levels. For new multi-family residential buildings, the acceptable interior noise limit for new construction is 45 dBA CNEL.

Local

Although UCI is not subject to municipal regulations, the City of Irvine and City of Newport Beach’s noise standards are relevant to UCI to establish guidelines and evaluating noise impacts. City regulations are relevant for addressing UCI development projects that would affect adjacent noise-sensitive land uses in the City of Irvine and City of Newport Beach.

City of Irvine**City of Irvine General Plan**

The California Government Code requires that a noise element be included in the general plan of each county and city in the state. The *City of Irvine General Plan (Irvine General Plan) Noise Element* (Irvine Noise Element) identifies sources of noise and provide objectives and policies that ensure that noise from various sources does not create an unacceptable noise environment. Since the campus is located in the City of Irvine, the City of Irvine's land use compatibility noise standards are relevant to UCI in establishing guidelines and evaluating impacts. The Irvine Noise Element sets forth general community noise and land use compatibility guidelines, as shown in *Table 3.11-4, City of Irvine Land Use Compatibility Guidelines*. Sound levels up to 65 dBA CNEL are normally compatible for single-family residential, transient lodging, and park uses. Sound levels up to 60 dBA CNEL are normally compatible for institutional uses such as hospitals, churches, libraries, and schools.

Land Use Category	Uses	Energy Average (CNEL)							
		≤	55	60	65	70	75	80 ≥	≤
Residential ³	Single-Family, Multiple-Family	A	A	B	B	C	D	D	A
	Mobile Home	A	A	B	C	C	D	D	A
Commercial Regional Family	Hotel, Motel, Transient Lodging	A	A	B	B	C	C	D	A
Commercial Regional Community	Commercial retail, Bank, Restaurant, Movie theater	A	A	A	A	B	B	C	A
Commercial Community Industrial & Institutional	Office building, Research & development Professional office, City office building	A	A	A	B	B	C	D	A
Commercial Recreation Institutional General	Amphitheater, Concert Hall, Auditorium, Meeting Hall	B	B	C	C	D	D	D	B
Commercial Recreation	Children's amusement park, Miniature golf, Go-cart track, Health club, Equestrian center	A	A	A	B	B	D	D	A
Commercial Community Industrial General	Automobile Service station, Auto dealer, Manufacturing, Warehousing, Wholesale, Utilities	A	A	A	A	B	B	B	A
Institutional General	Hospital, Church, Library, School classrooms	A	A	B	C	C	D	D	A
Open Space	Parks	A	A	A	B	C	D	D	A
	Golf courses, Nature centers, Cemeteries, Wildlife reserves, Wildlife habitat	A	A	A	A	B	C	C	A
Agricultural	Agriculture	A	A	A	A	A	A	A	A

Notes:
 Zone A (**Clearly Compatible**): Specified land use is satisfactory based upon the assumption that any buildings involved are of normal conventional construction without any special noise insulation requirements.
 Zone B (**Normally Compatible**): New construction or development should be undertaken only after detailed analysis of the noise reduction requirements are made and needed noise insulation features in the design are determined. Conventional construction, with closed windows and fresh air supply systems or air conditioning, will normally suffice.
 Zone C: **Normally Incompatible**: New construction or development should normally be discouraged. If new construction or development does proceed, a detailed analysis or noise reduction requirements must be made and needed noise insulation features must be included in the design.
 Zone D (**Clearly Incompatible**): New construction or development should generally not be undertaken.

Source: City of Irvine, *City of Irvine General Plan*, Supp. No. 9, July 2015.

Objectives and Policies from the Irvine Noise Element that are relevant to the Project are as follows:

- Objective F-1:** Mobile Noise. Ensure that City residents are not exposed to mobile noise levels in excess of the CNEL Interior and Exterior Noise Standards (Table F-1), and Single Event Noise Standard.
- Policy (c):** Ensure that all proposed development projects are compatible with the existing and projected noise level by using the Land Use Noise Compatibility Matrix (Table F-2).
- Policy (f):** Require noise studies to identify all the mitigation measures necessary to reduce noise levels to meet the CNEL standard (Table F-1) and Single Event Noise Standard.
- Objective F-2:** Stationary Noise. Ensure that City residents are not exposed to stationary noise levels in excess of the City Noise Ordinance standards.
- Policy (a):** Require any new construction to meet the City Noise Ordinance standards as a condition of building permit approval.
- Objective F-3:** Noise Abatement. Achieve maximum efficiency in noise abatement efforts through intergovernmental coordination and public information programs.
- Policy (a):** Coordinate efforts to reduce noise impacts with appropriate public and government agencies.

City of Irvine Noise Ordinance

Interior and Exterior Noise Standards

The City of Irvine Noise Ordinance (Title 6, Division 8, Chapter 2, Section 6-8-204 of the Irvine Municipal Code [IMC]) also provides exterior and interior noise limit thresholds for certain periods of time. *Table 3.11-5, City of Irvine Noise Ordinance Limits*, presents noise standards published in Section 6-8-204 of the City of Irvine Noise Ordinance.

Construction Noise

IMC Section 6-8-205(A) indicates that construction activities may occur between 7:00 a.m. and 7:00 p.m. Mondays through Fridays, and 9:00 a.m. and 6:00 p.m. on Saturdays. No construction activities shall be permitted outside of these hours or on Sundays and federal holidays unless a temporary waiver is granted by the Chief Building Official or his or her authorized representative. Trucks, vehicles, and equipment that are making, or are involved with, material deliveries, loading, transfer of materials, equipment service, maintenance of any devices or appurtenances for (or within) any construction project in the City, shall not be operated or driven on City streets outside of these hours or on Sundays and federal holidays unless a temporary waiver is granted by the City. Any waiver granted shall take into consideration the potential impact upon the community. No construction activity would be permitted outside of these hours, except in emergencies including maintenance work on the City rights-of-way that might be required.

Noise Zone	Exterior or Interior?	Time Period	Noise Levels (dBA) for a Period Not Exceeding				
			30 min	15 min	5 min	1 min	0 (anytime)
I: All hospitals, libraries, churches, schools, and residential properties	Exterior	7:00 a.m. – 10:00 p.m.	55	60	65 ¹	70	75
		10:00 a.m. – 7:00 a.m.	50	55	60	65 ¹	70
	Interior	7:00 a.m. – 10:00 p.m.	-	-	55	60	65
		10:00 a.m. – 7:00 a.m.	-	-	45	50	55
II: All professional office and public institutional properties.	Exterior	Any time	55	60	65	70	75
	Interior	Any time	-	-	55	60	65
III: All commercial properties excluding professional office properties.	Exterior	Any time	60	65	70	75	80
	Interior	Any time	-	-	55	60	65
IV: All industrial properties.	Exterior	Any time	70	75	80	85	90
	Interior	Any time	-	-	55	60	65
Notes:							
1. This standard does not apply to multi-family residence private balconies. Multi-family developments with balconies that do not meet the 65 CNEL are required to provide occupancy disclosure notice to all future tenants regarding potential noise impacts.							
2. It shall be unlawful for any person at any location within the City to create any noise or to allow the creation of any noise on property owned, leased, occupied, or otherwise controlled by such person which causes the noise level when measured on any property within designated noise zones either within or without the City to exceed the applicable noise standard.							
3. Each of the noise standards specified above shall be reduced by five dBA for impact, or predominant tone noise or for noises consisting of speech or music.							
4. In the event that the noise source and the affected property are within different noise zones, the noise standards of the affected property shall apply.							
Source: City of Irvine, <i>City of Irvine Municipal Code, Title 6, Division 8, Chapter 2, Section 6-8-204</i> , codified through Ordinance No. 20-02, enacted February 11, 2020.							

City of Newport Beach

City of Newport Beach General Plan

The *City of Newport General Plan* (Newport Beach General Plan) *Noise Element* (Newport Beach Noise Element) is a tool for including noise control in the planning process in order to maintain compatible land use with environmental noise levels. The Newport Beach Noise Element is the guiding document for the City of Newport Beach's noise policy and is designed to protect residents and businesses from excessive and persistent noise intrusions. The Newport Beach Noise Element sets forth general community noise and land use compatibility guidelines, as shown in *Table 3.11-6, City of Newport Beach Land Use Compatibility Guidelines*.

Land Use Category	Uses	Energy Average (CNEL)						
		< 55	55-60	60-65	65-70	70-75	75-80	> 80
Residential	Single-Family, Two Family, Multiple Family	A	A	B	C	C	D	D
Residential	Mixed Use	A	A	A	C	C	C	D
Residential	Mobile Home	A	A	B	C	C	D	D
Commercial Regional, District	Hotel, Motel, Transient Lodging	A	A	B	B	C	C	D
Commercial Regional, Village District, Special	Commercial Retail, Bank, Restaurant, Movie Theatre	A	A	A	A	B	B	C
Commercial Industrial Institutional	Office Building, Research and Development, Professional Offices, City Office Building	A	A	A	B	B	C	D
Commercial Recreational	Amphitheatre, Concert Hall Auditorium, Meeting Hall	B	B	C	C	D	D	D

Land Use Category	Uses	Energy Average (CNEL)						
		< 55	55-60	60-65	65-70	70-75	75-80	> 80
Institutional Civic Center								
Commercial Recreation	Children’s Amusement Park, Miniature Golf Course, Go-cart Track, Equestrian Center, Sports Club	A	A	A	B	B	D	D
Commercial General, Special	Automobile Service Station, Auto Dealership, Manufacturing,	A	A	A	A	B	B	B
Industrial, Institutional	Warehousing, Wholesale, Utilities							
Institutional	Hospital, Church, Library, Schools’ Classroom	A	A	B	C	C	D	D
Open Space	Parks	A	A	A	B	C	D	D
Open Space	Golf Course, Cemeteries, Nature Centers Wildlife Reserves, Wildlife Habitat	A	A	A	A	B	C	C
Agriculture	Agriculture	A	A	A	A	A	A	A

Notes:
Zone A: Clearly Compatible - Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction without any special noise insulation requirements.
Zone B: Normally Compatible - New construction or development should be undertaken only after detailed analysis of the noise reduction requirements and are made and needed noise insulation features in the design are determined. Conventional construction, with closed windows and fresh air supply systems or air conditioning, will normally suffice.
Zone C: Normally Incompatible - New construction or development should normally be discouraged. If new construction or development does proceed, a detailed analysis or noise reduction requirements must be made and needed noise insulation features included in the design.
Zone D: Clearly Incompatible - New construction or development should generally not be undertaken.

Source: City of Newport Beach, *City of Newport Beach General Plan*, July 25, 2006.

Goals and Policies from the Newport Beach Noise Element that are relevant to the Project are as follows:

Goal N 1: Noise Compatibility – Minimized land use conflicts between various noise sources and other human activities.

Policy N 1.1: Noise Compatibility of New Development. Require that all proposed projects are compatible with the noise environment through use of Table N2, and enforce the interior and exterior noise standards shown in Table N3.

Policy N 1.2: Noise Exposure Verification for New Development. Applicants for proposed projects that require environmental review and are, located in areas projected to be exposed to a CNEL of 60 dBA and higher, as shown on Figure N4, Figure N5, and Figure N6 may conduct a field survey, noise measurements or other modeling in a manner acceptable to the City to provide evidence that the depicted noise contours do not adequately account for local noise exposure circumstances due to such factors as, topography, variation in traffic speeds, and other applicable conditions. These findings shall be used to determine the level of exterior or interior, noise attenuation needed to attain an acceptable noise exposure level and the feasibility of such mitigation when other planning considerations are taken into account.

Policy N 1.8: Significant Noise Impacts. Require the employment of noise mitigation measures for existing sensitive uses when a significant noise impact is identified. A significant noise impact occurs when there is an increase in the ambient CNEL produced by new

development impacting existing sensitive uses. The CNEL increase is shown in the table below (*Table 3.11-7, Newport Beach Significant Noise Impact Criteria*).

CNEL (dBA)	dBA Increase
55-60	3
60-65	2
65-70	1
70-75	1
Over 75	Any increase is considered significant
CNEL: 24-hour community noise equivalent level; dBA: A-weighted decibel.	
Source: City of Newport Beach, <i>City of Newport Beach General Plan</i> , July 25, 2006.	

City of Newport Beach Noise Ordinance

Interior and Exterior Noise Standards

The City of Newport Beach has numerous ordinances and enforcement practices that apply to intrusive noise and that guide new construction. Newport Beach’s comprehensive noise ordinance sets forth maximum ambient noise levels for different land use zoning classifications, hours of operation for construction activities, standards for determining when noise is deemed to be a disturbance, and legal remedies for violations. Newport Beach Municipal Code (NBMC) Section 10.26.025 (Exterior Noise Standards) and 10.26.030 (Interior Noise Standards) provide maximum exterior and interior noise levels, respectively. *Table 3.11-8, Newport Beach Allowable Exterior Noise Levels*, provides maximum exterior noise levels, and *Table 3.11-9, Newport Beach Allowable Interior Noise Levels*, provides maximum interior noise levels for various uses throughout the City of Newport Beach. If the ambient noise level exceeds the resulting standard, the ambient shall be the standard.

Noise Zone	Type of Land Use	Allowable Exterior Noise Level (Leq)	
		7:00 a.m. to 10:00 p.m.	10:00 p.m. to 7:00 a.m.
I	Single-, two-or multiple-family residential	55 dBA	50 dBA
II	Commercial	65 dBA	60 dBA
III	Residential portions of mixed-use properties	60 dBA	50 dBA
IV	Industrial or manufacturing	70 dBA	70 dBA
Source: City of Newport Beach, Newport Beach Municipal Code, codified through Ordinance 2020-14, passed May 26, 2020.			

Noise Zone	Type of Land Use	Allowable Interior Noise Level (Leq)	
		7:00 a.m. to 10:00 p.m.	10:00 p.m. to 7:00 a.m.
I	Single-, two-or multiple-family residential	45	40
III	Residential portions of mixed-use properties	45	40
Source: City of Newport Beach, Newport Beach Municipal Code, codified through Ordinance 2020-14, passed May 26, 2020.			

Heating, Ventilation, and Air Conditioning Units

NBMC Section 10.26.045 (Heating, Venting and Air Conditioning – Special Provisions) specifies that new permits for HVAC equipment in or adjacent to residential areas shall be issued only where installations can be shown by computation, based on the sound rating of the proposed equipment, not to exceed an A-weighted sound pressure level of 50 dBA, or not to exceed an A-weighted sound pressure level of 55

dBA and be installed with a timing device that will deactivate the equipment during the hours of 10:00 p.m. to 7:00 a.m.

Construction Noise

The City of Newport Beach recognizes that the control of construction noise is difficult and therefore provides exemptions for construction noise. NBMC Section 10.26.035D (Exemptions) exempts noise sources associated with construction, repair, remodeling, demolition, or grading of any real property from the Noise Ordinance standards (Table 3.11-8 and Table 3.11-9). These activities are subject to the provisions of NBMC Chapter 10.28, which prohibits construction activities that generate loud noise that disturbs, or could disturb, a person of normal sensitivity who works or resides in the vicinity except during weekdays between the hours of 7:00 a.m. to 6:30 p.m., and Saturdays between the hours of 8:00 a.m. to 6:00 p.m. Construction is not allowed on Sundays or any federal holiday.

3.11.3 Existing Conditions

Existing Noise Sources

The Project site is impacted by various noise sources. Mobile sources of noise, especially cars and trucks, are the most common and significant sources of noise near the Project site. The primary sources of stationary noise near the Project site are those associated with adjacent parking lots and mechanical equipment, and the adjacent UCI maintenance and facilities property to the north.

Existing Mobile Noise

Existing roadway noise levels were calculated for the roadway segments in the Project vicinity. This task was accomplished using the Federal Highway Administration (FHWA) Highway Traffic Noise Prediction Model (FHWA-RD-77-108) and existing traffic volumes from the UCI Irvine Campus Medical Complex Supplemental LOS Traffic Analysis (Stantec, Inc., September 2020) (LOS Analysis). The noise prediction model calculates the average noise level at specific locations based on traffic volumes, average speeds, roadway geometry, and site environmental conditions. The average vehicle noise rates (also referred to as energy rates) used in the FHWA model have been modified to reflect average vehicle noise rates identified for California by the California Department of Transportation (Caltrans). The Caltrans data indicates that California automobile noise is 0.8 to 1.0 dBA higher than national levels and that medium and heavy truck noise is 0.3 to 3.0 dBA lower than national levels. The average daily noise levels along roadway segments in proximity to the Project site are included in *Table 3.11-10, Existing Traffic Noise*. As indicated in Table 3.11-10, existing traffic noise levels range between 63.6 dBA L_{dn} and 74.0 dBA CNEL in the Project vicinity, with the highest noise levels occurring along Jamboree Road.

Roadway Segment	ADT	dBA CNEL ¹
Jamboree Road		
SR-73 to MacArthur Boulevard	35,000	71.1
MacArthur Boulevard to Fairchild Road	42,000	71.7
Fairchild Road to Birch Street	42,000	71.7
Birch Street to Campus Drive	42,000	70.8
Campus Drive to Michelson Drive	42,000	70.8
Michelson Drive to I-405	80,000	74.0

Roadway Segment	ADT	dBA CNEL ¹
I-405 to Main Street	80,000	74.0
Main Street to McGaw Avenue	60,000	72.7
McGaw Avenue to Alton Parkway	60,000	72.7
Alton Parkway to Barranca Parkway	54,000	72.3
Carlson Avenue		
Campus Drive to Michelson Drive	9,000	63.8
Campus Drive		
West of Von Karman Avenue	12,000	64.0
Von Karman Avenue to Jamboree Road	11,000	63.6
Jamboree Road to Carlson Avenue	16,000	65.3
Carlson Avenue to University Drive	17,000	67.5
East of University Drive	21,000	66.4
ADT = average daily trips; dBA = A-weighted decibels; CNEL = Community Noise Equivalent Level		
1. Traffic noise levels are at 100 feet from the roadway centerline. The actual sound level at any receptor location is dependent upon such factors as the source-to-receptor distance and the presence of intervening structures, barriers, and topography.		
Source: Based on traffic data provided by Stantec, Inc., September 2020. Refer to Appendix G of this SEIR for traffic noise modeling assumptions and results.		

Existing Stationary Noise

The primary sources of stationary noise in the Project vicinity are those associated with the operations of nearby residential and commercial uses, and the UCI maintenance and facilities property to the north of the site. The noise associated with these sources may represent a single-event noise occurrence, short-term noise, or long-term/continuous noise.

Noise Measurements

To quantify existing ambient noise levels in the Project area, Kimley-Horn conducted three short-term noise measurements near the Project site on December 19, 2019; see Appendix G of this SEIR. The noise measurement sites were representative of typical existing noise exposure within and immediately adjacent to the Project site. The 10-minute daytime measurements were taken between 1:00 p.m. and 2:00 p.m. The average noise levels and sources of noise measured at each location are listed in *Table 3.11-11, Existing Noise Measurements*, and shown on **Figure 3.11-1: Noise Measurement Locations**.

Site	Location	L _{eq} (dBA)	L _{min} (dBA)	L _{max} (dBA)	Time and Date
1	Adjacent to the mixed-use residential use to the west of the Project site along Jamboree Road.	70.7	49.1	79.1	12:59 p.m. to 1:09 p.m.
2	Adjacent to the mixed-use residential use located at the southeastern corner of the Jamboree Road and Campus Drive intersection.	65.2	56.9	73.7	1:21 p.m. to 1:31 p.m.
3	Parking lot to the west of the Project site.	67.4	48.3	75.6	1:41 p.m. to 1:51 p.m.
Source: Noise measurements taken by Kimley-Horn and Associates on December 19, 2019. See Appendix G of the SEIR for noise measurement results.					



Source: Google Earth

FIGURE 3.11-1: Noise Measurement Locations
 UCI Irvine Campus Medical Complex EIR
 University of California, Irvine

 Not to scale

Kimley»Horn

3.11.4 Sensitive Receptors

Noise exposure standards and guidelines for various types of land uses reflect the varying noise sensitivities associated with each of these uses. Residences, hospitals, schools, guest lodging, libraries, and churches are treated as the most sensitive to noise intrusion and therefore have more stringent noise exposure targets than do other uses, such as manufacturing or agricultural uses that are not subject to impacts such as sleep disturbance. Sensitive receptors near the Project site are shown in *Table 3.11-12, Sensitive Receptors*.

Table 3.11-12. Sensitive Receptors	
Receptor Description	Distance and Direction from the Project¹
RESIDENTIAL	
Multi-Family Residential Dwellings	450 feet west, 960 feet northeast, and 1,600 feet north
HEALTH CARE FACILITIES	
UCI Center for Child Health (scheduled to begin construction in early 2021 and be occupied by fall 2022)	100 feet northwest
RECREATIONAL FACILITIES	
UCI Arboretum (currently closed)	450 feet northeast
Private outdoor recreational facilities	2,400 feet north
1. Distances were measured using Google Earth 2020.	

3.11.5 Thresholds of Significance

The following significance criteria are from Appendix G of the State CEQA Guidelines. A significant impact related to air quality would occur if the proposed Project would:

- Threshold 3.11-1** **Generate 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.**
- Threshold 3.11-2** **Generate excessive ground borne vibration or ground borne noise levels.**
- Threshold 3.11-3** **For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, expose people residing or working in the project area to excessive noise levels.**

Significance of Changes in Traffic Noise Levels

An off-site traffic noise impact typically occurs when there is a discernable increase in traffic and the resulting noise level exceeds an established noise standard. In community noise considerations, changes in noise levels greater than 3 dB are often identified as substantial, while changes less than 1 dB will not be discernible to local residents. In the range of 1 to 3 dB, residents who are very sensitive to noise may perceive a slight change. In laboratory testing situations, humans are able to detect noise level changes of slightly less than 1 dB. However, this is based on a direct, immediate comparison of two sound levels. Community noise exposures occur over a long period of time and changes in noise levels occur over years (rather than the immediate comparison made in a laboratory situation). Therefore, the level at which

changes in community noise levels become discernible is likely to be some value greater than 1 dB, and 3 dB is the most commonly accepted discernable difference. A 5-dB change is generally recognized as a clearly discernable difference.

City of Irvine

As traffic noise levels at sensitive uses likely approach or exceed the applicable City of Irvine land use compatibility standards shown in the City's Land Use Compatibility Guidelines (Table 3.11-4), a 3 dB increase as a result of the Project is generally used as the increase threshold for the Project.⁹ Thus, the Project would result in a significant noise impact when a permanent increase in ambient noise levels of 3 dB occur upon Project implementation and the resulting noise level exceeds the applicable City of Irvine exterior standard at a noise-sensitive use.

City of Newport Beach

In accordance with the City of Newport Beach's traffic noise impact criteria, a significant traffic noise impact occurs when there is an increase in the ambient CNEL produced by new development impacting existing sensitive uses; refer to Newport Beach's noise impact criteria in Table 3.11-7. As such, the Project would result in a significant noise impact if traffic noise levels exceed the criteria outlined in Table 3.11-7 at uses in the City of Newport Beach.

Stationary Source Noise Levels

Stationary noise impacts typically occur when noise levels exceed the City of Irvine or City of Newport Beach Noise Ordinance standards shown in Table 3.11-5, Table 3.11-8, and/or Table 3.11-9. The 2007 LRDP EIR requires new or modified stationary noise sources such as utility plant facilities (constant noise source), major HVAC systems (constant noise source), and parking structures (constant and/or intermittent noise source) to be designed in a manner that would minimize the exposure of noise-sensitive land uses (i.e., campus housing, classrooms, libraries, and clinical facilities) to noise levels that exceed the following state noise standards: 60 dBA CNEL (single-family campus housing); 65 dBA CNEL (multifamily campus housing, dormitories, lodging); and 70 dBA CNEL (classrooms, libraries, clinical facilities). If the affected noise-sensitive land uses are already exposed to noise levels in excess of these standards, then the new or modified stationary noise sources shall not increase the ambient noise level by more than 3 dBA.

Significance Construction Noise Levels

The Cities of Irvine and Newport Beach exempt construction noise during daytime hours (7:00 a.m. and 7:00 p.m. Mondays through Fridays, and 9:00 a.m. and 6:00 p.m. on Saturdays for the City of Irvine and between 7:00 a.m. to 6:30 p.m., and between the hours of 8:00 a.m. to 6:00 p.m. on Saturdays for City of Newport Beach.

The 2007 LRDP EIR specifies that construction activities would have a significant temporary (direct) noise impact if they would result in:

- Exposure of persons to, or generation of noise levels in, excess of a 12-hour average sound level of 75 dBA between 7:00 am and 7:00 pm at any noise-sensitive land use, or

⁹ For modeled roadway segments in the City of Irvine.

- An increase of 3 dBA or more if the ambient noise levels already exceed a 12-hour average sound level of 75 dBA between 7:00 am and 7:00 pm at any noise-sensitive land use.

Methodology

Construction

Construction noise levels were based on typical noise levels generated by construction equipment published by the Federal Transit Administration (FTA) and FHWA. Construction noise is assessed in dBA L_{eq} . This unit is appropriate because L_{eq} can be used to describe noise level from operation of each piece of equipment separately, and levels can be combined to represent the noise level from all equipment operating during a given period.

Reference noise levels are used to estimate operational noise levels at nearby sensitive receptors based on a standard noise attenuation rate of 6 dB per doubling of distance (line-of-sight method of sound attenuation for point sources of noise). Noise level estimates do not account for the presence of intervening structures or topography, which may reduce noise levels at receptor locations. Therefore, the noise levels presented herein represent a conservative, reasonable worst-case estimate of actual temporary construction noise.

Operations

The analysis of the Existing and With Project noise environments is based on noise prediction modeling and empirical observations. Reference noise level data are used to estimate the Project operational noise impacts from stationary sources. Noise levels are collected from field noise measurements and other published sources from similar types of activities are used to estimate noise levels expected with the Project's stationary sources. The reference noise levels are used to represent a worst-case noise environment as noise level from stationary sources can vary throughout the day. Stationary source operational noise is evaluated based on the standards within the IMC and the NBMC. Off-site traffic noise levels are evaluated according to the criteria describe above.

Vibration

Groundborne vibration levels associated with construction-related activities for the Project were evaluated utilizing typical groundborne vibration levels associated with construction equipment, obtained from FTA published data for construction equipment. Potential groundborne vibration impacts related to building/structure damage and interference with sensitive existing operations were evaluated, considering the distance from construction activities to nearby land uses and typically applied criteria.

Campus Programs, Practices, and Procedures and Mitigation Measures Carried Forward from the November 2007 LRDP Amendment Final EIR

The following applicable Mitigation Measures (MM) were adopted as part of the November 2007 LRDP Final EIR and are incorporated as part of the proposed Project and assumed in the analysis presented in this section.

MM NOI-1A Prior to project design approval for future projects that implement the 2007 LRDP and include noise-sensitive land uses (i.e., campus housing, classrooms, libraries, and clinical facilities), UCI shall ensure that the project design will adhere to the following state noise standards: 60 dBA CNEL (single-family campus housing); 65 dBA CNEL (multi-family campus housing, dormitories, lodging); and 70 dBA CNEL (classrooms, libraries, clinical

facilities). Applicable project design features may include, but are not limited to, the following:

- i. Specific window treatments, such as dual glazing, and mechanical ventilation when the 45 dBA CNEL limit within habitable rooms and the 50 dBA CNEL limit within classrooms can only be achieved with a closed window condition.
- ii. Setbacks; orientation of usable outdoor living spaces, such as balconies, patios, and common areas, away from roadways; and/or landscaped earthen berms, noise walls, or other solid barriers.

MM NOI-1B

As early as possible in the planning process of future projects that implement the 2007 LRDP and would include new or modified stationary noise sources such as utility plant facilities (constant noise source), major HVAC systems (constant noise source), and parking structures (constant and/or intermittent noise source), UCI shall ensure they are designed in a manner that would minimize the exposure of noise-sensitive land uses (i.e., campus housing, classrooms, libraries, and clinical facilities) to noise levels that exceed the following state noise standards: 60 dBA CNEL (single-family campus housing); 65 dBA CNEL (multi-family campus housing, dormitories, lodging); and 70 dBA CNEL (classrooms, libraries, clinical facilities). If the affected noise-sensitive land uses are already exposed to noise levels in excess of these standards, then the new or modified stationary noise sources shall not increase the ambient noise level by more than 3 dBA. These criteria shall be achieved by:

- i. Implementing the following noise reduction measures into the design of the satellite utilities plant, as applicable:
 - Use low-speed fans, baffles, mufflers, or other mechanical system design features to reduce emitted noise;
 - Increase the distance from the noise source to sensitive receptors with setbacks;
 - Place equipment inside buildings or within solid enclosures;
 - Construct earthen berms, noise walls, or other solid barriers for noise attenuation;
 - Eliminate glass, louvers, openings, or vents in the exterior walls of the plant, particularly those facing noise-sensitive land uses. If openings are necessary, install acoustical louvers or baffles on project components at all exterior openings;
 - Install silencers on the intake and exhaust system;
 - Place cooling towers as close to plant buildings as possible to utilize the buildings as noise barriers; and
 - Install integrated noise barriers on the sides of cooling towers.
- ii. Implementing the following noise reduction measures into the design of new major HVAC systems, as applicable:

- Install acoustical shielding (parapet wall or near-field noise barrier) around all new equipment; and
 - Place equipment below grade in basement space.
- iii. Implementing the following noise reduction measures into the design of new parking structures:
- Incorporate architectural design features that attenuate noise including solid panels at locations facing noise-sensitive land uses; and
 - Construct earthen berms, noise walls, or other solid barriers between noise-sensitive land uses and parking structures.

MM NOI-2A Prior to initiating on-site construction for future projects that implement the 2007 LRDP, UCI shall approve contractor specifications that include measures to reduce construction/demolition noise to the maximum extent feasible. These measures shall include, but are not limited to, the following:

- i. Noise-generating construction activities occurring Monday through Friday shall be limited to the hours of 7:00 am to 7:00 pm, except during summer, winter, or spring break at which construction may occur at the times approved by UCI.
- ii. Noise-generating construction activities occurring on weekends in the vicinity of (can be heard from) off-campus land uses shall be limited to the hours of 9:00 am to 6:00 pm on Saturdays, with no construction occurring on Sundays or holidays.
- iii. Noise-generating construction activities occurring on weekends in the vicinity of (can be heard from) on-campus residential housing shall be limited to the hours of 9:00 am to 6:00 pm on Saturdays, with no construction on Sundays or holidays. However, as determined by UCI, if on-campus residential housing is unoccupied (during summer, winter, or spring break, for example), or would otherwise be unaffected by construction noise, construction may occur at any time.
- iv. Construction equipment shall be properly outfitted and maintained with manufacturer recommended noise-reduction devices to minimize construction-generated noise.
- v. Stationary construction noise sources such as generators, pumps or compressors shall be located at least 100 feet from noise-sensitive land uses (i.e., campus housing, classrooms, libraries, and clinical facilities), as feasible.
- vi. Laydown and construction vehicle staging areas shall be located at least 100 feet from noise-sensitive land uses (i.e., campus housing, classrooms, libraries, and clinical facilities), as feasible.
- vii. All neighboring land uses that would be subject to construction noise shall be informed at least two weeks prior to the start of each construction project, except in an emergency situation.
- viii. Loud construction activity such as jackhammering, concrete sawing, asphalt removal, pile driving, and large-scale grading operations occurring within 600 feet of a

residence or an academic building shall not be scheduled during any finals week of classes. A finals schedule shall be provided to the construction contractor.

MM NOI-4A Prior to initiating on-site construction for future projects that implement the 2007 LRDP and are located within 100 feet of vibration-sensitive uses (i.e., buildings containing vibration-sensitive instruments or operations, or buildings that are considered vibration-sensitive due to their age, construction type and/or fragile condition), UCI shall approve a construction vibration mitigation program as part of the contractor specifications that includes measures to reduce vibration resulting from construction activities to the maximum extent practicable. The program shall include measures to establish baseline vibration conditions, vibration monitoring, work methods or equipment necessary to reduce vibration, and a pre-construction notification process for impacted building occupants (six-month and one-month interval prior to construction).

If pile driving is proposed, building occupants within 600 feet of the pile-driving site shall be notified of construction at six-month and one-month intervals prior to the start of construction.

3.11.6 Environmental Impacts

Threshold 3.11-1:	Would the Project generate 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?
Impact Summary:	Less Than Significant Impact With Mitigation Incorporated

Construction-Generated Noise

Construction noise typically occurs intermittently and varies depending on the nature or phase of construction (e.g., land clearing, grading, excavation, paving). Noise generated by construction equipment, including earthmovers, material handlers, and portable generators, can reach high levels. During construction, exterior noise levels could affect the uses surrounding the construction site. The closest sensitive receptors are the residences located approximately 450 feet to the west. However, heavy equipment would operate further away. The UCI Center for Child Health would be adjacent to the northwest of the construction area and is therefore analyzed as a sensitive receptor once occupied (Fall 2022).

Construction activities would include demolition, site preparation, grading, building construction, paving, and architectural coating. Such activities may require dozers, concrete/industrial saws, and excavators during demolition; dozers and tractors during site preparation; trenching equipment during trenching and utilities; graders, dozers, tractors, scrapers, and excavators during grading; cranes, forklifts, generators, tractors, and welders during building construction; pavers, rollers, and paving equipment during paving; and air compressors during architectural coating. Typical operating cycles for these types of construction equipment may involve 1 or 2 minutes of full power operation followed by 3 to 4 minutes at lower power settings. Other primary sources of acoustical disturbance would be random incidents, which would last less than one minute (such as dropping large pieces of equipment or the hydraulic movement of machinery lifts). Noise generated by construction equipment, including earthmovers, material handlers,

and portable generators, can reach high levels. The demolition and grading phases generally have the highest noise levels but the shortest duration of all construction phases. Typical noise levels associated with individual construction equipment are listed in *Table 3.11-13, Typical Construction Noise Levels*. Although the construction equipment noise levels in Table 3.11-13 are from FTA's 2018 *Transit Noise and Vibration Impact Assessment Manual*, the noise levels are based on measured data from a U.S. Environmental Protection Agency report which uses data from the 1970s¹⁰, the FHWA Roadway Construction Noise Model which uses data from the early 1990s, and other measured data. Since that time, construction equipment has been required to meet more stringent emissions standards and the additional necessary exhaust systems also reduce noise from what is shown in the table.

Table 3.11-13. Typical Construction Noise Levels			
Equipment	Typical Noise Level (dBA) at 50 feet from Source	Typical Noise Level (dBA) at 100 feet from Source¹	Typical Noise Level (dBA) at 450 feet from Source¹
Air Compressor	80	74	61
Backhoe	80	74	61
Compactor	82	76	63
Concrete Mixer	85	79	66
Concrete Pump	82	76	63
Concrete Vibrator	76	70	57
Crane, Mobile	83	77	64
Dozer	85	79	66
Generator	82	76	63
Grader	85	79	66
Impact Wrench	85	79	66
Jack Hammer	88	82	69
Loader	80	74	61
Paver	85	79	66
Pneumatic Tool	85	79	66
Pump	77	71	58
Roller	85	79	66
Saw	76	70	57
Scraper	85	79	66
Shovel	82	76	63
Truck	84	78	65
1. Calculated using the inverse square law formula for sound attenuation: $dBA_2 = dBA_1 + 20\log(d_1/d_2)$ Where: dBA_2 = estimated noise level at receptor; dBA_1 = reference noise level; d_1 = reference distance; d_2 = receptor location distance.			
Source: Federal Transit Administration, <i>Transit Noise and Vibration Impact Assessment Manual</i> , September 2018.			

As noted above, the closest sensitive receptors to the Project are the residences approximately 450 feet to the west. Table 3.11-13 shows construction equipment noise levels at the 50-foot reference distance (per the FTA's 2018 *Transit Noise and Vibration Impact Assessment Manual*) as well as at 100- and 450-foot from the source in order to correlate with the distance to the Center for Child Health and the closest residences, respectively. Some of the loudest equipment used for Project construction would include jackhammers, scrapers, dozers. The highest noise level from these types of equipment is 88 dBA Lmax (82

¹⁰ U.S. Environmental Protection Agency, *Noise from Construction Equipment and Operations, Building Equipment and Home Appliances*, NTID300.1, December 31, 1971.

dBA Leq) at 50 feet. Construction activities would generally be limited to weekday daytime hours when most people would typically be out of their houses, and grading activities would conform to the time-of-day restrictions of IMC Section 6-8-205(A) and NBMC Chapter 10.28. Noise impacts from Project-related construction activities occurring within or adjacent to the Project site would be a function of the noise generated by construction equipment, the location of the equipment, the timing and duration of the noise-generating construction activities, and the relative distance to the noise-sensitive receptors.

The Cities of Irvine and Newport Beach do not have quantitative standards for construction noise levels. IMC Section 6-8-205(A) indicates that construction activities may occur between 7:00 a.m. and 7:00 p.m. Mondays through Fridays, and 9:00 a.m. and 6:00 p.m. on Saturdays. NBMC Section 10.28.040(B) limits noise sources associated with construction, repair, remodeling, or grading of any real property to the hours of 7:00 a.m. and 6:30 p.m. on weekdays, and 8:00 a.m. and 6:00 p.m. on Saturdays. The NBMC also exempts noise levels caused by construction equipment in having to meet the basic noise level limits identified in Table 3.11-13. The permitted hours of construction for each city are required in recognition that construction activities undertaken during daytime hours are a typical part of living in an urban environment and do not cause a significant impact. As discussed above, the 2007 LRDP EIR uses a construction noise threshold of 75 dBA (Leq 12 hour) between 7:00 am and 7:00 pm at any noise-sensitive land use. For off-campus receptors, the 2007 LRDP EIR uses the applicable City's noise ordinance standards. If the ambient noise levels already exceed a 12-hour average sound level of 75 dBA between 7:00 am and 7:00 pm at any noise-sensitive land use, an increase of 3 dBA or more is considered significant.

The noise levels calculated in *Table 3.11-14, Project Construction Noise Levels*, show estimated exterior construction noise at the closest receptors. The closest residential uses are located approximately 450 feet west of the Project site in the City of Newport Beach. The closest sensitive receptors in the City of Irvine are located 960 feet to the northeast. UCI facilities buildings are located to the north and the future UCI Center for Child Health, which is considered a clinical use and a sensitive receptor once occupied in fall 2022, would be located 100 feet to the northwest. Construction noise levels drop off at a rate of about 6 dBA per doubling of distance between the noise source and receptor. It should be noted that the Center for Child Health is anticipated to open in the fall of 2022, after Project demolition, site preparation, and grading would be complete.

Construction Phase	Receptor Location			Worst Case Modeled Exterior Noise Level (dBA Leq)	Noise Threshold ²	Exceeded?
	Land Use	Direction	Distance (feet) ¹			
Demolition ³	Residential	West	450	67.4	75	No
Site Preparation ³	Residential	West	450	66.5	75	No
Grading ³	Residential	West	450	66.8	75	No
Building Construction	Residential	West	450	64.8	75	No
	Center for Child Health	Northwest	100	77.8	75	Yes
Paving	Residential	West	450	67.2	75	No
	Center for Child Health	Northwest	100	80.3	75	Yes

Construction Phase	Receptor Location			Worst Case Modeled Exterior Noise Level (dBA L _{eq})	Noise Threshold ²	Exceeded?
	Land Use	Direction	Distance (feet) ¹			
Architectural Coating	Residential	West	450	57.6	75	No
	Center for Child Health	Northwest	100	70.7	75	No

1. Distance is from the nearest receptor is from the property line of the Project. The UCI Center for Child Health building would be approximately 100 feet from the Project's property line and further from the Project's active construction area.

2. Threshold from the 2007 LRDP EIR.

3. Construction for the Center for Child Health is anticipated open in the fall of 2022, after demolition, site preparation, and grading would be complete for the proposed Project.

Source: Federal Highway Administration, *Roadway Construction Noise Model*, 2006. Refer to Appendix G of the SEIR for noise modeling results.

Actual construction-related noise activities would be lower than the conservative levels described above and would cease upon completion of construction. Due to the variability of construction activities and equipment for the Project, overall construction noise levels would be intermittent and would fluctuate over time. These assumptions represent the worst-case noise scenario because construction activities would typically be spread out throughout the Project site, and thus some equipment would be farther away from the affected receptors. In addition, the noise modeling assumes that construction noise is constant, when, in fact, construction activities and associated noise levels would fluctuate and generally be brief and sporadic, depending on the type, intensity, and location of construction activities. It is also noted that Project construction equipment would be equipped with functioning mufflers as mandated by the state, and construction would occur throughout the Project site and would not be concentrated or confined in the areas closest to sensitive receptors.

Table 3.11-14 shows that construction noise levels would potentially exceed the 75-dBA standard at the Center for Child Health without mitigation. It should be noted that the Center for Child Health would not have outdoor areas of frequent human use facing the Project's construction areas and interior noise levels would be further reduced from building attenuation. However, Mitigation Measure (MM) NOI-2 has been modified from the 2007 LRDP EIR to require all internal combustion engines to have properly operating manufacturer recommended mufflers. The FHWA indicates that muffler systems can reduce noise levels by 10 dBA or more¹¹, which would reduce construction noise below the 75-dBA standard. Additionally, the closest residences are located across Jamboree Road in the City of Newport Beach, and the existing traffic noise would also mask Project construction noise. *Table 3.11-15, Ambient and Project Construction Noise Levels*, compares the construction noise levels with the ambient levels and shows that with mitigation noise levels would not exceed a 2.9 dBA increase, which is considered barely perceptible.¹² Compliance with the IMC and NBMC would minimize impacts from construction noise, as construction would be limited to daytime hours on weekdays and Saturdays.

¹¹ Federal Highway Administration, *Special Report - Measurement, Prediction, and Mitigation*, Chapter 4 Mitigation, 2017.

¹² As noted in the Caltrans *Technical Noise Supplement to the Transportation Noise Analysis Protocol* (2013), a noise level change of 3 dBA is barely perceptible by the human ear.

Construction Phase	Land Use	Worst Case Modeled Exterior Noise Level (dBA L _{eq})	Exterior Noise Level with Mitigation (dBA L _{eq})	Measured Ambient Noise Level (dBA L _{eq})	Increase Over Ambient (dBA L _{eq})
Building Construction	Residential	64.8	54.8	70.7	-15.9
	Center for Child Health	77.8	67.8	67.4	0.4
Paving	Residential	67.2	57.2	70.7	-13.5
	Center for Child Health	80.3	70.3	67.4	2.9

1. Refer to Table 3.11-14 for modeled construction noise levels.
2. The construction noise level reduction for the mitigated noise levels are from the FHWA *Special Report - Measurement, Prediction, and Mitigation*, Chapter 4 Mitigation, 2017.
3. Refer to Table 3.11-11 for measured ambient noise levels.

Furthermore, the Project would also be required to comply with MM NOI-2, which includes various measures to minimize construction noise, such as limiting construction hours, requiring properly maintained construction equipment with manufacturer recommended noise-reduction devices (including mufflers), locating stationary construction equipment and staging areas at least 100 feet from sensitive receptors, and notifying neighboring land uses prior to construction activities. Implementation of 2007 LRDP MM NOI-2 would further minimize construction noise. Therefore, with implementation of MM NOI-2, Project construction activities would result in a less than significant noise impact.

Operational Noise

Implementation of the proposed Project would create new sources of noise in the Project vicinity. The major noise sources associated with the Project that would potentially impact sensitive receptors include the following:

- Off-site traffic noise;
- Mechanical equipment (i.e., central utility plant equipment; heating, ventilation, and air conditioning [HVAC], etc.);
- Emergency vehicles;
- Delivery trucks and loading/unloading on the Project site; and
- Parking areas (i.e., car door slamming, car radios, engine start-up, and car pass-by).

As discussed above, the closest sensitive receptors are multi-family residences located approximately 450 feet to the west and once constructed, the Center for Child Health would be located 100 feet to the northwest. Stationary source exterior noise is evaluated according to the Irvine and Newport Beach municipal code standards. As discussed above, off-site traffic noise is evaluated based on the standards identified in Section 3.11.5.

Off-Site Traffic Noise

Increased traffic on local roadways would result from implementation of the Project and would be a contributor of noise in the study area. Traffic noise levels for roadways primarily affected by the proposed Project were calculated using the FHWA Highway Noise Prediction Model (FHWA-RD-77-108). Traffic noise modeling was conducted for conditions with and without the Project, based on traffic volumes obtained from the Irvine Campus Medical Complex Supplemental LOS Traffic Analysis (Stantec, Inc., 2020).

Under CEQA, consideration must be given to the magnitude of the increase and the existence of noise-sensitive receptors in order to determine if the noise increase is a significant adverse environmental effect. For roadway segments within the City of Newport Beach, the standards within the Newport Beach General Plan Noise Element Policy N1.8 is used to determine if a noise-sensitive land use would be impacted by Project traffic noise increases (Table 3.11-7):

- For an existing ambient noise level between 55 and 60 dBA CNEL, an increase of 3 dBA or more;
- For an existing ambient noise level between 60 and 65 dBA CNEL, an increase of 2 dBA or more;
- For an existing ambient noise level between 65 and 75 dBA CNEL, an increase of 1 dBA or more; and
- For an existing ambient noise level greater than 75 dBA CNEL, any increase.
- For an existing ambient noise level of less than 55 dBA CNEL, a readily perceptible noise increase, i.e., of 5 dBA or more, would also be considered significant.

For roadway segments within the City of Irvine, a significant traffic noise increase would occur when project traffic generates a 3 dB increase and the resulting noise level exceeds the applicable City of Irvine exterior standard at a noise-sensitive use. Noise level impacts are assessed by evaluating the noise levels “with” and “without” the Project for the following scenarios: Existing Conditions, Existing Plus Project, Buildout, and Buildout Plus Project.

Existing and Existing Plus Project. Table 3.11-16, *Existing and Project Traffic Noise*, shows that under the “Existing” scenario, noise levels would range from approximately 63.6 to 74.0 dBA CNEL, with the highest noise levels occurring on Jamboree Road. The “Existing Plus Project” scenario noise levels would range from approximately 63.9 to 74.1 dBA with the highest noise levels also occurring along the same roadway segments of Jamboree Road. The table also compares the “Existing” scenario to the “Existing Plus Project” scenario. The proposed Project would increase noise levels on the surrounding roadways by a maximum of 0.4 dBA. Based on the significance criteria set forth in this SEIR, Project noise increases would be less than significant, and no mitigation would be required.

Roadway Segment	Existing		Existing Plus Project		Project Change from Existing Conditions	Significant Impact?
	ADT	dBA CNEL ¹	ADT	dBA CNEL ¹		
Jamboree Road						
SR-73 to MacArthur Boulevard	35,000	71.1	37,700	71.4	0.3	No
MacArthur Boulevard to Fairchild Road	42,000	71.7	45,800	72.1	0.4	No
Fairchild Road to Birch Street	42,000	71.7	45,800	72.1	0.4	No
Birch Street to Campus Drive	42,000	70.8	44,300	71.1	0.2	No
Campus Drive to Michelson Drive	42,000	70.8	44,900	71.1	0.3	No
Michelson Drive to I-405	80,000	74.0	81,900	74.1	0.1	No
I-405 to Main Street	80,000	74.0	81,000	74.0	0.1	No
Main Street to McGaw Avenue	60,000	72.7	60,300	72.7	0.0	No
McGaw Avenue to Alton Parkway	60,000	72.7	60,300	72.7	0.0	No
Alton Parkway to Barranca Parkway	54,000	72.3	53,800	72.2	0.0	No
Carlson Avenue						

Roadway Segment	Existing		Existing Plus Project		Project Change from Existing Conditions	Significant Impact?
	ADT	dBA CNEL ¹	ADT	dBA CNEL ¹		
Campus Drive to Michelson Drive	9,000	63.8	9,500	64.1	0.2	No
Campus Drive						
West of Von Karman Avenue	12,000	64.0	12,600	64.2	0.2	No
Von Karman Avenue to Jamboree Road	11,000	63.6	11,600	63.9	0.2	No
Jamboree Road to Carlson Avenue	16,000	65.3	17,400	65.7	0.4	No
Carlson Avenue to University Drive	17,000	67.5	17,800	67.7	0.2	No
East of University Drive	21,000	66.4	21,500	66.5	0.1	No
ADT = average daily trips; dBA = A-weighted decibels; CNEL = Community Noise Equivalent Level						
1. Traffic noise levels are at 100 feet from the roadway centerline. The actual sound level at any receptor location is dependent upon such factors as the source-to-receptor distance and the presence of intervening structures, barriers, and topography.						
Source: Based on traffic data provided by Stantec, Inc., September 2020. Refer to Appendix K for traffic noise modeling assumptions and results.						

Buildout and Buildout Plus Project. Table 3.11-17, *Buildout and Project Traffic Noise*, compares the “Buildout” scenario to the “Buildout Plus Project” scenario. Without the Project, noise levels would range from approximately from 63.9 to 74.7 dBA CNEL, with the highest noise levels occurring on Jamboree Road. With the Project, noise levels would range from approximately 64.0 to 74.7 dBA with the highest noise levels also occurring along Jamboree Road. The proposed Project would increase noise levels on the surrounding roadways by a maximum of 0.3 dBA. Based on the significance criteria set forth in this SEIR, Project noise increases would be less than significant, and no mitigation would be required.

Roadway Segment	Buildout		Buildout Plus Project		Project Change from Existing Conditions	Significant Impact?
	ADT	dBA CNEL ¹	ADT	dBA CNEL ¹		
Jamboree Road						
SR-73 to MacArthur Boulevard	35,300	71.2	37,800	71.5	0.3	No
MacArthur Boulevard to Fairchild Road	43,700	71.9	46,600	72.2	0.3	No
Fairchild Road to Birch Street	49,700	72.5	51,600	72.6	0.2	No
Birch Street to Campus Drive	51,800	71.7	52,700	71.8	0.1	No
Campus Drive to Michelson Drive	54,100	71.9	55,100	72.0	0.1	No
Michelson Drive to I-405	94,300	74.7	95,100	74.7	0.0	No
I-405 to Main Street	79,200	73.9	79,700	73.9	0.0	No
Main Street to McGaw Avenue	74,800	73.7	75,200	73.7	0.0	No
McGaw Avenue to Alton Parkway	62,600	72.9	62,800	72.9	0.0	No
Alton Parkway to Barranca Parkway	57,800	72.5	57,900	72.6	0.0	No
Carlson Avenue						
Campus Drive to Michelson Drive	9,100	63.9	9,400	64.0	0.1	No
Campus Drive						
West of Von Karman Avenue	17,100	65.6	17,200	65.6	0.0	No
Von Karman Avenue to Jamboree Road	16,000	65.3	16,400	65.4	0.1	No
Jamboree Road to Carlson Avenue	26,500	67.5	26,900	67.6	0.1	No

Roadway Segment	Buildout		Buildout Plus Project		Project Change from Existing Conditions	Significant Impact?
	ADT	dBA CNEL ¹	ADT	dBA CNEL ¹		
Carlson Avenue to University Drive	30,000	70.0	30,500	70.0	0.1	No
East of University Drive	32,800	68.4	33,100	68.4	0.0	No

ADT = average daily trips; dBA = A-weighted decibels; CNEL = Community Noise Equivalent Level

1. Traffic noise levels are at 100 feet from the roadway centerline. The actual sound level at any receptor location is dependent upon such factors as the source-to-receptor distance and the presence of intervening structures, barriers, and topography.

Source: Based on traffic data provided by Stantec, Inc., September 2020. Refer to Appendix G of this SEIR for traffic noise modeling assumptions and results.

Stationary Noise

Stationary noise associated with medical complex operations includes noise from emergency vehicles (e.g., ambulance sirens), proposed parking structures and surface parking, and other on-site noise generators (such as emergency standby generators and mechanical/HVAC equipment).

Mechanical Equipment. The Project includes a central utility plant for the Acute Hospital and a central utility plant for the Ambulatory Care Center. The central utility plant for the Acute Hospital would include chillers, water pumps, and cooling towers located in an outdoor enclosure. The central utility plant for the Ambulatory Care Center would include the same components as the Acute Hospital utility plant, but the equipment would be in the basement with the cooling towers on the roof. Emergency backup generators would also be located at each central utility plant.

Equipment within the basement of the Ambulatory Care Center would be fully enclosed within the building and would not generate audible noise on the exterior. Cooling towers and exhaust fans will be located on the Ambulatory Care Center, and this equipment typically generates 64 dBA at 50 feet and 50 dBA at 50 feet, respectively. The combined noise level of three cooling towers and eight exhaust fans would generate 69.5 dBA at 50 feet. Although the final site design is subject to change, the closest that the roof-mounted equipment on the Ambulatory Care Center could be is approximately 500 feet from the closest residences. At this distance, roof equipment noise would attenuate to 49.5 dBA. Noise levels at the closest residences would not exceed City of Irvine's or City of Newport Beach's most stringent exterior noise level of 55 dBA during daytime hours (7:00 a.m. to 10:00 p.m.) and 50 dBA at night (10:00 p.m. to 7:00 a.m.). Additionally, the Center for Child Health would be located as close as 160 feet away and noise levels from roof-mounted equipment on the Ambulatory Care Center would attenuate to 59.4 dBA conservatively not accounting for additional attenuation from enclosures, parapet walls, or intervening buildings. Mechanical equipment noise at the Center for Child Health would not exceed the 2007 LRDP EIR noise standard of 70 dBA for clinical facilities. Additionally, Table 3.11-11 shows that the ambient noise level in this area is approximately 67 dBA.

The closest that the Acute Hospital central utility plant would be the residences is approximately 700 feet to the west, across Jamboree Road. In addition to cooling towers, the Acute Hospital central utility plant would have approximately five chillers and 12 pumps, which typically generate 54 dBA and 50 dBA at 50 feet. Additionally, backup emergency generator with outdoor enclosure typically generates 68 dBA at 50 feet. The combined noise level of all this equipment operating simultaneously would generate 72.6 dBA at 50 feet. The closest sensitive receptor residences are located as close as 700 feet away. At this distance, the Acute Hospital central utility plant equipment noise would attenuate to 49.7 dBA (conservatively not

accounting for additional attenuation from intervening walls or structures). Table 3.11-11 shows that the ambient noise level in this area is approximately 67 to 71 dBA, which is louder than the Project noise levels. Noise levels would not exceed City of Irvine's or City of Newport Beach's most stringent exterior noise level of 55 dBA during daytime hours (7:00 a.m. to 10:00 p.m.) and 50 dBA at night (10:00 p.m. to 7:00 a.m.). Additionally, the Center for Child Health would be located as close as 160 feet away from the Hospital and central utility plant noise would attenuate to 62.5 dBA. Noise levels at the Center for Child Health would not exceed the 2007 LRDP EIR noise standard of 70 dBA for clinical facilities. Additionally, Table 3.11-11 shows that the ambient noise level in this area is approximately 67 dBA and would not be exceeded by Project noise levels.

Furthermore, the Project would be required to comply with 2007 LRDP EIR MM Noi-1B (included in this SEIR as MM NOI-1), which requires new or modified stationary noise sources such as utility plant facilities and major HVAC systems to be designed to minimize the exposure of noise-sensitive land uses. Therefore, mechanical equipment noise impacts would be less than significant.

Emergency Vehicle Noise. Emergency vehicle visits to the Acute Hospital would create a source of noise. The frequency of emergency vehicle visits, and therefore the use of sirens, is not dictated by the number of hospital beds, but rather by the emergency room capacity. Currently, there is no way to predict medical emergencies that require visits of emergency vehicles and the associated noise at the site. Ambulance sirens are designed to be clearly audible and highly noticeable to all other drivers on a roadway, who are required by law to pull over to make way for an ambulance with its siren on.

Because the nearest sensitive receptors (residences) are located along Jamboree Road, and ambulances accessing the Project site would pass the surrounding residences, sensitive receptors would briefly experience elevated noise levels from emergency vehicle sirens. However, noise from this source would also be of short duration. Emergency vehicles would turn off their sirens after accessing each site. Typical operational policy for emergency vehicles is to limit the use of sirens and horns, as practical, when traveling past noise-sensitive areas. Additionally, noise for the purpose of alerting persons to the existence of an actual emergency is exempt from both the City of Irvine and City of Newport Beach noise standards pursuant to IMC Section 6-8-205(D)(3) and NBMC Section 10.26.035(C). As emergency vehicle noise would occur occasionally and intermittently, are required occasionally under emergency conditions, and are exempt from City noise standards, impacts from increased emergency vehicle use would be less than significant, and no mitigation is required.

Loading Area. The Project would include loading area serving the Ambulatory Care Center and the Hospital. The occasional delivery trucks associated with the Project would not significantly increase noise within the Project area. It should be noted that truck deliveries/operations (including trash pickup trucks) currently occur in the Project area and are not anticipated to increase to a point where additional noise would be perceptible. The primary noise associated with deliveries is the arrival and departure of trucks. Normal deliveries typically occur during daytime hours. During loading and unloading activities, noise would be generated by the trucks' diesel engines, exhaust systems, and brakes during low gear shifting' braking activities; backing up toward the loading areas; dropping down the dock ramps; and maneuvering away. Although the final site design is subject to change, the closest the loading area could be are approximately 500 feet from the closest sensitive receptors to the west.

Delivery truck and loading dock noise is typically 64 dBA at 50 feet.¹³ At 500 feet, truck noise would attenuate to 44 dBA, which is far below the ambient noise level of 67 dBA; refer to Table 3.11-11. Additional noise attenuation would also occur from intervening structures and loading noise would also be masked by traffic along Jamboree Road. Therefore, loading area noise would not exceed City of Irvine's or City of Newport Beach's most stringent exterior noise level of 55 dBA during daytime hours (7:00 a.m. to 10:00 p.m.) and 50 dBA at night (10:00 p.m. to 7:00 a.m.).

Additionally, loading noise would be 54 dBA at the Center for Child Health located 160 feet away. Noise levels at the Center for Child Health would not exceed the 2007 LRDP EIR noise standard of 70 dBA for clinical facilities. Additionally, noise levels would be below the ambient noise levels of 67 dBA; refer to Table 3.11-11. Impacts resulting from truck delivery and loading activities would be less than significant.

Parking Noise. The proposed Project includes surface parking and a parking structure located adjacent to the Acute Hospital and Ambulatory Care Center. Traffic associated with parking areas is typically not of sufficient volume to exceed community noise standards, which are based on time-averaged scales. The instantaneous maximum sound levels generated by a car door slamming, engine starting up, and car pass-bys range from 53 to 61 dBA at 50 feet and may be an annoyance to adjacent noise-sensitive receptors.¹⁴ Conversations in parking areas may also be an annoyance to adjacent sensitive receptors. Sound levels of speech typically range from 33 dBA at 50 feet for normal speech to 50 dBA at 50 feet for very loud speech.¹⁵ It should be noted that parking lot noises are instantaneous noise levels compared to noise standards in the hourly L_{eq} metric, which are averaged over the entire duration of a time period.

Noise from the parking garages is anticipated to be lower than the reference levels identified above, as parking would occur in a structure that would be predominantly enclosed. Additionally, parking noise would be partially masked by background noise from traffic along Jamboree Road. For the purpose of providing a conservative, quantitative estimate of the noise levels that would be generated from the vehicles entering and exiting the parking structure, the methodology recommended by FTA for the general assessment of stationary transit noise sources is used. Using the methodology, the Project's peak hourly noise level that would be generated by the on-site parking levels was estimated using the following FTA equation:

$$L_{eq(h)} = SEL_{ref} + 10\log(NA/1,000) - 35.6$$

Where:

$L_{eq(h)}$ = hourly L_{eq} noise level at 50 feet

SEL_{ref} = reference noise level for stationary noise source represented in sound exposure level (SEL) at 50 feet

NA = number of automobiles per hour

35.6 is a constant in the formula, calculated as 10 times the logarithm of the number of seconds in an hour

Based on the peak hour trip generation rates in the Irvine Campus Medical Complex Supplemental LOS Traffic Analysis (Stantec, September 2020), the Project is forecasted to generate 690 trips during the a.m.

¹³ Loading dock reference noise level measurements conducted by Kimley-Horn on December 18, 2018.

¹⁴ Kariel, H. G., *Noise in Rural Recreational Environments*, Canadian Acoustics 19(5), 3-10, 1991.

¹⁵ Elliott H. Berger, Rick Neitzel, and Cynthia A. Kladden. Noise Navigator Sound Level Database with Over 1700 Measurement Values, July 6, 2010.

peak hour and 722 trips during the p.m. peak hour. Using the FTA's reference noise level of 92 dBA SEL¹⁶ at 50 feet from the noise source, the Project's peak hour vehicle trips would generate noise levels of approximately 55 dBA, L_{eq} at 50 feet from the parking structures. The closest residential uses would be approximately 500 feet from the closest parking structure. Based on this distance, the vehicle-related noise levels would be approximately 35 dBA L_{eq} , which would be below both the stationary source standards for Irvine and Newport Beach. At the Center for Child Health approximately 160 feet away, parking noise levels would be 45 dBA. During other hours of the day when less overall vehicles arrive and depart from the Project site, the noise levels at the nearest offsite sensitive land uses would be even lower. Therefore, as parking lot noise would not result in substantially greater noise levels than currently exist in the vicinity and would not exceed the applicable standards.

Furthermore, the Project would be required to comply with 2007 LRDP EIR MM NOI-1, which requires new or modified stationary noise sources such as parking structures to be designed to minimize the exposure of noise-sensitive land uses. Therefore, parking area noise impacts would be less than significant.

Mitigation Measures

Consistent with the 2007 LRDP, the Project would incorporate 2007 LRDP EIR MM Noi-1B and MM Noi-2A related to construction and operational noise standards.

MM NOI-1 *(This mitigation measure implements Mitigation Measure Noi-1B from the 2007 LRDP EIR. This mitigation measure includes updates specific to the proposed Project and to reflect the latest practices and recommendations.)* Prior to issuance of building permits, UCI shall ensure they are designed in a manner that would minimize the exposure of noise-sensitive land uses (i.e., campus housing, classrooms, libraries, and clinical facilities) to noise levels that exceed the following state noise standards: 60 dBA CNEL (single-family campus housing); 65 dBA CNEL (multifamily campus housing, dormitories, lodging); and 70 dBA CNEL (classrooms, libraries, clinical facilities). If the affected noise-sensitive land uses are already exposed to noise levels in excess of these standards, then the new or modified stationary noise sources shall not increase the ambient noise level by more than 3 dBA. These criteria shall be achieved by:

- i. Implementing the following noise reduction measures into the design of the satellite utilities plant, as applicable:
 - Use low-speed fans, baffles, mufflers, or other mechanical system design features to reduce emitted noise;
 - Increase the distance from the noise source to sensitive receptors with setbacks;
 - Place equipment inside buildings or within solid enclosures;
 - Construct earthen berms, noise walls, or other solid barriers for noise attenuation;
 - Eliminate glass, louvers, openings, or vents in the exterior walls of the plant, particularly those facing noise-sensitive land uses. If openings are necessary,

¹⁶ Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, September 2018.

- install acoustical louvers or baffles on project components at all exterior openings;
 - Install silencers on the intake and exhaust system;
 - Place cooling towers as close to plant buildings as possible to utilize the buildings as noise barriers; and
 - Install integrated noise barriers on the sides of cooling towers.
- ii. Implementing the following noise reduction measures into the design of new major HVAC systems, as applicable:
- Install acoustical shielding (parapet wall or near-field noise barrier) around all new equipment; and
 - Place equipment below grade in basement space.
- iii. Implementing the following noise reduction measures into the design of new parking structures:
- Incorporate architectural design features that attenuate noise including solid panels at locations facing noise-sensitive land uses; and
 - Construct earthen berms, noise walls, or other solid barriers between noise-sensitive land uses and parking structures.

MM NOI-2 *(This measure implements Mitigation Measure Noi-2A from the 2007 LRDP EIR. This mitigation measure includes updates specific to the proposed Project and to reflect the latest practices and recommendations.)* Prior to initiating ground disturbing activities, UCI shall approve contractor specifications that include measures to reduce construction/demolition noise to the maximum extent feasible. These measures shall include, but are not limited to, the following:

- i. Noise-generating construction activities occurring Monday through Friday shall be limited to the hours of 7:00 a.m. to 7:00 p.m., except during summer, winter, or spring break at which construction may occur at the times approved by UCI.
- ii. Noise-generating construction activities occurring on weekends in the vicinity of (can be heard from) off-campus land uses shall be limited to the hours of 9:00 am to 6:00 pm on Saturdays, with no construction occurring on Sundays or holidays.
- iii. Noise-generating construction activities occurring on weekends in the vicinity of (can be heard from) on-campus residential housing shall be limited to the hours of 9:00 am to 6:00 pm on Saturdays, with no construction on Sundays or holidays. However, as determined by UCI, if on-campus residential housing is unoccupied (during summer, winter, or spring break, for example), or would otherwise be unaffected by construction noise, construction may occur at any time.
- iv. Construction equipment shall be properly outfitted and maintained with manufacturer recommended noise-reduction devices to minimize construction-generated noise.

- v. Stationary construction noise sources such as generators, pumps or compressors shall be located at least 100 feet from noise-sensitive land uses (i.e., campus housing, classrooms, libraries, and clinical facilities), as feasible.
- vi. Laydown and construction vehicle staging areas shall be located at least 100 feet from noise-sensitive land uses (i.e., campus housing, classrooms, libraries, and clinical facilities), as feasible.
- vii. All neighboring land uses that would be subject to construction noise shall be informed at least two weeks prior to the start of each construction project, except in an emergency situation.
- viii. Loud construction activity such as jackhammering, concrete sawing, asphalt removal, pile driving, and large-scale grading operations occurring within 600 feet of a residence or an academic building shall not be scheduled during any finals week of classes. A finals schedule shall be provided to the construction contractor.
- ix. The Contractor shall comply with all Federal and State sound control and noise level rules, regulations, and ordinances which apply to any work performed pursuant to the contract. In addition, each internal combustion engine, used for any purpose on the job or related to the job, shall be equipped with a properly operating muffler of a type recommended by the manufacturer. No internal combustion engine shall be operated on the project without said muffler.

Level of Significance After Mitigation

Less than significant impact.

Threshold 3.11-2	Would the Project generate, excessive ground borne vibration or groundborne noise levels?
Impact Summary:	Less Than Significant Impact

Increases in groundborne vibration levels attributable to the proposed Project would be primarily associated with short-term construction-related activities. The FTA has published standard vibration velocities for construction equipment operations in their 2018 *Transit Noise and Vibration Impact Assessment Manual*. The types of construction vibration impacts include human annoyance and building damage.

In general, the FTA architectural damage criterion for continuous vibrations (i.e., 0.2 in/sec) appears to be conservative. The types of construction vibration impacts include human annoyance and building damage. Human annoyance occurs when construction vibration rises significantly above the threshold of human perception for extended periods of time. Building damage can be cosmetic or structural. Ordinary buildings that are not particularly fragile would not experience any cosmetic damage (e.g., plaster cracks) at distances beyond 30 feet. This distance can vary substantially depending on the soil composition and underground geological layer between vibration source and receiver. In addition, not all buildings respond similarly to vibration generated by construction equipment. For example, for a building that is constructed with reinforced concrete with no plaster, the FTA guidelines show that a vibration level of up to 0.5 in/sec is considered safe and would not result in any construction vibration damage. This evaluation uses the FTA architectural damage criterion for continuous vibrations at non-engineered timber and masonry

buildings of 0.2 inch-per-second peak particle velocity (PPV) and human annoyance criterion of 0.4 inch-per-second PPV in accordance with Caltrans guidance.¹⁷

Table 3.11-18, *Typical Construction Equipment Vibration Levels*, lists vibration levels at 25 feet and 50 feet for typical construction equipment. Groundborne vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance. As indicated in Table 3.11-18, based on FTA data, vibration velocities from typical heavy construction equipment operations that would be used during Project construction range from 0.003 to 0.089 in/sec PPV at 25 feet from the source of activity, which is below the FTA's 0.2 PPV threshold.

Equipment Type	Peak Particle Velocity at 25 Feet (inches per second)	Peak Particle Velocity at 50 Feet (inches per second)¹
Large Bulldozer	0.089	0.024
Caisson Drilling	0.089	0.024
Loaded Trucks	0.076	0.020
Jackhammer	0.035	0.001
Small Bulldozer/Tractor	0.003	0.001
1. Calculated using the following formula: $PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}$, where: PPV_{equip} = the peak particle velocity in in/sec of the equipment adjusted for the distance; PPV_{ref} = the reference vibration level in in/sec from Table 7-4 of the Federal Transit Administration, <i>Transit Noise and Vibration Impact Assessment Manual</i> , 2018; D = the distance from the equipment to the receiver.		
Source: Federal Transit Administration, <i>Transit Noise and Vibration Impact Assessment Manual</i> , 2018.		

The nearest off-site structure is a UCI maintenance building located approximately 50 feet from the Project construction area. As shown in Table 3.11-18, at 50 feet, construction equipment vibration velocities would not exceed 0.089 in/sec PPV, which is below the FTA's 0.2 PPV threshold and Caltrans' 0.4 in/sec PPV threshold for human annoyance. It is also acknowledged that construction activities would occur throughout the Project site and would not be concentrated at the point closest to the nearest off-site structure. Therefore, vibration impacts associated with the proposed Project would be less than significant.

Mitigation Measures

No mitigation is required.

Level of Significance After Mitigation

Less than significant impact.

¹⁷ California Department of Transportation, *Transportation and Construction Vibration Guidance Manual*, Table 20, September 2013.

Threshold 3.11-3 For a Project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project expose people residing or working in the Project area to excessive noise levels?

Impact Summary: Less Than Significant Impact

The nearest airport is the John Wayne Airport located approximately 0.8-mile to the northwest of the Project site. According to the *John Wayne Airport 2018 Annual 60-75 (5 dB intervals) CNEL Noise Contours*, the Project site is located outside the 60 dBA CNEL noise contour for John Wayne Airport, which is consistent with the 70 dBA CNEL noise limit for clinical facilities identified in the 2007 LRDP EIR.¹⁸ Therefore, the Project would not expose people residing or working in the Project area to excessive airport- or airstrip-related noise levels and no mitigation is required.

Mitigation Measures

No mitigation is required.

Level of Significance After Mitigation

Less than significant impact.

3.11.7 Cumulative Impacts

Cumulative Construction Noise

As discussed above, the Project's construction activities would not result in a substantial temporary increase in ambient noise levels with the implementation of MM NOI-2. Construction noise impacts are by nature localized. Based on the fact that noise dissipates as it travels away from its source, noise impacts would be limited to the Project site and vicinity.

Construction activities at other planned and approved projects near the Project site would be required to comply with applicable City rules related to noise and would take place during daytime hours on the days permitted by the applicable Municipal Code, and projects requiring discretionary City approvals would be required to evaluate construction noise impacts, comply with the City's standard conditions of approval, and implement mitigation, if necessary, to minimize noise impacts.

Project demolition, site preparation, and grading are anticipated to occur concurrently with the building phase of the UCI Center for Child Health, which is located adjacent to the Project site. Grading activities are typically the loudest construction phase and use the largest equipment, while the building phase typically has limited heavy-duty equipment and generates less noise. Therefore, although the timing of construction activities associated with the proposed Project and the Center for Child Health may overlap, the combined effects would be minimal. As described above, when two identical sources are each producing sound of the same loudness, the resulting sound level at a given distance would be 3 dBA higher than one source under the same conditions. Based on the modeled construction noise levels in Table 3.11-14, this potential cumulative effect would not cause noise levels at the closest sensitive

¹⁸ University of California, Irvine, 2007 Long Range Development Plan Final Environmental Impact Report, Mitigation Measure Noi-1A, page 4.9-29.

receptors to exceed construction noise standards. The Project would also be required to implement 2007 LRDP MM NOI-2 to minimize construction noise. Therefore, the Project would not create a significant cumulative impact from construction noise. In addition, Project construction would not make a cumulatively considerable contribution to significant cumulative impacts, assuming such a cumulative impact existed, and impacts in this regard are not cumulatively considerable.

Cumulative Construction Vibration

The Project's construction vibration levels would not exceed damage or annoyance thresholds therefore, the Project's incremental contribution is not cumulatively considerable. Given that vibration propagates in waves through the soil, multiple pieces of equipment operating simultaneously would each produce vibration waves in different phases that typically would not increase the magnitude of the vibration. Furthermore, vibration is a localized phenomenon, and tends to dissipate to insignificant levels within dozens of feet, as discussed in Threshold 3.11-2. Thus, there would be no possibility for vibration associated with the Project to combine with vibration from other projects because of their distances from the Project site. Therefore, the cumulative vibration impacts would be cumulatively less than significant.

Cumulative Operational Noise

Cumulative Off-Site Traffic Noise

Cumulative noise impacts describe how much noise levels are projected to increase over existing conditions with the development of the proposed Project and other foreseeable projects. Cumulative noise impacts would occur primarily as a result of increased traffic on local roadways due to buildout of the proposed Project and other projects in the vicinity. Cumulative increases in traffic noise levels were estimated by comparing the Existing and Buildout scenarios to the Buildout Plus Project scenario. The traffic analysis considers cumulative traffic from future growth assumed in the traffic mode, as well as cumulative projects identified by the cities of Newport Beach and Irvine.

A project's contribution to a cumulative traffic noise increase would be considered significant when the combined effect exceeds perception level (i.e., auditory level increase) threshold. The following criteria is used to evaluate the combined and incremental effects of the cumulative noise increase.

- ***Combined Effect.*** The cumulative with Project noise level ("Cumulative With Project") would cause a significant cumulative impact if a 3.0 dB increase over "Existing" conditions occurs and the resulting noise level exceeds the applicable exterior standard at a sensitive use. Although there may be a significant noise increase due to the proposed Project in combination with other related projects (combined effects), it must also be demonstrated that the Project has an incremental effect. In other words, a significant portion of the noise increase must be due to the proposed Project.
- ***Incremental Effects.*** The "Cumulative With Project" causes a 1.0 dBA increase in noise over the "Cumulative Without Project" noise level.

A significant impact would result only if both the combined and incremental effects criteria have been exceeded. Noise by definition is a localized phenomenon, and reduces as distance from the source increases. Consequently, only the proposed Project and growth due to occur in the general area would contribute to cumulative noise impacts. *Table 3.11-19, Cumulative Plus Project Conditions Predicted Traffic Noise Levels*, identifies the traffic noise effects along roadway segments in the project vicinity for

“Existing,” “Cumulative Without Project,” and “Cumulative With Project,” conditions, including incremental and net cumulative impacts.

Table 3.11-19. Cumulative Plus Project Conditions Predicted Traffic Noise Levels						
Roadway Segment	dBA @ 100 Feet from Roadway Centerline			Combined Effects	Incremental Effects	Cumulatively Significant Impact?
	Existing	Cumulative Without Project	Cumulative With Project	Difference In dBA Between Existing and Cumulative With Project	Difference In dBA Between Cumulative Without Project and Cumulative With Project	
Jamboree Road						
SR-73 to MacArthur Blvd.	71.1	71.2	71.5	0.3	0.3	No
MacArthur Blvd. to Fairchild Rd.	71.7	71.9	72.2	0.5	0.3	No
Fairchild Rd. to Birch St.	71.7	72.5	72.6	0.9	0.2	No
Birch St. to Campus Dr.	70.8	71.7	71.8	1.0	0.1	No
Campus Dr. to Michelson Dr.	70.8	71.9	72.0	1.2	0.1	No
Michelson Drive to I-405	74.0	74.7	74.7	0.8	0	No
I-405 to Main Street	74.0	73.9	73.9	0	0	No
Main St. to McGaw Ave.	72.7	73.7	73.7	1.0	0	No
McGaw Ave. to Alton Pkwy	72.7	72.9	72.9	0.2	0	No
Alton Pkwy to Barranca Pkwy	72.3	72.5	72.6	0.3	0.0	No
Carlson Avenue						
Campus Dr. to Michelson Dr.	63.8	63.9	64.0	0.2	0.1	No
Campus Drive						
West of Von Karman Ave.	64.0	65.6	65.6	1.6	0	No
Von Karman Ave. to Jamboree Rd.	63.6	65.3	65.4	1.7	0.1	No
Jamboree Rd. to Carlson Ave.	65.3	67.5	67.6	2.3	0.1	No
Carlson Ave. to University Dr.	67.5	70.0	70.0	2.5	0.1	No
East of University Dr.	66.4	68.4	68.4	2.0	0.0	No
ADT = average daily trips; dBA = A-weighted decibels; CNEL = Community Noise Equivalent Level						
1. Traffic noise levels are at 100 feet from the roadway centerline. The actual sound level at any receptor location is dependent upon such factors as the source-to-receptor distance and the presence of intervening structures, barriers, and topography.						
Source: Based on traffic data provided by Stantec, Inc., September 2020. Refer to Appendix G of this SEIR for traffic noise modeling assumptions and results.						

First, it must be determined whether the “Future With Project” increase above existing conditions (*Combined Effects*) is exceeded. As indicated in the table, none of the roadway segments exceed the combined effects criterion. Next, under the *Incremental Effects* criteria, cumulative noise impacts are defined by determining if the forecast ambient (“Future Without Project”) noise level is increased by 1 dB or more. As shown in the table, the incremental effects criterion is also not exceeded. Based on the significance criteria set forth in this SEIR, no roadway segments would result in significant impacts because they would not exceed both the combined and the incremental effects criteria. The proposed Project

would not result in long-term mobile noise impacts based on project-generated traffic as well as cumulative and incremental noise levels. Therefore, the proposed Project, in combination with cumulative background traffic noise levels, would result in a less than significant cumulative impact. The proposed Project's contribution to roadway noise would not be cumulatively considerable.

Cumulative Stationary Noise

Stationary noise sources of the proposed Project would result in an incremental increase in non-transportation noise sources in the Project vicinity. However, as discussed above, operational noise caused by the proposed Project would be less than significant. Additionally, due to site distance to sensitive receptors and existing traffic noise along Jamboree Road (which increase existing ambient noise levels), cumulative stationary noise impacts would not occur. Similar to the proposed Project, other planned and approved projects would be required to mitigate for stationary noise impacts at nearby sensitive receptors, if necessary. As stationary noise sources are generally localized, there is a limited potential for other projects to contribute to cumulative noise impacts.

No known past, present, or reasonably foreseeable projects would combine with the operational noise levels generated by the Project to increase noise levels above acceptable standards because each project must comply with applicable City regulations that limit operational noise. Therefore, the Project, together with other projects, would not create a significant cumulative impact, and even if there was such a significant cumulative impact, the Project would not make a cumulatively considerable contribution to significant cumulative operational noises.

3.11.8 Level of Significance After Mitigation

With implementation of the Mitigation Measures set forth in this section, potential impacts would be reduced to a level considered less than significant.

3.12 POPULATION AND HOUSING

This section describes the proposed Project's potential effects on population, housing, and employment related to the addition of hospital and clinical uses on the site. The environmental effects of increased population, housing, and employment on factors such as traffic, air quality, and noise are addressed in their respective sections of this SEIR.

3.12.1 Regulatory Setting

State of California

California Housing Element Law

The Housing Element is one of the eight General Plan Elements that are mandated by the State of California (California Government Code §§ 65302 and 65580 to 65589.8). California State law requires that the Housing Element consists of, "an identification and analysis of existing and projected housing needs and a statement of goals, policies, quantified objectives, financial resources, and scheduled programs for the preservation, improvement, and development of housing" (Government Code § 65580).

State law requires that each city and county identify and analyze existing and projected housing needs within its jurisdiction and prepare goals, policies, and programs to further the development, improvement, and preservation of housing for all economic segments of the community, commensurate with local housing needs.

University of California

UC Irvine Long Range Development Plan

The 2007 LRDP provides the comprehensive framework for the physical development of the UCI campus and is the primary planning document for the campus. As a general land use plan, the 2007 LRDP does not guide enrollment decisions or implementation of capital projects that could impact the on-campus population. Population and housing projections utilized in the 2007 LRDP are based on near-term enrollment projections and the 2007 LRDP generally outlines the physical development needed to meet projected demand. The 2007 LRDP Housing Element outlines the University's initiative to identify on- and off-campus solutions to meet the campus population's housing needs. Key planning objectives for the Housing Element include:

- Develop high-quality residential neighborhoods to advance a strong community-in-residence at UCI;
- Provide accessible and affordable housing opportunities to support the recruitment and retention of faculty, staff, and students;
- Provide sufficient student housing on the campus to accommodate 50 percent of UCI's on-campus enrollment;
- Address the demand for University housing in order to limit UCI's impact on the local housing market and traffic circulation system; and
- Expand neighborhood support uses to enhance residential life.

Regional

The Project area's demographics are examined in the context of existing and projected population and housing within the UC Irvine planning area. Demographic information used in this analysis include, but are not limited to, the UCI Long Range Development Plan and demographic information from the California Department of Finance (DOF), the California Economic Development Department (CA EDD), and the U.S. Census Bureau.

Southern California Association of Governments (SCAG)

SCAG is a Joint Powers Agency established under Sections 6502 et seq. of the *California Government Code*. SCAG is designated as a Council of Governments (COG), a Regional Transportation Planning Agency (RTPA), and a Metropolitan Planning Organization (MPO) for the six-county region of Orange, Los Angeles, Ventura, San Bernardino, Riverside, and Imperial Counties. The region encompasses a population exceeding 18 million persons in an area that encompasses more than 38,000 square miles. As the designated MPO, SCAG is the responsible agency for developing and adopting regional housing, population, and employment growth forecasts for local governments. The City of Newport Beach is a member of the Orange County Council of Governments (OCCOG), one of the 14 subregional organizations in the SCAG region.

SCAG's demographic data is developed to enable the proper planning of infrastructure and facilities to adequately meet the needs of anticipated growth in the region. In April 2016, SCAG adopted its *2016-2040 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS)*. Major themes in the 2016 RTP/SCS include integrating strategies for land use and transportation; striving for sustainability; protecting and preserving existing transportation infrastructure; increase capacity through improved systems managements; providing more transportation choices; leveraging technology; responding to demographic and housing market changes; supporting commerce, economic growth and opportunity; promoting the links between public health, environmental protection and economic opportunity; and incorporating the principles of social equity and environmental justice into the plan. Growth forecasts contained in the 2016 RTP/SCS for Orange County and the City are used as the basis of analysis for housing, population, and employment forecasts in this section.

Regional Housing Needs Assessment (RHNA)

RHNA is an assessment process performed periodically as part of Housing Element and General Plan updates at the local level. The RHNA process begins with the California Department of Housing and Community Development's (HCD) projection of future statewide housing growth need, and the apportionment of this need of regional councils of governments throughout the State. As the region's designated COG, SCAG is the agency responsible for developing an allocation methodology to allocation the region's assigned share of statewide need to cities and counties by income level.

This "fair share" allocation concept seeks to ensure that each jurisdiction accepts responsibility for the housing needs of its resident population, as well as the jurisdiction's projected share of regional housing growth across all income categories. Regional growth needs are defined as the number of units that would have to be added in each jurisdiction to accommodate the forecasted number of households, as well as the number of units that need to be added to compensate for anticipated demolitions and changes to achieve an ideal vacancy rate. SCAG defines a "household" as an occupied dwelling unit.

The current RHNA Cycle covers the planning period from October 2013 to October 2021. The housing construction need is determined for four broad household income categories: very low (households making less than 50 percent of area median income), low (50 to 80 percent of area median income), moderate (80 to 120 percent of area median income), and above moderate (more than 120 percent of area median income). The intent of the future needs allocation by income groups is to relieve the undue concentrations of very low-income and low-income households in a single jurisdiction and to help allocate resources in a fair and equitable manner.

Local

City of Irvine General Plan

The 2013-2021 Irvine Housing Element is structured to reflect the “Housing Element Building Blocks” model developed by the State Department of Housing and Community Development (HCD). HCD is responsible for reviewing the Housing Element for compliance with state law. In addition to responding to the requirements of state law, the Irvine Housing Element demonstrates how the strategies to meet the City’s locally determined housing needs are methodically addressed through plans, programs and projects.

City of Irvine Housing Strategy and Implementation Plan

In March 2006, the City of Irvine adopted a long-term Housing Strategy and Implementation Plan (HSIP). The HSIP establishes strategies for the City to build housing that is affordable to the local workforce, including the establishment of a non-profit Irvine Community Land Trust to implement the City’s affordable housing strategy and to create significant amounts of permanently affordable housing. The HSIP was developed in consultation with UCI and other public and private entities in the City of Irvine. A stated priority of the HSIP is to “partner with Irvine’s colleges and universities to create additional faculty and student housing.”

3.12.2 Environmental Setting

Existing and Projected Population

Orange County

Orange County has a current population of approximately 3,194,332 residents (DOF, 2020). *Table 3.12-1, Population Projections for Orange County and Irvine 2012-2040* shows the current and projected population numbers for the County, as determined in the 2016 RTP/SCS prepared by SCAG. As identified in the table, SCAG forecasts that the population in Orange County to grow by nearly 13 percent between 2012 and 2040. The City of Irvine has a current population of approximately 281,707, and was anticipated by SCAG to increase to approximately 327,300 by 2040

	2012	2020¹	2035	2040
Orange County	3,071,600	3,194,332	3,431,200	3,461,500
Irvine	227,100	281,707	326,700	327,300

1. Department of Finance, Table 2 E-5.
Source: SCAG, 2016.

Existing and Projected Housing**Orange County**

As shown in *Table 3.12-2, Housing Units for Orange County and Irvine*, Orange County has an estimated 1,111,421 housing units as of 2020 with an average of 2.98 persons per household (DOF, 2020). As reported by the Department of Finance, the vacancy rate is a measure of the availability of housing in a community. It also demonstrates how well the types of units available meet the market demand. A low vacancy rate suggests that households may have difficulty finding housing within their price range; a high supply of vacant units may indicate either the existence of a high number of desired units, or an oversupply of units. The vacancy rate for housing in the County is estimated to be 5.2 percent (DOF, 2020). As identified in *Table 3.12-3: 2016 Household Projections for Orange County and Irvine, 2012-2040*, number of households in Orange County are projected to increase by over 15 percent between 2012 and 2040.

	2020 ¹	Persons per Household	Vacancy Rate
Orange County	1,111,421	2.98	5.2%
Irvine	108,822	2.60	6.2%

Source: Department of Finance, Table 2: E-5, January 1, 2020

	2012	2020 ¹	2035	2040
Orange County	999,500	1,111,421	1,135,300	1,152,300
Irvine	81,800	108,222	122,100	123,400

1. Department of Finance, Table 2: E-5, January 1, 2020
Source: SCAG, 2016.

Irvine

The City has an estimated 108,222 housing units with an average of 2.60 persons per household (Table 3.12-2). Households in Irvine are projected to increase by approximately 51 percent between 2012 and 2040. The vacancy rate for housing in the City was estimated to be 6.2 percent (DOF, 2020). There is currently no existing residential development on the project site.

SCAG determines total housing needs for each community in Southern California based on three general factors: (1) the number of housing units needed to accommodate future population and employment growth; (2) the number of additional units needed to allow for housing vacancies; and (3) the number of very low, low, moderate, and above moderate income units needed in the community. Additional factors used to determine the RHNA include tenure, the average rate of units needed to replace housing units demolished, and other factors.

The City's RHNA allocation for the 2014–2021 period is shown in *Table 3.12-4, City of Irvine RHNA Allocation, 2014-2021*. The City is required to ensure that sufficient sites planned and zoned for housing are available to accommodate its need and to implement proactive programs that facilitate and encourage the production of housing commensurate with its housing needs.

Income Level	Percent of AMI	Target (Units)	Percent
Very low	0-50%	2,817	23.1
Low	51-80%	2,034	17.1
Moderate	81-120%	2,239	18.5
Above Moderate	120%+	5,059	41.3
Total		12,149	100%

AMI = Area Median Income
Source: SCAG 5th Cycle Regional Housing Needs Assessment (RHNA) Final Allocation Plan, 2012.

Existing and Projected Employment

Orange County

As shown in *Table 3.12-5, Employment Projections for Orange County and Irvine, 2012-2040*, Orange County had 1,526,500 jobs in 2012. According to SCAG projections, jobs are projected to increase by 24 percent between 2012 and 2040. The population-to-employment ratio is lower in Orange County compared to the SCAG region as a whole. Comparing the population-to-employment ratio between Orange County and the SCAG region as a whole indicates a need for more housing growth in Orange County (SCAG, 2016).

	2012	2020	2035	2040
Orange County	1,526,500	1,730,400	1,870,500	1,898,900
Irvine	224,400	280,600	314,000	320,000

Source: SCAG, 2016.

Irvine

The City of Irvine had 224,400 jobs in 2012 (Table 3.12-5). According to SCAG projections, jobs in the City are projected to increase by approximately 43 percent between 2012 and 2040. The population-to-employment ratio is lower in the City compared to Orange County and the SCAG region as a whole.

Jobs to Housing Balance

SCAG states that “a balance between jobs and housing in a metropolitan region can be defined as a provision of an adequate supply of housing to house workers employed in a defined area (i.e., community or subregion). Alternatively, a jobs/housing balance can be defined as an adequate provision of employment in a defined area that generates enough local workers to fill the housing supply”. Jobs and housing are considered in balance when a subregion has enough employment opportunities for most people who live there and enough housing opportunities for most of the people who work there. The jobs/housing balance is one indicator of a project’s effect on growth and quality of life in a project area. SCAG uses the jobs/housing ratio to assess the relationship between housing and employment growth.

Alternatively, the 2016-2040 RTP/SCS states “the imbalance of jobs and housing is considered a key contributor to traffic congestion and an impediment to environmental justice” (SCAG, 2016). According to SCAG, improvements in job-housing balance may result in a reduction of transportation congestion and related air quality problems (SCAG, 2016). Communities with more than 1.5 jobs per dwelling unit are

considered job-rich and those with fewer than 1.5 jobs per dwelling unit are considered housing-rich. As identified in *Table 3.12-6, Jobs to Housing Ratio Projections for Orange County and Irvine: 2012-2040*, the jobs-housing balance in the City is projected to slightly decrease between 2012 and 2040 from 2.74 to 2.59 and would remain jobs-rich. The jobs-housing balance in Orange County is estimated to increase from 1.53 to 1.65 during the same period.

Orange County	2012	2020	2035	2040
Employment	1,526,500	1,730,400	1,870,500	1,898,900
Households	999,500	1,074,700	1,135,300	1,152,300
Jobs/Housing Ratio	1.53	1.61	1.65	1.65
Irvine	2012	2020	2035	2040
Employment	224,400	280,600	314,000	320,000
Households	81,800	109,500	122,100	123,400
Jobs/Housing Ratio	2.74	2.56	2.57	2.59

Source: SCAG, 2016.

University of California, Irvine

As previously noted, the 2007 LRDP serves as the primary planning document for UC Irvine. *Table 3.12-7, UCI Population Accommodated in 2007 LRDP*, below summarized the projected increases in student enrollment and campus employees through the 2025-2026 horizon year. Between 2007 to 2026, UC Irvine projects an approximately 52 percent increase in student enrollment and 53 percent increase in academic and staff employees. To supplement these figures, the 2007 LRDP also accounts for Inclusion Area Employees, which are non-university personnel employed within the Inclusion Area. The Inclusion Area is 510 acres purchased by the Regents in 1964 from the Irvine Company, and a portion of the land has since been developed with non-university, commercial uses. Non-university personnel that work within Inclusion Area development are accounted for in the 2007 LRDP, under a separate category. This value is expected to increase by approximately 161 percent.

	Student Enrollment	Academic and Staff Employees	Inclusion Area Employees	Total
2005 – 2006 Actual	23,155	7,463	3,430	34,048
2025 – 2026 Projected	35,324	11,443	8,983	55,750

Source: UCI, 2007.

Population and housing projections utilized in the 2007 LRDP are based on near-term enrollment projections, and since the adoption of the 2007 LRDP and certification of the 2007 LRDP EIR, UCI has increased the goal of housing 50 percent of undergraduates and graduate students to 60 percent with the recent 2007 LRDP Student Housing Amendment adopted in September 2019. The LRDP Student Housing Amendment designates land to accommodate for up to 22,000 student beds. In addition to student housing, the 2007 LRDP designates land for up to 1,700 faculty and staff dwelling units.

3.12.3 Thresholds of Significance

The following significance criteria are from the CEQA Guidelines, Appendix G Environmental Checklist. The proposed Project would result in a significant impact related to population and housing if it would:

Threshold 3.12-1 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)?

Threshold 3.12-2 Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

Campus Programs, Practices and Procedures, and Mitigation Measures Carried Forward from the November 2007 LRDP Amendment Final EIR

No Mitigation Measures specific to Population and Housing were adopted as part of the November 2007 LRDP Final EIR.

3.12.4 Environmental Impacts

This section describes the methodology used in conducting the impact analysis for population and housing, the thresholds of significance used in assessing impacts to population and housing, and the assessment of impacts to population and housing, including relevant mitigation measures.

Threshold 3.12-1	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)?
Impact Summary:	Less Than Significant

The 2007 LRDP designates the Project site as Mixed Use – Commercial and Open Space – General. The Mixed Use – Commercial designation allows for the construction of facilities for Medical Office, General Office, Research & Development, Academic Uses, Commercial and Retail, Conference Facilities, and Residential Uses. The Open Space – General designation allows the construction of pedestrian and bike trails, water quality and drainage structures, food service, interpretive centers, field research facilities, maintenance roads, and support structures. The proposed Project's land uses, with the adoption of the proposed 2007 LRDP Amendment to add Inpatient uses, would be consistent with the Mixed Use – Commercial and Open Space – General designations. In addition, 3.5 acres of temporary construction laydown would be located on land designated as Open Space – Athletics and Recreation.

The 2007 LRDP allows for 950,000 GSF of built space and 435 dwelling units within the North Campus. Existing facilities for the entirety of the North Campus include campus support services, academic facilities, and the UCI Arboretum and make up approximately 82,440 SF of existing built space. To allow for construction of the proposed Project, the approximately 360 GSF Shops Office Trailer, approximately 1,078 GSF Shops Stores Trailer, and approximately 10,400 GSF of storage containers would be demolished out of 82,440 SF of existing North Campus uses. None of the demolished uses would be replaced. Upon Project completion, an approximately 350,000 SF Acute Care Hospital, approximately 225,000 Ambulatory Care Center, approximately 37,000 SF Central Utility Plant, and a 1,400-space parking would be

constructed. These square footages would fall within the square footage analyzed for the North Campus in the 2007 LRDP EIR.

The proposed Project would not directly induce population growth because there are no residential uses proposed. Indirectly, the proposed Project could result in population growth if new staff members including doctors, nurses, administrators, administrative support, etc., move into the Orange County area for employment. The proposed Project would result in the creation of approximately 950 new jobs while an additional approximately 250 employees would come from the existing faculty and staff in other UCI facilities. While it is anticipated some workers would move to the area, this number would be insignificant compared to the existing population with the City and County and represents approximately .03 percent of the County population.

Although the proposed Project would increase the number of jobs and could exacerbate the jobs/housing imbalance within the County if a number of new employees relocate from outside the region, the proposed Project is within the buildout square footages, as discussed above, and population numbers analyzed in the 2007 LRDP EIR. The number of UCI employees has been analyzed in the 2007 LRDP EIR, which analyzed 11,443 faculty and staff employee for the 2025-26 horizon year. As of the Fall 2019 quarter, there were 8,813 faculty and staff employees at the campus, or currently 2,630 faculty and staff below the capacity analyzed in the 2007 LRDP EIR. The number of new employees generated by this Project is therefore within the scope of total new employees for UCI that has been previously studied, and would not be expected to indirectly generate a need for housing beyond that which has been previously analyzed in the 2007 LRDP EIR and found to be less than significant. In addition, buildout of the North Campus includes an additional 435 residential units, which would decrease the job/housing imbalance once constructed.

Patients and visitors would be coming to the campus intermittently for services. The proposed Project would not directly induce population growth because most patients and visitors would be from the surrounding region, and is unlikely for prospective patients to move to the region for services.

Therefore, the proposed Project is consistent with the 2007 LRDP and would not substantially induce unplanned population growth and impacts would be less than significant. No mitigation is required.

Mitigation Measures

No mitigation is required.

Level of Significance After Mitigation

Less than significant impact.

Threshold 3.12-2	Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?
Impact Summary:	Less Than Significant

Existing onsite uses include undeveloped real property, UCI support services, and portions of the North Campus Arboretum. The Project site does not currently have any housing or permanent population. Therefore, implementation of the proposed Project would not displace a substantial number of existing housing or people and a less than significant impact would occur. No mitigation is required.

Mitigation Measures

No mitigation is required.

Level of Significance After Mitigation

Less than significant impact.

3.12.5 Cumulative Impacts

The prior analysis addresses potential impacts in the context of cumulative population, housing and employment growth in the City, County, and SCAG region. Potential impacts are assessed relative to the 2007 LRDP and regional plans, including SCAG's 2016 RTP/SCS population, housing, and employment projections. SCAG regional growth projections reflect recent and past trends, key demographic and economic assumptions and include local and regional policies. The local jurisdiction, City of Irvine, participates in the growth forecast development process and includes UCI's 2007 LRDP development assumptions. These assumptions included development of the Project Site for uses similar to those proposed in this Project (SCAG, 2016).

Environmental review is required for individual projects located at UCI, the City, the County, and the SCAG region in order that the potential impacts of each project may be assessed. Project-specific measures would be required, as needed, to reduce significant impacts. Future projects not consistent with UCI, City, County, and SCAG planning documents would require additional environmental review to determine the potential adverse effects associated with amending those regional planning documents.

The proposed Project is an infill project; and would not extend infrastructure that would induce population growth and would therefore not combine with other related projects to contribute to a cumulative impact with respect to population growth. In summary, the proposed Project—when combined with past, present and reasonably foreseeable future projects—would not cumulatively contribute to significant adverse cumulative impacts to population, housing, or employment. Impacts would be less than significant.

3.12.6 Level of Significance After Mitigation

The proposed Project's potential increase in population, housing, and employment would be within regional projections. No significant impact would occur.

3.12.7 References

University of California, Irvine, Office of Institutional Research. November, 2019. *Total Non-Student Employees, Fall Quarter FTE*. Retrieved from <https://www.oir.uci.edu/files/empl/VIA01NF-all-employees.pdf>.

University of California, Irvine. September, 2019. *Verano 8 Graduate Student Housing & UCI Long Range Development Plan Student Housing Amendment*. Retrieved from <https://cpep.uci.edu/environmental/pdf/review/19-09-03-Verano-8-LRDP-Amendment-Final-ISMND-Combined.pdf>.

This page intentionally left blank.

3.13 PUBLIC SERVICES

This section describes existing public services for the University of California, Irvine (UCI) Irvine Campus Medical Complex Project (proposed Project or Project) and identifies and addresses potential Project impacts related to the following services:

- Fire protection (Orange County Fire Authority),
- Police protection (UCI Police Department and City of Irvine Police Department),
- Public schools (Irvine Unified School District),
- Parks (City of Irvine and City of Newport Beach), and
- Libraries (UCI Libraries and Orange County Public Libraries).

3.13.1 Regulatory Setting

Federal

Higher Education Opportunity Act

The University shall comply with the requirements of the Campus Fire Safety Right-to-Know Act in the Higher Education Opportunity Act, which was signed by President Bush on August 1, 2008. Specifically, the legislation requires that a Fire Safety Report be distributed by the University containing statistics concerning the following in each on-campus student housing facility during the most recent calendar year for which data are available:

- The number of fires and the cause of each fire. The number of injuries related to a fire that resulted in treatment at a medical facility.
- The number of deaths related to a fire.
- The value of property damage caused by a fire.
- A description of each on-campus student housing facility's fire safety system, including the fire sprinkler system.
- The number of regular mandatory supervised fire drills.
- Policies or rules on portable electrical appliances, smoking, and open flames (such as candles); procedures for evacuation; and policies regarding fire safety education and training programs provided to students, faculty, and staff.
- Plans for future improvements in fire safety, if determined necessary by such institution.

State

California Fire Code

The 2016 California Fire Code (California Code of Regulations Title 24 Part 9) sets forth requirements including those for building materials and methods pertaining to fire safety and life safety, fire protection systems in buildings, emergency access to buildings, and handling and storage of hazardous materials.

California Building Code

The State of California provides a minimum standard for building design through the California Building Code (CBC), which is located in Part 2 of Title 24 of the California Code of Regulations. The California Building Code is based on the International Building Code but has been modified for California conditions. It is generally adopted on a jurisdiction-by-jurisdiction basis, subject to further modification based on local conditions. Commercial and residential buildings are plan checked by local City and County building officials for compliance with the CBC. Typical fire safety requirements of the CBC include the installation of sprinklers in all commercial and residential buildings; the establishment of fire resistance standards for fire doors, building materials, and particular types of construction; and the clearance of debris and vegetation within a prescribed distance from occupied structures in wildfire hazard areas.

California Health and Safety Code - Sections et seq. 13000

State fire regulations are set forth in Sections 13000 et seq. of the California Health and Safety Code include regulations that concern building standards (as also set forth in the California Building Code), fire protection and notification systems, fire protection devices such as extinguishers and smoke alarms, high-rise building and childcare facility standards, and fire suppression training. The State Fire Marshal enforces these regulations and building standards in all state-owned buildings and institutions throughout California, including the University of California. The UCI Fire Marshal is responsible for enforcing the fire regulations and building standards on the UCI campus.

University of California***University of California Facilities Manual***

The University of California is the “Authority Having Jurisdiction” for code regulations on University projects. The University complies with the Title 24 California Building Standards Code, Parts 1-12 and all amendments. Each campus has a Building Official; locally administered code compliance program; and is required to design, approve, construct, alter, renovate, inspect, and maintain its facilities in accordance with all applicable federal, state, and local agency regulations.

UCI Emergency Management Program

UCI has prepared an Emergency Management Program that addresses the campus community’s planned response to various levels of human-caused or natural emergency situations including fires, hazardous spills, earthquakes, flooding, explosion, and civil disorders. The intent of the Program is to provide information that will save lives during extraordinary emergency events and hasten the resumption of normal campus operations during the recovery process.

UCI Fire Prevention

UCI does not have its own fire department and relies on the Orange County Fire Authority (OCFA) to respond to fire service and applicable emergencies. While UCI does not have its own fire department, the campus employs a Fire Marshal and staff who are responsible for campus-wide fire prevention. The Fire Marshall and staff are also responsible for issuing permits for special events and plan review and inspections for new construction as well as alterations or renovations to existing buildings and facilities. Plan review and construction inspections are performed in accordance with California building and fire codes.

When new development, redevelopment or site improvements occur on campus, UCI is responsible for ensuring fire protection equipment is adequately maintained on campus at all times and that water supply for fire hydrants meet fire flow standards.

3.13.2 Environmental Setting

Orange County Fire Authority

OCFA is responsible for responding to emergencies that occur on the UCI campus. OCFA provides fire prevention/suppression and emergency services to 24 cities in Orange County and all unincorporated areas and operates 79 fire stations. OCFA is responsible for protecting 576 square miles, including 190,822 acres of wildland, and over 1.8 million residents (OCFA, 2020). OCFA Reserve Firefighters work 10 stations throughout Orange County. The City of Irvine, including the UCI Campus, falls within the service area of OCFA Division II, Battalions 5 and 10. OCFA's adopted standard for response times is seven minutes and 20 seconds for 80 percent of emergency calls.

Law Enforcement Services

University of California, Irvine Police Department

The University of California, Irvine Police Department (UCIPD) provides law enforcement services including patrol, traffic, investigations, community engagement, crime prevention and suppression, emergency management, and security services to a daily population of more than 50,000 people. The UCIPD is located at 410 East Peltason Drive, approximately 1.5 miles southeast of the Project site, and employs approximately 50 sworn officers, 56 professional staff, and 40 students who provide public safety services at both the Irvine campus and the Medical Center, located in the City of Orange, California.

Irvine Police Department

The City of Irvine Police Department (IPD) and the UCIPD have concurrent legal jurisdiction and authority on the UCI campus, including properties leased by UCI that are located off-campus and within the City of Irvine. The Irvine Police Department is located at 1 Civic Center Plaza, approximately 2.2 miles northeast of the Project site. IPD is comprised of six divisions: Administration Division, Business Services Division, Operations Division, Operations Support Division, Office of Professional Development, and Office of Professional Standards. In 2003, the IPD implemented geographic policing by dividing the City into three areas: University, Crossroads, and Portola. The UCI campus is within the University Area.

The City has a total of approximately 232 officers and provides law enforcement to six different areas within the City of approximately 281,707 residents. This results in an officer to population ratio of approximately 1.21 per 1,000. The proposed Project is within the University Area which serves the UCI campus and the communities of Rancho San Joaquin, Turtle Ridge, Turtle Rock, University Park, University Town Center, West Park Village 1, Bommer Canyon Open Space Preserve, Orchard Hills Open Space Preserve, and Quail Hill Open Space Preserve. The University Area is bordered by the I-405 on the north, SR-133 on the east, and SR-73 on the south. The University Area also includes the Irvine Business Complex (IBC), which is bordered by the San Diego Creek on the east, Barranca Parkway on the north, SR-55 on the west, and MacArthur Boulevard on the south.

Irvine Unified School District

The Project site is within the boundaries of the Irvine Unified School District (IUSD). The IUSD has an enrollment of approximately 36,000 students across 41 schools: 24 elementary schools, 1 early childhood learning center, 4 Kindergarten through 8th grade (K-8) schools, 6 middle schools, 5 comprehensive high schools, and 1 alternative high school (IUSD, 2017).

The closest IUSD schools to the Project site include University Park Elementary School, Rancho San Joaquin Middle School, and University High School.

- University Park Elementary School (Kindergarten [K] through 6th grades) is located at 4572 Sandburg Way, approximately 2.8 miles east of the Project site. The school had a pupil-teacher ratio of just over 24 students to 1 teacher in the 2017-2018 school year and served 553 students in the 2018-2019 school year (Ed-Data, 2020a).
- Rancho San Joaquin Middle School (grades 7-8) is located at 4861 Michelson Drive, approximately 3.4 miles north east of the Project site. The school had a pupil-teacher ratio of 25 students to 1 teacher in the 2017-2018 school year and served 833 students in the 2018-2019 school year (Ed-Data, 2020b).
- University High School (grades 9-12) is located at 4771 Campus Drive, approximately 2.5 miles south east of the Project site. The school had a pupil-teacher ratio of 25 students to 1 teacher in the 2017-2018 school year and served 2,312 students in the 2018-2019 school year (Ed-Data, 2020c).

Recreation***Quimby Act***

The Quimby Act of 1975, (California Government Code § 66477) allows a city or county to pass an ordinance that requires, as a condition of approval of a subdivision, either the dedication of land, the payment of a fee in lieu of dedication, or a combination of both for park and recreational purposes. It allows a city or county to require a maximum parkland dedication standard of 3 acres of parkland per 1,000 residents for new subdivision development unless the jurisdiction can demonstrate that the amount of existing neighborhood and community parkland exceeds that limit. In accordance with Section 66477, a jurisdiction may establish a parkland dedication standard based on its existing parkland ratio, provided required dedications do not exceed 5 acres per 1,000 persons. The Quimby Act does not apply to UCI as this regulation is only applicable to private land in local jurisdictions.

UC Irvine Long Range Development Plan

The UC Irvine LRDP, adopted in 2007, provides the comprehensive framework for the physical development of the UCI campus and is the primary planning document for the campus. The 2007 LRDP generally outlines the physical development needed to meet projected demand based on near-term enrollment projections. The 2007 LRDP Open Space Element outlines the University's initiatives for preservation and maintenance of on-campus open space. Key planning objectives in the Open Space Element related to recreation include:

- Dedicate and manage open space to provide visual relief, buffer development, and promote active and passive recreation;

- Develop a linear arboretum and trail systems to link the Academic Core and the South Campus; and
- Develop a network of pedestrian trails in campus open space areas to encourage passive recreation.

Libraries

Orange County Public Library

The Orange County Public Library has three branches that provide library services within the city of Irvine. Library services provided at each branch include wireless internet printing, interlibrary loans, home-bound service, computer training classes, and book clubs for children, teens, and adults. Branch locations are listed in *Table 3.13-3, OC Public Library Facilities in the City of Irvine*.

Orange County Public Library	Address	Driving Distance to Project Site
University Park	4512 Sandburg Way, Irvine	2.8 miles
Heritage Park Regional	14361 Yale Avenue, Irvine	6.4 miles
Katie Wheeler	13108 Old Myford Road, Irvine	6.9 miles

The University Park Library is closest to the Project site. The University Park Library has amenities such as student and children programs, public computers with internet access and printing, and meeting rooms.

UC Irvine Libraries

UC Irvine provides extensive academic library facilities in four libraries including Jack Langson Library, Science Library, Grunigen Medical, and Libraries Gateway Study Center. These facilities serve students, faculty, staff, and the general public, and are supplemented by special University collections across campus. UC Irvine has approximately 350,000 SF of library facilities with over 500 public computers and 3,300 public seating areas (UCI Libraries, 2020). The 2016 UCI Libraries Strategic Plan outline's the University's goals which include expanding capacity locally and through cyberinfrastructure; supporting new forms of teaching, learning & research through technology, services and partnerships; expanding community connections; and providing comfortable space and IT infrastructure (UCI Libraries, 2016). These goals are aligned with the growth projected in the 2007 LRDP and on-campus population projections.

3.13.3 Thresholds of Significance

The Project would result in a significant impact to public services if it would:

Threshold 3.13-1 **Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the following public services: Fire protection, Police protection, schools, parks, other public facilities.**

Campus Programs, Practices and Procedures, and Mitigation Measures Carried Forward from the November 2007 LRDP Amendment Final EIR

No Mitigation Measures specific to public services were adopted as part of the November 2007 LRDP Final EIR.

3.13.4 Environmental Impacts

The following significance criteria are from Appendix G of the State CEQA Guidelines. The Project would result in a significant impact related to land use and planning if it would

Threshold 3.13-1	<p>Result in substantial adverse physical impacts associated with the provisions of new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:</p> <ul style="list-style-type: none"> i) Fire Protection? ii) Police Protection Services? iii) Schools? iv) Parks v) Other Public Services – Library Facilities? <p>Impact Summary: Less Than Significant Impact</p>
-------------------------	--

i) Fire Protection

Fire protection and emergency response services to the proposed Project would be provided by the Orange County Fire Authority (OCFA). The primary responder serving the North Campus, including the Project site, would be OCFA Fire Station #28 (2007 LRDP EIR, page 4.11-2). Station #28 is located at 17862 Gillette Avenue, approximately 1.5 miles to the east within the city of Irvine. As of 2019 data, Fire Station #28 had a response time of 8 minutes and 18 seconds for the 80th percentile, which is outside the adopted OCFA response standard.

The secondary responding station to the project site would be OCFA Fire Station #4, which is located southeast of the North Campus on the corner of California and Harvard Avenues in the city of Irvine. This station typically responds to calls on the UCI Main Campus. In 2016, UCI generated 923 calls, or approximately 38% of Station #4's calls for service. According to the 2007 LRDP EIR, Fire Station #4 had adequate capacity to accommodate existing demand on the Main Campus. As of 2016, the response time for Fire Station #4 was six minutes and 56 seconds, which is within the standard adopted by OCFA.¹ Built in 1966, the station has no current plans for expansion. In the event of a structural fire at the Project site, both Fire Stations #4 and #28 would respond.

¹ http://www.ocfa.org/Uploads/Orange%20County%20Fire%20Authority%20SOC_FINAL.pdf. Accessed December 23, 2019.

The proposed Project would construct a medical complex and would not directly increase population as it would serve existing Orange County and regional residents. Additionally, with the adoption of the proposed 2007 LRDP Amendment #3 that would add Inpatient uses to the Mixed Use – Commercial land use designation, the proposed Project is consistent with the 2007 LRDP assumptions analyzed in the 2007 LRDP EIR for the North Campus as the land was designated for mixed use, the Project is within the overall square footage capacity for the North Campus buildout, and is within the faculty/staff populations assumptions for the campus.

While the hospital would not directly increase population growth within Fire Station #28's service area, the patients, workers, and potential accidents and emergencies on site would result in an incremental increase in calls for service. Overall, the increase in calls would be minimal in comparison to the overall population and existing structures already served by OCFA fire stations in vicinity of the proposed Project; therefore, the increase for fire protection and medical emergency response are not anticipated to be substantial in this regard. However, while the anticipated population increase associated with implementation of the proposed Project is not anticipated to result in a substantial adverse effect on OCFA's ability to serve residents, the proposed Project would result in an increased demand for services and potentially result in a decline of service standards, specifically, response times.

To help reduce demands on OCFA services, the Project would be designed to comply with building and fire codes and include appropriate fire safety measures and equipment, including but not limited to, use of fire retardant building materials, inclusion of emergency water infrastructure (e.g., fire hydrants and sprinkler systems), installation of smoke detectors and fire extinguishers, emergency response notification systems and provision of adequate emergency access ways for emergency vehicles. As such, with implementation of the proposed Project, the existing fire stations in the vicinity of the UCI campus would be adequate to meet the increases in demand for fire protection and emergency medical response services associated with the Project, and no additional new or physically altered facilities would be necessary.

Therefore, while the Project would not trigger the need for new fire protection facilities or equipment that would result in physical environmental impacts, OCFA has informed UCI regarding OCFA interest in constructing a new fire station within Battalion 5 to serve the Irvine Business Complex (IBC) district, which is adjacent to the North Campus. This would provide an additional fire station in the immediate vicinity of the North Campus, improving fire services to the project site and surrounding areas in the city of Irvine. This is consistent with the 2007 LRDP EIR, which discussed OCFA plans for a new 9,000 square foot station. As discussed in the 2007 LRDP EIR, the physical adverse impacts associated with the construction of the fire station would include short-term construction-related and would be subject to CEQA review and compliance with local, state and federal environmental requirements and would include appropriate mitigation to reduce potential impacts to the physical environment. The 2007 LRDP EIR found that with this review adverse physical impacts resulting from construction and operation of a new fire station to serve cumulative regional demand would be less than significant.

While the planning for a new fire station remains speculative as no applications of development plans have been submitted by OCFA, UCI will continue to cooperate with OCFA in any future feasibility analysis for a new fire station located on, or in the vicinity of, the North Campus. Therefore, implementation of the proposed Project would have a less than significant impact regarding the construction of new or physically altered fire protection facilities. No mitigation is required.

Mitigation Measures

No mitigation measures are required to reduce impacts to fire protection services.

Level of Significance After Mitigation

The proposed Project's impact on fire protection services would be less than significant.

ii) Police Protection Services?***Construction-related Impacts***

During development, construction may require services from the UCIPD and IPD in the cases of trespassing, theft, and vandalism. During construction, security fencing and lighting would be installed throughout construction areas to reduce the need for police protection services. Therefore, short-term, construction-related impacts would be less than significant.

Operational Impacts

The UCIPD is located in the Public Services Building, approximately 1.5 miles southeast of the North Campus. Buildout of the proposed Project would result in new structures with associated faculty, staff, patients on a temporary basis, and daily visitors. The proposed Project would serve existing populations though the County and regionally and would not result in a direct increase of the permanent resident campus population (see Section 3.12, *Population and Housing*). The proposed Project would result in new employees within the UCIPD service area and could result in an increase in call volume for law enforcement services to the Project site. Based on the current ratio of officers to residents for UCIPD (1 officer per 1,000 residents), implementation of the Proposed Project would result in the demand for less than one additional police officer considering the population of workers, patients, and visitors. It is not anticipated that the proposed Project would increase demand such that any new law enforcement facilities would be needed. Furthermore, there are no current plans to construct or expand police facilities on campus.

The demand for IPD services would not be substantially increased by the introduction of the proposed medical commercial uses, and as discussed above, IPD rarely responds to calls within UCIPD jurisdiction as outlined by the 1999 Police Services Agreement but would be available if a large-scale emergency occurred. IPD serves a population of approximately 281,707 with approximately 232 officers rendering an officer to population ratio of approximately 1.21 per 1,000. IPD does not have any immediate or future plans to expand police facilities, and the proposed Project would not increase demand for the City's police protection services that would require the construction of new facilities nor would it require the expansion of existing facilities that would result in physical environmental impacts.

The proposed Project would increase the number of jobs within the city of Irvine, which could result in population growth. It is anticipated most employees would already be living within the region and commute to the Project site; however, assuming all the new 950 employees moved to the City this would represent an approximate 0.03 increase in City population. This would indirectly result in an increase population and would slightly decrease the officer to population ratio by .014 (from 1.214 to 1.218). This is not considered a substantial decrease because to maintain existing service ratios IPD would need to hire one police officer. It is reasonably anticipated a new officer would use the existing facilities and that this increase would not result in the need for new or expanded facilities the construction of which would result

in impacts on the environment. The number of new employees, therefore, would not directly or indirectly result in impacts in this regard.

Lastly, it should be noted that development of the proposed Project has been planned for by the University and has been accounted for in the 2007 LRDP and analyzed within the 2007 LRDP EIR, and no new or expansion of existing facilities for UCIPD services would be required. Therefore, impacts to law enforcement services would be less than significant. No mitigation is required.

Mitigation Measures

No mitigation measures are required to reduce impacts on police protection services.

Level of Significance After Mitigation

The proposed Project's impact on police protection services would be less than significant.

iii) Schools?

The proposed Project consists of a new medical complex. Because the proposed Project is not a residential use, it would not directly generate new students. Development and operation of the proposed Project could result in indirect generation of students by resulting in new growth needed to house new employees needed to build and operate the facility and their families. The proposed Project would increase the number of jobs within the City, which could result in population growth; however, as discussed above, it is anticipated most new employees would be currently living within the region and would commute to the proposed Project site. Nonetheless, assuming all new 950 employees moved to the City this would indirectly result in and represent a worst case approximate 0.03 increase in City population.

However, it is anticipated that most workers would already live in the surrounding regional areas within existing residential areas. These families would be served by existing school resources and would not create a demand for new school services. Additionally, it should be noted that numerous school districts surround the project area. Students indirectly generated from the Project would be spread throughout these districts in the various attendance boundaries and would be served, as needed, by a large number of schools. Therefore, while it is possible that some new residents would move into the Irvine area, it is more likely they would living in a range of areas throughout Orange County and would be served by their existing neighborhood schools. This would result in a dispersion of any new students throughout the County and further minimizing impacts on individual schools.

As discussed above, the proposed Project would not result in an increase in students or the campus population beyond what was planned for in the 2007 LRDP and analyzed in the 2007 LRDP EIR. Therefore, the proposed Project would not require the need for new off-campus educational facilities the construction of which would result in unanticipated environmental impacts. Thus, impacts to school services would be less than significant and no mitigation is required.

Mitigation Measures

No mitigation measures are required to reduce impacts on schools.

Level of Significance After Mitigation

The proposed Project's impact on school services would be less than significant.

iv) Parks**Environmental Impacts**

As discussed in *Section 3.12, Population and Housing*, the proposed Project would not increase the campus population beyond what was planned for in the 2007 LRDP and analyzed in the 2007 LRDP EIR. Existing on-campus recreational facilities located throughout the campus, including Aldrich Park, Crawford Athletics Complex, and the Anteater Recreation Center, have sufficient capacity to support the project and would not require the construction of new park facilities. Recreational areas also would be available in surrounding cities such as Irvine and Newport, which would include networks or trails, outdoor parks, sports fields, indoor senior and community centers, golf courses, nature areas, etc. Therefore, impacts on parks would be less than significant. No mitigation is required.

Please see *Section 3.14, Recreation* for additional discussion on Recreation including public park facilities.

Mitigation Measures

No mitigation measures are required to reduce impacts on parks.

Level of Significance After Mitigation

The proposed Project's impact on parks would be less than significant

v) Other Public Services – Library Facilities

The proposed Project would not generate substantial population growth that would substantially increase the demand for off-campus Orange County Public Library Services. As discussed above, the proposed Project would create employment for approximately 950 employees. The employees are anticipated to be dispersed throughout the County, and while the proposed Project may induce some people to move to the immediate area, a large number of employees are anticipated to come from the existing region. The existing library space, collections, and programs provided are considered adequate for the existing residents, as well as new resident that may be indirectly generated. In addition, the Orange County Public Library system would continue to receive funding for library facilities and resources through the County's General Fund and library activities, such as fines, facility rentals, passport photo/execution fees, grants, and private donations. Therefore, the proposed medical complex would have a nominal impact on library services.

Faculty, staff, students, and affiliates have access to on-campus libraries and includes interlibrary loans across a large nationwide network of academic, public, and specialty libraries. The proposed Project would not increase on-campus population beyond what was planned for in the 2007 LRDP and analyzed in its EIR. Furthermore, because public facilities, such as libraries, exist on-campus, the proposed Project would not result in the need for the construction of new facilities within the surrounding community. Therefore, impacts to library services would be less than significant. No mitigation is required.

Mitigation Measures

No mitigation measures are required to reduce impacts on libraries.

Level of Significance After Mitigation

The proposed Project's impact on libraries would be less than significant.

3.13.5 Cumulative Impacts

Fire Protection Cumulative Impacts

Past, present, and reasonably foreseeable future projects would result in an increase demand for fire and medical response services for the area. Increased growth and demand are accounted for in existing planning documents such as the General Plans within local cities and the County as a whole. In addition, the proposed Project and future projects and provision of fire protection services would be based on an evaluation of a combination of factors including the existing fire services, the use of mutual aid, and compliance with CBC fire safety standards. Any new facilities would be required to undergo individual CEQA review, which would reduce potential environmental impacts.

Police Protection Cumulative Impacts

UCI currently has projects under construction, approved projects not yet under construction, and potential future projects that could cumulatively result in demand for additional police services. Although this demand for police services would incrementally increase over time, the addition of new officers and equipment to serve the demand is not likely to result in significant adverse cumulative impacts associated with the construction of new facilities or the alteration of existing facilities. Furthermore, should any new or altered facilities be required in the future, these facilities would be subject to separate CEQA review.

Schools Cumulative Impacts

UCI currently has projects under construction, approved projects not yet under construction, and potential future projects that could cumulatively result in demand for additional school services. Although this demand for services would incrementally increase over time, it could result in the need to construct new schools or construction activities to increase enrollment capacities; however, is it not anticipated that construction of these facilities would result in an adverse environmental impact. Additionally, should any new or altered facilities be required in the future, these facilities would be subject to separate CEQA review.

Parks Cumulative Impacts

As discussed in *Section 3.14, Recreation*, the Project would have a less than significant impact. Therefore, the Project would not cumulatively contribute to significant impacts on parks.

UCI is currently making several campus improvements in addition to the proposed Project. The Project— in conjunction with the effects of past projects, other current projects, and probable future projects— may result in a need for expansion of recreational facilities. Impacts would be addressed on a project-by-project basis and standard conditions of approval and mitigation measures required for each project may reduce the impacts to less than significant level. Therefore, the project's cumulative impacts to recreation would be less than significant.

Other Public Services – Library Facilities Cumulative Impacts

The proposed project would not increase on-campus population beyond what was planned for in the 2007 LRDP and analyzed in its EIR. Furthermore, public facilities, such as libraries, exist on-campus and would not result in the need for the construction of new facilities within the surrounding community. Therefore, potential impacts to other public facilities would not be cumulatively considerable and would be less than significant. No mitigation is required.

3.13.6 References

University of California, Irvine. 2007. *Long Range Development Plan*. Retrieved from <https://cpep.uci.edu/physical/pdf/campus-lrdp/chapter5-31.pdf>.

3.14 RECREATION

3.14.1 Introduction

This section of the SEIR examines the recreational resources present on the Irvine Campus Medical Complex Project (or “Project”) site and its surroundings. This section also analyzes the potential environmental impacts to recreational resources.

Analysis of area cumulative impacts are included in Section 06, *Cumulative Impacts* below. As will be demonstrated in Section 3.14.5, *Environmental Impacts* below, impacts would be less than significant and no mitigation measures are required.

The information presented in this section was obtained from available public resources including *Google Earth*, *City of Irvine Park Locator*, and the *University of California, Irvine; Irvine Campus Medical Complex Detailed Project Program Volume One* (Program One).

3.14.2 Regulatory Setting

Federal Regulations

There are no federal regulations regarding recreational resources relevant to the Project.

State Regulations

Quimby Act

The Quimby Act of 1975, (California Government Code § 66477), allows a city or county to pass an ordinance that requires, as a condition of approval of a subdivision, either the dedication of land, the payment of a fee in lieu of dedication, or a combination of both for park and recreational purposes. It allows a city or county to require a maximum parkland dedication standard of 3 acres of parkland per 1,000 residents for new subdivision development unless the jurisdiction can demonstrate that the amount of existing neighborhood and community parkland exceeds that limit. In accordance with Section 66477, a jurisdiction may establish a parkland dedication standard based on its existing parkland ratio, provided required dedications do not exceed 5 acres per 1,000 persons.

University of California

UC Irvine Long Range Development Plan

The UC Irvine LRDP, adopted in 2007, provides the comprehensive framework for the physical development of the UCI campus and is the primary planning document for the campus. The LRDP generally outlines the physical development needed to meet projected demand based on near-term enrollment projections. The LRDP Open Space Element outlines the University’s initiatives for preservation and maintenance of on-campus open space. Key planning objectives in the Open Space Element related to recreation include:

- Dedicate and manage open space to provide visual relief, buffer development, and promote active and passive recreation;
- Develop a linear arboretum and trail systems to link the Academic Core and the South Campus; and

- Develop a network of pedestrian trails in campus open space areas to encourage passive recreation.

Local

As a state entity, UCI is not subject to municipal policies such as the Cities of Irvine and Newport Beach General Plans. However, because some UCI students, faculty, and staff may use recreational facilities within these cities, these policies may be relevant to the analysis of impacts resulting from implementation of the 2007 LRDP. The policies relevant to this analysis are presented in the following sections.

City of Irvine General Plan

The overall goal of the Parks and Recreation Element of the City of Irvine General Plan is to "provide park and recreation opportunities at a level that maximizes available funds and enables residents of all ages to utilize their leisure time in a rewarding, relaxing, and creative manner." As discussed in this element, the City provides two types of recreational accommodations for residents and visitors. These include community parks and neighborhood parks. The Recreation Element identifies the following recreation objectives for the City.

- Provide for a broad spectrum of recreational opportunities and park facilities, in either public or private ownership, to accommodate a variety of types and sizes of functions.
- Require developers of residential land to dedicate land or fees for parks, consistent with the Quimby Act, Subdivision Map Act, Irvine Subdivision and Zoning Ordinances, and General Plan standards.
- Locate park and recreation facilities for safe and easy access by their intended users.
- Ensure that Irvine's park system is developed, maintained, and rehabilitated in a manner that is cost-effective and consistent with the community's needs and ability to pay.

City of Newport Beach General Plan

The primary purpose of the Recreation Element of the City of Newport Beach General Plan is to ensure that the balance between the provision of sufficient parks and recreation facilities are appropriate for the residential and business population of Newport Beach. As discussed in this element, the City provides eight types of recreational accommodations for residents and visitors: community parks, mini parks, neighborhood parks, view parks, greenbelts, open spaces, public beaches, and school yards. The Element identifies recreation goals for the City, some of which are listed below.

- To provide adequate park and recreation facilities that meet the recreational needs of existing and new residents of the community.
- To maintain and preserve existing parks and recreation facilities.
- To provide accessible parks and recreation facilities to persons with disabilities.
- To provide a variety of seasonal and year-round recreational programs designed to meet the needs of all residents, including children, seniors, and persons with special needs.

3.14.3 Environmental Setting

This section of the SEIR identifies and evaluates potential impacts related to recreational resources in the Project area. The Baseline Data Collection provides information on baseline conditions in the Project region from literature search, review of existing data, and site surveys. Information used to prepare this section came from the following resources:

- University of California, Irvine, 2007 Long Range Development Plan, November, 2007

Figure 5-10 of the Long Range Development Plan shows that adjacent and southeast of the Project is designated Open Space – General (the San Joaquin Freshwater Marsh Reserve). Adjacent and east of the Project is designated Open Space – Athletics and Recreation (occupied by the Arboretum). Approximately 3.5 acres of the Arboretum would be used as temporary construction laydown.

3.14.4 Thresholds of Significance

The following significance criteria for recreational resources were derived from the Environmental Checklist in State CEQA Guidelines Appendix G. An impact of the Project would be considered significant and would require mitigation if it would meet one of the following criteria:

Threshold 3.14-1 **Would 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?**

Threshold 3.14-2 **Would include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?**

Campus Programs, Practices and Procedures, and Mitigation Measures Carried Forward from the November 2007 LRDP Amendment Final EIR

No Mitigation Measures specific to recreational facilities were adopted as part of the November 2007 LRDP Final EIR.

3.14.5 Environmental Impacts

Threshold 3.14-1:	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?
--------------------------	--

Impact Summary:	Less Than Significant
------------------------	------------------------------

The proposed Project would construct an integrated medical campus providing inpatient, ambulatory, and emergency care services space within the UCI North Campus to meet regional needs. The Project would include an Acute Care Hospital with up to 144 beds; Ambulatory Care Center; parking structures and surface parking areas; a Central Utility Plant; associated landscaping throughout the project site; trail segments that provide bicycle and pedestrian connections to the UCI and regional trail system, including the proposed recreational trail that would connect to the UCI Naturescape trail system.

There are two large recreational facilities located on campus: the Crawford Athletics Complex located 0.6 mile south of the Project site in the West Campus, and the Anteater Recreation Center (ARC) located 1.8 miles south of the Project site in the East Campus. The Crawford Athletics Complex is located on a 45-acre site and is home to the University intercollegiate athletic teams. The ARC is a 50-acre site dedicated primarily to fitness and wellness, intramural sports, and physical education programs. The ARC has indoor courts for basketball, volleyball, and racquetball; fitness center with free weights, resistance machines, and cardio-vascular equipment; an aquatics plaza; rock climbing wall; and outdoor tennis and basketball courts, hockey rink, play fields, and running tracks. Additionally, Aldrich Park is located 1.2 miles south of the Project site, which is a 16-acre park located in the center of the Academic Core and provides green space and bicycle and pedestrian linkages to the campus.

The nearest City recreational facility to the Project site is the San Diego Creek Trail, located approximately 0.6 mile to the south. San Diego Creek Trail spans 9.3 miles and runs between Jamboree Road and Eastbluff Drive (Newport Beach) and State Route 133 north of Interstate 4.5 (Irvine). Additional recreational facilities nearest to the Project site include Rancho Senior Center Park (RSJCP) and San Marco Park (SMNP). RSJCP is located at 3 Ethel Coplen Way, approximately 1.26 miles southeast of the Project. RSJCP constitutes approximately 3.2 acres and includes a community center with meeting rooms, ballroom, and kitchen. The next closest facility is SMNP located at 1 San Carlo, approximately 1.75 miles northeast of the Project site. SMNP constitutes approximately 5.1 acres and includes a children's play area, basketball court, barbecues, and picnic tables.

As stated in *Section 3.12, Population and Housing*, the proposed Project would not substantially induce unplanned population growth within the Project area. The proposed Project is consistent with the 2007 LRDP regarding square footage for the North Campus and campus populations. As detailed in 2007 LRDP EIR Section 4.12, projected growth on the UCI Campus would result in an increased demand for recreational facilities. However, this increased demand would be met through maintenance and expansion of on-campus recreational amenities, including the ARC. Existing on-campus recreational facilities are currently sufficient for the campus population, but if it is determined that on-campus recreational facilities would need to be expanded in the future, it would be addressed and analyzed in a project-specific environmental document.

Impacts to off-campus public recreational facilities would be limited. Because on-campus recreational facilities are available to faculty, staff, students, and affiliates and on-campus outdoor recreational facilities, such as Aldrich Park and recreational trail linkages, are available to both on- and off-campus users, the Project would not increase the use of existing off-campus neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated. Therefore, a less than significant impact would occur, and no mitigation would be required.

Mitigation Measures

No mitigation is required.

Level of Significance After Mitigation

Less than significant impact.

Threshold 3.14-2:	Would the Project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?
Impact Summary:	Less Than Significant

Recreational improvements that would occur as part of the proposed Project include on-site pedestrian and bicycle paths and a recreational trail connection to the UCI and regional trail system. In addition, the proposed Project includes recreation rooms, but these would occur within the footprint of the proposed facility improvements.

The proposed Project would use approximately 3.5 acres of the existing Arboretum as temporary construction laydown. The Arboretum is closed to the campus community and the public as a recreational amenity; therefore, there is no loss of recreational space during its use as temporary construction laydown. The recreational trail and 3.5-acre laydown have been analyzed as part of the proposed Project in Sections 4.1 through 4.17 of this SEIR. Environmental impacts of the trail network and temporary laydown have been disclosed and evaluated as part of the environmental review process and impacts due to these recreational facilities would be less than significant

Therefore, the proposed Project would not result in the need for construction or expansion of recreational facilities not analyzed as part of this document, or as part of another environmental review process that would have an adverse physical effect on the environment. Thus, a less than significant impact would occur, and no mitigation is required.

Mitigation Measures

No mitigation is required.

Level of Significance After Mitigation

Less than significant impact.

3.14.6 Cumulative Impacts

With respect to recreation, the Project would have a less than significant impact. Therefore, the Project would not cumulatively contribute to significant impacts to recreational facilities or resources.

UCI is currently making several campus improvements in addition to the proposed Project. The Project—in conjunction with the effects of past projects, other current projects, and probable future projects—may result in a need for expansion of recreational facilities. Impacts would be addressed on a project-by-project basis and standard conditions of approval and mitigation measures required for each project may reduce the impacts to less than significant level. Therefore, the project's cumulative impacts to recreation would be less than significant.

3.14.7 References

City of Irvine. 2020. *Park Locator*. Retrieved from <https://gis.cityofirvine.org/parks/#>

University of California, Irvine. 2007. *Long Range Development Plan*. Retrieved from <https://cpep.uci.edu/physical/pdf/campus-lrdp/chapter5-31.pdf>.

This page intentionally left blank.

3.15 TRANSPORTATION

The purpose of this section of the SEIR is to describe the existing regulatory and environmental conditions related to transportation, identify potential impacts that could result from Project implementation, and as necessary, recommend measures to avoid or reduce the significance of impacts. The section summarizes the findings of the Transportation Study prepared by Stantec Consulting Services, Inc. (Stantec, 2020). This Transportation Study has been prepared in accordance with CEQA requirements to evaluate potential transportation impacts based on vehicle miles traveled (VMT). The study is provided as Appendix H of this SEIR.

3.15.1 Regulatory Setting

Federal Regulations

Americans with Disabilities Act

The Americans with Disabilities Act (ADA) of 1990 prohibits discrimination toward people with disabilities and guarantees that they have equal opportunities as the rest of society to become employed, purchase goods and services, and participate in government programs and services. The ADA includes requirements pertaining to transportation infrastructure. The Department of Justice’s regulations for Titles II and III of the ADA, known as the 2010 ADA Standards for Accessible Designs, set minimum requirements for newly designed and constructed or altered State and local government facilities, public accommodations, and commercial facilities to be readily accessible to and usable by individuals with disabilities. These standards apply to accessible walking routes, curb ramps, and other facilities.

State Regulations

Sustainable Communities Strategies: Senate Bill 375 – Land Use Planning

Senate Bill (SB) 375 provides a planning process to coordinate land use planning and regional transportation plans (RTP) and funding priorities in order to help California meet the greenhouse gas (GHG) reduction goals established in Assembly Bill (AB) 32. SB 375 requires that RTPs developed by metropolitan planning organizations (MPO), e.g., (Southern California Association of Governments [SCAG]) incorporate a “sustainable communities strategy” that will achieve GHG emission reduction targets set by the California Air Resources Board (CARB). SB 375 also includes provisions for streamlined CEQA review for some infill projects, such as Transit-Oriented Developments (TODs).

Senate Bill 743

The Steinberg Act (SB 743) (also known as the Environmental Act) was enacted in 2013 to shift the focus of transportation analysis from driver delay to reducing GHG emissions, creating multimodal networks, and promoting mixed land uses. SB 743 required the Governor’s Office of Planning and Research (OPR) to amend the CEQA Guidelines to provide alternative level of service metrics for transportation impact evaluations. In December 2018, the updated State CEQA Guidelines were approved, shifting traffic analysis from delay and operations to vehicle miles traveled (VMT) when evaluating transportation impacts under CEQA.

Measurements of transportation impacts may include VMT, VMT per capita, automobile trip generation rates, or automobile trips generated. According to SB 743, projects should aim to reduce VMT and mitigate

potential VMT impacts through the implementation of transportation demand management (TDM) strategies. Agencies must fully implement the new CEQA mandates for transportation by July 1, 2020.

Regional and Local Regulations

Regional Transportation Plan/Sustainable Communities Strategy

On September 3, 2020, the SCAG Regional Council adopted Connect SoCal, the 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy. This RTP/SCS is a long-range visioning plan that balances future mobility and housing needs with economic, environmental and public health goals. Connect SoCal embodies a collective vision for the region's future and is developed with input from local governments, county transportation commissions (CTCs), tribal governments, non-profit organizations, businesses and local stakeholders within the counties of Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura. The SCAG region strives toward sustainability through integrated land use and transportation planning. The SCAG region must achieve specific federal air quality standards and is required by State law to lower regional GHG emissions.

University of California

UC Irvine Long Range Development Plan Circulation Element

The UC Irvine LRDP, adopted in 2007, provides the comprehensive framework for the physical development of the UCI campus and is the primary planning document for the campus. As a general land use plan, the LRDP does not guide enrollment decisions or implementation of capital projects that could impact the on-campus population. The LRDP generally outlines the physical development needed to meet projected demand based on near-term enrollment projections.

The LRDP Circulation Element provides an approach to meet campus transportation objectives through the 2025-2026 academic year. The Circulation Element designates the general location and extent of existing and proposed transportation routes, including vehicular, bicycle, and pedestrian circulation systems. These systems serve the campus as well as provide connections to the local and regional circulation network. Key planning objectives for the Circulation Element are:

- Manage campus transportation systems proactively to improve mobility, efficiency, and environmental quality.
- Provide convenient access for campus commuters and visitors while limiting vehicle impacts on the pedestrian quality of the campus.
- Implement Transportation Demand Management measures to support transit and alternative transportation.
- Enhance the campus pedestrian and bicycle network, including grade-separated crossings at key points to limit conflicts with vehicular roadways.
- Promote non-automobile transportation modes, including pedestrian, bicycle, electric scooter, and other modes of travel to enhance the pedestrian and bicycle experience, improve safety and increase the efficiency of vehicular roadways.
- Provide off-street facilities, such as turnouts and bus shelters, where feasible at campus bus and shuttle stops.

University of California Policy on Sustainable Practices

The UC Policy on Sustainable Practices establishes goals in nine areas including: green building, clean energy, transportation, climate protection, sustainable operations, waste reduction and recycling, environmentally preferable purchasing, sustainable food service, and sustainable water systems.

University of California, Irvine Sustainable Transportation Program

The goals of UCI's Sustainable Transportation program are to reduce air pollution by limiting vehicle trips made to the campus by employees and students and to reduce the demand for parking on campus. The UCI Transportation and Distribution Services offers a number of sustainable commuting options including carpool matching services, vanpools, subsidized OCTA bus passes, rebates on train tickets, and options that can significantly reduce monthly transportation expenses. As part of the UCI compliance program, the campus conducts an employee commuter survey each April and the results are submitted to the South Coast Air Quality Management District to comply with the program requirements.

3.15.2 Existing Conditions

Existing Transportation System

Roadway Characteristics

Regional access to the Project site is provided by the Corona del Mar Freeway (State Route [SR] 73), approximately 2.1 miles south of the Project site, the San Diego Freeway (I-405), approximately 3.7 miles north of the Project site, and the Costa Mesa Freeway (SR 55), located approximately 4 miles southeast of the Project site. The proposed Project would provide access via Jamboree Road.

Jamboree Road is a six-lane to eight-lane divided arterial that extends in a generally north to south direction through the cities of Orange, Tustin, Irvine, and Newport Beach. Jamboree Road is classified as a Major Highway near the Project site. It is a six-lane road with a raised median from Campus Drive to Birch Street with three travel lanes in each direction. The posted speed limit on Jamboree Road is 50 miles per hour (mph) and on-street parking is not permitted in either direction.

Campus Drive is classified as a Primary Highway between University Drive and Culver Drive in the City of Irvine and transitions to a Secondary Highway between University Drive and MacArthur Boulevard. Near the Project site, Campus Drive has four travel lanes with a raised median. Between University Drive to Carlson Avenue, the roadway has two undivided travel lanes, and between Carlson Avenue and north of Jamboree Road, Campus Drive is a four-lane divided roadway. Class II bike lanes, which are striped one-way bike lanes on a street or highway, are located on both sides of Campus Drive. The posted speed limit on Campus Drive is 45mph and on-street parking is not permitted.

Birch Street is a four-lane divided arterial with a two-way left-turn lane in the median in the City of Newport Beach. Birch Street extends in a north-south direction from south of SR-73 to MacArthur Boulevard, and in an east-west direction from MacArthur Boulevard to Jamboree Road. The posted speed limit on Birch Street is 45 mph and on-street parking is not permitted. Birch Street terminates into a driveway serving the existing UCI service facilities. Birch Street is designated as a Secondary Arterial in the City of Newport Beach General Plan Circulation Element.

Fairchild Road is a four-lane collector in the City of Irvine that extends in a northwest to southeast direction from Jamboree Road to McArthur Boulevard. Fairchild Road is divided by a painted median and currently has no posted speed limit.

MacArthur Boulevard is a six-lane to eight-lane divided arterial that extends through the cities of Newport Beach and Irvine. MacArthur Boulevard is divided by a raised or painted median and has a posted speed limit of 55 mph. MacArthur Boulevard is classified as a Major Arterial in the cities of Irvine and Newport Beach General Plan Circulation Elements.

Carlson Avenue is a four-lane to seven-lane divided arterial that extends northwest to southeast from Michelson Drive to Campus Drive in the City of Irvine. Carlson Avenue is divided by a painted median and currently has no posted speed limit. On-street parking is not permitted.

Michelson Drive is a four-lane to six-lane divided arterial that extends east to west from MacArthur Boulevard to University Drive. Michelson Drive is divided by a painted median and has a posted speed limit of 45 mph. On-street parking is not permitted.

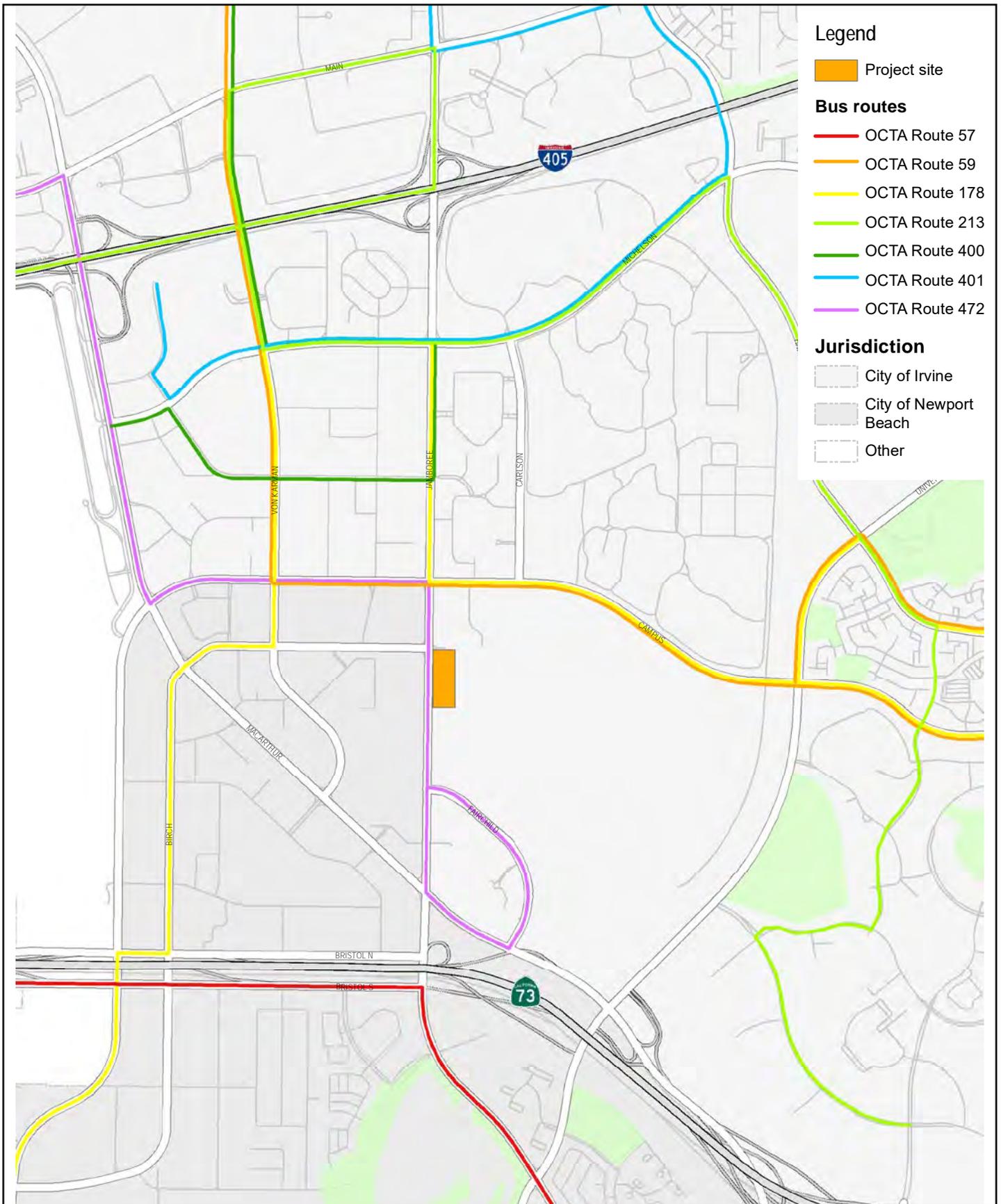
Existing Transit Services

The Orange County Transportation Authority (OCTA) provides bus service in Orange County. There are three bus routes that serve the Project area with existing bus stops on Jamboree Road at Birch Street, on Jamboree Road at Fairchild Road, and on Campus Drive at Jamboree Road. Existing bus routes operated by OCTA through the study area are shown in **Figure 3.15-1: Existing Transit Routes**. The following OCTA routes serve the Project area.

OCTA Route 472 is a peak hour only bus line connecting the Irvine Business Center with the Tustin Metrolink Station. The route only operates on weekdays, with southbound trips originating at the Tustin Metrolink Station in the morning and northbound trips originating from the Irvine Business Center in the evening. In the morning, the headways (the time between bus arrivals) range from 13 to 35 minutes between 6:09 AM and 8:34 AM, with five daily bus trips linked with Metrolink train arrivals. In the evening, five services are provided with headways between 10 and 36 minutes, all departing the Irvine Business Center between 3:29 PM and 4:48 PM. The northbound Route 472 stop closest to the Project site is just south of the intersection of Jamboree Road at Birch Street. A southbound stop is located approximately 500 feet north of the site.

OCTA Route 59 operates between the cities of Anaheim and Irvine via Kraemer Boulevard/Glassell Street/Grand Avenue and Von Karman Avenue. The Route 59 stop closest to the Project site is the corner of Campus Drive at Jamboree Road. Route 59 operates on weekdays from 4:30 AM to 11:30 PM with 20 to 35-minute headways. On weekends, Route 59 does not offer service to UCI; it only operates to Pullman Street and Dyer Road from approximately 6:00 AM to 10:15 PM, with 50- to 60-minute headways.

OCTA Route 178 operates between the cities of Huntington Beach and Irvine via Adams Avenue, Birch Street, and Campus Drive. The Route 178 stop closest the Project site is at the corner of Campus Drive at Jamboree Road. Route 178 operates on weekdays from 5:50 AM to 10:50 PM with 45-minute to 1-hour headways. On Saturdays, Route 178 does not offer service to UCI; it operates only to the Orange County Fairgrounds from 8:20 AM to 4:20 PM with 45-minute headways. Route 178 does not operate on Sundays.



Source: Stantec, 2020

FIGURE 3.15-1: Existing Transit Routes

UCI Irvine Campus Medical Complex EIR
 University of California, Irvine



Not to scale



OCTA Route 76 operates between the cities of Huntington Beach and Newport Beach via Talbert Avenue/MacArthur Boulevard. The Route 76 stop closest to the site is at the corner of MacArthur Boulevard at Jamboree Road. Route 76 only operates on weekdays from 4:55 AM to 10:00 PM with 45-minute to 1-hour headways.

OCTA Route 400A operates between John Wayne Airport and the Tustin Metrolink Station on Von Karman Way. The Route 400A stop closest to the Project site is at the intersection of Jamboree Avenue and Dupont Drive. Route 400A only operates on weekday mornings and afternoons from 5:35 AM to 9:26 AM and from 3:49 AM to 7:16 PM. Route 400A is a commuter route and schedules are coordinated with the Metrolink Train schedule.

OCTA Route 401B operates between the Irvine Business Center and the Tustin Metrolink Station. The Route 401B stop closest to the sited is at the intersection of Michelson Drive and Carlson Avenue. Route 401B only operates on weekdays from 6:09 AM to 9:24 AM and from 3:10 PM to 7:52 PM. Similar to Route 400A, Route 401B is a commuter route and schedules are coordinated with the Metrolink Train schedule

OCTA Route 213 operates between the Park-and-Ride in the City of Brea and UCI. Route 213 only operates on weekdays, and in the southbound direction only in the morning – from 5:22 AM to 7:58 AM; and in the northbound direction only in the evening – from 4:03 PM to 6:58 PM.

UCI Anteater Express is one of the largest privately operated shuttle systems in the region, with annual ridership exceeding 2.2 million passengers in 2019. The Anteater Express, operated as a joint venture between the UCI Transportation and Distribution Services (TDS) and Associated Students (ASUCI), has eight routes that serve the campus and surrounding area. To further promote environmental sustainability, the UCI shuttle fleet converted its entire fleet to all-electric during the 2017-2018 school year. The nearest Anteater Express stop to the Project site is the W line-Toscana Apartments stop near the intersection of Campus Drive at Carlson Avenue.

UCI Medical Center Shuttle, which operates between the UCI main campus in the city of Irvine and the UCI Medical Center in the city of Orange. The Medical Center shuttle runs Mondays through Fridays, with two stops at the Irvine campus and one stop at the Orange campus.

Active Transportation System

An existing Class II bicycle lane on Campus Drive connects the main UCI campus to Jamboree Road. Two-way cycling is permitted on the sidewalk along the west side of Jamboree Road in front of the Project site, which can be accessed by a signalized crossing at the Birch Street intersection. The bicycle lanes on the streets noted above connect to the City of Irvine's bicycle network. UCI has bicycle programs that promotes bicycle transportation. In addition to bicycle infrastructure, UCI has BikeUCI Ambassadors, a Bicycle Advisory Group, and Bicycle Education and Enforcement (B.E.E.P).

There are not existing pedestrian or multi-use trails on the Project site or in the surrounding area. The Cities of Irvine and Newport Beach have pedestrian trails planned along Jamboree Road, Campus Drive near the Project site. The UCI LRDP identifies a future joint use trail to the south of the Project site, between the UCI North Campus and the UC San Joaquin Marsh, which envisions connectivity between the Project site and the main UCI campus.

Site Access and Site Circulation

Vehicular access to the existing land uses in the North Campus proximate to the Project site is provided from Jamboree Road and Campus Drive. Cross access throughout the North Campus site currently allows access to UC Irvine Lot 91, Lot 90, and Lot 90H. The driveway closest to Lot 91 and Birch Street is signalized while others are unsignalized.

Project site access, which would be improved as a part of the approved Center for Child Health/Medical Office Building (Child Health) Project, would be offered via the existing signalized intersection of Jamboree Road at Birch Street and a right-in/right-out access approximately 700 feet west of Birch Street, known as the West Access Road. Birch Street would be extended onto the site and improved with four travel lanes and a left-turn exit pocket. The West Access Road driveway would be improved to two lanes. Additionally, as a part of the Child Health Project, off-site roadway improvements would include the construction of two eastbound right-turn deceleration lanes on Jamboree Road at the Birch Street and West Access Road driveways. The westbound left-turn pocket of Jamboree Road at Birch Street would be restriped to add an additional left-turn lane at the intersection. Project site access is shown on **Figure 3.15-2: Existing Site Access**. These improvements were previously analyzed in the adopted Child Health Project IS/MND.

Emergency Vehicle Access

The Project site is currently undeveloped and no emergency vehicle access is available at the site. The nearest streets which could access the Project site are Jamboree Road and the Birch Street entrance to the UCI Facilities area.

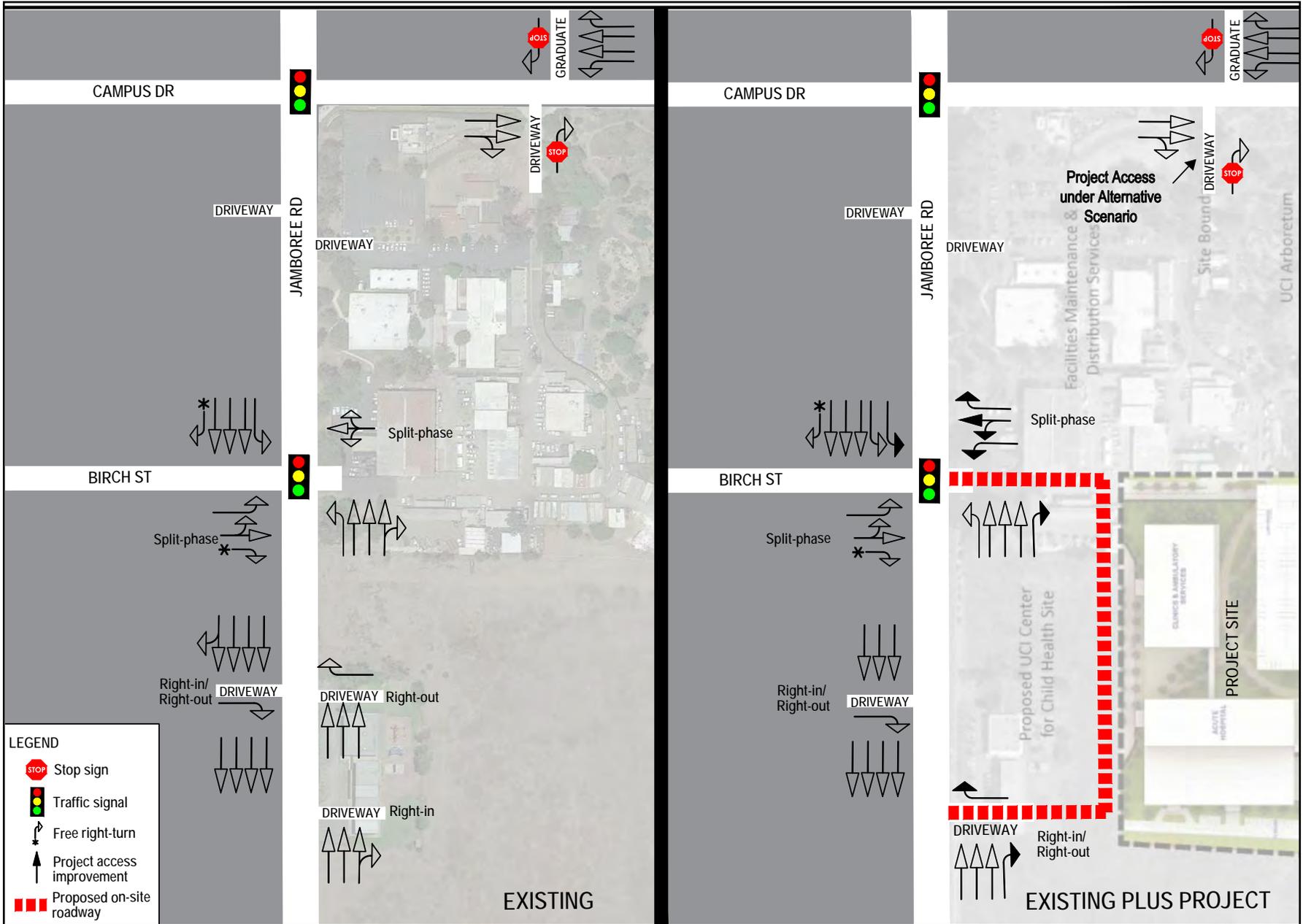
3.15.3 Thresholds of Significance

The following significance criteria are from the CEQA Guidelines Appendix G Environmental Checklist. The Project would result in a significant impact related to transportation if it would:

- Threshold 3.15-1** **Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities.**
- Threshold 3.15-2** **Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?¹**
- Threshold 3.15-3** **Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).**
- Threshold 3.15-4** **Result in inadequate emergency access.**

SB 743 requires the Governor's Office of Planning and Research (OPR) to establish recommendations for identifying and mitigating transportation impacts within CEQA. Generally, SB 743 moves away from using delay-based level of service (LOS) as the primary metric for identifying a project's significant impact to instead use vehicle miles traveled (VMT). The final Technical Advisory released by OPR in December 2018 provides guidance on evaluating transportation impacts and VMT and is the guidance on which this VMT analysis is based on.

¹ CEQA Guidelines Section 15064.3, subdivision (b) refers to the discontinuation of vehicle level of service (LOS) as an impact metric for transportation analysis and instead recommends the use of vehicle miles traveled (VMT); this section gives lead agencies discretion to choose the most appropriate methodology to evaluate a project's VMT.



Source: Stantec, 2020

FIGURE 3.15-2: Existing Site Access
 UCI Irvine Campus Medical Complex EIR
 University of California, Irvine



Not to scale

Prior to undertaking a full VMT analysis, OPR’s Technical Advisory advises that lead agencies conduct a screening process “to quickly identify when a project should be expected to cause a less-than-significant impact without conducting a detailed study.” The screening criteria that used in this analysis is described later in this chapter.

Under OPR’s Technical Advisory recommendations, lead agencies have the discretion to set or apply their own thresholds of significance or rely on thresholds recommended by other agencies. The University of California has adopted the new CEQA guidelines making VMT the metric for evaluating transportation impacts. However, each campus has the discretion to utilize their own thresholds of significance based on their location.

Since UCI is located within the City of Irvine, significance thresholds set by the City may be appropriate for UCI. The City of Irvine has adopted VMT Impact Analysis Guidelines that are generally consistent with OPR’s Technical Advisory recommendations. The City has updated the Irvine Traffic Analysis Model (ITAM) for use in VMT analyses of this type and it includes a VMT tool for use when evaluating development projects.

The nearby City of Newport Beach has also adopted VMT guidelines which are also generally consistent with OPR’s Technical Advisory recommendations. However, for analysis of the Project, ITAM is better suited since the Project is located within the ITAM primary modeling area.

In addition to the quantitative analysis, a qualitative analysis of the Project’s potential transportation impacts related to VMT has also been conducted. The quantitative analysis was prepared as described above, and a qualitative significance criteria has been established to evaluate the Project’s compatibility with the statutory goals for the VMT metric. The following are the VMT metric’s three statutory goals as stated in OPR’s Technical Advisory:

1. The reduction of GHG.
2. The development of multimodal transportation networks.
3. A diversity of land uses.

The significance criteria utilized here for qualitative analysis is summarized in Table 3.15-1: *VMT Significance Criteria*. Differences between OPR’s Technical Advisory and City of Irvine’s Guidelines are also noted in Table 3.15-1.

Category	Criteria/Screening	Threshold
1. Screening Thresholds	OPR’s Technical Advisory and the City of Irvine’s VMT Guidelines provides screening thresholds for land use projects. These screening thresholds include: <ol style="list-style-type: none"> 1. Trip generation screening – Small projects can be screen out from completing a full VMT analysis. 2. Map-based screening – Projects that are located in areas with low VMT can be 	<ol style="list-style-type: none"> 1. Per OPR Technical Advisory, if the Project generates less than 110 trips per day, the Project is assumed to have a less than significant impact. The City of Irvine utilizes a threshold of 250 trips per day. 2. Per OPR Technical Advisory, if the Project is in a low VMT area, the Project is assumed to have a less than significant impact. The City of

Category	Criteria/Screening	Threshold
	<p>screened out from completing a full VMT analysis.</p> <p>3. Proximity to transit – Projects within ½ mile of a major transit stop or a stop located along a high-quality transit corridor reduce vehicle miles traveled and therefore can be screened out from completing a full VMT analysis. The Project must also meet additional criteria regarding Floor Area Ratio, parking, affordable housing units, and consistency with the applicable Sustainable Communities Strategy.</p> <p>4. Locally-serving retail – Retail that is 50,000 square feet or smaller are generally considered locally serving and can be screened out from completing a full VMT analysis.</p> <p>5. Affordable residential development – 100% affordable housing in infill locations can be screened out from completing a full VMT analysis.</p> <p>Evaluate the Project using the screening thresholds.</p>	<p>Irvine does not use the map-based screening criteria.</p> <p>3. Per OPR Technical Advisory, If the Project is within ½ mile of a high-quality transit stop/corridor, and meet the other four requirements, the Project is assumed to have less than significant impact. The City of Irvine has identified two Transit Priority Areas (TPA) in the City.</p> <p>4. Per OPR Technical Advisory, if the retail component of the Project is less than 50,000 then the retail component is assumed to have a less than significant impact. The City of Irvine considers retail of 100,000 or smaller as locally serving.</p> <p>5. Per OPR Technical Advisory and the City of Irvine, if the Project consists of 100% affordable units and is located in an infill location, then the Project is assumed to have less than significant impact.</p>
2. VMT Analysis	<ul style="list-style-type: none"> Evaluate the Project’s VMT per capita and compare to threshold of significance. <p>The City of Irvine’s Guidelines specify specialty uses such as the Project. As such, the City of Irvine’s impact analysis methodology and significance thresholds are used in this analysis.</p>	Refer to Table 3.15-2 for the City of Irvine significance thresholds.
3. Multi-modal transportation	<ul style="list-style-type: none"> Providing alternative modes of transportation that has high accessibility and connectivity reduces VMT, reduces single occupancy vehicles, and reduces VMT per capita. Identify existing pedestrian, bicycle and transit facilities that provide alternative modes of transportation in place of a single-occupancy vehicle. Evaluate the accessibility and connectivity of pedestrian, bicyclist, and transit facilities around the Project site. 	If the Project restricts access or alters a route, this may result in a significant impact.
4. Diversity land uses	<ul style="list-style-type: none"> Interactions between different land uses and interactions between land use and transportation the potential to reduce VMT. Evaluate the surrounding uses of the Project and the interaction between land use and transportation. 	If the Project is complementary and consistent with the existing land use patterns, then the Project is assumed to have a less than significant impact.

Category	Criteria/Screening	Threshold
5. RTP/SCS Consistency	<ul style="list-style-type: none"> The purpose of the RTP/SCS is to evaluate regional land use patterns and transportation systems to achieve the State's target GHG emissions reduction goals. Evaluate if the Project is consistent with the RTP/SCS. The Project's cumulative effects are determined through consistency with the RTP/SCS. If the Project consistent with the RTP/SCS than the Project does not result in a cumulative significant impact. 	If the Project is consistent with the RTP/SCS, then the Project would have less than significant cumulative impact. If the Project is inconsistent then the inconsistency should be evaluated for a significant impact on transportation.
Source: Stantec, 2020		

Per the City of Irvine Guidelines, the impact analysis methodology is consistent with Section 15064.3 of the CEQA Guidelines. ITAM (TransCAD 2018 VMT version) is used to calculate VMT statistics for both No Project and With Project conditions. For analysis, two model scenarios are evaluated — a No Project run and a With Project run. The net difference in VMT between the With Project run and the No Project run represents the VMT attributable to the Project. This takes into account both direct and indirect effects of the Project as trips are redistributed throughout the highway network based on the effect of the Project.

The net difference in VMT and the net difference in population or employees due to the Project are used to calculate a “project change VMT rate” on a per capita basis (VMT per population and VMT per employee). A project that results in a net change VMT rate that is below the applicable significance threshold does not result in a significant impact. A project that results in a project net change VMT rate that is above the applicable significance threshold is deemed significant and requires mitigation. The City of Irvine VMT Significance Thresholds are summarized in Table 3.15-2, *City of Irvine VMT Significance Thresholds* below.

Type	Metric	Significance Threshold Description	Existing	Significance Threshold (15 percent reduction)
Residential project	VMT per population	15% less than existing countywide residential VMT per capita	17.5	14.9
Non-residential project	VMT per employee	15% less than existing countywide VMT per employee	48.8	41.5
Mixed-use projects	Each use evaluated separately per above			
Source: CEQA Manual Volume III. Technical Appendices, City of Irvine, April 2020				

OPR's Technical Advisory specifically recommends using VMT per employee as the metric for evaluating office developments and advises local agencies to establish an appropriate method of analysis for projects that don't fit the standard residential, office or retail category. The City of Irvine Guidelines address these types of “non-standard” projects by utilizing VMT per employee as the metric for all nonresidential projects. The non-residential projects category includes uses such as office, industrial, retail greater than

100,000 total gross square feet, hotels, hospitals, commercial recreation, and university uses. The non-residential significance threshold is based on the countywide commute and other (i.e., customer and client) VMT trips divided by the number of countywide employees. Important to note is that with this approach, the VMT statistics for the non-residential category includes more than home-based work trips, it also accounts for patient trips. Since OPR's Technical Advisory defers selection of an appropriate criteria to the local agency, the City of Irvine methodology and significance thresholds, which are appropriate for a project consisting of hospital and medical uses, are utilized in this analysis.

Since the project consists of hospital and medical office uses, the Project is classified as a non-residential project and the VMT per employee metric is applicable. As mentioned above, the non-residential category captures more than just the home-based work trips and VMT attributable to the patients of the Project is also captured in the non-residential category. As shown in Table 2-2, the existing countywide average for non-residential uses is 48.8 VMT per employee and the significance threshold established by the City of Irvine is 41.5 VMT per employee (15 percent lower than the existing average). Since the non-residential project category considers all trip types, both the hospital employee and patient trips are accounted for in the model.

If a significant impact is identified, feasible mitigation measures are identified based on substantial evidence from the California Air Pollution Control Officers Association's (CAPCOA) Comprehensive Report for Quantifying Greenhouse Gas Mitigation Measures. The CAPCOA document provides 54 travel demand management (TDM) strategies associated with the reductions of VMT and GHG emissions and is an appropriate resource for this type of analysis.

Campus Programs, Practices, and Procedures and Mitigation Measures Carried Forward from the November 2007 LRDP Amendment Final EIR

The following Mitigation Measures (MM) were adopted as part of the November 2007 LRDP Final EIR and are incorporated as part of the proposed Project and assumed in the analysis presented in this section.

MM TRA-1A To reduce on- and off-campus vehicle trips and resulting impacts, UCI will continue to implement a range of Transportation Demand Management (TDM) strategies. Program elements will include measures to increase transit and shuttle use, encourage alternative transportation modes including bicycle transportation, implement parking policies that reduce demand, and implement other administrative mechanisms that reduce vehicle trips to and from the campus. UCI shall monitor the performance of TDM programs through annual surveys.

MM TRA-1B UCI will continue to pursue the implementation of affordable on-campus housing to reduce peak-hour commuter trips to the campus.

MM TRA-1C To enhance transit systems serving the campus and local community, UCI will work cooperatively with the City of Irvine, City of Newport Beach, OCTA and other local agencies to coordinate service and routes of the UCI Shuttle with existing and proposed shuttle and transit programs including the proposed Jamboree/IBC Shuttle, proposed Orange County Great Park Shuttle, Irvine Spectrum Shuttle, and other community transit programs.

MM TRA-1I UCI shall review individual projects proposed under the 2007 LRDP for consistency with UC Sustainable Transportation Policy and UCI Transportation Demand Management goals to ensure that bicycle and pedestrian improvements, transit stops, and other project features that promote alternative transportation are incorporated to the extent feasible.

MM TRA-1J If a campus construction project or a specific campus event requires an on-campus lane or roadway closure, or could otherwise substantially interfere with campus traffic circulation, the contractor or other responsible party will provide a traffic control plan for review and approval by UCI. The traffic control plan shall ensure that adequate emergency access and egress is maintained and that traffic is allowed to move efficiently and safely in and around the campus. The traffic control plan may include measures such as signage, detours, traffic control staff, a temporary traffic signal, or other appropriate traffic controls. If the interference would occur on a public street, UCI shall apply for all applicable permits from the appropriate jurisdiction.

3.15.4 Environmental Impacts

Threshold 3.15-1	Would the project conflict with a program, plan, ordinance or policy, addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?
Impact Summary:	Less Than Significant Impact With Mitigation Incorporated

Roadways

The UCI campus is located within the Southern California Association of Governments (SCAG) MPO region. The Connect SoCal 2020-2045 RTP/SCS addresses regional challenges in several ways. A key, formative step is to develop a Regional Growth Forecast in collaboration with local jurisdictions, which helps SCAG identify opportunities and barriers to development. The plan forecasts the number of people, households and jobs (at the jurisdictional level) expected throughout SCAG’s 191 cities and in unincorporated areas by 2045. This information is typically a component of the City’s General Plan, and if available, the City’s traffic analysis model.

The City of Irvine initially adopted its General Plan in December 1973 with a comprehensive update in 2000. Since then, the City has been growing and is now in the process of Phase 2 of their comprehensive General Plan Update. The City maintains the ITAM which incorporates buildout conditions (per the City General Plan) for the City and is frequently updated as projects go through entitlements. ITAM houses the type of information solicited by SCAG for use in the RTP. The City of Irvine and UCI have a long-standing cooperation in regard to campus planning and future growth and coordination has been made between UCI’s LRDP and the City’s General Plan. Therefore, growth assumed in UCI’s LRDP is reflected in the City’s General Plan as well as ITAM and would be the information supplied to SCAG during their Bottom-Up Local Input process.

The proposed Project is fully accounted for in the growth allocated by the 2007 LRDP. As mentioned above, coordination has been made between the land use assumptions used in the 2007 LRDP and City of Irvine. Therefore, since the proposed Project was accounted for in the City’s growth forecast, the Project

would be consistent with the RTP/SCS. As discussed in Chapter 4.13 of the 2007 LRDP EIR (page 4.13-50), specific transportation and traffic mitigation measures reduced the direct and cumulative traffic impacts resulting from 2007 LRDP traffic to less than significant. The 2007 LRDP EIR concluded that buildout of the LRDP traffic volumes are projected to increase incrementally over a long planning horizon (2007-2025). As detailed above, a project's effect on automobile delay is no longer a consideration when identifying a significant impact under CEQA; thus, consistency with policies related to intersection and roadway performance are not included in this discussion. However, implementation of Mitigation Measures TR-1 and TR-2 would require on-site Project TDMs to be implemented and continuance of campus-wide TDM programs that would reduce vehicle trips consistent with the key planning objectives of the 2007 LRDP Circulation Element including:

- Manage campus transportation systems proactively to improve mobility, efficiency, and environmental quality.
- Provide convenient access for campus commuters and visitors while limiting vehicle impacts on the pedestrian quality of the campus.
- Implement Transportation Demand Management measures to support transit and alternative transportation.
- Enhance the campus pedestrian and bicycle network, including grade-separated crossings at key points to limit conflicts with vehicular roadways.
- Promote non-automobile transportation modes, including pedestrian, bicycle, electric scooter, and other modes of travel to enhance the pedestrian and bicycle experience, improve safety and increase the efficiency of vehicular roadways.

Implementation of Mitigation Measures TR-1 and TR-2 would reduce potential impacts to less than significant.

Public Transit

All transit routes and stops would be retained as part of the proposed Project. The proposed Project would connect with existing transit infrastructure and provide employees and visitors with alternative modes of transportation.

The proposed Project would also establish a new UCI shuttle stop outside the Esplanade. Pedestrian paths would connect existing and planned transit nodes at Jamboree Road and Campus Drive to primary building entries. As depicted in Figure 3.15-1, there are seven OCTA bus routes that serve the Project site vicinity. Route 59 and 178 have stops at the Jamboree Road at Campus Drive intersection 300 feet northeast of the Project site. Routes 59, 178 and 472 have bus stops north of Birch Street adjacent to North Campus, and a Route 472 bus stop is located at the Jamboree Road at Birch Street intersection.

For Routes 59, 178, and 472 OCTA utilizes 40-foot buses that have a maximum capacity of 49 people. During peak times, the capacity of buses at the stops noted below is typically between 50%-75%. These stops are considered 'light' for OCTA, in comparison to other bus stops around the UC campus such as the Watson Bridge bus stop near the University Town Center which experiences tens of thousands of bus boardings per week.²

² Personal Communication Erica Hennon UCI Acting Sustainable Programs Manager, September 22, 2020.

Table 3.15-3: Bus Boardings Per Week	
Bus Stop	Boardings Per Week
Line 59	
Campus Teller: Southbound	412
Line 178	
Campus-Jamboree: Eastbound	3, 405
Jamboree-Campus: Westbound	364
Line 472	
Campus Jamboree: Northbound	3,010
Jamboree-Birch Southbound	1
Jamboree Birch Northbound	31
Source: OCTA, 2020	

The proposed Project's location near existing public transit and the addition of a UCI Shuttle stop would continue to promote alternative modes of transportation and would be consistent with UC's Sustainable Transportation Policy, UCI's Alternative Transportation Program, and the LRDP.

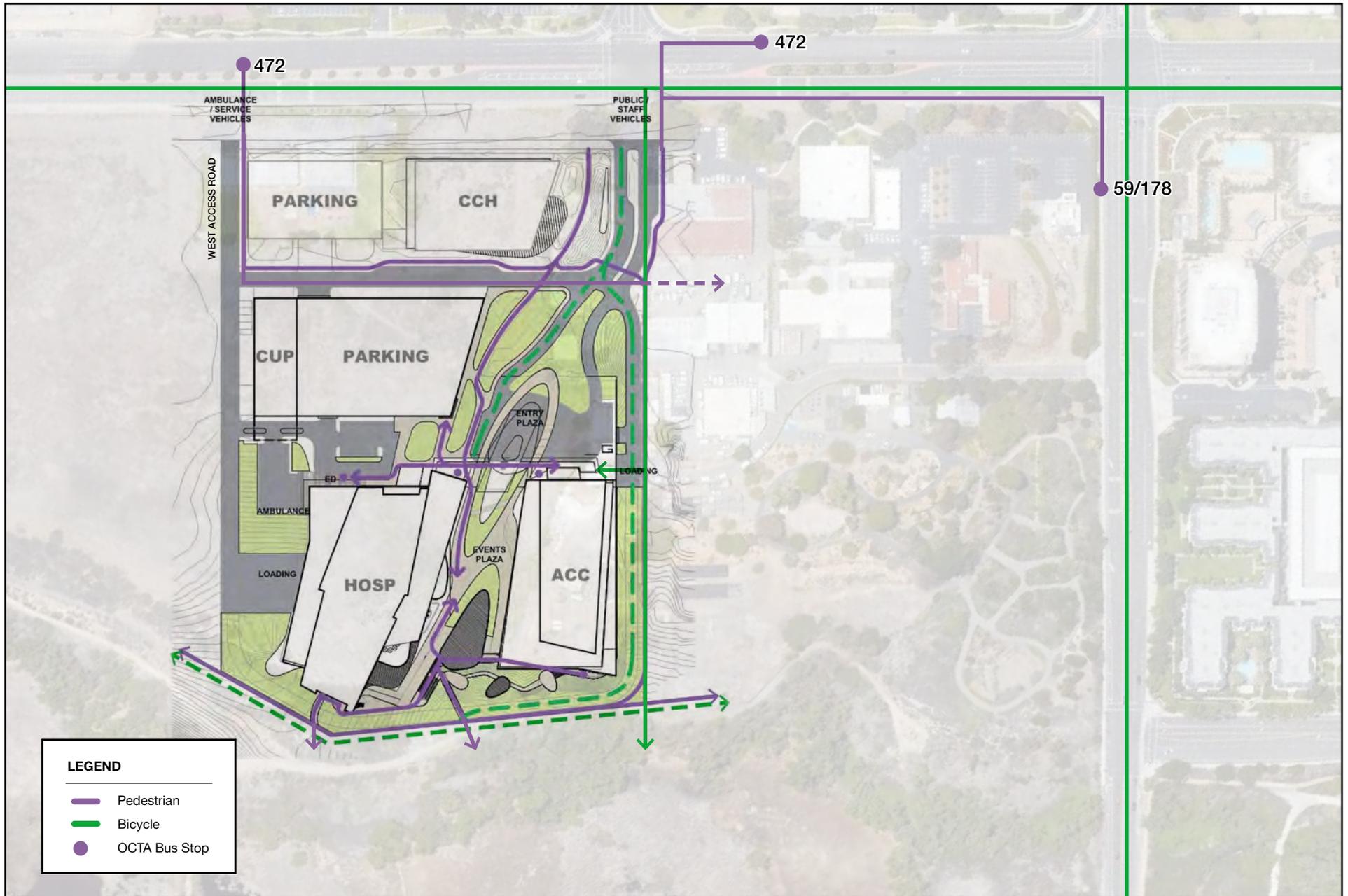
Pedestrian

As depicted in **Figure 3.15-3, Pedestrian and Bicycle Circulation Plan**, the proposed Project would provide sidewalks and pedestrian facilities between medical buildings as well as external connections to the public street system and adjacent uses within the North Campus, including the UCI Arboretum/Marsh Reserve. Within the Project site, pedestrian crossing areas located along the Wellness Plaza Esplanade would feature defined crosswalks, in-pavement flashing beacons, and rectangular rapid flashing beacons to enhance pedestrian mobility. Pedestrian connections would extend from the Esplanade and connect to the off-site Child Health Project to the on-site Parking Structure 1 and other Medical Complex facilities to minimize the number of pedestrian crossings along the emergency vehicle routes on site. Pedestrian facilities and design would comply with all safety and accessibility requirements from local and state regulations. The Project would also be consistent with the LRDP Circulation Element goal to expand the pedestrian trail system in the outer campus to include connections to UCI and regional open space resources. The pedestrian improvements included in the Project would continue to promote alternative modes of transportation and would be consistent with UC's Sustainable Transportation Policy, UCI's Alternative Transportation Program, and the LRDP.

Bicycle

The nearest bicycle facilities to the Project site include Class II bike lanes on Campus Drive. There are no designated bike lanes on Jamboree Road within the Project site vicinity. Two-way cycling is permitted on the sidewalk along the west side of Jamboree Road, which can be accessed at the signalized intersection of Jamboree Road at Birch Street. Class II bike lanes are also provided on Carlson Avenue, Michelson Drive, Von Karman Ave, and Bristol Street North, which are a part of the City of Irvine bicycle network.

Safe bicycle routes to Medical Complex building entries would be provided from public transit nodes, planned bicycle lanes along Jamboree Road and Campus Drive, and future trails planned at the North Campus. proposed Project implementation would not interfere with planned bicycle facilities along Jamboree Road (not part of Project).



Source: HENSEL PHELPS CO Architects, 2020

FIGURE 3.15-3: Pedestrian and Bike Circulation Plan
 UCI Irvine Campus Medical Complex EIR
 University of California, Irvine



Not to scale

The Project would not interfere with existing bicycle facilities, and new bicycle facilities provided by the Project would continue to promote alternative modes of transportation and would be consistent with UC's Sustainable Transportation Policy, UCI's Alternative Transportation Program, and the LRDP.

Mitigation Measures

The proposed Project is required to implement all applicable Mitigations Measures included in the 2007 LRDP EIR, which are listed below:

MM TR-1 *(This Mitigation Measure implements Mitigation Measure TRA-11 from the 2007 LRDP EIR)*
UCI shall review individual projects proposed under the 2007 LRDP for consistency with UC Sustainable Transportation Policy and UCI Transportation Demand Management goals to ensure that bicycle and pedestrian improvements, transit stops, and other project features that promote alternative transportation are incorporated to the extent feasible. (2007 LRDP EIR MM TRA-11)

MM TR-2 *(This Mitigation Measure implements Mitigation Measure TRA-1A from the 2007 LRDP EIR. This mitigation measure includes updates specific to the proposed Project and to reflect the latest practices and recommendations.)* To reduce on- and off-campus vehicle trips and resulting impacts, UCI will continue to implement a range of Transportation Demand Management (TDM) strategies. Program elements will include measures to increase transit and shuttle use, encourage alternative transportation modes including bicycle transportation, implement parking policies that reduce demand, and implement other administrative mechanisms that reduce vehicle trips to and from the campus. Examples of trip reduction measures may include, but are not limited to:

- transportation marketing services,
- short-term bicycle parking,
- long-term bicycle parking,
- improved access to bike network,
- showers and locker rooms,
- on-site café,
- subsidized transit passes,
- shuttle bus service,
- carpooling program,
- guaranteed ride home, and
- parking cash-out program.

UCI shall monitor the performance of TDM programs through annual surveys. The required items to be included in the annual progress report are:

- contact information for the Project TDM coordinator,
- sample of marketing materials provided to new employees about the TDM program,
- number of employees participating in each TDM measure offered to employees,
- commute mode share of employees at the Project site, and

- other information demonstrating implementation of specific TDM measures.

MM TR-3 *(This Mitigation Measure implements Mitigation Measure TRA-1J from the 2007 LRDP EIR)*
 If a campus construction project or a specific campus event requires an on-campus lane or roadway closure, or could otherwise substantially interfere with campus traffic circulation, the contractor or other responsible party will provide a traffic control plan for review and approval by UCI. The traffic control plan shall ensure that adequate emergency access and egress is maintained and that traffic is allowed to move efficiently and safely in and around the campus. The traffic control plan may include measures such as signage, detours, traffic control staff, a temporary traffic signal, or other appropriate traffic controls. If the interference would occur on a public street, UCI shall apply for applicable permits from appropriate jurisdictions.

Level of Significance After Mitigation

With implementation of the above Mitigation Measures, the Project would comply with all applicable policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities. Therefore, impacts are less than significant, and no further mitigation is required.

Threshold 3.15-2	Would the project conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?
Impact Summary:	Less Than Significant Impact with Mitigation Incorporated

Screening Criteria

Trip Generation Screening

The OPR Technical Advisory on Evaluating Transportation Impacts recommends that small projects that generate less than 110 trips per day generally may be assumed to cause a less than significant transportation impact. The City of Irvine Guidelines utilizes a threshold of 250 trips per day.

Trips generated by the proposed Project were estimated using trip rates from in the Institute of Traffic Engineers Trip Generation Manual (10th Edition). The Hospital (Code 610) and Medical Office Building (Code 720) categories were utilized. *Table 3.15-4, Project Trip Generation* shows the trip rates and corresponding estimated trip generation for the proposed Project. To estimate the amount of on-site trips that would stay internal to the site, actual field measurements from an existing medical complex site was utilized. The Henry Mayo Newhall Memorial Hospital Master Plan (located in Santa Clarita, California), which is a comparably sized medical complex consisting of a hospital and multiple medical office buildings, was determined to have an on-site trip capture of as much as one-third of the total trip generation based on traffic count surveys taken at that facility. Based on the field measurement findings from the Henry Mayo Master Plan EIR, a conservative 21-23 percent on-site trip capture is utilized for the proposed Project.

Table 3-15-4. Project Trip Generation									
Land Use	Quantity	Unit	Trip Generation Estimates						ADT
			AM Peak Hour			PM Peak Hour			
			In	Out	Total	In	Out	Total	
Trip Rates									
Hospital (Code 610) ¹	Bed		1.32	0.52	1.84	0.27	0.7	0.97	22.32
Medical Office Building (Code 720) ²	TSF		2.17	0.61	2.78	0.97	2.49	3.46	34.8
Trip Generation - ICMC									
Hospital	144	Beds	190	75	265	39	101	140	3,214
Ambulatory Care	225	TSF	488	137	626	218	560	779	7,830
Subtotal			678	212	891	257	661	919	11,044
Internal Capture of 20 percent ²			152	49	201	55	141	197	2,494
Internal Capture (%)					23%			21%	23%
Total External Trips			526	163	690	202	520	722	8,550
¹ ITE Trip Generation Manual (10th Edition) ² Based on field measurements of on-site trip capture at the Henry Mayo Newhall Memorial Hospital, Santa Clarita, California. (Source: Henry Mayo Newhall Memorial Hospital Master Plan Environmental Impact Report, 2008) ADT = average daily trips; TSF = thousand square feet Source: Stantec, 2020									

As shown in Table 3.15-4 above, the Project would generate approximately 8,550 daily trips, 690 trips during the AM peak hour and 722 trips during the PM peak hour. Because the proposed Project is estimated to generate more than either the 250 or 110 trip threshold per day, it does not qualify as a small Project that can be presumed to be less than significant. Therefore, this screening threshold cannot be used for the proposed Project.

Map-Based Screening

The OPR Technical Advisory recommends that residential and office projects located in areas with low VMT per capita, and that incorporate similar features, will exhibit similarly low VMT per capita, therefore there will be no significant impacts to VMT.

At this time, the City of Irvine has not established a set of VMT guidelines and has not developed a map-based resource for identifying areas in the City with low VMT per capita. Therefore, this screening threshold cannot be used for the proposed Project.

Proximity to High Quality Transit

The OPR Technical Advisory suggests that a project can be “screened out” to have a less than significant impact on VMT if the project is within a half-mile of an “existing major transit stop or an existing stop along a high-quality transit corridor.” A major transit stop is defined as “the intersection of two or more major bus routes with a frequency service interval of 15 minutes or less during the morning and afternoon peak commute periods”. A high-quality transit corridor is defined as an existing corridor with fixed-route bus service with service intervals no longer than 15 minutes during peak commute hours.

The City of Irvine utilizes a similar screening criteria for projects located near high-quality transit. The City has identified two existing Transit Priority Areas (TPA) in the city. The first TPA is a half mile radius around the Tustin Metrolink Station, and the second TPA is a half mile radius around the Irvine Metrolink Station. Therefore, the Project would not be eligible to be screen out under this criteria.

The OCTA bus route 472 transit stop is directly adjacent to the Project's western boundary on Jamboree Road. The northbound bus stop is located just south of the Jamboree Road and Birch Street intersection, with the southbound stop located a 500-foot walk north of the site. This route is a peak hour only service connecting the Irvine Business Center with the Tustin Metrolink Station. The route only operates Monday to Friday, with southbound trips originating at the Tustin Metrolink Station in the morning and northbound trips originating from the Irvine Business Center in the evening, making this route ideal for employees commuting by rail. In the morning, the headways range from 13 to 35 minutes apart between 6:09am and 8:34am, with five total services provided linking with specific Metrolink train arrivals at the station. In the evening, five services are provided with headways between 10 and 36 minutes apart, all departing the Irvine Business Center between 3:29pm and 4:48pm. In addition, the Campus-Jamboree bus stop, approximately 1,000 feet north of the Project site, is also served by OCTA bus routes 59 and 178. Both routes operate Monday through Friday, and Route 59 also includes weekend and holiday services. Routes 59 and 178 have headways that range on average from 30 minutes to an hour during the AM (7-9) and PM (4-6) peak hours.

Within a half-mile of the Project site, there are approximately 9 bus transit stops. In addition to the previously referenced routes, these stops serve Routes 57, 76, 212 and 213. These routes generally have between 30 min and 70 min headways during the AM (7-9) and PM (4-6) peak hours. Route 57, which connects Brea with Newport Beach, has express services available approximately every 25 mins from 6:00am to 6:00pm, though the stop is furthest from the site while still within a half-mile.

Routes 400A and 401B are iShuttle routes which connect the Irvine Business Center with the Tustin Metrolink Station. Unlike route 472, these routes only service both northbound and southbound trips morning and afternoon periods. The shuttles are timed to coordinate with the Metrolink Train schedule, making them convenient for commuters. Also, ridership is free for Metrolink ticket and passholders and OCTA passholders.

The Project would not remove any transit stops and would enhance access to existing stops through proposed site improvements. Currently, there is no sidewalk on the east side of Jamboree Road, adjacent to the Project site. Current bus services stop near the Jamboree Road at Birch Street intersections (northbound travel). The Project design features include the construction of sidewalks and pedestrian amenities that would increase accessibility to this northbound bus stop. Ridership on bus routes in proximity of the site is likely to increase as a result of the Project. No bus stops within a half-mile of the Project site can be considered a high-quality stop per the definition noted above, however the variety of routes in proximity of the site provide numerous opportunities for employees and clients to access the Project site without driving.

Based on the above analysis, the proposed Project would not be eligible to be "screened out" under this threshold. However, Corridor studies are currently being conducted by the OCTA to determine the feasibility of a rapid streetcar or bus rapid transit that will provide service from Westminster to the UC Irvine campus, via the proposed 17th/Westminster-Bristol Rapid Streetcar/BRT Line. The Project site would be located along the potential route. The potential route was identified in the OC Transit Vision OC

Transit Opportunities Corridors Report as a transit opportunity corridor that was recommended for future evaluation based on its high performing score. Implementation of the proposed streetcar/BRT line would result in the Project site being in a high-quality transit area in the future, as identified by SCAG's Connect SoCal Plan that has a horizon year of 2045.

Affordable Housing

The OPR Technical Advisory suggests that affordable housing projects located in infill locations can be assumed to have a less than significant impact. The proposed Project is not a residential Project and therefore does not apply to this screening threshold.

Diversity of Land Uses

The third goal of the VMT metric is the development of "a diversity of land uses." The Technical Advisory notes that new land use projects alone will not reduce VMT, however "interactions between land use projects, and also between land use and transportation projects, existing and future, together affect VMT."

The Project is part of a larger plan, specifically, UCI's 2007 LRDP. The 2007 LRDP identified general land use developments to support future campus growth. Development of the 2007 LRDP and the resulting mix of land use contained in the 2007 LRDP follow planning principles that reflect the desired character for the campus. The principles are as follows:³

1. Accommodate the physical resources needed to support strategic academic goals
2. Provide access while maintaining environmental quality
3. Build a cohesive academic community
4. Build and maintain quality residential neighborhoods
5. Establish centers of activity to promote campus life
6. Maintain human scale
7. Maintain planning discipline to optimize valuable land resources
8. Manage transportation needs proactively
9. Unify the campus with linkages
10. Preserve and enhance open space corridors to balance campus development
11. Develop high-quality edges with neighboring communities
12. Promote sustainable development practices

Application of such principles has created a campus with a diversity of land uses and a complimentary transportation network that has VMT reducing outcomes. The 2007 LRDP designates the North Campus area, where the Project is located, as Mixed Used – Commercial. The proposed Project would add diversity to the surrounding area and provide a walkable distance to health-oriented services for the future planned development in the North Campus area.

³ 2007 Long Range Development Plan, A Framework to Guide Physical Development at the University of California, Irvine, Through 2025-2026, November 2007

Additionally, the proposed Project is consistent with the City of Irvine General Plan and the land uses designated for Planning Area 29, which is identified as UCI-North Campus. The Project site is designated as Education/Public Facilities and specifically labeled as UCI on the General Plan map. Accordingly, the proposed Project would be consistent with the public facilities designation as it would be a medical center and provide a public-serving use.

Similarly, the proposed Project is consistent with the City of Newport Beach General Plan and the land uses designated for Planning Area L4 which is identified as Mixed Use Horizontal directly across Jamboree from the Project site. Other uses in this Planning Area include General Commercial and Public Facilities. As such, the proposed medical complex would be consistent with these mixed use and commercial uses. Therefore, the proposed Project would have a less than significant impact on the diversity of land uses in the area.

Multimodal Transportation Networks Analysis

Another goal of utilizing the VMT metric for evaluation of transportation impacts is to facilitate the “development of multimodal transportation networks.” A multimodal transportation network provides opportunities for people to safely get to their destinations by means other than a single-occupancy vehicle. Multimodal networks include Complete Street that address the needs of pedestrians, bicyclists, transit riders and motorists. The development of multimodal network components within a development project is a TDM strategy listed by CAPCOA that would reduce VMT and GHG emissions. OPR also notes that the increase in transit ridership “should not be considered an adverse impact,” noting that while the increase in ridership may slow transit service, it adds accessibility, destinations and proximity. When choices in transportation are available, single occupancy vehicle VMT is reduced. Projects that block access, remove, or interfere with pedestrian paths, bicycle paths, or transit stops would have a significant impact on VMT.

As discussed above under Impact 3.15-1, there are existing Class II bike lanes on Campus Drive that connects the Project site to the main UCI campus. Two-way cycling is permitted on the sidewalk along the west side of Jamboree Road in front of the Project site, which can be accessed by a signalized crossing at the Birch Street intersection. On-street marked bicycle lanes are also provided on Carlson Avenue, Michelson Drive, Von Karman Ave and Bristol Street North, which are part of City of Irvine’s larger bicycle network. Additional trails are potentially envisioned along Jamboree Road, Campus Drive and within the Project. The trail to the south, between the UCI North Campus and the UC San Joaquin Marsh, is included in the 2007 LRDP and is part of the UCI Naturescape Vision which envisions connectivity between the Project site and the main UCI campus. Internal trails would also connect the Project with scenic viewpoints overlooking the neighboring San Joaquin Marsh Reserve.

The Project would not remove any pedestrian or bicycle facilities, or transit stops. Implementation of Mitigation Measure TR-1 would enhance transit access and construct sidewalks and pedestrian amenities such as lighting, trash receptacles, benches. Mitigation Measure TR-1 would also require landscaping which would enhance the pedestrian experience. Through these Project improvements, accessibility would be increased and would create a pleasurable experience for pedestrians and bicyclists. Mitigation Measure TR-1 would enhance the multimodal transportation network, and would result in a less than significant impact on VMT based on the multimodal transportation screening threshold.

VMT Analysis

OPR's Technical Advisory does not specifically address specialty uses such as a hospital or a university. The City of Irvine's Guidelines specify significance thresholds for two categories, residential and nonresidential projects. The non-residential projects category includes office, industrial, retail greater than 100,000 total gross square feet, hotels, hospitals, commercial recreation and university uses. Therefore, the City of Irvine's impact analysis methodology and significance thresholds are utilized (see Table 3.15-1 for City of Irvine significance thresholds).

As previously mentioned, the City of Irvine's impact analysis methodology involves using ITAM to estimate the net change in VMT when the Project is added to existing baseline conditions. The net change in VMT and net change in population or employment is used to calculate the Project change VMT rate measured on a per capita basis (VMT per population for residential or VMT per employee for non-residential). The project change VMT rate is then compared to the applicable significance threshold. A project that results in an increase above the significance threshold may be deemed significant and mitigation is required.

The Project is in ITAM TAZ 326. The Project's land uses were added to the TAZ 326 existing conditions (2018 baseline). A full ITAM run was conducted and the ITAM VMT tool was used to estimate VMT for conditions with the Project. Per City of Irvine Guidelines, the net change in total countywide nonresidential VMT and the net change in total employees are used to estimate the project change VMT rate per employee. As discussed in Section 3.15.4 above, this methodology of using the net change in countywide totals, as opposed to the Project's location by TAZ, captures both the direct and indirect effects of the project as trips are redistributed throughout the highway network due to the effect of the project. This methodology also accounts for VMT by both employees and patients. *Table 3.15-5: Irvine Transportation Analysis Model VMT Estimates* summarizes the ITAM VMT estimates for conditions with and without the Project.

Area	Category	Baseline (No Project)	Baseline (with Project)	Net Change
Orange County	Non-Residential VMT	82,969,450	83,021,913	52,463
	Employees	1,706,388	1,707,511	1,123
Project Change VMT Rate (Non-Residential VMT per Employee)				46.72

Source: Stantec, 2020

As shown in Table 3.15-5, the City's model estimates that the net change of non-residential VMT is 52,463 under conditions with the Project. ITAM also estimates that the Project would result in a net increase of 1,123 employees with the Project. The net change in employment VMT and number of employees results in a project change VMT rate of 46.7 VMT per employee. As noted previously, the non-residential project category considers both customer and client trips, and as such, the hospital employee and patient trips are accounted for in the ITAM model VMT statistics.

Table 3.15-6, *Project VMT Estimates*, provides a comparison between the Project VMT per employee and the significance threshold.

Description	VMT per Employee
Project VMT rate (per capita)	46.7
Regional Average (Baseline)	48.8
Regional Threshold of Significance (Baseline minus 15%)	41.5
Difference from Threshold of Significance	5.2
Is Project above or below Regional Threshold?	Above
Significant Impact?	Yes

Source: Stantec, 2020

As shown, the Project results in a VMT per employee of 46.7. The threshold of significance is 41.5 VMT per employee. The Project VMT is lower than the regional average of 48.8 but is greater than the threshold of significance of 41.5 and would result in significant impact without mitigation⁴.

Although the VMT calculations show a net increase in VMT, the construction of a new medical facility in Orange County has the potential to reduce overall VMT for segments of the population, specifically from trips made by patients. Residents seeking medical attention typically travel to the closest and most convenient medical facility for general medical care and may choose to drive further for specialty care. Similar to the beneficial effects of providing local-serving retail, the availability of local medical facilities will generally result in local trips being made, as opposed to leaving the area for the services of a larger regional hospital. If the existing local medical facility has longer than average wait times or a specific type of specialty care is not available, residents may travel a further distance to obtain medical service, thereby increasing VMT.

However, it should be noted the VMT of 46.7 does not take into consideration any Project TDM measures that would reduce VMT. TDM measures are important and effective tools to reduce GHG, increasing vehicle efficiency and reducing the amount of VMT. Co-benefits to reducing VMT include less vehicle crashes, improved air quality, and improved physical and mental health. UCI proactively utilizes TDM measures through UCI's Sustainable Transportation Program, which complies with the UC's Sustainable Transportation Policy Goals.

TDM Strategies for the Reduction of VMT and Greenhouse Gas Emissions Analysis

UCI Sustainable Transportation Program

One goal of utilizing the VMT metric for evaluation of transportation impacts is to reduce GHG. TDM measures are important and effective tools to reduce GHG, increasing vehicle efficiency and reducing the amount of VMT. Co-benefits to reducing VMT include less vehicle crashes, improved air quality and improved physical and mental health. UCI proactively utilizes TDM measures. UCI's Sustainable Transportation Program utilizes various TDM measures and was created with the goal to "reduce the total number of vehicle trips made to the campus by faculty, staff and students and reduce commute emissions." Since 2007, UCI has implemented a comprehensive program of TDM measures resulting in an average vehicle ridership of 2.06 (based on 2019 survey), the highest of any employer greater than 3,000 in the Orange, Los Angeles, and Riverside County SCAQMD.

⁴ The ITAM Project VMT Summary Report Worksheet is included in Appendix A of Appendix H of this SEIR

UCI's Transportation and Distribution Services offers a number of sustainable commuting options as listed below:

- Carpool matching through WAZEpool (an on-demand carpool matching service), carpool incentive program for employees and graduate students (free parking for carpools),
- Ride-share through Zimride (a private ride-sharing network for UCI),
- OC Vanpools (also known as "super carpools" subsidized in part by OCTA and operated through a third-party provider),
- Guaranteed Ride Home Program,
- "University Pass" transit program with 80% subsidy for unlimited OCTA ridership and coordination with OCTA of routes,
- 20% rebate on commuter Metrolink and Amtrak train passes,
- Convenient cost-effective options to reduce monthly transportation expenses for University students and employees,
- UCI – OC University Bus Program (provides unlimited access to the OCTA bus system),
- Zipcar car sharing program with 16 cars and over 3,000 on campus members (the University's carshare),
- UCI ZotWheels bike ridesharing service (currently offline due to expansion),
- Anteater Express (UCI's campus shuttle service with live bus tracking), in 2019 UCI shuttle system ridership was 2.2 million passengers at a cost of \$2.8 million,
- UCI Medical Campus shuttle route (provides rides to UCI Medical Hospital located outside of the campus), and
- Bicycle program (highlights include BikeUCI Ambassadors, the most comprehensive peer-to-peer outreach program for biking in the country; over 3,000 bike parking spaces; significant investment in bikeway infrastructure; bicycle education for campus affiliates of all bicycling levels offered quarterly; and major bi-annual bike education festivals to encourage safe and legal riding).

The TDM strategies listed above are consistent with CAPCOA's comprehensive list of TDM mitigation measures that reduce GHG emissions. The Sustainability Tracking, Assessment & Rating System (STARS) website summarizes the results of a survey of UCI students and employees conducted in 2017. The purpose of the survey was to evaluate student and employee commute habits. The survey concludes that 33 percent of employee survey respondents commute with only the driver in the vehicle (single occupancy vehicle), 18 percent vanpool or carpool, 4 percent take the campus shuttle or public transportation, less than one percent use a motorcycle or scooter, 5 percent telecommute, and 40 percent walk, bicycle, or use other non-motorized means. Overall, this shows that approximately 67 percent of employees use more sustainable commuting options. This can be attributed to the several TDM measures listed above.

UCI Health serves a population of more than 3.3 million in greater Orange County. UCI Health offers services on two campuses, the academic programs of the Susan & Henry Samueli College of Health Sciences located on the UCI main campus, and the UCI Medical Center (UCIMC) located in the City of Orange. Currently, the UCIMC inpatient bed capacity at UCIMC exceeds 80 percent occupancy. Orange County would continue to experience population growth, with the City of Irvine's population growth as the highest in the County.

The Project would consist of a hospital with special emphasis on oncology, neurosurgery, orthopedics, and spine services and an ambulatory care center. The specific uses included in the Project are an emergency department, inpatient bed services, operating rooms, observation rooms, inpatient imaging, medical exam rooms, outpatient services, diagnostic services, pharmacy, rehabilitation and support services. Since the City of Irvine's population growth is the highest in the County, the Project's location in Irvine is ideal since residents living in Irvine, adjacent cities, and South Orange County cities receiving care from UCI health services could drive to the Irvine site rather than driving a further distance to the City of Orange. Additionally, Data from 2017 Office of Statewide Health Planning and Development showed that 92% of patients originating in the Irvine area received medical care at a facility within Orange County. The remaining 8% travel outside the County for specialty healthcare uses. Since the Project will offer specialty healthcare, there is potential to divert the longer trips that the remaining 8% of Irvine patients are currently making, to a shorter local trip. The Project site location would overall reduce VMT. Furthermore, employees of the Project would be eligible to utilize the TDM services offered by UCI Transportation and Distribution Services.

UC Sustainable Transportation Policy

UCI's Sustainable Transportation Program is used to achieve the UC's Sustainable Transportation Policy Goals. Specific to commute trips, the UC Sustainable Transportation Policy is as follows:

- By 2025, each location shall strive to reduce its percentage of employees and students commuting by single-occupancy vehicles (SOV) by 10 percent relative to its 2015 SOV commute rates. By 2050, each location shall strive to have no more than 40 percent of its employees and not more than 30 percent of all employees and students commuting to the location by SOV.
- By 2025, each location shall strive to have at least 4.5 percent of commuter vehicles by zero-emission vehicles (ZEV). By 2050, each location shall strive to have at least 30 percent of commuter vehicles by ZEV.

The progress of each UC campus towards the goals stated above is continuously monitored. The policy goals above are a part of UCI's 2007 LRDP EIR mitigation measures and have been implemented through UCI Sustainable Transportation Program and are continuously monitored for progress to achieve the goals by 2025 and 2050. The current TDM programs that are in place have reduced SOV commute and would be extended to the Project.

Quantification of TDMs

Quantification of TDMs that would reduce VMT are calculated using methodologies from CAPCOA's Quantifying Greenhouse Gas Mitigation Measures.

Implementing Mitigation Measure TR-1 would result in the following Project components:

The Project will improve pedestrian connectivity by constructing an on-site pedestrian network. The Project will also improve the existing off-site pedestrian network by filling in gaps in the sidewalk system for pedestrian connectivity. The Project will construct pedestrian improvements that are consistent with University and City of Irvine standards. The Project will construct sidewalks and pedestrian amenities such as lighting, trash receptacles, benches. The Project will also provide landscaping which will enhance the pedestrian experience by providing shade for walking or resting that will facilitate pedestrian movements throughout

the Project and connecting off-site. The sidewalks will link areas within the Project site and encourage walking in and around the Project site. To the extent that off-site improvements in the immediate vicinity of the Project are needed at the time of construction, the Project will fill in gaps, where needed, that will aid in pedestrian circulation. These improvements are consistent with the City of Irvine’s Tier 1 VMT mitigation of On-Site Infrastructure improvements that provide pedestrian network connectivity and facilities with the potential to result in a mode shift to walking.

Implementing Mitigation Measure TR-2 would result in the following Project components:

The Project will participate in a commute trip reduction program through UCI’s Sustainable Transportation Program, that will require monitoring and reporting. This measure will reduce single-occupancy vehicle travel mode and encourage alternative modes to reduce VMT. The Commute Trip Reduction Program may be implemented through UCI’s Sustainable Transportation Program that will provide employees with assistance and provide incentives in using alternative modes of travel. Such services could include carpooling encouragement, ride-matching assistance, preferential carpool parking, flexible work schedules for carpools, vanpool assistance, and bicycle endtrip facilities (parking, showers, and lockers). UCI’s Sustainable Transportation Program is used to achieve the University of California’s Sustainable Transportation Policy goals (see Section 4.2.2). Regular monitoring and reporting are required to assess the effectiveness of the commute trip reduction program. This strategy is similar to the City of Irvine’s Tier 2 – Off-site TDM VMT mitigation that requires participation in a City TDM Program (Spectrumotion, Irvine Business Complex).

As shown in *Table 3.15-7, VMT Reductions Summary*, the Project components would achieve an approximately 22.6% reduction in Project VMT. Per CAPCOA’s limitation recommendations, the VMT reduction is adjusted to 20.0%, which represents is the maximum reduction typically expected to be achieved for a project located in a suburban center.

The City of Irvine assigns 2.5% reduction for on-site infrastructure such as bicycle and pedestrian connectivity and a 5% VMT reduction when a project provides on-site TDM mitigation. City of Irvine guidelines also allow for variation from recommended reduction where the applicant can provide substantial evidence documenting that the proposed mitigation reduces VMT by a percentage greater than five percent. As demonstrated here and in *Table 3.15-7*, UCI’s robust on and off-site connectivity and TDM Program exceeds typical VMT reduction programs and VMT reductions are anticipated to be greater 5%.

Description	CAPCOA Category	Calculated Reduction
PC-1. The Project will construct an on-site pedestrian network and connect to off-site facilities	Neighborhood/ Site Enhancement SDT-1	2.0%
PC-2. The Project will participate in a commute trip reduction program through UCI’s Sustainable Transportation Program	Commute Trip Reduction Programs TRT-1	21.0%
Total		22.6%
Adjusted Total		20.0% ²

Table 3.15-7: VMT Reductions Summary		
Description	CAPCOA Category	Calculated Reduction
¹ The calculated reductions do not sum up total since each strategy are multiplicative and not additive. Overall % VMT Reduction = $1 - (1-A) * (1-B) * (1-C)$ where A, B, C equals reductions for individual strategies. ² Per CAPCOA recommendations on VMT reduction limitations based on a project’s location (i.e., urban, compact infill, suburban center, and suburban), the VMT reduction is adjusted to a maximum of 20%, which is generally considered the maximum achievable reduction for a suburban center area. Source: Stantec, 2020		

Once the VMT reduction has been calculated it can be subtracted from the VMT rate (calculated in Table 3.15-6). *Table 3.15-8: Project VMT with VMT Reductions* summarizes the revised VMT rate with the VMT reductions applied.

Table 3.15-8: Project VMT with VMT Reductions	
Description	VMT per Employee
Threshold of Significance	
Existing Baseline with 15% reduction	41.5
Project Change	
Employment VMT rate per capita	46.7
Employment VMT rate with VMT reducing Project Components (-20.0%)	37.4
Difference (Project minus Regional Threshold of Significance)	
	-4.1
Is Project above or below Regional Threshold of Significance?	
Significant Transportation Impact	No

Source: Stantec, 2020

Implementation of 2007 LRDP EIR mitigation measures TRA-1A and TRA-1I requires the Project to incorporate TDMs consistent with UC Sustainable Transportation Policy and UCI Transportation Demand Management goals) would reduce potential VMT impacts to less than significant. Additionally, the Project’s location within the City of Irvine (highest population growth in Orange County), the Project is assumed to have a less than significant impact on TDM services.

Mitigation Measures

Consistent with the UCI 2007 LRDP EIR, the proposed Project would be required to comply with Mitigation Measures TR-1 and TR-2.

Level of Significance After Mitigation

With implementation of the above Mitigation Measures, the Project would be consistent with CEQA Guidelines Section 15064.3, subdivision (b). Therefore, potential impacts are reduced to less than significant.

Threshold 3.15-3	Would the project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).
Impact Summary:	Less Than Significant

For the purposes of this impact evaluation, an impact would be significant if the Project site access design does not provide adequate sight distance and does not conform to applicable street design standards.

The proposed Project access plan is shown in **Figure 3.15-4: Proposed Site Access**. Access to the Project site would be provided from Jamboree Road via two vehicular access points that would be improved as a part of the approved Child Health Project. The first access driveway is the existing signalized Jamboree Road at Birch Street intersection. The second access driveway is a right-in/right-out access approximately 700 feet west of Birch Street, known as the West Access Road.

Primary entry for visitors would be provided from the Jamboree Road at Birch Street intersection. Within the proposed Project, the entry court would serve as the primary destination for visitor and patient drop off, including rideshare traffic. Multiple covered patient drop-off zones and valet services would also be provided. West Access Road would also provide access to the entry court as well as the Parking Structure on the north area of the Project site.

Service and deliveries would utilize the Jamboree Road at Birch Street entry. The Ambulatory Care Center loading areas would be accessed via a service road on the east edge of the site. The Acute Hospital would also have its own dedicated loading area served by the West Access Road.

Emergency Service Vehicles and Emergency Department Visitors would utilize West Access Road. A dedicated drop-off area for emergency vehicles would be served by the West Access Road, along the western side of the Acute Hospital while a visitor lot for the Emergency Department would be located north of the Acute Hospital. The visitor lot access would not conflict with the flow of emergency vehicles on the site.

The Project's circulation and access points would be designed in accordance with the standards applied to the campus transportation network. The proposed Project would not increase hazards due to design features and would propose uses typical of a medical land use. The 2007 LRDP EIR determined no impacts would occur from hazards due to design features or incompatible uses, which was addressed in the LRDP Initial Study (LRDP EIR, page 4.13-61). Therefore, impacts due to potential hazards of a design feature would be less than significant. No mitigation is required.

Mitigation Measures

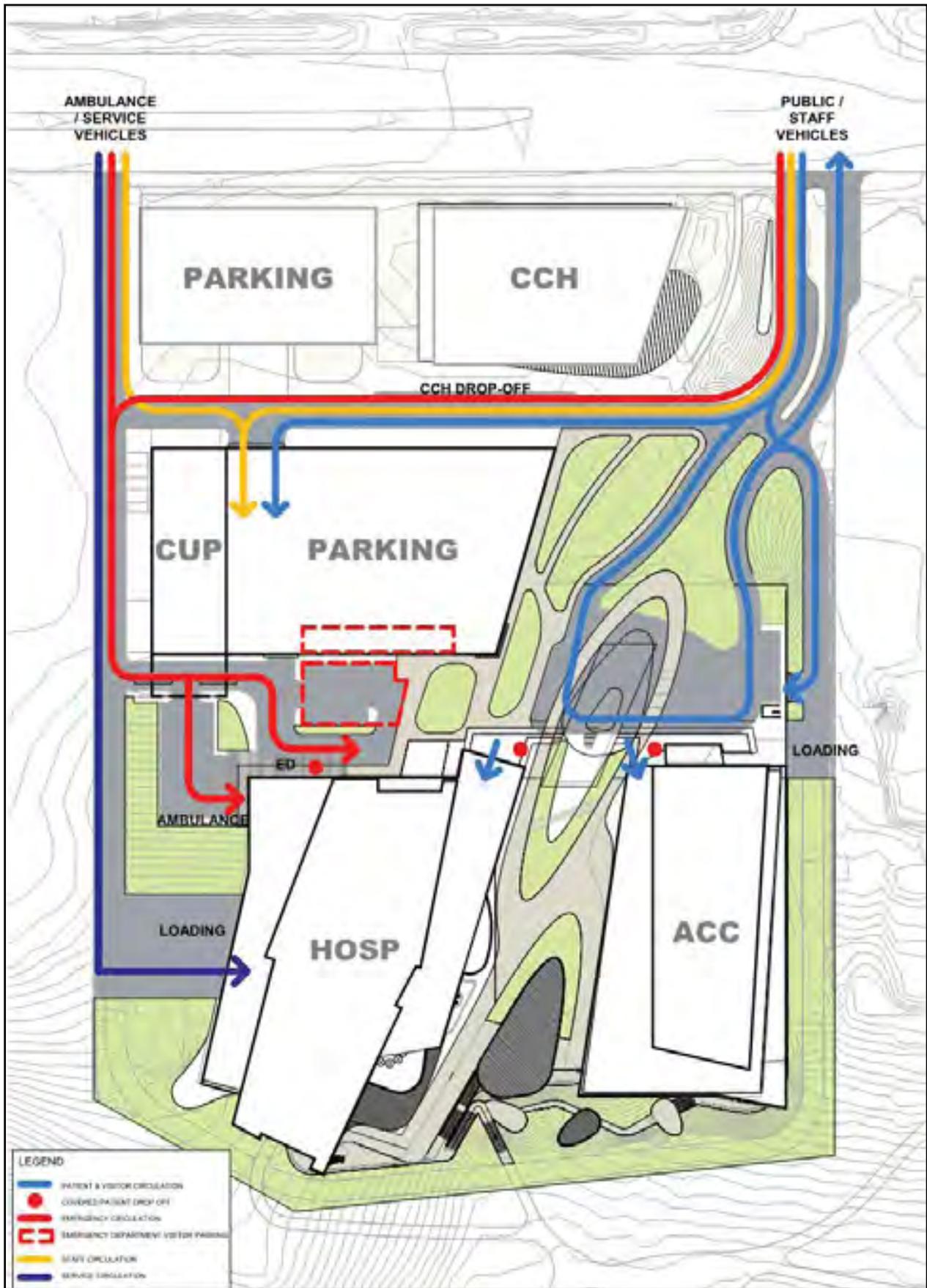
No mitigation is required.

Level of Significance After Mitigation

Implementation of the proposed Project would not substantially increase hazards due to design features. Internal site circulation and design would be compatible with a medical use. External driveway access points would follow appropriate design standards related to circulation and site access. Therefore, impacts would be less than significant, and no mitigation is required.

Threshold 3.15-4	Would the project result in inadequate emergency access?
Impact Summary:	Less Than Significant Impact

For the purposes of this impact evaluation, an impact would be significant if the Project design impedes emergency access to the site.



Source: HENSEL PHELPS CO Architects, 2020

FIGURE 3.15-4: Proposed Site Access

UCI Irvine Campus Medical Complex EIR
 University of California, Irvine



Kimley»Horn

Several factors determine whether a project has sufficient access for emergency vehicles, including:

1. Number of access points (both public and emergency access only)
2. Width of access points
3. Width of internal roadways

Impacts from construction traffic would be limited to occasional and temporary delays to traffic during the movement of heavy equipment or transport of heavy loads to and from the Project site. Construction site access and temporary lane closures on local roads would be reviewed by the UCI Fire Marshal and local authorities in the cities of Irvine and Newport Beach to ensure adequate emergency access at all times. Construction impacts are temporary in nature and would cease to occur once the Project is completed. Implementation of Mitigation Measure HAZ-4 would ensure sufficient notification to the UCI Fire Marshal to allow coordination of emergency services that may be affected during construction. Potential impacts are less than significant.

Internal site circulation and existing on-site infrastructure, including pedestrian walkways, would be designed to allow emergency access to both the Acute Hospital and the parking structures. The Project would be subject to the 2019 California Building Standards Codes (Title 24), enforced by OSHPD and California Title 22 Division 5 for licensing by the California Department of Public Health (CDPH). In addition, where state regulations are silent on design criteria, the Project would adhere to the Facility Guidelines Institute (FGI) Guidelines for Design and Construction of Health Care Facilities. Therefore, compliance with all applicable regulations related to hospital and facilities design would reduce impacts due to inadequate emergency access during Project operation to a less than significant level. No mitigation is required.

Level of Significance After Mitigation

With implementation of the above Mitigation Measure, the Project would not result in any significant impacts related to circulation or access, and therefore would not significantly impact any emergency response evacuation plans. Therefore, impacts are less than significant, and no further mitigation is required.

3.15.5 Cumulative Impacts

The geographic context for the analysis of cumulative traffic impacts includes the 2007 LRDP Traffic Study Area which receives traffic volumes resulting from buildout of the cities of Irvine and Newport Beach. In addition, cumulative impacts are based on the future traffic volumes estimated by SCAG, which includes population and socio-economic projections for all of Orange County. The proposed Project does not anticipate to significantly increase transportation and traffic in the North Campus Region. The contribution of traffic from implementation of the 2007 LRDP would be cumulatively considerable; however, UCI's contribution to these significant cumulative impacts would be reduced to a level of Less than significant by implementation of the mitigation measures. The proposed Project is consistent with the 2007 LRDP and would continue to meet the goals and policies discussed in the Circulation Element. Furthermore, the Project is fully accounted for in the growth allocated by the 2007 LRDP and analyzed in the 2007 LRDP EIR.

Regional Transportation Plan and Sustainable Community Strategies Consistency

Metropolitan Planning Organizations (MPOs) are required to develop a Regional Transportation Plan and Sustainable Community Strategies (RTP/SCS). The purpose of the RTP/SCS is to evaluate regional land use

patterns and transportation systems to achieve the State's target GHG emissions reduction goals. If the proposed Project is inconsistent with the RTP/SCS, then the inconsistency would be evaluated for a significant impact on transportation.

The UCI campus is located within the SCAG MPO region. The SCAG Regional Council adopted Connect SoCal, the 2020-2045 RTP/SCS. According to the SCAG website, SCAG utilizes a "Bottom-Up Local Input and Envisioning Process" where feedback is solicited from local jurisdictions on localized information such as base land use and anticipated socio-economic growth (populations, employment, household). This information is typically a component of the City's General Plan, and if available, the City's traffic analysis model.

The City of Irvine initially adopted its General Plan in December 1973 with a comprehensive updated in 2000. Since then, the City has been growing and is now in the process of Phase 2 of their comprehensive General Plan Update. The City maintains the ITAM which incorporates buildout conditions (per the City General Plan) for the City and is frequently updated as projects go through entitlements. ITAM houses the type of information solicited by SCAG for use in the RTP. The City of Irvine and UCI have a long-standing cooperation in regard to campus planning and future growth and coordination has been made between UCI's 2007 LRDP and the City's General Plan. Therefore, growth assumed in UCI's 2007 LRDP is reflected in the City's General Plan as well as ITAM and would be the information supplied to SCAG during their Bottom-Up Local Input process. Implementation of Mitigation Measures TR-1 and TR-2 would require on-site Project TDMs to be implemented and continuance of campus-wide TDM programs that would reduce vehicle trips consistent with the key planning objectives of the 2007 LRDP Circulation Element.

The proposed Project is fully accounted for in the growth allocated by the 2007 LRDP. As mentioned above, coordination has been made between the land use assumptions used in the 2007 LRDP and City of Irvine. Therefore, since the proposed Project was accounted for in the City's growth forecast, the Project would be consistent with the RTP/SCS and would have a less than significant impact on transportation based on the RTP/SCS screening threshold. Therefore, potential impacts are not considered cumulatively considerable and are less than significant.

3.15.6 Level of Significance After Mitigation Summary

No significant impacts have been identified.

3.15.7 References

Orange County Transportation Authority. (2020). OC Bus Book,

<http://octa.net/ebusbook/CompleteBusBook.pdf>, Accessed May 8, 2020.

Stantec Consulting Services Inc. (2020). Irvine Campus Medical Complex Transportation Study

University of California, Irvine. (2007). Long Range Development Plan Final EIR; Page 4.1-5. Accessed March 18, 2020.

University of California, Irvine. (2019). *Irvine Campus Medical: Complex Detailed Project Program*; page 285. Accessed on March 18, 2020.

University of California, Irvine Transportation and Distribution Services. Sustainable Transportation Webpage, <https://parking.uci.edu/AT/incentives/>, Accessed May 5, 2020.

3.16 TRIBAL CULTURAL RESOURCES

This section of the SEIR provides contextual background information on existing tribal cultural resources and environmental conditions in the area, identifies and analyzes environmental impacts based on accepted thresholds of significance, and recommends measures and monitoring procedures to reduce or avoid adverse impacts anticipated from Project construction, operation, and site disturbance.

This section is closely related to Section 3.4, *Cultural Resources*, and contains cross-references to that section. However, while there may be overlap of information, this section focuses on tribal correspondence with Native American tribes. These reports and their findings are summarized in this section, and care has been taken to protect confidential or sensitive material known to be present in the general vicinity of the Project site. The University of California, Irvine has also initiated consultation with local tribal representatives consistent with the requirements of Senate Bill (SB) 18 and Assembly Bill (AB) 52. A Cultural Resources Identification Study (Michael Baker International and Cogstone Resource Management, Inc., 2020) was prepared for the proposed Project and summarized within this section. The report is included as Appendix D to this SEIR.

3.16.1 Regulatory Setting

Federal

American Indian Religious Freedom Act, Title 42, United States Code, Section 1996

The American Indian Religious Freedom Act protects Native American religious practices, ethnic heritage sites, and land uses.

Native American Graves Protection and Repatriation Act (NAGPRA) (1990), Title 25, United States Code

Native American Graves Protection and Repatriation Act (NAGPRA) defines “cultural items,” “sacred objects,” and “objects of cultural patrimony;” establishes an ownership hierarchy; provides for review; allows excavation of remains under certain conditions, but stipulates return of the remains according to ownership; sets penalties for violations; calls for inventories; and provides for return of specified cultural items.

State

California Senate Bill 18

Senate Bill (SB) 18 (California Government Code Section 65352.3) requires local governments to consult with Native American tribes prior to making certain planning decisions and to provide notice to tribes at certain key points in the planning process. The SB 18 consultation and noticing requirements apply to the adoption and amendment of general plans and specific plans. The consultation process requires (1) that local governments send the State NAHC information on a proposed Project and request contact information for local Native American tribes; (2) that local governments then send information on the project to the tribes that the NAHC has identified and notify them of the opportunity to consult; (3) that the tribes have 90 days to respond on whether they want to consult or not, and (4) that consultation begins if requested by a tribe and there is no statutory limit on the duration of the consultation. If issues arise and consensus on mitigation cannot be reached, SB 18 allows a finding to be made that the suggested mitigation is infeasible.

California Assembly Bill 52

On September 25, 2014, Governor Brown signed Assembly Bill (AB) 52, which created a new category of environmental resources that must be considered under CEQA: “tribal cultural resources.” AB 52 is applicable to projects for which a Notice of Preparation is filed on or after July 2015.

AB 52 adds tribal cultural resources to the categories of cultural resources in CEQA, which had formerly been limited to historic, archaeological, and paleontological resources. Tribal cultural resources are defined as either (1) “sites, features, places cultural landscapes, sacred places and objects with cultural value to a California Native American tribe” that are included in the state register of historical resources or a local register of historical resources, or that are determined to be eligible for inclusion in the state register; or (2) resources determined by the lead agency, in its discretion, to be significant based on the criteria for listing in the state register.

Recognizing that tribes may have expertise with regard to their tribal history and practices, AB 52 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 notice of projects proposed within that area. If the tribe requests consultation within 30 days upon receipt of the notice, the lead agency must consult with the tribe. Consultation may include discussing the type of environmental review necessary, the significance of tribal cultural resources, the significance of the project’s impacts on the tribal cultural resources, and alternatives and mitigation measures recommended by the tribe. The parties must consult in good faith, and consultation is deemed concluded when either the parties agree on measures to mitigate or avoid a significant effect on a tribal cultural resource (if such a significant effect exists) or when a party concludes that mutual agreement cannot be reached.

Public Resources Code Sections 5097.5

California Public Resources Code Section 5097.5 prohibits excavation or removal of any “vertebrate paleontological site...or any other archaeological, paleontological or historical feature, situated on public lands, except with express permission of the public agency having jurisdiction over such lands.” Public lands are defined to include lands owned by or under the jurisdiction of the state or any city, county, district, authority or public corporation, or any agency thereof. Section 5097.5 states that any unauthorized disturbance or removal of archaeological, historical, or paleontological materials or sites located on public lands is a misdemeanor.

California Health and Safety Code Section 7050.5

California Health and Safety Code Section 7050.5 states that in the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the remains are discovered has determined whether or not the remains are subject to the coroner’s authority. If the human remains are of Native American origin, the coroner must notify the Native American Heritage Commission within 24 hours of this identification. The commission will identify a Native American most likely descendant to inspect the site and provide recommendations for the proper treatment of the remains and associated grave goods.

3.16.2 Environmental Setting

Ethnography

The Project area lies in territory utilized by both Gabrielino and Juaneño peoples. Both the Gabrielino and Juaneño fall into the Takic linguistic family.

The Gabrielino engaged in seasonal harvesting, fishing, fowling, and hunting, and were organized in kin groups based around permanent coastal sites, and within canyons and valleys. Complex, kinship-based socioeconomic and political networks tied coastal groups to their inland counterparts. Researchers conclude that “with the possible exception of the Chumash, the Gabrielino were the wealthiest, most populous, and most powerful ethnic nationality in aboriginal southern California.”

The Takic-speaking ancestors of the Gabrielino began displacing the indigenous Hokan-speaking groups around 500 BC, and by the time of European contact, the Gabrielino population is estimated to have exceeded 5,000 (Bean and Smith 1978). The other group ethnographically tied to the Project area and vicinity, the Juaneño (also referred to as the Luiseño), employed a “more rigid social structure,” and maintained a “greater population density” than their Gabrielino neighbors. The Juaneño subsisted on small game and marine foraging and relied heavily on acorns and other seeds. Researchers report that their social structure centered on sedentary, autonomous villages with areas specifically set aside for hunting, foraging, and fishing.

Archaeological and Historical Resources

The records search was conducted at the South Central Coastal Information Center of the California Historic Resources Inventory System (CHRIS) in May 2019. The records search was conducted with a half-mile search radius of the Project area.

The search included a review of all recorded archaeological and built-environment resources as well as the California Points of Historical Interest, the California Historical Landmarks, the CRHR, the NRHP, and the California State Historic Properties Directory listings. One previously recorded cultural resource has been identified within the Project area, as described below.

P-30-000115/CA-ORA-115 – This site consists of two loci, A and B. When first recorded by the University of California in April 1963, Locus A was recorded as a midden with sparse shell, and Locus B was described simply as a shell midden. Pacific Coast Archaeological Society, Inc. (PCAS) reevaluated Locus B in 1966 and found groundstone and bowl fragments, and primarily water-derived faunal material. When resurveyed in August 1976, Howard Jones found four mano fragments, a metate fragment, three scrapers, utilized flakes, and fire-cracked rocks in Locus A, and the area was described as favorable for excavation. That same month, Jones found shell midden material in Locus B and described it as favorable for excavation as well. Construction of campus buildings later destroyed much of Locus A. J. Brock of the Archaeology Advisory Group reevaluated both loci in 1985, noting however that some material may remain in peripheral areas of Locus A. Brock described Locus B as in good condition with midden and limited chert lithic material, noting also that vegetation limited visibility.

Four cultural resources were identified within a half-mile radius of the Project area and are briefly described below.

Resource Name	Description	OHP Status	Distance from Project Area
P-30-000116/ CA-ORA-000116	Habitation site with dense shell midden and house-pits.	2S2 – Eligible for National Register	0.7 km
San Joaquin Gun Club P-30-000057/CAORA-000057	Semi-permanent village or central base habitation site with a large shell midden, pestle, manos, flaked stone tools and debitage, clam shell ornaments, shell beads, arrow shaft straighteners, incised stone, shall bracelet, projectile points, cores, hammerstones, cogstones, and bone awls. Also contains the remains of a late nineteenth to mid-twentieth century gun club.	N/A	0.06 km
P-30-100165	Isolate of faunal remain and a ceramic fragment.	N/A	0.8 km
Fluor Site (P-30-000121/CA-ORA-000121/H	Potential village site previously evaluated as eligible for listing in the National Register and California Register under Criterion D/4.	3S, 3CS	0.2 km

3.16.3 Thresholds of Significance

According to Appendix G of the CEQA Guidelines, a project would normally be considered to have a significant impact if it would:

- Threshold 3.16-1 Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:**
- i. **Listed or eligible for listing in the California Register of Historical Resources, or in the local register of historical resources as defined in Public Resources Code Section 5020.1(k), or**
 - ii. **A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.**

Campus Programs, Practices and Procedures, and Mitigation Measures Carried Forward from the November 2007 LRDP Amendment Final EIR

No Mitigation Measures specific to Tribal Cultural Resources were adopted as part of the November 2007 LRDP Final EIR.

3.16.4 Environmental Impacts

Threshold 3.16-1:	<p>Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:</p> <p>i. Listed or eligible for listing in the California Register of Historical Resources, or in the local register of historical resources as defined in Public Resources Code Section 5020.1(k), or</p> <p>ii. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.</p>
Impact Summary:	Significant and Unavoidable.

In compliance with PRC Section 21080.3.1(b), the UC Regents has provided formal notification to California Native American tribal representatives that have previously requested notification from the UC Regents regarding projects within the geographic area traditionally and culturally affiliated with the tribe. Native American groups may have knowledge about cultural resources in the area and may have concerns about adverse effects from development on tribal cultural resources as defined in PRC Section 21074. UCI contacted the following tribal representatives on May 26, 2020:

- Gabrieleno Band of Mission Indians – Kizh Nation, Andrew Salas
- Agua Caliente Band of Cahuilla Indians, Patricia Garcia-Plotkin
- Gabrielino/Tongva San Gabriel Band of Mission Indians, Anthony Morales
- Gabrielino/Tongva Nation, Sandonne Goad
- Gabrielino Tongva Indians of California Tribal Council, Robert Dorame
- Gabrielino-Tongva Tribe, Charles Alvarez
- Juaneno Band of Mission Indians, Sonia Johnston
- Juaneno Band of Mission Indians – Acjachemen Nation - Belardes, Joyce Perry
- Juaneno Band of Mission Indians – Acjachemen Nation – Romero, Teresa Romero
- La Jolla Band of Luiseno Indians, Fred Nelson
- Pala Band of Mission Indians, Shasta Gaughen
- Pauma Band of Luiseno Indians, Temet Aguilar
- Pechanga Band of Luiseno Indians, Paul Macarro
- Rincon Band of Luiseno Indians, Bo Mazzetti

- San Luis Rey Band of Mission Indians, San Luis Rey Tribal Council
- Soboba Band of Luiseno Indians, Scott Cozart

As discussed in Section 3.4, the Project site contains archaeological site P30-000115/CA-ORA-115 which is considered eligible for the CRHR as it is likely to yield important information about prehistory. Two tribes responded to the notification, Gabrieleno Band of Mission Indians – Kizh Nation and Juaneno Band of Mission Indians – Acjachemen Nation, to initiate consultation regarding the project and the archaeological site, CA-ORA-115, and request on-site monitoring. Per consultation, tribes will have Native American representatives for on-site monitoring during the extended Phase I data recovery of P30-000115/CA-ORA-115 and during earthwork for the proposed Project. However, potential impacts on P30-000115/CA-ORA-115 would remain significant and unavoidable after the implementation of Mitigation Measures CUL-1, CUL-2, and CUL-3, which includes both archaeological and on-site Native American monitoring, due to the disturbance of the site. Similarly, this would result in a significant impact per Public Resources Code Section 5020.1(k) as the archaeological site, P30-000115/CA-ORA-115, is potentially eligible for listing in the CRHR.

Additionally, it is possible that unknown buried tribal cultural resources could be present on the Project site and would not be discovered until after construction activities begin. Should buried or otherwise unknown tribal cultural resources, per Public Resources Code Section 5024.1, be encountered and damaged during construction, a potentially significant impact would result. Implementation of Mitigation Measures CUL-1, CUL-2, and CUL-3 would reduce impacts to unknown Tribal Cultural Resources, but due to impacts on archeological site P30-000115/CA-ORA-115, potential impacts remain significant and unavoidable.

Mitigation Measures

The Project shall Implement Mitigation Measures CUL-1, CUL-2, and CUL-3 from Section 3.4, Cultural Resources, of this SEIR.

3.16.5 Cumulative Impacts

With respect to historic resources, the Project would not impact any known historical resources. With respect to prehistoric archaeological resources, the cumulative study area would include the areas along coastal Orange County historically used by the Juaneno Band of Mission Indians and the Gabrieleno Band of Mission Indians.

The Project—in conjunction with the effects of past projects, other current projects, and probable future projects—may result in the disturbance of prehistoric archaeological resources throughout the study area. Standard conditions of approval and mitigation measures required for each project may reduce the impacts to a less than significant level. Earthmoving activities could possibly uncover previously undetected archaeological remains associated with prehistoric cultures, and a loss of a significant archaeological resource could result if such materials are not properly identified. Therefore, despite site-specific nature of the resources, mitigation required for the identification and protection of unknown or undocumented resources would not reduce the potential for cumulative impacts. As a result, Project implementation would contribute to a significant cumulative impact on cultural resources. This determination is consistent with the findings of the 2007 LRDP EIR. The 2007 LRDP EIR concluded that impacts would be considered significant for recorded resources that have been determined to be significant, including sites CA-ORA-115-A, -115-B (P30-000115/CA-ORA-000115).

The proposed Project would cumulatively contribute to a potentially significant impact without mitigation. Consistent with the findings of the 2007 LRDP EIR, cumulative development is expected to result in significant impacts to identified and recorded cultural, archaeological resources, or historical resources. The proposed Project includes Mitigation Measures CUL-1, CUL-2, and CUL-3 to minimize impacts but impacts would remain significant and unavoidable.

3.16.6 Level of Significance After Mitigation Summary

With implementation of the Mitigation Measures CUL-1, CUL-2, and CUL-3, potential impacts to tribal cultural resources would not be reduced to a level of less than significant. Impacts to tribal cultural resources would remain significant and unavoidable.

This page intentionally left blank

3.17 UTILITIES AND SERVICE SYSTEMS

This section of the SEIR evaluates the potential impacts on utilities and service systems from implementation of the proposed Project. This includes the potential for the Project to conflict with or obstruct existing capacity and future implementation of utility and service systems or to result in a cumulatively considerable net increase of demand in services. Existing on-campus utility and service systems that would continue to serve the campus under the 2007 LRDP include water supply (potable, and reclaimed), wastewater, and solid waste.

The information presented in this section was obtained from available public resources including *Google Earth*, the *City of Irvine General Plan (Irvine GP)*, the *City of Irvine Municipal Code (Irvine MC)*, the *Orange County General Plan (Orange GP)*, and the *University of California, Irvine; Irvine Campus Medical Complex Detailed Project Program Volume One (Program One)*.

3.17.1 Regulatory Setting

Federal Regulations

Resource Conservation and Recovery Act of 1976

The Resource Conservation and Recovery Act of 1976 (RCRA) (Title 40 of the Code of Federal Regulations), Part 258, contains regulations for municipal solid waste landfills and requires states to implement their own permitting programs incorporating the federal landfill criteria. The federal regulations address the location, operation, design (liners, leachate collection, run-off control, etc.), groundwater monitoring, and closure of landfills.

State Regulations

Urban Water Management Planning Act (California Water Code, Division 6, Part 2.6, Section 10610 et. seq.)

The Urban Water Management Planning Act was developed due to concerns for potential water supply shortages throughout California. It requires information on water supply reliability and water use efficiency measures. Urban water suppliers are required, as part of the Act, to develop and implement Urban Water Management Plans to describe their efforts to promote the efficient use and management of water resources.

Water Conservation Projects Act

The State of California's requirements for water conservation are codified in the Water Conservation Projects Act of 1985 (Water Code Sections 11950-11954), which encourages local agencies and private enterprise to implement potential water conservation and reclamation projects.

California Integrated Waste Management Act - AB 939

The California Integrated Waste Management Act of 1989 (AB 939) established the existing organization, structure, and mission of California Integrated Waste Management Board (CIWMB) with an integrated waste management hierarchy that consists of the following (in order of importance): source, reduction, recycling, composting, and land disposal of solid waste. Under the provisions of this statute, the University

of California (UC) is not subject to this and other regulations pertaining to solid waste. However, the University has voluntarily adopted waste diversion goals in the March 2007 UC Sustainability Policy.

This regulation also included Waste Diversion Mandates which required each city or county plan to include an implementation schedule which shows: diversion of 25 percent of all solid waste from landfill or transformation facilities by January 1, 1995 through source reduction, recycling, and composting activities; and, diversion of 50 percent of all solid waste by January 1, 2000 through source reduction, recycling, and composting activities.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act, codified in the California Water Code, authorizes the State Water Resources Control Board to implement programs to control pollution into state waters. This law essentially implements the requirements of the Federal Clean Water Act. Pursuant to this law, the RWQCB establishes the wastewater concentrations of a number of specific hazardous substances in treated wastewater discharged from the campus.

Medical Waste Management Act (MWMA)

The California Medical Waste Management Act was passed by Legislature in 1990. The MWMA requires medical waste be incinerated at a permitted facility or disposed of through another method approved by the Department of Public Health. The Medical Waste Management Program regulates the generation, handling, storage, treatment, and disposal of medical waste by providing oversight for the implementation of the MWMA. The MWMP permits and inspects all medical waste off-site treatment facilities and medical waste transfer stations. In addition to the treatment methods specifically allowed in the MWMA, there are alternative medical waste treatment technologies approved for use in California.

University of California

UC Policy on Sustainable Practices

The Regents have adopted a Policy on Sustainable Practices which includes practices related to green building design, clean energy, climate protection, transportation, operations, recycling and waste management, and environmentally preferable procurement. Goals of this policy include reducing consumption of non-renewable energy for all proposed and existing facilities. UCI is required to show status of project compliance at the time of Regents' approval of new projects.

UC Irvine Long Range Development Plan

The UC Irvine LRDP, adopted in 2007, provides the comprehensive framework for the physical development of the UCI campus and is the primary planning document for the campus. As a general land use plan, the 2007 LRDP does not guide enrollment decisions or implementation of capital projects that could impact the on-campus population. The 2007 LRDP generally outlines the physical development needed to meet projected demand based on near-term enrollment projections. The 2007 LRDP Infrastructure Element outlines the expansion of utility infrastructure required to meet the program needs identified in the 2007 LRDP. Key planning objectives for the Infrastructure Element include:

- Provide utility infrastructure in cooperation with public utility providers to enable the physical growth of the campus consistent with UCI's strategic academic objectives;

- Adopt efficient, “green” energy systems to conserve resources, manage energy costs, and promote environmentally beneficial practices; and
- Pursue energy self-sufficiency through cogeneration and other means in order to acquire a reliable supply of energy and to reduce impacts on local utility systems.

2017 UCI Water Action Plan Update

The Water Action Plan (WAP) is a roadmap for managing water resources at the UCI campus and medical center. The WAP takes a watershed approach to address water resource goals, planning strategies, and project opportunities in support of UC Policy on Sustainable Practices requirements, UC Irvine sustainable water system goals, and regulatory requirements. UC Policy on Sustainable Practices requires a potable water reduction of 20 percent by 2020 and 36 percent by 2025, with a three-year average baseline of FY2005/06, FY2006/07, and FY2007/08.

Regional and Local Regulations

UCI is a constitutionally created State entity and is not subject to municipal regulations of surrounding local governments for uses on property owned or controlled by UCI that are in furtherance of the University’s mission. However, UCI may consider, for coordination purposes, aspects of local plans and policies for the communities surrounding the campus when it is appropriate and feasible, but it is not bound by those plans and policies in its planning efforts.

Irvine Ranch Water District Urban Water Management Plan

The Irvine Ranch Water District’s (IRWD) Urban Water Management Plan (UWMP) is required under Water Code Sections 10610 through 10656 of the Urban Water Management Planning Act, effective January 1, 1984. The act requires all urban water suppliers to prepare, adopt, and file a UWMP with DWR every five years. The IRWD’s UWMP outlines current water demands, sources, and supply reliability to the IRWD by forecasting water use based on climate, demographics, and land use changes in the service area. The plan also provides demand management measures to increase water use efficiency for various land use types, and details a water supplies contingency plan in case of shortage emergencies. The IRWD adopted the updated 2015 UWMP in June 2016.

2020 Sub Area Master Plan

In April 2020, UCI and IRWD worked collaboratively to develop a Sub Area Master Plan (SAMP) to confirm the capacity of off-site water, recycled water, and sanitary sewer facilities to serve the UCI North Campus. The collaborative SAMP confirmed that IRWD systems have adequate capacity to serve the Project and recommended points of connections to IRWD infrastructure.

3.17.2 Environmental Setting

This section of the SEIR identifies and evaluates potential impacts related to utilities and service systems in the Project area. The Baseline Data Collection provides information on baseline conditions in the Project region from literature search, review of existing data, and site surveys. The purpose of this analysis is to provide a description of existing utilities and service systems on the Project site and to identify potentially significant impacts that could occur to utilities and service systems from the construction of the proposed

development. Utilities and service systems include water, wastewater, storm water drainage, electric power, natural gas, and telecommunications facilities.

Wastewater

The UCI campus is served by the Irvine Ranch Water District (IRWD) collection system, which primarily conveys wastewater to the IRWD Michelson Water Reclamation Plant. However, a portion of the North Campus, inclusive of the Project site, is served by the IRWD collection system but conveys wastewater to the Orange County Sanitation District (OCSD) Reclamation Plant in Fountain Valley. The OCSD is a wastewater treatment agency that services 2.5 million people in central and northwestern Orange County. The IRWD provides domestic water service, sewage collection, and water reclamation to the Cities of Irvine, Tustin, Lake Forest, Newport Beach, Orange, and Costa Mesa and surrounding unincorporated areas of Orange County.

OCSD operates and maintains two treatment plants: Reclamation Plant No. 1, located in Fountain Valley with a capacity of 320 MGD, and Treatment Plant No. 2 located in Huntington Beach with a capacity of 312 MGD. Treated wastewater is discharged to the Pacific Ocean via an ocean outfall in compliance with state and federal requirements as set forth in OCSD's National Pollutant Discharge Elimination System (NPDES) permit. Approximately 100 MGD of secondary effluent undergoes advanced treatment at the Groundwater Replenishment System facility operated by the OCWD and 7 MGD undergoes tertiary treatment at OCWD's Green Acres Project facility. OCSD's ocean outfall is 120-inch diameter and extends four miles off the coast of Huntington Beach. A 78-inch diameter emergency outfall also exists that extends 1.3 miles off the coast.¹

The IRWD provides sewage collection and treatment and produces tertiary-treated recycled water. Wastewater is treated at the Michelson Water Reclamation Plant (MWRP) and at the Los Alisos Water Reclamation Plant (LAWRP). Wastewater from UCI, except for North Campus, is conveyed via pipelines to the MWRP.

Water reclaimed from the MWRP and LAWRP makes up 20 percent of the IRWD's total water supply, reducing the need to import water. The reclaimed water is delivered through a separate distribution system that includes more than 245 miles of pipeline, eight storage reservoirs and 12 pump stations.

The Regional Water Quality Control Board (RWQCB) regulates wastewater discharges from municipal wastewater treatment plants, such as the MWRP and LAWRP, through the issuance of NPDES permits. Discharges of wastewater to surface water must meet the effluent limitations prescribed in the NPDES permit issued by the RWQCB. MWRP discharges into the San Joaquin Marsh Reserve and into reclaimed water reservoirs for storage. The 2007 LRDP noted that some additional on-campus existing sanitary sewer distribution systems would be installed, and certain reaches of existing pipelines would be upgraded to accommodate the proposed growth. Implementation would include the installation of new, replacement, or parallel sewer pipelines and manholes installed in existing campus streets, parking lots, undeveloped campus property, paved plaza areas, and landscaping.

¹ Municipal Water District of Orange County, 2015 MWDOC UWMP page 6-1, Available at: https://www.mwdoc.com/wp-content/uploads/2017/05/UWMP_May-2016-v2.pdf, accessed June 3, 2020

Water Supply

UCI uses potable water for drinking, sanitation, fire protection, heating, cooling, air conditioning, and research. Potable water is distributed to UCI from the IRWD potable water transmission system through 8-, 10-, and 12-inch water mains to UCI's distribution system and is served by five metered connections. UCI uses reclaimed water for landscape irrigation and has converted its central plant cooling towers to use recycled water. According to the 2017 Water Action Plan, UCI used approximately 358 million gallons (MG) of potable water (1,099 acre-feet) and reclaimed approximately 140 MG of recycled water (430 acre-feet) during fiscal year 2016-2017.

The IRWD provides the water supply for UCI. In 1964, the UC Regents entered into a Water Service Agreement with IRWD regarding water service for UCI. The Agreement states that IRWD will provide the UCI Campus water service of up to 3,620 acre-feet per service year consistent with the published IRWD schedule of rates for comparable entities within the District. The Agreement provides for the University to pay the charges, costs and expenses for future (Post-1964) connections to IRWD water transmission mains. These payments and the water rates paid by UCI represent UCI's payment for the IRWD capital facilities required to serve the campus. IRWD participates with UCI on its Subarea Master Planning to determine the effects of planned improvements on IRWD's water, recycled water and sewer systems.

The IRWD is the largest constituent agency of the Municipal Water District of Orange County (MWDOC), a member agency and wholesale importer of water from the Metropolitan Water District (MWD). According to the 2015 IRWD UWMP, IRWD water supply consists of imported potable water, imported non-potable water, groundwater, and recycled water. Total water demand for the IRWD service area is projected to reach 109,431 acre-feet per year by the year 2030.² Projected IRWD water supply in 2030 is 157,549 acre-feet.³

Approximately 27 percent of IRWD's drinking water is purchased from MWDOC imported through MWD from the Colorado River and from Northern California. Imported water supplies are a source of supply for IRWD, as well as redundancy supply in the event of shutdowns or local outages. MWD's 2015 UWMP shows that MWD has sufficient supply capabilities to meet expected demands from 2020 through 2040 under a repeat of the 1990-1992 multiple dry-year hydrology and the 1977 single dry-year hydrology.

The remaining percent of the water supply comes from IRWD's extensive well system (ground water supply) and non-potable sources including recycled water, untreated imported water, surface water and non-potable groundwater. Similarly, as with potable water, IRWD purchases untreated water through MWDOC. Untreated purchased water is used to meet certain agricultural and landscape demands that cannot be met with recycled water and to supplement recycled water system during peak months.

Over 50 percent of IRWD's overall supply comes from local groundwater wells in the Orange County Groundwater Basin (Basin), and the Irvine and Lake Forest Sub-basins. IRWD is an operator of groundwater-producing facilities in the main portion of the Basin and the Sub-basins. The Orange County Water District (OCWD) manages the areas of the Basin that are located within the OCWD boundary. The Irvine Sub-basin is located within the OCWD boundary, but the Lake Forest area sub-basin is outside of

² IRWD, 2015 IRWD UWMP, DWR Table 4-3, Available at: https://www.irwd.com/images/pdf/doing-business/environmental-documents/UWMP/IRWD_UWMP_2015_rev_01-03-17_FINAL.pdf, accessed June 1, 2020

³ IRWD, 2015 IRWD UWMP DWR Table 6-9, Available at: https://www.irwd.com/images/pdf/doing-business/environmental-documents/UWMP/IRWD_UWMP_2015_rev_01-03-17_FINAL.pdf, accessed June 2, 2020

the OCWD boundary. OCWD manages the Basin for the benefit of municipal, agricultural and private groundwater producers and is responsible for the protection of water rights to the Santa Ana River in Orange County as well as the management and replenishment of the Basin. The recent average production from the main Basin is approximately 330,000 AFY. IRWD produces the majority of its groundwater primarily from the main portion of the Basin. For groundwater management, the Orange County Water District (OCWD) has invested in facilities along with Basin management and water rights protection to meet projected production from the Basin during normal and drought periods.

IRWD also produces non-potable supplies from the Irvine Sub-Basin. The Irvine Sub-Basin forms the southern-most portion of the Basin. The OCWD provides governance and management for the Irvine Sub-Basin. This Sub-Basin has a perennial groundwater yield estimated at 13,000 AF. The groundwater from the Irvine Sub-Basin contains higher total dissolved solids, color and nitrates. IRWD has constructed facilities to treat some of the water produced for potable use through the Irvine Desalter Project. The Irvine Desalter Project is a joint groundwater quality restoration project by the IRWD and OCWD and produces both potable and non-potable water supplies. The Irvine Desalter began operations in 2007 and has the capacity to produce approximately 5,600 AFY of potable water supplies.

IRWD also historically operated six wells within the Lake Forest area sub-basin which has low production capability. Currently IRWD produces approximately 340 AFY of potable water from this groundwater area.

Since the 1960s, UC Irvine has used recycled water (disinfected tertiary recycled water) supplied by IRWD Michelson Treatment Plant for landscape irrigation, diverting a substantial amount of water use from the regional potable water supply. In FY 2016/17, the campus used approximately 140 MG of recycled water. Recycled water is used for landscape irrigation, street sweeping, and dust control during construction of some capital projects. In 2018, UCI converted its 4.5 million-gallon evaporative cooling tower to utilize recycled water rather than potable water.⁴

IRWD's water resources reliability program relies on diversifying water supplies and maximizing local resources, including local groundwater development, expansion of IRWD's recycling water program, and the development of water banking facilities in the Kern County area to provide a contingency of supplemental supply for extended drought or supply interruptions when imported supplies may be restricted. In addition, IRWD, El Toro Water District, Moulton Niguel Water District, Santa Margarita Water District and Trabuco Canyon Water District jointly constructed the regional Baker Water Treatment Plant (WTP) to increase water supply reliability by increasing local treatment capability from multiple water supply sources, including imported untreated water from MWD and through the local surface water in Irvine Lake.

Electricity, Natural Gas, Telecommunications

Southern California Edison distributes electricity to the Project area. SCE maintains existing facilities on Jamboree Road.

Southern California Gas Company (SoCalGas) is the natural gas provider in the City of Irvine. SoCalGas is the nation's largest natural gas distribution utility, providing natural gas to 21.8 million consumers in more

⁴ UCI News, *UCI to save 80 millions in drinkable water annually*, Available at: <https://news.uci.edu/2017/04/05/uci-to-save-50-million-gallons-in-drinkable-water-annually/>, accessed June 2, 2020

than 500 communities. More information regarding energy supply and demand are found under Section 3.5, *Energy*.

Telecommunications are provided by UCI's own data network. Cox, Comcast, and Spectrum provide internet services throughout the Project Area. All major phone carriers provide cell service to the area as well.

3.17.3 Thresholds of Significance

The following significance criteria for utilities and service systems were derived from the Environmental Checklist in State CEQA Guidelines Appendix G. An impact of the Project would be considered significant and would require mitigation if it would meet one of the following criteria:

- Threshold 3.17-1** **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?**
- Threshold 3.17-2** **Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?**
- Threshold 3.17-3** **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?**
- Threshold 3.17-4** **Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?**
- Threshold 3.17-5** **Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?**

Campus Programs, Practices, and Procedures and Mitigation Measures Carried Forward from the November 2007 LRDP Amendment Final EIR

No Mitigation Measures specific to utilities and services systems were adopted as part of the November 2007 LRDP Final EIR.

3.17.4 Environmental Impacts

Threshold 3.17-1:	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?
Impact Summary:	Less Than Significant Impact.

As discussed in Section 2.0, Project Description, the North Campus has existing utility infrastructure supplying potable water, sanitary sewer, natural gas, electricity, and communications to current UCI facilities. The utility systems would require extension to existing systems to serve the Project, with the final sizing and design of on-site facilities to occur during final building design. A majority of new utility

system extensions from existing off-campus infrastructure on Jamboree Road and Campus Drive to the Project site would be completed under the Center for Child Health Project.

Water and Services

There are existing potable water, fire water, recycled water, and sanitary sewer lines on Jamboree Road and Campus Drive, adjacent to the Project site. The Project would receive water services from the Irvine Ranch Water District (IRWD). Potable water would be connected through two feeds, an existing 12-inch line located in Jamboree Road and a 12-inch line connected to Campus Drive. As discussed above, water utility connections from the existing water main in Jamboree Road and Campus Drive to the UCI campus would be completed under the approved Center for Child Health/Medical Office Building Project. The proposed Project would connect to utility extensions from the Center for Child Health/Medical Office Building Project along the main Birch Street entrance. This connection would provide potable water, firewater, and recycled water to the proposed Project. Potable and firewater would connect via a 12-inch line. A six-inch recycled water line connected from an IRWD service line in Campus Drive would provide for cooling tower make-up, irrigation, and ambulatory clinic flushing water. The UCI Facilities Management would oversee the care, custody, and control of the campus water system.

Wastewater Services

Wastewater, or sewer, lines would also connect from the Project site to sewer lines that would be extended to the UCI campus as part of the approved Center for Child Health/Medical Office Building Project. A 12-inch sewer line would connect to an existing 21-inch IRWD main sewer line in Campus Drive and ultimately discharge into OCS D pipelines.

Electricity, Natural Gas, Telecommunications

As a part of the Project, 12-kilovolt (kV) power service would be extended to the Project site and connect to the existing 12-kV line in Jamboree Road near the intersection of Jamboree Road at Birch Street. Electrical utilities would connect to transformers at the Ambulatory Care Center building and the Central Utility Plant. An Uninterruptible Power Supply Systems (UPS) would also be provided on the Project site to prevent a complete shutdown of any system or piece of equipment. The Acute Hospital and Ambulatory Care Center building would stand alone and not share systems and equipment with each other. The parking structures would obtain UPS power from the Ambulatory Care Center building and be standalone.

As noted above, the University of California prohibits the use of natural gas for space and water heating for all buildings except for acute care hospitals. As a part of the Project, a waiver would be submitted to the UC Regents to allow for the use of natural gas for the Central Utility Plant and Ambulatory Care Center. As a part of the Project, a new gas line would be constructed along West Access Road. Natural gas would be extended to the Project site from existing off-site infrastructure. Natural gas utilities would connect to the campus site system installed by the design build team with connections to stub-outs provided from the new service connections furnished by SoCal Gas for this Project. Natural gas would serve the OSHPD 1 central plant steam boiler (serving sterilization & humidification and the OSHPD 1 kitchen. Natural gas meter and building pressure regulating valves would be provided by and in accordance with gas utility company requirements.

Telecommunications connection for the proposed Project would extend through the Center for Child Health Project north of the Project boundary to utilize this point of connection. All utility point of connections are shown in Figure 2-11: Utility Improvements in Section 2.0, Project Description.

As discussed above, the proposed Project would install connections to existing off-site infrastructure that has sufficient capacity to support the Project. Therefore, the proposed Project would not 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 and can be served by existing utility infrastructure. A less than significant impact would occur and no mitigation is required.

Mitigation Measures

No mitigation is required.

Level of Significance After Mitigation

Less than significant impact.

Threshold 3.17-2:	Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?
Impact Summary:	Less Than Significant Impact.

The IRWD would have sufficient water supplies available to serve the Project and reasonably foreseeable future development during normal, dry and multiple dry years.

The 2015 IRWD Urban Water Management Plan projects district-wide water supply availability and demand through 2035, which included the 2007 LRDP buildout. Water supplies are projected to reach a maximum of 157,549 AF in 2025 through 2035. Water demand is expected to rise from 96,445 to 111,277 AF from 2025-2035. Under normal, dry, and multiple dry year scenarios, IRWD has sufficient supplies to buffer against inaccuracies in demand projections, future changed in land use, or alterations in supply availability. Furthermore, the proposed Project would include water-efficient plumbing fixtures, medical equipment, kitchen equipment and irrigation to reduce water consumption. Recycled water would be used for landscaping irrigation and cooling tower water, and the landscape shall be designed to achieve a minimum of 50% water savings in accordance with LEED calculation methods. UCI continues to work with IRWD to reduce domestic water demand on campus consistent with UCI sustainability goals, as follows:

- Continue to use reclaimed water for all landscape irrigation uses where feasible and permissible by law.
- Work with IRWD to identify opportunities for additional uses of reclaimed water on campus to reduce domestic water demand including central utility plant applications, dual plumbing systems in buildings, and other applications to reduce demand for domestic water.
- Work collaboratively with IRWD to identify feasible programs, projects, and measures to reduce domestic water demand.

The 2020 Sub Area Master Plan analyzed the impacts of future loadings on potable, recycled, and sanitary sewer service to IRWD's facilities based on future development at the North Campus. The potable water analysis used future maximum day plus fire flow, as well as conservative assumptions, including use of

potable water in the cooling towers for the proposed Project, although operation of the cooling towers would use recycled water. The analysis results indicated the existing IRWD system is sufficient to serve the proposed Project and no system improvements were determined to be required to support future North Campus development.

Therefore, the proposed Project’s water demand is consistent with the IRWD UWMP, the 2007 LRDP, 2020 SAMP, and UCI sustainability goals. The IRWD would have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years. The proposed Project would feature water-efficient landscaping and fixtures and use recycled water for irrigation and the cooling towers to reduce water consumption. Impacts on water supplies would be less than significant and no mitigation is required.

Mitigation Measures

No mitigation is required.

Level of Significance After Mitigation

Less than significant impact.

Threshold 3.17-3:	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?
Impact Summary:	Less Than Significant Impact.

The North Campus, inclusive of the Project site, is served by IRWD with wastewater conveyed to the OCSD Reclamation Plant, while the rest of the campus is served solely by IRWD. OCSD has two operating facilities that treat wastewater from residential, commercial and industrial sources.

The 2007 LRDP EIR determined that the projected volume of treated wastewater by IRWD would be 26.1 MGD in 2025. With buildout of the 2007 LRDP, UCI’s estimated flows could reach up to 4.3 MGD of the total 26.1 MGD. The 2007 LRDP EIR concluded that with UCI’s funding contributions for capital costs, IRWD would have sufficient capacity to treat the projected 26.1 MGD of wastewater in 2025. The proposed Project is within the square footage and population assumptions analyzed for the North Campus as part of the 2007 LRDP EIR and would not surpass projected capacities.

Additionally, the OCSD 2018-2019 Annual Report states that the two OCSD treatment plants treat a combined 185 MGD. Conservatively assuming that the projected 4.3 MGD of wastewater attributed to buildout of the 2007 LRDP would all be diverted to OCSD for treatment, instead of also to IRWD’s Michelson Water Recycling Plant, it would make up approximately 2.5 percent of the total treated wastewater at OCSD. UCI's projected increase in wastewater flows would be accommodated by planned increases of wastewater treatment capacity by the OCSD.

Plant	Average Treatment ¹	Capacity ²	Remaining Capacity	
			Existing	After LRDP Buildout ³
No. 1	120 mgd	182 mgd	62 mgd	60 mgd
No. 2	65 mgd	150 mgd	85 mgd	83.mgd
Total	185 mgd	332 mgd	147 mgd	142 mgd

mgd = million gallons per day
 Note: Assumes half of wastewater generated by the by the 2007 LRDP goes to Plant No. 1 and half goes to Plant No. 2. However, either plant would have the capacity to treat all of the Project's wastewater, not including the amount that goes to IRWD.
 Sources: 1. OCSD, 2020; <https://www.ocsd.com/services/regional-sewer-service>
 2. U.S. Bureau of Reclamation; OCSD Effluent Reuse Study, 2015. <https://www.usbr.gov/watersmart/title/docs/applications/feasibility/2015/orangecountysd.pdf>
 3. 2007 LRDP

Table 3.17-1: OCSD Wastewater Treatment and Capacity summarizes facility capacities for wastewater treatment with development of the proposed Project. As discussed above, the projected peak wastewater generation for the buildout of the 2007 LRDP is 4.3 MGD. The remaining capacity of the two plants would have sufficient capacity to treat project-generated wastewater. Although implementation of the proposed Project would increase generation of wastewater, Project flows would not exceed the established wastewater treatment requirements. The proposed Project would not require the construction of new wastewater treatment facilities. The wastewater treatment requirements issued by the RWQCB for OCSD's treatment plant were developed to ensure that adequate levels of treatment would be provided for the wastewater flows generating from all land uses within its service area. The proposed Project is consistent with the approved 2007 LRDP and potential impacts are less than significant. No mitigation is required.

Mitigation Measures

No mitigation is required.

Level of Significance After Mitigation

Less than significant impact.

Impact 3.17-4:	Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?
Impact Summary:	Less Than Significant Impact.

UCI has two Materials Recovered Facility (MRF) Transfer Stations within a 10-mile radius of the campus. Waste that cannot be diverted is sent to the Frank R. Bowerman Landfill. The Frank R. Bowerman Landfill, located 15 miles from the main campus⁵, is permitted to receive a daily maximum of 11,500 tons per day

⁵ UCI Facilities Management, 2015 *Solid Waste Diversion Plan*, Available at: https://www.fm.uci.edu/fm_units/docs_fm_units/recycle_docs/SolidWasteDiversionPlan.pdf, Accessed June 3, 2020

and is expected to close in the year 2053. The landfill has a maximum capacity of 266,000,000 Cubic Yards.⁶ Orange County Waste & Recycling, which manages the Frank R. Bowerman Landfill, is in compliance with the California Integrated Waste Management Act of 1989 (AB 939), which requires each jurisdiction to maintain 15 years of solid waste disposal capacity. UCI creates an average 10,000 tons of solid waste annually. In 2018, 1,997 tons of solid waste was sent to landfill (5.47 tons per day), well below the maximum daily threshold at the landfill.⁷

The proposed Project would handle three types of waste: general trash, recycling, and regulated medical waste. Regulated waste includes regulated medical waste, sharps, chemotherapy waste, radioactive waste, and RCRA waste (Resource Conservation and Recovery Act). Radioactive waste is a special case that requires secured holding rooms for any waste that is identified as radioactive by a monitoring system. RCRA waste encompasses hazardous waste, pharmaceutical waste, flammable waste, and waste from Pathology and other labs. Each waste streams would have adequate holding space at the soiled dock at the Acute Hospital. Two compactors for general trash and recycling would be located at the soiled dock. The proposed Project would comply with State and local standards for solid waste generation including RCRA, University of California Policy on Sustainable Practices, and UCI's sustainability goals. The proposed Project is not expected to exceed solid waste capacities at the Frank R. Bowerman Landfill. Impacts are considered less than significant, and no mitigation is required.

Mitigation Measures

No mitigation is required.

Level of Significance After Mitigation

Less than significant impact.

Impact 3.17--5:	Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?
Impact Summary:	Less Than Significant Impact.

The University of California is not subject to Assembly Bill 939 or other local agency regulations pertaining to solid waste management. Instead, the University of California has adopted the Sustainable Practices Policy that requires campuses to undertake aggressive programs to reduce solid waste generation and disposal, such as Zero Waste by 2020.⁸ The University of California has defined Zero Waste as diverting 90 percent or more of campus solid waste from landfills. As of 2018, UCI achieved a diversion rate of 80 percent through recycling, composting, and reuse.

The Sustainable Practices Policy also includes voluntary compliance with the State Agency Integrated Waste Management Plan and prioritization of waste and recycling for LEED credits, and life cycle assessment for reuse of building materials. The proposed Project would involve other types of waste including medical and clinical waste and would adhere to all applicable Federal, State, or local programs.

⁶ CalRecycle, *SWIS Facility Detail Frank R. Bowerman Sanitary LF (30-AB-0360)*, Available at: <https://www2.calrecycle.ca.gov/SWFacilities/Directory/30-AB-0360/Detail>, Accessed June 3, 2020.

⁷ UCI Facilities Management, *2019 Solid Waste Diversion Plan*, Available at: https://www.fm.uci.edu/fm_units/docs_fm_units/recycle_docs/2019UCIWasteDiversionPlan.pdf, Accessed June 3, 2020

⁸ University of California, *Policy on Sustainable Practices*, Available at: <https://policy.ucop.edu/doc/3100155/SustainablePractices>, Accessed on June 3, 2020

Therefore, the proposed Project would not violate solid waste regulations and no impact would occur. No mitigation is required.

Mitigation Measures

No mitigation is required.

Level of Significance After Mitigation

Less than significant impact.

3.17.5 Cumulative Impacts

Cumulative impacts for electricity and natural gas are discussed under Section 3.5, *Energy*. The Cumulative impacts area for telecommunications includes the service area for the providers. The proposed Project would connect to existing UCI telecommunication networks. UCI Office of Information Technology would maintain telecommunication service and bandwidth. No significant cumulative impact is anticipated, and the Project's contribution is not considered cumulatively considerable.

Given the existing available water supply, the water supply needs of the Project—together with related past, present, and reasonably foreseeable future projects—would not result in the need for new or expanded water entitlements that could result in significant environmental impacts. The cumulative utilities impact with respect to water supply would be less than significant. Since the proposed Project would not have a significant impact on the water supply and would have adequate water infrastructure improvements, the Project would not combine with other cumulative projects to result in significant water supply and infrastructure impacts.

The wastewater treatment requirements issued by the RWQCB for OCSD's treatment plant were developed to ensure that adequate levels of treatment would be provided for the wastewater flows emanating from all land uses within its service area. Given the existing available capacity, the wastewater treatment needs of the Project—together with related past, present, and reasonably foreseeable future projects—would not result in the need for new or expanded wastewater treatment facilities that could result in significant environmental impacts or that could cause the wastewater treatment to exceed the capacity of the wastewater treatment facilities. The cumulative utilities impact with respect to wastewater treatment capacity would be less than significant. No significant cumulative impact is anticipated, and the Project's contribution is not considered cumulatively considerable.

Future projects in the area would increase solid waste generation and decrease available capacity of the County's landfills. However, as with the proposed Project, these projects have been, or would be, required to conduct environmental review. Additionally, the Frank R. Bowerman landfill is projected to have sufficient capacity to serve current and future needs until its scheduled closure in December 2053. Furthermore, the proposed Project would adhere to Zero Waste sustainability goals from the University of California and achieve up to 90 percent diversion. The Project would not combine with other cumulative projects to result in significant impacts to solid waste.

3.17.6 References

- CalRecycle, *SWIS Facility Detail Frank R. Bowerman Sanitary LF (30-AB-0360)*, Available at: <https://www2.calrecycle.ca.gov/SWFacilities/Directory/30-AB-0360/Detail>, Accessed June 3, 2020.
- IRWD, *2015 IRWD UWMP*, Available at: [https://www.irwd.com/images/pdf/doing-business/environmental-documents/UWMP/IRWD UWMP 2015 rev 01-03-17 FINAL.pdf](https://www.irwd.com/images/pdf/doing-business/environmental-documents/UWMP/IRWD_UWMP_2015_rev_01-03-17_FINAL.pdf), accessed June 1, 2020.
- Municipal Water District of Orange County, *2015 MWDOC UWMP* page 6-1, Available at: https://www.mwdoc.com/wp-content/uploads/2017/05/UWMP_May-2016-v2.pdf, accessed June 3, 2020.
- Sub Area Master Plan for University of California, North Campus, March 2020, accessed August 6, 2020.
- UCI Facilities Management, *2015 Solid Waste Diversion Plan*, Available at: https://www.fm.uci.edu/fm_units/docs_fm_units/recycle_docs/SolidWasteDiversionPlan.pdf, accessed June 3, 2020.
- UCI Facilities Management, *2019 Solid Waste Diversion Plan*, Available at: https://www.fm.uci.edu/fm_units/docs_fm_units/recycle_docs/2019UCIWasteDiversionPlan.pdf, accessed June 3, 2020.
- UCI News, *UCI to save 80 millions in drinkable water annually*, Available at: <https://news.uci.edu/2017/04/05/uci-to-save-50-million-gallons-in-drinkable-water-annually/>, accessed June 2, 2020.
- University of California, *Policy on Sustainable Practices*, Available at: <https://policy.ucop.edu/doc/3100155/SustainablePractices>, accessed on June 3, 2020.

4.0 OTHER CEQA CONSIDERATIONS

The California Environmental Quality Act (CEQA) Guidelines Section §15128 requires that an Environmental Impact Report (EIR) contain a brief statement disclosing the reasons why various possible significant effects of a proposed project were found not to be significant and, therefore, would not be discussed in detail in the EIR. Environmental issue areas found to have potentially significant impacts are addressed in Chapter 4 of this SEIR. Chapter 4 also discusses related issues that were found to have no potential for a significant impact under the sections titled CEQA Checklist Items Adequately Addressed in the Initial Study checklist. UCI also reviewed the EIR prepared for the 2007 LRDP and uses information to discuss potential environmental issues and impacts both significant and found to be not significant. Some issues that were found to have no potential for a significant impact based on current and previous evaluation did not fall under the topics analyzed in Chapter 3 and, therefore, these issues are discussed below in Section 4.1.

This section of the SEIR provides a discussion of other CEQA impact considerations, including Significant Irreversible Environmental Changes and any Mandatory Findings of Significance.

4.1 Effects Found Not to be Significant

In accordance with the CEQA Guidelines §15128, this section briefly describes the potential impacts found to be less than significant that do not require mitigation. In the course of this evaluation, certain impacts of the proposed Project were found to be less than significant because of the inability of a project of this scope to create such impacts or the absence of project characteristics producing effects of this type. The effects determined not to be significant are not required to be included in primary analysis sections of the Draft Environmental Impact Report (EIR).

The 2007 LRDP Initial Study indicated that implementation of the 2007 LRDP did not have the potential to result in significant impacts related to the following checklist items and further analysis in the 2007 LRDP EIR was not necessary. That analyses determined there would not be effects to Agricultural Resources and Mineral Resources. Since 2007, Wildfire was added to the CEQA Checklist and analyzed as part of the current CEQA process. In addition to Agriculture and Mineral Resources, there would be no impacts to Wildfire. These issue areas are discussed in additional detail below.

4.1.1 Agricultural Resources

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Department of Conservation (CDOC) California Important Farmland Finder and the Farmland Mapping and Monitoring Program (FMMP) map as a tool to use in assessing impacts on agriculture and farmland.

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?

The 2007 LRDP EIR evaluated potential impacts on prime agricultural soils on the UCI campus based on the buildout of the 2007 LRDP. The 2007 LRDP EIR concluded that based on the California Department of Conservation Farmland Mapping and Monitoring Program (FMMP) the UCI campus is classified as a mix

of "Other Land" and "Urban and Built-up Land." The "Other Lands" classification is used for lands which do not fall into any other category and the "Urban and Built-Up Land" classification is used for land which is occupied by structures with a building density of at least one unit to 1.5 acres, or approximately six structures to a 10-acre parcel. Common examples include residential, commercial, industrial, and institutional facilities, among others. Because the soils once considered to be important farmland have been replaced with construction fill throughout the developed portions of the campus, the FMMP has been updated to reflect the existing condition of the area. Therefore, because the site has not been used for agricultural purposes; is not currently used for agricultural purposes; and is not designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, impacts to agricultural resources as a result of implementing the 2007 LRDP would be less than significant and no further analysis is required.

Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?

The University of California is constitutionally exempt from local zoning and land use plan/element requirements, and no portion of the UCI campus is under a Williamson Act contract. The land for the Project site is designated Mixed Use – Commercial in the 2007 LRDP. The Project site is not used for any agricultural purposes and has not previously been used for agricultural purposes for over 25 years.¹ Accordingly, the proposed Project would not conflict with existing zoning or with Williamson Act contracts. No impact would occur and no further analysis is required.

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?

Implementation of the proposed Project would not convert agricultural lands to non-agricultural uses. Refer to the previous discussions, above. No impacts would occur and no further analysis or discussion is required.

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))?

The Project site, including the Arboretum temporary laydown area and temporary unpaved surface lot, does not contain any forest land defined in Public Resources Code (PRC) § 12220(g), timberland as defined in PRC § 4526, or land zoned for timber production as defined by Government Code § 51104(g) and no impacts would occur. The Project site does not contain any timber resources that meet the definitions of the listed PRC sections. The Project site is surrounded by urban and built up land. The Project site is designated Mixed Use – Commercial and Open Space – General (150 foot buffer area), while the temporary laydown area is designated as Open Space – Athletics and Recreation. Neither timber nor forest production are listed as a permitted use. Therefore, the proposed Project would not conflict with a forest or timberland related code and no impacts would occur.

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

The proposed Project site does not contain any forest land and no impacts would occur. The Project site consists of mostly disturbed habitat and is partially developed with a mix of permanent and temporary

¹ Google Earth, 2020

structures that comprise UCI support services and academic facilities at the North Campus. Therefore, the proposed Project would not result in the conversion of any forest lands.

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?

The Project site is not located on, adjacent, to or close to any farmland or forest land. The surrounding land uses consist of either urban and built up land or permanent open space as part of the UC San Joaquin Marsh Reserve. Therefore, the proposed Project would not result in changes to the environment that would result in the conversion of farmland or forestland to another use and no impact would occur.

4.1.2 Mineral Resources

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?

Mineral resources do not occur on UCI property. The predominant formational materials that underlie the UCI campus are the Topanga formation. This formation consists of sandstone, breccia, volcanic flows, and siltstone. The Topanga formation does not contain mineral resources; therefore, the loss of known mineral resources valuable locally or regionally would not occur as a result of the proposed Project and no further analysis is required.

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?

As discussed above, development of the proposed Project would not result in the loss of a locally important mineral resource recovery site. No impact would occur and no further analysis is required.

4.1.3 Wildfire

Would the project substantially impair an adopted emergency response plan or emergency evacuation plan?

UCI has an Emergency Management Program that addresses the campus community's planned response to various levels of human-made or natural emergency situations including fires, hazardous spills, earthquakes, flooding, explosion, and civil disorders. The purpose of the program is to provide information that will save lives during extraordinary emergency events and hasten the resumption of normal campus operations during the recovery process. An effective organizational emergency response depends on an informed campus community containing members who are familiar with campus procedures and understand their personal responsibility for emergency preparedness and response.

The City of Irvine maintains an Emergency Management Plan, which is intended to enable a planned response to emergencies associated with natural and man-made disasters and technological incidents, including both peacetime and wartime nuclear defense operations. It provides an overview of operational concepts, identifies components of the City's emergency management organization within the Standardized Emergency Management System (SEMS), and describes the overall responsibilities of the federal, state and county entities and the City for protecting life and property, and assuring the overall well-being of the population.

It is anticipated that all major streets will be primary evacuation routes and these streets will be opened to facilitate any needed evacuation. The proposed Project is located adjacent to Jamboree Road. The proposed Project would not impair the usage of this roadway or any other as part of construction or operation. No impacts would not occur, and further analysis is not required. Section 3.8, Hazards and Hazardous Materials, also discusses emergency evacuation and requires Mitigation Measure HAZ-4 regarding notifying the UCI Fire Marshal of any lane or roadway closures during construction.

Would the project 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?

The proposed Project is identified by the California Department of Forestry and Fire Protection (Calfire) as being located outside of an area designated as a Very High Fire Hazard Severity Zone (VHFHSZ).² The proposed Project is also surrounded by areas outside of a VHFHSZ. The Orange County Fire Authority (OCFA) is responsible for fire prevention and suppression services at the site. The Project would not construct additional development in a high fire hazard area and would not hinder regional wildfire suppression efforts. The majority of the surrounding areas are developed with urban uses and are not prone to wildfire hazards. To the south and west of the Project site there are undeveloped areas, but these areas are characterized by predominantly low growing vegetation in the San Joaquin Marsh Reserve that lacks trees and overly dense vegetative patterns conducive to wildfires. These areas also are disconnected from larger tracts of areas that would be prone to wildfire or the spread of wildfire, and the Project site is on relatively flat ground and not adjacent to areas with steep slopes. The Project also is not exposed to other factors that would exacerbate the risk of wildfire. Therefore, impacts would not occur and further analysis is not required.

Would the project 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?

Construction of the proposed Project would result in the development of a medical use and associated parking lots, ancillary structures, and water control features. The proposed Project would not include any uses that would exacerbate fire risk resulting in either temporary or long-term risk to the environment.

Would the project 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?

As discussed above, the proposed Project is not on or adjacent to any areas designated as VHFHSZs. The Project site and surrounding area is relatively flat, and the risk of landslides, flooding, run-off, or post fire instability would not occur. No further analysis is required.

4.2 Growth Inducement

As required by the CEQA Guidelines, an EIR must include a discussion of the ways in which the proposed Project could directly or indirectly foster economic development or population growth, or the construction of additional housing and how that growth would, in turn, affect the surrounding environment (CEQA Guidelines Section 15126.2[d]). Growth can be induced in a number of ways, including the elimination of obstacles to growth, or through the stimulation of economic activity within the region.

² CALFIRE, <https://egis.fire.ca.gov/FHSZ/>, Accessed September 27, 2020.

The discussion of removal of obstacles to growth relates directly to the removal of infrastructure limitations or regulatory constraints that could result in growth unforeseen at the time of project approval. According to CEQA Guidelines Section 15126.2(d), “it must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment.”

The proposed Project would result in the development of a use that would contribute to the regional availability of medical service and would serve the growing population in the Irvine, Orange County, and surrounding regions. The proposed Project is not considered growth inducing but rather responds to the existing demand as well as the increasing demand resulting from an increasing population. It should be noted that the growth that would be served by the proposed Project is considered within regional projections and plans and is desirable because of its contributions to the regional job market and local economy.

Implementation of the proposed Project would directly influence the regional population by providing a new medical facility that would require approximately 950 employees at full build-out. However, the proposed Project is consistent with the 2007 LRDP, which includes population and employee projections based on the buildout of the 2007 LRDP.

Additionally, the proposed Project is consistent with the City of Irvine General Plan and the land uses designated for Planning Area 29, which is identified as UCI – North Campus. In addition, the Project site is designated as Education/Public Facilities and specifically labeled as UCI on the General Plan map. Accordingly, the proposed Project would be consistent with the public facilities designation as it would be a medical center and provide a public-serving use. For the reasons listed above, the additional employment from the proposed Project is within the range of what has been previously projected and studied in local and regional long-range planning documents.

In turn, the City coordinates with SCAG regarding local planning assumptions, including assumptions for UCI, and are included in the broader regional plan, Connect SoCal, adopted by the SCAG Regional Committee. Connect SoCal is the region’s 2020 - 2045 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS). The RTP/SCS is a long-range visioning plan that balances future mobility and housing needs with economic, environmental, and public health goals. Connect SoCal incorporates economic and job creation analysis estimates to evaluate the economic impact of the RTP/SCS, at the regional and county levels.

4.2.1 Direct Population and Employment Growth

Direct effects on growth from implementation of the proposed Project are discussed in Section 3.12, Population and Housing. As explained in that section, the proposed Project would contribute to UCI’s ability to serve the medical needs of a growing population within the region and, therefore, is not considered growth-inducing but rather responding to the demand of on-going and anticipated increases in growth. On a local level, implementation of the proposed Project would result in direct growth on UCI property and on the UCI campus facilities overall, because it would result in a new medical facility that would directly result in employment opportunities for approximately 950 people and indirectly creating the potential for population growth. However, as noted above, the Project is consistent with the 2007 LRDP, City of Irvine General Plan, and Connect SoCal long-range plans for the campus, City, and Southern California region, respectively. The proposed Project could result in some people moving to the region to fill the new job opportunities. The number of people moving to the region is anticipated to be insignificant compared to projections and existing population. Accordingly, the proposed Project would not result in

direct inducement of growth that would be considered adverse. In addition, all other adverse environmental effects associated with development of the proposed Project such as those resulting from increased traffic and increased demands on services and utilities have been analyzed in their respective sections in this SEIR. With the exception of impacts to cultural resources, all impacts would be less than significant or reduced to less than significant with mitigation incorporated.

4.2.2 Indirect Economic Growth

In addition to direct growth, additional growth could occur as the proposed Project would result in the establishment of new uses that could result in the expansion or increased demand for goods and services from other related industries or businesses in the vicinity. Apart from the direct jobs generated by the proposed Project, the creation of new indirect and induced jobs is anticipated to be minimal compared to the overall economy of the City and region. Indirect jobs are those that are created or sustained when a project purchases goods and services from businesses in the region, and induced jobs are created or sustained when wage incomes of those employed in direct and indirect jobs are spent on the purchase of goods and services in the region. Indirect jobs could be created in various communities in Orange County to the extent that the workers from the proposed Project would purchase goods and services from business in these communities and supplies needed for facility operation would be provided by other companies. Due to the relatively small size of the proposed Project compared to the overall region and the anticipated dispersal of new workers living in the region, it is assumed that the increased demand on business would be equally dispersed. The Project is consistent with the 2007 LRDP, City of Irvine General Plan, and Connect SoCal. These long-range planning documents evaluate population and employment growth to accommodate future housing, business, and infrastructure needs for the campus, City, and Southern California region, respectively.

As such, it is not anticipated that a particular area would experience an inordinately large demand such that businesses would need to expand resulting in environmental impacts. In addition, any development project that does occur in the region would undergo environmental analysis to address their potential environmental effects.

4.2.3 Indirect Population Growth

Indirect population growth occurs when jobs and related population are created as a result of the direct growth induced by a proposed project. This means population growth can sometimes occur due to the filling of jobs from people that move into an area or region. The indirect and induced employment that would result from implementation of the proposed Project could support a minimal amount of the population growth projected for the region. Due to existing unemployment rate and relatively large population within the region, it is anticipated that most jobs created by the proposed Project would be filled by existing residents. Nonetheless, a small portion of the indirect and induced jobs would be assumed to be filled by new members to the regional population. However, the proposed Project is anticipated to generate approximately 950 new jobs, so a large influx of non-local population into the region in response to the indirect and induced jobs is not expected. The Project is consistent with the 2007 LRDP, City of Irvine General Plan, and Connect SoCal. These long-range planning documents evaluate population and employment growth to accommodate future housing, business, and infrastructure needs for the campus, City, and Southern California region, respectively. Impacts would not be substantial and would be less than significant.

4.2.4 Provision of Infrastructure

Growth can be triggered if the infrastructure to serve a proposed Project is constructed with excess capacity, or if the lack of infrastructure is an obstacle to growth, and that obstacle is removed by the Project. As described in Section 3.13, Public Services and Utilities, utilities that would be extended into the Project site would be sized to serve the proposed Project and are not proposed to serve any off-site areas that could not otherwise be served resulting in growth. Therefore, utility extensions and expansions under the proposed Project would only directly enable growth within the Project site and would not lead to urban growth outside the boundary of the campus. Accordingly, growth outside of the campus would not be triggered by extension of infrastructure into the site.

4.3 Significant Irreversible Environmental Changes

The CEQA Guidelines Section 15126.2(d), require that an EIR address any significant irreversible environmental changes that would occur should the proposed Project be implemented. As stated in CEQA Guidelines Section 15126.2(d):

“.....Uses of nonrenewable resources during the initial and continued phases of the Project may be irreversible since a large commitment of such resources makes removal or nonuse thereafter likely, Primary impacts and, particularly, secondary impacts (such as highway improvement which provides access to a previously inaccessible area) generally commit future generations to similar uses. Also, irreversible damage can result from environmental accidents associated with the Project. Irretrievable commitments of resources should be evaluated to assure that such current consumption is justified.”

Future development of the proposed Project would consume limited, slowly renewable, and non-renewable resources. Accordingly, construction on the Project site would result in the direct consumption of resources, which would occur during the construction phase and would continue throughout the operational lifetime of the proposed Project. Development of the medical facility would require a commitment of resources that would include: (1) building materials; (2) fuel and operational materials/resources; and (3) the transportation of goods and persons to and from individual development sites. Construction would require the consumption of resources that are not renewable or which may renew so slowly as to be considered non-renewable. These resources would include the following construction supplies: lumber and other forest products; aggregate materials used in concrete and asphalt; metals; and water. Fossil fuels such as gasoline and oil would also be consumed to power construction vehicles and equipment. However, the temporary use of these resources during construction of the proposed Project would be on a relatively small scale, and in a regional context would not cause a permanent significant regional impact.

Resources that would be permanently committed to consumption by the operation of the proposed Project would be consistent with those currently used in similar uses and facilities within the area. The resources used by the proposed Project include water, electricity, natural gas, and fossil fuels. However, new construction in California is required to conform to energy conservation standards specified in Title 24 of the California Code of Regulations (CCR), and under the UC Sustainable Practices Policy, it is required for new construction to exceed Title 24 for outpatient and exceed ASHRAE 90.1-2010 standards for inpatient. The 2019 CBEES were adopted on May 9, 2018 and took effect on January 1, 2020. Under the 2019 standards, nonresidential buildings will use about 30 percent less energy than buildings under

the 2016 standards. To outperform Title 24 and ASHRAE 90.1-2010 standards, efficient energy use would be designed into all new buildings developed within the Project site. In addition, all new development would be required to comply with all applicable building codes, development standards, and design requirements related to sustainability and energy conservation required pursuant to current State legislation, executive orders, and regulatory guidance. Along with applicable policies and State standards, mitigation measures contained in this SEIR would help ensure that all affected natural resources are conserved or recycled to the maximum extent feasible, minimizing the impact significance on each resource to the lowest amount possible.

4.4 Significant and Unavoidable Environmental Impacts

Section 15126.2(b) of the CEQA Guidelines requires that the EIR describe any significant impacts, including those that can be mitigated but not reduced to less than significant levels. The environmental effects of the proposed Project are addressed in Sections 3.1 through 3.17 of this SEIR. Alternatives to the proposed Project are addressed in Section 5.0 of this SEIR. Implementation of the proposed Project would result in potentially significant impacts in some areas of the following topical issues: Cultural Resources and Tribal Cultural Resources. Other environmental issue areas, with implementation of standard conditions and requirements (SCs) and mitigation measures (MMs) provided in respective sections, would reduce impacts to less than significant or would have no impact. Significant, unavoidable impacts are noted below.

Cultural Resources

The proposed Project would result in a substantial adverse change in the significance of a prehistoric or historic archaeological resource pursuant to CEQA Guidelines Section 15064.5. The previously identified site P30-000115/CA-ORA-115 would be lost because avoidance is not possible and proposed feasible mitigation, Mitigation Measures CUL-1, CUL-2, and CUL-3, which includes recovery of the resource, would not reduce impacts to less than significant. As such potential impacts remain significant and unavoidable. Potential cumulative impacts related to cultural resources would also be significant and unavoidable.

Tribal Cultural Resources

It is possible that unknown buried tribal cultural resources could be present on the Project site and would not be discovered until after construction activities begin. Should buried or otherwise unknown tribal cultural resources, per Public Resources Code Section 5024.1, be encountered and damaged during construction, a potentially significant impact would result. Implementation of Mitigation Measures CUL-1, CUL-2, and CUL-3 would reduce impacts to unknown Tribal Cultural Resources, but due to impacts on archaeological site P30-000115/CA-ORA-115, potential impacts remain significant and unavoidable. Potential cumulative impacts related to tribal cultural resources would also be significant and unavoidable.

4.5 References

California Department of Conservation (CDOC), 2016 – Farmland and Mapping Monitoring Program. Available: <https://www.conservation.ca.gov/dlrp/fmmp> Accessed: September 17, 2020.

California Department of Forestry and Fire Protection (Calfire), 2016 – Fire and Resource Protection Program Orange County. Available: <https://www.ocpublicworks.com/civicax/filebank/blobdload.aspx?BlobID=8755> Accessed: September 17, 2020.

5 ALTERNATIVES

5.1 Introduction

CEQA requires that an EIR describe and evaluate a range of reasonable alternatives to a proposed Project, or alternatives to the location of the proposed Project. The purpose of the alternatives analysis is to explore ways that most of the basic objectives of the proposed Project could be attained while reducing or avoiding significant environmental impacts of the Project as proposed. This approach is intended to foster informed decision-making and public participation in the environmental process.

This section evaluates alternatives to the proposed Project and examines the potential environmental impacts associated with each alternative. Pursuant to Section 15126.6(a) of the CEQA Guidelines, EIRs are required to evaluate a “...range of reasonable alternatives to the project, or to the location of the project, which could feasibly attain the basic objectives of the project.” Not every conceivable alternative must be addressed, nor do infeasible alternatives need to be considered. Section 15126.6(d) of the CEQA Guidelines further states that “the EIR shall include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed Project.” Significant environmental effects for each alternative identified must be discussed and should provide adequate perspective to allow decision-makers to make a reasonable choice.

When addressing feasibility, Section 15126.6(f) of the CEQA Guidelines states that the factors that may be taken into account when addressing the feasibility of alternatives include site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries, and whether the project applicant can reasonably acquire, control, or otherwise have access to the alternative site (if an off-site alternative is evaluated). The CEQA Guidelines also note that the discussion of alternatives should focus on “...alternatives capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives could impede to some degree the attainment of the project objectives or would be more costly” (14 CCR §15126.6 (b)).

The description or evaluation of alternatives does not need to be exhaustive, and an EIR need not consider alternatives for which the effects cannot be reasonably determined and for which implementation is remote or speculative. An EIR need not describe or evaluate the environmental effects of alternatives in the same level of detail as the proposed project, but must include enough information to allow meaningful evaluation, analysis, and comparison with the proposed Project. “[T]he significant effects of the alternatives shall be discussed, but in less detail than the significant effects of the project as proposed” (14 CCR §15126.6 (d)).

In selecting alternatives to the UCI ICMC Project, the UC Regents, as Lead Agency, is to consider alternatives that could feasibly attain most of the basic objectives of the Project and avoid or substantially lessen one or more of the significant effects.

5.2 Criteria for Selecting Alternatives

Several criteria were used to select alternatives to the proposed Project. These criteria are described below.

5.2.1 Ability to Achieve Project Objectives

Section 15126.6(f) of the State CEQA Guidelines states:

The range of alternatives required in an EIR is governed by a ‘rule of reason’ that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice. The alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project. Of those alternatives, the EIR need examine in detail only the ones that the lead agency determines could feasibly attain most of the basic objectives of the project.

As discussed above, one of the evaluation criteria for the alternative discussion is the ability of a specific alternative to attain most of the basic project objectives. The project objectives as listed in Section 2, Project Description are as follows:

- Ensure appropriate and adequate access to high-quality health and wellness care to the community through a convenient location in central Orange County.
- Leverage the co-location of UCI Health research, teaching, inpatient and outpatient programs through a location on the Irvine Campus.
- Develop a campus setting providing a full range of on-site health and wellness services.
- Serve as the destination provider for distinctive health care service lines.
- Provide unparalleled quality and value to patients and healthcare customers.
- Provide a site location with high-quality open space connections to provide an environment that promotes healing and wellness.
- Support the stewardship of adjacent UCI open space resources.
- Goal to achieve LEED Gold equivalence or better and building efficiency standards that exceed California’s Title 24 2019 energy code (outpatient) and ASHRAE 90.1-2010 (inpatient) standards.
- Contribute to campus-wide targets related to fossil fuel reduction, water efficiency, waste reduction, and transportation.

5.2.2 Elimination/Reduction of Significant Impacts

Section 15126.6(b) of the State CEQA Guidelines states that “[b]ecause an EIR must identify ways to mitigate or avoid the significant effects that a project may have on the environment (Public Resources Code §21002.1), the discussion of alternatives shall focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly.”

Therefore, the alternatives evaluated in this SEIR have been selected because they are anticipated to reduce and/or eliminate one or more significant impacts associated with the proposed Project. Potentially significant environmental impacts that would result from the Project are evaluated in Sections 3.1 through 3.17 of this SEIR. With implementation of the respective Standard Conditions and Requirements (SCs) and Mitigation Measures (MMs) identified for each topical issue, many of the potentially significant impacts

resulting from the Project would be reduced to a level considered less than significant. The proposed Project impact listed below would remain significant and unavoidable even after mitigation.

Cultural Resources

The proposed Project would result in a substantial adverse change in the significance of a prehistoric or historic archaeological resource pursuant to CEQA Guidelines Section 15064.5. The previously identified site P30-000115/CA-ORA-115 would be lost because avoidance is not possible and proposed feasible mitigation, Mitigation Measures CUL-1, CUL-2, and CUL-3, which includes recovery of the resource, would not reduce impacts to less than significant. As such potential impacts remain significant and unavoidable. Potential cumulative impacts related to cultural resources would also be significant and unavoidable.

Tribal Cultural Resources

It is possible that unknown buried tribal cultural resources could be present on the Project site and would not be discovered until after construction activities begin. Should buried or otherwise unknown tribal cultural resources, per Public Resources Code Section 5024.1, be encountered and damaged during construction, a potentially significant impact would result. Implementation of Mitigation Measures CUL-1, CUL-2, and CUL-3 would reduce impacts to unknown Tribal Cultural Resources, but due to impacts on archeological site P30-000115/CA-ORA-115, potential impacts remain significant and unavoidable. Potential cumulative impacts related to tribal cultural resources would also be significant and unavoidable.

5.2.3 Feasibility

Section 15126.6(f)(1) of the State CEQA Guidelines states:

Among the factors that may be taken into account when addressing the feasibility of alternatives are site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries (projects with a regionally significant impact should consider the regional context), and whether the proponent can reasonably acquire, control or otherwise have access to the alternative site (or the site is already owned by the proponent). No one of these factors establishes a fixed limit on the scope of reasonable alternatives (Citizens of Goleta Valley v. Board of Supervisors (1990) 52 Cal.3d 553; see Save Our Residential Environment v. City of West Hollywood (1992) 9 Cal.App.4th 1745, 1753, fn.1).

Each alternative was evaluated for its feasibility, its ability to attain the proposed Project's objectives, and its ability to reduce and/or eliminate significant impacts associated with the Project.

5.3 Development Alternatives Considered But Not Carried Forward

State CEQA Guideline Section 15126.6(c) requires that an EIR identify alternatives that were considered and rejected as infeasible, and briefly explain the reasons for their rejection. The following alternatives have not been carried forward in this SEIR because they do not provide any substantial avoidance or minimization of impacts that are not already accommodated in the other alternatives being evaluated. The following provides a discussion of other alternatives considered and reasons for not selecting them for further evaluation. These alternatives were found to be infeasible and rejected from further consideration for failing to meet the project objectives, as described below.

5.3.1 Alternative Site

The State CEQA Guidelines Section 15126.6(f)(1) and (2) require the range of alternatives to be governed by the “rule of reason” such that an EIR consider alternatives necessary to permit a reasoned choice and that be limited to one that would avoid or substantially lessen any of the significant effects associated with a proposed Project. The alternatives may take into consideration factors including “site suitability, economic viability, availability of infrastructure, General Plan consistency, other plans or regulatory limitations, jurisdictional boundaries..., and whether the proponent can reasonably acquire, control or otherwise have access to the alternative site (or the site is owned by the proponent)....Only locations that would avoid or substantially lessen any of the significant effects of the project need to be considered for inclusion in the EIR”. Because the significant and unavoidable impact is onsite tribal and cultural resources, it is appropriate to consider alternative sites.

Purchase of Existing Offsite Hospital

UCI conducted a preliminary feasibility study to purchase the existing but vacant Anaheim General Hospital located at 3400 West Ball Road in Anaheim. UCI considered purchasing the property and renovating the existing building to meet the needs of the proposed Project. However significant costs for the renovations, particularly renovations required for seismic code compliance, made the reuse of the site infeasible. Additionally, the Project at this location does not meet the project objective of having an integrative health program with the rest of the UCI campus, and this site does not have enough space to accommodate the proposed Ambulatory Care Center outpatient program. Construction at this site would also occur adjacent to existing residential uses. For these reasons, this alternative was rejected from further consideration.

5.4 Alternatives for Analysis

In accordance with Section 15126.6(a) of the State CEQA Guidelines, the discussion in this section of the SEIR focuses on a reasonable range of alternatives. The analysis provides a comparison of the alternatives’ varying environmental effects and their merits and/or disadvantages in relation to the proposed Project and to each other; their feasibility and ability to achieve Project objectives are also discussed. The environmentally superior alternative is identified as required by CEQA.

The following alternatives are analyzed in this SEIR:

- Alternative 1: No Project/No Development (No Project - Continuation of Existing Land Uses)
- Alternative 2: Land Uses Consistent with Existing 2007 LRDP Designations
- Alternative 3: Jamboree Road and Campus Drive Alternative
- Alternative 4: West Campus Alternative

The evaluation of each alternative uses the same thresholds of significance identified in Sections 3.1 through 3.17.

5.4.1 Alternative 1: No Project/No Development (Continuation of Existing Land Uses)

Description of Alternative 1: No Project/No Development

Alternative 1 is the “No Project” alternative required by the State CEQA Guidelines Section 15126.6(e) which allows the decision-makers to compare the potential impacts of the proposed Project with the

potential impacts of not approving the Project. Section 15126.6(e)(2) of the State CEQA Guidelines specifies the following:

The “no project” analysis shall discuss the existing conditions at the time the Notice of Preparation [NOP] is published, at the time environmental analysis is commenced, as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services.

Section 15126.6(e)(3)(B) of the State CEQA Guidelines indicates that when the project is not a land use or regulatory plan, the “no project” alternative:

...is the circumstance under which the project does not proceed. Here the discussion would compare the environmental effects of the property remaining in its existing state against environmental effects which would occur if the project is approved. If disapproval of the project under consideration would result in predictable actions by others ... this “no project” consequence should be discussed.

Alternative 1 assumes existing conditions on the Project site as the continued use of the property. Under the Alternative 1 scenario, no improvements would occur. This alternative would not require an amendment to the UCI 2007 LRDP.

Comparative Analysis of Environmental Impacts

Aesthetics

Under the Alternative 1 No Project Alternative, the onsite topography, vegetation, and offsite view corridors would not be modified from their existing state. Visual impacts from offsite views, as well as the change in character/quality of the site (i.e., new residential development) as seen from offsite locations would be eliminated. Although determined to be less than significant for the proposed Project, incremental increases in light and glare impacts associated with the proposed Project would be avoided under this alternative. Therefore, under this alternative, impacts regarding aesthetics, light, and glare would be eliminated compared to the proposed Project.

Air Quality

Under the Alternative 1 No Project Alternative, short-term construction and long-term operational air emissions would not occur as no construction would take place, no project operations would be established, and no project-related traffic or stationary source emissions would be generated by the new structures. Air quality impacts associated with NO_x emissions requiring mitigation under the proposed Project would be avoided under this alternative. Air quality impacts associated with the No Project Alternative would be less than the proposed Project.

Biological Resources

Under the Alternative 1 No Project Alternative, the site would not be developed and potential impacts to biological resources onsite would be avoided. , would be avoided. Similar to the proposed Project, no direct impacts to biological resources would not occur under the No Project Alternative. The No Project Alternative would avoid temporary impacts to within the temporary construction laydown area within the

Arboretum site. Therefore, impacts on biological resources would be less than the proposed Project.

Cultural Resources

Under the Alternative 1 No Project Alternative, the project site would remain in its current condition and would therefore avoid potential significant impacts to cultural resources, including known archeological site P30-000115/CA-ORA-115. No construction or grading activities would occur. Therefore, the potential to discover and impact previously undisturbed cultural resources, including archaeological and tribal resources, would not occur. This alternative would eliminate the significant and unavoidable direct and cumulative impacts that the proposed Project would have on cultural resources compared to the proposed Project.

Energy

The Alternative 1 No Project Alternative would result in no energy use because the site would remain in an undeveloped condition. As a result, energy use would be eliminated compared to the proposed Project.

Geology and Soils

Under the Alternative 1 No Project Alternative, no development would occur on the project site. Therefore, the potential to expose additional people or structures to adverse effects of seismic ground shaking, ground failure, landslides, expansive soils, or other unstable geologic hazards would not occur. No soil erosion or loss of topsoil would occur since the project site would remain in its existing conditions. Although this alternative would have no impact on soils and geology, impacts associated with the Project would be mitigated to less than significant level.

Greenhouse Gas Emissions

Under the Alternative 1 No Project Alternative, there would be no construction activities or associated construction equipment operations or development of a hospital, ambulatory care center, parking structure, and open space areas. Therefore, there would be no short-term greenhouse gas (GHG) emissions from construction activities or long-term GHG emissions from vehicles or the consumption of electricity, natural gas, and water associated with operations of the land uses assumed as a part of the proposed Project. Although this alternative would not generate additional GHG emissions, it should be noted that the Project's impact would be mitigated to less than significant.

Hazards and Hazardous Materials

Under the Alternative 1 No Project Alternative, none of the hazards and hazardous materials affecting the site would be altered as a result of this alternative, and none of the existing buildings on-site would be demolished under the No Project Alternative. As a result, this alternative would not result in the potential hazards to the public or environment through foreseeable upset and accidental conditions involving the release of hazardous materials in the environment, such as Asbestos Containing Materials (ACMs) or Lead-Based Paint (LBP), as ACM and LBP materials generally pose no risk unless they are damaged or cut (i.e., demolition and/or removal of structures containing these materials). Like the proposed Project, the No Project Alternative would not involve significant impacts related to emitting or handling hazardous materials within one-quarter mile of a school, hazardous materials sites compiled pursuant to Government Code Section 65962.5, or an airport safety hazard as it pertains to the Airport Environs Land Use Plan (AELUP) for John Wayne Airport. Although this alternative would eliminate significant hazards, Project impacts would be mitigated to a less than significant level.

Hydrology and Water Quality

As no construction or operational activities would occur beyond existing conditions, the Alternative 1 No Project Alternative would not require preparation and implementation of a stormwater pollution prevention plan (SWPPP) or water quality management plan (WQMP) and associated best management practices (BMPs). This alternative also would not increase impervious surfaces or alter existing drainage patterns on the site in a manner that could result in erosion/siltation or flooding on- or off-site. Additionally, no development would occur within the mapped 100-year flood hazard area onsite and no floodplain mapping would be required. Therefore, hydrology and water quality effects would be reduced compared to the proposed Project.

Land Use and Planning

Under the Alternative 1, the project site would remain in its present condition. As with the proposed Project, this alternative would not physically divide an established business community through the introduction of either physical or community barriers.

Because no new development would occur, an amendment to the 2007 LRDP would not be required. Given that no development would occur under this alternative, no discretionary approvals would be required, and site conditions would remain in their existing condition. No conflicts with any local or regional plans would occur. Continuation of the current use of the land would not conflict with any land use plan or policy, or conflict with any habitat or community conservation plan. Impacts in this regard would be less compared to the proposed Project.

Noise

Under the Alternative 1 No Project Alternative, existing noise conditions at the site would remain as is under this alternative. No new construction or operational noise impacts associated with the proposed Project would occur. Although this alternative would eliminate operational noise impacts associated with the proposed Project, significant operational noise impacts would be mitigated to a less than significant level.

Population and Housing

The Alternative 1 No Project Alternative would have no impacts to population and housing at UCI or within the Cities of Irvine or Newport Beach. This alternative would not create any new jobs, nor cause increases in the resident population of either City. Therefore, there would be no impact associated with inducing substantial population growth. Similar to the proposed Project, this alternative would not displace existing residents nor require the construction of replacement housing elsewhere. As with the proposed Project, no significant impact would occur.

Public Services

Under the Alternative 1 No Project Alternative, the existing conditions would continue to prevail. This alternative would not develop the proposed Project site; therefore, there would not be an increased demand for public services including fire protection and emergency medical services, law enforcement, schools, and other general governmental services. Because no development would occur, there would be no need for additional services to be provided. Impacts would be reduced compared to the proposed Project.

Recreation

Similar to the proposed Project, the Alternative 1 No Project Alternative would not result in an increased use of any area recreational facilities and would, therefore, not require construction of new or expansion of any other existing recreational facilities. Impacts would be reduced compared to the proposed Project.

Transportation

As no construction activities would occur under the Alternative 1 No Project Alternative, no short-term traffic impacts would occur on the development site and no mitigation would be required. As no development would occur, this alternative would eliminate the proposed development's potential impacts related to project and cumulative VMT. Although this alternative would not generate any additional traffic when compared to the proposed Project, traffic impacts were found to be mitigated to less than significant for the proposed Project.

Tribal Cultural Resources

Development under the Alternative 1 No Project Alternative would not occur and the site would remain in its existing condition. Thus, this alternative would eliminate the significant and unavoidable direct and cumulative impact on tribal cultural resources that would be caused by the proposed Project.

Utilities and Service Systems

No development under the Alternative 1 No Project Alternative would occur, and no new demand for water supply and conveyance, wastewater treatment and collection, storm drain facilities, dry utilities, or solid waste collection and disposal would be generated. No impacts would occur compared to the proposed Project, which would generate a need for these resources. Although the proposed Project would increase the demand, no significant impacts would occur.

Conclusion

The Alternative 1 No Project Alternative would have no significant impacts in comparison to the proposed Project. Significant and unavoidable direct and cumulative impacts associated with cultural resources and tribal cultural resources would not occur with no development on the Project site. No mitigation would be required to reduce potential significant impacts to a less than significant level associated with the areas of aesthetics, air quality, biological resources, cultural resources, geology and soils, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality noise, and transportation and circulation. No impacts would occur related to population and housing, public services, recreation, or utilities.

Feasibility and Ability to Meet Project Objectives

The "No Project" alternative fails to meet all of the stated objectives for the proposed Project as described in Section 5.2.1 above.

5.4.2 Alternative 2: Land Uses Consistent with Existing LRDP Designations Alternative**Description of the Alternative**

Alternative 2 is the alternative that assumes development of the Project site consistent with the existing 2007 LRDP land use designations. The 2007 LRDP identifies that the existing 2007 LRDP land use designations for the Project site are Mixed Use – Commercial and Open Space – General where permanent

structures would be placed. The Mixed Use – Commercial land use designation allows for the construction of up to 950,000 square feet of facilities for Clinical, General Office, Research and Development, Academic Uses, Commercial and Retail, Conference Facilities, and Residential uses (up to 435 units) within the North Campus area.

The Open Space – General land use designation allows for the construction of pedestrian and bike trails, water quality and drainage structures, food service, interpretive centers, field research facilities, maintenance roads, and support structures. The Open Space – General designation is located on the southern portion of the Project site and is the area that contains the 150-foot development buffer from the UC San Joaquin Marsh Reserve. Consistent with the land use requirements of the 2007 LRDP, development under this alternative would have the same 150-foot buffer from the Marsh as the proposed Project.

Anticipated uses under this alternative could include for profit uses such as high-rise market rate residential housing, commercial office space, and support retail. Medical offices could be developed under this alternative, but no inpatient uses would be permitted. It is assumed that development under this alternative would include a similar number of square feet of development area to account for roadway, open space, and parking requirements.

Comparative Analysis of Environmental Impacts

Aesthetics

The short-term visual impacts associated with grading and construction activities that would occur under the proposed Project would similarly occur with Alternative 2. Comparatively, the construction-related impacts to the visual character/quality of the project site and its surroundings would be similar to the proposed Project because both would result in development that replaces undeveloped land. The construction duration, timeline, and equipment of this alternative would be similar to the proposed Project.

The long-term visual character of the development area would be fundamentally different from the existing condition with this alternative, as the existing vacant land would be developed with mixed-use commercial development, residential uses, medical office uses, or a combination of uses. Residential buildings would likely be a similar height to the proposed five-story (above ground) buildings with the proposed Project. The view of the site would generally be the same from Jamboree Road and Campus Drive, and other parts of the UCI campus. Nighttime lighting would be similar to the proposed Project. Therefore, potential aesthetics impacts would be similar compared to the proposed Project, but still considered less than significant with mitigation incorporated.

Air Quality

Under Alternative 2 the development site would be developed as currently permitted under the existing 2007 LRDP. Compared to the proposed Project, the development intensity allowed under the site's existing land use designations would potentially increase the Project's short-term construction and long-term operational air quality emissions. The same mitigation measures from the 2007 LRDP EIR required for the proposed Project would be required for this alternative. Therefore, significant impacts related to long-term operational air emissions and cumulative operational emissions, would be similar under this alternative compared to the proposed Project, with similar mitigation required to reduce impacts to less than significant.

Given that no 2007 LRDP amendment is required, this alternative also would be consistent with SCAQMD's 2016 Air Quality Management Plan (AQMP) and the Southern California Association of Governments Connect SoCal 2020 - 2045 Regional Transportation Plan/Sustainable Communities Strategy.

Biological Resources

Alternative 2 would have the same development footprint as the proposed Project. Consistent with the requirements of the 2007 LRDP, development under this alternative would have the same 150-foot setback from the UC San Joaquin Marsh Reserve. Development under this alternative would be required to implement similar surface water quality treatments as the proposed Project to minimize water quality impact on the San Joaquin Marsh Reserve. However, if residential uses are developed, potential impacts on biological resources could be increased due to more use along trails around the Marsh area. Edge effects such as invasive plants species, pets, and increased litter could result from having residents closer to the Marsh area. As such, potential impacts on biological resources would be incrementally increased compared to the proposed Project. The same mitigation measures would be required for the Existing 2007 LRDP Designation Alternative as the proposed Project. Therefore, impacts would be incrementally increased compared to the proposed Project.

Cultural Resources

Alternative 2 would have the same development footprint as the proposed Project. As such, potential impacts on cultural resources would be the same as the proposed Project and the same mitigation measures would be required for the alternative. Therefore, impacts would remain significant and unavoidable; similar compared to the proposed Project.

Energy

Under Alternative 2, construction activities similar to those proposed for the Project would occur. New buildings and facilities would incorporate energy efficiency features consistent with LEED certification commitments under the UC Sustainable Practices Policy. As with the proposed Project, this alternative would not result in the long-term wasteful, inefficient, and unnecessary consumption of energy, because identified mitigation would be applied. Therefore, energy impacts under this alternative would be similar to those that would occur under the Project.

Geology/Soils

Alternative 2 would have the same development footprint as compared to the proposed Project. The potential for development to be exposed to unstable soils and seismic activity would be similar to the proposed Project. Development under this Alternative would have similar impacts on paleontological resources as the proposed Project. Alternative 2 would require the same mitigation measures as the proposed Project and would reduce potential impacts to less than significant. Overall, potential impacts related to geology and soils would be similar under Alternative 2 as compared to the proposed Project.

Greenhouse Gas Emissions

Alternative 2 would generate GHG emissions during construction and operation similar to those that would be generated under the Project because the same extent of site development would occur. Thus, construction of this alternative and the Project would generate similar GHG emissions.

Operationally, Alternative 2 would result in a similar amount of greenhouse gas emissions compared to the proposed Project based on a similar number of square feet being developed. Development under this alternative would be consistent with what was evaluated in the 2007 LRDP EIR for this site. Development under this alternative would have similar opportunities for rooftop solar and charging stations for electrical vehicles and the same mitigation measures to reduce greenhouse gas emissions required of the proposed Project would be required of this alternative. Overall, potential impacts related to greenhouse gas emissions would be similar under Alternative 2 as compared to the proposed Project.

Hazards and Hazardous Materials

Hazards and hazardous material impacts associated with Alternative 2 would be similar to the proposed Project. Development under this alternative would have the same potential for exposure to hazardous pollutants from offsite sources north of Jamboree Road as the proposed Project, and the same mitigation measures would be required. The transportation, use, and disposal of hazardous materials would be subject to local, state, and federal laws intended to minimize the risk of exposure to hazardous materials. Consistency with these laws and policies would limit hazards to the public from the transportation, use, and disposal of these materials. As discussed above, the use of hazardous materials would be incidental to the operation of the residential and commercial development. As such, the risks associated with the use of these materials would be similarly small. While the proposed Project would involve the transportation, use, and disposal of limited small amounts of hazardous materials, compliance with local, state, and federal regulations and County policies would ensure that the proposed Project would result in less than significant impacts and no mitigation is required. Potential impacts are considered similar to the proposed Project.

Hydrology and Water Quality

Alternative 2 would have a similar footprint as the proposed Project. Similar to the Project, future development under this alternative that disturbs more than one acre of soil would be required to obtain coverage under the National Pollutant Discharge Elimination System (NPDES) and prepare and implement a SWPPP and WQMP and associated BMPs. This alternative is also not expected to alter existing drainage patterns in a manner that would result in soil erosion or flooding on- or off-site upon implementation of the required BMPs. Similar to the proposed Project, floodplain mapping for the 100-year floodplain would be required. Potential impacts on hydrology and water quality would be similar compared to the proposed Project under this alternative.

Land Use

Alternative 2 is designed to develop the Project site consistent with the existing 2007 LRDP designations of Mixed Use — Commercial and Open Space – General. Under this alternative no amendment would be required. However, because there are no specific environmental impacts due to the Project's inconsistency with the 2007 LRDP, impacts related to land use would be similar to the proposed Project and would remain less than significant.

Noise

Under Alternative 2, construction noise associated with the proposed Project, with mitigation incorporated, would result in less than significant impacts to surrounding sensitive receptors to noise levels in excess of the established standards. Construction activities would cause less than significant increased mobile noise along access routes to and from the site due to movement of equipment and

workers. The proposed Project's construction-related vibration impacts would be less than significant. Similar short-term noise impacts from grading and construction activities would occur with Alternative 2, as the development footprint would be the same as the proposed Project. Therefore, the less than significant short-term noise impacts, with mitigation incorporated, that would occur with the proposed Project also would occur with Alternative 2. This alternative would also be required to comply with MM NOI-2 to reduce short-term construction noise impacts to a less than significant level.

Under the Alternative 2, a similar amount of square feet of new building space would be developed generating a similar amount of total daily trips compared to the proposed Project. Therefore, this alternative would result in noise impacts that are similar compared to the proposed Project.

Population and Housing

The 2007 LRDP allows for 950,000 SF of built space and 435 dwelling units within the North Campus. Development under this existing designation could result in a mix of commercial and residential uses. Alternative 2 could develop up to 435 multi-family units which would increase the population at the site. Development under Alternative 2 is within the buildout square footages and population numbers analyzed in the 2007 LRDP EIR.

Similar to the proposed Project, the number of employees would not result in the need for additional housing in Orange County as many of the employees would come from the surrounding area and would not require new housing for employees filling jobs created by the proposed development. Nonetheless, the overall impacts would be similar to the proposed Project because neither alternative would displace existing residents or require the construction of replacement housing elsewhere. Therefore, potential impacts on population and housing would be roughly equivalent compared to the proposed Project.

Public Services

Alternative 2 could involve development of residential units and some commercial uses. Because of the potential for an increase in the number of residential units and associated population, this alternative would involve an increased demand for police and fire protection services, library services, and would increase the number of students that would need to be accommodated at local public schools. Impacts associated with public services would be less than significant, but greater than the proposed Project.

Recreation

Alternative 2 could involve development of residential uses and some commercial uses. Because of the increase in the number of residential units and associated population, this alternative would increase the demand for parks and recreation facilities. Impacts associated with recreation would be less than significant, but greater than the proposed Project.

Transportation

Under Alternative 2, construction activities would be similar to the proposed Project. Under both scenarios short-term traffic impacts would be less than significant. Operationally, the land uses and development allowed under the site's existing land use designations could result in a proportional reduction of average daily trips and traffic and circulation impacts within the project vicinity in comparison to the proposed Project. Given that this alternative would develop a mixture of residential, retail and

services, office, commercial, and academic uses on-site, this alternative would likely reduce potential impacts related to VMT. Overall, this alternative would reduce impacts compared to the proposed Project.

Tribal Cultural Resources

Alternative 2 would have the same development footprint as the proposed Project. As such, potential impacts on tribal cultural resources would be the same as the proposed Project and the same mitigation measures would be required for the Alternative 2. Therefore, impacts would remain significant and unavoidable; similar compared to the proposed Project.

Utilities

The water supply and wastewater demands under Alternative 2 would be similar to those under the Project because the size of the facilities would be the similar to the proposed Project and would require similar infrastructure connections. Water and dry utility demands and wastewater and solid waste generation on-site are less than significant. As such, potential impacts under Alternative 2 would be similar to the proposed Project.

Conclusion

Alternative 2 would have no additional significant impacts in comparison to the proposed Project. Significant and unavoidable direct and cumulative impacts associated with cultural resources and tribal cultural resources would remain significant and unavoidable due to development on the Project site. Mitigation similar to the proposed Project would be required to reduce potential significant impacts to less than significant in the areas of aesthetics, air quality, biological resources, cultural resources, geology and soils, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality noise, and transportation and circulation. No significant impacts are anticipated related to population and housing, public services, recreation, or utilities.

Feasibility and Ability to Meet Project Objectives

Because the existing 2007 LRDP designation allows for medical office buildings, this alternative could meet most of the project objectives. However, because inpatient services are not allowed under the existing LRDP designation, the project could not meet the following objectives:

- *Ensure appropriate and adequate access to high-quality health and wellness care to the community through a convenient location in central Orange County.*
- *Leverage the co-location of UCI Health research, teaching, inpatient and outpatient programs through a location on the Irvine Campus.*
- *Develop a campus setting providing a full range of onsite health and wellness services.*
- *Serve as the destination provider for distinctive health care service lines.*

Providing inpatient care is critical for a hospital to provide specialized health care services. Providing a range of services is critical to operation of the hospital with regard to serving as a destination for distinctive health care service. Additionally, the hospital would provide an emergency room which requires inpatient care for critical illness and traumatic injuries which is important to being a destination provider and offering a full range of onsite health and wellness services.

5.4.3 Alternative 3: Jamboree Road and Campus Drive Alternative

Description of the Alternative

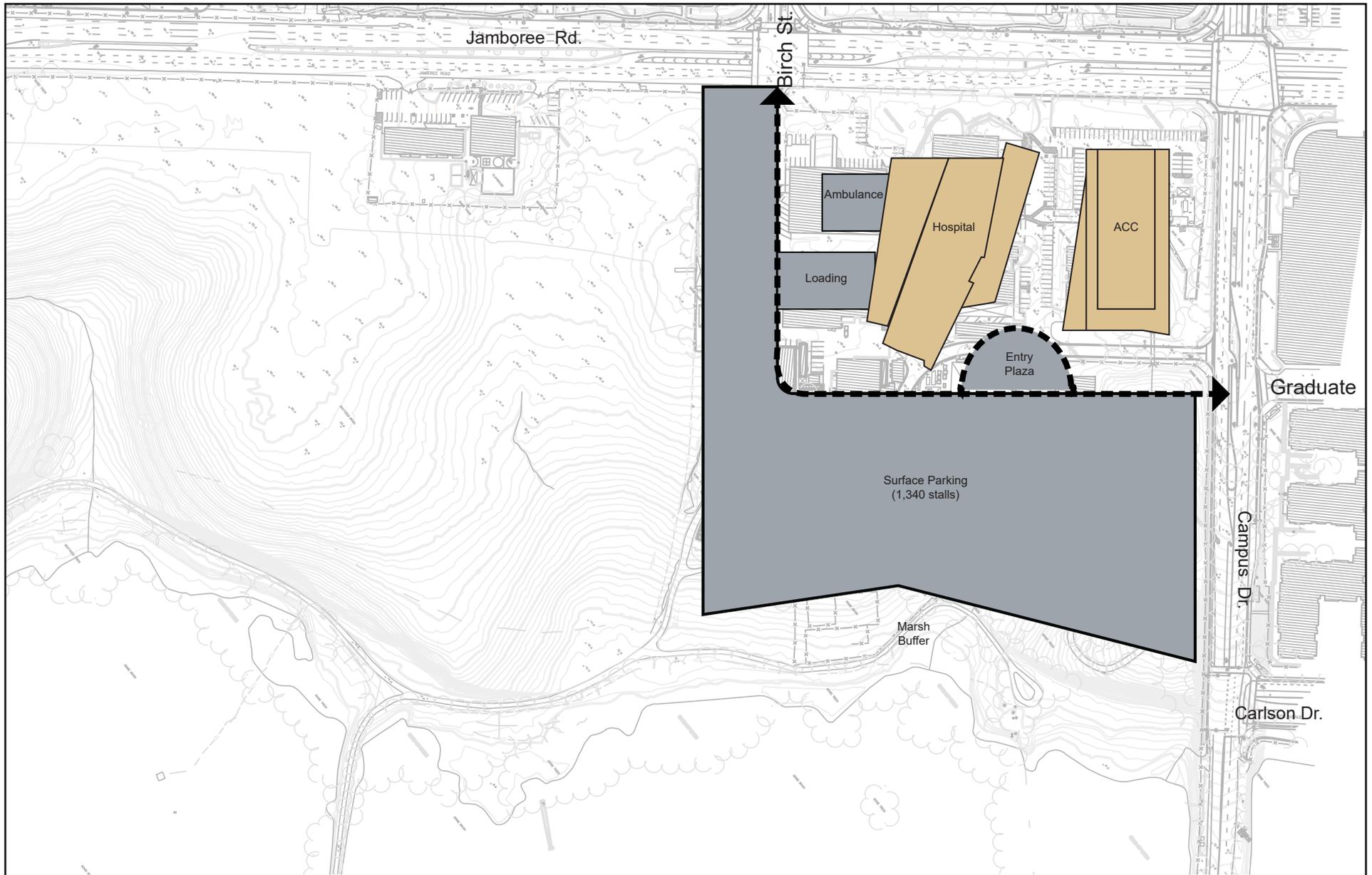
Development under Alternative 3: Jamboree Road and Campus Drive Alternative consists of the same programming for a campus medical complex as the proposed Project, but located at a different site within the UCI North Campus just to the north of the proposed Project site. The Alternative 3 site is located on Jamboree Road at the southeast corner of the intersection of Campus Drive. The Alternative 3 site is larger at approximately 22 acres compared to 14.5 acres for the proposed Project. As such, development under Alternative 3 would be at a lower intensity with surface parking proposed instead of a parking structure. The surface parking lot would be developed on the current UCI Arboretum site and the Arboretum would be relocated to another location on the UCI main campus. This site would result in a higher visibility for UCI Health given its location on Jamboree Road. Development in this location would require relocation of the existing UCI support services facilities to another location on the UCI campus. No alternative location for the facilities has been identified at this time but the impact of relocating that use would occur. **Figure 5-1: Alternative 3 Conceptual Site Plan** shows the proposed layout and location of Alternative 3.

Comparative Analysis of Environmental Impacts

Aesthetics

The short-term visual impacts associated with grading and construction activities that would occur under the proposed Project would similarly occur with Alternative 3. Comparatively, the construction-related impacts to the visual character/quality of the Project site and its surroundings would be similar to the proposed Project because both would result in development that replaces some undeveloped land. The construction duration, timeline, and equipment of this alternative would be similar to the proposed Project.

The long-term visual character of the development area on Jamboree Road and Campus Drive would be fundamentally different with Alternative 3, as the land would be redeveloped with the proposed campus medical complex. The proposed buildings would be a similar height to the proposed Project's five-story (above ground) buildings. This alternative would have fewer buildings because no parking structure would be built, and the project would have a larger surface parking lot. However, it would remove trees from within the Arboretum area. The view of the site would be prominent from Jamboree Road and Campus Drive. While development under Alternative 3 would not impact a designated scenic vista or highway, it would be much more visible from public thoroughfares. Impacts in this regard would be similar to those of the proposed Project. Nighttime lighting would be similar to proposed Project. Therefore, potential aesthetics impacts would be similar compared to the proposed Project, but still considered less than significant with mitigation incorporated.



Source: UC Irvine, 2020

FIGURE 5-1: Alternative 3 Conceptual Site Plan
 UCI Irvine Campus Medical Complex EIR
 University of California, Irvine



Not to scale

Kimley»Horn

Air Quality

Similar to the proposed Project, Alternative 3 would include construction of a new hospital and ACC, but unlike the Project, it would have increased construction emissions associated with demolition. Also, this alternative would not construct a new parking garage but would have an increased surface parking area. Additional construction impacts would occur with relocating existing facilities that would be displaced by Alternative 3.

As with the proposed Project, Alternative 3 would result in less than significant construction-related emissions with the application of Project mitigation measures.

With a similar amount of building development under Alternative 3, the amount of traffic trip generation and vehicle miles traveled would be similar to the proposed Project, resulting in a similar amount of operational impacts associated with NO_x emissions. The same mitigation measures required for the proposed Project would be required for this alternative. The relocated UCI support services facilities would still serve the UCI campus so no additional air quality impacts associated that relocation would occur. Thus, the Jamboree Road and Campus Drive Alternative significant impacts related to long-term operational air emissions and cumulative operational emissions would be similar under this alternative compared to the proposed Project.

Given that the proposed development is generally consistent with the planned uses for the North Campus in the 2007 LRDP, this alternative also would be consistent with SCAQMD's 2016 Air Quality Management Plan (AQMP) and the Southern California Association of Governments Connect SoCal (2020 - 2045 Regional Transportation Plan/Sustainable Communities Strategy).

Biological Resources

Alternative 3 has a larger development footprint compared to the proposed Project. However, the development would be moved farther away from the San Joaquin Marsh Reserve. The majority of the development would occur on land that has already been developed with UCI support service and academic facilities. The surface parking area would be located on a portion of the existing UCI Arboretum property. This alternative would be constructed in a location that has mostly been previously developed with UCI Facilities buildings. However, it would remove additional vegetation from within the Arboretum area. Compared to the proposed Project, this alternative would retain the 150-foot development buffer from the San Joaquin Marsh Reserve similar to the proposed Project. Water quality pollutants associated with parking lots would be located closer to the Marsh compared to the proposed Project. The parking lot would have security lighting, but all lighting would be required to be shielded to prevent light trespass into the buffer area. Therefore, impacts would be greater compared to the proposed Project.

Cultural Resources

Development under Alternative 3 would shift the development footprint away from the central portion of archeological site P30-000115/CA-ORA-115; however, portions of the development area would still be within the archaeological site boundaries. Development under this alternative would occur on land that has already been developed with UCI support service and academic facilities and on land used by the Arboretum. The surface parking area would be located on a portion of the previously disturbed Arboretum property. The same mitigation measures required for the proposed project would be required under Alternative 3. As such, potential impacts on cultural resources would be incrementally reduced compared to the proposed Project, Cultural resource impacts would remain significant and unavoidable.

Energy

Under Alternative 3, construction activities similar to those proposed for the Project would occur at the alternative site. New Project buildings and facilities would incorporate energy efficiency features consistent with the Project's LEED certification commitments. As with the proposed Project, this alternative would not result in the long-term wasteful, inefficient, and unnecessary consumption of energy, because identified mitigation would be applied. Therefore, energy impacts under this alternative would be similar to those that would occur under the Project.

Geology/Soils

Under Alternative 3, construction activities would be similar to those described for the proposed Project, including ground-disturbing and earthmoving activities, which could result in damage to and/or destruction of previously undiscovered paleontological resources. As described in Section 3.6, "Geology and Soils," impacts would be less than significant with the implementation of mitigation. Geology and soils impacts under this alternative would be similar to those that would occur under the proposed Project.

Greenhouse Gas Emissions

Alternative 3 would generate GHG emissions during construction and operation greater to those that would be generated under the Project because the same extent of site development would occur, but relocation of existing UCI support services facilities would generate additional GHG emissions compared to the proposed Project.

Operationally, the Alternative 3 would result in a similar amount of greenhouse gas emissions compared to the proposed Project based on a similar number of square feet being developed. However, the development under this alternative would have opportunities for rooftop solar and charging stations for electrical vehicles. The same mitigation measure required for the proposed Project would be required for this alternative. With additional construction activities, GHG emissions would be greater than the proposed Project.

Hazards and Hazardous Materials

Hazards and hazardous material impacts associated with Alternative 3 would be similar to the proposed Project. This alternative would include more demolition of existing buildings on the development site that could similarly release hazardous materials into the environment through reasonably foreseeable upset and accident conditions involving LBPs and ACMs. Demolition impacts would be greater compared to the proposed Project; however, similar to the proposed Project, this impact would be mitigated to less than significant.

Development under this alternative would have the same potential for exposure to hazardous pollutants from offsite sources north of Jamboree Road resulting in contaminated soils as the proposed Project, and the same mitigation measures would be required. The transportation, use, and disposal of hazardous materials would be subject to local, state, and federal laws intended to minimize the risk of exposure to hazardous materials. Consistency with these laws and policies would limit hazards to the public from the transportation, use, and disposal of these materials. The use of hazardous materials would be incidental to the operation of the commercial development. As such, the risks associated with the use of these materials would be similarly small. While the proposed Project would involve the transportation, use, and

disposal of limited small amounts of hazardous materials, compliance with local, state, and federal regulations and County policies would ensure that the proposed Project would result in less than significant impacts and no mitigation is required. Potential impacts are considered similar to the proposed Project.

Hydrology and Water Quality

Alternative 3 would have the same uses as the proposed Project. Similar to the Project, future development under this alternative that disturbs more than one acre of soil would be required to obtain coverage under the National Pollutant Discharge Elimination System (NPDES) and prepare and implement a SWPPP and WQMP and associated BMPs. This alternative is also not expected to alter existing drainage patterns in a manner that would result in soil erosion or flooding on- or off-site upon implementation of the required BMPs. Similar to the proposed Project, a small portion of the development footprint would be within the 100-year floodplain and additional floodplain mapping would be required.

However, development under this alternative would include surface parking instead of a parking garage. As such, the parking area would be spread out over a much larger area, and the amount of impervious surfaces would be substantially increased compared to the proposed Project. Depending on where the UCI support services facilities are relocated, additional impervious surfaces may be constructed as well. An increase in the amount of parking lot area would result in an increase in surface water runoff as well as increase in automobile related pollutants (oil and other hydrocarbon compounds) in water runoff that would be required to be treated. Therefore, potential impacts to water quality would be greater when compared to the proposed Project under this alternative.

Land Use

Alternative 3 is designed to develop the project site consistent with the existing LRPD designation of Mixed Use – Commercial. Similar to the proposed Project development under this alternative would require an amendment to the 2007 LRDP to allow Inpatient uses. However, because there are no specific environmental impacts due to the Project's inconsistency with the LRDP, impacts related to land use would be similar to the proposed Project and would remain less than significant.

Noise

Under Alternative 3 construction, noise associated with the proposed Project, with mitigation incorporated, would result in less than significant impacts to surrounding sensitive receptors regarding noise levels in excess of the established standards. Construction activities would cause less than significant impacts due to mobile noise along access routes to and from the site due to movement of equipment and workers. The proposed Project's construction-related vibration impacts would be less than significant. However, construction in this location would bring development closer to the existing residential units located across Campus Drive. Overall, impacts under this alternative would be greater than those that would occur under the proposed Project.

Population and Housing

The proposed Project would not result in any significant population, employment, or housing impacts. Alternative 3 would consist of medical facilities the same size as those under the Project. It would generate a similar amount of employment at buildout, and no new or replacement housing would be required.

Overall, impacts under this alternative would be similar to those that would occur under the proposed Project.

Public Services

Under Alternative 3, the proposed uses would be the same as those described for the proposed Project. This alternative would involve the same demand for police and fire protection services, library services, and same impact on local public schools. Impacts associated with public services would be similar to the proposed Project.

Recreation

Under Alternative 3, the proposed uses would be the same as those described for the proposed Project. This alternative would have the same demand for parks and recreation facilities as the proposed Project. Impacts associated with recreation would be similar to the proposed Project.

Transportation

Under Alternative 3, construction activities would be similar to the proposed Project. Under both scenarios, short term traffic impacts would be reduced to less than significant levels with mitigation incorporated. Operationally, the land uses would be the same as the proposed Project. This alternative would have the same VMT impacts as the proposed Project and the same mitigation measures would be required. Therefore, potential impacts would be similar to the proposed Project.

Tribal Cultural Resources

Development under Alternative 3 would shift the development footprint away from the central portion of the archaeological site P30-000115/CA-ORA-115; however, portions of the development area would still be within the archaeological site boundaries. Development under this alternative would occur on land that has already been developed with UCI support service facilities, and the surface parking area would be located on a portion of the previously disturbed UCI Arboretum. The same tribal cultural resource mitigation measures required for the proposed Project would be required for this alternative. As such, potential impacts on tribal cultural resources would be incrementally reduced compared to the proposed Project; however, complete avoidance of the cultural resource site would not occur. As such, tribal cultural resource impacts would remain significant and unavoidable.

Utilities

The water supply and wastewater demands under Alternative 3 would be similar to those under the Project because the proposed uses and size of the facilities would be the same as the proposed Project, which would require similar infrastructure connections. Water and dry utility demands and wastewater and solid waste generation for the proposed Project are less than significant. As such, potential impacts under Alternative 3 would be similar to the proposed Project.

Conclusion

Alternative 3 would have no new significant impacts in comparison to the proposed Project. Significant and unavoidable direct and cumulative impacts associated with cultural resources and tribal cultural resources would remain from development within a known cultural resources site. Impacts on biological resources would be greater because the construction would occur in a larger area of the Arboretum site, removing more existing vegetation from that area. Impacts from contaminated soils from offsite

properties are considered likely in this location due to the proximity of the offsite sources across Jamboree Road. Impacts on water quality would be increased due to the increase in impervious surface area associated with the expanded surface parking lot.

Mitigation similar to the proposed Project would be required to reduce potential significant impacts to less than significant in the areas of aesthetics, air quality, biological resources, cultural resources, geology and soils, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality noise, and transportation and circulation. No significant impacts are anticipated related to population and housing, public services, recreation, or utilities.

However, implementing Alternative 3 would require relocation of the UCI support services facilities to another location within the UCI campus. No known location for these facilities has been identified at this time; however additional impacts related to the relocation of existing buildings and construction of new buildings would occur compared to the proposed Project.

Feasibility and Ability to Meet Project Objectives

Because Alternative 3 proposes the same uses as the proposed Project, this alternative could meet most of the project objectives. However, because the alternative would be moved away from the natural open space area of the San Joaquin Marsh Reserve, and a substantial portion of the project site would be dedicated to surface parking, the project could not meet the following objectives:

- Provide a site location with high-quality open space connections to provide an environment that promotes healing and wellness.
- Support the stewardship of adjacent UCI open space resources.

Locating the medical complex near the intersection of Jamboree Road and Campus Drive would move it farther from the open space area taking away the opportunity for a connection with the existing open space area on the UCI campus. Additionally, this alternative would remove the Arboretum from its current location and replace it with a parking lot. This connection to open space, both visually and physically, is a critical component of the landscape that contributes to the healing and wellness environment desired for the Project.

Contribute to campus-wide targets related to fossil fuel reduction, water efficiency, waste reduction, and transportation.

Support the stewardship of adjacent UCI open space resources. Moving the medical complex to this location with the removal of the parking garage would result in a substantial amount of space, approximately half of the developed area, dedicated to parking. The parking lot would be adjacent to the San Joaquin Marsh Reserve buffer, which would result in an inefficient use of transportation resources and discourage the use of alternative transit options because the design layout prioritizes automobiles over internal open space. Removing existing open space under this alternative would not meet the objective of supporting stewardship of adjacent UCI open space resources. This alternative also requires demolition of existing facilities that would need to be relocated either through the construction of new buildings or modification of existing buildings elsewhere on the campus.

5.4.4 Alternative 4: West Campus Alternative

Description of the Alternative

Development under Alternative 4 would be located on the UCI West Campus. Consideration was originally given to locating the Project on the UCI West Campus near the intersection of Bison Avenue at California Avenue. The Project in this location would be adjacent to the College of Health Sciences/Nursing Building development approved in 2019. A site analysis was prepared and site planning options were developed for UCI consideration. Under this alternative, the proposed hospital would be the same size, but would not include an emergency department. The hospital and ambulatory care center would be attached as one building. Under Alternative 4, the ambulatory care center would be a smaller facility at 80,000 to 120,000 square feet compared to 225,000 square feet for the proposed Project. Parking would be a combination of surface parking and a parking structure. Development in this location would require an amendment to the 2007 LRDP to change the existing designation of Open Space – General to Income-Producing Inclusion Area and adding Inpatient use as an allowable use. **Figure 5-2: Alternative 4 Conceptual Site Plan** shows the location and proposed layout of the West Campus Alternative.

Comparative Analysis of Environmental Impacts

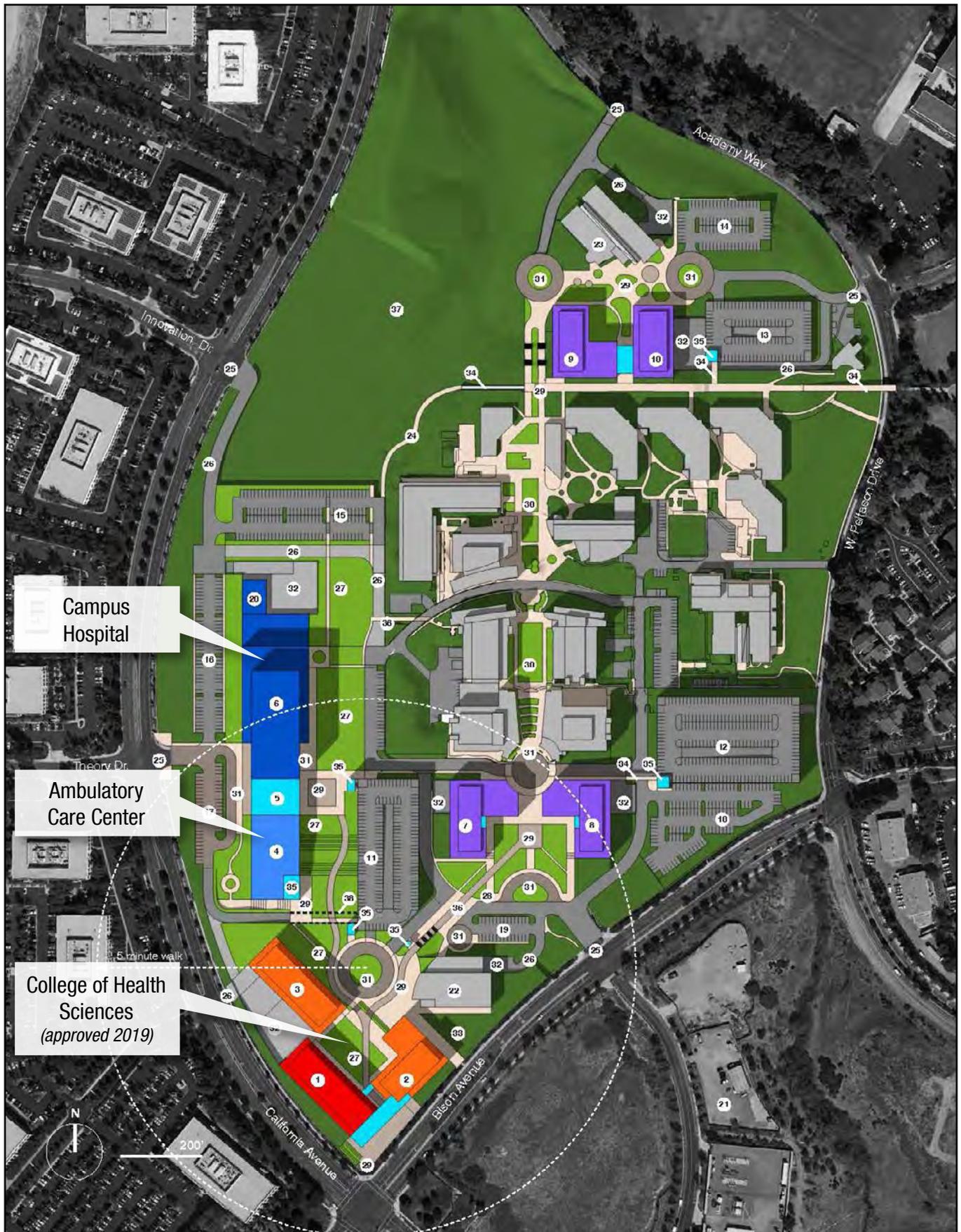
Aesthetics

The short-term visual impacts associated with grading and construction activities that would occur under the proposed Project would similarly occur with Alternative 4. Comparatively, the construction-related impacts to the visual character/quality of the project site and its surroundings would be similar to the proposed Project because both would result in development that replaces undeveloped land. The construction duration, timeline, and equipment of this alternative would be similar to the proposed Project.

The long-term visual character of the development area at the West Campus site would be fundamentally different with Alternative 4, as the land currently designated as open space would be developed with the proposed campus medical complex. The proposed buildings would be a similar height to the proposed five story (above ground) buildings with the proposed Project, but larger in overall scale because the structure would be one contiguous building. The view of the site would be prominent from California Avenue. While development under Alternative 4 would not impact a designated scenic vista or highway, it would be much more visible from public thoroughfares. Impacts in this regard would be similar to those of the proposed Project. The West Campus location would not be visible from within the San Joaquin Marsh Reserve and views of the Marsh area from surrounding locations would not change. Nighttime lighting would be similar to proposed Project. Therefore, potential aesthetics impacts would be greater compared to the proposed Project, but still considered less than significant with mitigation incorporated.

Air Quality

Similar to the Project, Alternative 4 would include construction of a new hospital and ambulatory care center. Unlike the proposed Project, this alternative would construct a similar sized hospital, smaller ambulatory care center, and smaller parking garage. As with the proposed Project, Alternative 4 would result in less than significant construction-related emissions with the application of Project mitigation measures.



Source: UC Irvine, 2020

FIGURE 5-2: Alternative 4 Conceptual Site Plan

UCI Irvine Campus Medical Complex EIR
University of California, Irvine



Not to scale

Kimley»Horn

With a smaller building development under this alternative, the amount of traffic trip generation and vehicle miles traveled would be reduced compared to the proposed Project as a result of fewer employees and patients. This would result in lower operational impacts associated with NO_x emissions; however, the same mitigation measures required for the proposed Project would be required for this alternative. Thus, the Alternative 4 significant impacts related to long-term operational air emissions and cumulative operational emissions would be reduced under this alternative compared to the proposed Project.

The proposed development requires a land use designation change from Open Space – General to Income Producing Inclusion Area; therefore, buildout of this alternative would conflict with SCAQMD's 2016 Air Quality Management Plan (AQMP) and the Southern California Association of Governments Connect SoCal (2020 - 2045 Regional Transportation Plan/Sustainable Communities Strategy) because this development would not have been accounted for in the growth projections of those plans. Therefore, impacts would be greater compared to the proposed Project.

Biological Resources

Alternative 4 would be located away from the San Joaquin Marsh Reserve and would avoid potential impacts to the marsh or the 150-foot buffer area. The alternative site is undeveloped with mostly undisturbed vegetation, and development on the West Campus site would occur in an area currently designated as Open Space – General. Preliminary biological studies for this site indicate that development in this area would have impacts on sensitive biological habitats including Southern willow scrub, coastal sage scrub, and mule fat scrub. This alternative would also result in an impact to approximately 0.41 acres of jurisdictional wetland habitat.¹ As such, potential impacts on biological resources would be increased compared to the proposed Project.

Cultural Resources

Development under Alternative 4 would move the development away from the archaeological site P30-000115/CA-ORA-115 and significant impacts to this site would be avoided. Development under this alternative would occur on undeveloped land. While no previously recorded cultural resource sites have been identified on this site, there is the potential for unknown cultural resources to be discovered during construction activities. The same mitigation measures from the 2007 LRDP EIR to protect unknown cultural resources required for the proposed Project would be required for this alternative. As such, potential impacts on cultural resources would be reduced compared to the proposed Project, and significant impacts on cultural resources would be avoided.

Energy

Under the Alternative 4, impacts from energy usage related to electricity, natural gas, and fuel consumption would be proportionally reduced given that development intensity would be reduced incrementally without the inclusion of an emergency room and the reduction in size of the Ambulatory Care Center. New buildings and facilities would incorporate energy efficiency features consistent with the proposed Project's LEED Gold certification. As with the proposed Project, implementing Alternative 4 would not result in the long-term wasteful, inefficient, and unnecessary consumption of energy. However, this alternative's energy demands would be less than those of the proposed Project because of the

¹ Michael Baker International. 2019. *Health Sciences Campus Project, Biological Resources Report*.

reduced building development. Therefore, energy impacts under Alternative 4 would be less than those under the Project.

Geology/Soils

Under the West Campus Alternative, construction activities would be similar to those described for the proposed Project, including ground-disturbing and earthmoving activities, which could result in damage to and/or destruction of previously undiscovered paleontological resources. As described in Section 3.6, “Geology and Soils,” impacts would be less than significant with the implementation of mitigation. Geology and soils impacts under this alternative would be similar to those that would occur under the proposed Project.

Greenhouse Gas Emissions

Although Alternative 4 includes less total square feet of development, construction timing, duration, and equipment would be similar to the proposed Project. Thus, this alternative and the Project would generate similar construction-related GHG emissions.

Operationally, Alternative 4 would result in a reduced amount of greenhouse gas emissions compared to the proposed Project based on a reduced number of square feet being developed. Similar to the proposed Project, development under this alternative would have opportunities for rooftop solar and charging stations for electrical vehicles. Overall greenhouse gas emissions would be somewhat reduced under this alternative.

Hazards and Hazardous Materials

Hazards and hazardous material impacts associated with Alternative 4 would be reduced compared to the proposed Project. Development under this alternative would locate the future uses away from potential soil and vapor contamination associated with the North Campus locations. No hazardous site or clean-up site have been recorded within 0.25 mile of this location². Land uses in the surrounding area consist of a research park.

The transportation, use, and disposal of hazardous materials would be subject to local, state, and federal laws intended to minimize the risk of exposure to hazardous materials. Consistency with these laws and policies would limit hazards to the public from the transportation, use, and disposal of these materials. The use of hazardous materials would be incidental to the operation of the proposed uses. As such, the risks associated with the use of these materials would be similarly small. While the proposed Project would involve the transportation, use, and disposal of hazardous materials, compliance with local, state, and federal regulations and County policies would ensure that the proposed Project would result in less than significant impacts and no mitigation is required. Potential impacts are considered reduced compared to the proposed Project.

Hydrology and Water Quality

Alternative 4 would have the same uses as the proposed Project. Similar to the Project, future development under this alternative that disturbs more than one acre of soil would be required to obtain coverage under the National Pollutant Discharge Elimination System (NPDES) and prepare and implement a SWPPP and WQMP and associated BMPs. This alternative is also not expected to alter existing drainage

² State Water Resources Control Board, GeoTracker, <https://geotracker.waterboards.ca.gov/>, accessed September 27, 2020

patterns in a manner that would result in soil erosion or flooding on- or off-site upon implementation of the required BMPs. The entirety of this alternative site is located in a FEMA designated Zone X, Area of Minimal Flood Hazard. Unlike the proposed Project, the development footprint would be outside of the 100-year floodplain and additional floodplain mapping would not be required. Impacts would be reduced compared to the proposed Project

Land Use

Alternative 4 would require an amendment to the 2007 LRDP to change the existing designation of Open Space – General to an Income-Producing Inclusion Area designation and adding Inpatient use as an allowable use. Unlike the proposed Project, development of medical offices and hospital uses in this location is not consistent with the existing 2007 LRDP designation and would take existing open space land. However, because there are no specific environmental impacts due to the Project's inconsistency with the 2007 LRDP, impacts related to land use would be less than significant but greater than those of the proposed Project.

Noise

Under Alternative 4, construction noise associated with the proposed Project, with mitigation incorporated, would result in less than significant impacts from noise levels in excess of the established standards. Construction activities would cause less than significant impacts due to mobile noise along access routes to and from the site due to movement of equipment and workers. The proposed Project's construction-related vibration impacts would be less than significant. Although this alternative includes less total square feet of development, construction timing, duration, and equipment would be similar to the proposed Project. Therefore, this alternative would result in noise impacts that are similar compared to the proposed Project.

Population and Housing

The proposed Project would not result in any significant population, employment, or housing impacts. Alternative 4 would consist of medical facilities of a slightly reduced size as those under the Project, and it would generate a proportionally reduced amount of employment at buildout. Further, the extent of construction under this alternative would be similar to that of the proposed Project; therefore, the proposed Project and this alternative would have a similar construction workforce and no new or replacement housing would be required. Overall, impacts under this alternative would be similar to those that would occur under the proposed Project.

Public Services

Under Alternative 4, the proposed uses would be the same as those described for the proposed Project with slightly reduced development. This alternative would involve similar demand for police and fire protection services, library services, and same impact on local public schools. Impacts associated with public services would be similar to the proposed Project.

Recreation

Under Alternative 4, the proposed uses would be the same as those described for the proposed Project with slightly reduced development. This alternative would have the same demand for parks and recreation facilities as the proposed Project. Impacts associated with recreation would be similar to the proposed Project.

Transportation

Under Alternative 4, construction activities would be similar to the proposed Project. However, the location of the Alternative 4 within the main UCI campus would require both construction and operational traffic to travel onto the campus, which is a location not as easily accessible to off-campus users. The additional traffic trips on internal campus roadways would add traffic volumes to internal campus roads compared to the proposed Project. Additionally, with the medical complex in this location, the facilities are not as accessible to the off-campus community with regard to existing transit options, and there are no existing OCTA bus stops on California Avenue or Bison Avenue.

VMT is largely dependent on the specific land use type of a particular project and the location of that project. While a reduction in a project's size could reduce the overall trips associated with a given project, reducing a project's square footage would not necessarily have an effect on a project's average trip length. Thus, while the Alternative 4 development footprint would be reduced compared to the proposed Project, the average trip length for passenger vehicle and truck trips associated with the proposed Project would essentially remain constant. In addition, because a reduction in building size would correlate to a similar reduction in on-site workforce, the proposed Project's VMT per employee would also stay relatively the same under Alternative 4 as the Project's VMT per employee. This alternative would be required to implement the same mitigation measures as the proposed Project. However, the Alternative 4 location has fewer opportunities for public transit for off-campus users as there are no OCTA bus stops in the surrounding area, only the UCI Anteater Express shuttle stops, which would result in higher VMT calculations. Therefore, impacts with regard to VMT would be greater under this alternative, and more traffic volume within the UCI campus core would add to more congestion in that area.

Tribal Cultural Resources

Development under Alternative 4 would move the development away from the archaeological site P30-000115/CA-ORA-115 and significant impacts on this site would be avoided. Development under this alternative would occur on undeveloped land. While no previously known tribal cultural resources have been identified on this site, there is the potential for unknown tribal cultural resources to be discovered during construction activities. The same mitigation measures from the 2007 LRDP EIR to protect unknown tribal cultural resources required for the proposed Project would be required for this alternative. As such, potential impacts on tribal cultural resources would be reduced compared to the proposed Project, and significant impacts on cultural resources would be avoided.

Utilities

Impacts related to utilities and service systems under Alternative 4 would be incrementally reduced given that development square footage of the ambulatory care center would be reduced, and no emergency room would be included. Impacts related to water and dry utility demands and wastewater and solid waste generation on the development site would be proportionally reduced and be similarly less than significant. As such, potential impacts under Alternative 4 would be reduced compared to the proposed Project.

Conclusion

Alternative 4 would have new impacts on biological resources requiring additional mitigation for wetland and sensitive habitats, in comparison to the proposed Project, to reduce impacts to less than significant. However, significant and unavoidable direct and cumulative impacts associated with cultural resources and tribal cultural resources would be avoided under this alternative. Known impacts from contaminated

soils from offsite properties would be avoided under this alternative. Impacts on traffic would be increased because the alternative would draw more traffic trips into the campus core from employees and patients traveling to and from the medical complex, which is not as easily accessible to off-campus users, and there are fewer public transit opportunities available to off-campus users.

Mitigation similar to the proposed Project would be required to reduce potential significant impacts to less than significant in the areas of aesthetics, air quality, cultural resources, geology and soils, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality, noise, and transportation and circulation. No significant impacts are anticipated related to population and housing, public services, recreation, or utilities.

Feasibility and Ability to Meet Project Objectives

Because Alternative 4 proposes the same uses as the proposed Project, this alternative could meet most of the project objectives. However, because the alternative would have reduced development and be located away from the natural open space area of the San Joaquin Marsh Reserve, the Project would not meet the following objectives:

- Ensure appropriate and adequate access to high-quality health and wellness care to the community through a convenient location in central Orange County.
- Provide a site location with high-quality open space connections to provide an environment that promotes healing and wellness.
- Support the stewardship of adjacent UCI open space resources.
- Contribute to campus-wide targets related to fossil fuel reduction, water efficiency, waste reduction, and transportation.

Analysis

Ensure appropriate and adequate access to high-quality health and wellness care to the community through a convenient location in central Orange County

Locating the medical complex at the West Campus location would result in smaller facilities that would eliminate the emergency room services of the hospital and result in a smaller ambulatory care center. Providing these services is critical to the objective of UCI Health providing high-quality health and wellness care to the community. Access to these services is in demand in this area of Orange County and eliminating these services would adversely affect UCI Health's ability to meet this objective. The West Campus location does not have any existing public transit options available to off-campus users, only the UCI Anteater Express shuttle, on the surrounding roadways or any in proximity to this location. This would be make the medical complex less accessible to patients and visitors to the hospital and ambulatory care center compared to the proposed Project

Provide a site location with high-quality open space connections to provide an environment that promotes healing and wellness.

Locating the medical complex at the West Campus location would remove existing open space on the UCI campus and place the medical complex in an area that is surrounded by existing campus buildings and office and research buildings located across California Avenue. The undeveloped land designated as Income-Producing Inclusion Area located to the north of the site would be developed in the future. The hospital and ambulatory care center would be surrounded by existing or future development as compared

to the proposed Project, where the UC San Joaquin Marsh Reserve would remain open space in perpetuity. As such, Alternative 4 would not be able to meet this objective.

Support the stewardship of adjacent UCI open space resources.

Converting existing open space area for new development, including removing wetland areas, would adversely affect UCI's ability to meet the objective of supporting the stewardship of UCI open space resources.

Contribute to campus-wide targets related to fossil fuel reduction, water efficiency, waste reduction, and transportation

Locating the medical complex at the West Campus location would place the hospital and ambulatory care center within the main UCI campus, which is less accessible to off-campus users. For Alternative 4, there are no existing bus stops on California Avenue or Bison Avenue, except for UCI Anteater Express shuttle stops, compared to the existing OCTA bus stops at Jamboree and Birch and at Jamboree and Campus near the proposed Project. For this reason, moving the medical complex to the West Campus would adversely affect the ability of the Project to meet the objective of reducing campus-wide targets for efficient transportation and reducing fossil fuel emissions.

5.5 Summary of Project Alternatives

Table 5-1, Summary Analysis for Alternatives to the Proposed Project, compares the significance of the potential impacts for the proposed Project with the impacts of the alternatives considered in detail. *Table 5-2, Ability of Alternatives to Meet Project Objectives*, demonstrates the ability of the analyzed alternatives to meet the Project objectives.

5.6 Environmentally Superior Alternative

CEQA requires the identification of an environmentally superior alternative. Section 15126.6(e)(2) of the State CEQA Guidelines identifies that if the No Project Alternative is the environmentally superior alternative, then the EIR shall also identify an environmentally superior alternative among the other alternatives. As illustrated in Table 5-1, below, Alternative 4 West Campus Alternative would be the environmentally superior alternative; however, it does not meet four of the project objectives as shown in Table 5-2.

Table 5-1. Summary Analysis for Alternatives to the Proposed Project					
Topic	Proposed Project	Alternative 1 No Development	Alternative 2 Existing LRDP	Alternative 3 Jamboree Road/Campus Drive	Alternative 4 West Campus
Aesthetics	LS	-	=	=	+
Air Quality	LS/M	-	=	=	+
Biological Resources	LS/M	-	=	+	+
Cultural Resources	S/U	_*	=	-	_*
Energy	LS	-	=	+	-
Geology, Soils, and Paleontological Resources	LS/M	-	=	=	=
Greenhouse Gas Emissions	LS/M	-	=	=	=
Hazards and Hazardous Materials	LS/M	-	=	+	-
Hydrology and Water Quality	LS/M	-	=	+	-
Land Use and Planning	LS	-	=	=	+
Noise	LS/M	-	=	+	=
Population and Housing	LS	-	=	=	=
Public Services	LS	-	+	=	=
Recreation	LS	-	+	=	=
Transportation	LS/M	-	=	=	+
Tribal Cultural Resources	S/U	_*	=	-	_*
Utilities and Services Systems	LS	-	=	=	-
LS = Less than Significant LS/M = Less than Significant with Mitigation S/U = Significant Unavoidable Impact (-) The alternative would result in less of an impact than the proposed Project or no impact. (+) The alternative would result in greater impacts than the proposed Project. (=) The alternative would result in the same/similar impacts as the proposed Project. (*) The alternative would reduce/eliminate a significant and unavoidable impact.					

Objective	Proposed Project	Alternative 1 No Development	Alternative 2 Existing LRDP	Alternative 3 Jamboree Road/Campus Drive	Alternative 4 West Campus
Ensure appropriate and adequate access to high quality health and wellness care to the community through a convenient location in central Orange County.	Yes	No	No	Yes	No
Leverage the co-location of UCI Health research, teaching, inpatient and outpatient programs through a location on the Irvine Campus.	Yes	No	No	Yes	Yes
Develop a campus setting providing a full range of on-site health and wellness services	Yes	No	No	Yes	Yes
Serve as the destination provider for distinctive health care service lines	Yes	No	No	Yes	Yes
Provide unparalleled quality and value to patients and healthcare customers	Yes	No	No	Yes	Yes
Provide a site location with high quality open space connections to provide an environment that promotes healing and wellness.	Yes	No	Yes	No	No
Support the stewardship of adjacent UCI open space resources.	Yes	No	Yes	No	No
Achieve LEED Gold equivalence or better and building efficiency standards that exceed California's Title 24 2019 energy code (outpatient) and ASHRAE 90.1-2010 (inpatient) standards.	Yes	No	Yes	Yes	Yes
Contribute to campus-wide targets related to fossil fuel reduction, water efficiency, waste reduction, and transportation.	Yes	No	Yes	No	No

6 PREPARERS PAGE

6.1 EIR Preparers/Reviewers

Lead Agency

University of California, Irvine

Richard Demerjian	Assistant Vice Chancellor, Campus Physical and Environmental Planning
Lindsey Hashimoto	Senior Planner, Campus Physical and Environmental Planning
Matt Deines	Senior Planner, Campus Physical and Environmental Planning
Andrea Eaton	Chief Campus Counsel, Office of the Chancellor
Brian Pratt	Assistant Vice Chancellor and Campus Architect, Design & Construction Services
Mohamed Sultan	Assistant Director of Project Management – Healthcare, Design & Construction Services
Paul DaVeiga	Senior Project Manager, UCI Health

University of California, Office of General Counsel

Anagha Clifford	Senior Counsel
-----------------	----------------

University of California, Office of the President

Brian Harrington	Associate Director, Physical and Environmental Planning
Ha Ly	Planning Specialist, Physical and Environmental Planning

EIR Preparers

Kimley-Horn and Associates

Dana Privitt	Senior Project Manager
Alex Jewell	Senior Project Manager
Brad Stoneman	Senior Planner
Achilles Malisos	Technical Studies Manager for Air Quality, Greenhouse Gas Emissions, Energy, and Noise
Prathna Maharaj	Environmental Planner
Brian Leung	Environmental Planner
Alex Howard	Environmental Planner
Amanda McCallum	Production Specialist

Technical Consultants**Biological Resources – Michael Baker International**

Ryan Winkleman Senior Biologist
Richard Beck Senior Regulatory Specialist

Cultural Resources – Michael Baker International

Margo Nayyar Senior Cultural Resources Manager
Brian Seymour Archaeologist

Geotechnical – Ninyo & Moore

Daniel Chu Chief Geotechnical Engineer
Ronald Hallum Principal Geologist
Franklin Ruiz Project Engineer

Hydrology Report – Michael Baker International

David Jaffe Principal Engineer
Rebecca Kinney Engineer
Rianne Okamoto Engineer

Transportation Study – Stantec

Daryl Zerfass Principal Transportation Planner and Engineer
Maria Morris Senior Transportation Planner
Kelsey Carton Transportation Planner