

DRAFT

**INITIAL STUDY/
MITIGATED NEGATIVE DECLARATION**

**HOAG HOSPITAL EXPANSION PROJECT
IRVINE, CALIFORNIA**



Lead Agency:

City of Irvine
One Civic Center Plaza
Irvine, California 92623
(949) 724-6000

LSA

October 2020

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IRVINE, CALIFORNIA**

Submitted to:

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October 2020

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LIST OF ABBREVIATIONS AND ACRONYMS

AAQS	ambient air quality standards
AB	Assembly Bill
ACM	asbestos-containing material
ADT	average daily trips
af	acre-feet
APN	Assessor's Parcel Number
AQMP	Air Quality Management Plan
Basin Plan	Santa Ana Regional Water Quality Control Board Water Quality Control Plan
bgs	below ground surface
BMP	best management practice
BWTP	Baker Water Treatment Plant
CAL FIRE	California Department of Forestry and Fire Protection
CalARP	California Accidental Release Program
CalEEMod	California Emissions Estimator Model
CALGreen	California Green Building Standards Code
California Register	California Register of Historical Resources
CalRecycle	California Department of Resources Recycling and Recovery
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CCE	Community Choice Energy
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CH ₄	methane
City	City of Irvine
CNEL	Community Noise Equivalent Level
CO	carbon monoxide
CO ₂	carbon dioxide
CO ₂ e	carbon dioxide equivalent

County	County of Orange
CSTMP	Construction Staging and Traffic Management Plan
CUP	Conditional Use Permit
CUPA	California Certified Unified Program Agency
cy	cubic yards
dB	decibel(s)
dBA	A-weighted decibels
DWR	California Department of Water Resources
EDR	Environmental Data Resources, Inc.
EMS	emergency medical services
EPA	United States Environmental Protection Agency
FHWA	Federal Highway Administration
Fire Code	California Fire Code
fps	feet per second
ft	feet
g	acceleration of gravity
Geotechnical Assessment	<i>Geotechnical Exploration Report Proposed Hospital Expansion Project Hoag Hospital Irvine 16200 Sand Canyon Avenue Irvine, California</i>
gpm	gallons per minute
gpy	gallons per year
GWh	gigawatt hours
GWP	global warming potential
HCM	<i>Highway Capacity Manual</i>
HCP	Habitat Conservation Plan
HFCs	hydrofluorocarbons
HHI	Hoag Hospital Irvine
HMBP	hazardous materials business plan
HVAC	heating, ventilation, and air conditioning
I-405	Interstate 405
I-5	Interstate 5
ICU	intersection capacity utilization

inch/sec	inch(es) per second
IPD	Irvine Police Department
IRWD	Irvine Ranch Water District
IS/MND	Initial Study/Mitigated Negative Declaration
ITAM	Irvine Transportation Analysis Model
ITE	Institute of Transportation Engineers
kWh	kilowatt hours
LAWRP	Los Alisos Water Recycling Plant
LBP	lead-based paint
lbs/day	pounds per day
L _{dn}	day-night average sound level
L _{eq}	equivalent continuous sound level
LID	Low Impact Development
L _{max}	maximum instantaneous noise level
LOS	level(s) of service
LRA	Local Responsibility Area
LST	localized significance threshold
MBTA	Migratory Bird Treaty Act
mgd	million gallons per day
mi	mile(s)
mpg	miles per gallon
MPO	Metropolitan Planning Organization
MRZ	Mineral Resource Zones
MTCO _{2e}	metric tons of carbon dioxide equivalent
MTCO _{2e} /year/SP	metric tons of carbon dioxide equivalent service population
MWMA	California Medical Waste Management Act
MWRP	Michelson Water Recycling Plant
N ₂ O	nitrous oxide
NCCP	Natural Communities Conservation Plan
North Orange County MS4 Permit	<i>Waste Discharge Requirements for the County of Orange, Orange County Flood Control District and the Incorporated Cities of Orange County within the Santa Ana Region Areawide Urban Storm Water Runoff Orange County</i>

NO _x	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
O ₃	ozone
OCFA	Orange County Fire Authority
OCTA	Orange County Transportation Authority
OCWD	Orange County Water District
PFCs	perfluorocarbons
PGA	peak ground acceleration
PM ₁₀	particulate matter 10 microns or less in diameter
PM _{2.5}	particulate matter 2.5 microns or less in diameter
POTW	publicly owned treatment works
ppm	parts per million
PPV	peak particle velocity
PRC	Public Resources Code
Project	Hoag Hospital Expansion Project
psi	pounds per square inch
RCRA	Resource Conservation and Recovery Act
Rhodes MOB	Rhodes Development Medical Office Building
RMS	root-mean-square
RTP	Regional Transportation Plan
RWQCB	Regional Water Quality Control Board
SAFE	Safer Affordable Fuel-Efficient Vehicles Rule
SAMP	<i>Sub-Area Master Plan</i>
SB	Senate Bill
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCS	Sustainable Communities Strategy
SDCI	San Diego Creek Interceptor
sf	square foot/feet
SF ₆	sulfur hexafluoride
SGMA	Sustainable Groundwater Management Act

SO ₂	sulfur dioxide
SR-	State Route
SRA	State Responsibility Area
SRA	source receptor area
SWPPP	Stormwater Pollution Prevention Plan
TAC	toxic air contaminant
TDP	Transportation Design Procedures
TIA	Traffic Impact Analysis
USFWS	United States Fish and Wildlife Service
v/c	volume-to-capacity
VdB	velocity in decibels
VHFHSZ	Very High Fire Hazard Severity Zone
VMT	vehicle miles traveled
VOC	volatile organic compounds
vph	vehicles per hour
Working Group	GHG CEQA Significance Threshold Working Group
WQMP	Water Quality Management Plan

1.0 CITY OF IRVINE INITIAL STUDY AND ENVIRONMENTAL EVALUATION FORM

Project Title:

Hoag Hospital Expansion Project

Reference Application Numbers:

Case No. 00816357-PCPM

Lead Agency:

City of Irvine
One Civic Center Plaza
Irvine, California 92623

Contact Person and Telephone No.:

Hernan DeSantos, Senior Planner, Community
Development Department
(949) 724-6441

Project Applicant and Address:

Hoag Hospital Irvine
16200 Sand Canyon Avenue
Irvine, California

Contact Person and Telephone No.:

Ryan Wantz, Project Manager
(714) 330-3991

Project Location:

16200 San Canyon avenue
Irvine, California

Planning Area:

Planning Area 13
(Irvine Spectrum 4)

Existing General Plan Designation:

Research/Industrial

Existing Zoning Classification:

5.5 Medical and Science

Proposed General Plan Designation:

Research/Industrial

Proposed Zoning Classification:

5.5 Medical and Science

1.1 INTRODUCTION

In accordance with the California Environmental Quality Act (CEQA), the *State CEQA Guidelines*, and in conformance with the City of Irvine's CEQA Guidelines, this Initial Study/Mitigated Negative Declaration (IS/MND) has been prepared for the proposed Hoag Hospital Expansion Project (Project) at 16200 Sand Canyon Avenue, Irvine, California. Consistent with *State CEQA Guidelines* Section 15071, this IS/MND includes a description of the proposed Project, an evaluation of the potential environmental impacts, and findings from the environmental analysis.

This IS/MND evaluates the potential environmental impacts that may result from development of the project. Consistent with *State CEQA Guidelines* Section 15050, the City of Irvine (City) is the Lead Agency under CEQA and is responsible for adoption of the IS/MND and approval of the proposed Project.

1.2 PROJECT DESCRIPTION

1.2.1 Project Location and Setting

Irvine encompasses approximately 66 square miles of land (approximately 42,240 acres) in central Orange County, California. Irvine is bounded by Tustin to the northwest; unincorporated land to the

northeast; Lake Forest, Laguna Hills, and Laguna Woods to the southeast; and Newport Beach to the southwest. John Wayne Airport (SNA) abuts Irvine's southwestern boundary.

The Project site is at 16100–16300 Sand Canyon Avenue in Irvine. As shown on Figure 1-1, Regional Project Location, regional access to the Project site is provided by Interstate 405, 0.2 mile to the south, and Interstate 5, approximately 1 mile to the northeast (all figures are provided at the end of this section). The Project site is bounded by Sand Canyon Avenue to the northwest; medical, office, and hotel uses to the northeast with the San Diego Creek beyond; Irvine Oaks Executive Park and surface parking lots to the southeast; and Alton Parkway to the southwest.

1.2.2 Existing Site Characteristics

In the existing condition, the approximately 24.5-acre Project site is currently composed of Hoag Hospital Irvine (HHI), an approximately 15-net-acre campus at-16200 Sand Canyon Avenue on Assessor's Parcel Numbers (APNs) 466-091-18 and -19. The Project site also includes the Rhodes Development Medical Office Building (Rhodes MOB) at 16300 Sand Canyon Avenue on APNs 466-091-16 and -17.

The HHI campus includes a 255,421-square-foot (sf) hospital, composed of a main building with a 10,200 sf Central Utility Plant, a nursing building with 166 hospital beds, and a standalone, 1-story emergency building immediately to the east of the main hospital building. The 10-story, 115,762 sf Rhodes MOB is immediately west of the HHI campus. The total building area on the Project site is 371,003 sf. Figure 1-2 shows the existing conditions on the Project site.

Shared parking is provided between the HHI campus (602 spaces) and the Rhodes MOB (683 spaces). There is currently a total of 1,285 surface parking spaces on the Project site.

1.2.3 Project Site Background

The existing HHI campus was first approved by the City in 1983 under Conditional Use Permit (CUP) 83-CP-0465 and Preliminary Site Design 83-SD-0990 for a maximum entitlement of 575,559 sf of hospital (including the 10,200 sf Central Utility Plant) with up to 500 hospital beds, ancillary uses, and 120,000 sf of medical offices. A subsequent lot split separated the HHI campus from the Rhodes MOB property.

Subsequent to these approvals, several modifications have been approved, including the most recent CUP Modification 00724893-PCPM, which allowed the relocation of the existing ambulance bay to the Emergency Department expansion building, construction of a new main entrance canopy and trellis, and the reconfiguration of the parking lot to include an ambulance-only drive aisle and new circulation pattern resulting in a net loss of 27 parking spaces within the HHI campus. Currently, an additional 320,138 sf of hospital uses are allowed under the remaining entitlement.

1.2.4 General Plan and Zoning

The Project site has a General Plan land use designation of Research and Industrial and is in the 5.5 Medical and Science zoning district. Figures 1-3 and 1-4 show the Project site in relation to the

City’s General Plan Land Use Map and Zoning Map, respectively. Implementation of the proposed Project would not require a General Plan Amendment or a zone change.

1.2.5 Proposed Project

The proposed Project would add 436,740 sf of hospital services with 225 beds, approximately 260,000 sf of hospital support services, a 47,550 sf Central Utility Plant, an 8,000 sf auditorium and conference center, 2 parking structures, and surface parking areas. Upon Project buildout, the building area on the Project site would total 1,123,473 sf, representing an increase of 752,290 sf compared to existing conditions. Refer to Table 1.A for a breakdown of Project components.

Table 1.A: Project Components

Use	Entitled (sf)	Existing (sf)	Remaining Entitlements (sf)	Proposed Project (sf)	Total Buildout (Existing + Proposed) (sf)	Net Change (Entitlement) (sf)
Hospital	565,359	245,221 ¹	320,138	436,740	681,961	116,602
Central Utility Plant	10,200	10,200	-	47,550	57,750	47,550
Rhodes Medical Office Building	120,000	115,762	4,238	-	115,762	-
Auditorium	-	-	-	8,000	8,000	8,000
Support Services	-	-	-	260,000	260,000	260,000
Total	695,559	371,183	324,376	752,290	1,123,473	432,152

Source: LPA Architects

¹ Includes 5,627 sf labor and delivery facility currently under construction.

The proposed Project would be constructed in two phases; however, for the purposes of this IS/MND, the entire Project would be evaluated at full build out (Phase 2).

Figure 1-5 shows the site plan. Implementation of the proposed Project would include the following:

- Demolition of the existing auditorium building
- Construction of a loop road to connect Hospital Road to the Sand Canyon Avenue entry for the Project
- Addition of 436,740 sf hospital buildings to support 225 additional in-patient beds
- Addition of 260,000 sf of hospital support services
- Addition of a five-level parking structure (east structure) with 1,252 parking spaces
- Addition of a five-level parking structure (west structure) with 716 parking spaces
- Use of the existing parking lot (approximately 469 parking spaces) south of the HHI campus within a Southern California Edison easement for staff and contractor parking during construction
- Addition of two loading dock lanes and receiving area on the south side of the ancillary building

- Addition of a permanent entrance on the northbound side of Alton Parkway approximately 300 feet south of Sand Canyon Avenue
- Addition of 47,550 sf of new Central Utility Plant along with cooling towers and emergency power generators at grade level
- Lot merger of APNs 466-091-16, -17, -18, and -19
- Addition of 8,000 sf of auditorium and conference center uses

1.2.5.1 Entitlements Summary

Refer to Table 1.A for a summary of existing and proposed entitlements for hospital uses, which would require a modification to CUP 83-CP-0465. As shown in Table 1.A, the proposed Project would require 432,152 sf in additional entitlements under CUP 83-CP-0465.

CUP 83-CP-0465 also entitles up to 120,000 sf of medical office use. The existing Rhodes MOB has a building area of 115,762 sf, which results in 4,238 sf of medical office entitlements remaining under CUP 83-CP-0465.

1.2.5.2 Bed Summary

CUP-83-0465 allows a maximum of 500 beds upon the full build out of the site. Table 1.B provides a breakdown of existing and new beds included as part of the proposed Project. In its existing condition, the HHI campus contains 166 beds. As part of the Project, 225 new beds would be added to the hospital development. The Project proposes a maximum of 391 beds at buildout, which is 109 fewer beds than what was entitled under CUP 83-CP-0465.

Table 1.B: Bed Summary

Building	Number of Beds	Existing or New
Hoag Hospital Irvine	84	Existing
LDRP	12	Existing (under construction)
Hoag Orthopedic Institute	70	Existing
North Campus Addition	137	New
East Wing Intensive Care Unit	24	New
Future West Wing	64	New
Total	391 beds at build out	

Source: Letter of Justification, Modification to CUP-83-0465, LPA (June 10, 2020).

LDRP = Labor, Delivery, Recovery, and Postpartum

1.2.5.3 Parking

Upon build out, parking for the Project would include 31 surface spaces, 1,252 spaces in the east structure, and 716 spaces in the west structure, for a total of 1,999 parking spaces on the Project site. Build-out of the proposed Project would result in a parking requirement of 1,972 spaces; therefore, the proposed Project would provide a surplus of 27 spaces.

During Project construction, approximately 469 parking spaces of temporary staff and contractor parking would be provided at the existing parking lot south of the HHI campus within a Southern California Edison easement.

1.2.5.4 Landscaping

The proposed Project would be required to incorporate landscaping on at least 15 percent of the site. Upon Project build out, the proposed landscaped area would total 278,397 sf and would comprise 25.9 percent of the Project site. As such, the Project would provide more landscaped area than required.

Landscaping improvements proposed as part of the Project include a variety of trees, shrubs, and groundcover, which would be installed throughout the proposed surface parking lots and along the Project site's boundaries. Existing trees would be protected in place when possible.

Landscaping would be irrigated with an electrically operated system using weather sensors and low-volume irrigation. The system would be designed in accordance with the definitions of the City's Sustainability in Landscaping Ordinance (Irvine Municipal Code Section 5-7-103).

1.2.5.5 Vehicular and Pedestrian Access

In the existing condition, vehicular access is provided to the Project site via two existing driveways: one driveway on Sand Canyon Avenue, and a second driveway on Alton Parkway. Pedestrian access is provided via sidewalks along Sand Canyon Avenue and Alton Parkway.

Under the proposed Project, the existing driveway off Sand Canyon Avenue would be improved with the creation of a tree-lined boulevard and promenade leading to an arrival node and decision making point: drop-off and valet to the right, and self-parking and the emergency department to the left. The existing driveway off Alton Parkway would be preserved while a third access point on the same street would be constructed closer to the intersection of Alton Parkway and Sand Canyon Avenue. The new entry would be a two lane 'right-in only' road leading to the Rhodes MOB drop-off circle and adjacent parking structure. All access points would offer direct connections to the two parking structures, aiding way-finding and minimizing vehicular traffic throughout the Project site. Access for service, emergency vehicles, and ambulances would primarily take place using the existing driveway off Alton Parkway. Internal circulation would continue to be provided via an existing loop on Hoag Irvine Road. Pedestrian access would continue to be provided via sidewalks along Sand Canyon Avenue and Alton Parkway.

1.2.5.6 Lighting

Lighting would be installed throughout the Project site, including wall-mounted lighting on the proposed buildings, interior lighting within parking structures, and pole-mounted lighting throughout the surface parking lots. The proposed Project would comply with Sections 5-9-517 and 5-9-518 of the City's Municipal Code, which require that a site plan be provided showing buildings, common areas, and parking structures required to be illuminated. The plan must also provide a light fixture schedule, mounting height, lighting ratio, and a point-by-point photometric calculation of the required light levels. The proposed Project would also comply with the standards from the City's

Municipal Code, Chapter 3-16, Lighting, which requires that outdoor lighting be designed and installed so that all direct rays are confined to the Project site and adjacent properties are protected from glare.

1.2.5.7 Signage

As part of the proposed Project, parking wayfinding signage would be provided on the east and west parking structures. Internally illuminated powder coated aluminum signage panels would be provided at the entrances of the parking structures. An internally illuminated dimensional letter signage with the Hoag logo would be provided on top of both parking structures. Enhanced signage would also be provided at the two main access points to the Project site.

1.2.6 Infrastructure Improvements

1.2.6.1 Water, Sewer, and Storm Drains

Figure 1-6 shows the conceptual utility plan. The proposed Project would require connections to existing on- and off-site infrastructure systems. These systems, which include water, sanitary sewer, and stormwater facilities, would be maintained by the property owner.

- **Potable Water:** The Project site is served by an inner loop which supplies potable water to the existing buildings. This inner loop includes a 10-inch line which connects to 16-inch transmission mains in both Sand Canyon Avenue and Alton Parkway. These existing connections would continue to serve the Project site. Additionally, two new domestic potable water lines would be located on the eastern and western portions of the Project site. A new Non-structural Performance Category 5 (NPC-5) storage tank would be located below grade adjacent to the domestic cold-water pump and water treatment room. NPC-5 storage tanks provide onsite supplies of water and holding tanks for sewage and liquid waste, sufficient to support 72 hours of emergency operations, which are integrated into the building's plumbing systems.
- **Recycled Water:** The Project site is currently being served through two connections to the recycled water system. On the northwest side of the Project site, a 4-inch line connects to a 12-inch line in Sand Canyon Avenue. On the southwest side of the Project site, a 4-inch line connects to an 8-inch line in Alton Parkway. The proposed Project would continue to use these existing connections. An additional connection point exists along Sand Canyon Avenue, but this is not being utilized currently and will not be utilized following Project implementation.
- **Sewer:** The Project site is served via four connections to the sewer collection system: two that discharge into a 15-inch gravity main in Alton Parkway and two that discharge into a 21-inch gravity main in Sand Canyon Avenue. Both gravity mains flow west and combine at the intersection of Alton and Sand Canyon. From there, the flow travels southwest down Sand Canyon Avenue via a 24-inch gravity main for about 750 feet to the 405 freeway where it is discharged into the large gravity main identified as the San Diego Creek Interceptor (SDCI). The proposed Project would continue to use these existing connections. New sewer lines would be installed throughout the interior of the Project site.

- **Storm drains:** Similar to existing conditions, following Project implementation there would be multiple curb inlet catch basins along the loop road to divert storm water runoff to the existing storm drain system which discharges to storm drain mains along Sand Canyon Avenue and Alton Parkway. New storm drain lines would be installed throughout the interior of the Project site. A new storm drain connection is proposed along Sand Canyon Avenue. An offsite storm drain line is proposed immediately adjacent to the southern portion of the Project site. The proposed Project includes 15 Modular Wetlands throughout the Project site to treat stormwater runoff.
- **Service and Utility Tunnels:** As part of the proposed Project, a service tunnel (running north-south) is proposed at the center of the Project site. A utility tunnel (running north-south) is proposed to the west of the service tunnel.

1.2.6.2 Electrical, Natural Gas, and Telecommunications

Existing electrical, natural gas, and telecommunication lines serve the Project site. The proposed Project includes a new 47,550 sf Central Utility Plant. The existing 10,200 sf utility plant will remain in place for a total of 57,750 square feet of utility plant services on the Project site.

The specific planned future improvements related to the proposed Central Utility Plant—equipment, fuel type, and installation methods—are unknown at this time and speculative. Expansion of the Central Utility Plant will be required to undergo separate CEQA review under the South Coast Air Quality Management District (SCAQMD) and future discretionary action by SCAQMD per SCAQMD Regulation XIII, New Source Review.

The proposed Project would include the following improvements.

- **Electrical:** A medium voltage primary metering scheme would be used to distribute a master-metered electricity services to all buildings on the Project site. The Central Utility Plant would be supported with cooling towers and emergency power generators at grade level.
- **Natural Gas:** A new upgraded natural gas meter assembly will be provided adjacent to the existing loading dock next to the hospital building. As part of the Central Utility Plant, a new medium pressure natural gas line will be provided to the east wing hospital expansion for boilers and water heating.
- **Telecommunications:** An AT&T underground conduit only telephone duct bank and Cox Communications underground conduit only Community Access Television (CATV) duct bank would be provided to each building. Additionally, a private underground conduit only duct bank of generator power would be provided to each building except the proposed parking structures.

1.2.7 Earthwork and Grading

In the existing condition, the Project site is flat. Project implementation would involve construction of several new ancillary hospital support buildings and parking structures to support the existing hospital. Grading activities would include the export of approximately 61,700 cubic yards (cy) of soil. There would be approximately 90,700 cy of cut and 29,000 cy of fill.

1.2.8 Construction Duration and Phasing

The proposed Project would be completed in two phases. However, for the purposes of this IS/MND, the entire Project will be evaluated at full build out (Phase 2). Construction of Phase 1 of the proposed Project is anticipated to take place over the course of approximately 48 months, beginning in early 2021 and ending in early 2025. Phase 2 would last approximately 30 months and would be completed around 2030.

Project construction would generally take place in the following stages:

- Stage 1: Site Preparation
- Stage 2: Grading
- Stage 3: Construction
- Stage 4: Paving

During Project construction, construction vehicle trips would be generated on a daily basis. Construction trips would be generated by construction workers commuting to and from the Project site and the delivery of construction materials and equipment. The construction stage with the highest trip generation would be Stage 3, Construction. During this stage of Project construction during Phase 1, there would be 425 worker trips and 185 vendor trips. During Phase 2, there would be 151 worker trips and 68 vendor trips. During Phase 2, the number of haul trips for soil export would total 7,712. For the purposes of the analysis in this IS/MND, it is assumed that construction workers would arrive and depart during peak hours, whereas delivery trucks would arrive and depart throughout the day.

1.3 REQUIRED PERMITS AND APPROVALS

1.3.1 City of Irvine Discretionary Actions

In accordance with Sections 15050 and 15367 of the *State CEQA Guidelines*, the City is the designated Lead Agency for the proposed Project and has principal authority and jurisdiction for CEQA actions and project approval. The City's discretionary actions would include the following:

- **Adoption of this IS/MND:** As part of the proposed Project, the Planning Commission would have the authority to approve the Project and adopt the IS/MND.
- **Lot Merger of APNs 466-091-16, -17, -18, and -19:** Currently, the Project site includes four parcels, with two larger parcels (APNs 466 091-17 and -19) comprising most of the Project site. The two smaller parcels (APNS 466 091-16 and -18) are fully contained by the two larger parcels. The Project would merge APNs 466-091-16, -17, -18, and -19 to combine all of the parcels on the Project site.
- **Modification to the CUP:** Per Chapter 2-19 of the City's Municipal Code, the proposed Project would require a modification to CUP 83-CP-0465.

1.3.2 Ministerial Actions

Ministerial permits/approvals would be issued by the City or other appropriate agency to allow site preparations, curb cuts (if necessary), connections to the utility infrastructure, paving, landscaping, walls and fences, and other Project features subject to ministerial permits.

1.3.3 Probable Future Actions by Responsible Agencies

The proposed Project will require approvals, permits, or authorization from other agencies, classified as “Responsible Agencies” under CEQA. According to Section 15381 of the *State CEQA Guidelines*, a Responsible Agency is defined as a public agency other than the Lead Agency that will have discretionary approval power over the Project or some component of the Project, including mitigation. These agencies include, but are not limited to, the agencies identified in Table 1.C.

Table 1.C: Probable Future Actions by Responsible Agencies

Agency	Action
State Water Quality Control Board	Applicant/Developer must submit Permit Registration Documents to comply with the National Pollutant Discharge Elimination System North Orange County Permit (Order No. R8-2009-030).
South Coast Air Quality Management District (SCAQMD)	Permits required for operation of the Central Utility Plant under SCAQMD Regulation XIII, New Source Review
Regional Water Quality Control Board	Section 401 Water Quality Certification and Issuance of Waste Discharge Requirements.
Office of Statewide Health Planning and Development (OSHDP)	OSHDP will issue the building permit for all proposed hospital buildings.

Source: Compiled by LSA Associates, Inc. (2020).

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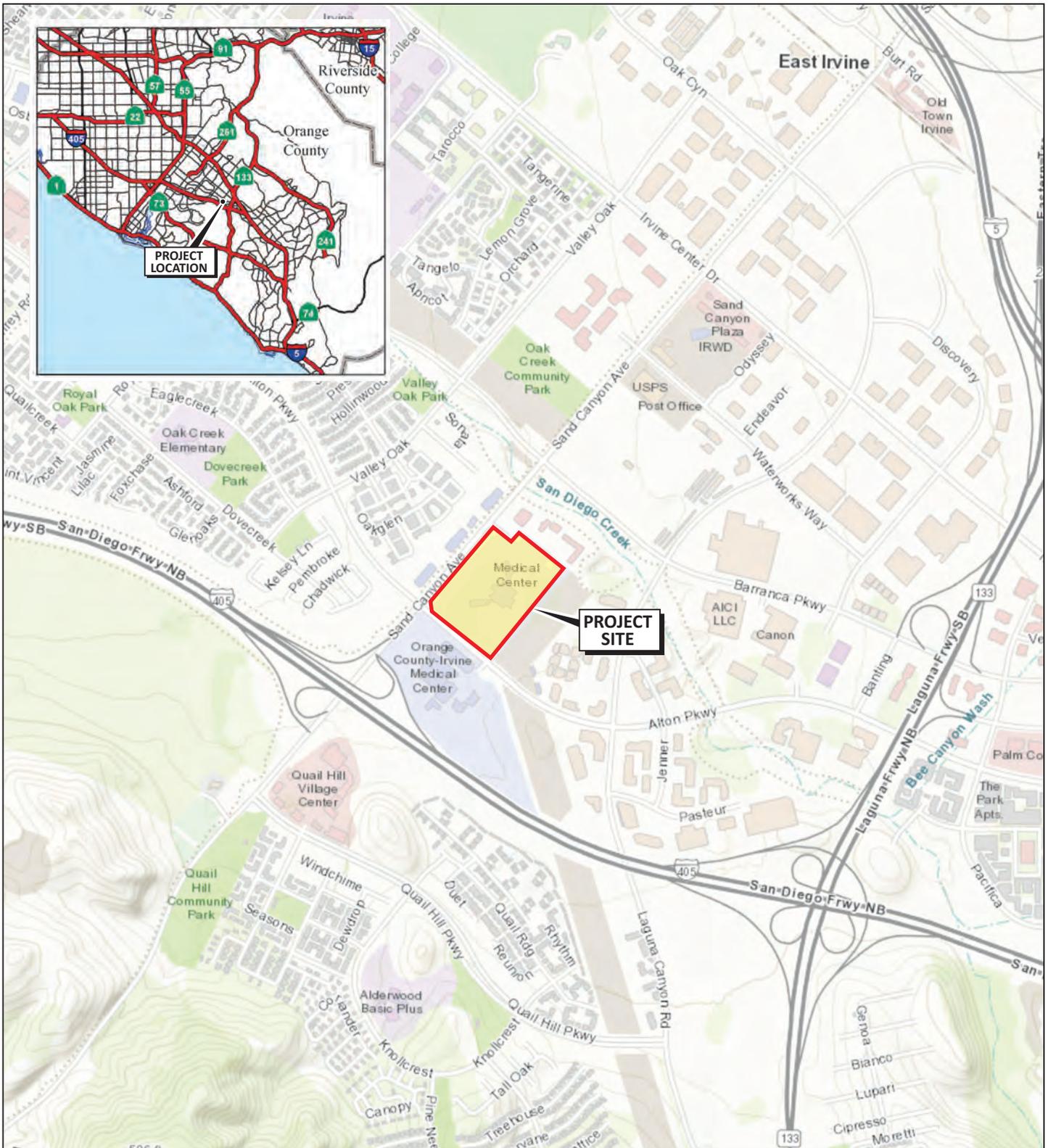


FIGURE 1-1

LSA



SOURCE: ESRI

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Hoag Hospital Irvine
Regional Project Location

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FIGURE 1-2

LSA

LEGEND

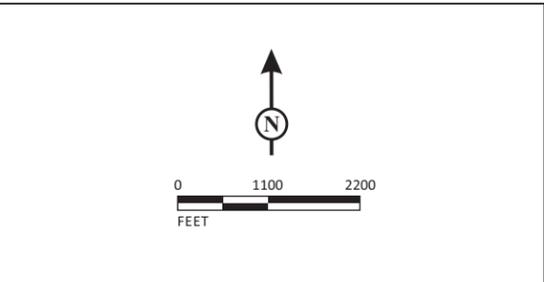
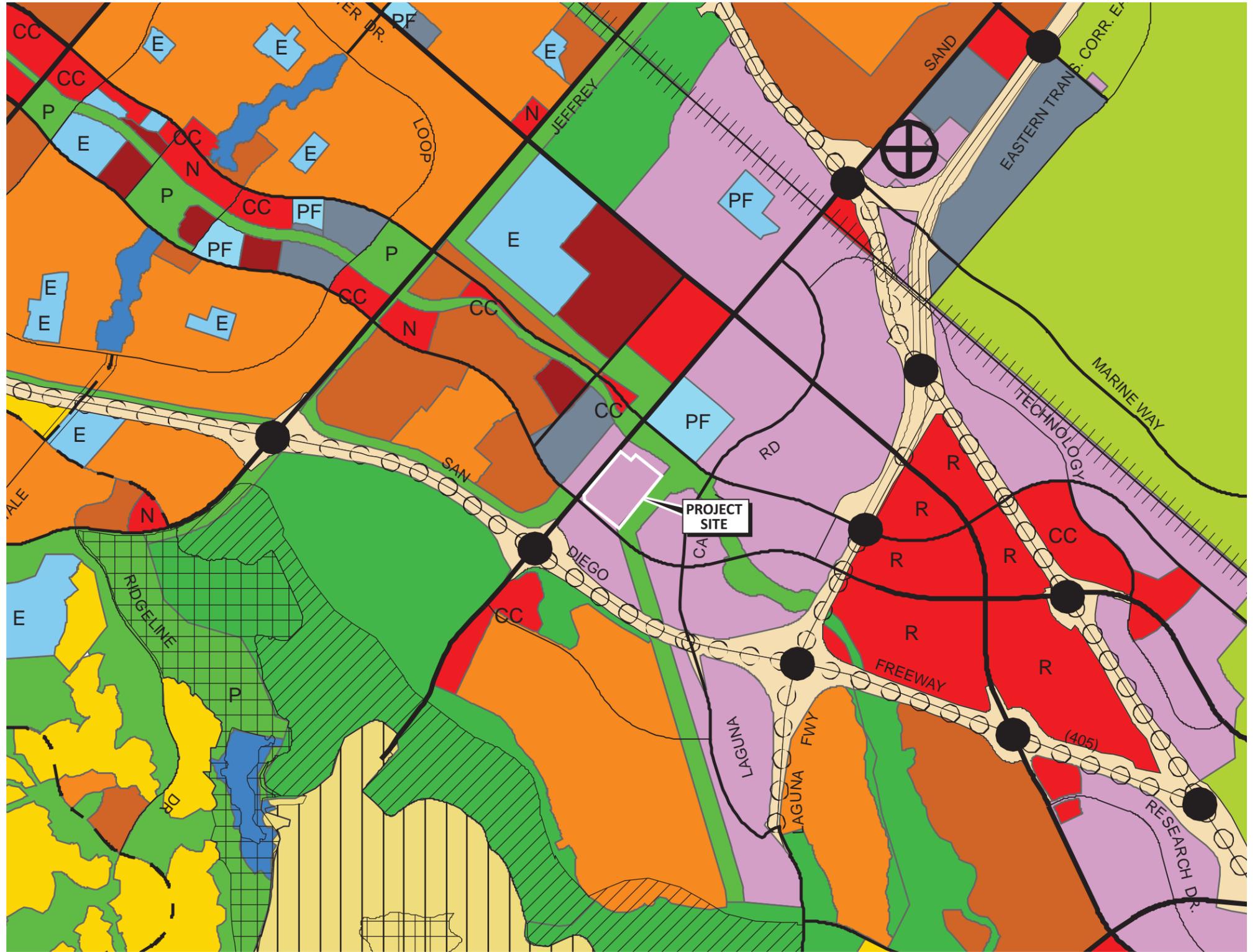
 - Project Boundary



SOURCE: Google Earth

Hoag Hospital Irvine
Existing Project Site

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LSA

FIGURE 1-3

SOURCE: City of Irvine

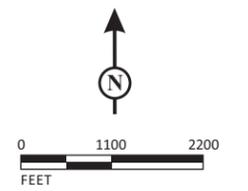
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LEGEND

- City Boundary
- Irvine Sphere of Influence
- Planning Areas
- Railroad Line
- Zoning Codes**
- 1.1 - Exclusive Agriculture
- 1.2 - Development Reserve
- 1.3 - Conservation Open Space Reserve
- 1.4 - Preservation
- 1.5 - Recreation
- 1.6 - Water Bodies
- 1.7 - Landfill Overlay
- 1.8 - Golf Course Overlay
- 1.9 - Orange County Great Park
- 2.1 - Estate Density Residential
- 2.2 - Low Density Residential
- 2.3 - Medium Density Residential
- 2.4 - Medium-High Density Residential
- 2.5 - High Density Residential
- 3.1 - Multi-Use
- 4.1 - Neighborhood Commercial
- 4.2 - Community Commercial
- 4.3 - Vehicle-Related Commercial
- 4.4 - Commercial Recreation
- 4.5 - Regional Commercial
- 4.6 - Retail Office
- 4.7 - Urban Commercial
- 4.8 - Irvine Center Garden Commercial
- 4.9 - LPC Regional Commercial
- 5.0 - IBC Mixed-Use
- 5.1 - IBC Multi-Use
- 5.2 - IBC Industrial
- 5.3 - IBC Residential
- 5.4 - General Industrial
- 5.5 - Medical and Science
- 5.6 - Business Park
- 6.1 - Institutional
- 8.1 - Trails and Transit Oriented Development



LSA

FIGURE 1-4

SOURCE: City of Irvine

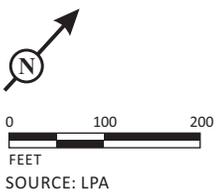
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FIGURE 1-5

LSA



Hoag Hospital Irvine
Site Plan

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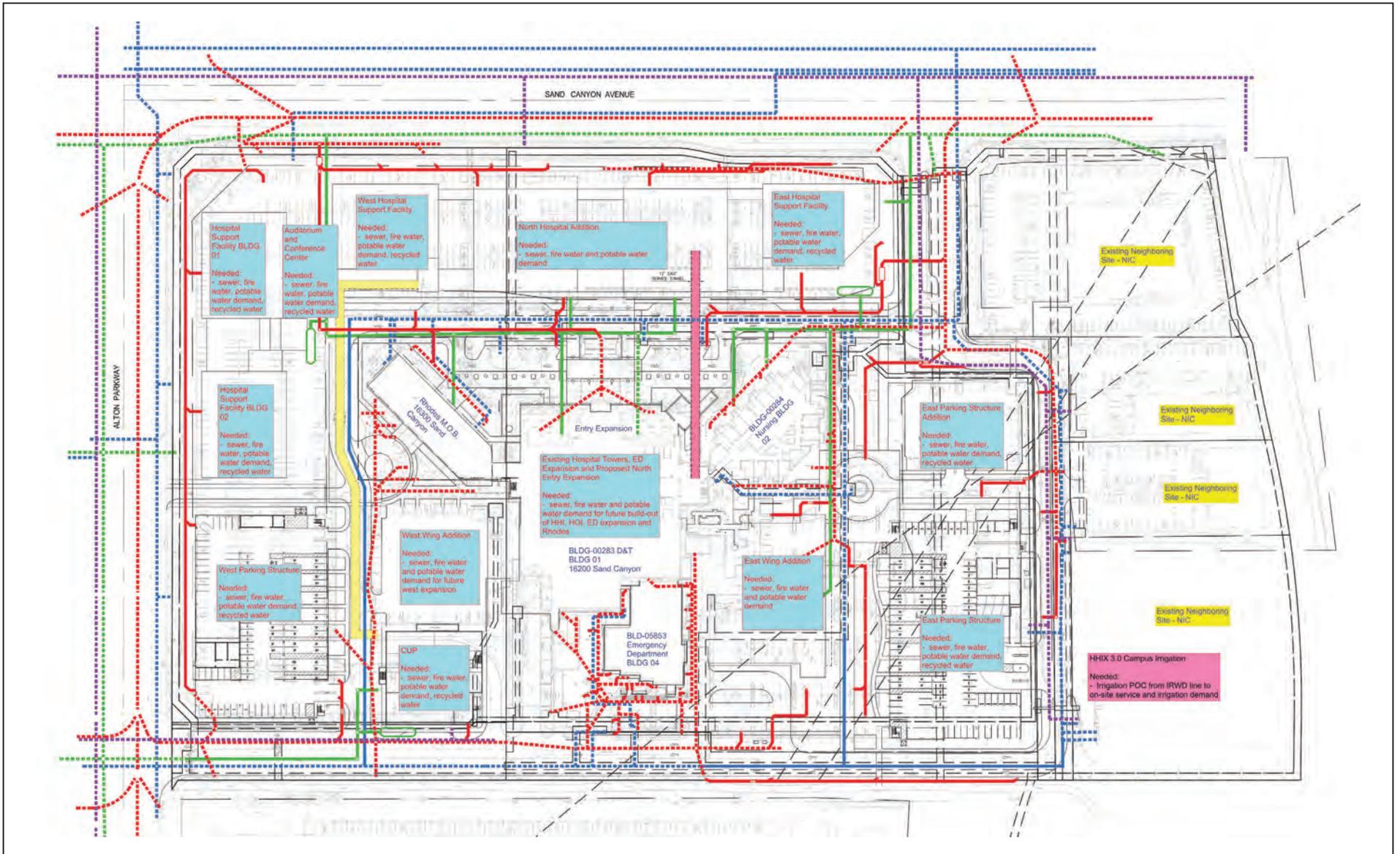
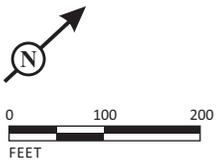


FIGURE 1-6

LSA

LEGEND:

	EXISTING WATER
	EXISTING RECLAIMED WATER
	EXISTING SEWER
	EXISTING STORM DRAIN
	PROPOSED WATER
	PROPOSED SEWER
	PROPOSED STORM DRAIN
	PROPOSED NPC-5 STORAGE TANK
	PROPOSED UTILITY TUNNEL
	PROPOSED SERVICE TUNNEL



SOURCE: kpff

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Hoag Hospital Irvine
Utility Plan

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2.0 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a “Potentially Significant Impact” as indicated by the checklist in Chapter 3.0.

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

2.1 DETERMINATION

On the basis of this initial evaluation:

- I find that the proposed Project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- I find that although the proposed Project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- I find that the proposed Project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- I find that the proposed Project MAY have a “Potentially Significant Impact” or “Potentially Significant Unless Mitigated” impact on the environment, but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
- I find that although the proposed Project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed Project, nothing further is required.

Hernan DeSantos

Signature/Title

October 14, 2020

Date

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3.0 CEQA ENVIRONMENTAL CHECKLIST

3.1 AESTHETICS

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Except as provided in Public Resources Code Section 21099, would the project:				
a. Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. 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 a publicly accessible vantage point.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

3.1.1 Impact Analysis

a. *Would the project have a substantial effect on a scenic vista?*

Less than Significant Impact. A scenic vista is the view of an area that is visually or aesthetically pleasing from a certain vantage point. It is usually viewed from some distance away. Aesthetic components of a scenic vista include (1) scenic quality, (2) sensitivity level, and (3) view access. A scenic vista can be impacted in two ways: a development project can have visual impacts by either directly diminishing the scenic quality of the vista or by blocking the view corridors or “vista” of the scenic resource. Important factors in determining whether a proposed Project would block scenic vistas include the project’s proposed height, mass, and location relative to surrounding land uses and travel corridors.

The Project site is visible from its western and southern boundaries from vehicles and by pedestrians traveling along Sand Canyon Avenue and Alton Parkway, respectively. Views of the Project site from other nearby roadways, such as Interstate 405 (I-405) and Barranca Parkway, are obstructed by intervening land uses and landscaping.

Irvine lies within the coastal and foothill region of central Orange County. According to the City’s General Plan Land Use Element (2015b), portions of Irvine are characterized by undeveloped hills and flatlands and open space areas that provide a backdrop to the residential and business development portions of the city. Figure A-4, Scenic Highways, in City’s General Plan Land Use Element identifies several Major Views within Irvine. The nearest Major Views that face the direction of the Project site include the view looking east from University Drive just east of Ridgeline Drive, which is 1.8 miles (mi) west of the site; and the view looking southwest from Sand Canyon

Avenue just south of Trabuco Road, which is approximately 2 mi northeast of the Project site. Due to distance and intervening land uses, the Project site is not visible from these Major View points. Neither the Project site nor other properties in the Project vicinity provide substantial views of any waterbodies, mountains, hilltops, or any other significant visual resources.

The Project site is currently developed with medical uses and is in an urbanized portion of Irvine predominantly developed with medical, hotel, and office uses. In its existing condition, the Project site contains the HHI campus (ranging from 1 to 5 stories), the 10-story Rhodes MOB, and surface parking lots. At the tallest points, the existing HHI hospital building and Rhodes MOB are 86 feet (ft) and 112 ft in height, respectively. Medical buildings in the vicinity of the Project site range from two to eight stories and are approximately 25 to 75 ft in height. Office and hotel uses in the vicinity of the Project site range from two to three stories in height.

The proposed Project includes the expansion of the existing medical uses and would add approximately 436,740 sf of hospital services with 225 beds, approximately 260,000 sf of hospital support services, a 47,550 sf Central Utility Plant, an 8,000 sf auditorium and conference center, 2 parking structures, and surface parking areas. There are no aesthetic or visual resources on the Project site or in the surrounding vicinity. Upon Project implementation, development on the site would intensify and would result in a lot coverage of approximately 41 percent. However, none of the proposed buildings would exceed the height of the existing 112 ft Rhodes MOB. Buildings and parking structures proposed as part of the Project would range in height from approximately 38 ft to 71.5 ft.

Additionally, the Kaiser Permanente campus, located immediately west of the Project site, is similar in scale and mass as the proposed Project and would be consistent with the proposed development. As such, the proposed development would be consistent with the height and scale of surrounding land uses. Further, in order to preserve views from Sand Canyon Avenue and Alton Parkway, setbacks would be a minimum of 40 ft following Project implementation. For these reasons, implementation of the proposed Project would not have a substantial adverse effect on a scenic vista. Therefore, impacts would be less than significant, and no mitigation is required.

b. Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

Less than Significant Impact. The California Department of Transportation (Caltrans) Scenic Highway Program protects the natural scenic beauty of the State's highways and corridors through its designated scenic highways throughout California. Caltrans defines a scenic highway as any freeway, highway, road, or other public right-of-way that traverses an area of exceptional scenic quality. Other considerations given to a scenic highway designation include how much of the natural landscape a traveler may see and the extent to which visual intrusions degrade the scenic corridor.

The Project site is not in the vicinity of a State Scenic Highway. According to the List of Eligible and Officially Designated State Scenic Highways published by Caltrans, the only State-designated Scenic Highway in Orange County is a 4 mi portion of State Route (SR-) 91 from SR-55 to east of the

Anaheim city limits.¹ This portion of SR-91 is approximately 14 miles north of the Project site. The nearest State highway that is eligible for official designation as a State Scenic Highway is a portion of Pacific Coast Highway (SR-1), which is approximately 15 miles west of the Project site. Due to distance and intervening land uses, no portion of the Project site or surrounding area is viewable from the officially designated portion of SR-91 or the eligible portion of Pacific Coast Highway.

Figure A-4, Scenic Highways, in City's General Plan Land Use Element (2015b) identifies several Scenic Highways and Major Views within Irvine. The portion of Sand Canyon Avenue that the Project site is on is classified as a Scenic Highway. However, as stated in response to Threshold 3.1(a) above, the Project site is not visible from Major View points facing the Project site due to distance and intervening land uses.

Overall, because the Project site is not visible from any eligible or officially-designated State Scenic Highways, the Project would not result in impacts related to the substantial damage of scenic resources within a State Scenic Highway. Therefore, impacts would be less than significant, and no mitigation is required.

c. In non-urbanized areas, would the project substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from a 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?

Less Than Significant Impact. According to the United States Census Bureau, Irvine is within the Los Angeles—Long Beach—Anaheim, CA Urbanized Area.² As described in the *State CEQA Guidelines* Section 15387 and defined by the United States Census Bureau, an “urbanized area” is a central city or a group of contiguous cities with a population of 50,000 or more people, together with adjacent densely populated areas having a population density of at least 1,000 people per square mile.³ Because Irvine is in an urbanized area, the Project site is also within an urbanized area. Further, surrounding land uses in the vicinity of the Project site are representative of urban densities.

The Project site is in an urbanized portion of Irvine and is bounded by Sand Canyon Avenue to the northwest; medical, office, and hotel uses to the northeast with San Diego Creek beyond; Irvine Oaks Executive Park and surface parking lots to the southeast; and Alton Parkway to the southwest. The Project site is currently developed with the HHI campus (ranging from 1- to 5-stories), the 10-story Rhodes MOB, and surface parking lots.

¹ California Department of Transportation (Caltrans). 2015, last modified July 2019. List of Eligible and Officially Designated State Scenic Highways.

² United States Census Bureau. 2010a. Los Angeles—Long Beach—Anaheim, CA Urbanized Area No. 51445.

³ United States Census Bureau. 2010b. Census Urban Area FAQs.

As stated previously, the Project site is visible from its western and southern boundaries from vehicles and by pedestrians traveling along Sand Canyon Avenue and Alton Parkway, respectively. Views of the Project site from other nearby roadways, such as I-405 and Barranca Parkway, are obstructed by intervening land uses and landscaping. Buildings in the vicinity of the Project site include medical, office, and hotel uses that range from one to eight stories and are approximately 25 to 75 ft in height.

According to the City's General Plan Land Use Map, the Project site is designated Research and Industrial, which is intended for the manufacturing, research and development, storage, and distribution of materials or products; administrative, professional, and business offices associated with manufacturing uses; and employee-oriented retail services. Implementation of the proposed Project would not require a General Plan Amendment.

The Project site currently has a zoning designation of 5.5, Medical and Science, and is within Planning Area 13 (Irvine Spectrum 4). Hospital uses are conditionally permitted in Zone 5.5, Medical and Science. The City first approved the existing HHI campus in 1983 under CUP 83-CP-0465, and several modifications to CUP 83-CP-0465 have been processed since its original approval. As part of the Project, another modification to CUP 83-CP-0465 would be required due to the additional 432,152 sf in entitlements proposed. The Project would not require a zone change.

The proposed Project's consistency with the applicable development standards included in Section 3-37-34 of the City's Municipal Code that regulate scenic quality is provided in Table 3.1.A.

As shown in Table 3.1.A, the proposed Project would conform to all applicable development standards in Section 3-37-34 of the City's Municipal Code that regulate scenic quality. Additionally, the Project would be required to conform to all conditions established in the modified CUP. As such, the proposed Project would not conflict with applicable zoning and other regulations governing scenic quality. Therefore, impacts would be less than significant, and no mitigation is required.

Table 3.1.A: Development Standards Consistency Analysis

Standards	Proposed Project Consistency
D. Minimum site size: 10,000 sf.	Consistent. The Project site is 24.5 acres (or 1,067,220 sf), which exceeds the minimum site size of 10,000 sf. Therefore, the proposed Project is consistent with Development Standard D of the Municipal Code.
E. Maximum Site Coverage: 50 percent. When parking structures are provided, coverage may be increased to 66 percent.	Consistent. The proposed Project includes the development of two parking structures. The Project proposes a site coverage of approximately 41 percent, which is below the maximum site coverage requirement of 66 percent. Therefore, the proposed Project is consistent with Development Standard E of the Municipal Code.
F. Maximum Building Height: Buildings proposed higher than 200 feet will require application to the Federal Aviation Administration and approval by the Orange County Airport Land Use Commission.	Consistent. The Rhodes MOB, which would be protected in place upon Project implementation, is approximately 112 ft in height. Buildings and parking structures proposed as part of the Project would range in height from approximately 38 ft to 71.5 ft in height. No existing or proposed structures would exceed 200 ft in height, and therefore, the Project would not require additional approvals through the Federal Aviation Administration or the Orange County Airport Land Use Commission. Therefore, the proposed Project is consistent with Development Standard F of the Municipal Code.
G. Minimum Site Landscaping: 15 percent.	Consistent. Landscaping improvements proposed as part of the Project include a variety of trees, shrubs, and groundcover that would be installed throughout the proposed surface parking lots and along the Project site’s boundaries. Existing trees would be protected in place when possible. Upon Project build out, the proposed landscaped area would total 278,397 sf and would comprise 25.9 percent of the Project site. As such, the Project would provide more landscaped area than the required minimum of 15 percent. Therefore, the proposed Project is consistent with Development Standard G of the Municipal Code.
H. Building Setbacks From: Thruways: 40 ft Parkways: 40 ft Building to building: 10 ft	Consistent. According to the City’s General Plan Circulation Element, Sand Canyon Avenue is classified as a thruway and Alton Parkway is classified as a parkway. The proposed development would have minimum setbacks of 40 ft along Sand Canyon Avenue and Alton Parkway. Additionally, setbacks between buildings would be a minimum of 10 ft. Therefore, the proposed Project is consistent with Development Standard H of the Municipal Code.

Source: City of Irvine. Municipal Code Section 3-37-34.

City = City of Irvine

ft = foot=feet

Rhodes MOB = Rhodes Medical Office Building

ROW = right-of-way

sf = square feet

d. Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Less Than Significant Impact.

Construction. Construction activities would take place only during daylight hours. Any construction-related illumination during evening and nighttime hours would be used for safety and security purposes only and would take place only for the duration required for the temporary construction process. Light resulting from construction activities would not substantially impact sensitive uses, substantially alter the character of surrounding uses, or interfere with the performance of off-site activities. In addition, construction activities are not anticipated to result in flat, shiny surfaces that would reflect sunlight or cause other natural glare. Minor glare from sunlight on construction

equipment and vehicle windshields is not anticipated to impact visibility in the area, because (1) relatively few construction vehicles and pieces of construction equipment would be used on the Project site, and (2) the construction site would be fenced and shielded from pedestrian and vehicular views. In addition, construction vehicles would not operate at night and thus would not create nighttime sources of glare. Therefore, construction of the proposed Project would not create a new source of substantial light or glare that would adversely affect day or nighttime views in the area, and light and glare impacts associated with construction would be less than significant. No mitigation is required.

Operation. In the existing condition, the Project site produces exterior light and glare from lighted surface parking lots and wall-mounted building lighting. Light poles are located throughout the existing surface parking lots and are an existing source of light on the Project site. Existing sources of light in the Project vicinity are typical of medical and office uses and include headlights on nearby roadways, building façade and interior lighting, and pole-mounted lighting in the parking areas of adjacent developments. Lighting from existing distant development within Irvine also contributes to the background lighting in the Project vicinity.

As stated previously, the proposed Project includes the expansion of the existing medical uses and would add approximately 436,740 sf of hospital services with 225 beds, approximately 260,000 sf of hospital support services, a 47,550 sf Central Utility Plant, an 8,000 sf auditorium and conference center, 2 parking structures, and surface parking areas. As part of the Project, lighting would be installed throughout the Project site, including wall-mounted lighting on the proposed buildings, interior lighting within parking structures, and pole-mounted lighting throughout the parking lot. Although the proposed Project includes new lighting, these light sources would be comparable to lighting in the existing condition and would supplement the lighting associated with the current uses on site. All new lighting would comply with applicable regulations of the 2019 State Building Energy Efficiency Standards (Title 24). The proposed lighting sources would be similar to other lighting sources in the Project vicinity and would not generate artificial light levels that are out of character with the surrounding area, which is densely developed and characterized by a high degree of human activity and ambient light during the day and night. Additionally, the proposed Project would comply with the standards from the City's Municipal Code, Chapter 3-16, Lighting, which requires that outdoor lighting be designed and installed so that all direct rays are confined to the Project site and adjacent properties are protected from glare. The proposed Project would also comply with Sections 5-9-517 and 5-9-518 of the City's Municipal Code, which require that a site plan be provided showing buildings, common areas, and parking structures required to be illuminated. The plan must also provide a light fixture schedule, mounting height, lighting ratio, and a point-by-point photometric calculation of the required light levels (refer to Regulatory Compliance Measure RCM-AES-1, below). Although the proposed Project would increase the overall intensity of on-site land uses and associated lighting, the increase in lighting would not result in substantial increases in light intensity at off-site locations. In addition, light intensity diminishes rapidly as an observer moves away from the light source. As such, the intensity of Project-related lighting would be concentrated on site with little potential to create perceptible changes in ambient lighting intensity at off-site, light-sensitive locations.

Daytime glare can result from natural sunlight reflecting from a shiny surface that would interfere with the performance of an off-site activity, such as the operation of a motor vehicle. Reflective surfaces can be associated with window glass and polished surfaces. The buildings proposed as part of the Project would be constructed with materials that would not have the potential to produce a substantial degree of glare.

Nighttime lighting and glare sources from the proposed Project could also include lighting from interior and exterior building lighting, security lighting, signage, parking lot lighting, and vehicle headlights. The nighttime glare produced by these sources would be similar to the existing nighttime glare produced by the buildings and parking lots on the Project site and the surrounding medical and office uses. As such, it would not result in enough glare to be considered substantial or affect nighttime views.

For these reasons, the proposed Project would not create a new source of substantial light or glare that would adversely affect day or nighttime views in the surrounding urban area, and Project impacts would be less than significant. Further, incorporation of RCM-AES-1 would reduce project impacts as related to lighting. No mitigation is required.

Regulatory Compliance Measure. No mitigation is required. The following Regulatory Compliance Measure is an existing regulation that is applicable to the proposed Project and is considered in the analysis of potential impacts related to aesthetics. The City considers this requirement to be mandatory for all projects; therefore, it is not a mitigation measure.

RCM-AES-1 Lighting and Photometric Plan. Prior to the issuance of building permits, as required by Sections 5-9-517 and 5-9-518 of the City's Municipal Code, a site plan shall be provided showing buildings, common areas, and parking structures required to be illuminated. The plan shall also provide illumination for tree landscaping, a tree legend, fixture schedule, mounting height, lighting ratio and a point-by-point photometric calculation of the required light levels. Foot-candles shall be measured at grade on a horizontal plane and conform to a uniformity ratio of six to one (6:1 maximum/minimum). Additionally, the required light source shall be controlled by a photocell device or a time clock with an astronomic feature. The City of Irvine Chief Building Official, or designee, shall review building plans to verify that the lighting design conforms to the requirements of the City of Irvine Municipal Code, as described above.

3.1.2 Cumulative Impacts

Cumulative impact analyses throughout this IS/MND take into account other related projects in the vicinity of the Project site. Related projects that are planned or under construction in the vicinity of the proposed Project are listed in Table 3.1.B.

Cumulative aesthetic impacts may occur if any of the related projects are close enough to the proposed Project to combine with the proposed Project and result in significant adverse changes in visual quality/character, significant view obstruction, cumulative shading of off-site shadow-sensitive uses, and/or significant light or glare impacts on nearby sensitive uses.

Table 3.1.B: Current and Probable Future Projects

Project Name and Location	Use	Approximate Distance from Project Site	Status
2400 Barranca Parkway; 2400 Barranca Parkway	Office	4.0 miles	Under Review
Five Point X; surrounding the intersection of Beacon and Bosque	Mixed-Commercial	2.1 miles	Under Review
District 5 North; south corner of the intersection of Cadence and Merit	Multifamily Residential	3.2 miles	Under Review
Planning Area 34 General Plan Amendment and Zone Change; northeast of the intersection of Wald and Maxwell	Self-Storage	2.8 miles	Under Review
Planning Area 40 General Plan Amendment and Zone Change; south of the intersection of Sand Canyon Avenue and Roosevelt	Self-Storage	1.9 miles	Under Review
Diamond Jamboree Expansion; south of the intersection of Alton Pkwy and Millikan Avenue	Retail and Commercial	4.0 miles	Approved
Salenro; northeastern corner of San Canyon Avenue and Nightmist	Affordable Housing	1.6 miles	Approved
Congregate Care Facility; 16542 Millikan Avenue	Congregate Care Facility	4.0 miles	Approved
Pistola Apartments; northeast corner of Derian Avenue and Kelvin Avenue	Multifamily Residential	4.1 miles	Approved
2055 Main Street; 2055 Main Street	Multifamily Residential	4.7 miles	Approved
2525 Main Street; 2525 Main Street	Multifamily Residential	4.3 miles	Approved
Trilogy Residential; northwest corner of Von Karman Avenue and Campus Drive	Multifamily Residential	4.9 miles	Approved
Banc & Office Hotel; north of the intersection of Dupoint Drive and Teller Avenue	Office and Hotel	4.5 miles	Approved
Park Place Office Building; northeast of the intersection of Carlson Avenue and Michelson Drive	Office	3.9 miles	Approved
Landmark; northwest corner of Martin and Douglas	Office and Hotel	5.0 miles	Approved
17850 Von Karman; 17850 Von Karman	Office	5.3 miles	Approved
Towneplace Hotel; southwest corner of McCabe Way and White Road	Hotel	4.1 miles	Approved
Northwood Town Center Gas Station Renovation; 4760 Irvine Blvd	Commercial	3.6 miles	Approved
15 Degrees South; northeast corner of Main Street and Cartwright Road	Multi-family Residential	4.3 miles	Approved
City of Hope; south of the intersection of Barranca Parkway and Marine Way	Treatment Center and Medical Office	2.4 miles	Approved
Life Time Athletic; southwest corner of the intersection of Irvine boulevard and Pusan Way	Health Club	3.4 miles	Approved
2152-2182 Alton Parkway; 2152-2182 Alton Parkway	Multifamily Residential	4.4 miles	Under Construction
2851 Alton Parkway; 2851 Alton Parkway	Multifamily Residential	3.7 miles	Under Construction
Irvine Gateway; 17150 Von Karman Avenue	Multifamily Residential	4.3 miles	Under Construction
17811 Gillette Avenue; 17811 Gillette Avenue	Multifamily Residential	4.8 miles	Under Construction
Main & Jamboree; southwest corner of Main Street and Jamboree Road	Multifamily Residential	4.1 miles	Under Construction
18722 Gillette Avenue; 18722 Gillette Avenue	Multifamily Residential	4.7 miles	Under Construction

Table 3.1.B: Current and Probable Future Projects

Project Name and Location	Use	Approximate Distance from Project Site	Status
360 Fusion; 17321 Murphy Ave	Multifamily Residential	3.8 miles	Under Construction
Milani Apartments; 18831 Von Karman Avenue	Multifamily Residential	4.9 miles	Under Construction
Elements; northwest corner of Teller Avenue and Elements Way	Multifamily Residential	4.7 miles	Under Construction
Central Park West; northwest corner of Jamboree Road and Michelson Drive	Multifamily Residential	4.3 miles	Under Construction
Staybridge Hotel; Southwest corner of Barranca Parkway and Aston	Multifamily Residential	4.8 miles	Under Construction
17821 Gillette Avenue; 17821 Gillette Avenue	Multifamily Residential	4.7 miles	Under Construction
2602 McGaw Avenue; 2602 McGaw Avenue	Multifamily Residential	4.0 miles	Under Construction
Orchard Hills; south of the intersection of Orchard Hills and Furrow	Single Family and Multifamily Residential	5.5 miles	Under Construction
Spectrum Terrace Office Campus Master Plan; 17100-17900 Laguna Canyon Road	Office	0.6 miles	Under Construction
Great Park Neighborhoods; east of the SR-133 and Irvine Boulevard Interchange	Residential and Nonresidential	3.0 miles	Under Construction
Planning Area 6; west of the intersection of Portola Springs Parkway and Modjeska	Single Family and Multifamily Residential	4.0 miles	Under Construction
Los Olivos Phase 2; southern corner of Irvine Center Drive and Research Drive	Multi-family Residential	1.9 miles	Under Construction
Eastwood; southwest corner of Portola Parkway and Jeffery Road	Single Family Residential	4.2 miles	Under Construction
Spectrum Montessori; 910 Tomato Springs Road	Child Care Facility	4.5 miles	Under Construction
Orange County Great Park; east of the intersection of Great Park Boulevard and Ridge Valley	Recreation	2.0 miles	Under Construction
Innovation Park; East of the intersection of Sand Canyon Avenue and Burt Road	Office	1.2 miles	Under Construction

Source: City of Irvine. Notable Development Projects. Website: <https://cityofirvine.maps.arcgis.com/apps/Shortlist/index.html?appid=2d663ab00d0d4eee8cbcd41a1bae0b93> (accessed September 13, 2020).

All related projects are at a sufficient distance from the Project site to prevent changes to the visual environment within which the proposed Project is located. As detailed above, the proposed Project would not have a substantial adverse effect on a scenic vista, block views of any scenic vistas, nor would the proposed Project contribute to the degradation of the visual character or quality of the site or the surrounding area. In addition, the proposed Project would not conflict with applicable zoning or other regulations governing scenic quality. Therefore, the proposed Project would not contribute to a significant impact with respect to scenic resources, visual character, or lighting.

3.2 AGRICULTURE AND FORESTRY RESOURCES

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state’s inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and the forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.

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

3.2.1 Impact Analysis

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

No Impact. The Project site is currently developed with medical uses and is in an urbanized portion of Irvine predominantly developed with medical, hotel, and office uses. In its existing condition, the Project site contains the HHI campus, the 10-story Rhodes MOB, and surface parking lots. The proposed Project includes the expansion of the existing medical uses and would add approximately 436,740 sf of hospital services with 225 beds, approximately 260,000 sf of hospital support services, a 47,550 sf Central Utility Plant, an 8,000 sf auditorium and conference center, 2 parking structures, and surface parking areas.

The Project site is currently zoned as Zone 5.5, Medical and Science, on the City's Zoning Map; it is not zoned for agricultural uses. The Project site is in an urbanized area and is not currently used for agriculture, and is not designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance on maps prepared pursuant to the California Department of Conservation Division of Land Resource Protection Farmland Mapping and Monitoring Program.¹ The Project site is designated as Urban and Built-Up Land, and as a result, the proposed Project would not impact designated farmlands. No mitigation is required.

b. Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?

No Impact. As stated previously, the Project site is developed with medical uses and is in an urbanized portion of Irvine predominantly developed with medical, hotel, and office uses. The proposed Project includes the expansion of the existing medical uses on the site. The Project site is currently zoned as Zone 5.5, Medical and Science, on the City's Zoning Map, and is not zoned for agricultural uses. Moreover, the Project site is not used for agricultural purposes, nor are there Williamson Act contracts in effect for the site. As a result, the proposed Project would not conflict with existing zoning for agricultural uses or Williamson Act contracts. No mitigation is required.

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

No Impact. As stated previously, the Project site is developed with medical uses and is in an urbanized portion of Irvine predominantly developed with medical, hotel, and office uses. The proposed Project includes the expansion of the existing medical uses on the site. The Project site is currently zoned as Zone 5.5, Medical and Science, on the City's Zoning Map, and is not designated or zoned as forest land or timberland, or for timberland production. As a result, the proposed Project would not result in impacts on timberland resources. No mitigation is required.

d. Would the project result in the loss of forest land or conversion of forestland to non-forest use?

No Impact. As stated previously, the Project site is developed with medical uses and is in an urbanized portion of Irvine predominantly developed with medical, hotel, and office uses. The proposed Project includes the expansion of the existing medical uses on the site. There are no forest or timberland resources on or in the vicinity of the Project site. Implementation of the proposed Project would not result in the loss of forest land or convert forest land to a non-forest use. Therefore, the proposed Project would not result in impacts related to the loss of forest land or the conversion of forest land to non-forest uses. No mitigation is required.

¹ California Department of Conservation, Division of Land Resource Protection. California Important Farmland Finder.

- e. Would the project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?*

No Impact. As stated previously, the Project site is developed with medical uses and is in an urbanized portion of Irvine predominantly developed with medical, hotel, and office uses. The proposed Project includes the expansion of the existing medical uses on the site. It is currently not used for agricultural purposes and is not designed or zoned for forest land. The proposed Project would not convert farmland to a nonagricultural use or convert forest land to a non-forest use. Likewise, the proposed Project would not contribute to environmental changes that could result in conversion of farmland to a nonagricultural use or conversion of forest land to a non-forest use. Therefore, no impacts to farmland or forest land would occur as a result of Project implementation, and no mitigation is required.

3.2.2 Cumulative Impacts

The proposed Project would not result in impacts to agriculture or forestry resources; therefore, the proposed Project would not contribute to cumulative impacts to these resources.

3.3 AIR QUALITY

Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
f. Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
h. Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
i. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

3.3.1 Technical Background

The proposed Project site is in Irvine, part of the South Coast Air Basin (Basin). The South Coast Air Quality Management District (SCAQMD) is the regional government agency that monitors and regulates air pollution within the Basin. The federal Clean Air Act and the California Clean Air Act mandate the control and reduction of specific air pollutants. Under these laws, the United States Environmental Protection Agency (EPA) and the California Air Resources Board (CARB) have established ambient air quality standards (AAQS) for specific "criteria" pollutants, designed to protect public health and welfare. Criteria pollutants include ozone (O₃), carbon monoxide (CO), volatile organic compounds (VOC), nitrogen oxides (NO_x), particulate matter 10 microns or less in diameter (PM₁₀), particulate matter 2.5 microns or less in diameter (PM_{2.5}), sulfur dioxide (SO₂), and lead. These AAQS are levels of contaminants, which represent safe levels that avoid specific adverse health effects associated with each criteria pollutant.

The proposed Project would add 436,740 sf of hospital services, 260,000 sf of hospital ancillary buildings, a new 47,550 sf Central Utility Plant, an 8,000 sf auditorium, and two 5-story parking structures in addition to surface parking uses. Project construction would take place in two phases. Construction on the first phase would begin in 2021 and would finish in 2025. The second phase of construction would span approximately 30 months starting in 2027 until completion in 2030. This air quality analysis analyzed the existing condition, construction, and full operational build out of the completed HHI campus and the Rhodes MOB.

The specific planned future improvements related to the proposed Central Utility Plant—equipment, fuel type, and installation methods—are unknown at this time and speculative. Installation of the equipment associated with the Central Utility plant will be required to undergo separate CEQA review under SCAQMD and future discretionary action by SCAQMD per SCAQMD Regulation XIII,

New Source Review. This evaluation includes emission impacts associated with the construction and operation of the physical building structure of the Central Utility Plant.

3.3.2 Impact Analysis

a. Would the project conflict with or obstruct implementation of the applicable air quality plan?

Less Than Significant Impact. SCAQMD and the Southern California Association of Governments (SCAG) are responsible for formulating and implementing the Air Quality Management Plan (AQMP) for the Basin. The applicable AQMP is the SCAQMD Final 2016 AQMP. The 2016 AQMP incorporates local land use assumptions and regional growth projections developed by SCAG to estimate stationary and mobile source emissions associated with projected population and planned land uses. If a new land use is consistent with the local and the regional growth projections adopted in the 2016 AQMP, then the added emissions are considered to have been evaluated, are contained in the 2016 AQMP, and would not conflict with or obstruct implementation of the regional 2016 AQMP.

For a project to be consistent with the 2016 AQMP, the pollutants emitted from project operation should not exceed the SCAQMD daily thresholds or cause a significant impact on air quality, or the project must already have been included in the AQMP projection. Because the AQMP is based on local General Plans, projects that are deemed consistent with a specific General Plan are usually found to be consistent with the AQMP.

As stated in the Project Description, the proposed Project site has a General Plan land use designation of Research and Industrial and is in the 5.5 Medical and Science zoning district. Implementation of the proposed Project would not require a General Plan Amendment or a zone change. Based on the analysis provided below, construction of the proposed Project would not result in the generation of criteria air pollutants that would exceed SCAQMD thresholds of significance. Operational emissions associated with the proposed Project would also not exceed SCAQMD established significance thresholds for VOC, NO_x, CO, sulfur oxides (SO_x), PM₁₀, or PM_{2.5} emissions. Therefore, the proposed Project is consistent with the 2016 AQMP. Impacts would be less than significant and no mitigation is required.

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

Less Than Significant Impact. The SCAQMD's CEQA *Air Quality Handbook* establishes suggested significance thresholds based on the volume of pollution emitted. The established thresholds evaluate project criteria pollutants in pounds per day (lbs/day) for construction and operations, as such, daily construction thresholds are expected to be higher than project operational daily emissions, due to the use of short-term construction equipment and soil disturbance. According to the CEQA *Air Quality Handbook*, any project in the Basin with daily emissions that exceed any of the following thresholds should be considered as having an individually and cumulatively significant air quality impact:

- **Construction Thresholds**

- 75 lbs/day of VOCs
- 100 lbs/day of NO_x
- 550 lbs/day of CO
- 150 lbs/day of PM₁₀
- 55 lbs/day of PM_{2.5}
- 150 lbs/day of SO_x

- **Operations Thresholds**

- 55 lbs/day of VOCs
- 55 lbs/day of NO_x
- 550 lbs/day of CO
- 150 lbs/day of PM₁₀
- 55 lbs/day of PM_{2.5}
- 150 lbs/day of SO_x

The Basin is currently in nonattainment status for the federal and State standards for O₃ and PM_{2.5}. In addition, the Basin is in nonattainment for the PM₁₀ State standard and in attainment/maintenance for the federal PM₁₀, CO, and NO₂ standards. To meet these standards, SCAQMD has established project-level thresholds for VOCs, NO_x, CO, SO_x, PM₁₀, and PM_{2.5}. SCAQMD's *CEQA Air Quality Handbook* establishes suggested significance thresholds based on the volume of pollution emitted. According to the *CEQA Air Quality Handbook*, any project in the Basin with daily emissions that exceed any of the following thresholds would be considered as having an individually and cumulatively significant air quality impact. The SCAQMD has established thresholds of significance for criteria pollutant emissions generated during both construction and operation of projects in the Basin. Therefore, additional analysis to assess cumulative impacts is not necessary. The following analysis assesses the potential project-level air quality impacts associated with construction and operation of the proposed Project.

Construction Emissions. During Project construction, short-term degradation of air quality may occur due to the release of exhaust and fugitive dust emissions generated during various construction phases such as demolition, site preparation, grading/excavation, building construction, paving, and architectural coatings (painting). Construction equipment emissions are anticipated to include CO, NO_x, VOC, directly-emitted PM_{2.5} or PM₁₀, and toxic air contaminants such as diesel exhaust particulate matter.

Construction-related effects on air quality from the proposed Project would be greatest during the grading phase due to the disturbance and mass excavation of soil. If not properly controlled, these activities would temporarily generate particulate emissions. Sources of fugitive dust would include disturbed soil at the construction site. Unless properly controlled, vehicles leaving the site would deposit dirt and mud on local streets, which could be an additional source of airborne dust after it dries. PM₁₀ emissions would vary from day to day, depending on the nature and magnitude of construction activity and local weather conditions. PM₁₀ emissions would depend on soil moisture, silt content of soil, wind speed, and amount of operating equipment. Larger dust particles would

settle near the source, while fine particles would be dispersed over greater distances from the construction site.

Water or other soil stabilizers can be used to control dust, resulting in emission reductions of 50 percent or more. The SCAQMD has established Rule 403: Fugitive Dust, which would require the applicant to implement measures that would reduce the amount of particulate matter generated during the construction period. The Rule 403 measures that were incorporated in this analysis include:

- Water active sites at least three times daily (locations where grading/excavation is to occur shall be thoroughly watered prior to earthmoving).
- Cover all trucks hauling dirt, sand, soil, or other loose materials, or maintain at least 2 feet (0.6 meter) of freeboard (vertical space between the top of the load and the top of the trailer) in accordance with the requirements of California Vehicle Code Section 23114.
- Reduce traffic speeds on all unpaved roads to 15 miles per hour or less.

In addition to dust-related PM₁₀ emissions, heavy-duty trucks and construction equipment powered by gasoline and diesel engines would generate exhaust emissions of CO, SO_x, NO_x, VOCs, PM₁₀, and PM_{2.5}. If construction activities were to increase traffic congestion in the area, CO and other emissions from traffic would increase slightly while those vehicles idle in traffic. These emissions would be temporary in nature and limited to the immediate area surrounding the construction site.

Construction equipment was estimated using the California Emissions Estimator Model (CalEEMod) Version 2016.3.2. CalEEMod default assumptions were used to estimate the total construction equipment, worker trips, hours of use, and truck trips. The two-phase construction period was evaluated to determine the maximum construction emissions over the duration of the construction period, and to account for the planned break in construction between 2025 and 2027. The proposed Project would require the demolition of an existing parking lot and associated landscaping, which would be hauled off site. Construction would also require an existing 3,260 sf auditorium to be demolished. Additionally, soil would be excavated during site grading and mass excavation construction phases to accommodate subterranean hospital levels and pathways (tunnels) on site. The grading phase would require the cut of 90,700 cubic yards (cy) of soil and the refilling and compacting of 29,000 cy of soil after foundation and subterranean work is completed, resulting in a net total 61,700 cy of soil for export off site. Truck trips associated with the net export soil excavation and removal off site assumed CalEEMod defaults of 16 cy of capacity per truck trip. Each of the 7,712 truck trips represents one-way trips over the course of a 9-month grading and excavation period.

The analysis assumes the proposed Project would use Tier 2 construction equipment, which was included in CalEEMod. The first phase of construction would begin in 2021 and would continue for approximately 4 years, with completion in 2025. The second phase of construction would begin in 2027 and would continue over a 2.5-year period, with scheduled completion in 2030. Table 3.3.A and Table 3.3.B show the maximum daily emissions released during each construction period (i.e., Phase 1 and Phase 2).

Table 3.3.A: Phase 1 Regional Construction Emissions

Construction Phase	Maximum Daily Regional Pollutant Emissions (lbs/day)							
	VOCs	NOx	CO	SOx	Fugitive PM ₁₀	Exhaust PM ₁₀	Fugitive PM _{2.5}	Exhaust PM _{2.5}
Demolition	1.34	33.14	25.33	0.04	0.34	0.92	0.07	0.92
Site Preparation	1.29	33.78	23.64	0.04	7.25	0.95	3.93	0.95
Grading	1.90	51.30	37.47	0.06	3.61	1.33	1.46	1.33
Building Construction	3.24	38.09	33.96	0.10	5.01	0.92	1.35	0.92
Paving	0.99	20.15	17.74	0.02	0.17	0.67	0.04	0.67
Architectural Coating	22.28	2.51	3.99	0.01	0.80	0.10	0.21	0.10
Peak Daily Emissions	22.28	51.30	37.47	0.10	8.19		4.87	
SCAQMD Thresholds	75.00	100.00	550.00	150.00	150.00		50.00	
Significant Emissions?	No	No	No	No	No		No	

Source: Compiled by LSA Associates, Inc. (October 2020).

Note: The emissions presented in this table reflect the impact of the Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule, per the California Air Resources Board's "EMFAC Off-Model Adjustment Factors to Account for the SAFE Vehicles Rule Part One" issued on November 20, 2019. Website: (https://ww3.arb.ca.gov/msei/emfac_off_model_adjustment_factors_final_draft.pdf).

CO = carbon monoxide
lbs/day = pounds per day
NOx = nitrogen oxides
PM_{2.5} = particulate matter less than 2.5 microns
PM₁₀ = particulate matter less than 10 microns
VOC = volatile organic compounds
SCAQMD = South Coast Air Quality Management District
SOx = sulfur oxides

Table 3.3.B: Phase 2 Regional Construction Emissions

Construction Phase	Maximum Daily Regional Pollutant Emissions (lbs/day)							
	VOCs	NOx	CO	SOx	Fugitive PM ₁₀	Exhaust PM ₁₀	Fugitive PM _{2.5}	Exhaust PM _{2.5}
Demolition	1.31	32.72	25.05	0.04	0.19	0.91	0.05	0.91
Site Preparation	1.27	33.75	23.40	0.04	7.25	0.95	3.93	0.95
Grading	1.62	43.56	25.92	0.11	4.84	0.81	1.93	0.80
Building Construction	1.81	27.92	22.75	0.06	2.12	0.86	0.57	0.86
Paving	0.98	20.14	17.64	0.02	0.17	0.67	0.04	0.67
Architectural Coating	32.64	0.90	2.41	0.01	0.34	0.02	0.09	0.02
Peak Daily Emissions	32.64	43.56	25.92	0.11	8.19		4.87	
SCAQMD Thresholds	75.00	100.00	550.00	150.00	150.00		50.00	
Significant Emissions?	No	No	No	No	No		No	

Source: Compiled by LSA Associates, Inc. (October 2020).

Note: The emissions presented in this table reflect the impact of the Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule, per the California Air Resources Board's "EMFAC Off-Model Adjustment Factors to Account for the SAFE Vehicles Rule Part One" issued on November 20, 2019. Website: (https://ww3.arb.ca.gov/msei/emfac_off_model_adjustment_factors_final_draft.pdf).

CO = carbon monoxide
lbs/day = pounds per day
NOx = nitrogen oxides
PM_{2.5} = particulate matter less than 2.5 microns
PM₁₀ = particulate matter less than 10 microns
VOC = volatile organic compounds
SCAQMD = South Coast Air Quality Management District
SOx = sulfur oxides

The analysis used the current version of CalEEMod; however, the model does not incorporate the most recent and approved version of the CARB on-road vehicle Emission FACTor Model, (EMFAC) 2017. CARB has prepared off-model adjustment factors for both EMFAC2014 and EMFAC2017 to account for the impact of federal Safer Affordable Fuel-Efficient Vehicles Rule (SAFE) Part One and the Final SAFE Rule in light-duty vehicles. These adjustments are provided in the form of multipliers

applied to emissions outputs from EMFAC to account for the impact of these rules and actions. These adjustment factors for construction would apply to the worker vehicles, which represent a small portion of the overall construction emissions. Given the small adjustment factor and the low worker emissions, the application of the SAFE adjustments did not change the significance findings of the construction air quality emissions. As described below, adjustments were also made to the operational emissions table.

Table 3.3.A and Table 3.3.B demonstrate that, with compliance with applicable regulatory policy designed to reduce emissions, the proposed Project would not exceed any SCAQMD threshold during construction and no mitigation would be required. Therefore, the proposed Project would not contribute significantly to cumulative impacts on any pollutants for which the region is in nonattainment. Specifically, the proposed Project construction emissions would not exceed the SCAQMD's mass daily thresholds for VOC and NO_x that serve as project and cumulative impact thresholds of significance for gauging regional O₃ impacts. Therefore, the proposed Project's contribution to cumulative air quality impacts would not be cumulatively considerable.

Compliance with SCAQMD Rules 402, 403, and 431.2, which include implementation of standard control measures for diesel equipment emissions, fugitive dust, and construction methods, is a regulatory requirement for all projects in the Basin. Other regulatory measures such as Title 13-Section 2449 of the California Code of Regulations and California Department of Resources Recycling and Recovery (CalRecycle)/Green Building Program regulations would also be implemented for the proposed Project. Through compliance with these regulations as part of applicable policy designed to reduce emissions, the proposed Project would not exceed any SCAQMD threshold or contribute to a substantial increase in regional air emissions. Therefore, the proposed Project would not result in a cumulatively considerable contribution to significant air quality impacts. Cumulative air quality impacts would be less than significant and no mitigation is required.

Operational Emissions Long-term air pollutant emissions associated with operation of the proposed Project include emissions from area, energy, and mobile sources. Area sources emissions are derived from architectural coatings, consumer products, and landscaping. Energy emissions result from on-site natural gas combustion. Mobile-source emissions are from vehicle trips, vendor deliveries, and emergency vehicles during full operation of the Project.

Energy source emissions result from combustion of natural gas for building heating and on-site cooking at the hospital cafeteria. The quantity of emissions is the product of usage intensity (i.e., the amount of natural gas) and the emission factor of the fuel source. Greater building or appliance efficiency reduces the amount of energy for a given activity and thus lowers the resultant emissions. The emission factor is determined by the fuel source, with cleaner energy sources, such as renewable energy, producing fewer emissions than conventional sources. The proposed Project would comply with the 2019 California Green Building Standards Code (CALGreen), which was accounted for in the analysis.

Typically, area source emissions consist of direct sources of air emissions at the Project site. The area source emissions associated with the proposed Project would include emissions from the use of architectural coatings, maintenance equipment, maintenance vehicles, consumer products, and landscaping equipment.

Trip generation rates used in CalEEMod for the proposed Project were based on the project’s trip generation estimates prepared by LSA. The operational hospital and ancillary buildings would generate 10,184 average daily trips (ADT), and the Rhodes MOB would generate 4,029 ADT. As described above, CalEEMod does not account for emission factor adjustments associated with the latest SAFE fuel economy standards. CARB’s off-model adjustment factors were applied to the mobile source emissions outputs from CalEEMod to account for this change in standards.

PM₁₀ emissions result from running engines producing exhaust fumes, tire and brake wear, and the entrainment of dust into the atmosphere from vehicles traveling on paved roadways. Entrainment of PM₁₀ occurs when vehicle tires pulverize small rocks and pavement and the vehicle wakes generate airborne dust. The contribution of tire and brake wear is small compared to the other PM emission processes. Gasoline-powered engines have small rates of particulate matter emissions compared with diesel-powered vehicles.

Table 3.3.C shows emissions from the existing facilities, and operation of Phase 1 of the proposed Project concurrent with construction activities associated with Phase 2. Table 3.3.D shows emissions from the existing facilities and full operational build out of the proposed Project (both Phase 1 and Phase 2).

Table 3.3.C: Phase 1 Project Operational Emissions

Emission Source	Pollutant Emissions (lbs/day)					
	VOC	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
Existing Conditions						
Area Source	8.30	<0.01	0.04	0.00	<0.01	<0.01
Energy Source	0.52	4.69	3.94	0.03	0.36	0.36
Mobile Source	12.96	65.77	167.29	0.57	44.45	12.27
Total Emissions	21.77	70.46	171.27	0.60	44.80	12.62
Phase 1 Operation						
Area Source	16.08	<0.01	0.22	<0.01	<0.01	<0.01
Energy Source	1.02	9.24	7.76	0.06	0.70	0.70
Mobile Source	13.71	61.91	183.53	0.76	69.90	19.05
Phase 1 Emissions	30.81	71.15	191.51	0.82	70.61	19.75
Net New Phase 1 Emissions	9.04	0.59	20.24	0.22	25.81	7.13
Phase 2 Construction Emissions						
Phase 2 Construction Emissions	32.64	43.56	25.92	0.11	8.19	4.87
Phase 1 Operation and Phase 2 Construction						
Total Net New Phase 1 Operation Plus Phase 2 Construction Emissions	41.68	44.25	46.16	0.33	33.99	12.00
SCAQMD Thresholds	55.00	55.00	550.00	150.00	150.00	55.00
Exceeds Threshold?	No	No	No	No	No	No

Source: Compiled by LSA Associates, Inc. (October 2020).

Note: The emissions presented in this table reflect the impact of the Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule, per the California Air Resources Board’s “EMFAC Off-Model Adjustment Factors to Account for the SAFE Vehicles Rule Part One” issued on November 20, 2019. Website: https://ww3.arb.ca.gov/msei/emfac_off_model_adjustment_factors_final_draft.pdf.

CO = carbon monoxide

PM₁₀ = particulate matter less than 10 microns in size

lbs/day = pounds per day

SCAQMD = South Coast Air Quality Management District

NO_x = nitrogen oxides

SO_x = sulfur oxides

PM_{2.5} = particulate matter less than 2.5 microns in size

VOC = volatile organic compounds

Table 3.3.D: Build Out Project Operational Emissions

Emission Source	Pollutant Emissions (lbs/day)					
	VOC	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
Existing Conditions						
Area Source	8.30	<1.00	<1.00	0.00	<1.00	<1.00
Energy Source	<1.00	4.69	3.94	<1.00	<1.00	<1.00
Mobile Source	12.96	65.77	167.29	<1.00	44.45	12.27
Total Project Emissions	21.77	70.46	171.27	<1.00	44.80	12.62
2030 Project Build Out						
Area Source	26.64	<1.00	<1.00	<1.00	<1.00	<1.00
Energy Source	1.76	15.98	13.42	<1.00	1.21	1.21
Mobile Source	16.70	86.99	223.87	1.06	106.76	28.96
Total Build Out Emissions	45.01	102.97	237.29	1.15	107.97	30.17
Net New Build Out Emissions	23.24	32.51	66.02	1.15	63.17	17.55
SCAQMD Thresholds	55.00	55.00	550.00	150.00	150.00	55.00
Exceeds Thresholds?	No	No	No	No	No	No

Source: Compiled by LSA Associates, Inc. (October 2020).

Note: The emissions presented in this table reflect the impact of the Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule, per the California Air Resources Board’s “EMFAC Off-Model Adjustment Factors to Account for the SAFE Vehicles Rule Part One” issued on November 20, 2019. Website: (https://ww3.arb.ca.gov/msei/emfac_off_model_adjustment_factors_final_draft.pdf).

CO = carbon monoxide

PM₁₀ = particulate matter less than 10 microns in size

lbs/day = pounds per day

SCAQMD = South Coast Air Quality Management District

NO_x = nitrogen oxides

SO_x = sulfur oxides

PM_{2.5} = particulate matter less than 2.5 microns in size

VOC = volatile organic compounds

Table 3.3.C shows the combined net new emissions of operation of Phase 1 and construction of Phase 2 compared to the SCAQMD Thresholds of Significance. As shown in Table 3.3.C, operation of Phase 1 concurrent with construction of Phase 2 of the proposed Project would not exceed the significance threshold for daily Project operations. Therefore, the proposed Project would not result in an exceedance of criteria pollutants for daily VOC, NO_x, CO, SO_x, PM₁₀, or PM_{2.5} emissions during operation of Phase 1. The proposed Project would also not result in an exceedance of criteria pollutants for daily VOC, NO_x, CO, SO_x, PM₁₀, or PM_{2.5} emissions during operation of Phase 1 concurrent with construction of Phase 2.

The results shown in Table 3.3.D indicate that the net difference between the existing hospital and Project buildout emissions of criteria pollutants would also not exceed the SCAQMD thresholds of significance. In addition, the proposed Project would be consistent with regulatory measures such as Title 13-Section 2449 of the California Code of Regulations; CalRecycle/Green Building Program regulations would also be implemented for the proposed Project. Through compliance with these regulations as part of applicable policy designed to reduce emissions, the proposed Project would not exceed any SCAQMD threshold or contribute to a substantial increase in regional air emissions. Therefore, operation of the proposed Project would not 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 AAQS, and impacts would be less than significant. No mitigation is required.

c. Would the project expose sensitive receptors to substantial pollutant concentrations?

Less Than Significant Impact. Localized significance thresholds (LSTs) are developed based upon the size or total area of the emissions source from the construction equipment activities, the ambient air quality levels in each source receptor area (SRA) in which the emission source is located, and the distance to the sensitive receptor. The nearest off-site sensitive receptors to the Project site are the Oak Glen Apartment Homes (multifamily low-rise residential complex), located 512 feet (155 meters) northwest of the Project site boundary. LSTs represent the maximum emissions from a project that would not cause or contribute to an exceedance of the most stringent applicable federal or State ambient air quality standard, and are developed based on the ambient concentrations of that pollutant for each SRA. As identified above, for the proposed Project, the appropriate SRA for the LST is SRA 19 (Saddleback Valley).

LSTs only apply to CO, NO_x, PM₁₀, and PM_{2.5} emissions during construction and operation at the discretion of the lead agency. If the total acreage disturbed is less than or equal to 5 acres per day, then SCAQMD’s screening look-up tables can be used to determine if a project has the potential to result in a significant impact. While the total project size is 24.5 acres, based on the estimated construction equipment type and quantity generated in CalEEMod, the amount of area disturbed in 1 day can be estimated. The CalEEMod guidance provides the method to approximate the amount of acreage disturbed per day. For this project, approximately 4.5 acres would be disturbed per day during the grading phase¹ and less during other phases. Thus, the 2- and 5-acre LSTs have been interpolated to derive 4.5-acre thresholds for construction emissions.

Table 3.3.E and Table 3.3.F indicate the on-site emission calculations and thresholds that apply during each Project construction phase.

As detailed in Table 3.3.E and Table 3.3.F, Project construction emissions would not exceed LSTs. Therefore, the Project would not expose sensitive receptors to substantial pollutant concentrations during Project construction.

Table 3.3.E: Phase 1 Localized Construction Emissions

Source	Pollutant Emissions			
	NO _x (lbs/day)	CO (lbs/day)	PM ₁₀ (lbs/day)	PM _{2.5} (lbs/day)
On-Site Emissions	51.2	36.7	8.0	4.8
LSTs	203.0	3,446.0	60.0	23.0
Significant?	No	No	No	No

Source: Compiled by LSA Associates, Inc. (October 2020).

Source Receptor Area 19, based on 4.5-acre construction disturbance daily area.

CO = carbon monoxide

PM_{2.5} = particulate matter less than 2.5 microns in size

LST = localized significance threshold

PM₁₀ = particulate matter less than 10 microns in size

NO_x = nitrogen oxides

¹ Disturbance would reach a maximum of 4.5 acres during the grading phase from the use of two excavators, two scrapers, one grader, one rubber-tired dozer and two loaders for 8 hours per day.

Table 3.3.F: Phase 2 Localized Construction Emissions

Source	Pollutant Emissions			
	NO _x (lbs/day)	CO (lbs/day)	PM ₁₀ (lbs/day)	PM _{2.5} (lbs/day)
On-Site Emissions	33.7	24.7	8.0	4.8
LSTs	203.0	3,446.0	60.0	23.0
Significant?	No	No	No	No

Source: Compiled by LSA Associates, Inc. (October 2020).

Source Receptor Area 19, based on 4.5-acre construction disturbance daily area.

CO = carbon monoxide

PM_{2.5} = particulate matter less than 2.5 microns in size

LST = localized significance threshold

PM₁₀ = particulate matter less than 10 microns in size

NO_x = nitrogen oxides

On-site operational emissions would occur from stationary and mobile sources. On-site vehicle emissions are the largest source of emissions, and the on-site travel routes for the proposed Project would be equivalent to driving over 4.5 acres of surface area. Therefore, the 4.5-acre thresholds would apply during project operations. As detailed in Table 3.3.G, operational emissions would not exceed LSTs. Therefore, the Project would not expose sensitive receptors to substantial pollutant concentrations. By design, the localized impacts analysis only includes on-site sources; however, CalEEMod does not separate on-site and off-site operational emissions. For a worst-case scenario assessment, it was assumed all mobile vehicles average trip lengths are 16.6 miles for home to work and 6.9 miles for other types of trips.

Table 3.3.G: Build Out Localized Operational Emissions

Source	Pollutant Emissions			
	NO _x (lbs/day)	CO (lbs/day)	PM ₁₀ (lbs/day)	PM _{2.5} (lbs/day)
On-Site Emissions	4.3	11.3	5.3	1.5
LSTs	203.0	3,446.0	15.0	5.9
Significant?	No	No	No	No

Source: Compiled by LSA Associates, Inc. (October 2020).

SRA 19, based on 4.5 acre operational daily area

CO = carbon monoxide

PM_{2.5} = particulate matter less than 2.5 microns in size

LST = localized significance threshold

PM₁₀ = particulate matter less than 10 microns in size

NO_x = nitrogen oxides

Although project-level NO_x emissions would generate O₃ precursor emissions (as identified in the tables above) these levels would not exceed any established SCAQMD daily emission thresholds. The Project’s peak operational on-site NO_x emissions amount to 4.3 pounds per day. Due to the incremental size of the proposed Project, the level of emissions is not sufficiently high to use a regional modeling program to correlate health effects on a Basin-wide level. On a regional scale, the quantity of emissions from the Project is incrementally minor. Therefore, impacts related to substantial pollutant concentrations for construction and operation would be less than significant.

California regulates toxic air contaminants (TAC) primarily through Assembly Bill (AB) 1807 (Tanner Air Toxics Act) and AB 2588 (Air Toxics “Hot Spot” Information and Assessment Act of 1987). AB 1807 sets forth a formal procedure for the CARB to designate substances as TACs. Once a TAC is

identified, the CARB adopts an “airborne toxics control measure” for sources that emit designated TACs. If there is a safe threshold for a substance at which there is no toxic effect, the control measure must reduce exposure to below that threshold. If there is no safe threshold, the measure must incorporate toxics best available control technology (T-BACT) to minimize emissions.

Air toxics from stationary sources are also regulated in California under AB 2588. Under AB 2588, TAC emissions from individual facilities are quantified and prioritized by the air quality management district or air pollution control district. High priority facilities are required to perform a Health Risk Assessment and, if specific thresholds are exceeded, are required to communicate the results to the public in the form of notices and public meetings. As described above, the nearest sensitive receptors are more than 500 ft northwest of the Project site. Project construction would take place at various locations throughout the 24.5-acre project site. Air emission concentrations rapidly disperse beyond 300 feet from the source; therefore, at a distance of more than 500 feet, Project construction would not result in substantial concentrations of TAC emissions that would pose a long-term health risk to sensitive receptors within the Project vicinity. Once constructed, any operational sources of TAC emissions (i.e., boilers or generators) would be required to undergo a health risk assessment for permitting requirements to ensure any installed equipment would have a less than significant health risk. As such, the proposed Project would not pose a significant risk from TACs associated with construction or operation of the completed HHI Campus.

Long-Term Microscale (Carbon Monoxide Hot-Spot) Analysis

Vehicular trips associated with the proposed Project would contribute to congestion at intersections and along roadway segments in the Project vicinity. Localized air quality impacts could occur when emissions from vehicular traffic increase as a result of the proposed Project. The primary mobile-source pollutant of local concern is CO, a direct function of vehicle idling time and, thus, of traffic flow conditions. CO transport is extremely limited; under normal meteorological conditions, it disperses rapidly with distance from the source. However, under certain extreme meteorological conditions, CO concentrations near a congested roadway or intersection may reach unhealthy levels, affecting local sensitive receptors (e.g., residents, schoolchildren, the elderly, and hospital patients). Typically, high CO concentrations are associated with roadways or intersections operating at unacceptable levels of service or with extremely high traffic volumes.

An assessment of Project-related impacts on localized ambient air quality requires that future ambient air quality levels be projected. Existing CO concentrations in the immediate Project vicinity are not available. Ambient CO levels monitored at the Mission Viejo Monitoring Station, the closest station with complete monitored CO data, showed a highest recorded 1-hour concentration of 1.4 parts per million (ppm) (the State standard is 20 ppm) and a highest 8-hour concentration of 0.9 ppm (the State standard is 9 ppm) during the past 3 years (2017–2019). The highest CO concentrations would normally occur during peak traffic hours; hence, CO impacts calculated under peak traffic conditions represent a worst-case analysis.

In 2007, the Basin was designated in attainment for CO under both the California Ambient Air Quality Standards and the National Ambient Air Quality Standards. As identified within SCAQMD’s 2003 AQMP and the 1992 Federal Attainment Plan for Carbon Monoxide, peak CO concentrations in the Basin were a result of unusual meteorological and topographical conditions and not a result of

congestion at a particular intersection. A CO hot-spot analysis was conducted at four busy intersections in the Basin at the peak morning and afternoon periods and did not predict a violation of CO standards.¹ Because the SCAQMD modeled intersections do not exceed the CO standards, all intersections within the proposed Project proximity with less volumes of traffic and under less extreme conditions would not exceed the CO standards. Build out of the proposed Project would not produce the volume of traffic required to generate a CO hot-spot. Given the extremely low level of CO concentrations in the project area and the lack of traffic impacts at any surrounding intersections, Project-related vehicles are not expected to contribute significantly to CO concentrations exceeding State or federal CO standards. Therefore, the proposed Project would not expose sensitive receptors to substantial pollutant concentrations, and no mitigation is required.

d. Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Less Than Significant Impact. Emissions that cause nuisance odors may occur during the operation of diesel-fueled equipment during the construction of the proposed Project. However, these emissions would be short in duration and are expected to be isolated to the immediate vicinity of the construction site or transport route. SCAQMD Rules 402, 403, and 431.2, as well as Title 13, Section 2449(d)(d) of the California Code of Regulations, require the Project applicant to include implementation of standard control measures for fugitive dust and diesel equipment emissions. Additionally, operators of off-road vehicles (i.e., self-propelled diesel-fueled vehicles 25 horsepower and up that were not designed to be driven on road) are required to limit vehicle idling to 5 minutes or less; register and label vehicles in accordance with the CARB Diesel Off-Road Online Reporting System; restrict the inclusion of older vehicles into fleets; and retire, replace, or repower older engines or install Verified Diesel Emission Control Strategies (i.e., exhaust retrofits). Additionally, SCAQMD Rule 402 regarding nuisances 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." Adherence to these rules is standard regulatory policy for all development and would reduce impacts from other emissions such as nuisance odors to less than significant levels. Therefore, the proposed Project would not result in other emissions (such as odor) to adversely affect a substantial number of people during construction or operation of the proposed Project. Impacts associated with Project construction would be less than significant; no mitigation is required.

¹ The four intersections were Long Beach Boulevard/Imperial Highway, Wilshire Boulevard/Veteran Avenue, Sunset Boulevard/Highland Avenue, and La Cienega Boulevard/Century Boulevard. The busiest intersection evaluated (Wilshire Boulevard/Veteran Avenue) had a daily traffic volume of approximately 100,000 vehicles and level of service (LOS) E in the morning peak hour and LOS F in the evening peak hour.

3.4 BIOLOGICAL RESOURCES

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

3.4.1 Impact Analysis

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

No Impact. The Project site is currently developed with medical uses and is in an urbanized portion of Irvine predominantly developed with medical, hotel, and office uses. In its existing condition, the Project site contains the HHI campus (comprised of a hospital building, a nursing building, and an emergency department building), the Rhodes MOB, surface parking lots, and ornamental landscaping. In its existing condition, the Project site is highly disturbed and contains only a small amount of ornamental vegetation surrounding the existing buildings, throughout the parking lot, and along the perimeters of the Project site. The disturbed condition of the Project site is generally not suitable to support special-status plant or animal species.

The United States Fish and Wildlife Service (USFWS) Critical Habitat for Threatened & Endangered Species map does not identify any locations of critical habitat within the Project site. The closest known critical habitat is 1.7 miles southwest of the Project site.¹ According to the California Natural Diversity Database, no sensitive plant species have been documented on the Project site or the immediately surrounding area, and no special-status animal species are known to occur or have been observed on the Project site or immediately surrounding area. Additionally, no special-status species are anticipated to be directly affected by the Project due to the lack of suitable habitat on the Project site. Therefore, no impacts to sensitive or special-status plant or animal species would result from implementation of the proposed Project, and no mitigation is required.

b. Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

Less Than Significant Impact. The Project site is highly disturbed and developed with existing medical buildings, surface parking lots, and ornamental landscaping, and does not support any riparian habitat or other sensitive natural community as identified in regional plans, policies, or regulations, or by the California Department of Fish and Wildlife (CDFW) or the USFWS. Freshwater emergent wetland habitat is approximately 100 feet northeast of the Project site and riverine habitat is within San Diego Creek approximately 400 feet northeast of the Project site.² However, the development of the proposed Project would not disturb these sensitive habitats because the proposed Project does not include physical improvements to the creek or offsite areas. Additionally, although construction activities have the potential to result in temporary indirect effects to water quality during construction, which could lead to habitat degradation and associated impacts to special-status species, these potential indirect effects to hydrology and water quality would be avoided or substantially minimized through the implementation of best management practices (BMPs), project design features, and a Water Quality Management Plan (WQMP), as discussed in more detail in Section 4.10, Hydrology and Water Quality. The proposed Project would not introduce nonnative plant species to these sensitive habitats due to the distance between San Diego Creek and the Project site. Further, San Diego Creek provides limited riparian habitat as it is channelized in some areas and is in an urban environment. Therefore, the proposed Project would result in less than significant impacts related to riparian habitat and other sensitive natural communities identified in any local or regional plans, policies, or regulations. No mitigation is required.

c. 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?

Less Than Significant Impact. According to the National Wetlands Inventory managed by USFWS, the Project site does not contain federally protected wetlands. The Project site is entirely outside of streambeds, banks, and riparian habitat. No potential waters of the United States or CDFW jurisdictional areas are on the Project site.

¹ USFWS. 2020a. Critical Habitat for Threatened & Endangered Species. GIS Mapping.

² USFWS. 2020b. National Wetlands Inventory Wetlands Mapper.

Although construction activities have the potential to result in temporary indirect effects to water quality, including a potential increase in erosion and sediment transport into downstream aquatic areas and the contamination of waters from construction equipment, these potential indirect effects to hydrology and water quality would be avoided or substantially minimized through compliance with the requirements of the Construction General Permit, which requires preparation of a Stormwater Pollution Prevention Plan (SWPPP) (refer to RCM-WQ-1 in Section 3.10, Hydrology and Water Quality). Additionally the City's Municipal Code requires the preparation of an Erosion and Sediment Control Plan (refer to RCM-WQ-2 in Section 3.10, Hydrology and Water Quality). The SWPPP and Erosion and Sediment Control Plan would detail Erosion Control and Sediment Control BMPs to be implemented during Project construction to minimize erosion and retain sediment onsite. Adherence to RCM-WQ-1 and RCM-WQ-2 would address erosion-related impacts during construction through implementation of construction site BMPs as detailed in a SWPPP and an Erosion and Sediment Control Plan to avoid erosion and sedimentation impacts to downstream aquatic areas and water quality. As such, implementation of the proposed Project would have a less than significant impact on State or federally protected wetlands. No mitigation is required.

d. Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Less Than Significant Impact. As discussed in response to Threshold a, above, due to the lack of sensitive or special-status species or their habitats on the Project site, the proposed Project would not result in impacts on candidate, sensitive, or special-status animal species. There are no wildlife corridors or wildlife nurseries on the Project site. Given the isolated and disturbed nature of the Project site, it is unlikely that the site serves as an important corridor for animals moving locally, regionally, or in broader migrations. San Diego Creek, which provides a movement corridor for local wildlife, is to the north of the Project site. San Diego Creek would not be directly affected by the construction or operation of the proposed Project because construction activities would not take place within or surrounding the channel. The proposed Project may result in indirect effects to wildlife movement within San Diego Creek due to increased noise, lighting, and other anthropogenic disturbance. However, the wildlife species that occur in the Project vicinity and use San Diego Creek as a movement corridor are adapted to the urban-wildland interface given the extensive urban environment, and the proposed Project would not introduce new affects to the area. However, existing landscaping and trees on site could provide suitable habitat for nesting birds. The proposed Project would avoid impacts on nesting resident and/or migratory birds either by avoiding vegetation removal during the avian nesting season (January 15 through September 15 for raptors and February 15 through August 31 for songbirds) or by implementing RCM-BIO-1. The proposed Project has the potential to impact active migratory bird nests if and to the extent that those trees are removed during the avian nesting season and they contain nests. RCM-BIO-1, below, would address any impacts to nesting resident and/or migratory birds should it be necessary to conduct vegetation removal during the nesting season and nests are present. With implementation of RCM-BIO-1, the proposed Project's potential impacts on nesting migratory birds would be less than significant.

The proposed Project would avoid impacts on the nests of raptors (which are migratory birds) if the existing trees in the ornamental vegetation areas are removed outside the raptor nesting season (January 15 through September 15) and they contain raptor nests. The proposed Project has the potential to impact active raptor nests if and to the extent that (1) those ornamental trees are removed during the raptor nesting season, and (2) special-status or common species of raptors establish nests in the future in any of those ornamental trees prior to their removal. RCM-BIO-1, below, would also address any impact to nesting raptors should it be necessary to conduct vegetation removal during the nesting season and raptors are present. With implementation of RCM-BIO-1, the proposed Project's potential impacts with regard to the disruption of a wildlife corridor or the movement of native wildlife would be less than significant. No mitigation is required.

Regulatory Compliance Measure. No mitigation is required. The following Regulatory Compliance Measure is an existing regulation that is applicable to the proposed Project and is considered in the analysis of potential impacts related to biological resources. The City of Irvine considers this requirement to be mandatory for all projects; therefore, it is not a mitigation measure.

RCM-BIO-1 Nesting Bird Survey and Avoidance. Prior to commencement of grading or demolition, the City of Irvine Director of Development Services, or designee, shall verify that all Project grading and construction plans include specific documentation regarding the requirements of the Migratory Bird Treaty Act (MBTA) (16 United States Code §§ 703–712) and California Fish and Game Code Section 3503. If vegetation removal, construction, or grading activities are planned within the active nesting bird season (January 15 through September 15 for raptors and February 15 through August 31 for songbirds), nesting bird survey(s) shall be conducted by a qualified biologist no more than 3 days prior to ground disturbance, vegetation removal, or other construction activities. Survey areas shall include all area within 500 feet or such activities (including parking lot trees and landscaping) that could potentially be affected by Project-related activities such as noise, vibration, increased human activity, and dust, etc. Should nesting birds be found, an exclusionary buffer shall be established by the qualified biologist, based on consideration of the bird species, the stage of nesting, and the nature of the adjacent construction activity. At a minimum, the exclusionary buffer shall be 300 feet from the nest site in all directions (500 feet for raptors) unless the exclusion zone is reduced through consultation with the California Department of Fish and Wildlife and/or the United States Fish and Wildlife Service, as appropriate. This buffer shall be clearly marked in the field with visible fencing by construction personnel under the guidance of the qualified biologist. Project activities shall be avoided within the buffer zone until the nest is deemed no longer active, as determined by the qualified biologist.

e. Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

Less Than Significant Impact. Existing on-site trees would be protected in-place where possible, however, the proposed Project may result in the removal of some existing ornamental trees. Any removal of trees within the public right-of-way or street landscape and trees defined as having

significant value (e.g., eucalyptus) would be subject to the City's Urban Forestry Ordinance. In the unlikely event that the removal of trees within the public-right-of-way is required, the proposed Project would comply with the City's Urban Forestry Ordinance. There are no trees defined as having significant value on or immediately adjacent to the Project site. Therefore, the proposed Project would not conflict with any local policies or ordinances protecting biological resources, and no mitigation is required.

f. Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

No Impact. The Project site is within the boundaries of the Orange County Central Coastal Natural Communities Conservation Plan (NCCP)¹ but outside the boundaries of the NCCP/Habitat Conservation Plan (HCP) Reserve System. The Project site is in an area identified in the NCCP/HCP as urbanized and is in an area designated for development. In its existing condition, the Project site is developed, and the proposed Project involves the expansion of medical uses that are currently present on site. Therefore, the proposed Project would not conflict with any local, regional, or State HCP or NCCP. The proposed Project would not result in impacts related to conflict with any provisions of an HCP or NCCP, and no mitigation is required.

3.4.2 Cumulative Impacts

The proposed Project would not result in impacts to sensitive or special-status species, riparian habitat, other sensitive natural communities, or wetlands, nor would it conflict with an HCP or NCCP. Therefore, the proposed Project would not contribute to cumulative impacts related to these resources/topics. As discussed above, the proposed Project may require tree removal, which could affect migratory birds and their nests. Similarly, other related projects could remove or disturb trees that could be used for nesting by migratory birds protected under federal and State laws. The proposed Project and other related projects that require tree removal would adhere to the requirements of the MBTA and California Fish and Game Code Section 3503, which would reduce impacts to migratory birds and their nests to less than significant levels. Compliance with the MBTA and California Fish and Game Code Section 3503 would ensure that cumulative impacts to migratory birds would be less than significant. In addition, the proposed Project and other related projects that require removal of street trees would comply with the City's Urban Forestry Ordinance. Compliance with the City's Urban Forestry Ordinance would ensure that cumulative impacts related to conflicts with local policies or ordinances (e.g., a tree preservation policy or ordinance) would be less than significant. Further, the addition of trees on the Project site as part of Project implementation would help avoid cumulative impacts. No mitigation is required.

¹ California Department of Fish and Wildlife (CDFW). 2020. NCCP Plan Summary – County of Orange (Central/Coastal) NCCP/HCP.

3.5 CULTURAL RESOURCES

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

3.5.1 Impact Analysis

a. Would the project cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?

No Impact. CEQA defines a “historical resource” as a resource that meets one or more of the following criteria: (1) listed in, or determined eligible for listing in, the California Register of Historical Resources (California Register); (2) listed in a local register of historical resources as defined in Public Resources Code (PRC) Section 5020.1(k); (3) identified as significant in a historical resource survey meeting the requirements of PRC Section 5024.1(g); or (4) determined to be a historical resource by a project’s Lead Agency (PRC Section 21084.1 and *State CEQA Guidelines* Section 15064.5(a)).

The Project site is currently developed with medical uses and is in an urbanized portion of Irvine predominantly developed with medical, hotel, and office uses. In its existing condition, the Project site contains the HHI campus (comprised of a hospital building, a nursing building, and an emergency department building), the Rhodes MOB, and surface parking lots. The existing buildings were constructed in 1986. Because the buildings are less than 50 years in age, the existing buildings would not be eligible for listing in the California Register. Additionally, the existing buildings are not listed in a local register of historic places, including the City’s Cultural Resources Element and the County of Orange’s (County) List of Historic Sites.¹ There are no known historical resources on the Project site. Therefore, no impacts to historical resources, as defined in *State CEQA Guidelines* §15064.5, would occur as a result of the proposed Project, and no mitigation is required.

b. Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?

Less Than Significant with Mitigation Incorporated. As stated previously, the Project site is currently developed with medical uses and is in an urbanized portion of Irvine predominantly developed with medical, hotel, and office uses. The Project site is currently occupied by several existing buildings and surface parking lots. There are no known archaeological resources on the

¹ OC Parks. Historic Sites. Website: <https://www.ocparks.com/historic> (accessed August 6, 2020).

Project site, and the City's Cultural Resources Element does not identify the Project site as containing any archaeological landmarks.

The Project site was included in a record search conducted at the South Central Coastal Information Center of the California Historical Resources Information System on September 11, 2020 (Records Search File No. 21621.7752).¹ Relevant results were examined for the proposed Project and it was determined that two precontact cultural resources have been previously recorded within approximately 0.25 mile of the Project site: P-30-1304 (a lithic scatter) and P-30-341 (a lithic scatter and habitation debris). One historic-period resource has been recorded within 0.25 mile of the Project site: P-30-1657 (a concrete water tank). Additional research indicates that surficial deposits of the Project site will include Artificial Fill (as a result of previous construction for the existing conditions) underlain by Quaternary alluvium, lake, playa and terrace deposits that date to the Pleistocene and Holocene (ranging from 2.58 million years ago to the present).² These sediments date to a timeframe that includes precontact human occupation in the region. Based on the presence of previously recorded precontact cultural resources in close proximity to the Project site and the age of subsurface sediment deposits of the Project site, there is potential to encounter subsurface cultural resources deposits during ground-disturbing activities included as part of the Project. MM-CUL-1 would require archaeological monitoring and Native American monitoring when excavation activities would extend below Artificial Fill deposits into native soils. Additionally, in the event that archaeological resources are discovered during Project construction, all earthmoving activity within and around the immediate discovery area would be required to be diverted until a qualified archaeologist in consultation with the Native American monitor can assess the nature and significance of the find. Incorporation of MM-CUL-1 would ensure that impacts to archaeological resources remain less than significant in the event that such resources are uncovered. Therefore, impacts to archaeological resources pursuant to *State CEQA Guidelines* §15064.5 would be less than significant with the incorporation of MM-CUL-1. Refer to Section 3.18, Tribal Cultural Resources, for discussion on Project-related impacts to tribal cultural resources.

Mitigation Measure. MM-CUL-1 would be implemented to reduce Project-related impacts to archaeological resources to a less than significant level.

MM-CUL-1 Cultural Resources Monitoring and Accidental Discovery. Prior to the issuance of grading permits, the Applicant/Developer shall retain a qualified archaeological monitor, approved by the City of Irvine (City) Development Services Director or designee. A monitoring plan shall be prepared by the archaeologist and implemented upon approval by the City. The archaeological and Native American monitors shall be present full time during at least the first 10 working days of grading of Phase 1 and at least the first 30 days of grading of Phase 2, when excavation activities extend below Artificial Fill deposits into native soils. No archaeological or Native American monitoring is required during demolition of existing buildings or clearing/grubbing of existing landscape. If determined necessary, further monitoring shall continue until grading and excavation are

¹ The records search was conducted for another project within 0.5-mile of the Project site.

² California Geological Survey (CGS). 2010. *Geological Map of California*. Geologic Data Map No. 2. Website: <https://maps.conservation.ca.gov/cgs/gmc/> (accessed September 15, 2020).

complete or until the qualified archaeologist determines, based on field observations, that there is no likelihood of encountering intact archaeological cultural resources. Alternatively, monitoring shall be reduced from full time to part time or spot-checking if determined appropriate by the qualified archaeologist based on monitoring results.

If cultural materials are discovered during grading or excavation, the construction contractor shall divert all earthmoving activity within and around the immediate discovery area until a qualified archaeologist in consultation with the Native American monitor or tribe can assess the nature and significance of the find. Project personnel shall not collect or move any archaeological materials or human remains and associated materials. To the extent feasible, project activities shall avoid these deposits. Where avoidance is not feasible, the archaeological deposits shall be evaluated for their eligibility for listing on the California Register of Historical Resources. If the deposits are not eligible, avoidance is not necessary. If the deposits are eligible, adverse effects on the deposits must be avoided, or such effects must be mitigated. Mitigation can include, but is not necessarily limited to: excavation of the deposit in accordance with a data recovery plan (see California Code of Regulations [CCR] Title 4(3) Section 5126.4(b)(3)(C)) and standard archaeological field methods and procedures; laboratory and technical analyses of recovered archaeological materials; production of a report detailing the methods, findings, and significance of the archaeological site and associated materials; curation of archaeological materials at an appropriate facility for future research and/or display; an interpretive display of recovered archaeological materials at a local school, museum, or library; and public lectures at local schools and/or historical societies on the findings and significance of the site and recovered archaeological materials. The City Community Services Director, or designee, shall be responsible for reviewing any reports produced by the archaeologist to determine the appropriateness and adequacy of the findings and recommendations.

c. Would the project disturb any human remains, including those interred outside of formal cemeteries?

Less Than Significant Impact. As stated previously, the Project site is currently developed with medical uses and is in an urbanized portion of Irvine predominantly developed with medical, hotel, and office uses. The Project site is currently developed with several existing buildings and surface parking lots; as such, the site has a low likelihood of containing previously undiscovered human remains. There are no known human remains interred on the Project site.

Although the potential to encounter human remains on the Project site is low, buried and undiscovered human remains may be present below the ground surface. Earth-moving activities during Project construction, such as grading and excavation, have the potential to disturb human remains. In the unlikely event that human remains are encountered during ground-disturbing activities, the proper authorities would be notified, and standard procedures for the respectful handling of the human remains would be adhered to in compliance with State Health and Safety Code Section 7050.5 and PRC Section 5097.98, which require that no further disturbance take place

in the event of a discovery or recognition of any human remains on site and that the County Coroner be notified immediately (refer to RCM-CUL-1, below). Therefore, implementation of RCM-CUL-1, which requires compliance with Section 7050.5 of the Health and Safety Code and Section 5097.98 of the PRC, would ensure that potential impacts related to unknown human remains would be less than significant. No mitigation is required.

Regulatory Compliance Measure. No mitigation is required. The following Regulatory Compliance Measure is an existing regulation that is applicable to the proposed Project and is considered in the analysis of potential impacts related to cultural resources. The City of Irvine considers this requirement to be mandatory for all projects; therefore, it is not a mitigation measure.

RCM-CUL-1 Human Remains. In the event that human remains are encountered on the Project site, work within 50 ft of the discovery shall cease and the County Coroner shall be notified immediately consistent with the requirements of California Code of Regulations (CCR) Section 15064.5(e). State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code (PRC) Section 5097.98. Prior to the issuance of grading permits, the City Community and Planning, Building, and Code Enforcement Department Director, or designee, shall verify that all grading plans specify the requirements of CCR Section 15064.5(e), State Health and Safety Code Section 7050.5, and PRC Section 5097.98, as stated above.

3.5.2 Cumulative Impacts

Future development in Irvine could include excavation and grading that could potentially impact cultural resources. In the unlikely event that cultural resources are discovered during Project construction, the cumulative effect of the proposed Project would be the incremental loss of these resources. The proposed Project, in conjunction with other development in Irvine, has the potential to cumulatively impact cultural resources; however, it should be noted that each development proposal received by the City undergoes environmental review pursuant to CEQA. If there is a potential for significant impacts to cultural resources, an investigation would be required to determine the nature and extent of the resources and to identify appropriate mitigation measures. If subsurface cultural resources are assessed and/or protected as they are discovered, impacts to these resources would be less than significant.

Mitigation Measure MM-CUL-1 and Regulatory Compliance Measure RCM-CLU-1 would be implemented during construction of the proposed Project to reduce potential Project impacts by ensuring avoidance, evaluation, and, as applicable, scientific recovery and study in the unlikely event that cultural resources are encountered. Therefore, with implementation of Mitigation Measure MM-CUL-1 and Regulatory Compliance Measure RCM-CLU-1, the contribution of the proposed Project to the cumulative loss of known and unknown cultural resources throughout Irvine would be reduced to below a level of significance.

3.6 ENERGY

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
d. Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

3.6.1 Technical Background

The proposed Project would increase the demand for energy through day-to-day operations and fuel consumption associated with the construction and implementation of the HHI campus improvements. The discussion and analysis provided below are based on data included in the CalEEMod Version 2016.3.2 output, which is included in Appendix A, and fuel efficiencies from the CARB’s EMFAC2017. Estimates of fuel consumption (diesel fuel and gasoline) from construction trucks and construction worker vehicles were based on trip estimates from CalEEMod and fuel efficiencies from CARB EMFAC2017.

3.6.2 Impact Analysis

a. *Would the project result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation?*

Less Than Significant Impact. The anticipated construction schedule would take place in two construction phases: (1) The first phase would take place over approximately 48 months beginning in 2021, and (2) The second phase would take place over approximately 30 months beginning in 2027 for a complete Project build out in 2030. The first phase would require demolition of parts of the existing landscape features and parking lot, site preparation, grading/excavation, building construction, paving, and architectural coatings. The second phase of construction would require demolition, site preparation, grading/excavation, building construction, paving, and architectural coatings (painting). Petroleum fuels (e.g., diesel and gasoline) would be the primary sources of energy for these activities. To increase energy efficiency on the site during project construction, the project would restrict equipment idling times to 5 minutes or less and would require construction workers to shut off idle equipment.

Based on the proposed Project’s anticipated construction schedule, equipment, and worker/truck trips, the proposed Project’s construction activities would consume an estimated 345,838 gallons of gasoline and 480,687 gallons of diesel fuel.¹ Based on fuel consumption obtained from EMFAC2017,

¹ California Air Resources Board, 2020. *MSEI - Documentation - Off-Road - Diesel Equipment*. Website: <https://ww2.arb.ca.gov/our-work/programs/mobile-source-emissions-inventory/road-documentation/msei-documentation-road> (accessed September 2020).

vehicle trips in Orange County in 2020 will consume 1,247,129,445 gallons of gasoline and 166,473,234 gallons of diesel fuel. As such, construction of the proposed Project would increase the annual gasoline usage in Orange County by 0.03 percent and diesel fuel use in Orange County by 0.29 percent. As such, Project construction would have a negligible effect on local and regional energy supplies.

In addition, construction activities are not anticipated to result in an inefficient use of energy, as gasoline and diesel fuel would be supplied by construction contractors who would conserve the use of their supplies to minimize their costs on the Project. Energy usage on the Project site during construction would be temporary in nature and would be relatively small in comparison to the State’s available energy sources. Construction activities would not involve the consumption of natural gas.

Energy use consumed during operation of the proposed Project would be associated with electricity consumption and fuel used for vehicle trips associated with the proposed Project. Energy consumption was estimated for the proposed Project using default energy intensities by building type in CalEEMod. In addition, the proposed buildings would be constructed to current 2019 CALGreen standards, a factor included in CalEEMod inputs. Electricity usage estimates associated with the proposed Project are shown in Table 3.6.A.

Table 3.6.A: Estimated Operational Annual Energy Use

Land Use	Electricity Use (kWh/year)	Natural Gas (kBtu/year)	Patient and Employee Vehicle Gasoline (gallons/year) ¹
Existing Hospital	4,259,490	15,978,600	448,733
Existing Medical Office Building	1,896,180	1,253,700	359,753
Existing Utility Plant	98,430	225,420	0
Totals	6,254,100	17,457,720	808,486
Proposed Build Out			
Hospital	15,047,400	57,159,200	1,738,350
Medical Office Building	1,619,510	1,058,060	359,753
Parking Structures	4,612,990	0	0
Auditorium	111,920	73,120	0
Utility Plant	487,987	1,206,980	0
Totals	21,879,807	59,497,360	2,098,103
Net Difference	15,625,707	42,039,640	1,289,617

Source: Compiled by LSA Associates Inc. (October 2020).

¹ Gasoline consumption was estimated using the EPA’s average fuel economy of 22 mpg for light-duty vehicles in the United States.

EPA = United States Environmental Protection Agency

kWh = kilowatt hours

kBTU = 1,000 British thermal units

In addition to electricity consumption, the proposed Project would result in energy usage associated with gasoline to fuel project-related trips. Based on the CalEEMod analysis, the proposed Project would result in 46,158,268 VMT per year.¹

The average fuel economy for light-duty vehicles (automobiles, pickups, vans, and sport utility vehicles) in the United States has steadily increased from about 14.9 miles per gallon (mpg) in 1980 to 22.0 mpg in 2015.² Therefore, using the EPA fuel economy estimates for 2015, the proposed Project would result in the consumption of 1,998,103 gallons of gasoline per year.

The proposed Project also includes construction of a new 47,500 sf Central Utility Plant that would accommodate new equipment to support the energy needs of the proposed Project. The new equipment would offset the energy requirements of the hospital. However, precise energy estimates for the new equipment are unknown at this time; therefore, this energy assessment assumes all power would be supplied by Southern California Edison.

As shown in Table 3.6.A, the net estimated potential increased electricity demand associated with the proposed Project is 15,625,707 kilowatt-hours (kWh) per year. In 2018, California consumed 284,436 gigawatt hours (GWh) or 284,436,261,624 kWh.³ Of this total, Orange County consumed 20,197 GWh or 20,196,974,897 kWh. Therefore, electricity demand associated with the proposed Project would only be 0.01 percent of Orange County's total electricity demand.

In addition, the proposed Project would result in energy usage associated with gasoline to fuel project-related trips. As shown above in Table 3.6.A, the net increase in vehicle trips associated with the proposed Project would consume 1,289,617 gallons of gasoline per year. In 2015, vehicles in California consumed approximately 15.1 billion gallons of gasoline.⁴ Therefore, gasoline demand generated by vehicle trips associated with the proposed Project would be a minimal fraction of gasoline and diesel fuel consumption in California.

The proposed Project would provide energy reduction strategies through use of new energy efficient appliances and equipment, incorporate infrastructure for future photovoltaic solar cells on the new parking structures, and comply with current CALGreen standards, which would help to reduce energy consumption.

The proposed Project would not result in the wasteful, inefficient, or unnecessary consumption of fuel or energy and would incorporate renewable energy or energy efficiency measures into building

¹ Trip generation rates were calculated by LSA; data is available in Section 3.17, Transportation, of this report.

² United States Department of Transportation. "Table 4-23: Average Fuel Efficiency of U.S. Light Duty Vehicles." Bureau of Transportation Statistics. Website: https://www.bts.gov/archive/publications/national_transportation_statistics/table_04_23/ (accessed September 2020).

³ California Energy Commission. 2018. Energy Consumption Data Management Service. Electricity Consumption by County. Website: <http://www.ecdms.energy.ca.gov/elecbycounty.aspx> (accessed September 2020).

⁴ California Energy Commission. 2017. California Gasoline Data, Facts, and Statistics. Website: <https://www.energy.ca.gov/data-reports/energy-almanac/transportation-energy/california-gasoline-data-facts-and-statistics> (accessed September 2020).

design, equipment use, and transportation. Therefore, construction and operation period impacts related to consumption of energy resources would be less than significant and no mitigation is required.

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

Less Than Significant Impact. In 2002, the State Legislature passed Senate Bill (SB) 1389, which required the California Energy Commission (CEC) to develop an integrated energy plan every 2 years for electricity, natural gas, and transportation fuels, for the California Energy Policy Report. The plan calls for the State to assist in the transformation of the transportation system to improve air quality, reduce congestion, and increase the efficient use of fuel supplies with the least environmental and energy costs. To further this policy, the plan identifies a number of strategies, including assistance to public agencies and fleet operators in implementing incentive programs for zero-emission vehicles and their infrastructure needs, and encouragement of urban designs that reduce VMT and accommodate pedestrian and bicycle access. The Clean Energy and Pollution Reduction Act (SB 350) established clean energy, clean air, and GHG reduction goals, the implementation for which the CEC is working with other State agencies. SB 350 increases California's renewable electricity procurement goal from 33 percent by 2020 to 50 percent by 2030.

The CEC recently adopted the 2019 Integrated Energy Policy Report.¹ The 2019 Integrated Energy Policy Report provides the results of the CEC's assessments of a variety of energy issues facing California. Many of these issues will require action if the State is to meet its climate, energy, air quality, and other environmental goals while maintaining energy reliability and controlling costs.

The 2019 Integrated Energy Policy Report covers a broad range of topics, including implementation of SB 350, integrated resource planning, distributed energy resources, transportation electrification, solutions to increase resiliency in the electricity sector, energy efficiency, transportation electrification, barriers faced by disadvantaged communities, demand response, transmission and landscape-scale planning, the California Energy Demand Preliminary Forecast, the preliminary transportation energy demand forecast, renewable gas (in response to SB 1383), updates on Southern California's electricity reliability, the natural gas outlook, and climate adaptation and resiliency.

As indicated above, energy usage on the Project site during construction would be temporary in nature. In addition, energy usage associated with operation of the proposed Project would be relatively small in comparison to the State's available energy sources, and energy impacts would be negligible at the regional level. Because California's energy conservation planning actions are conducted at a regional level, and because the Project's total impact on regional energy supplies would be minor, the proposed Project would not conflict with or obstruct California's energy conservation plans as described in the CEC's 2019 Integrated Energy Policy Report. As shown above, the proposed Project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency; therefore, impacts would be less than significant. No mitigation is required.

¹ California Energy Commission. 2019. *2019 Integrated Energy Policy Report*. Publication Number: CEC-100-2019-001-CMF.

3.7 GEOLOGY AND SOILS

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii. Strong seismic ground shaking?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iii. Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv. Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The following section is based on the *Geotechnical Exploration Report Proposed Hospital Expansion Project Hoag Hospital Irvine 16200 Sand Canyon Avenue Irvine, California* (Geotechnical Assessment) prepared by Leighton Consulting, Inc. on March 11, 2020. This report is provided in Appendix B of this IS/MND.

3.7.1 Impact Analysis

- a. *Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:*
 - i. *Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.*

Less than Significant Impact. According to the Geotechnical Assessment, no known active faults have been mapped across the Project site, and the site is not within a designated Alquist-Priolo Earthquake Fault Zone. Therefore, the potential for surface fault rupture is expected to be low for the Project site. According to the United States Geological Survey Earthquake Hazards Program

National Seismic Hazard Maps, the closest active faults to the Project site are the San Joaquin Hills fault, the Newport-Inglewood Fault Zone and the Elsinore Fault Zone, which are 0.18 mi, 9 mi and 14.9 mi from the Project site, respectively. The San Joaquin Hills fault is a blind thrust fault that is concealed at depth and has a low likelihood for surface fault rupture. The San Andreas fault, which is the largest active fault in California, is approximately 45 mi northeast of the Project site. Therefore, although the proposed Project is in a seismically active region, potential Project impacts related to the rupture of a known earthquake fault would be less than significant. No mitigation is required.

ii. Strong seismic ground shaking?

Less Than Significant with Mitigation Incorporated. As with all of Southern California, the Project site is subject to strong ground motion resulting from earthquakes on nearby faults. As discussed in response to Threshold 3.7(a)(i), there are several active faults in the vicinity of the Project site that are capable of producing strong ground motion, including the San Joaquin Hills fault, the Newport-Inglewood Fault Zone and the Elsinore Fault Zone. During an earthquake along any of these faults or other faults in the region, seismically induced ground shaking would be expected. The severity of the shaking would be influenced by the magnitude of the earthquake, the distance of the site to the seismic source, the soil conditions, the depth to groundwater, and the duration of the seismic event.

Peak ground acceleration (PGA) is a measure of earthquake acceleration on the ground and an important input parameter for earthquake engineering. Based on the Geotechnical Assessment, a design-level PGA of 0.57 acceleration of gravity (g) has been calculated for the Project site. This acceleration is consistent with other areas in this region of California that are underlain by similar geologic materials and indicates that strong seismic ground shaking generated by seismic activity is considered a potentially significant impact that may affect people or structures on the Project site.

MM-GEO-1 requires the Project Applicant/Developer to comply with the recommendations of the Geotechnical Assessment, which stipulates appropriate seismic design provisions that shall be implemented with Project design and construction. The proposed Project would adhere to the California Building Code, including the seismic standards therein, consistent with MM-GEO-1. With the implementation of MM-GEO-1, potential Project impacts related to seismic ground shaking would be reduced to a less than significant level.

Mitigation Measure. MM-GEO-1 would be implemented to reduce Project-related impacts to geology and soils to a less than significant level.

MM-GEO-1 Compliance with the Recommendations in the Project Geotechnical Assessment. The Applicant/Developer's construction contractor shall implement the recommendations of the *Geotechnical Exploration Report Proposed Hospital Expansion Project Hoag Hospital Irvine 16200 Sand Canyon Avenue Irvine, California* (Geotechnical Assessment) (Leighton Consulting, Inc., March 11, 2020) prepared for the proposed Project, as applicable to the satisfaction of the City of Irvine's Chief Building Official, or designee.

Additional site testing and final design evaluation shall be conducted by the Project Geotechnical Consultant to refine and enhance these requirements. The Applicant/Developer shall require the Project Geotechnical Consultant to assess whether the requirements in that report need to be modified or refined to address any changes in the Project features that occur prior to the start of grading. If the Project Geotechnical Consultant identifies modifications or refinements to the requirements, the Applicant/Developer shall require appropriate changes to the final Project design and specifications. Design, grading, and construction shall be performed in accordance with the requirements of the City of Irvine Municipal Code and the California Building Code (CBC) applicable at the time of grading, appropriate local grading regulations, and the requirements of the Project Geotechnical Consultant as summarized in a final written report, subject to review by the City of Irvine Director of Public Works—or designee—prior to issuance of grading permits.

Grading plan review shall also be conducted by the Director of Public Works, or designee, prior to the start of grading to verify that the requirements developed during the geotechnical design evaluation have been appropriately incorporated into the project plans. Design, grading, and construction shall be conducted in accordance with the specifications of the Project Geotechnical Consultant as summarized in a final report based on the CBC applicable at the time of grading and building, and the City's Building Code. On-site inspection during grading shall be conducted by the Project Geotechnical Consultant and the City of Irvine Director of Public Works/City Engineer, or designee, to ensure compliance with geotechnical specifications as incorporated into Project plans. Prior to the issuance of grading permits, the Project Geotechnical Consultant shall submit a Final Testing and Observation Geotechnical Report to the City of Irvine Director of Public Works/City Engineer, or designee.

iii. Seismic-related ground failure, including liquefaction?

Less Than Significant Impact. The secondary effects of seismic activity that are typically considered to be potential hazards to a particular site include several types of ground failure. The general types of ground failure that can occur as a consequence of severe ground shaking include landslides, ground subsidence, ground lurching, and shallow ground rupture, as well as liquefaction-induced vertical settlement, lateral spreading, and surface manifestation of liquefaction. The probability of the occurrence of each type of ground failure depends on the severity of the earthquake, distance from the causative fault, topography, soil and groundwater conditions, and other factors.

Liquefaction is the loss of soil strength or stiffness due to a buildup of pore-water pressure during severe ground shaking. Liquefaction is associated primarily with loose (low density), saturated, fine-to-medium grained, cohesionless soils. Effects of liquefaction can include sand boils, settlement, and bearing capacity failures below structural foundations. Based on review of the State of California Seismic Hazard Zones Map for the Tustin Quadrangle, the Project site is not within an area that has been identified by the State of California as being potentially susceptible to the occurrence of

liquefaction.¹ Additionally, a quantitative liquefaction evaluation conducted in the Geotechnical Assessment indicated that the potential for liquefaction on the Project site is low; the low liquefaction potential is based on a peak horizontal ground acceleration of 0.58 g, a Moment Magnitude of 7.0, and historically high groundwater of 40 feet below grade.

Because liquefaction is not considered a hazard on the Project site, seismically induced lateral ground displacements are also not considered to be hazards at the site. Additionally, the potential for seismically induced landslides is considered low due to the absence of slopes at the Project site. In addition, the Project site is not located within an area that has been identified by the State of California as being potentially susceptible to seismically induced landslides. Therefore, the Project's potential impacts related to seismic-related ground failure, including liquefaction, would be less than significant. No mitigation is required.

iv. Landslides?

Less than Significant Impact. The Project site and vicinity are relatively flat, and the potential for seismically induced landslides is considered low due to the absence of slopes at the site. In addition, based on the State of California Seismic Hazard Zones Map for the Tustin Quadrangle, the Project site is not within an area that the State of California has identified as being potentially susceptible to seismically induced landslides.² Further, according to the California Geological Survey's Landslide Inventory, there are no recorded landslides within the Project site's vicinity.³ Therefore, potential Project impacts related to landslides would be less than significant. No mitigation is required.

b. Would the project result in substantial soil erosion or the loss of topsoil?

Less Than Significant Impact. The ground surface cover surrounding the existing buildings on the Project site generally consists of paved parking lots and walkways, drive lanes, and landscaping throughout the site. As discussed in Section 3.10, Hydrology and Water Quality, during Project construction activities, soil would be exposed and disturbed, drainage patterns would be temporarily altered during grading and other construction activities, and there would be an increased potential for soil erosion and siltation compared to existing conditions. Additionally, during a storm event, soil erosion and siltation could occur at an accelerated rate. The Construction General Permit requires preparation of a SWPPP (refer to RCM-WQ-1 in Section 3.10, Hydrology and Water Quality) and the City of Irvine Municipal Code requires preparation of an Erosion and Sediment Control Plan (refer to RCM-WQ-2 in Section 3.10, Hydrology and Water Quality). The SWPPP and the Erosion and Sediment Control Plan would detail Erosion Control and Sediment Control BMPs to be implemented during Project construction to minimize erosion and to retain sediment on the Project site. With compliance with the requirements of the Construction General Permit and with implementation of the construction BMPs, construction impacts related to soil erosion and loss of topsoil would be less than significant, and no mitigation is required.

¹ California Geological Survey (CGS; formally California Division of Mines and Geology), 2001, State of California Seismic Hazards Zones Map, Tustin Quadrangle, dated January 17, 2001.

² Ibid.

³ California Geological Survey. 2020. Landslide Inventory. Website: <https://maps.conservation.ca.gov/cgs/lsi/app/> (accessed August 14, 2020).

As discussed in Section 3.10, Hydrology and Water Quality, implementation of the Project would decrease impervious area of the Project site, which would result in a net decrease in stormwater runoff discharged from the Project site. Following Project implementation, the Project site would consist of impervious surface area and landscaping that would minimize on-site erosion and siltation by stabilizing the soil. Therefore, on-site erosion impacts would be minimal. For these reasons, operational impacts related to substantial soil erosion and loss of topsoil would be less than significant, and no mitigation is required.

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

Less Than Significant Impact. Landslides and other forms of mass wasting, including mudflows, debris flows, and soil slips occur as soil moves downslope under the influence of gravity. Landslides are frequently triggered by intense rainfall or seismic shaking. Because the Project site is in a relatively flat area, landslides or other forms of natural slope instability do not represent a significant hazard in the Project site's vicinity. In addition, as stated above, the Project site is not within a State-designated hazard zone for an earthquake-induced landslide. Therefore, potential impacts related to landslides would be less than significant, and no mitigation is required.

Lateral spreading often occurs on very gentle slopes or flat terrain. The dominant mode of movement is lateral extension accompanied by shear or tensile fracture. This failure is caused by liquefaction and is usually triggered by rapid ground motion, such as that experienced during an earthquake, but can also be artificially induced. When coherent material, either bedrock or soil, rests on materials that liquefy, the upper units may undergo fracturing and extension and may then subside, translate, rotate, disintegrate, or liquefy and flow. The Geotechnical Assessment indicates that lateral spreading is not a potential concern with respect to the Project site because liquefaction is not considered a hazard on the Project site. Therefore, the proposed Project would not be subject to potential geotechnical hazards related to lateral spreading, and no mitigation is required.

Subsidence refers to broad-scale changes in the elevation of land. Subsurface solution of limestone during cave formation may lead to a series of subsidence features at the ground surface. Because the Project site is not underlain by limestone, the potential for subsidence to affect the site due to this condition is not a consideration for the proposed Project. Subsidence effects can also be produced by mining or by the extraction of water or petroleum by means of wells. Because the Project site is not in a known oil field and groundwater resources in the Coastal Plain of Orange County Groundwater Basin are monitored and managed by the Orange County Water District (OCWD), the potential for subsidence to affect the site due to extraction of water or petroleum is considered low. Therefore, the proposed Project would not be subject to potential geotechnical hazards related to subsidence, and no mitigation is required.

As discussed in Threshold 3.7(a)(iii), the Project site is not within an area that is susceptible to the occurrence of liquefaction. Additionally, according to the Geotechnical Assessment, onsite soils generally have relatively low compressibility. Therefore, excessive settlement resulting from liquefaction and compression of existing soils would be less than significant. No mitigation is required.

d. 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?

Less Than Significant with Mitigation Incorporated. Expansive soils are soils that experience volumetric changes in response to increases or decreases in moisture content. Foundations constructed on these soils are subject to uplifting forces caused by the swelling. Without proper mitigation measures, heaving and cracking of both building foundations and slabs-on-grade could result.

According to the Geotechnical Assessment, the results of Expansion Index testing to evaluate the expansion potential indicate that the near-surface soils generally exhibit very low to low potential for expansion. Previous laboratory test results (Leighton, 2015,¹ 2016a,² and 2016b³) of representative samples of the near-surface soil indicate the near-surface soils generally exhibit low to moderate potential for expansion. During the preparation of the Geotechnical Assessment, a sample collected from the assumed basement level for the inpatient hospital buildings in the northwestern portion of the Project site was subjected to Expansion Index testing. Test results indicated soils at this depth exhibit a high potential for expansion. Because variance in expansion potential of on-site soil is anticipated, the proposed Project would result in a potentially significant impact related to expansive soils. MM-GEO-1, above, requires the Project Applicant/Developer to comply with the recommendations of the Geotechnical Assessment, which stipulates appropriate seismic design provisions that shall be implemented with Project design and construction, which include additional testing recommended upon completion of grading and excavation to confirm the expansion potential results presented in the Geotechnical Assessment. The proposed Project would also adhere to the Current California Building Code and the adopted City's Building Code, including engineering and earthwork construction standards therein, consistent with MM-GEO-1, above. Standard engineering and earthwork construction practices, such as proper foundation design and controlled moisture conditioning or mixing with non-expansive soils, will reduce the effects associated with expansive soils. With the implementation of MM-GEO-1, potential Project impacts related to expansive soil would be reduced to a less than significant level.

e. Would the project have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

No Impact. The proposed Project would not include the use of septic tanks or alternative wastewater disposal systems because sanitary sewer and wastewater facilities are available in the

¹ Leighton Consulting, Inc. 2015, Geotechnical Exploration Report, Emergency Department Expansion at Hoag Hospital, 16200 Sand Canyon Avenue, City of Irvine, California, Project No. 10572.001. July 3, 2014; third revision, April 8, 2015.

² Leighton Consulting, Inc. 2016a, Addendum 1 to Geotechnical Exploration Report, Emergency Department Expansion at Hoag Hospital, 16200 Sand Canyon Avenue, Irvine, California, Project No. 10572.004. February 25.

³ Leighton Consulting, Inc. 2016b, Geotechnical Review of Foundation and Grading Plans, Emergency Department Expansion at Hoag Hospital, 16200 Sand Canyon Avenue, Irvine, California, Project No. 10572.005. October 14.

vicinity of the Project site. The proposed Project would use the existing sanitary sewer system. Therefore, the Project would have no impact with respect to septic tanks or alternative wastewater disposal systems.

f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Less Than Significant with Mitigation Incorporated. The Project site is currently developed with medical uses and is in an urbanized portion of Irvine predominantly developed with medical, hotel, and office uses. In its existing condition, the Project site contains the HHI campus (comprised of a hospital building, a nursing building, and an emergency department building), the Rhodes MOB, and surface parking lots.

According to the City's General Plan Cultural Resources Element, the Project site is in a low paleontological sensitivity zone.¹ However, earth-moving activities during Project construction, such as grading and excavation, have the potential to uncover and destroy paleontological resources. In the unlikely event that fossil remains are encountered on the Project site, MM-GEO-2 would require that a paleontologist be contacted to assess the discovery for scientific significance and to make recommendations regarding the necessity to develop paleontological mitigation (including paleontological monitoring, collection, stabilization, and identification of observed resources; curation of resources into a museum repository; and preparation of a monitoring report of findings). With implementation of MM-GEO-2, impacts to paleontological resources would be reduced to a less than significant level.

At the completion of Project construction, the proposed Project would not result in further disturbance of native soils on the Project site. Therefore, operation of the proposed Project would not result in a substantial adverse change in the significance of a paleontological resource, and no mitigation is required for operational activities.

Mitigation Measure. MM-GEO-2 would be implemented to reduce Project-related impacts to paleontological resources to a less than significant level.

MM-GEO-2 Unknown Paleontological Resources. If paleontological resources are encountered during Project excavation, all ground-disturbing activities within 50 feet of the find shall be redirected to other areas until a qualified paleontologist can be retained to evaluate the find and make recommendations for additional paleontological mitigation, which may include paleontological monitoring; collection of observed resources; preservation, stabilization, and identification of collected resources; curation of resources into a museum repository; and preparation of a final report documenting the monitoring methods and results to be submitted to the museum repository and the City. Prior to commencement of grading activities, the Director of the City of Irvine Development Services Department, or designee, shall verify that all

¹ City of Irvine. 2015a. General Plan Cultural Resources Element. July. Figure E-2 Paleontological Sensitivity Zones.

project grading and construction plans specify federal, State, and local requirements related to the unanticipated discovery of paleontological resources as stated above.

3.7.2 Cumulative Impacts

Impacts related to development of the related projects would involve geotechnical hazards associated with site-specific soil conditions, erosion, and ground shaking during earthquakes. Impacts associated with geologic and soil issues are typically confined to a project site and/or within a localized area to a project site. As such, geologic or soil impacts of the proposed Project would not affect off-site areas associated with the related projects. Cumulative development in the area would, however, increase the overall potential for exposure to seismic hazards by potentially increasing the number of people exposed to existing seismic hazards. Nevertheless, all projects are subject to established guidelines and regulations pertaining to seismic hazards, including, but not limited to, the California Building Code. As such, adherence to applicable building regulations and standard engineering practices would ensure that cumulative impacts would be less than significant.

The proposed Project, in conjunction with other development in the City, has the potential to cumulatively impact paleontological resources; however, it should be noted that each development proposal received by the City undergoes environmental review pursuant to CEQA. If there is a potential for significant impacts to paleontological resources, an investigation would be required to determine the nature and extent of the resources and to identify appropriate mitigation measures. If subsurface paleontological resources are assessed and/or protected as they are discovered, impacts to these resources would be less than significant. Mitigation Measure MM-GEO-2 would be implemented during construction of the proposed Project to reduce potential Project impacts by requiring that a paleontologist be contacted to assess the discovery for scientific significance and to make recommendations regarding the necessity to develop paleontological mitigation in the unlikely event that paleontological resources are uncovered. Therefore, with implementation of Mitigation Measure MM-GEO-2, the contribution of the proposed Project to the cumulative loss of paleontological resources throughout Irvine would be reduced to below a level of significance.

3.8 GREENHOUSE GAS EMISSIONS

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
g. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
h. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

3.8.1 Technical Background

Greenhouse gases (GHGs) are present in the atmosphere naturally, released by natural sources, or form from secondary reactions taking place in the atmosphere. The gases that are widely seen as the principal contributors to human-induced global climate change are:

- Carbon dioxide (CO₂)
- Methane (CH₄)
- Nitrous oxide (N₂O)
- Hydrofluorocarbons (HFCs)
- Perfluorocarbons (PFCs)
- Sulfur hexafluoride (SF₆)

Over the last 200 years, humans have caused substantial quantities of GHGs to be released into the atmosphere. These extra emissions are increasing GHG concentrations in the atmosphere and enhancing the natural greenhouse effect, believed to be causing global warming. Although manmade GHGs include naturally occurring GHGs such as CO₂, methane, and N₂O, some gases, such as HFCs, PFCs, and SF₆, are completely new to the atmosphere.

Certain gases, such as water vapor, are short-lived in the atmosphere. Others remain in the atmosphere for significant periods of time, contributing to climate change in the long term. Water vapor is excluded from the list of GHGs above because it is short lived in the atmosphere and its atmospheric concentrations are largely determined by natural processes, such as oceanic evaporation.

These gases vary considerably in terms of global warming potential (GWP), a concept developed to compare the ability of each GHG to trap heat in the atmosphere relative to another gas. GWP is based on several factors, including the relative effectiveness of a gas to absorb infrared radiation and the length of time that the gas remains in the atmosphere (“atmospheric lifetime”). The GWP of each gas is measured relative to CO₂, the most abundant GHG. The definition of GWP for a particular GHG is the ratio of heat trapped by one unit mass of the GHG to the ratio of heat trapped by one unit mass of CO₂ over a specified time period. GHG emissions are typically measured in terms of pounds or tons of “CO₂ equivalents” (CO₂e).

3.8.1.1 Impact Thresholds

The *State CEQA Guidelines* do not prescribe specific methodologies for performing an assessment, do not establish specific quantitative thresholds of significance, and do not mandate specific mitigation measures. Instead, CEQA leaves the determination of the significance of GHG emissions up to the lead agency and authorizes the lead agency to 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 (State CEQA Guidelines Sections 15064.4(a) and 15064.7(c)). The *State 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 (California Natural Resources Agency 2009).

The Governor's Office of Planning and Research's Technical Advisory titled "CEQA and Climate Change: Addressing Climate Change through California Environmental Quality Act Review" 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" (California Governor's Office of Planning and Research 2008). Furthermore, the advisory document indicates that "in the absence of regulatory standards for GHG emissions or other scientific data to clearly define what constitutes a 'significant impact,' individual lead agencies may undertake a project-by-project analysis, consistent with available guidance and current CEQA practice."

The proposed Project is a somewhat unique land use and because there are not clearly defined thresholds for GHG emissions, the City has evaluated the Project's GHG emissions using two methodologies. The first methodology evaluates the Project's GHG emissions on a sector-by-sector (e.g., energy, water, waste, mobile, and stationary) basis to determine whether the Project's emissions would conflict with applicable sector-specific reduction targets and strategies developed to achieve the State's 2030 target. The second methodology is based on the tiered approach identified by SCAQMD for evaluating GHG emissions for development projects where SCAQMD is not the lead agency. While both methodologies and thresholds are explained in greater detail below and the proposed Project was analyzed using both methodologies, ultimately the City determined the sector-by-sector approach to be more appropriate to analyze the proposed Project. Additional supporting documentation for the methodologies and thresholds are provided in Appendix I to this IS/MND.

Sector-Specific Reduction Targets

Mobile Emissions. The California Supreme Court decision on the Newhall Ranch Specific Plan EIR (Center for Biological Diversity v. California Department of Fish and Wildlife, Case # S217763; November 30, 2015) determined that quantitative goals within regulatory frameworks for the reduction of GHG emissions could be used. The California Supreme Court gave an example of using the per-capita GHG goals of a Metropolitan Planning Organization (MPO) Sustainable Community

Strategy (SCS) in compliance with Senate Bill 375 to determine if a project’s on-road vehicle emissions are significant.

The MPO with jurisdiction over the Project site is SCAG. The *SCAG 2016 Regional Transportation Plan and Sustainable Community Strategy* (2016 RTP/SCS) includes a goal to reduce passenger car and light-duty truck GHG emissions 18 percent below 2005 levels of emissions by 2035. That equates to an emissions rate of 0.0083 MTCO₂e per vehicle per day (SCAG 2016 RTP/SCS).¹

Energy. The City’s Strategic Energy Plan² includes metrics related to energy use and efficiency with the goal of having all new commercial/institutional buildings at net zero energy by 2030. The City also has a Community Choice Energy (CCE) program. On December 10, 2019, the Irvine City Council committed to the CCE Implementation Plan by December 31, 2020. The CCE has a goal of 100 percent renewable energy by 2030.

Water. The Irvine Ranch Water District (IRWD) 2015 Urban Water Management Plan³ includes a Local Supply and Draught Response with water conservation metrics of reducing 2005 levels of water consumption by 25 percent.

Solid Waste. The City of Irvine Municipal Code (Title 6, Division 7, Chapter 9) and CALGreen (Sections 4.408, 5.408, and 5.713.8) require that construction development, renovation, and demolition projects to recycle or otherwise divert construction and demolition debris from landfills. At minimum, 75 percent of all construction and demolition debris must be recycled or reused.

SCAQMD Tiered Approach

To provide guidance to local lead agencies on determining significance for GHG emissions in their CEQA documents, SCAQMD convened a GHG CEQA Significance Threshold Working Group (Working Group). Based on the last Working Group meeting (Meeting No. 15) in September 2010, SCAQMD identified a tiered approach for evaluating GHG emissions for development projects where SCAQMD is not the lead agency (SCAQMD 2010):

- **Tier 1.** If a project is exempt from CEQA, project-level and cumulative GHG emissions are less than significant.
- **Tier 2.** If the project complies with a GHG emissions reduction plan or mitigation program that avoids or substantially reduces GHG emissions in the project’s geographic area (i.e., city or county), project-level and cumulative GHG emissions are less than significant.

¹ Southern California Association of Governments. 2016 RTP/SCS Performance Measures Appendix. Website: http://scagrtpscs.net/Documents/2016/final/f2016RTPSCS_PerformanceMeasures.pdf (accessed October 6, 2020).

² City of Irvine. 2019. Strategic Energy Plan. Website: <https://www.cityofirvine.org/energy/strategic-energy-plan> (accessed on October 6, 2020).

³ Irvine Ranch Water District (IRWD). 2016. IRWD 2015 Urban Water Management Plan. Website: <https://www.irwd.com/doing-business/urban-water-management-plan> (accessed on October 6, 2020).

For projects that are not exempt or where no qualifying GHG reduction plans are directly applicable, SCAQMD requires an assessment of GHG emissions. SCAQMD Working Group has identified a “bright-line” screening-level threshold of 3,000 metric tons of carbon dioxide equivalent (MTCO₂e) annually for all land use types or the following land-use-specific thresholds: 1,400 MTCO₂e for commercial projects, 3,500 MTCO₂e for residential projects, or 3,000 MTCO₂e for mixed-use projects. These bright-line thresholds are based on a review of CEQA projects. Based on their review of 711 CEQA projects, 90 percent of CEQA projects would exceed the bright-line thresholds. Therefore, projects that do not exceed the bright-line threshold would have a nominal and, therefore, less than cumulatively considerable impact on GHG emissions:

- **Tier 3.** If GHG emissions are less than the screening-level threshold, project-level and cumulative GHG emissions are less than significant.
- **Tier 4.** If emissions exceed the screening threshold, a more detailed review of the project’s GHG emissions is warranted.

The SCAQMD Working Group has identified an efficiency target for projects that exceed the bright-line threshold: a 2020 efficiency target of 4.8 MTCO₂e per year per service population (MTCO₂e/year/SP) for project-level analyses and 6.6 MTCO₂e/year/SP for plan level projects (e.g., general plans). Service population is generally defined as the sum of residential and employment population of a project. The per capita efficiency targets are based on the AB 32 GHG reduction target and 2020 GHG emissions inventory prepared for CARB’s 2008 Scoping Plan.¹

Project-related GHG emissions include on-road transportation, energy use, water use and wastewater generation, solid waste disposal, area sources, off-road emissions, and construction activities. The SCAQMD Working Group identified that, because construction activities would result in a “one-time” net increase in GHG emissions, construction activities should be amortized into the operational phase GHG emissions inventory based on the service life of a building. For buildings, in general, it is reasonable to look at a 30-year time frame, because this is a typical interval before a new building requires the first major renovation.

Under this methodology, SCAQMD’s project-level threshold for all land uses is used. If the projects exceed the thresholds, GHG emissions would be considered potentially significant in the absence of mitigation measures. However, as the proposed Project’s horizon year is beyond 2020 with an anticipated build out of 2030, the efficiency target has been adjusted based on the mid-term GHG reduction target of SB 32, which establishes a target of 40 percent below 1990 levels by 2030, and the long-term reduction goal of Executive Order S-03-05, which sets a goal of 80 percent below 1990 levels by 2050.

Based on these long-term targets, Project emissions are compared to the SCAQMD’s project-level efficiency thresholds:

The 2020 GHG estimated efficiency target would be 4.8 MTCO₂e/SP/year to align with SCAQMD’s efficiency target, identified in its CEQA Guidelines, which is consistent with AB 32.

The 2030 GHG estimated efficiency target would be 2.88 MTCO₂e/SP/year to align with the midterm GHG reduction target of SB 32 and the long-term reduction goal of Executive Order S-03-05.

3.8.2 Impact Analysis

- a. Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?*

Less Than Significant. Construction and operation of the proposed Project would generate GHG emissions, with the majority of emissions resulting during the Project’s operations. The primary GHG emissions generated by the project would be CO₂. The following analysis represents an estimate of the proposed Project’s GHG emissions through the quantification of CO₂ emissions (included in Appendix A). The Project activities below were analyzed for their contribution to global CO₂ emissions.

This section evaluates potential significant impacts to GHG that could result from implementation of the proposed Project. Overall, the following activities associated with the proposed Project could contribute directly or indirectly to the generation of GHG emissions:

- **Construction Activities:** During construction of the project, GHGs would be emitted on site through the operation of construction equipment, worker trips, and vendor delivery vehicles, which typically use fossil-based fuels to operate. The combustion of fossil-based fuels creates GHGs (e.g., CO₂, CH₄, and N₂O). Furthermore, CH₄ is emitted during the fueling of heavy equipment.
- **Motor Vehicle Use:** Transportation associated with the proposed Project would result in GHG emissions from the combustion of fossil fuels in daily vehicle trips.
- **Gas, Electricity, and Water Use:** Natural gas use results in the emission of two GHGs: CH₄ (the major component of natural gas) and CO₂ (from the combustion of natural gas). Electricity use can result in GHG production if the electricity is generated by combusting fossil fuel. California’s water conveyance system is energy-intensive. CalEEMod defaults were used to estimate these emissions from the project. The proposed Project would install low-flow water fixtures consistent with 2019 CALGreen standards, and efficient irrigation systems in compliance with the Sustainability in Landscaping Ordinance (Municipal Code Sec. 5-7-305). SB 350 requires the State to double statewide energy efficiency and increases California's renewable electricity procurement goal by 50 percent in 2030. The CO₂ intensity was adjusted in CalEEMod to reflect SB 350.
- **Solid Waste Disposal:** Solid waste generated by the Project could contribute to GHG emissions in a variety of ways. Landfilling and other methods of disposal use energy for transporting and managing the waste, and produce additional GHGs to varying degrees. Landfilling, the most common waste management practice, results in the release of CH₄ from the anaerobic decomposition of organic materials. CH₄ is 25 times more potent a GHG than CO₂. However, landfill CH₄ can also be a source of energy. In addition, many materials in landfills do not decompose fully and the carbon that remains is sequestered in the landfill and not released into

the atmosphere. The proposed Project would implement the Statewide goal of meeting the 75 percent recycling program on-site (CalRecycle 2020)¹.

GHG emissions associated with Project construction would occur over the short-term from construction activities and would consist primarily of emissions from equipment exhaust. Long-term GHG emissions would also be associated with Project-related new vehicular trips and stationary-source emissions (e.g., natural gas used for heating and electricity usage for lighting). The calculations presented below include construction emissions in terms of CO₂ and annual CO₂e GHG emissions from increased energy consumption, water usage, solid waste disposal, and estimated GHG emissions from vehicular traffic that would result from implementation of the proposed Project. The following Project activities were analyzed for their contribution to global CO₂e emissions.

Construction Emissions. Construction activities produce combustion emissions from various sources during each construction phase: demolition, site grading, utility engines, on-site heavy-duty construction vehicles, equipment hauling materials to and from the site, asphalt paving, and motor vehicles transporting the construction crew. Exhaust emissions from on-site construction activities would vary daily as construction activity levels change. The construction GHG emission estimates were calculated using CalEEMod, as shown in Table 3.8.A (refer to Appendix A of this IS/MND). SCAQMD does not have a threshold for construction GHG emissions; however, it does suggest that emissions be quantified and amortized over the life of the Project (assumed to be 30 years).

Table 3.8.A: Construction Greenhouse Gas Emissions

Construction	Greenhouse Gas Emissions, CO ₂ e (Metric Tons per Year)
First Phase Construction Emissions	4,256.87
Second Phase Construction Emissions	1,190.60
Total Build Out Construction Emissions	5,447.47
Total Construction Emissions Amortized over 30 years	181.58

Source: Compiled by LSA Associates, Inc. (October 2020).

Note 1: The emissions presented in this table reflect the impact of the Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule, per the California Air Resources Board’s “EMFAC Off-Model Adjustment Factors to Account for the SAFE Vehicles Rule Part One” issued on November 20, 2019. Website:

(https://ww3.arb.ca.gov/msei/emfac_off_model_co2_adjustment_factors_06262020-final.pdf).

CO₂e = carbon dioxide equivalent

As indicated in Table 3.8.A, total Project construction would result in total emissions of 5,447 MTCO₂e, which, when amortized over the 30 year life of the project, would be 182 MT of CO₂e per year.

Operational Emissions. Long-term operation of the proposed Project would generate GHG emissions from mobile, area, off-road, waste, and water sources as well as indirect emissions from sources associated with energy consumption. Mobile-source GHG emissions would include project-

¹ CalRecycle. 2020. California’s 75 Percent Initiative Defining the Future. February. Website: <https://www.calrecycle.ca.gov/75percent/> (accessed September 2020).

and City Municipal Code Title 6, Division 7 – Chapter 9. The following analysis quantifies GHG reductions associated with compliance with each regulation and/or plan.

For on-road transportation, the 2016 RTP/SCS based threshold of significance is 0.0083 MTCO₂e per vehicle per day. The proposed Project would generate 14,213 trip ends per day with the assumption that each vehicle accessing the proposed Project would generate 2 trip ends per day, resulting in a total of 20,408 MTCO₂e annually allowed by the proposed project for passenger cars and light-duty trucks. As shown in Table 3.8.B, total mobile source emissions for the total hospital operational mobile source emissions would be 17,449.45 MTCO₂e per year for a net new proposed Project total of 9,576.53 MT CO₂e per year. Therefore, the proposed Project emissions would be below the sector-based GHG threshold for on-road vehicle emissions.

The energy sector threshold is based from the City's 2019 Strategic Energy Plan is for the proposed Project to achieve zero net energy. Table 3.8.B shows GHG emissions prior to initiation of the CCE, which has a 100 percent zero emissions renewable energy goal to be achieved by 2030. The entire Hoag facility (both existing and proposed) would be provided power through the CCE. This would result in a reduction of 8,858 MTCO₂e annually. Because of the CCE, the energy sector of the proposed Project would result in net negative emissions and would achieve the net zero energy threshold. Therefore, the proposed Project would be below the sector-based GHG Threshold for energy emissions.

The water sector threshold is based upon the 25 percent water conservation goal of the IRWD 2015 Urban Water Management Plan. The proposed Project includes smart meter landscape irrigation controls with a drip irrigation system watering drought tolerant landscape and elimination of turf. This results in a 40 percent reduction compared to the 2005 irrigation needs of the proposed Project. Additionally, the expansion and retrofit of the Central Utility Plant, including the installation of variable speed controls on the cooling water pumps and new more efficient water towers, result in additional water conservation. Therefore, the proposed Project would be below the sector-based GHG threshold for water consumption.

The City's Municipal Code (Title 6, Division 7 – Chapter 9) and CALGreen (Sections 4.408, 5.408, and 5.713.8) require that construction development, renovation, and demolition projects recycle or otherwise divert construction and demolition debris from landfills. The proposed Project would comply with the recycling ordinance. Therefore, the proposed Project would meet the sector based GHG Threshold for solid waste generation.

SCAQMD Tiered Approach. As indicated in Table 3.8.B, the proposed Project would result in a net increase of 18,238.58 MTCO₂e per year. HHI serves as an emergency medical facility for the local community and would provide additional services by implementing the proposed improvements to expand medical nursing/recovery and primary care. The comparison of the existing HHI campus directly to the proposed Project build out shows the increased building capacity would increase the volume of patients and guests. Based on patient data provided by Hoag, under Project build out conditions, the Project would serve a total of 87,791 patients annually and would have a total of 1,500 employees, resulting in a service population of 89,291. Based on the total service population and Project build out emissions, the Project would result in service population of 0.35 metric ton per

service population, which is well below the SCAQMD recommendation of 2.88. Therefore, the proposed Project would not exceed the 2030 GHG estimated efficiency target.

Conclusion. As demonstrated by both methodologies and thresholds, the proposed Project would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment. As stated above, while the proposed Project was analyzed using both methodologies, ultimately the City determined the sector-by-sector approach to be more appropriate to analyze the proposed Project. The analysis of the proposed Project using the sector-by-sector methodology determined that the proposed Project would not exceed any sector-specific GHG thresholds. The GHG emissions associated with the proposed Project impact would be less than significant. No mitigation is required.

b. Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Less than Significant Impact. Due to the cumulative nature of climate change, the assessment of Project-generated GHG emissions and the effects of global climate change impacts can only be analyzed from a cumulative context. Therefore, the analysis focuses on the Project's incremental contribution of GHG emission to cumulative climate change impacts. The GHG threshold used in this analysis is based upon the Project's cumulative contribution to global climate change impacts within the context of State legislation to reduce GHG emissions. In turn, the GHG emission reduction targets within State legislation (i.e., AB 32 and SB 32) are based upon international efforts and commitments to reduce GHG emissions.

The City does not have a Climate Action Plan; therefore, absent of any local or regional Climate Action Plan, the proposed Project was analyzed for consistency with the goals of AB 32, the AB 32 Scoping Plan, Executive Order B-30-15, SB 32, and AB 197.

AB 32 was aimed at reducing GHG emissions to 1990 levels by 2020. AB 32 requires CARB to prepare a Scoping Plan that outlines the main State strategies for meeting the 2020 deadline and to reduce GHGs that contribute to global climate change. The AB 32 Scoping Plan has a range of GHG reduction actions, which include direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, market-based mechanisms such as a cap-and-trade system, and an AB 32 implementation fee to fund the program.

Executive Order B-30-15 added the immediate target of reducing GHG emissions to 40 percent below 1990 levels by 2030. CARB released a second update to the Scoping Plan, the 2017 Scoping Plan,¹ to reflect the 2030 target set by Executive Order B-30-15 and codified by SB 32. SB 32 affirms the importance of addressing climate change by codifying into statute the GHG emissions reductions target of at least 40 percent below 1990 levels by 2030 contained in Executive Order B-30-15. SB 32 builds on AB 32 and keeps California on the path toward achieving the State's 2050 objective of reducing emissions to 80 percent below 1990 levels. The companion bill to SB 32, AB 197, provides additional direction to the CARB related to the adoption of strategies to reduce GHG emissions.

¹ California Air Resources Board. 2017. *California's 2017 Climate Change Scoping Plan*. November.

Additional direction in AB 197 intended to provide easier public access to air emissions data that are collected by CARB was posted in December 2016.

As identified above, the AB 32 Scoping Plan contains GHG reduction measures that work towards reducing GHG emissions, consistent with the targets set by AB 32, Executive Order B-30-15 and codified by SB 32 and AB 197. The measures applicable to the proposed Project include energy-efficiency measures, water conservation and efficiency measures, and transportation and motor vehicle measures, as discussed below.

Energy efficiency measures are intended to maximize energy efficient building and appliance standards, pursue additional efficiency efforts including new technologies and new policy and implementation mechanisms, and pursue comparable investment in energy efficiency from all retail providers of electricity in California. In addition, these measures are designed to expand the use of green building practices to reduce the carbon footprint of California's new and existing inventory of buildings. The proposed Project would replace some existing older buildings on the existing campus with new and more energy-efficient buildings. As identified in the analysis above, the proposed Project would comply with the latest Title 24 standards of the California Code of Regulations regarding energy conservation and green building standards. The project would also be solar ready for future solar installations. Therefore, the proposed Project would comply with applicable energy measures.

Water conservation and efficiency measures are intended to continue efficiency programs and use cleaner energy sources to move and treat water. Increasing the efficiency of water transport and reducing water use would reduce GHG emissions. As noted above, the project would be required to comply with the latest Title 24 standards of the California Code of Regulations, which includes a variety of different measures, including reduction of wastewater and water use. In addition, the proposed Project would be required to comply with the California Model Water Efficient Landscape Ordinance and City of Irvine Sustainable Landscape Ordinance and would include a total of 231,055 sf of landscaping, which would capture stormwater runoff. Additionally, the Project site would continue to be served through two connections to the recycled water system. Therefore, the proposed Project would not conflict with any of the water conservation and efficiency measures.

The goal of transportation and motor vehicle measures is to develop regional GHG emissions reduction targets for passenger vehicles. Specific regional emission targets for transportation emissions would not directly apply to the proposed Project. However, it is anticipated that vehicles traveling to the Project site would comply with the Pavley II (LEV III) Advanced Clean Cars Program. The second phase of Pavley standards will reduce GHG emissions from new cars by 34 percent from 2016 levels by 2025. Vehicles traveling to the Project site would comply with the Pavley II (LEV III) Advanced Clean Cars Program. Therefore, the proposed Project would not conflict with the identified transportation and motor vehicle measures.

The proposed Project would expand existing hospital and medical uses within Irvine, serving the existing community needs for medical care. The Project site incorporates design features to accommodate modes of active transit (i.e., pedestrian, bicycle, and public transportation). In the vicinity of the Project site, bicycle travel is possible in the on-street (Class II) bicycle lanes on Sand Canyon Avenue and Alton Parkway, and on the bicycle paths (Class I) on San Diego Creek Trail north

of the Project site and on Hospital Trail east of the Project site. The Project would provide long-term bicycle storage facilities for employees in the two parking structures. Short-term bicycle racks for visitors would also be provided in five locations on the Project site. Transit facilities are accessible to and from the Project site with Orange County Transportation Authority (OCTA) and iShuttle stops near the Project site. The lines serviced by these stops provide direct access to regional transportation hubs. These features contribute to a reduction in the demand for travel by single occupancy vehicles, consistent with the statewide goals for reducing VMT.

The proposed Project would comply with existing State regulations adopted to achieve the overall GHG emission reduction goals identified in AB 32, the AB 32 Scoping Plan, Executive Order B-30-15, SB 32, and AB 197 and would be consistent with applicable State plans and programs designed to reduce GHG emissions. Therefore, the proposed Project would not conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs. This impact would be less than significant.

3.9 HAZARDS AND HAZARDOUS MATERIALS

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

3.9.1 Impact Analysis

a. *Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?*

Less than Significant with Mitigation Incorporated. Hazardous materials are chemicals that could potentially cause harm during an accidental release or mishap, and are defined as being toxic, corrosive, flammable, reactive, and an irritant or strong sensitizer.¹ Hazardous substances include all chemicals regulated under the United States Department of Transportation “hazardous materials” regulations and the United States Environmental Protection Agency “hazardous waste” regulations. Hazardous wastes require special handling and disposal because of their potential to damage public health and the environment. The probable frequency and severity of consequences from the routine transport, use, or disposal of hazardous materials is affected by the type of substance, the quantity used or managed, and the nature of the activities and operations.

¹ A “sensitizer” is a chemical that can cause a substantial proportion of people or animals to develop an allergic reaction in normal tissue after repeated exposure to a chemical.

Construction. The proposed Project includes the demolition of the existing auditorium building. Lead is a toxic metal that was used for many years in household products. Lead may cause a range of health defects, from behavioral problems and learning disabilities to seizures and death. Lead-based paint (LBP) was used extensively in buildings constructed before 1950. In 1978, LBP was banned by the federal government. Due to the age of the building (constructed in 1986), lead is not a concern on the site. Similarly, the use of asbestos in many building products was banned by the United States Environmental Protection Agency (EPA) by the late 1970s. In 1989, the EPA issued a ruling prohibiting the manufacturing, importation, processing, and distribution of most asbestos-containing products. This rule, known as the Ban and Phase-Out Rule, would have effectively banned the use of nearly 95 percent of all asbestos products used in the United States. However, the U.S. Fifth Circuit Court of Appeals vacated and remanded most of the Ban and Phase-Out Rule in October 1991. Due to this court decision, many asbestos-containing product categories not previously banned (prior to 1989) may still be in use today. Among these common material types found in buildings are floor tile and roofing materials. Asbestos-containing materials (ACMs) represents a concern when it is subject to damage that results in the release of fibers. Friable ACMs, which can be crumbled by hand pressure and are therefore susceptible to damage, are of particular concern. Nonfriable ACM is a potential concern if it is damaged by maintenance work, demolition, or other activities.

As detailed above, the presence of ACMs cannot be ruled out. Because the proposed Project includes demolition activities that may disturb ACMs, mitigation is required. Mitigation Measure HAZ-1 addresses the likelihood of encountering ACMs. Mitigation Measure HAZ-1 requires predemolition surveys and the proper removal of these materials. With implementation of Mitigation Measure HAZ-1, possible impacts related to the presence of ACMs would be reduced to a less than significant level.

Construction activities associated with the proposed Project would use a limited amount of hazardous and flammable substances (e.g., oils, fuels) during heavy equipment operation for site excavation, grading, and construction. The amount of hazardous chemicals present during construction would be limited and would comply with existing government regulations. Additionally, as discussed in Section 3.10, Hydrology and Water Quality, because there is a potential for groundwater to be encountered during excavation activities, groundwater dewatering may be required. Groundwater may contain high levels of total dissolved solids, nitrate, sediment, selenium, or other constituents, or high or low pH levels that could be introduced to surface waters when dewatered groundwater is discharged to surface waters. If groundwater dewatering is necessary, groundwater would be discharged to either the sanitary sewer system or storm drain system. If discharged to the sanitary sewer system, a discharge permit from the Irvine Ranch Water District (IRWD) would be required, as specified in RCM-WQ-3, to ensure that there is sufficient capacity available to accommodate the discharge to prevent sanitary sewer overflow, which can result in a discharge of pollutants to surface waters. Therefore, ground dewatering would not introduce pollutants to receiving waters at levels that would violate water quality standards, waste discharge requirements, or degrade water quality the implementation of RCM-WQ-3. The potential for the release of hazardous materials during project construction is low, and even if a release were to occur, it would not result in a significant hazard to the public, surrounding land uses, or the environment due to the small quantities of these materials associated with construction vehicles. Therefore, construction impacts are considered less than significant, and no mitigation is required.

Operation. The proposed Project includes the expansion of existing medical uses support services and the addition of 47,550 sf of new Central Utility Plant, which includes cooling towers and emergency power generators. Hospital and medical office uses typically do not present a hazard associated with the accidental release of hazardous substances into the environment because medical office employees and patrons are not anticipated to use, store, dispose, or transport large volumes of hazardous materials. Hazardous substances, as described below, associated with hospital and medical office uses are typically limited in both amount and use such that they can be contained without impacting the environment.

Long-term operational activities typical of the hospital and medical office uses involve the use and storage of small quantities of potentially hazardous materials in the form of cleaning solvents, radiologicals, pesticides, sterilants, disinfectants, and the handling of discarded needles. For example, maintenance activities related to the sanitizing of patient assessment and care areas may involve the limited use of cleaning chemicals and disinfectants. As stated previously, these types of activities do not involve the use of a large or substantial amount of hazardous materials. Additionally, these types of uses are already taking place as the Project site is developed with existing medical uses. The proposed Project involves the expansion of existing medical uses on the Project site, which would minimally increase the use of potentially hazardous materials associated with medical facilities compared to the existing conditions. However, such materials would be contained, stored, and used in accordance with manufacturers' instructions and handled in compliance with applicable federal, State, and local regulations. Any associated risk would be less than significant through compliance with these standards and regulations.

In the existing condition, the existing hospital and medical office buildings generate potentially hazardous materials associated with medical facilities. The State Medical Waste Management Act (MWMA) (California Health and Safety Code Section 117600–118360) provides for the regulation of medical waste generators, haulers, and treatment facilities. As specified in RCM-HAZ-1, existing hospital and medical office uses are and would continue to be required to treat medical waste, or have it treated through a treatment facility, prior to disposal. In addition, the MWMA requires that transportation of medical waste be conducted by a registered medical waste hauler. Therefore, compliance with the MWMA, as required by RCM-HAZ-1, would ensure that no significant hazard to the public or the environment would result from the routine transport or disposal of hazardous waste as a result of the proposed Project.

The use of hazardous materials by businesses is regulated by California Certified Unified Program Agency (CUPA) programs (California Health and Safety Code Chapter 6.11). CUPA programs include hazardous materials business plan (HMBP) requirements, hazardous waste generator requirements, underground and aboveground storage tank requirements, and the California Accidental Release Program (CalARP). The proposed Project would be required to comply with these existing programs as specified in RCM-HAZ-2. Compliance with RCM-HAZ-2 would ensure protection of human health and the environment during operation of the proposed Project. For the reasons stated above, potential impacts from the routine transport, use, or disposal of hazardous materials resulting from operation of the proposed Project would be less than significant. No mitigation is required.

Mitigation Measure. MM-HAZ-1 would be implemented to reduce construction-related impacts to hazards and hazardous materials to a less than significant level.

MM-HAZ-1 **Predemolition Surveys and Abatement of ACMs.** Prior to commencement of demolition activities, the Director of the City of Irvine Planning Department, or designee, shall verify that predemolition surveys for asbestos-containing materials (ACMs) (including sampling and analysis of all suspected building materials) shall be performed. All inspections, surveys, and analyses shall be performed by appropriately licensed and qualified individuals in accordance with applicable regulations (i.e., ASTM International) E 1527-05, and 40 Code of Federal Regulations (CFR), Subchapter R, Toxic Substances Control Act [TSCA], Part 716).

Wherever evidence of ACMs exists in areas proposed for demolition, all such materials shall be removed, handled, and properly disposed of by appropriately licensed contractors according to all applicable regulations during demolition of structures (40 CFR, Subchapter R, TSCA, Parts 745, 761, and 763). During demolition, air monitoring shall be completed by appropriately licensed and qualified individuals in accordance with applicable regulations both to ensure adherence to applicable regulations (e.g., South Coast Air Quality Management District [SCAQMD]) and to provide safety to workers and the adjacent community. The Project Applicant shall provide documentation (e.g., all required waste manifests, sampling, and air monitoring analytical results) to the Orange County Fire Authority showing that abatement of any ACMs identified in these structures has been completed in full compliance with all applicable regulations and approved by the appropriate regulatory agencies (40 CFR, Subchapter R, TSCA, Parts 716, 745, 761, 763, and 795 and California Code of Regulations [CCR] Title 8, Article 2.6). An Operating & Maintenance Plan (O&M) shall be prepared for any ACM-containing fixtures to remain in place and shall be reviewed and approved by the Orange County Fire Authority.

Regulatory Compliance Measures. The following Regulatory Compliance Measures are existing regulations that are applicable to the proposed Project and are considered in the analysis of potential impacts related to hazards and hazardous materials. The City considers these requirements to be mandatory for all projects; therefore, they are not mitigation measures.

RCM-HAZ-1 **Compliance with the State Medical Waste Management Act (MWMA).** During operation, the Applicant/Developer shall ensure that hospital and medical office uses continue to treat medical waste, or have it treated through a treatment facility, prior to disposal in accordance with the State Medical Waste Management Act (MWMA) (California Health and Safety Code Section 117600–118360), which provides for the regulation of medical waste generators, haulers, and treatment facilities. In addition, as required by the MWMA, transportation of medical waste shall be conducted by a registered medical waste hauler.

RCM-HAZ-2 **Compliance with California Certified Unified Program Agency (CUPA) Programs.** During operation, the Applicant/Developer shall ensure that hospital and medical office uses comply with the requirements of California Certified Unified Program Agency (CUPA) programs (California Health and Safety Code Chapter 6.11), which include hazardous materials business plan (HMBP) requirements, hazardous waste

generator requirements, underground and aboveground storage tank requirements, and the California Accidental Release Program (CalARP).

- b. Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?*

Less than Significant Impact. As previously stated in response to Threshold 3.9(a), construction activities would involve the use of chemical agents, oils, solvents, paints, and other hazardous materials that are associated with construction activities. The amount of these chemicals present during construction is limited and would comply with existing government regulations. Therefore, construction activities would not create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. No mitigation is required.

Although hazardous substances would be present and used in limited amounts within the hospital and medical office buildings, such substances are generally present now in the existing development, are typically found in small quantities, and can be cleaned up without affecting the environment. Additionally, when used correctly and in compliance with existing laws and regulations, these hazardous substances would not result in a significant hazard to the public or the environment through upset or accidental release into the environment. Operation of expanded on-site medical uses would minimally increase the use of potentially hazardous materials associated with medical facilities compared to the existing conditions. Proper use of potentially hazardous materials and compliance with the California Medical Waste Management Act (MWMA) (California Health and Safety Code Sections 117600–118360 and 22 California Code of Regulations Sections 65600–65628) as described in response to Threshold 3.9(a) would ensure that the proposed Project would not create a significant hazard to the public or to the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials related to medical operations. Therefore, operational impacts associated with a reasonable foreseeable upset and accident conditions involving the release of hazardous materials into the environment would be less than significant, and no mitigation is required.

- c. Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?*

No Impact. The closest schools to the Project site are Oak Creek Elementary School, which is 0.6 mi west of the Project site, and Alderwood Elementary School, which is 0.7 mi south of the Project site. In addition, there are no schools proposed within 0.25 mi of the Project site. Therefore, no impacts related to hazardous emissions or the handling of hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school would occur, and no mitigation is required.

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

Less Than Significant Impact. A search of available environmental records documenting hazardous materials sites compiled pursuant to Government Code Section 65962.5 for the Project site and

properties up to 1 mi away from the Project site was conducted on August 7, 2020 using the Environmental Data Resources, Inc. (EDR) Radius Map Report¹ (Appendix C).

According to the EDR report, several properties surrounding the Project site are listed in various environmental databases. Within approximately 0.25 mi of the Project site, the EDR report identified one Resource Conservation and Recovery Act (RCRA) Large Quantity Generator site, three RCRA Small Quantity Generator sites, one School Investigation site, seven California Environmental Reporting System Hazardous Waste and tank sites, three RCRA Non-Generator/No Longer Regulated sites, and two dry cleaners. Within 0.5 mi of the Project site, the EDR report identified two leaking underground storage tank sites, two Cortese sites, and two Historical Cortese sites. Within 1 mile of the Project site, the EDR report identified three sites included in the EnviroStor Database, which identifies sites that have known contamination or need to be investigated further that are within 1 mi of the Project site. Demolition and construction activities associated with the proposed Project would be contained within the Project site and would not impact offsite properties. Therefore, the properties identified above would not create a hazard to the public or the environment as a result of Project implementation.

Although there are hazardous waste sites listed within the surrounding vicinity of the proposed Project, the Project site is not included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5.² Because the Project would not be on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and would not create a significant hazard to the public or the environment, impacts would be less than significant and no mitigation is required.

e. Would the project be located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?

No Impact. The proposed Project is not within an airport land use plan or within 2 miles of a public airport or public use airport. The nearest public airport is John Wayne Airport at 3160 Airway Avenue, which is 5.2 mi west of the Project site. Therefore, implementation of the proposed Project would not result in a safety hazard related to its proximity to an airport, and no mitigation is required.

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

No Impact. The City has adopted an Emergency Management Plan (2004) that addresses the City's planned response to natural and man-made disasters and technological incidents.³ The Emergency Management Plan provides an overview of operational concepts, identifies components of the City's

¹ Environmental Data Resources, Inc. (EDR). 2020. EDR Radius Map Report with Geocheck for Hoag Hospital Irvine. August 7.

² California Environmental Protection Agency (CalEPA). Cortese List Data Resources. Website: <https://cal.epa.ca.gov/sitecleanup/corteselist/> (accessed August 14, 2020).

³ City of Irvine. City of Irvine Emergency Management Plan. 2004. Website: <http://legacy.cityofirvine.org/civica/filebank/blobload.asp?BlobID=19676> (accessed August 14, 2020).

emergency management organization within the Standardized Emergency Management System, 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. All large construction vehicles entering and exiting the Project site would be guided by the use of personnel using signs and flags to direct traffic. Construction of the proposed Project is not anticipated to impede any pass-through emergency vehicles or impair any emergency evacuation plans. In addition, access to and from the Hoag Hospital emergency room would be maintained during construction. The proposed Project is required to comply with all applicable codes and ordinances for emergency vehicle access, which would ensure adequate access to, from, and on site for emergency vehicles. Further, operation of the proposed Project would have the potential to benefit emergency response by adding capacity to the existing hospital. Therefore, implementation of the proposed Project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. No impact would occur, and no mitigation is required.

g. Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

No Impact. The Project site is within a fully urbanized area. There are no wildlands adjacent to or in the vicinity of the Project site, and the Project site is not designated or near a Fire Hazard Severity Zone.¹ Therefore, there would be no risk of loss, injury, or death involving wildland fires. No impact would occur, and no mitigation is required.

3.9.2 Cumulative Impacts

Hazards and hazardous waste impacts are usually unique to each site and do not usually contribute to cumulative impacts. Typically, only projects adjacent to or abutting the Project site could contribute to cumulative project impacts because of the limited potential impact area associated with the release of hazardous materials into the environment. None of the related projects are adjacent to the Project site; therefore, there is a low potential for cumulative impacts related to hazardous materials to occur. Regardless, as part of the approval process, the proposed Project and all other related projects are required to be consistent with the existing regulations related to hazards and hazardous materials. Consistency with federal, State, and local regulations prevent related projects from creating cumulative impacts in terms of hazards and hazardous materials. Therefore, implementation of the proposed Project would not result in an incremental contribution to cumulative impacts related to hazards and hazardous materials that would be cumulatively considerable. Therefore, cumulative hazards and hazardous materials impacts would be considered less than significant.

¹ California Department of Forestry and Fire Protection (CAL FIRE). 2011. Very High Fire Hazard Severity Zones in LRA, Irvine. Website: https://osfm.fire.ca.gov/media/5884/c30_irvine_vhfhsz.pdf (accessed August 6, 2020).

3.10 HYDROLOGY AND WATER QUALITY

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
i. Result in substantial erosion or siltation on- or off-site;	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv. Impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

3.10.1 Impact Analysis

a. *Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?*

Less than Significant Impact.

Construction. The proposed Project would develop additional hospital uses on the Project site. Pollutants of concern during construction include sediments, trash, petroleum products, concrete waste (dry and wet), sanitary waste, and chemicals. Each of these pollutants on its own or in combination with other pollutants can have a detrimental effect on water quality. During soil-disturbing construction activities, excavated soil would be exposed, and there would be an increased potential for soil erosion and sedimentation compared to existing conditions. In addition, chemicals, liquid products, petroleum products (e.g., paints, solvents, and fuels), and concrete-related waste may be spilled or leaked and have the potential to be transported via stormwater runoff into receiving waters (primarily San Diego Creek, which is the closest receiving water downstream of the Project site). Sediment from increased soil erosion and chemicals from spills and leaks have the potential to be discharged to downstream receiving waters during storm events, which can affect surface water quality.

Because construction of the proposed Project would disturb greater than 1 acre of soil, the proposed Project is subject to the requirements of the Construction General Permit, as specified in RCM-WQ-1. As also specified in RCM-WQ-1, a SWPPP would be prepared and Construction BMPs detailed in the SWPPP would be implemented during construction, in compliance with the requirements of the Construction General Permit. In addition, as specified in RCM-WQ-2, an Erosion and Sediment Control Plan would be prepared and submitted to the City's Building Official prior to issuance of a grading or building permit in compliance with the City's Municipal Code. The SWPPP and the Erosion and Sediment Control Plan would detail the BMPs to be implemented and maintained during construction. Construction BMPs would include, but not be limited to, Erosion Control and Sediment Control BMPs (e.g., straw waddles and silt fences) designed to minimize erosion and retain sediment on the Project site, and Good Housekeeping BMPs to prevent spills, leaks, and discharge of construction debris and waste into receiving waters. Compliance with the requirements of the Construction General Permit and the City's Municipal Code, including incorporation of construction BMPs to target and reduce pollutants of concern in stormwater runoff, would ensure that construction impacts related to violation of waste discharge requirements, water quality standards, and degradation of water quality would be less than significant.

According to the Geotechnical Assessment (Leighton Consulting, Inc. 2018) prepared for the proposed Project, the historically shallowest groundwater depth in the vicinity of the Project site is approximately 40 feet below ground surface (bgs). Groundwater was encountered at depths between 38 to 43 bgs during borings drilled as part of the geotechnical exploration for the proposed Project and at depths of 38 to 45 bgs during borings drilled as part of previous geotechnical explorations on the Project site. Additionally, according to the Geotechnical Assessment, perched groundwater is likely present above the groundwater table and may be encountered during basement excavations.¹ Because there is a potential for groundwater to be encountered during excavation activities, groundwater dewatering may be required.

If groundwater dewatering is necessary, groundwater would be discharged to either the sanitary sewer system or storm drain system. If discharged to the sanitary sewer system, a discharge permit from the IRWD would be required, as specified in RCM-WQ-3, to ensure that there is sufficient capacity available to accommodate the discharge to prevent sanitary sewer overflow, which can result in a discharge of pollutants to surface waters. Groundwater may contain high levels of total dissolved solids, nitrate, sediment, selenium, or other constituents, or high or low pH levels that could be introduced to surface waters when dewatered groundwater is discharged to surface waters. Depending on the water quality of the discharge, discharge of groundwater to the storm drain system would be conducted in accordance with either the *General Waste Discharge Requirements for Discharges to Surface Waters that Pose an Insignificant (De Minimus) Threat to Water Quality* (Order No. R8-2015-0004, NPDES No. CAG998001) or the *General Discharge Permit for Discharges to Surface Waters of Groundwater Resulting from Groundwater Dewatering Operations and/or Groundwater Cleanup Activities at Sites Within the San Diego Creek/Newport Bay Watershed Polluted by Petroleum Hydrocarbons, Solvents, Metals and/or Salts* (Order No. R8-2007-0041, NPDES No. CAG918002, as amended by R8-2009-0045) as specified in RCM-WQ-3. Both

¹ Perched groundwater is groundwater that accumulates above a geologic layer with low permeability and is separated from the main groundwater table.

permits would require testing and treatment (as necessary) of groundwater encountered during groundwater dewatering prior to release to surface waters. As a result, groundwater dewatering would not introduce pollutants to receiving waters at levels that would violate water quality standards, waste discharge requirements, or degrade water quality. Impacts to surface water quality from groundwater dewatering would be less than significant.

Although groundwater dewatering may be required, dewatered groundwater would be discharged to the sewer system or storm drain system, which discharges to San Diego Creek, rather than back into groundwater and, therefore, would not introduce pollutants to groundwater. Infiltration of stormwater has the potential to affect groundwater quality in areas of shallow groundwater. However, according to the Geotechnical Assessment prepared for the proposed Project, the infiltration rate of the on-site soils is 0.01 inch per hour, which indicates the soils have low infiltration. Additionally, as discussed above, the groundwater table occurs at depths of approximately 40 feet bgs. Pollutants in stormwater are generally removed by soil through absorption as water infiltrates. In areas of deep groundwater, there is more absorption potential and, as a result, less potential for pollutants to reach groundwater. As such, due to the depth to groundwater and low soil infiltration rates, it is not expected that any stormwater that may infiltrate during construction would affect groundwater quality because there is not a direct path for pollutants to reach groundwater. Therefore, Project construction activities would not substantially degrade groundwater quality.

In conclusion, construction of the proposed Project would comply with existing National Pollutant Discharge Elimination System (NPDES) regulations (as specified in RCM-WQ-1, RCM-WQ-2, and RCM-WQ-3), which include preparation of a SWPPP, an Erosion and Sediment Control Plan, and implementation of Construction BMPs to target and reduce pollutants of concern in stormwater runoff, and testing and treatment (if required) of any groundwater prior to discharge to surface waters. Compliance with regulatory requirements would ensure that impacts related to violation of any water quality standards or waste discharge requirements, degradation of surface or ground water quality, and alteration of receiving water quality during construction would be less than significant. No mitigation is required.

Operation. Potential pollutants of concern from long-term operation of the proposed Project include suspended solids/sediment, nutrients, heavy metals, pathogens (bacteria/virus), pesticides, oil and grease, toxic organic compounds, and trash and debris. The proposed Project would be required to comply with the requirements of the *Waste Discharge Requirements for the County of Orange, Orange County Flood Control District and the Incorporated Cities of Orange County within the Santa Ana Region Areawide Urban Storm Water Runoff Orange County* (Order No R8-2009-0030, NPDES No. CAS618030, as amended by Order No. R8-2010-0062) (North Orange County MS4 Permit) and associated guidance documents. The North Orange County MS4 Permit requires that a WQMP be prepared for priority new development and redevelopment projects. WQMPs specify the Site Design, Source Control, Low Impact Development (LID), and Treatment Control BMPs that would be implemented to capture, treat, and reduce pollutants of concern in stormwater runoff. Site Design BMPs are stormwater management strategies that emphasize conservation and use of existing site features to reduce the amount of runoff and pollutant loading generated from a Project site. Source Control BMPs are preventative measures that are implemented to prevent the introduction of

pollutants into stormwater. LID BMPs mimic a site's natural hydrology by using design measures that capture, filter, store, evaporate, detain, and infiltrate runoff rather than allowing runoff to flow directly to piped or impervious storm drains. Treatment Control BMPs are structural BMPs designed to treat and reduce pollutants in stormwater runoff prior to releasing it to receiving waters.

A WQMP would be prepared for each phase of the Project and would specify the Source Control, Site Design, LID, and/or treatment BMPs proposed for the Project. Currently, 15 Modular Wetlands are proposed throughout the Project site (in addition to the 3 Modular Wetland Biofiltration systems and 2 Filterra catch basins currently present on the Project site). The WQMP would be refined during final design of each phase based on the final site plans, as specified in RCM-WQ-4. The proposed BMPs would target and reduce pollutants of concern from runoff from the Project site in compliance with the North Orange County MS4 Permit requirements. Compliance with the requirements of the North Orange County MS4 Permit, including incorporation of operational BMPs to target pollutants of concern, would ensure that impacts related to violation of water quality standards or waste discharge requirements and degradation of water quality during Project operation would be less than significant.

As discussed previously, infiltration of stormwater could have the potential to affect groundwater quality in areas of shallow groundwater. However, any infiltration would be minimal due to the low infiltration potential of on-site soils. Due to the depth to groundwater, it is not expected that any stormwater that may infiltrate during operation would affect groundwater quality, because there is no direct path for pollutants to reach groundwater. In addition, the proposed Project would be required to implement BMPs to treat stormwater before it could reach groundwater. Therefore, Project operation would not substantially degrade groundwater quality.

In conclusion, construction of the proposed Project would comply with existing NPDES regulations (as specified in RCM-WQ-4), which includes preparation of a WQMP and implementation of operational BMPs to target and reduce pollutants of concern in stormwater runoff from the Project site. Compliance with regulatory requirements would ensure that impacts related to violation of any water quality standards or waste discharge requirements and degradation of surface water or groundwater quality during Project operation would be less than significant, and no mitigation is required.

Regulatory Compliance Measures. No mitigation is required. The following Regulatory Compliance Measures are existing regulations that are applicable to the proposed Project and are considered in the analysis of potential impacts related to hydrology and water quality. The City considers these requirements to be mandatory; therefore, they are not mitigation measures.

RCM-WQ-1 Construction General Permit. Prior to commencement of construction activities for each phase of development, the Applicant shall obtain coverage under the *National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit)*, NPDES No. CAS000002, Order No. 2009-0009-DWQ, as amended by Order No. 2010-0014-DWQ and Order No. 2012-0006-DWQ, or any other subsequent permit. This shall include submission of Permit Registration Documents (PRDs), including permit application fees, a Notice of Intent (NOI), a risk

assessment, a site plan, a Stormwater Pollution Prevention Plan (SWPPP), a signed certification statement, and any other compliance-related documents required by the permit, to the State Water Resources Control Board via the Stormwater Multiple Application and Report Tracking System (SMARTS). Construction activities shall not commence until a Waste Discharge Identification Number (WDID) is obtained for the Project from the SMARTS and provided to the City of Irvine Chief Building Official, or designee, to demonstrate that coverage under the Construction General Permit has been obtained. Project construction shall comply with all applicable requirements specified in the Construction General Permit, including but not limited to, preparation of a SWPPP and implementation of construction site best management practices (BMPs) to address all construction-related activities, equipment, and materials that have the potential to impact water quality for the appropriate risk level identified for the Project. The SWPPP shall identify the sources of pollutants that may affect the quality of stormwater and shall include BMPs (e.g., Sediment Control, Erosion Control, and Good Housekeeping BMPs) to control the pollutants in stormwater runoff. Construction Site BMPs shall also conform to the requirements specified in the latest edition of the Orange County Stormwater Program *Construction Runoff Guidance Manual for Contractors, Project Owners, and Developers* to control and minimize the impacts of construction and construction-related activities, materials, and pollutants on the watershed. Upon completion of construction activities and stabilization of the Project site for each phase of development, a Notice of Termination shall be submitted via SMARTS.

- RCM-WQ-2** **Erosion and Sediment Control Plan.** In compliance with the requirements of Title 5 Planning, Division 10 Grading Code and Encroachment Regulations, Chapter 1 Grading Code, Article J Erosion and Sediment Control of the City of Irvine Municipal Code, the Applicant shall submit a grading plan and Erosion and Sediment Control Plan for each phase of development to the City of Irvine Chief Building Official, or designee, for review and approval prior to issuance of grading permits. The Applicant shall retain a civil engineer to oversee installation and maintenance and inspect the erosion and sediment control devices throughout the duration of construction. The civil engineer shall ensure Project construction complies with the erosion and sediment control requirements outlined in Sections 5-10-137 and 5-10-138 of the City Municipal Code.
- RCM-WQ-3** **Groundwater Dewatering Permits.** If groundwater dewatering is required during construction or excavation activities and the dewatered groundwater is discharged to the sanitary sewer system, the Applicant/Developer shall obtain a discharge permit from the Irvine Ranch Water District for each phase of development. If the dewatered groundwater is discharged to the storm drain system, the Applicant shall obtain coverage for each phase of development under one of two orders, or any subsequent orders, that apply to groundwater discharges to surface waters within the Newport Bay/San Diego Creek Watershed depending on the nature of the groundwater. The *General Waste Discharge Requirements for Discharges to Surface Waters that Pose an Insignificant (De Minimus) Threat to Water Quality* (Order No.

R8-2015-0004, NPDES No. CAG998001) covers discharges to surface waters that pose an insignificant (de minimus) threat to water quality within. This Order would be applicable to the Project if it can be demonstrated that the groundwater being discharged to surface waters does not contain pollutants of concern (selenium and nitrates) in the discharge. However, if groundwater is found to contain petroleum hydrocarbons, solvents, metals and/or salts, the Project would be subject to the *General Discharge Permit for Discharges to Surface Waters of Groundwater Resulting from Groundwater Dewatering Operations and/or Groundwater Cleanup Activities at Sites Within the San Diego Creek/Newport Bay Watershed Polluted by Petroleum Hydrocarbons, Solvents, Metals and/or Salts* (Order No. R8-2007-0041, NPDES No. CAG918002, as amended by R8-2009-0045). This covers general discharge permits for discharges to surface waters of groundwater resulting from groundwater dewatering operations and/or groundwater cleanup activities at sites within the San Diego Creek/Newport Bay Watershed that have been polluted by petroleum hydrocarbons, solvents, metals and/or salts, or nutrients, selenium, and other pollutants of TMDL concern. The Applicant shall submit a Notice of Intent (NOI) for coverage under the applicable groundwater dewatering permit to the Santa Ana Regional Water Quality Control Board (RWQCB) at least 45 days prior to the start of dewatering. Prior to commencement of groundwater dewatering activities, the Applicant shall provide the Waste Discharge Identification Number (WDID) to the City of Irvine Chief Building Official, or designee, to demonstrate proof of coverage under applicable groundwater dewatering permit. Groundwater dewatering shall not be initiated until a WDID is received from the Santa Ana Regional Water Quality Control Board (RWQCB) and is provided to the Director of the City's Public Works Department, or designee. Groundwater dewatering activities shall comply with all applicable provisions in the permit, including water sampling, analysis, treatment (if required), and reporting of dewatering-related discharges. Upon completion of groundwater dewatering activities for each phase of development, a Notice of Termination shall be submitted to the Santa Ana RWQCB.

RCM-WQ-4 **Water Quality Management Plan.** Prior to issuance of building permits for each phase of development, the Applicant shall submit a Final Water Quality Management Plan (WQMP) to the City of Irvine Director of Community Development, or designee, for review and approval in compliance with the *Waste Discharge Requirements for the County of Orange, Orange County Flood Control District and the Incorporated Cities of Orange County within the Santa Ana Region Areawide Urban Storm Water Runoff Orange County* (North Orange County MS4 Permit), Order No. R8-2009-0030, NPDES No. CAS618030 (as amended by Order No. R8-2010-0062). The Final WQMP shall be prepared consistent with the requirements of the *Model Water Quality Management Plan (WQMP)* (County of Orange 2011), *Technical Guidance Document for the Preparation of Conceptual/Preliminary and/or Project Water Quality Management Plans (WQMPs)* (County of Orange 2013), the City of Irvine *Local Implementation Plan (LIP)* (2010), or subsequent guidance manuals. The Final WQMP shall specify the permanent operational BMPs to be incorporated into the Project design to target pollutants of

concern in runoff from the Project site. The Final WQMP shall also demonstrate that the projects meet the hydromodification requirements of the North Orange County MS4 Permit, which requires that stormwater runoff from the Project site not exceed pre-development runoff volume or time of concentration by more than 5 percent for a 2-year, 24-hour storm. The City of Irvine Director of Community Development, or designee, shall ensure that the BMPs specified in the Final WQMP are incorporated into the final Project design.

- b. 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?*

Less than Significant Impact.

Construction. According to the Geotechnical Assessment prepared for the proposed Project, the historically shallowest groundwater depth in the vicinity of the Project site is approximately 40 feet bgs. Groundwater was encountered depths between 38 to 43 bgs during borings drilled as part of the geotechnical exploration for the proposed Project and at depths of 38 to 45 bgs during borings drilled as part of previous geotechnical explorations on the Project site. Additionally, according to the Geotechnical Assessment, perched groundwater is likely present above the groundwater table and may be encountered during basement excavations and groundwater dewatering may be required.

However, groundwater dewatering would be localized and temporary, and the volume of groundwater removed would not be substantial. Groundwater dewatering would not substantially affect groundwater supplies or recharge because groundwater dewatering would be temporary, would cease after Project construction, and would only affect perched groundwater and not the groundwater table. In addition, any volume of water removed during groundwater dewatering would be minimal compared to the size of the Coastal Plain of the Orange County Groundwater Basin, which has a surface area of 350 square miles and a storage capacity of 38,000,000 acre-feet (af) (California Department of Water Resources [DWR] 2004). Groundwater dewatering would not interfere with the sustainable management of the groundwater basin because the groundwater basin has been sustainably managed by the OCWD over the last 10 years and will continue to be sustainably managed (refer to response to Threshold 3.10(e) for additional discussion on sustainable groundwater management). Therefore, construction impacts related to a decrease in groundwater supplies or interference with groundwater recharge in a manner that may impede sustainable groundwater management would be less than significant, and no mitigation is required.

Operation. In the existing condition, the Project site is approximately 18.5 percent pervious and 81.5 percent impervious. Following Project implementation, the Project site would be 25.9 percent pervious and 74.1 percent impervious. Development of the proposed Project would decrease impervious surface area by approximately 7.4 percent, which would increase on-site infiltration. However, the soils on the Project site are not favorable for infiltration; therefore, existing and proposed on-site infiltration would be minimal. Therefore, any change in impervious surface areas would not substantially decrease infiltration capacity compared to existing conditions. Additionally, any change in infiltration would be minimal in comparison to the size of the Orange County

Groundwater Basin. Furthermore, neither groundwater extraction nor injection would take place during operation. Although the Project would increase water use, which may be obtained from groundwater, the IRWD, which supplies municipal water, ensures that sufficient water supplies are available so that groundwater overdraft does not occur and OCWD sustainably manages the groundwater basin. For these reasons, impacts related to depletion of groundwater supplies or interference with groundwater recharge in a manner that may impede sustainable groundwater management would be less than significant. No mitigation is required.

c. Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

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

Less than Significant Impact.

Construction. During Project construction activities, soil would be exposed and disturbed, drainage patterns would be temporarily altered during grading and other construction activities, and there would be an increased potential for soil erosion and siltation compared to existing conditions. Additionally, during a storm event, soil erosion and siltation could occur at an accelerated rate. Project construction would not disturb San Diego Creek because the proposed Project does not include physical improvements to the creek. As discussed above in response to Threshold 3.10(a), the Construction General Permit requires preparation of a SWPPP (RCM-WQ-1) and the City of Irvine Municipal Code requires preparation of an Erosion and Sediment Control Plan (RCM-WQ-2). The SWPPP and the Erosion and Sediment Control Plan would detail Erosion Control and Sediment Control BMPs to be implemented during Project construction to minimize erosion and retain sediment on site. With compliance with the requirements of the Construction General Permit and City Municipal Code and with implementation of the construction BMPs, construction impacts related to on- or off-site erosion or siltation would be less than significant, and no mitigation is required.

Operation. As stated previously, development of the proposed Project would decrease impervious surface area by approximately 7.4 percent. In the proposed condition, 74.1 percent of the Project site would be impervious surface area and not prone to on-site erosion or siltation, because no soil would be included in these areas. The remaining 25.9 percent of the site would consist of pervious surface area, which would contain landscaping that would minimize on-site erosion and siltation by stabilizing the soil. Therefore, on-site erosion and siltation impacts would be minimal.

San Diego Creek is susceptible to hydromodification (County of Orange 2013).¹ Increases in stormwater runoff to surface waters susceptible to hydromodification can lead to downstream erosion in receiving waters. However, in the existing condition, the Project site is largely impervious surface area. The proposed Project would include a total of 278,397 sf of landscaping (25.9 percent

¹ Hydromodification is the alteration of the hydrologic characteristics of waterbodies. Increased stream flows and changes in sediment transport caused by increased impervious areas from urbanization or other land use changes can result in increased stream flows, erosion, and changes in sediment transport.

of the Project site) which would result in a net decrease in stormwater runoff discharged from the Project site compared to existing conditions. Additionally, as specified in RCM-WQ-4, the proposed Project would be required to comply with the hydromodification requirements of the North Orange County MS4 Permit which requires that stormwater runoff from the Project site not exceed the predevelopment (i.e. existing conditions) runoff volume or time of concentration by more than 5 percent for a 2-year, 24-hour storm. As specified in RCM-WQ-5, a Final Hydrology Study would be required to be prepared and submitted to the City for approval. The Final Hydrology Study would also be required to demonstrate that the final design of the Project meets the hydromodification requirements. Because the stormwater runoff from the Project site would decrease and not exceed the North Orange County MS4 Permit hydromodification requirements (i.e., would not exceed predevelopment runoff rates or time of concentration by more than 5 percent), the proposed Project would not increase downstream erosion or siltation impacts. For these reasons, with implementation of RCM-WQ-4 and RCM-WQ-5 operation impacts related to substantial on- or off-site erosion or siltation would be less than significant, and no mitigation is required.

Regulatory Compliance Measure. No mitigation is required. The following Regulatory Compliance Measure is an existing regulation that is applicable to the proposed Project and is considered in the analysis of potential impacts related to hydrology and water quality. The City considers this requirement to be mandatory; therefore, it is not a mitigation measure.

RCM-WQ-5 Hydrology and Hydraulic Analyses. Prior to issuance of building permits for each phase of development, the Applicant shall submit Final Hydrology and Hydraulic Analyses to the City of Irvine Director of Community Development, or designee, for review and approval. The Final Hydrology and Hydraulic Analyses shall be prepared consistent with the requirements of the Orange County Hydrology Manual (Orange County Environment Agency 1986) and Orange County Hydrology Manual Addendum No. 1 (Orange County Environment Agency 1996), or subsequent guidance manuals. The Final Hydrology and Hydraulic Analyses shall confirm that the on-site storm drains and any other drainage structures are appropriately sized to accommodate stormwater runoff from the design storm. The Final Hydrology and Hydraulic Analyses shall also demonstrate that the Project meets the hydromodification requirements of the *Waste Discharge Requirements for the County of Orange, Orange County Flood Control District and the Incorporated Cities of Orange County within the Santa Ana Region Areawide Urban Storm Water Runoff Orange County* (North Orange County MS4 Permit), Order R8-2009-0030, NPDES No. CAS618030 (as amended by Order No. R8-2010-0062). In compliance with the hydromodification requirements, the post-Project runoff discharge volume for the 2-year, 24-hour storm shall not exceed that of the predevelopment condition by more than 5 percent, and the time of concentration of post-development runoff for the 2-year, 24-hour storm event shall not be greater than 5 percent less than that of the predevelopment condition. The City of Irvine Director of Community Development, or designee, shall ensure that the drainage facilities specified in the Final Hydrology and Hydraulic Analyses are incorporated into the final Project design.

- ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;*

Less than Significant Impact.

Construction. As discussed in response to Threshold 3.10(a), Project construction would comply with the requirements of the Construction General Permit and City Municipal Code and would include the preparation and implementation of a SWPPP and an Erosion and Sediment Control Plan, as required by RCM-WQ-1 and RCM-WQ-2. The SWPPP and the Erosion and Sediment Control Plan would include construction BMPs to control and direct on-site surface runoff and would include detention facilities, if required, to ensure that stormwater runoff from the construction site does not exceed the capacity of the stormwater drainage systems. With implementation of BMPs, construction impacts related to a substantial increase in the rate or amount of surface runoff that would result in flooding would be less than significant, and no mitigation is required.

Operation. The proposed on-site storm drain system would connect to the existing on-site storm drain system, which discharges into the City storm drain systems in Alton Parkway and Sand Canyon Avenue, which eventually discharge to San Diego Creek (refer to Figure 1-6, Utility Plan, in Section 1.2, Project Description). The proposed on-site storm drain systems and stormwater BMPs would be sized to collect and convey stormwater runoff on the Project site to prevent on-site flooding. As discussed in response to Threshold 3.10(c)(i), in the existing condition, the Project site is largely impervious surface area. The proposed Project would include a total of 278,397 sf of landscaping (24.9 percent of the Project site) which would result in a net decrease in stormwater runoff discharged from the Project site. Because stormwater runoff from the Project site would be reduced to less than existing conditions, the proposed Project would not result in off-site flooding. Additionally, the Modular Wetland Biofiltration systems would provide flow control to further reduce on- and off-site flooding. As specified in RCM-WQ-5, a Final Hydrology Study would be required to be prepared for the Project and submitted to the City for approval. The Final Hydrology Study would demonstrate that runoff from the Project site would not exceed the capacity of the existing and proposed storm drain system. For these reasons, impacts related to an increase in the rate or amount of surface runoff in a manner that would result in on- or off-site flooding would be less than significant. No mitigation is required.

- 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; or*

Less than Significant Impact.

Construction. As discussed above in response to Threshold 3.10(a), construction of the proposed Project has the potential to introduce pollutants to the storm drain system from erosion, siltation, and accidental spills. However, as specified in RCM-WQ-1 and RCM-WQ-2, the Construction General Permit requires preparation of a SWPPP, and the City of Irvine Municipal Code requires preparation of an Erosion and Sediment Control Plan. Both the SWPPP and Erosion and Sediment Control Plan would identify construction BMPs to be implemented during construction to reduce impacts to water quality, including those impacts associated with soil erosion, siltation, and spills. In addition, any groundwater extracted during groundwater dewatering activities that is discharged to surface waters would be tested and treated (if necessary) to ensure that any discharges meet the water

quality limits specified in the applicable NPDES permit (as specified in RCM-WQ-3). RCM-WQ-1, RCM-WQ-2, and RCM-WQ-3 are existing NPDES requirements with which the Project is required to comply. These measures would prevent discharge of substantial additional sources of polluted runoff to the storm drain system through implementation of construction BMPs that target pollutants of concern in runoff from the Project site as well as testing and treatment (if required) of groundwater prior to its discharge to surface waters.

Additionally, as discussed above in response to Threshold 3.10(c)(ii), the SWPPP and the Erosion and Sediment Control Plan would include construction BMPs to control and direct surface runoff on the Project site and would include detention measures if required to ensure that stormwater runoff from the construction site would not exceed the capacity of the stormwater drainage systems. For these reasons, construction impacts related to creation or contribution of runoff water that would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff would be less than significant. No mitigation is required.

Operation. As discussed above in response to Threshold 3.10(a), operation of the Project has the potential to introduce pollutants to the storm drain system from the proposed on-site uses. However, as specified in RCM-WQ-4, permanent operational BMPs that target and reduce pollutants of concern in stormwater runoff would be implemented and maintained throughout the life of the Project. RCM-WQ-4 is an existing NPDES requirement with which the Project is required to comply. This measure would prevent substantial additional sources of polluted runoff being discharged to the storm drain system through implementation of operational BMPs to target pollutants of concern in runoff from the Project site. Additionally, as discussed above in response to Threshold 3.10(c)(ii), the proposed Project would reduce impervious surface area, which would reduce stormwater runoff from the Project site. The Modular Wetland Biofiltration systems would target and reduce pollutants of concern in stormwater runoff from the Project site. For these reasons, operational impacts related to creation or contribution of runoff water that would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff would be less than significant. No mitigation is required.

iv. Impede or redirect flood flows?

No Impact. The Project site is not within a 100-year floodplain. According to the Federal Emergency Management Agency Federal Insurance Rate Map No. 06059C0292J (December 3, 2009), the Project site is within Zone X, which comprises areas of 0.2 percent annual chance flood (500-year flood) (i.e. areas of minimal flooding). As the Project site is not within a 100-year floodplain, areas of minimal flooding, the Project would not impede or redirect flood flows. No impact would occur, and no mitigation is required.

d. In flood hazard, tsunami, or seiche zones, would the project risk release of pollutants due to project inundation?

No Impact. As discussed in response to Threshold 3.10(c)(iv), the Project site is not within a 100-year flood hazard area. Furthermore, the Project site is not within a dam inundation area (DWR 2020). Therefore, the Project site is not subject to inundation from flooding during a storm or from dam failure, according to the California Dam Breach Inundation Maps.

Tsunamis are generated ocean wave trains generally caused by tectonic displacement of the seafloor associated with shallow earthquakes, seafloor landslides, rockfalls, and exploding volcanic islands. The Project site is approximately 7 mi from the ocean and is not in a tsunami inundation area, according to the Tsunami Inundation Map for Emergency Planning for Orange County. The risk associated with tsunamis, therefore, is not considered a potential hazard or a potentially significant impact, and no mitigation is required.

Seiching occurs when seismic ground shaking induces standing waves (seiches) inside water retention facilities (e.g., reservoirs and lakes). Such waves can cause retention structures to fail and flood downstream properties. Because there are no large lakes, reservoirs, or other water retention facilities in the vicinity of the Project site, the Project site is not at risk of inundation from seiche.

Because the Project site is not subject to inundation from a storm event, dam failure, tsunami, or seiche waves, there is no risk of release of pollutants due to inundation, and no mitigation is required.

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

Less than Significant Impact. The Project site is within the jurisdiction of the Santa Ana Regional Water Quality Control Board (RWQCB). The Santa Ana RWQCB adopted a Water Quality Control Plan (Basin Plan) that designates beneficial uses for all surface and groundwater within its jurisdiction and establishes the water quality objectives and standards necessary to protect those beneficial uses. As discussed in detail above in response to Threshold 3.10(a), the proposed Project would comply with existing NPDES requirements and would implement construction and operational BMPs to reduce pollutants of concern in stormwater runoff (RCM-WQ-1, RCM-WQ-2, and RCM-WQ-4). Additionally, during construction, any dewatered groundwater would be tested and treated (if necessary) prior to discharge to surface waters (RCM-WQ-3). Compliance with these regulatory requirements would ensure that proposed Project would not degrade or alter water quality, cause the receiving waters to exceed water quality objectives, or impair the beneficial use of receiving waters. As such, the proposed Project would not result in water quality impacts that would conflict with the Santa Ana RWQCB Basin Plan. Construction and operational impacts related to a conflict with the Basin Plan would be less than significant, and no mitigation is required.

The Sustainable Groundwater Management Act (SGMA), which was enacted in September 2014, requires governments and water agencies of high- and medium-priority basins to halt overdraft of groundwater basins. The SGMA requires the formation of local groundwater sustainability agencies, which are required to adopt Groundwater Sustainability Plans to manage the sustainability of the groundwater basins. The Project site is within the Coastal Plain of the Orange County Groundwater Basin, which is managed by the OCWD. The DWR identifies the Coastal Plain of the Orange County Groundwater Basin as a medium-priority basin; therefore, OCWD is required to develop a Groundwater Sustainability Plan and bring the groundwater basin into balanced levels of pumping and recharge by 2042. The SGMA established a process for local agencies to develop an alternative in lieu of a Groundwater Sustainability Plan. In compliance with this requirement, OCWD prepared and submitted the *Basin 8-1 Alternative – OCWD Management Area* (OCWD 2017) to the California DWR as an alternative to a Groundwater Sustainability Plan (DWR 2020). The *Basin 8-1 Alternative –*

OCWD Management Area demonstrates that the groundwater basin has been sustainably managed over the last 10 years and will continue to be sustainably managed. As detailed in response to Threshold 3.10(b), any groundwater extracted during groundwater dewatering during construction would be minimal, would consist of perched groundwater and not the groundwater table, and would not interfere with the sustainable management of the groundwater basin. Additionally, Project operation would not require groundwater extraction. Although the Project would increase water use, which may be obtained from groundwater, IRWD, which supplies municipal water, ensures that sufficient water supplies are available so that groundwater overdraft does not occur. For these reasons, the proposed Project would not conflict with or obstruct the implementation of a sustainable groundwater management plan. Therefore, construction and operational impacts related to conflict with or obstruction of water quality control plans or sustainable groundwater management plans would be less than significant. No mitigation is required.

3.10.2 Cumulative Impacts

Each of the related projects, individually and cumulatively, could potentially increase the volume of stormwater runoff and associated on- or off-site flooding, which could contribute to pollutant loading in stormwater runoff reaching both the City's storm drain system and receiving waters. Consequently, this could result in cumulative impacts to hydrology and surface water quality. However, as with the proposed Project, each of the related projects would also be subject to NPDES, City permit requirements, and groundwater dewatering permits, if necessary, for both construction and operation. Each project would be required to develop SWPPPs and Erosion and Sediment Control Plans and would be evaluated individually to determine appropriate BMPs to avoid impacts to surface water quality.

Groundwater dewatering may be required for the related projects because there is the potential to encounter groundwater during excavation activities. If groundwater dewatering is necessary, groundwater would be discharged to either the sanitary sewer system or storm drain system. If discharged to the sanitary sewer system, a discharge permit from the IRWD would be required to ensure that there is sufficient capacity available to accommodate the discharge to prevent sanitary sewer overflow, which can result in a discharge of pollutants to surface waters. In addition, any volume of water removed during groundwater dewatering would be minimal compared to the size of the Coastal Plain of the Orange County Groundwater Basin, which has a surface area of 350 square miles and a storage capacity of 38,000,000 af. Further, OCWD prepared and submitted the *Basin 8-1 Alternative – OCWD Management Area* (OCWD 2017) to the California DWR as an alternative to a Groundwater Sustainability Plan (DWR 2020), which demonstrates that the groundwater basin has been sustainably managed over the last 10 years and will continue to be sustainably managed. Therefore, ground dewatering would not introduce pollutants to receiving waters at levels that would violate water quality standards, waste discharge requirements, degrade water quality, or impact groundwater supply and recharge. For the reasons stated above, cumulative impacts to hydrology and surface water quality would be less than significant.

3.11 LAND USE AND PLANNING

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

3.11.1 Impact Analysis

a. *Would the project physically divide an established community?*

No Impact. The Project site is currently developed with medical uses and is in an urbanized portion of Irvine predominantly developed with medical, hotel, and office uses. In its existing condition, the Project site contains the HHI campus (comprised of a hospital building, a nursing building, and an emergency department building), the Rhodes MOB, and surface parking lots. Implementation of the proposed Project would not divide an established community because it involves the expansion of hospital uses on parcels that are currently developed with similar uses. As part of the Project, internal circulation would serve the proposed development, but the existing public street layout would not change. In addition, Project implementation would not disturb or alter access to any existing adjacent uses. Therefore, the proposed Project would not result in the physical division of any established community, and no mitigation is required.

b. *Would the project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?*

Less than Significant Impact. The main guiding documents regulating land use around the Project site include the City’s General Plan and Zoning Ordinance. The Project site has a General Plan land use designation of Research and Industrial and is in the 5.5 Medical and Science zoning district in Planning Area 13 (Irvine Spectrum 4).

General Plan. The City’s General Plan (Amended 2015) is the City’s most fundamental planning document. The General Plan establishes a vision for the City’s future growth and change. The General Plan is a comprehensive, long-range statement of the City’s development and preservation policies. The General Plan is a key tool for influencing the quality of life throughout the City.

The Project site is in an urbanized portion of Irvine and is bounded by Sand Canyon Avenue to the northwest; medical, office, and hotel uses to the northeast with San Diego Creek beyond; Irvine Oaks Executive Park and surface parking lots to the southeast; and Alton Parkway to the southwest. The Project site is currently developed with the HHI campus, the Rhodes MOB, and surface parking lots. The proposed Project involves the expansion of existing medical uses on the Project site. As

such, the proposed development would be consistent with existing uses on the Project site and uses in the Project's vicinity.

According to the City's General Plan Land Use Map, the Project site is designated Research and Industrial, which is intended for the manufacturing, research and development, storage, and distribution of materials or products; administrative, professional, and business offices associated with manufacturing uses; and employee-oriented retail services. Project implementation would not require a General Plan Amendment. Therefore, the proposed Project would be consistent with the identified General Plan designation, and no mitigation is required.

Zoning Ordinance. The City's Zoning Ordinance is the primary implementation tool of the General Plan Land Use Element and the goals and policies contained therein. For this reason, the Zoning Ordinance Map must be consistent with the General Plan Land Use Map. The Land Use Map indicates the general location and extent of future land uses in Irvine. The Zoning Ordinance, which includes the Zoning Ordinance Map, contains more detailed information per planning area about required development standards.

As stated above, the Project site currently has a zoning designation of 5.5, Medical and Science, and is within Planning Area 13 (Irvine Spectrum 4). The intent of the 5.5 Medical and Science zoning district is to allow the development of a biomedical/high technology complex combining health care facilities and related businesses, medical research and education, general research and development, and light manufacturing and assembly in one master planned area. Hospital uses are conditionally permitted in Zone 5.5, Medical and Science. The City first approved the existing HHI campus in 1983 under CUP 83-CP-0465, and several modifications to CUP 83-CP-0465 have been processed since its original approval. As part of the Project, another modification to CUP 83-CP-0465 would be required due to the additional 432,152 sf in entitlements proposed. Project implementation would not require a zone change.

The proposed Project would be required to be consistent with Section 9-13-7, Special Development Requirements, of the City's Municipal Code. According to Section 9-13-7.J, development permitted within the Irvine Spectrum 4 cannot generate more than a maximum of 8,799 trips during the p.m. peak hour. CUP 83-CP-0465 originally approved a maximum of 500 beds and 1,570 peak-hour trips on the Project site (850 trips for the HHI campus and 720 trips for the Rhodes MOB).

In its existing condition, the HHI campus contains 166 beds. As part of the Project, 225 new beds would be added to the hospital development. CUP-83-0465 allows a maximum of 500 beds upon the full build out of the site (refer to Table 1.B in Section 1.2, Project Description, which provides a breakdown of existing and new beds included as part of the proposed Project). The Project proposes a maximum of 391 beds at buildout, which is 109 fewer beds than what was entitled under CUP 83-CP-0465.

As discussed in Section 3.18, Transportation, 1.7 trips are assigned per bed for the hospital uses and 6 trips are assigned per 1,000 sf for the medical office uses. Upon Project implementation, there would be a maximum of 665 peak trips associated with the HHI campus¹ and a maximum of 695

¹ Calculation: 1.7 trips x 391 beds = 664.7 trips

peak trips associated with the Rhodes MOB¹ for a total of 1,360 maximum peak-hour trips. As such, the Project site would have a surplus of 210 unassigned peak-hour trips over the 1,570 trips allowed by CUP 83-CP-0465. Although the proposed Project would exceed the entitlements CUP 83-CP-0465 currently allows by 432,152 sf, the Project would not exceed the maximum number of beds or trips originally approved for the site at buildout.

The proposed Project would also be consistent with other development standards in the City's Zoning Code. As discussed in Table 3.1.A in Section 3.1, Aesthetics, the proposed Project would conform to all applicable development standards in Section 3-37-34 of the City's Municipal Code.

Overall, the proposed Project would not exceed the maximum number of beds or trips originally approved for the site at buildout under CUP 83-CP-0465. However, the Project would require modification to CUP 83-CP-0465 due to the additional 432,152 sf in entitlements proposed. Further, the proposed Project would be required to conform to all conditions established in the modified CUP. For the reasons stated above, the proposed Project would be consistent with the 5.5 Medical and Science zoning district in Planning Area 13 (Irvine Spectrum 4). No mitigation is required.

3.11.2 Cumulative Impacts

Cumulative land use impacts could occur if other related projects in the vicinity of the Project site would result in incompatible land uses or land uses inconsistent with adopted land use plans when combined with the impacts of the proposed Project. The proposed Project would not result in a potential inconsistency with the City General Plan or other land planning documents, nor would the proposed Project result in significant land use compatibility issues. Therefore, construction of the proposed Project, when considered in conjunction with several other existing and planned developments near the Project site, would not contribute to incompatible land uses or land uses inconsistent with adopted land use plans.

Like the proposed Project, any related projects within Irvine would be subject to local development standards, specifically with respect to the City's General Plan and Municipal Code. Therefore, implementation of the proposed Project would not result in, or contribute to, a cumulatively significant land use impact, and no mitigation is required.

¹ Calculation: 6 trips x 115.762 thousand square feet = 694.6 trips

3.12 MINERAL RESOURCES

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

3.12.1 Impact Analysis

a. *Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?*

No Impact. In 1975, the California Legislature enacted the Surface Mining and Reclamation Act, which, among other things, provided guidelines for the classification and designation of mineral lands. Areas are classified on the basis of geologic factors without regard to existing land use and land ownership. The areas are categorized into four Mineral Resource Zones (MRZs):

- **MRZ-1:** An area where adequate information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence.
- **MRZ-2:** An area where adequate information indicates that significant mineral deposits are present, or where it is judged that a high likelihood exists for their presence.
- **MRZ-3:** An area containing mineral deposits, the significance of which cannot be evaluated.
- **MRZ-4:** An area where available information is inadequate for assignment to any other MRZ zone.

Of the four categories, lands classified as MRZ-2 are of the greatest importance. Such areas are underlain by demonstrated mineral resources or are located where geologic data indicate that significant measured or indicated resources are present. MRZ-2 areas are designated by the State of California Mining and Geology Board as being “regionally significant.” Such designations require that a Lead Agency’s land use decisions involving designated areas are to be made in accordance with its mineral resource management policies and that it consider the importance of the mineral resource to the region or the State as a whole, not just to the Lead Agency’s jurisdiction.

The Project site is currently developed with medical uses and is in an urbanized portion of Irvine predominantly developed with medical, hotel, and office uses. The Project site has been classified by the California Department of Conservation as MRZ-1, indicating that the Project site is in an area

where adequate information indicates that no significant mineral deposits are present.¹ Further, there are no known mineral resources on the Project site, and the Project site is not designated or zoned for the extraction of mineral deposits. Therefore, implementation of the proposed Project would not result in the loss of availability of a known mineral resource that would be of value to the residents of the State, and no mitigation is required.

b. Would the project result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?

No Impact. As stated previously, no known commercially valuable mineral resources exist on or near the Project site. In addition, the Project site is not identified in the City's General Plan, Specific Plan, or other land use plan as the location of a locally important mineral resource. According to Figure VI-3, Orange County Mineral Resources Generalized, in the County of Orange General Plan (Amended 2012), there are no mineral resource areas near the Project site. The proposed Project would not result in the loss of a locally important mineral resource. Therefore, no impacts related to mineral resources would result from project implementation, and no mitigation is required.

3.12.2 Cumulative Impacts

The proposed Project would not result in impacts to mineral resources; therefore, the proposed Project would not contribute to cumulative impacts to these resources.

¹ California Department of Conservation, Division of Mines and Geology. Mineral Lands Classification. Website: <https://maps.conservation.ca.gov/cgs/informationwarehouse/index.html?map=mlc> (accessed August 3, 2020).

3.13 NOISE

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Generation of excessive groundborne vibration of groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

3.13.1 Technical Background

The following provides an overview of the characteristics of sound and the regulatory framework that applies to noise within the vicinity of the project site. Supporting calculations and model information are included in the appendices of this environmental document.

3.13.1.1 Characteristics of Sound

Noise is usually defined as unwanted sound. Noise consists of any sound that may produce physiological or psychological damage and/or interfere with communication, work, rest, recreation, or sleep. Several noise measurement scales exist that are used to describe noise in a particular location. A decibel (dB) is a unit of measurement that indicates the relative intensity of a sound. Sound levels in decibels are calculated on a logarithmic basis. An increase of 10 dB represents a tenfold increase in acoustic energy, while 20 dB is 100 times more intense, and 30 dB is 1,000 times more intense. Each 10 dB increase in sound level is perceived as approximately a doubling of loudness; similarly, each 10 dB decrease in sound level is perceived as half as loud. Sound intensity is normally measured through the A-weighted sound level (dBA). This scale gives greater weight to the frequencies of sound to which the human ear is most sensitive. The A weighted sound level is the basis for 24-hour sound measurements, which better represent how humans are more sensitive to sound at night.

As noise spreads from a source, it loses energy; therefore, the farther away the noise receiver is from the noise source, the lower the perceived noise level. Geometric spreading causes the sound level to attenuate or be reduced, resulting in a 6 dB reduction in the noise level for each doubling of distance from a single point source of noise to the noise-sensitive receptor of concern.

There are many ways to rate noise for various time periods, but an appropriate rating of ambient noise affecting humans also accounts for the annoying effects of sound. The equivalent continuous sound level (L_{eq}) is the total sound energy of time-varying noise over a sample period. However, the predominant rating scales for human communities in the State of California are the L_{eq} , the

community noise equivalent level (CNEL), and the day-night average level (L_{dn}) based on A-weighted decibels. CNEL is the time-varying noise over a 24-hour period, with a 5 dBA weighting factor applied to the hourly L_{eq} for noises occurring from 7:00 p.m. to 10:00 p.m. (defined as relaxation hours), and a 10 dBA weighting factor applied to noises occurring from 10:00 p.m. to 7:00 a.m. (defined as sleeping hours). L_{dn} is similar to the CNEL scale but without the adjustment for events occurring during the evening hours. CNEL and L_{dn} are within 1 dBA of each other and are normally interchangeable. The City uses the CNEL noise scale for long-term noise impact assessment. Other noise rating scales of importance when assessing the annoyance factor include the maximum instantaneous noise level (L_{max}), which is the highest exponential time-averaged sound level that occurs during a stated time period. The noise environments discussed in this analysis for short-term noise impacts are specified in terms of maximum levels denoted by L_{max} , which reflects peak operating conditions and addresses the annoying aspects of intermittent noise.

Noise impacts can be described in three categories. The first category includes audible impacts that refer to increases in noise levels noticeable to humans. Audible increases in noise levels generally refer to a change of 3 dB or greater because this level has been found to be barely perceptible in exterior environments. The second category, potentially audible, refers to a change in the noise level between 1 dB and 3 dB. This range of noise levels has been found to be noticeable only in laboratory environments. The last category includes changes in noise levels of less than 1 dB, which are inaudible to the human ear. Only audible changes in existing ambient or background noise levels (3 dB or greater) are considered potentially significant.

3.13.1.2 Characteristics of Vibration

Vibration refers to ground-borne noise and perceptible motion. Ground-borne vibration is almost exclusively a concern inside buildings and is rarely perceived as a problem outdoors where the motion may be discernible. However, without the effects associated with the shaking of a building, there is less adverse reaction. Vibration energy propagates from a source through intervening soil and rock layers to the foundations of nearby buildings. The vibration then propagates from the foundation throughout the remainder of the structure. Building vibration may be perceived by occupants as motion of building surfaces, the rattling of items on shelves or hanging on walls, or a low-frequency rumbling noise. The rumbling noise is caused by the vibrating walls, floors, and ceilings radiating sound waves. Building damage is not a factor for normal operation and construction activities with the occasional exception of blasting and pile driving during construction.

Typical sources of ground-borne vibration are construction activities (e.g., blasting, pile driving, and operating heavy-duty earthmoving equipment), steel-wheeled trains, and occasional traffic on rough roads. Impacts with ground-borne vibration and noise from these sources are usually localized to areas within approximately 100 ft of the vibration source, although there are examples of ground-borne vibration causing interference out to distances greater than 200 ft (Federal Transit Administration [FTA] *Transit Noise and Vibration Impact Assessment* (September 2018)). When roadways are smooth, vibration from traffic, even heavy trucks, is rarely perceptible. For most projects, it is assumed that the roadway surface will be smooth enough that ground-borne vibration from street traffic will not exceed the impact criteria; however, construction activities have the potential to result in ground-borne vibration that could be perceptible and annoying. Ground-borne

noise is not likely to be a problem because noise arriving via the normal airborne path usually will be greater than ground-borne noise.

Ground-borne vibration has the potential to disturb people as well as damage buildings. Although it is very rare for ground-borne vibration to cause even cosmetic building damage, it is not uncommon for construction processes such as blasting and pile driving to cause vibration of sufficient amplitudes to damage nearby buildings (FTA 2018). Ground-borne vibration is usually measured in terms of vibration velocity, either the root-mean-square (RMS) velocity or peak particle velocity (PPV). RMS is best for characterizing human response to building vibration, and PPV is used to characterize the potential for damage. Decibel notation acts to compress the range of numbers required to describe vibration. Vibration velocity level in decibels is defined as:

$$L_v = 20 \log_{10} [V/V_{ref}]$$

where L_v is the velocity in decibels (VdB), “V” is the RMS velocity amplitude, and “Vref” is the reference velocity amplitude, or 1 x 10⁻⁶ inches per second (in/sec) used in the United States.

3.13.2 Regulations Setting

The following sections provide the applicable noise and vibration standards utilized to assess potential project impacts.

3.13.2.1 Federal Regulations

Federal Transit Administration. Vibration standards included in the FTA’s Transit Noise and Vibration Impact Assessment Manual (2018) are used in this analysis for ground-borne vibration impacts on human annoyance, as shown in Table 3.13.A. Table 3.13.A provides the criteria for assessing the potential for interference or annoyance from vibration levels in a building.

Table 3.13.A: Interpretation of Vibration Criteria for Detailed Analysis

Land Use	Max L_v (VdB) ¹	Description of Use
Workshop	90	Distinctly feelable vibration. Appropriate to workshops and non-sensitive areas.
Office	84	Feelable vibration. Appropriate to offices and non-sensitive areas.
Residential Day	78	Feelable vibration. Appropriate for computer equipment and low-power optical microscopes (up to 20X).
Residential Night and Operating Rooms	72	Vibration not feelable, but ground-borne noise may be audible inside quiet rooms. Suitable for medium-power microscopes (100X) and other equipment of low sensitivity.

Source: *Transit Noise and Vibration Impact Assessment* (FTA 2018)

¹ As measured in 1/3-Octave bands of frequency over the frequency range 8 to 80 Hertz.

L_v = velocity in decibels

VdB = vibration velocity decibels

The criteria for environmental impact from ground-borne vibration and noise are based on the maximum levels for a single event. Table 3.13.B lists the potential vibration building damage criteria associated with construction activities, as suggested in the FTA’s Transit Noise and Vibration Impact Assessment Manual (FTA 2018). FTA guidelines show that a vibration level of up to 0.5 in/sec in PPV (FTA 2018) is considered safe for buildings consisting of reinforced concrete, steel, or timber (no plaster) and would not result in any construction vibration damage. For a nonengineered timber and masonry building, the construction building vibration damage criterion is 0.2 in/sec in PPV.

Table 3.13.B: Construction Vibration Damage Criteria

Building Category	PPV (in/sec)
Reinforced concrete, steel, or timber (no plaster)	0.50
Engineered concrete and masonry (no plaster)	0.30
Non-engineered timber and masonry buildings	0.20
Buildings extremely susceptible to vibration damage	0.12

Source: *Transit Noise and Vibration Impact Assessment Manual* (FTA 2018)
 FTA = Federal Transit Administration PPV = peak particle velocity
 in/sec = inch/inches per second

3.13.2.2 Local Regulations

City of Irvine Noise Element of the General Plan. The noise standards specified in Table F-1 of the City’s General Plan Noise Element (shown in Table 3.13.C of this document) are used as a guideline to evaluate the acceptability of the noise levels generated by traffic. These standards are for assessment of long-term vehicular traffic noise impacts. The City has an exterior noise standard of 65 dBA CNEL for outdoor sensitive areas and 45 dBA CNEL for interior uses associated with a hospital. Other short-term noise impacts (e.g., construction activities or on-site stationary sources) are regulated by the noise ordinance.

City of Irvine Municipal Code. Section 6-8-204 of the City’s Municipal Code (City of Irvine 2015d) establishes the maximum permissible noise level that may intrude into a neighbor’s property. The Noise Ordinance (adopted in 1975 and revised in 2015) establishes noise level standards for various land use categories affected by stationary noise sources. Land use categories in Irvine are defined in four noise zones, as listed below. Table 3.13.D provides the City’s maximum noise standard based on the noise zone, the location of the noise (exterior/interior), and the time period.

1. **Noise Zone 1:** All hospitals, libraries, churches, schools, and residential properties
2. **Noise Zone 2:** All professional office and public institutional properties
3. **Noise Zone 3:** All commercial properties, excluding professional office properties
4. **Noise Zone 4:** All industrial properties

Table 3.13.C: Interior and Exterior Noise Standards Energy Average (CNEL)

Land Use Categories		Energy Average (CNEL)	
Categories	Uses	Interior ¹	Exterior ²
Residential	Single-Family, Multiple-Family	45 ³ 55 ⁴	65 ⁵
	Mobile Home	—	65 ⁶
Commercial/ Industrial	Hotel, Motel, Transient Lodging	45	65 ⁷
	Commercial, Retail, Bank, Restaurant	55	—
	Office Building, Professional Office, Research & Development	50	—
	Amphitheater, Concert Hall, Auditorium, Meeting Hall	45	—
	Gymnasium (Multipurpose)	50	—
	Health Clubs	55	—
	Manufacturing, Warehousing, Wholesale, Utilities	65	—
Institutional	Movie Theater	45	—
	Hospital, School Classroom	45	65
Open Space	Church, Library	45	—
	Parks	—	65

Source: City of Irvine General Plan Supplement No. 3, Noise Element, Table F-1 (2005)

- ¹ Interior environment excludes bathrooms, toilets, closets, and corridors.
- ² Outdoor environment is limited to private yards of single-family or multifamily residences; private patios accessed by means of exit from inside the unit; mobile home parks; hospital patios; park picnic areas; school playgrounds; and hotel and motel recreation areas.
- ³ Noise level requirement with closed windows. A mechanical ventilating system or other means of natural ventilation shall be provided pursuant to Appendix Chapter 12, Section 1208, of the UBC.
- ⁴ Noise level requirement with open windows, if they are used to meet the natural ventilation requirement.
- ⁵ Multifamily developments with balconies that do not meet the 65 dBA CNEL are required to provide occupancy disclosure notices to all future tenants regarding potential noise impacts.
- ⁶ The exterior noise level shall be such that the interior noise level will not exceed 45 dBA CNEL.
- ⁷ Except those areas affected by aircraft noise.

CNEL = Community Noise Equivalent Level

dBA = A-weighted decibels UBC = Uniform Building Code

Table 3.13.D: City of Irvine Maximum Noise Level Standards

Noise Zone	Exterior/ Interior	Time Period	L ₅₀ (30 mins)	L ₂₅ (15 mins)	L ₈ (5 mins)	L ₂ (1 min)	L _{max} (Anytime)
1	Exterior	7:00 AM to 10:00 PM	55	60	65 ¹	70	75
		10:00 PM to 7:00 AM	50	55	60	65 ¹	70
	Interior	7:00 AM to 10:00 PM	—	—	55	60	65
		10:00 PM to 7:00 AM	—	—	45	50	55
2	Exterior	Anytime	55	60	65	70	75
	Interior	Anytime	—	—	55	60	65
3	Exterior	Anytime	60	65	70	75	80
	Interior	Anytime	—	—	55	60	65
4	Exterior	Anytime	70	75	80	85	90
	Interior	Anytime	—	—	55	60	65

Source: City of Irvine Municipal Code (City of Irvine 2015d)

Note: It shall be unlawful for any person at any location within Irvine 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 Irvine, to exceed the applicable noise standard. Each of the noise standards specified above shall be reduced by 5 dBA for impact, or predominant tone noise or for noises consisting of speech or music. In the event the noise source and the affected property are within different noise zones, the noise standards of the affected property shall apply.

- ¹ This standard does not apply to multifamily residence private balconies. Multifamily developments with balconies that do not meet the 65 dBA CNEL criterion are required to provide occupancy disclosure notices to all future tenants regarding potential noise impacts
min/mins = minute/minutes L_{max} = maximum instantaneous noise level

The City's Municipal Code Noise Ordinance has not established any upper limits for construction noise because construction noise is temporary and will stop after project construction is complete. Section 6-8-205a of the City's Municipal Code Noise Ordinance regulates the timing of construction activities and includes special provisions for sensitive land uses. Construction activities shall occur only between the hours of 7:00 a.m. and 7:00 p.m., Monday through Friday, and between 9:00 a.m. and 6:00 p.m. on Saturday. No construction shall be permitted outside of these hours or on Sundays and federal holidays, except for Columbus Day, unless a temporary waiver is granted by the Chief Building Official or his/her authorized representative. Trucks, vehicles, and equipment that are making or are involved with material deliveries, loading or transferring materials, equipment service, or 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 the City grants a temporary waiver. Any waiver granted shall take into consideration the potential impact on the community. No construction activity will be permitted outside of these hours except in emergencies, including maintenance work on the City rights-of-way that might be required.

3.13.3 Thresholds of Significance

A project would normally have a significant effect on the environment related to noise and vibration if the following occurs:

- a. *Would the project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?*
- b. *Generation of excessive groundborne vibration or groundborne noise levels?*
- c. *For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within 2 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?*

The following were used to respond to the above questions to determine whether the project would result in a significant noise impact:

For off-site transportation-related impacts:

- Where the existing ambient noise level is less than 65 dBA and a project-related permanent increase in ambient noise levels of 5 dBA CNEL or greater occurs.
- Where the existing ambient noise level is greater than 65 dBA and a project-related permanent increase in ambient noise levels of 3 dBA CNEL or greater occurs.

For nontransportation-related stationary source impacts, including operations:

- If current noise levels experienced at the surrounding sensitive uses are less than the hourly daytime noise level standards, then an exceedance of the standards listed in Table 3.13.D would constitute a potentially significant impact.

- If current noise levels experienced at the surrounding sensitive uses are greater than the hourly daytime noise level standard listed in Table 3.13.D, then a perceptible increase of 3 dBA or more would constitute a potentially significant impact.

For construction-related noise and vibration impacts:

- Lack of compliance with the Irvine Municipal Code for noise; and
- Exceedance of the FTA standards listed above in Tables 3.13.A and 3.13.B for vibration.

3.13.4 Existing Noise Environment

The project site is at 16100–16300 Sand Canyon Avenue in Irvine. Currently, the site consists of HHI an approximately 15-net-acre campus at 16200 Sand Canyon Avenue. The Project site also includes the Rhodes MOB at 16300 Sand Canyon Avenue. The HHI campus includes a 255,421 sf hospital composed of a main building with a 10,200 sf Central Utility Plant, a nursing building with 166 hospital beds, and a standalone, 1-story emergency building immediately to the east of the main hospital building. The 10-story, 115,762 sf Rhodes MOB is immediately west of the HHI campus. The total building area on the Project site is 381,383 sf. The surrounding uses include the following:

- **Northwest:** Existing office uses opposite Sand Canyon Avenue approximately 215 feet from the project property line. Additionally, the existing Oak Glen Apartments approximately 510 feet from the project property line.
- **Northeast:** Existing medical, office, and hotel uses with the Candlewood Suites hotel approximately 80 feet from the project property line.
- **Southeast:** Existing parking lot and office uses with the Irvine Oaks Executive Park office complex approximately 325 feet from the project property line.
- **Southwest:** Existing Kaiser Orange County—Irvine hospital opposite Alton Parkway approximately 375 feet from the project property line.

The noise levels at the project site and surrounding areas are dominated by traffic on Sand Canyon Avenue, Alton Parkway and I-405, while periodic noise is experienced from parking lot activities at the adjacent uses and operations at the existing project site and surrounding uses.

3.13.4.1 Existing Noise Level Measurements

To assess the existing noise conditions in the area, noise measurements were gathered at the project site; the locations of the noise measurements are shown in Figure 3.13-1. Three long-term, 24-hour measurements (LT-1, LT-2, and LT-3) were taken from September 1 to September 2, 2020. Table 3.13.E, below, shows the results of the noise measurements. It should be noted that the results presented in Table 3.13.E are likely slightly lower than typical conditions due to the statewide stay-at-home orders that were in effect during the measurements because of the COVID-19 pandemic, likely resulting in lower traffic volumes on the surrounding roadways. The results of the noise modeling will be adjusted within the analysis to account for the difference in noise levels currently versus typical conditions.

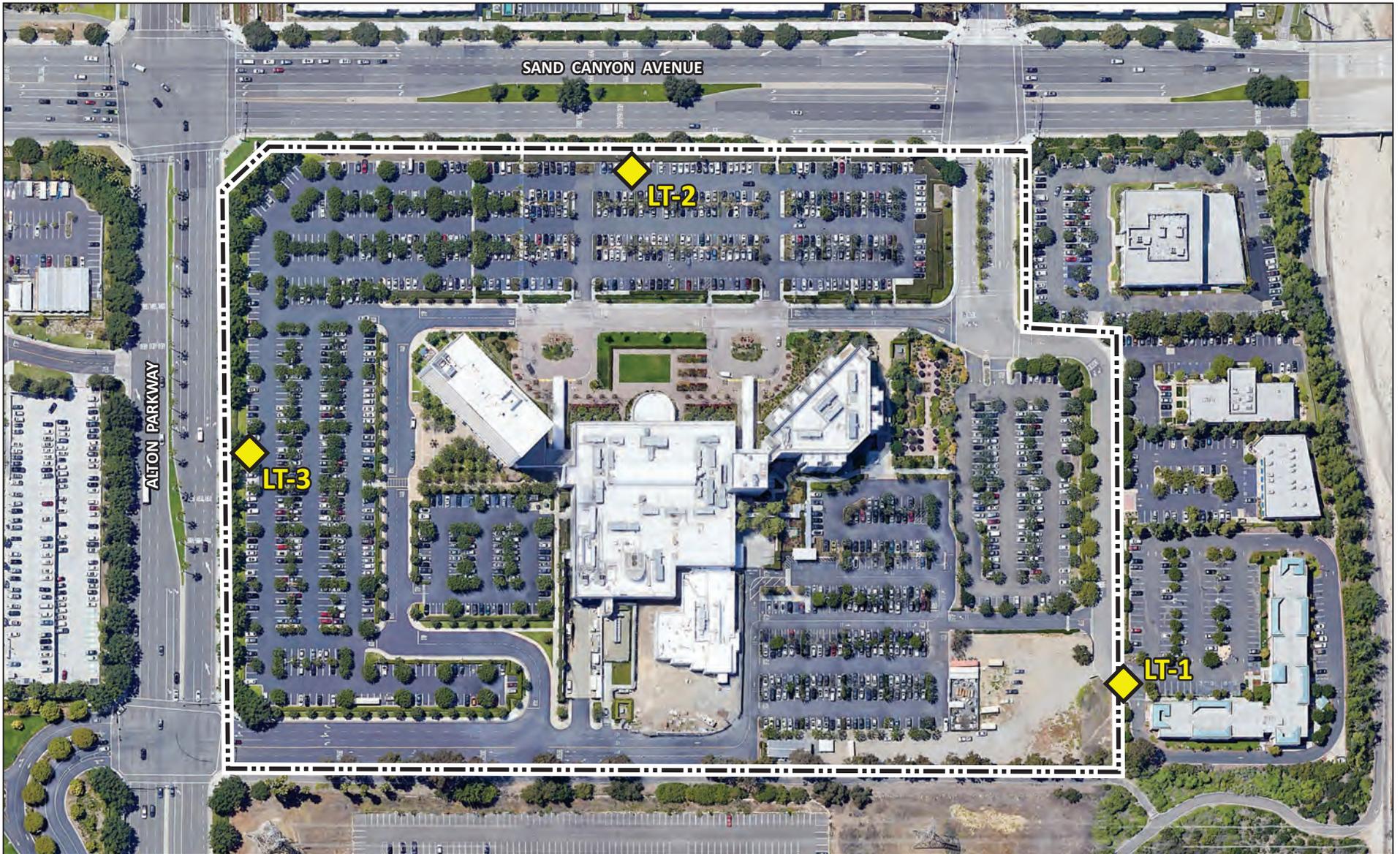


FIGURE 4.13-1

LSA

LEGEND



Project Site



Long-term, 24-hour, Noise Monitoring Location



SOURCE: Google Earth

Hoag Hospital Irvine
Noise Monitoring Locations

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Table 3.13.E: Existing Noise Level Measurements

Location	Description	Range of Daytime Noise Levels (dBA L _{eq})	Range of Evening Noise Levels (dBA L _{eq})	Range of Nighttime Noise Levels (dBA L _{eq})	Average Daily Noise Level (dBA CNEL)
LT-1	Located near the eastern corner of the project site, approximately 30 feet from the existing hotel.	55.0–59.0	54.9–56.1	54.3–56.1	62.1
LT-2	Located on the northwestern portion of the project site, 50 feet from the edge of Sand Canyon Avenue and 500 feet north of Alton Parkway.	60.7–62.7	57.7–62.4	51.5–61.9	65.2
LT-3	Located on the southwestern portion of the project site, 50 feet from the edge of Alton Parkway and 470 feet south of Sand Canyon Avenue.	60.0–64.1	57.0–61.3	51.1–59.9	64.1

Source: Compiled by LSA Associates, Inc. (September 1–2, 2020).

dBA = A-weighted decibel

L_{eq} = average noise level

CNEL= Community Noise Equivalent Level

3.13.4.2 Existing Traffic Noise Contours

LSA used the guidelines included in the Federal Highway Administration (FHWA) Highway Traffic Noise Prediction Model (1977; FHWA RD-77-108) to evaluate traffic-related noise conditions along roadway segments in the project vicinity. This model requires various parameters, including traffic volumes, vehicle mix, vehicle speed, and roadway geometry to compute typical equivalent noise levels during daytime, evening, and nighttime hours. The resultant noise levels are weighted and summed over 24-hour periods to determine the CNEL values. Existing traffic noise contours along modeled roadway segments are shown in Table 3.13.F, which were taken from the *Hoag Hospital Irvine Traffic Study* (LSA October 2020). These noise levels represent the worst-case scenario, which assumes that no shielding is provided between the traffic and the locations where the noise contours are drawn.

Modeled traffic noise levels at the northwestern portion of the project site on Sand Canyon Avenue from Hoag Irvine to Alton Parkway shown in Table 3.13.F are estimated to be 69.2 dBA CNEL at a distance of 50 ft. from the nearest travel lane. Modeled traffic noise levels at the southwestern portion of the project site, Alton Parkway and Alton Parkway from Sand Canyon Avenue to Hoag Irvine, shown in Table 3.13.F, are estimated to be 69.0 dBA CNEL at a distance of 50 ft from the nearest travel lane.

To provide a direct comparison of modeled traffic noise levels to measured traffic noise levels, locations LT-2 and LT-3 were adjusted for distance. Both locations were approximately 65 feet from the roadway, thus requiring an increase of 1.7 dBA compared to measured levels. The resulting adjusted measured noise levels at LT-2 and LT-3 are 66.9 and 65.8 dBA CNEL, respectively. These resulting noise level estimates indicate that the measured noise levels are an average of 2.8 dBA below modeled estimates.

Table 3.13.F: Existing Traffic Noise Levels

Roadway Segment	ADT	Centerline to 70 dBA CNEL (ft)	Centerline to 65 dBA CNEL (ft)	Centerline to 60 dBA CNEL (ft)	CNEL (dBA) 50 ft from Centerline of Nearest Travel Lane
Alton Parkway from Jeffrey Road to Sand Canyon Avenue	22,900	90	163	335	68.5
Alton Parkway from Sand Canyon Avenue to Hoag Irvine	27,100	100	182	374	69.0
Alton Parkway from Hoag Irvine to Laguna Canyon Road	19,400	80	146	300	68.1
Sand Canyon Avenue from I-5 Northbound Off-Ramp to Marine Way	41,800	143	278	583	71.6
Sand Canyon Avenue from Marine Way to I-5 Southbound Off-Ramp	45,700	150	294	619	72.0
Sand Canyon Avenue from I-5 Southbound Off-Ramp to Burt Road	37,200	130	256	540	71.5
Sand Canyon Avenue from Burt Road to Laguna Canyon Road	37,200	130	256	540	71.5
Sand Canyon Avenue from Laguna Canyon Road to Irvine Center Drive	37,200	130	256	540	71.5
Sand Canyon Avenue from Irvine Center Drive to Waterworks Way	27,100	100	182	374	69.0
Sand Canyon Avenue from Waterworks Way to Barranca Parkway	27,100	100	182	374	69.0
Sand Canyon Avenue from Barranca Parkway to Hoag Irvine	27,900	101	185	381	69.2
Sand Canyon Avenue from Hoag Irvine to Alton Parkway	27,900	101	185	381	69.2
Sand Canyon Avenue from Alton Parkway to I-405 Northbound Off-Ramp	38,100	117	223	468	70.5

Source: Hoag Hospital Irvine Traffic Study (LSA, October 2020).

Note: Traffic noise within 50 ft of the roadway centerline should be evaluated with site-specific information.

Shaded cells represent roadway segments adjacent to the project site.

ADT = average daily traffic

ft = feet

CNEL = Community Noise Equivalent Level

I-5 = Interstate 5

dBA = A-weighted decibels

I-405 = Interstate 405

3.13.5 Impact Analysis

- a. *Would the project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?*

Noise impacts from the proposed Project would be associated with construction and operational stationary noise. The Project would consist of the construction and operation of a 436,740 sf hospital with 225 beds, approximately 260,000 sf of hospital support services, a 47,550 sf Central Utility Plant, an 8,000 sf auditorium and conference center, 2 parking structures, and surface parking

areas. Upon project build out, the building area on the Project site would total 1,123,473 sf, representing an increase of 752,290 sf compared to existing conditions.

Less than Significant Impact.

3.13.5.1 Short-Term Off-Site Construction Noise Impacts

Two types of short-term noise impacts would occur during project construction: (1) equipment delivery and construction worker commutes; and (2) project construction operations.

The first type of short-term construction noise would result from transport of construction equipment and materials to the project site and construction worker commutes. These transportation activities would incrementally raise noise levels on access roads leading to the site. It is expected that larger trucks used in equipment delivery would generate higher noise impacts than trucks associated with worker commutes. The single-event noise from equipment trucks passing at a distance of 50 feet from a sensitive noise receptor would reach a maximum level of 84 dBA L_{max} . However, the pieces of heavy equipment for grading and construction activities would be moved on site just one time and would remain on site for the duration of each construction phase.

This one-time trip, when heavy construction equipment is moved on and off site, would not add to the daily traffic noise in the project vicinity. The total number of daily vehicle trips would be minimal when compared to existing traffic volumes on the affected streets, and the long-term noise level change associated with these trips would not be perceptible. Therefore, equipment transport noise and construction-related worker commute impacts would be short term and would not result in a significant off-site noise impact.

The second type of short-term noise impact is related to noise generated during demolition, site preparation, grading, building construction, architectural coating, and paving on the project site. Construction is undertaken in discrete steps, each of which has its own mix of equipment and, consequently, its own noise characteristics. These various sequential phases would change the character of the noise generated on the project site. Therefore, the noise levels vary as construction progresses. Despite the variety in the type and size of construction equipment, similarities in the dominant noise sources and patterns of operation allow construction-related noise ranges to be categorized by work phase. Table 3.13.G lists the maximum noise levels recommended for noise impact assessments for the project-specific construction equipment list based on a distance of 50 ft between the equipment and a noise receptor. Typical operating cycles for these types of construction equipment may involve 1 or 2 minutes of full-power operation followed by 3 or 4 minutes at lower power settings.

Table 3.13.G: Typical Maximum Construction Equipment Noise Levels (L_{max})

Type of Equipment	Acoustical Usage Factor	Suggested Maximum Sound Levels for Analysis (dBA L_{max} at 50 ft)
Air Compressor	40	80
Backhoe	40	80
Cement Mixer	50	80
Concrete/Industrial Saw	20	90
Crane	16	85
Excavator	40	85
Forklift	40	85
Generator	50	82
Grader	40	85
Loader	40	80
Pile Driver	20	101
Paver	50	85
Roller	20	85
Rubber Tire Dozer	40	85
Scraper	40	85
Tractor	40	84
Truck	40	84
Welder	40	73

Source: FHWA. *Highway Construction Noise Handbook* (August 2006).

dBA = A-weighted decibel(s)

FHWA = Federal Highway Administration

ft = foot/feet

L_{max} = maximum instantaneous noise level

In addition to the reference maximum noise level, the usage factor provided in Table 3.13.G was used to calculate the hourly noise level impact for each piece of equipment based on the following equation:

$$L_{eq}(equip) = E.L. + 10 \log(U.F.) - 20 \log\left(\frac{D}{50}\right)$$

where: $L_{eq}(equip)$ = L_{eq} at a receiver resulting from the operation of a single piece of equipment over a specified time period

E.L. = noise emission level of the particular piece of equipment at a reference distance of 50 ft

U.F. = usage factor that accounts for the fraction of time that the equipment is in use over the specified period of time

D = distance from the receiver to the piece of equipment

Each piece of construction equipment operates as an individual point source. Using the following equation, a composite noise level can be calculated when multiple sources of noise operate simultaneously:

$$Leq (composite) = 10 * \log_{10} \left(\sum_{1}^n 10^{\frac{Lm}{10}} \right)$$

Using the equations from the methodology above and the reference information in Table 3.13.G, the composite noise level of each phase of construction at a distance of 50 is presented in Table 3.13.H as well as shown in more detail in Appendix D.

Table 3.13.H: Potential Construction Noise Impacts by Phase

Phase	Equipment	Noise Level (dBA Leq)
Demolition	Concrete saw, Excavator, Dozer	87
Site Preparation	Dozer, Tractor, Loader, Backhoe	85
Grading	Excavator, Grader, Dozer, Scraper, Tractor, Loader, Backhoe	88
Building Construction	Crane, Forklift, Generator Set, Tractor, Loader, Backhoe, Welder	86
Paving	Paver, Loader, Roller	84
Architectural Coating	Air Compressor	76

Source: Compiled by LSA Associates, Inc. (2020).

dBA Leq = average A-weighted hourly noise level

Once composite noise levels are calculated, reference noise levels can then be adjusted for distance using the following equation:

$$Leq (at distance X) = Leq (at 50 feet) - 20 * 10 \log_{10} \left(\frac{X}{50} \right)$$

It is expected that noise levels during construction would approach 88.0 dBA Leq at 50 feet during grading, which could occur close to the property lines. While construction-related short-term noise levels have the potential to be higher than existing ambient noise levels in the project area under existing conditions, the noise impacts would no longer occur once project construction is completed.

Table 3.13.I shows the uses that surround the project site, the distances of the activities area to the nearest structure, noise levels expected during construction for the conditions at which construction is at the edge of the Project site, and an average noise level for the entire Project site. These noise level projections do not take into account intervening topography or barriers.

Table 3.13.I: Potential Construction Noise Impacts at Nearby Receptors

Receptor (Location)	Construction Activities at Edge of Project Site		Construction Activities at Center of Project Site	
	Distance (feet)	Noise Level (dBA L _{eq})	Distance (feet)	Noise Level (dBA L _{eq})
Hotel (East)	80	84	750	64
Offices (North)	140	79	675	65
Offices (Northwest)	215	75	640	66
Apartments (Northwest)	510	68	975	62
Hospital (Southwest)	375	70	985	62
Offices (Southeast)	325	72	790	64

Source: Compiled by LSA Associates, Inc. (2020).

dBA L_{eq} = average A-weighted hourly noise level

Compliance with the City’s Noise Ordinance would ensure that construction noise would not disturb the nearby apartments, hotel, hospital, and sensitive office uses during hours when ambient noise levels are likely to be lower (i.e., at night). Although construction noise would be higher than the ambient noise in the project vicinity, construction noise would cease once project construction is completed. In addition to compliance with appropriate construction times, the following **Standard Condition (SC) NOI-1** would implement measures during construction to reduce noise impacts to the greatest extent feasible. The construction activities shall take place only between the hours of 7:00 a.m. and 7:00 p.m., Monday through Friday, and between 9:00 a.m. and 6:00 p.m. on Saturday. No construction shall be permitted outside of these hours or on Sundays and federal holidays, except for Columbus Day, unless a temporary waiver is granted by the Chief Building Official or his/her authorized representative. Therefore, construction activity noise impacts would be less than significant, and no mitigation is required.

SC-NOI-1 Construction Noise. Prior to issuance of grading permits, the project Applicant shall incorporate the following measures as notes on the grading plan cover sheet to ensure the greatest distance between noise sources and sensitive receptors during construction activities has been achieved.

- Construction equipment, fixed or mobile, shall be equipped with properly operating and maintained noise mufflers consistent with manufacturers’ standards.
- Construction staging areas shall be located away from off-site sensitive uses during the later phases of project development.
- The project contractor shall place all stationary construction equipment so that emitted noise is directed away from sensitive receptors nearest the proposed Project site whenever feasible

3.13.5.2 Long-Term Off-Site Transportation Noise Impacts

The guidelines included in the FHWA Highway Traffic Noise Prediction Model (FHWA-RD-77 108) were used to evaluate highway traffic-related noise conditions along roadway segments in the project vicinity. This model requires various parameters, including traffic volumes, vehicle mix, vehicle speed, and roadway geometry, to compute typical equivalent noise levels during daytime, evening, and nighttime hours. The resultant noise levels are weighted and summed over 24-hour periods to determine the CNEL values. Tables 3.13.J, 3.13.K, 3.13.L, and 3.13.M provide the traffic noise levels for the existing with and without project, future short-term interim year approved with and without project, long-range interim year approved with and without project, and build out approved with and without project scenarios, respectively. These noise levels represent the worst-case scenario, which assumes no shielding is provided between the traffic and the location where the noise contours are drawn. The without and with project scenario traffic volumes were obtained from the *Hoag Hospital Irvine Traffic Study* (LSA 2020). Appendix E provides the specific assumptions used in developing these noise levels and model printouts.

Tables 3.13.J, 3.13.K, 3.13.L, and 3.13.M show that the increase in project-related traffic noise would be no greater than 0.3 dBA CNEL. Noise level increases below 1.0 dBA are not considered perceptible to humans in an outdoor environment as well as being below the increase thresholds presented in Section 3.13.3; therefore, traffic noise impacts from project-related traffic on off-site sensitive receptors would be less than significant, and no mitigation measures are required.

3.13.5.3 Long-Term Off-Site Stationary Noise Impacts

Adjacent off-site land uses would be potentially exposed to stationary-source noise impacts from the proposed on-site truck delivery and truck loading/unloading activities; heating, ventilation, and air conditioning (HVAC) equipment; mechanical equipment noise (diesel generators); and parking garage noise.

Truck Delivery and Loading Dock Activities. Supply delivery trucks and truck loading/unloading activities for the project would be located at the existing loading docks of the project site located on the southern corner of the main building. These activities are assumed to take place anytime during the day. Noise levels generated from these activities would result in maximum noise similar to noise readings from loading and unloading activities for other projects, which would generate a noise level of 75 dBA L_{max} at 50 ft, based on measurements conducted by LSA in past years.

Although a typical truck unloading process takes an average of 15–20 minutes, this maximum noise level occurs in a much shorter period of time (less than 5 minutes). Based on the maximum noise level of 75 dBA L_{max} for a cumulative period of 5 minutes in any hour, truck delivery and truck loading/unloading activities would generate a noise level of 64.2 dBA L_{eq} . Table 3.13.N shows the exterior noise levels from truck delivery and truck loading and unloading activities for land uses surrounding the project along with their approximate distance from the truck activity area, distance attenuation, and shielding.

Table 3.13.J: Existing Traffic Noise Levels Without and With Project

Roadway Segment	Without Project Traffic Conditions					With Project Traffic Conditions					
	ADT	Centerline to 70 dBA CNEL (ft)	Centerline to 65 dBA CNEL (ft)	Centerline to 60 dBA CNEL (ft)	CNEL (dBA) 50 ft from Centerline of Outermost Lane	ADT	Centerline to 70 dBA CNEL (ft)	Centerline to 65 dBA CNEL (ft)	Centerline to 60 dBA CNEL (ft)	CNEL (dBA) 50 ft from Centerline of Outermost Lane	Increase from Baseline Conditions
Alton Parkway from Jeffrey Road to Sand Canyon Avenue	22,900	90	163	335	68.5	23,100	90	164	337	68.6	0.1
Alton Parkway from Sand Canyon Avenue to Hoag Irvine	27,100	100	182	374	69.0	28,400	102	187	386	69.2	0.2
Alton Parkway from Hoag Irvine to Laguna Canyon Road	19,400	80	146	300	68.1	20,200	81	149	308	68.3	0.2
Sand Canyon Avenue from I-5 Northbound Off-Ramp to Marine Way	41,800	143	278	583	71.6	42,600	144	281	591	71.7	0.1
Sand Canyon Avenue from Marine Way to I-5 Southbound Off-Ramp	45,700	150	294	619	72.0	46,500	151	297	626	72.1	0.1
Sand Canyon Avenue from I-5 Southbound Off-Ramp to Burt Road	37,200	130	256	540	71.5	38,400	132	261	551	71.6	0.1
Sand Canyon Avenue from Burt Road to Laguna Canyon Road	37,200	130	256	540	71.5	38,400	132	261	551	71.6	0.1
Sand Canyon Avenue from Laguna Canyon Road to Irvine Center Drive	37,200	130	256	540	71.5	38,600	133	262	553	71.6	0.1
Sand Canyon Avenue from Irvine Center Drive to Waterworks Way	27,100	100	182	374	69.0	28,900	103	189	390	69.3	0.3
Sand Canyon Avenue from Waterworks Way to Barranca Parkway	27,100	100	182	374	69.0	29,000	103	189	391	69.3	0.3
Sand Canyon Avenue from Barranca Parkway to Hoag Irvine	27,900	101	185	381	69.2	30,200	105	194	402	69.5	0.3
Sand Canyon Avenue from Hoag Irvine to Alton Parkway	27,900	101	185	381	69.2	28,600	102	188	388	69.3	0.1
Sand Canyon Avenue from Alton Parkway to I-405 Northbound Off-Ramp	38,100	117	223	468	70.5	39,600	119	229	480	70.7	0.2

Source: Compiled by LSA Associates, Inc. (2020).

Note: Shaded cells represent roadway segments adjacent to the project site.

ADT = average daily trips

I-405 = Interstate 405

CNEL = Community Noise Equivalent Level

I-5 = Interstate 5

dBA = A-weighted decibels

ft = feet

Table 3.13.K: Short-Term Interim Approved Traffic Noise Levels Without and With Project

Roadway Segment	Without Project Traffic Conditions					With Project Traffic Conditions					
	ADT	Centerline to 70 dBA CNEL (ft)	Centerline to 65 dBA CNEL (ft)	Centerline to 60 dBA CNEL (ft)	CNEL (dBA) 50 ft from Centerline of Outermost Lane	ADT	Centerline to 70 dBA CNEL (ft)	Centerline to 65 dBA CNEL (ft)	Centerline to 60 dBA CNEL (ft)	CNEL (dBA) 50 ft from Centerline of Outermost Lane	Increase from Baseline Conditions
Alton Parkway from Jeffrey Road to Sand Canyon Avenue	23,200	90	164	338	68.6	23,300	91	165	339	68.6	0.0
Alton Parkway from Sand Canyon Avenue to Hoag Irvine	27,500	101	184	378	69.1	28,800	103	189	390	69.3	0.2
Alton Parkway from Hoag Irvine to Laguna Canyon Road	19,600	80	146	302	68.1	20,300	81	150	309	68.3	0.2
Sand Canyon Avenue from I-5 Northbound Off-Ramp to Marine Way	51,900	160	318	673	72.6	52,100	161	319	674	72.6	0.0
Sand Canyon Avenue from Marine Way to I-5 Southbound Off-Ramp	63,800	180	363	771	73.5	64,000	180	364	773	73.5	0.0
Sand Canyon Avenue from I-5 Southbound Off-Ramp to Burt Road	33,600	124	240	505	71.0	34,300	125	243	512	71.1	0.1
Sand Canyon Avenue from Burt Road to Laguna Canyon Road	33,000	122	238	499	71.0	33,600	124	240	505	71.0	0.0
Sand Canyon Avenue from Laguna Canyon Road to Irvine Center Drive	32,900	122	237	498	70.9	34,100	124	242	510	71.1	0.2
Sand Canyon Avenue from Irvine Center Drive to Waterworks Way	34,500	111	210	438	70.1	36,000	113	216	451	70.3	0.2
Sand Canyon Avenue from Waterworks Way to Barranca Parkway	33,500	110	206	430	70.0	35,000	112	212	442	70.2	0.2
Sand Canyon Avenue from Barranca Parkway to Hoag Irvine	34,800	112	211	441	70.1	36,800	115	219	457	70.4	0.3
Sand Canyon Avenue from Hoag Irvine to Alton Parkway	33,800	110	208	432	70.0	34,100	111	209	435	70.0	0.0
Sand Canyon Avenue from Alton Parkway to I-405 Northbound Off-Ramp	43,800	125	244	512	71.1	44,900	127	248	521	71.2	0.1

Source: Compiled by LSA Associates, Inc. (2020).

Note: Shaded cells represent roadway segments adjacent to the project site.

ADT = average daily trips

I-405 = Interstate 405

CNEL = Community Noise Equivalent Level

I-5 = Interstate 5

dBA = A-weighted decibels

ft = feet

Table 3.13.L: Long-Range Interim Approved Traffic Noise Levels Without and With Project

Roadway Segment	Without Project Traffic Conditions					With Project Traffic Conditions					
	ADT	Centerline to 70 dBA CNEL (ft)	Centerline to 65 dBA CNEL (ft)	Centerline to 60 dBA CNEL (ft)	CNEL (dBA) 50 ft from Centerline of Outermost Lane	ADT	Centerline to 70 dBA CNEL (ft)	Centerline to 65 dBA CNEL (ft)	Centerline to 60 dBA CNEL (ft)	CNEL (dBA) 50 ft from Centerline of Outermost Lane	Increase from Baseline Conditions
Alton Parkway from Jeffrey Road to Sand Canyon Avenue	26,200	95	177	366	69.1	26,300	96	177	366	69.1	0.0
Alton Parkway from Sand Canyon Avenue to Hoag Irvine	33,600	110	207	431	69.9	34,300	111	210	437	70.0	0.1
Alton Parkway from Hoag Irvine to Laguna Canyon Road	22,800	86	160	333	68.8	23,100	86	162	336	68.9	0.1
Sand Canyon Avenue from I-5 Northbound Off-Ramp to Marine Way	54,400	164	328	694	72.8	54,600	165	329	696	72.8	0.0
Sand Canyon Avenue from Marine Way to I-5 Southbound Off-Ramp	59,900	173	349	739	73.2	60,100	174	350	741	73.2	0.0
Sand Canyon Avenue from I-5 Southbound Off-Ramp to Burt Road	35,900	128	250	527	71.3	36,200	128	252	530	71.4	0.1
Sand Canyon Avenue from Burt Road to Laguna Canyon Road	35,100	126	247	519	71.2	35,400	127	248	522	71.3	0.1
Sand Canyon Avenue from Laguna Canyon Road to Irvine Center Drive	32,800	122	237	497	70.9	33,400	123	239	503	71.0	0.1
Sand Canyon Avenue from Irvine Center Drive to Waterworks Way	34,300	111	209	436	70.1	35,200	112	213	444	70.2	0.1
Sand Canyon Avenue from Waterworks Way to Barranca Parkway	34,100	111	209	435	70.0	35,000	112	212	442	70.2	0.2
Sand Canyon Avenue from Barranca Parkway to Hoag Irvine	35,300	112	213	445	70.2	36,300	114	217	453	70.3	0.1
Sand Canyon Avenue from Hoag Irvine to Alton Parkway	33,600	110	207	431	70.0	33,500	110	206	430	70.0	0.0
Sand Canyon Avenue from Alton Parkway to I-405 Northbound Off-Ramp	45,800	128	251	528	71.3	46,100	128	252	530	71.4	0.1

Source: Compiled by LSA Associates, Inc. (2020).

Note: Shaded cells represent roadway segments adjacent to the project site.

ADT = average daily trips

I-405 = Interstate 405

CNEL = Community Noise Equivalent Level

I-5 = Interstate 5

dBA = A-weighted decibels

ft = feet

Table 3.13.M: Build Out Approved Traffic Noise Levels Without and With Project

Roadway Segment	Without Project Traffic Conditions					With Project Traffic Conditions					
	ADT	Centerline to 70 dBA CNEL (ft)	Centerline to 65 dBA CNEL (ft)	Centerline to 60 dBA CNEL (ft)	CNEL (dBA) 50 ft from Centerline of Outermost Lane	ADT	Centerline to 70 dBA CNEL (ft)	Centerline to 65 dBA CNEL (ft)	Centerline to 60 dBA CNEL (ft)	CNEL (dBA) 50 ft from Centerline of Outermost Lane	Increase from Baseline Conditions
Alton Parkway from Jeffrey Road to Sand Canyon Avenue	25,200	94	172	356	68.9	25,100	94	172	355	68.9	0.0
Alton Parkway from Sand Canyon Avenue to Hoag Irvine	33,200	110	206	427	69.9	33,700	110	208	432	70.0	0.1
Alton Parkway from Hoag Irvine to Laguna Canyon Road	22,200	85	158	327	68.7	22,500	85	159	330	68.7	0.0
Sand Canyon Avenue from I-5 Northbound Off-Ramp to Marine Way	64,100	180	364	773	73.5	64,200	180	365	774	73.5	0.0
Sand Canyon Avenue from Marine Way to I-5 Southbound Off-Ramp	70,500	190	387	824	73.9	70,700	191	388	825	73.9	0.0
Sand Canyon Avenue from I-5 Southbound Off-Ramp to Burt Road	41,900	139	276	584	72.0	42,200	139	277	586	72.0	0.0
Sand Canyon Avenue from Burt Road to Laguna Canyon Road	41,300	138	274	578	71.9	41,600	138	275	581	72.0	0.1
Sand Canyon Avenue from Laguna Canyon Road to Irvine Center Drive	37,500	131	257	542	71.5	38,000	132	260	547	71.6	0.1
Sand Canyon Avenue from Irvine Center Drive to Waterworks Way	38,900	118	226	474	70.6	39,700	119	229	480	70.7	0.1
Sand Canyon Avenue from Waterworks Way to Barranca Parkway	39,800	119	230	481	70.7	40,600	120	232	487	70.8	0.1
Sand Canyon Avenue from Barranca Parkway to Hoag Irvine	40,300	120	231	485	70.8	41,100	121	234	491	70.9	0.1
Sand Canyon Avenue from Hoag Irvine to Alton Parkway	38,000	116	223	467	70.5	37,700	116	222	464	70.5	0.0
Sand Canyon Avenue from Alton Parkway to I-405 Northbound Off-Ramp	50,800	135	268	565	71.8	50,900	135	268	566	71.8	0.0

Source: Compiled by LSA Associates, Inc. (2020).

Note: Shaded cells represent roadway segments adjacent to the project site.

ADT = average daily trips

I-405 = Interstate 405

CNEL = Community Noise Equivalent Level

I-5 = Interstate 5

dBA = A-weighted decibels

ft = feet

Table 3.13.N: Summary of Truck Delivery and Truck Loading/Unloading Activity Noise Levels

Land Use (Direction)	Reference Noise Level (dBA L _{eq})	Reference Distance (ft)	Distance ¹ (ft)	Distance Attenuation (dBA)	Shielding (dBA) ²	Exterior Noise Level (dBA L _{eq})
Hotel (East)	64.2	50	810	24.2	10	30.0
Offices (North)			900	25.1	10	29.1
Offices (Northwest)			870	24.8	10	29.4
Apartments (Northwest)			1,165	27.3	10	26.9
Hospital (Southwest)			855	24.7	10	29.5
Offices (Southeast)			600	21.6	0	42.6

Source: Compiled by LSA Associates, Inc. (2020)

¹ Distance from loading dock to sensitive receptor/building.

² A 10 dBA reduction is assumed when intervening buildings are between the source and receptor analyzed.

dBA = A-weighted decibels

ft = feet

L_{eq} = equivalent continuous sound level

Heating, Ventilation, and Air Conditioning Operations. The project would have rooftop HVAC units on various buildings within the project site. The HVAC equipment could operate 24 hours per day. Rooftop HVAC equipment would generate noise levels of 66.6 dBA L_{eq} at 5 ft, based on previous measurements conducted by LSA. Table 3.13.O shows the exterior noise levels from the proposed on-site HVAC units for land uses surrounding the project along with the approximate distance from the closest HVAC unit and distance attenuation. It shall be noted that the noise from HVAC equipment is likely to be further reduced should parapet walls, which break the line of sight from the equipment to receptor, be installed.

Table 3.13.O: Summary of HVAC Activity Noise Levels

Land Use (Direction)	Reference Noise Level (dBA L _{eq})	Reference Distance (ft)	Distance ¹ (ft)	Distance Attenuation (dBA)	Shielding (dBA) ²	Exterior Noise Level (dBA L _{eq})
Hotel (East)	66.6	5	310	35.8	0	30.8
Offices (North)			275	34.8	0	31.8
Offices (Northwest)			250	34.0	0	32.6
Apartments (Northwest)			545	40.7	0	25.9
Hospital (Southwest)			385	37.7	0	28.9
Offices (Southeast)			480	39.6	0	27.0

Source: Compiled by LSA Associates, Inc. (2020)

¹ Distance from loading dock to sensitive receptor/building.

² A 10 dBA reduction is assumed when intervening buildings are between the source and receptor analyzed.

dBA = A-weighted decibels

ft = feet

HVAC = heating, ventilation, and air conditioning

L_{eq} = equivalent continuous sound level

New Generator Operations. The project would have two new, 2,000 kilowatt diesel generators near the existing loading dock. Based on manufacturer information, one 1,000 kilowatt generator would produce a noise level of 76 dBA at a distance of 21 feet from a Level II enclosure. The calculations

below have been completed with this information. While it is expected that the 2,000 kilowatt generators may produce higher noise levels, the Project engineer has stated that the custom design and enclosures would result in a noise level of 70 dBA or less at 21 feet.¹ Table 3.13.P shows the exterior noise levels from generator operations for land uses surrounding the project site along with their approximate distance from the loading dock area where the generators would be, distance attenuation, and shielding.

Table 3.13.P: Summary of Diesel Generator Operation Noise Levels

Land Use (Direction)	Reference Noise Level (dBA L _{eq})	Reference Distance (ft)	Distance ¹ (ft)	Distance Attenuation (dBA)	Shielding (dBA) ²	Exterior Noise Level (dBA L _{eq})
Hotel (East)	76	21	810	31.7	10	37.3
Offices (North)			900	32.6	10	36.4
Offices (Northwest)			870	32.3	10	36.7
Apartments (Northwest)			1,165	34.9	10	34.1
Hospital (Southwest)			855	32.2	10	36.8
Offices (Southeast)			600	29.1	0	49.9

Source: Compiled by LSA Associates, Inc. (2020)

¹ Distance from generators to sensitive receptor/building.

² A 10 dBA reduction is assumed when intervening buildings are between the source and receptor analyzed.

dBA = A-weighted decibels

ft = feet

L_{eq} = equivalent continuous sound level

Parking Structure Operations. The project would include two new parking structures, one on the east side of the project site and one new parking structure on the west side of the project site. Based on reference noise level measurement gathered by LSA for similar uses, noise levels from parking activities, such as persons conversing and slamming doors, would generate maximum noise levels of 70.0 dBA L_{eq} at 50 ft. Table 3.13.Q shows the exterior noise levels from parking lot activities at the parking structure closest to each surrounding land use along with their approximate distance from the parking areas, distance attenuation, and shielding.

Combined Stationary Noise Impacts. Table 3.13.R shows the combined stationary noise sources from truck delivery and truck loading and unloading activities, HVAC, and generator operations for land uses surrounding the project. It should be noted that City uses an L₅₀ standard, which assessed the noise level impacts for a duration of 30 minutes in an hour, whereas the L_{eq} metric assesses the average noise levels over the duration of an hour. While the resulting L_{eq} and L₅₀ are often not identical, typically, the resulting noise levels are similar when it is assumed that activities would occur continuously for the duration of an hour. As shown in Table 3.13.R, the combined stationary noise level would not exceed the City’s exterior L₅₀ (30-minute) noise standard of 55 dBA for the existing residential, hotel, hospital and office uses. Additionally, the table shows the combined stationary noise levels would not exceed the City’s nighttime exterior noise standard of 50 dBA for the existing hotel and hospital. Lastly, the maximum noise levels from parking lot activities are also presented compared to the City’s maximum daytime and nighttime standards.

¹ Email correspondence with Ray Swartz of tk1sc on September 29, 2020.

Table 3.13.Q: Summary of Parking Structure Operation Noise Levels

Land Use (Direction)	Reference Noise Level (dBA L _{max})	Reference Distance (ft)	Distance ¹ (ft)	Distance Attenuation (dBA)	Shielding (dBA) ²	Exterior Noise Level (dBA L _{max})
Hotel (East)	70	50	85	4.6	0.0	65.4
Offices (North)			145	9.2	0.0	60.8
Offices (Northwest)			565	21.1	10.0	38.9
Apartments (Northwest)			860	24.7	10.0	35.3
Hospital (Southwest)			385	17.7	0.0	52.3
Offices (Southeast)			390	17.8	0.0	52.2

Source: Compiled by LSA Associates, Inc. (2020)

¹ Distance from nearest parking structure to sensitive receptor/building.

² A 10 dBA reduction is assumed when intervening buildings are between the source and receptor analyzed.

dBA = A-weighted decibels

ft = feet

L_{eq} = equivalent continuous sound level

Table 3.13.R: Combined Stationary Noise Levels

Land Use (Direction)	Noise Source	Noise Level (dBA L _{eq})	Combined Hourly Exterior Noise Level (dBA L _{eq})	Daytime / Nighttime Exterior Hourly Noise Standard (dBA L ₅₀)	Maximum Parking Lot Noise Level (dBA L _{max})	Daytime / Nighttime Maximum Noise Standard (dBA L _{max})
Hotel (East)	Loading Dock Activities	30.0	38.8	55/50	65.4	75/70
	HVAC	30.8				
	Generators	37.3				
Offices (North)	Loading Dock Activities	29.1	38.2	55/55	60.8	75/75
	HVAC	31.8				
	Generators	36.4				
Offices (Northwest)	Loading Dock Activities	29.4	38.6	55/55	38.9	75/75
	HVAC	32.6				
	Generators	36.7				
Apartments (Northwest)	Loading Dock Activities	26.9	35.4	55/50	35.3	75/70
	HVAC	25.9				
	Generators	34.1				
Hospital (Southwest)	Loading Dock Activities	29.5	38.1	55/50	52.3	75/70
	HVAC	28.9				
	Generators	36.8				
Offices (Southeast)	Loading Dock Activities	42.6	50.6	55/55	52.2	75/75
	HVAC	27.0				
	Generators	49.9				

Source: Compiled by LSA Associates, Inc. (2020).

dBA = A-weighted decibels

ft = foot/feet

HVAC = heating, ventilation, and air conditioning

L_{eq} = equivalent continuous sound level

L_{max} = maximum instantaneous noise level

The results presented based on the reference information available indicate that exterior noise levels at all surrounding receptors will be below the applicable L₅₀ and L_{max} criteria, therefore, off-site noise impacts from combined stationary noise sources from the proposed Project would be less than significant. To confirm that the noise levels associated with the proposed generators would

comply with the City's exterior noise standards, as outlined in **Standard Condition (SC) NOI-2**, a memorandum would be required.

SC-NOI-2 Supplemental Generator Assessment Memorandum. The Supplemental Memorandum should either present documented manufacturer sound specifications applicable to the generators installed or provide the results of on-site measurements once the equipment is installed to ensure that exterior noise levels at the surrounding receptors are not exceeded. This Supplemental Memorandum shall be prepared by a qualified acoustical consultant and submitted to the City of Irvine.

3.13.5.4 Long-Term On-Site Transportation Noise Impacts

Based on the results from the noise monitoring gathered at the project site, the dominant sources of noise to the proposed Project site are traffic on Sand Canyon Avenue and Alton Parkway. Noise levels are expected to approach 71 dBA CNEL at a distance of 50 ft from the nearest lane's centerline. Once final site plans are available, a Final Acoustical Report, as outlined in **Standard Condition (SC) NOI-3**, would be required to confirm that all noise sensitive exterior areas (i.e., gather and meet areas) remain below the applicable exterior noise standard of 65 dBA CNEL and that proposed on-site buildings have interior noise levels below 45 dBA CNEL.

SC-NOI-3 Final Acoustical Report. Prior to issuance of building permits, the Project Applicant/Developer shall submit a Final Acoustical Report, prepared by a qualified acoustical consultant, to the City of Irvine. The Building Official, or designee, shall verify that the Final Acoustical Report demonstrates that all noise sensitive exterior areas comply with the City's exterior noise level standard and that all noise sensitive rooms with exterior façades comply with the City's interior noise standard. Noise reduction techniques that may be incorporated into construction plans in order to reduce interior noise levels include, but are not limited to, incorporation of upgraded windows and doors, improved wall construction, or reduced window and door sizes should oversized windows and doors be originally designed.

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

Less than Significant Impact.

3.13.5.5 Short-Term Off-Site Construction Vibration Impacts

Ground-borne noise and vibration from construction activity would be mostly low to moderate. While there is currently limited information regarding vibration source levels, to provide a comparison of vibration levels expected for a project of this size, as shown in Table 3.13.S, a large bulldozer would generate approximately 87 VdB (0.089 PPV in/sec) of ground-borne vibration when measured at 25 feet, based on the FTA's *Transit Noise and Vibration Impact Assessment* (FTA 2018).

Table 3.13.S: Vibration Source Amplitudes for Construction Equipment

Equipment	Reference PPV/L _v at 25 feet	
	PPV (in/sec)	L _v (VdB) ¹
Hoe Ram	0.089	87
Large Bulldozer	0.089	87
Caisson Drilling	0.089	87
Loaded Trucks	0.076	86
Jackhammer	0.035	79
Small Bulldozer	0.003	58

Source: *Transit Noise and Vibration Impact Assessment* (FTA 2018).

¹ RMS VdB re 1 μin/sec.

μin/sec = microinch(es) per second

FTA = Federal Transit Administration

in/sec = inch(es) per second

L_v = velocity in decibels

PPV = peak particle velocity

RMS = root-mean-square

VdB = vibration velocity in decibels

The distance to the nearest buildings for vibration impact analysis is measured between the nearest off-site buildings and the project boundary (assuming the construction equipment would be used at or near the project boundary) because vibration impacts normally occur within the buildings. The formula for vibration transmission is provided below.

$$L_v\text{dB} (D) = L_v\text{dB} (25 \text{ feet}) - 30 \text{ Log} (D/25)$$

$$\text{PPV}_{\text{equip}} = \text{PPV}_{\text{ref}} \times (25/D)^{1.5}$$

Construction Vibration Damage Potential. As shown above in Table 3.13.F, it would take a minimum of 0.12 in/sec PPV to cause any potential building damage for extremely susceptible buildings or a minimum of 0.2 in/sec PPV for a non-engineered timber and masonry building. Table 3.13.T lists the projected vibration level from various construction equipment expected to be used on the project site to the nearest buildings in the project vicinity.

The closest structure to the project site is the existing hotel to the east, approximately 80 feet from the project construction area limits. Based on aerial photography and field observations, the adjacent building was recently completed and is was constructed using tilt-up concrete façades. Utilizing the equations above, the operation of typical construction equipment would generate ground-borne vibration levels of 0.016 in/sec PPV. Based on this analysis, vibration levels would not exceed any of the established guidelines considered for damage potential; therefore, the project is not expected to result in the generation of excessive ground-borne vibration. This impact would be less than significant.

Table 3.13.T: Summary of Construction Vibration Levels

Receptor (Direction)	Reference Vibration Level (VdB) at 25 ft	Reference Vibration Level (PPV) at 25 ft	Distance ¹ (ft)	Maximum Vibration Level (VdB)	Maximum Vibration Level (PPV)
Hotel (East)	87	0.089	80	72	0.016
Offices (North)	87	0.089	140	65	0.007
Offices (Northwest)	87	0.089	215	59	0.004
Hospital (Southwest)	87	0.089	375	52	0.002
Offices (Southeast)	87	0.089	325	54	0.002

Source: Compiled by LSA Associates, Inc. (2020).

Note: Reference vibration levels are associated with a large bulldozer.

¹ Distances reflect the nearest structure of each land use category in a given direction to the nearest project construction boundary.

All other structures of each land use category in the given direction would experience lower vibration levels.

ft = foot/feet

PPV = peak particle velocity

FTA = Federal Transit Administration

VdB = vibration velocity decibels

in/sec = inches per second

Construction Vibration Human Annoyance Potential. As shown above, large bulldozers and other similar equipment used for a project this size would generate levels ranging from 52 to 72 VdB of ground borne vibration at the surrounding receptors. Because construction would only take place during daytime hours, vibration levels at the nearest receptor, the existing hotel, would be below the daytime standard of 78 VdB. Vibration levels at the hospital use to the southwest would be approximately 52 VdB and would be well below the threshold of 72 VdB for hospitals. Therefore, vibration levels associated with construction of the project would not exceed any annoyance guidelines and would be less than significant.

3.13.5.6 Long-Term Off-Site Vibration Impacts

The streets surrounding the project area are paved, smooth, and unlikely to cause significant ground-borne vibration. In addition, the rubber tires and suspension systems of buses and other on-road vehicles make it unusual for on-road vehicles to cause ground-borne noise or vibration problems. It is therefore assumed that no such vehicular vibration impacts would occur and no vibration impact analysis of on-road vehicles is necessary. Additionally, once constructed, the proposed Project would not contain uses that would generate ground-borne vibration. Therefore, implementation of the project would not result in the generation of excessive ground-borne vibration or ground-borne noise levels.

- c. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within 2 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?*

Less than Significant Impact.

3.13.5.7 Long-Term Aircraft Noise Impacts

The proposed Project is not within an airport land use plan or within 2 miles of a public airport or public use airport. The nearest public use airport is John Wayne Airport in unincorporated Orange

County, between the cities of Costa Mesa, Irvine, and Newport Beach, approximately 5 miles west of the project site (JWA 2019). As a result, the proposed Project would not expose people residing or working in the project area to excessive noise levels from aircraft. Therefore, no noise related to the project site's proximity to a public airport or any airport land use plan would occur, and no mitigation is required.

3.13.6 Cumulative Impacts

Less than Significant Impact. A cumulative noise impact would occur if multiple sources of noise from cumulative projects combine to create impacts in close proximity to a sensitive receptor. Because construction noise and vibration are localized and rapidly attenuate within an urban environment, the identified cumulative projects are located too far from the Project site to contribute to cumulative impacts related to noise levels due to construction activities. Construction activities at any related project site would not result in a noticeable increase in noise to sensitive receptors adjacent to the Project site. Furthermore, all related projects would be required to comply with the City's Noise Ordinance. Therefore, cumulative construction noise impacts are considered less than significant.

Cumulative operational noise impacts could occur as a result of increased traffic volumes on local roadways due to future growth from cumulative projects in the Project area. Cumulative traffic noise impacts are based on the difference between existing traffic volumes and future traffic volumes after build out of the proposed Project and in combination with related projects currently being proposed or built in the vicinity of the Project site. An increase of 5 dBA CNEL where the existing ambient noise level is less than 65 dBA and an increase of 3 dBA CNEL where the existing ambient noise level is greater than 65 dBA is considered a significant impact. As shown in Tables 3.13.J, 3.13.K, 3.13.L, and 3.13.M, the increase in project-related traffic noise would be no greater than 0.3 dBA CNEL along roadway segments in the Project vicinity for the existing, future short-term interim year approved, long-range interim year approved, and build out approved scenarios. Noise level increases below 1.0 dBA are considered imperceptible to humans in an outdoor environment as well as being below the significance thresholds. Therefore, the proposed Project would not contribute substantially to cumulative roadway noise impacts and would have a less than cumulatively considerable impact.

3.14 POPULATION AND HOUSING

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

3.14.1 Impact Analysis

- a. *Would the project induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?*

Less Than Significant Impact.

Construction. The Project site is currently developed with medical uses and is in an urbanized portion of Irvine predominantly developed with medical, hotel, and office uses. In its existing condition, the Project site contains the HHI campus, the Rhodes MOB, and surface parking lots. The proposed Project involves the expansion of hospital uses on parcels that are currently developed with similar uses.

Construction of the proposed Project would provide short-term construction jobs over an approximately 48-month period. The number of construction workers on the Project site will vary during different stages of construction and are expected to range from 8 to 213 workers onsite per day.¹ Further, while the availability of construction jobs would be positive from a regional perspective, due to the nature of the work, construction workers would not be expected to relocate their household's place of residence as a consequence of working on the proposed Project. The work requirements of most construction projects are highly specialized, so construction workers remain at a job site only for the time frame in which their specific skills are needed to complete a particular phase of the construction process (e.g., electricians, masons, framers, crane operators), and all construction jobs associated with the proposed Project would cease upon completion of construction. In addition, construction workers generally have no regular place of business; rather, construction workers commute to individual job sites that may change several times a year. Since construction workers would not relocate to the area, no permanent residents would be generated as a result of construction of the proposed Project. No mitigation is required.

Operation. The proposed Project would not cause or result in direct population growth because the proposed Project would not provide or remove housing on the Project site. The proposed hospital

¹ California Emissions Estimator Model. Compiled by LSA (September 2020).

expansion is anticipated to provide employment for up to 800 additional people compared to current operations.

As of June 2020, Irvine had a labor force of 142,200 and the Orange County had a labor force of 1,596,000, with approximately 16,200 and 218,000 people unemployed, respectively.¹ The June 2020 unemployment rate was 11.4 percent for Irvine and 13.7 percent for Orange County.² For comparison, the average 2019 unemployment rate was 2.6 percent for Irvine and 2.8 percent for Orange County.³ These elevated unemployment figures in June 2020 reflect the sudden economic slowdown associated with the COVID-19 pandemic. Beginning in March 2020, shelter-in-place orders resulted in business closures and elevated rates of unemployment throughout the State. Although there is a great deal of uncertainty regarding the pandemic's effect on the economy, it is reasonable to assume that the Southern California region will experience a protracted period of elevated unemployment until a vaccine or effective therapeutic treatment for COVID-19 is made widely available. Until that time, current social distancing requirements are anticipated to remain in place, resulting in reduced business activity and elevated unemployment rates. This suggests an available local and regional labor pool to serve the long-term employment opportunities the proposed Project would offer. It is unlikely that a substantial number of employees would need to be relocated from outside the region to meet the need for employees resulting from implementation of the proposed Project. Furthermore, the proposed Project would be within a developed area of Irvine that is already served by all utilities. The existing regional infrastructure and the established roadway network would be used by employees accessing the Project site and would not indirectly or directly induce population or growth.

For the reasons stated above, operation of the proposed Project would not induce substantial population growth or accelerate development in an underdeveloped area, and any impacts to population growth would be less than significant. No mitigation is required.

b. Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

No Impact. As stated previously, the Project site is currently developed with medical uses and is in an urbanized portion of Irvine predominantly developed with medical, hotel, and office uses. In its existing condition, the Project site contains the HHI campus, the Rhodes MOB, and surface parking lots. The proposed Project involves the expansion of hospital uses on parcels that are currently developed with similar uses. No housing is currently present on the Project site; therefore, there are no people living on the Project site that could be displaced. Therefore, implementation of the proposed Project would not displace people or housing, and no mitigation is required.

¹ California Employment Development Department. 2020a. *Monthly Labor Force Data for Cities and Census Designated Places, June 2020*. July 17. Website: <https://www.labormarketinfo.edd.ca.gov/data/labor-force-and-unemployment-for-cities-and-census-areas.html> (accessed August 11, 2020).

² Ibid.

³ California Employment Development Department. 2020b. *Monthly Labor Force Data for Cities and Census Designated Places, Annual Average 2019 – Revised*. March 27. Website: <https://www.labormarketinfo.edd.ca.gov/data/labor-force-and-unemployment-for-cities-and-census-areas.html> (accessed August 11, 2020).

3.14.2 Cumulative Impacts

The proposed Project would not provide or remove housing on the Project site and would, therefore, not result in direct population growth. Additionally, the proposed Project would be within a developed area of Irvine that is already served by all utilities and the existing regional infrastructure would not indirectly or directly induce population or growth. Related projects include a variety of residential, commercial, and office land uses. Some of the related projects may include the extension of roads or infrastructure. However, it is expected that those infrastructure improvements would only serve the applicable related projects. Therefore, it is not anticipated that the related projects would extend roads or other infrastructure into previously undeveloped areas that would be available for future development, particularly given that the Project area is highly urbanized and largely built out. Therefore, the proposed Project would not contribute to cumulative population or housing growth, and no mitigation is required.

3.15 PUBLIC SERVICES

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
i. Fire protection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ii. Police protection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iii. Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv. Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
v. Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

3.15.1 Impact Analysis

- a. *Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:*
 - i. *Fire protection?*

Less than Significant with Mitigation Incorporated. The Orange County Fire Authority (OCFA) provides fire protection services for Irvine, including the Project site. The OCFA is a Joint Powers Authority responsible for reducing loss of life and property due to fire, medical, and environmental emergencies. OCFA is also the regional fire service agency that serves 24 other cities in Orange County and all unincorporated areas. Under OCFA’s protection services, approximately 2 million residents are served by 79 fire stations located throughout Orange County.¹ Irvine currently has 11 fire stations.² The closest fire station is Station 47, at 47 Fossil Road, approximately 0.5 mi southwest of the Project site. Due to its proximity to the Project site, Station 47 would likely serve the site.

OCFA is divided into six primary departments: Business Services, Corporate Communications, Community Risk Reduction, Human Resources, Operations, and Logistics.³ In Fiscal Year 2019/2020,

¹ OCFA. 2019 Statistical Annual Report. Website: <https://www.ocfa.org/Uploads/Transparency/OCFA%20Annual%20Report%202019.pdf> (accessed August 11, 2020).
² Ibid.
³ OCFA. Departments. Website: <https://www.ocfa.org/AboutUs/Departments/Departments.aspx> (accessed August 11, 2020).

OCFA had 1,544 full-time-equivalent uniformed and civilian personnel budgeted.¹ In 2019, OCFA responded to more than 194,325 total calls for service; a total of 18,072 calls were responded to city-wide.² Approximately 108,219 responses were related to emergency medical services (EMS); citywide, EMS responses totaled 12,729.³ OCFA's average current response times are less than 7 minutes, ranging from 7 minutes, 56 seconds (80th percentile) to 9 minutes, 07 seconds (90th percentile).⁴

According to the CAL FIRE Very High Fire Hazard Severity Zone in Local Responsibility Areas Map, the majority of Irvine, including the Project site, is not designated as a Very High Fire Hazard Severity Zone (VHFHSZ).⁵ Irvine has no State Responsibility Areas (SRA).⁶ Therefore, the Project site is not in or near a VHFHSZ. For further discussion on this topic, refer to Section 3.20, Wildfire.

Construction. Construction activities have the potential to affect fire protection services, such as emergency vehicle response times, by potentially requiring partial street closures during utility installation. Mitigation Measure MM-PS-1 requires that a Construction Staging and Traffic Management Plan (CSTMP) be prepared for the proposed Project to ensure that emergency vehicles would be able to navigate through streets adjacent to the Project site that may experience congestion due to construction activities. Mitigation Measure MM-PS-1 also requires that all emergency access to the Project site and adjacent areas be kept clear and unobstructed during all phases of demolition and construction. Traffic management personnel (flagpersons), required as part of the CSTMP, would be trained to assist in emergency response by restricting or controlling the movement of traffic that could interfere with emergency vehicle access. If a partial street closure (i.e., a lane closure) would be required, notice would be provided to OCFA, and flagpersons would facilitate the traffic flow until construction is complete. With implementation of Mitigation Measure MM-PS-1, potential impacts related to emergency access during construction would be less than significant. No additional mitigation is required.

Construction of the proposed Project could also increase the potential for accidental on-site fires from such sources as the operation of construction equipment and the use of flammable construction materials. As required by Occupational Safety and Health Administration and Fire and Building Code requirements, the construction contractor would be required to carefully store flammable materials in appropriate containers and to immediately and completely clean up spills of flammable materials when they occur. In addition, construction managers and personnel would be trained in emergency response, and fire suppression equipment specific to construction sites would

¹ OCFA. Departments. Website: <https://www.ocfa.org/AboutUs/Departments/Departments.aspx> (accessed August 11, 2020).

² OCFA. 2019 Statistical Annual Report. Website: <https://www.ocfa.org/Uploads/Transparency/OCFA%20Annual%20Report%202019.pdf> (accessed August 11, 2020).

³ Ibid.

⁴ OCFA. Fiscal Year 2019/2020 Adopted Budget. Website: <https://www.ocfa.org/Uploads/Transparency/OCFA%202019-2020%20Adopted%20Budget.pdf> (accessed August 11, 2020).

⁵ California Department of Forestry and Fire Protection (CAL FIRE). 2011. Very High Fire Hazard Severity Zones in LRA, Irvine. Website: https://osfm.fire.ca.gov/media/5884/c30_irvine_vhfhsz.pdf (accessed August 6, 2020).

⁶ CAL FIRE. 2007. Fire Hazard Severity Zones in SRA, Orange County. Website: https://osfm.fire.ca.gov/media/6737/fhszs_map30.pdf (accessed August 6, 2020).

be maintained on site for the duration of the construction period. Adherence to existing laws would ensure that the proposed Project would not have a significant construction impact related to fire. Construction-related impacts to fire protection and emergency medical services would be less than significant, and no mitigation is required.

Operation. The proposed Project includes the construction of 436,740 sf of hospital services with 225 additional beds and approximately 260,000 sf of hospital support services that would increase the number of on-site visitors and personnel, thereby incrementally increasing the demand for fire and emergency medical services. As discussed above, OCFA's average current response times are less than 7 minutes. The proposed Project would not increase response times by increasing traffic volumes on area roadways to the point where additional significant congestion would occur. As discussed in Section 3.17 of this IS/MND, the proposed Project would not result in a significant impact related to transportation. As such, traffic from the proposed Project would not contribute to or result in a substantial increase in response times for fire or emergency vehicles, and no mitigation is required.

The proposed Project would comply with all Fire Department access requirements and California Fire Code (Fire Code) requirements. Project compliance with requirements set forth in the Fire Code would provide fire protection for people and structures as well as the provision of emergency medical services on the site. To meet OCFA standards and to comply with the Fire Code (in effect at the time of the application for the building permit) the proposed Project would include, but not be limited to, the following safety measures:

- All buildings on the Project site would include automatic fire sprinkler systems (per Section 5-9-401 of the City's Municipal Code).
- Emergency access to the Project site would be provided via two Project driveways: one driveway on Sand Canyon Avenue, and the southernmost driveway on Alton Parkway. A fire access route within the Project site has been designed in accordance with OCFA's Guideline B-09, which is a document outlining guidelines pertaining to the creation and maintenance of fire department access roadways, access walkways to and around buildings, and hydrant quantity and placement as required by California Fire and Building Codes.

In summary, the proposed Project would be designed to comply with all OCFA access requirements and Fire Code requirements, and would not impair emergency response vehicles or increase response times.

The Project would, however, incrementally contribute to an increase in cumulative regional demand for fire and emergency medical services. To address the increase in cumulative regional demand for fire and emergency medical services, OCFA requires all developers to enter into a secured fire protection agreement with OCFA to ensure the availability of adequate fire protection services. The agreements specify a developer's pro-rata fair-share funding for capital improvements necessary to establish and maintain adequate fire protection facilities, equipment, and personnel. Regulatory Compliance Measure RCM-PS-1 stipulates that the developer must enter into the secured fire

protection agreement prior to issuance of any building permits for the proposed Project. Implementation of Regulatory Compliance Measure RCM-PS-1 would reduce potential impacts related to the Project's incremental contribution to cumulative regional demand for fire protection services to a less than significant level.

Regulatory Compliance Measure. No mitigation is required. The following Regulatory Compliance Measure is an existing regulation that is applicable to the proposed Project and is considered in the analysis of potential impacts related to fire protection services. The City considers this requirement to be mandatory for all projects; therefore, it is not a mitigation measure.

RCM-PS-1 Secured Fire Protection Agreement. Prior to issuance of any grading permits for the Project, the designated site developer shall enter into a Secured Fire Protection Agreement with the Orange County Fire Authority (OCFA). The Secured Fire Protection Agreement shall specify the developer's pro-rata fair-share funding of capital improvements necessary to establish adequate fire protection facilities and equipment, and/or personnel. Evidence of an OCFA-approved agreement shall be submitted to City of Irvine, Director of Community Development, or designee.

Mitigation Measures. MM-PS-1 would be implemented to reduce Project-related impacts to emergency access during construction to a less than significant level.

MM-PS-1 Construction Traffic Control Plan. Prior to the issuance of grading permits, the Project Applicant shall prepare a Construction Traffic Control Plan for approval by the City of Irvine Director of Community Development, or designee, and shall implement the Plan during Project construction. The Construction Traffic Control Plan shall include, but not be limited to, the following:

- Provisions for temporary traffic control during all construction activities adjacent to public right-of-way to improve traffic flow on public roadways and ensure the safe access into and out of the site (e.g., warning signs, lights and devices, and flagpersons).
- Planning routine street closures outside of peak traffic hours (7:00 a.m. to 9:00 a.m. and 4:00 p.m. to 6:00 p.m., Monday through Friday).
- Prohibiting construction-related vehicles from parking on public streets.
- Providing safety precautions for pedestrians and bicyclists through such measures as alternate routing and protection barriers.
- Scheduling construction-related deliveries, other than concrete and earthwork-related deliveries, to reduce travel during peak travel periods.
- All emergency access to the Project site and adjacent areas shall be kept clear and unobstructed during all phases of demolition and construction.

- The Irvine Police Department and the Orange County Fire Authority (OCFA) shall be notified a minimum of 1 week (7 days) in advance of any lane closures or roadway work so that emergency vehicles can be rerouted during construction if deemed necessary in the expert opinion of the Orange County Sheriff's Department and/or OCFA.
- The Orange County Transportation Authority (OCTA) shall be notified regarding any affected locations a minimum of 10 working days prior to construction so that transit service can be rerouted if deemed necessary in the expert opinion of the OCTA.
- Flagpersons shall be trained to assist in emergency response by restricting or controlling the movement of traffic that could interfere with emergency vehicle access.

ii. Police protection?

Less than Significant with Mitigation Incorporated. The Irvine Police Department (IPD) provides police protection services for the City, including the Project site. IPD headquarters is at One Civic Center Plaza, 3.4 miles northwest of the Project site.

The IPD maintains six divisions which operate under the direction and management of the Chief of Police, including Administration, Business Services, Operations, Operations Support, the Office of Professional Development, and the Office of Profession Standards.¹ The IPD currently employs a total of 288 authorized sworn personnel.² In 2018, IPD had average response times for emergency calls and crimes in progress of 4 minutes 55 seconds and 9 minutes 4 seconds, respectively.³

Construction. Construction activities have the potential to affect emergency services, including police protection services, by potentially requiring partial street closures (i.e., a lane closure) during utility installation. Project construction may also require the stopping of traffic to accommodate trucks entering or exiting the Project site during construction (e.g., for the movement of construction equipment). Mitigation Measure MM-PS-1 requires that a CSTMP be prepared for the proposed Project to ensure that emergency vehicles would be able to navigate through streets adjacent to the Project site that may experience congestion due to construction activities. Mitigation Measure MM-PS-1 also requires that all emergency access to the Project site and adjacent areas be kept clear and unobstructed during all phases of demolition and construction. Traffic management personnel (flagpersons), required as part of the CSTMP, would be trained to assist in emergency response by restricting or controlling the movement of traffic that could interfere with emergency vehicle access. If a partial street closure (i.e., a lane closure) would be required, notice would be provided to the IPD, and flagpersons would facilitate the traffic flow until

¹ City of Irvine. Irvine Police Department Divisions, Bureaus & Units. Website: <https://www.cityofirvine.org/ipd-divisions-bureaus-units> (accessed August 11, 2020).

² Irvine Police Department. 2019. Biennial Report 2017–2018. May. Website: <https://online.flippingbook.com/view/274657/> (accessed August 11, 2020).

³ Ibid

construction is complete. With implementation of Mitigation Measure MM-PS-1, potential impacts related to emergency access during construction would be less than significant. No additional mitigation is required.

Operation. The proposed Project includes the construction of 436,740 sf of hospital services with 225 additional beds and approximately 260,000 sf of hospital support services that would increase the number of on-site visitors and personnel, thereby incrementally increasing the demand for police protection services. HHI maintains a 24-hour-a-day on-site security force to assist with crime prevention. As part of HHI's existing on-going security policy, the security team patrols parking lots to help ensure employee and visitor safety and takes action to identify and prevent any suspicious activity (such as loitering and vandalism) during both daytime and nighttime hours. In addition, HHI has installed closed-circuit camera systems (surveillance cameras) that monitor activities throughout the campus.

Nevertheless, the potential increase in employees and visitors to the site could result in an increase in calls for police services; however, the proposed Project would not change officer-to-population ratios in Irvine. Actual crime occurrence cannot be predicted; however, should there be any occurrences, the types of crime committed are likely to consist of vandalism, theft, fraud, car theft, vagrancy, loitering, and other crimes and/or calls for law enforcement services that can be anticipated to occur with medical/medical center uses.

Implementation of the proposed Project would generate additional funding for the City through property and sales tax revenue generated by the proposed medical office use. These funds could be used for the development of needed facilities, personnel, or equipment, if required. The allocation of additional tax revenues would be at the discretion of City policymakers based on City needs. Therefore, the IPD could gradually add staff and equipment on an as-needed basis to accommodate any increase in demand from the proposed Project. The proposed Project would not require new or physically altered public facilities for police protection. Impacts to police protection services are expected to be less than significant as a result of Project implementation and no mitigation is required.

In addition, the proposed Project would not increase response times by increasing traffic volumes on area roadways to the point where additional significant congestion would occur. As such, traffic from the proposed Project would not contribute to or result in a substantial increase in response times for police or emergency vehicles, and no mitigation is required.

iii. Schools?

Less than Significant Impact. The Irvine Unified School District (IUSD) provides Kindergarten through 12th grade education to approximately 36,000 students in Irvine.¹ IUSD's office is at 5050 Barranca Parkway.

The proposed Project does not include any residential uses and would not increase the City's population. Moreover, the proposed Project would not result in an increased demand for any school

¹ Irvine Unified School District. About. Website: <https://iUSD.org/about> (accessed August 11, 2020).

facilities or require the construction of new school facilities. Nevertheless, the Applicant/Developer would be required to pay school development fees prior to the issuance of building permits (refer to Regulatory Compliance Measure RCM-PS-1, below). Effective June 8, 2020, IUSD developer fees are \$0.66 per square foot for commercial/industrial construction.¹ With incorporation of Compliance Measure RCM-PS-1, Project implementation would result in less than significant impacts related to school services, and no mitigation is required.

Regulatory Compliance Measure. No mitigation is required. The following Regulatory Compliance Measure is an existing regulation that is applicable to the proposed Project and is considered in the analysis of potential impacts related to school services. The City considers this requirement to be mandatory for all projects; therefore, it is not a mitigation measure.

RCM-PS-1 Payment of School Fees. Prior to any issuance of building permits, the Applicant/Developer shall provide proof to the Director of the City of Irvine Community Development Department, or designee, that payment of school fees to the Irvine Unified School District has been made in compliance with Section 65995 of the California Government Code.

iv. Parks?

Less than Significant Impact. The City's Parks and Recreation Department manages and maintains 18 Community Parks, 37 Neighborhood Parks, and approximately 5,250 acres of permanently preserved open space within Irvine.² The nearest park to the Project site is Oak Creek Community Park at 15616 Valley Oak, 0.3 mile north of the Project site.

According to the City's General Plan Parks and Recreation Element, developers of residential subdivisions are required to dedicate parkland, or pay fees in lieu of dedication, at the rate of 5 acres per 1,000 residents. Because the proposed Project does not include a residential subdivision, there is no requirement to dedicate parkland or pay in-lieu fees. As discussed in Section 3.14, Population and Housing, the proposed Project would result in an increase of 800 employees, which would increase the number of on-site visitors and personnel, and, consequently, may incrementally increase the demand for parks in the Project site's vicinity. However, the increase in new employees is considered inconsequential, because employees of the proposed hospital expansion are anticipated to be members of the existing population as the Project is not expected to induce population growth. Local park usage associated with the Project's employees would be minimal and may include local park visits during work shifts or on breaks. Therefore, the proposed Project would result in less than significant impacts related to parks, and no mitigation is required.

¹ Irvine Unified School District. Developer Fees. Website: <https://iusd.org/business-services/developer-fees> (accessed August 11, 2020).

² City of Irvine. Parks and Recreation. Website: <https://www.cityofirvine.org/irvine-gives/parks-and-recreation> (accessed August 11, 2020).

v. Other public facilities?

Less than Significant Impact. The OC Public Libraries system provides library services for many of Orange County's cities, including Irvine, and all of Orange County's unincorporated areas.¹ The nearest library to the Project site is the University Park Library, located at 4512 Sandburg Way, 2.6 miles west of the Project site.

Implementation of the proposed Project would not introduce any new residents, as there are no present or future residential land uses associated with the Project site. As discussed in Section 3.14, Population and Housing, the proposed Project would result in an increase of 800 employees, which would increase the number of on-site visitors and personnel, and consequently, may incrementally increase the demand for libraries in the Project site's vicinity. However, the increase in new employees is considered inconsequential, because employees of the proposed hospital expansion are anticipated to be members of the existing population as the Project is not expected to induce population growth. Local library usage associated with the Project's employees would be minimal and may include local library visits during work shifts or on breaks. Therefore, the proposed Project would have a less than significant impact on libraries within the City, and no mitigation is required.

3.15.2 Cumulative Impacts

Operation of the proposed Project and other related projects is anticipated to increase the overall demand for fire and police protection services. Additional demands for fire and police protection services would be funded by existing funding sources (i.e., property taxes and government funding), to which the proposed Project and related projects would contribute. Therefore, the proposed Project and the applicable related projects would not have a significant cumulative impact on fire or police protection services.

Operation of the proposed Project would not result in an increase in the overall demand for schools because the proposed Project does not include any residential uses and would not increase the City's population. Additionally, Project-related increases in public park and local library usage from new employees is considered inconsequential because employees of the proposed hospital expansion are anticipated to be members of the existing population, as the Project is not expected to induce population growth. Therefore, potential cumulative impacts to school services and facilities would be less than significant.

¹ OC Public Libraries. About OCPL. Website: <http://www.ocpl.org/services/about> (accessed August 11, 2020).

3.16 RECREATION

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

3.16.1 Impact Analysis

a. *Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?*

Less Than Significant Impact. The City’s Parks and Recreation Department manages and maintains 18 Community Parks, 37 Neighborhood Parks, and approximately 5,250 acres of permanently preserved open space within Irvine.¹ The nearest park to the Project site is Oak Creek Community Park, located at 15616 Valley Oak, 0.3 mile north of the Project site.

According to the City’s General Plan Parks and Recreation Element, developers of residential subdivisions are required to dedicate parkland, or pay fees in lieu of dedication, at the rate of 5 acres per 1,000 residents. Because the proposed Project does not include a residential subdivision, there is no requirement to dedicate parkland or pay in lieu fees.

The Project does not propose any residential uses and, therefore, would not increase the population or demand related to parks. Although the Project is anticipated to increase employment by 800 jobs compared to existing conditions, the number of employees is inconsequential, because employees of the proposed hospital expansion are anticipated to be members of the existing population as the Project is not expected to induce population growth. Although it is possible that employees may visit parks and recreational facilities in Irvine during lunch breaks or after-work hours, it is unlikely that the use of parks by Project employees would increase the use of those parks to a level that would contribute to substantial physical deterioration of those facilities. Therefore, the impact is less than significant, and no mitigation is required.

b. *Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?*

No Impact. The Project site is currently developed with medical uses and is in an urbanized portion of Irvine predominantly developed with medical, hotel, and office uses. In its existing condition, the

¹ City of Irvine. Park and Recreation. Website: <https://www.cityofirvine.org/irvine-gives/parks-and-recreation> (accessed August 11, 2020).

Project site contains the HHI campus, the Rhodes MOB, and surface parking lots. The proposed Project involves the expansion of hospital uses on parcels that are currently developed with similar uses.

The proposed Project would not include recreational facilities or develop residential uses that would require the construction or expansion of recreational facilities that might have an adverse effect on the environment. Additionally, the Project does not propose any recreational uses that might have an adverse physical effect on the environment. Therefore, there would be no impacts related to the construction or expansion of recreational facilities, and no mitigation is required.

3.16.2 Cumulative Impacts

The Project does not propose any residential uses and, therefore, would not increase the population or demand related to parks. Although it is possible that employees may visit parks and recreational facilities in Irvine during lunch breaks or after-work hours, it is unlikely that the use of parks by Project employees would increase the use of those parks to a level that would contribute to substantial physical deterioration of those facilities. Therefore, the proposed Project would not contribute to cumulative impacts to recreational resources, and no mitigation is required.

3.17 TRANSPORTATION

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
c. Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Conflict or be inconsistent with CEQA Guidelines §15064.3, subdivision (b)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f. Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

3.17.1 Impact Analysis

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

Less Than Significant Impact. The existing Project site includes a 154-bed hospital (239,594 sf of hospital use excluding 10,200 sf central plant), with an additional 12 labor, delivery, recovery and postpartum beds (5,627 sf) currently under construction, and 115,762 sf of medical office building. The Project site is bounded by medical office and hotel uses to the north, Alton Parkway to the south, Irvine Medical and Science Complex buildings to the east, and Sand Canyon Avenue to the west. Access to the existing HHI site is provided via existing signalized access points at Sand Canyon Avenue/Hoag Irvine and Hoag Irvine—Kaiser Permanente/Alton Parkway.

The existing Project site incorporates design features to accommodate modes of active transit (i.e., pedestrian, bicycle, and public transportation). In the vicinity of the Project site, bicycle travel is possible in the on-street (Class II) bicycle lanes on Sand Canyon Avenue and Alton Parkway, and on the bicycle paths (Class I) on San Diego Creek Trail north of the Project site and on Hospital Trail east of the Project site. The Project would provide long-term bicycle storage facilities for employees in the two parking structures. Short-term bicycle racks for visitors would also be provided in five locations on the Project site. Transit facilities are accessible to and from the Project site with Orange County Transportation Authority (OCTA) and iShuttle stops near the Project site. The lines serviced by these stops provide direct access to regional transportation hubs.

A Traffic Study was prepared in support of this IS/MND to determine short-term and long-range traffic deficiencies (level of service [LOS]) resulting from the proposed Project. The Traffic Study was prepared in accordance with the applicable sections of the City’s Traffic Study Guidelines (April 2020) and the City’s Transportation Design Procedures (TDPs; adopted in February 2007). Refer to Appendix F of this IS/MND for the Traffic Study prepared for the proposed Project.

Methodology. The study area analyzed in the Traffic Study includes the following intersections in the Irvine Transportation Analysis Model (ITAM):

1. Jeffrey Road/Alton Parkway
2. Sand Canyon Avenue/Interstate 5 (I-5) northbound ramps
3. Sand Canyon Avenue/Marine Way
4. Sand Canyon Avenue/I-5 southbound ramps
5. Sand Canyon Avenue/Burt Road
6. Sand Canyon Avenue/Laguna Canyon Road
7. Sand Canyon Avenue/Irvine Center Drive
8. Sand Canyon Avenue/Waterworks Way
9. Sand Canyon Avenue/Barranca Parkway
10. Sand Canyon Avenue/Hoag Irvine
11. Sand Canyon Avenue/Alton Parkway
12. Sand Canyon Avenue/I-405 northbound off-ramp
13. Sand Canyon Avenue/I-405 southbound ramps
14. Hoag Irvine—Kaiser Permanente/Alton Parkway
15. Laguna Canyon Road/Alton Parkway

The Traffic Study focuses on the a.m. peak-hour, p.m. peak-hour, and daily level of service (LOS) at the 15 intersections, listed above, and 14 roadway segments, located between each study area intersection. Project LOS impacts were determined based on an analysis of the following scenarios:

1. Existing
2. Existing Plus Project (Phases 1 and 2)
3. Short-Term Interim-Year Approved Baseline
4. Short-Term Interim-Year Approved Baseline Plus Project (Phases 1 and 2)
5. Long-Range Approved Baseline
6. Long-Range Approved Baseline Plus Project (Phases 1 and 2)
7. Buildout Approved Baseline
8. Buildout Approved Baseline Plus Project (Phases 1 and 2)

To determine the peak-hour operations at signalized intersections within the study area, the Traffic Study used the intersection capacity utilization (ICU) methodology. The ICU methodology compares the volume-to-capacity (v/c) ratios of conflicting turn movements at an intersection, sums these critical conflicting v/c ratios for each intersection approach, and determines the overall ICU. The resulting ICU is expressed in terms of LOS, where LOS A represents free-flow activity and LOS F represents overcapacity operation. The Traffic Study includes parameters set by the City for ICU calculations, including lane capacity, right-turn treatment, and clearance intervals.

According to the City's Traffic Study Guidelines and consistent with the City's General Plan, LOS at an intersection or roadway is considered to be unsatisfactory when the ICU exceeds 0.90 (i.e., LOS E or F). Table 3.17.A, Level of Service Capacities, identifies each LOS category, and the corresponding ICU value (i.e., v/c ratio).

Table 3.17.A: ICU Level of Service Capacities

Level of Service	Volume-to-Capacity (ICU Methodology)
A	0.00-0.60
B	0.61-0.70
C	0.71-0.80
D	0.81-0.90
E	0.91-1.00
F	> 1.00

Source: *Traffic Study Guidelines* (City of Irvine, April 2020).
ICU = intersection capacity utilization

In addition to the ICU methodology of calculating intersection LOS, an operational analysis was also prepared based on the *Highway Capacity Manual* (HCM 6th Edition; Transportation Research Board 2017) methodology to determine the LOS at signalized California Department of Transportation (Caltrans) intersections within the study area. The HCM 6th Edition signalized intersection methodology presents LOS in terms of total intersection delay (in seconds per vehicle). The resulting delay is expressed in terms of LOS, similar to the ICU methodology. Table 3.17.B illustrates the relationship of delay to LOS for signalized intersections.

Table 3.17.B: Relationship of Delay to LOS for Signalized Intersections

Level of Service	Signalized Intersection Delay (seconds)
A	≤10.0
B	>10.0 and ≤15.0
C	>15.0 and ≤25.0
D	>25.0 and ≤35.0
E	>35.0 and ≤50.0
F	>50.0

Source: *Highway Capacity Manual*, 6th Edition (Transportation Research Board 2017).
LOS = level of service

Roadway link v/c ratios were determined using the City’s theoretical daily capacities. Facility types were taken from the City’s General Plan. Table 3.17.C illustrates theoretical daily capacities (as contained in the City’s *Traffic Study Guidelines*) for roadways within the study area.

Using the City’s adopted methodologies (ICU for signalized intersections and v/c ratios for roadway links), a project LOS impact occurs when the project causes a signalized intersection or roadway link to exceed the acceptable LOS or when the signalized intersection or roadway link in question exceeds the acceptable LOS and the impact of development is greater than or equal to 0.02.

Table 3.17.C: Theoretical Daily Capacities

Facility Type	Number of Lanes	Theoretical Capacity
Major Highway	8	72,000
	7	63,000
	6	54,000
Primary Highway	4	32,000
Secondary Highway	4	28,000
Commuter	2	13,000

Sources: General Plan (City of Irvine, 2015c), and *Traffic Study Guidelines* (City of Irvine, April 2020).

Note: Theoretical capacity of a seven-lane Major Highway is interpolated from the theoretical capacities of six-lane and eight-lane Major Highways.

The City’s peak-hour link analysis (per the adopted *Traffic Study Guidelines*) is used to evaluate roadway capacity conditions and the need for improvement, if necessary. The peak-hour link analysis determines directional a.m. and p.m. peak-hour v/c ratios for each link that is projected to exceed LOS standards. The peak-hour capacity is determined by multiplying the midblock number of lanes for each direction by a lane capacity of 1,600 vehicles per hour (vph). Where the distance between controlled intersections is 1 mile or more, the midblock number of lanes shall be multiplied by a lane capacity of 2,000 vph. Project improvements will be required to bring the LOS back to 0.90 or to the LOS baseline, if the baseline is greater than 0.90.

Traffic volume forecasts for the proposed Project were prepared using ITAM (Model No. 15). The ITAM integrates trip generation, distribution, and assignment into the methodology used to forecast trips. The ITAM does not base trip generation on land use, but rather on socioeconomic data. The socioeconomic approach to traffic modeling is premised on more precise demographic assumptions that look beyond the simple land uses reflected in the City’s Zoning Code. As a result, the current ITAM does not contain land use-based trip rates that can easily determine the trip generation of a land development proposal.

The Project trips assigned to the study area intersections and the roadway segments for the Existing, Short-Term Interim-Year, Long-Range, and Buildout Approved conditions are based on the ITAM, which is the OCTA sanctioned subarea model for the City. All modeling protocols (including trip generation, distribution, and assignment) are consistent with local, regional, and national guidance for such features. All Project trip generation is accounted for in the ITAM, and the impacts of the Project reflect the contribution of its trips to the local street system. All Project traffic, as well as cumulative traffic and growth within Irvine and adjacent cities, is accounted for. The ITAM is the appropriate tool to evaluate discrete project-related circulation impacts for Irvine.

The socioeconomic trip rates contained in the ITAM are different from the land use-based trip rates in the Institute of Transportation Engineers (ITE) *Trip Generation Manual*, 10th Edition (2017). The ITAM socioeconomic trip rates are used for traffic study purposes (i.e., evaluation of study area intersections and roadway segments under Existing, Short-Term Interim-Year, Long-Range, and Buildout Approved conditions).

Trip Generation. For the purpose of disclosing the approximate net number of trips generated by the expansion of 704,740 sf of hospital use (including 436,740 sf of hospital services, 260,000 sf of hospital support services, and the 8,000 sf auditorium),¹ the Traffic Study used trip rates contained in the ITE *Trip Generation Manual*. Table 3.17.D presents the Project trip generation using the ITE trip rates. As Table 3.17.D indicates, the existing Project site generates 6,658 average daily trips (ADT), including 540 trips in the a.m. peak hour (401 inbound and 139 outbound) and 639 trips in the p.m. peak hour (188 inbound and 451 outbound).

Table 3.17.D: Trip Generation Summary

Land Use	Size	Unit	ADT	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
Trip Rates¹									
Hospital		TSF	10.72	0.61	0.28	0.89	0.31	0.66	0.97
Medical-Dental Office Building		TSF	34.80	2.17	0.61	2.78	0.97	2.49	3.46
Existing Trip Generation									
Existing Hospital ²	245.221	TSF	2,629	150	68	218	76	162	238
Medical Office Building	115.762	TSF	4,029	251	71	322	112	289	401
Total Existing			6,658	401	139	540	188	451	639
Entitled Trip Generation									
Hospital ²	565.359	TSF	6,061	345	158	503	175	373	548
Medical Office Building	120.000	TSF	4,176	260	74	334	116	299	415
Total Entitled			10,237	605	232	837	291	672	963
Project Trip Generation									
Hospital ³	704.740	TSF	7,555	430	197	627	218	466	684
Hoag Campus Buildout Trip Generation									
Hospital ³	949.961	TSF	10,184	579	266	845	294	627	921
Medical Office Building	115.762	TSF	4,029	251	71	322	112	289	401
Total Proposed			14,213	830	337	1,167	406	916	1,322

Source: Table A, *Hoag Hospital Irvine Traffic Study* (LSA, October 2020).

¹ Trip rates referenced from the Institute of Transportation Engineers (ITE) *Trip Generation Manual*, 10th Edition (2017).

Land Use Code 610 - Hospital

Land Use Code 720 - Medical-Dental Office Building

² Existing and Entitled do not include the existing central plant facilities (10,200 sf).

³ The Project and Hoag Campus Buildout do not include the proposed central plant facilities (47,550 sf).

ADT = average daily trips

TSF = thousand square feet

The proposed Project is forecast to generate 7,555 ADT, including 627 trips in the a.m. peak hour (430 inbound and 197 outbound) and 684 trips in the p.m. peak hour (218 inbound and 466 outbound). At Project buildout, the Project site is forecast to generate 14,213 ADT, including 1,167 trips in the a.m. peak hour (830 inbound and 337 outbound) and 1,322 trips in the p.m. peak hour (406 inbound and 916 outbound).

Existing and Existing Plus Project Traffic Volumes and LOS. According to the Traffic Study, intersection turning movement volumes for the a.m. (7:00 a.m. to 9:00 a.m.) and p.m. (4:00 p.m. to 6:00 p.m.) peak hours and 24-hour roadway volumes were collected at 13 study area intersections and all roadway segments in 2018. Intersection turning movement volumes for the remaining two

¹ Total excludes the proposed 47,550-square-foot Central Utility Plant, which is not a trip-generating use.

study area intersections (Project driveways) were collected in January 2020. All counts were conducted when schools were in session and before the COVID-19 pandemic. As local schools are closed and existing traffic conditions are atypical due to the pandemic, a 4-percent growth factor (2 percent per year) has been applied to the 2018 traffic counts to represent non-pandemic 2020 conditions.

As previously discussed, the ICU methodology was used to determine the LOS at signalized intersections, and the HCM methodology was used to determine the LOS at Caltrans freeway ramp intersections.

Table 3.17.E presents a summary of existing (Baseline and Plus Project) intersection LOS. As Table 3.17.E indicates, all study area intersections currently operate at satisfactory LOS. With the addition of the Project in the existing setting, all study area intersections would continue to operate at satisfactory LOS. Therefore, the Project can be implemented in an existing setting with no peak-hour LOS impacts at study intersections.

Table 3.17.F presents existing (Baseline and Plus Project) ADT volumes and v/c ratios. As Table 3.17.F indicates, all study area roadway segments currently operate at satisfactory LOS, with the exception of Sand Canyon Avenue between Alton Parkway and the I-405 northbound off-ramp (LOS F). With the addition of the Project in the existing setting, all study area roadway segments would continue to operate at satisfactory LOS, with the exception of the previously stated roadway segment and Sand Canyon Avenue between I-405 northbound off-ramp and I-405 southbound ramps (LOS E). The v/c ratio for Sand Canyon Avenue between Alton Parkway and I-405 northbound off-ramp and between I-405 northbound off-ramp and I-405 southbound ramps would increase by 0.04 and 0.03, respectively. Although a daily LOS impact would occur at these two study area roadway segments, a peak-hour link analysis was conducted per the City's Traffic Study guidelines. Table 3.17.F shows that each segment would operate at satisfactory LOS in both directions during both peak hours.

Short-Term Interim-Year Approved Baseline and Plus Project Traffic Volumes and LOS.

Table 3.17.G presents a summary of the intersection LOS for the Short-Term Interim-Year Approved (Baseline and Plus Project) conditions. As Table 3.17.G indicates, all study area intersections are forecast to operate at satisfactory LOS in the Baseline (No Project) condition. With the addition of the Project in the Short-Term Interim-Year Approved condition, all study area intersections would continue to operate at satisfactory LOS. Therefore, the Project can be implemented in a Short-Term Interim-Year Approved condition with no peak-hour LOS impacts at study intersections.

Table 3.17.H presents the ADT volumes and v/c ratios for the Short-Term Interim-Year Approved (Baseline and Plus Project) conditions. As Table 3.17.H indicates, all study area roadway segments are forecast to operate at satisfactory LOS in the Baseline (No Project) condition, with the exception of the following segments:

- Sand Canyon Avenue between the I-5 northbound off-ramp and Marine Way (LOS E)
- Sand Canyon Avenue between Marine Way and the I-5 southbound off-ramp (LOS F)
- Sand Canyon Avenue between Alton Parkway to the I-405 northbound off-ramp (LOS F)
- Sand Canyon Avenue between the I-405 northbound off-ramp and I-405 southbound ramps (LOS E)

Table 3.17.E: Existing Intersection Level of Service Summary

Int No.	ITAM Node No.	Intersection	Baseline				Plus Project				Peak-Hour Δ		LOS Impact?
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		ICU		
			ICU / Delay	LOS	AM	PM							
1	291	Jeffrey Road/Alton Parkway	0.90	D	0.79	C	0.89	D	0.81	D	(0.01)	0.02	No
2	303	Sand Canyon Avenue/I-5 Northbound Ramps	0.57	A	0.63	B	0.58	A	0.64	B	0.01	0.01	No
		<i>HCM</i>	25.2	C	49.6	D	25.7	C	51.0	D	-	-	N/A
3	304	Sand Canyon Avenue/Marine Way	0.59	A	0.53	A	0.60	A	0.54	A	0.01	0.01	No
4	305	Sand Canyon Avenue/I-5 Southbound Ramps	0.60	A	0.53	A	0.62	B	0.54	A	0.02	0.01	No
		<i>HCM</i>	30.1	C	26.0	C	32.5	C	26.0	C	-	-	N/A
5	444	Sand Canyon Avenue/Burt Road	0.62	B	0.55	A	0.64	B	0.56	A	0.02	0.01	No
6	306	Sand Canyon Avenue/Laguna Canyon Road - Oak Canyon	0.45	A	0.54	A	0.47	A	0.56	A	0.02	0.02	No
7	307	Sand Canyon Avenue/Irvine Center Drive	0.54	A	0.49	A	0.56	A	0.50	A	0.02	0.01	No
8	308	Sand Canyon Avenue/Waterworks Way	0.36	A	0.44	A	0.40	A	0.46	A	0.04	0.02	No
9	309	Sand Canyon Avenue/Barranca Parkway	0.47	A	0.52	A	0.53	A	0.52	A	0.06	0.00	No
10	500	Sand Canyon Avenue/Hoag Irvine	0.32	A	0.35	A	0.31	A	0.34	A	(0.01)	(0.01)	No
11	310	Sand Canyon Avenue/Alton Parkway	0.58	A	0.63	B	0.65	B	0.65	B	0.07	0.02	No
12	311	Sand Canyon Avenue/I-405 Northbound Off-Ramp	0.55	A	0.41	A	0.58	A	0.41	A	0.03	0.00	No
		<i>HCM</i>	0.7	A	7.8	A	0.7	A	7.9	A	-	-	N/A
13	312	Sand Canyon Avenue/I-405 Southbound Ramps	0.78	C	0.48	A	0.80	C	0.48	A	0.02	0.00	No
		<i>HCM</i>	58.0	E	19.1	B	50.0	D	18.5	B	-	-	N/A
14	501	Hoag Irvine – Kaiser Permanente/Alton Parkway	0.48	A	0.42	A	0.54	A	0.49	A	0.06	0.07	No
15	315	Laguna Canyon Road/Alton Parkway	0.56	A	0.44	A	0.57	A	0.46	A	0.01	0.02	No

Source: Table B, Hoag Hospital Irvine Traffic Study (LSA, October 2020).

Δ = change

Delay is reported in seconds.

HCM = Highway Capacity Manual

Int = Intersection

I-405 = Interstate 405

I-5 = Interstate 5

ICU = intersection capacity utilization

ITAM = Irvine Transportation Analysis Model

LOS = level of service

N/A = not applicable

Table 3.17.F: Existing ADT Volumes and V/C Ratios

ITAM Post No.	Roadway	Segment	Capacity	Baseline			Plus Project			Δ V/C Ratio	LOS Impact?	
				ADT	V/C Ratio	LOS	ADT	V/C Ratio	LOS			
793	Alton Parkway	Jeffrey Road to Sand Canyon Avenue	32,000	22,900	0.72	C	23,100	0.72	C	0.00	No	
797		Sand Canyon Avenue to Hoag Irvine	49,500	27,100	0.55	A	28,400	0.57	A	0.02	No	
798		Hoag Irvine to Laguna Canyon Road	32,000	19,400	0.61	B	20,200	0.63	B	0.02	No	
647	Sand Canyon Avenue	I-5 Northbound Off-Ramp to Marine Way	54,000	41,800	0.77	C	42,600	0.79	C	0.02	No	
1217		Marine Way to I-5 Southbound Off-Ramp	63,000	45,700	0.73	C	46,500	0.74	C	0.01	No	
310		I-5 Southbound Off-Ramp to Burt Road	63,000	37,200	0.59	A	38,400	0.61	B	0.02	No	
311		Burt Road to Laguna Canyon Road	54,000	37,200	0.69	B	38,400	0.71	C	0.02	No	
314		Laguna Canyon Road to Irvine Center Drive	54,000	37,200	0.69	B	38,600	0.71	C	0.02	No	
317		Irvine Center Drive to Waterworks Way	54,000	27,100	0.50	A	28,900	0.54	A	0.04	No	
318		Waterworks Way to Barranca Parkway	54,000	27,100	0.50	A	29,000	0.54	A	0.04	No	
319		Barranca Parkway to Hoag Irvine	54,000	27,900	0.52	A	30,200	0.56	A	0.04	No	
320		Hoag Irvine to Alton Parkway	58,500	27,900	0.48	A	28,600	0.49	A	0.01	No	
321		Alton Parkway to I-405 Northbound Off-Ramp	36,000	38,100	1.06	F	39,600	1.10	F	0.04	-	
			<i>AM Peak Hour northbound</i>	3,200	1,624	0.51	A	1,721	0.54	A	0.03	No
			<i>southbound</i>	4,000	1,511	0.38	A	1,512	0.38	A	0.00	No
			<i>PM Peak Hour northbound</i>	3,200	965	0.30	A	954	0.30	A	0.00	No
			<i>southbound</i>	4,000	1,872	0.47	A	1,973	0.49	A	0.02	No
961			I-405 Northbound Off-Ramp to I-405 Southbound Ramps	32,000	28,500	0.89	D	29,300	0.92	E	0.03	-
			<i>AM Peak Hour northbound</i>	3,200	2,215	0.69	B	2,270	0.71	C	0.02	No
			<i>southbound</i>	3,200	547	0.17	A	565	0.18	A	0.01	No
			<i>PM Peak Hour northbound</i>	3,200	887	0.28	A	875	0.27	A	(0.01)	No
			<i>southbound</i>	3,200	956	0.30	A	1,001	0.31	A	0.01	No

Source: Table C, Hoag Hospital Irvine Traffic Study (LSA, October 2020).

Δ = change

= exceeds City of Irvine's level of service criteria

ADT = average daily trips

ITAM = Irvine Transportation Analysis Model

I-405 = Interstate 405

LOS = level of service

I-5 = Interstate 5

V/C = volume-to-capacity ratio

Table 3.17.G: Short-Term Interim-Year Approved Intersection Level of Service Summary

Int No.	ITAM Node No.	Intersection	Baseline				Plus Project				Peak-Hour Δ		LOS Impact?
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		ICU		
			ICU / Delay	LOS	AM	PM							
1	291	Jeffrey Road/Alton Parkway	0.85	D	0.84	D	0.86	D	0.84	D	0.01	0.00	No
2	303	Sand Canyon Avenue/I-5 Northbound Ramps	0.71	C	0.70	B	0.72	C	0.71	C	0.01	0.01	No
		<i>HCM</i>	38.0	D	40.2	D	40.2	D	41.7	D	-	-	N/A
3	304	Sand Canyon Avenue/Marine Way	0.76	C	0.74	C	0.77	C	0.75	C	0.01	0.01	No
4	305	Sand Canyon Avenue/I-5 Southbound Ramps	0.67	B	0.74	C	0.68	B	0.75	C	0.01	0.01	No
		<i>HCM</i>	29.7	C	77.3	E	31.0	C	74.7	E	-	-	N/A
5	444	Sand Canyon Avenue/Burt Road	0.73	C	0.65	B	0.75	C	0.66	B	0.02	0.01	No
6	306	Sand Canyon Avenue/Laguna Canyon Road - Oak Canyon	0.62	B	0.56	A	0.64	B	0.57	A	0.02	0.01	No
7	307	Sand Canyon Avenue/Irvine Center Drive	0.57	A	0.56	A	0.59	A	0.57	A	0.02	0.01	No
8	308	Sand Canyon Avenue/Waterworks Way	0.44	A	0.52	A	0.47	A	0.52	A	0.03	0.00	No
9	309	Sand Canyon Avenue/Barranca Parkway	0.59	A	0.57	A	0.61	B	0.58	A	0.02	0.01	No
10	500	Sand Canyon Avenue/Hoag Irvine	0.42	A	0.50	A	0.43	A	0.60	A	0.01	0.10	No
11	310	Sand Canyon Avenue/Alton Parkway	0.65	B	0.71	C	0.76	C	0.73	C	0.11	0.02	No
12	311	Sand Canyon Avenue/I-405 Northbound Off-Ramp	0.59	A	0.52	A	0.62	B	0.52	A	0.03	0.00	No
		<i>HCM</i>	0.7	A	11.5	B	0.8	A	11.5	B	-	-	N/A
13	312	Sand Canyon Avenue/I-405 Southbound Ramps	0.88	D	0.55	A	0.90	D	0.55	A	0.02	0.00	No
		<i>HCM</i>	>80.0	F	27.8	C	>80.0	F	27.7	C	-	-	N/A
14	501	Hoag Irvine – Kaiser Permanente/Alton Parkway	0.49	A	0.45	A	0.54	A	0.48	A	0.05	0.03	No
15	315	Laguna Canyon Road/Alton Parkway	0.63	B	0.45	A	0.65	B	0.45	A	0.02	0.00	No

Source: Table D, Hoag Hospital Irvine Traffic Study (LSA, October 2020).

Δ = change

Delay is reported in seconds.

HCM = Highway Capacity Manual

Int = Intersection

I-405 = Interstate 405

I-5 = Interstate 5

ICU = intersection capacity utilization

ITAM = Irvine Transportation Analysis Model

LOS = level of service

N/A = not applicable

Table 3.17.H: Short-Term Interim-Year Approved ADT Volumes and V/C Ratios

ITAM Post No.	Roadway	Segment	Capacity	Baseline			Plus Project			Δ V/C	LOS Impact?
				ADT	V/C Ratio	LOS	ADT	V/C Ratio	LOS	Ratio	
793	Alton Parkway	Jeffrey Road to Sand Canyon Avenue	32,000	23,200	0.73	C	23,300	0.73	C	0.00	No
797		Sand Canyon Avenue to Hoag Irvine	49,500	27,500	0.56	A	28,800	0.58	A	0.02	No
798		Hoag Irvine to Laguna Canyon Road	32,000	19,600	0.61	B	20,300	0.63	B	0.02	No
647	Sand Canyon Avenue	I-5 Northbound Off-Ramp to Marine Way	54,000	51,900	0.96	E	52,100	0.96	E	0.00	No
1217		Marine Way to I-5 Southbound Off-Ramp	63,000	63,800	1.01	F	64,000	1.02	F	0.01	No
310		I-5 Southbound Off-Ramp to Burt Road	63,000	33,600	0.53	A	34,300	0.54	A	0.01	No
311		Burt Road to Laguna Canyon Road	54,000	33,000	0.61	B	33,600	0.62	B	0.01	No
314		Laguna Canyon Road to Irvine Center Drive	54,000	32,900	0.61	B	34,100	0.63	B	0.02	No
317		Irvine Center Drive to Waterworks Way	54,000	34,500	0.64	B	36,000	0.67	B	0.03	No
318		Waterworks Way to Barranca Parkway	54,000	33,500	0.62	B	35,000	0.65	B	0.03	No
319		Barranca Parkway to Hoag Irvine	54,000	34,800	0.64	B	36,800	0.68	B	0.04	No
320		Hoag Irvine to Alton Parkway	58,500	33,800	0.58	A	34,100	0.58	A	0.00	No
321		Alton Parkway to I-405 Northbound Off-Ramp	36,000	43,800	1.22	F	44,900	1.25	F	0.03	-
		<i>AM Peak Hour northbound</i>	3,200	1,795	0.56	A	1,886	0.59	A	0.03	No
		<i>southbound</i>	4,000	1,946	0.49	A	1,896	0.47	A	(0.02)	No
		<i>PM Peak Hour northbound</i>	3,200	1,360	0.43	A	1,346	0.42	A	(0.01)	No
961		<i>southbound</i>	4,000	2,194	0.55	A	2,275	0.57	A	0.02	No
		I-405 Northbound Off-Ramp to I-405 Southbound Ramps	32,000	31,600	0.99	E	32,200	1.01	F	0.02	-
	<i>AM Peak Hour northbound</i>	3,200	2,460	0.77	C	2,526	0.79	C	0.02	No	
	<i>southbound</i>	3,200	500	0.16	A	490	0.15	A	(0.01)	No	
	<i>PM Peak Hour northbound</i>	3,200	1,241	0.39	A	1,241	0.39	A	0.00	No	
	<i>southbound</i>	3,200	1,091	0.34	A	1,109	0.35	A	0.01	No	

Source: Table E, Hoag Hospital Irvine Traffic Study (LSA, October 2020).

Δ = change

= exceeds City of Irvine's level of service criteria

ADT = average daily trips

ITAM = Irvine Transportation Analysis Model

I-405 = Interstate 405

LOS = level of service

I-5 = Interstate 5

V/C = volume-to-capacity ratio

Italics = peak hour link analysis

With the addition of the Project in the Short-Term Interim-Year Approved condition, all study area roadway segments would continue to operate at satisfactory LOS, with the exception of the previously stated roadway segments. The v/c for Sand Canyon Avenue between the I-5 northbound off-ramp and Marine Way and between Marine Way and I-5 southbound off-ramp would not increase by 0.02 or greater. The v/c ratio for Sand Canyon Avenue between Alton Parkway and I-405 northbound off-ramp and between I-405 northbound off-ramp and I-405 southbound ramps would increase by 0.03 and 0.02, respectively. Although a daily LOS impact would occur at two study area roadway segments (Sand Canyon Avenue between Alton Parkway and the I-405 northbound off-ramp and between the I-405 northbound off-ramp and the I-405 southbound ramps), a peak-hour link analysis shows (Table 3.17.H) that each segment would operate at satisfactory LOS in both directions during both peak hours. Therefore, no improvements are required at these locations.

Long-Range Approved Baseline and Plus Project Traffic Volumes and LOS. Table 3.17.I presents a summary of the intersection LOS for Long-Range Approved (Baseline and Plus Project) conditions. As Table 3.17.I indicates, all study area intersections are forecast to operate at satisfactory LOS in the Baseline (No Project) condition, with the exception of Sand Canyon Avenue/I-405 southbound ramps (LOS E in the a.m. peak hour).

With the addition of the Project in the Long-Range Interim-Year Approved condition, the previously stated intersection would continue to operate at unsatisfactory LOS, and the ICU increases by 0.02 at this intersection. Therefore, a peak-hour LOS impact would occur at one study area intersection in the Long-Range Approved condition. The Project would be responsible for a fair share contribution to an improvement at the Sand Canyon Avenue/I-405 southbound ramps.

Table 3.17.J presents the ADT volumes and v/c ratios for the Long-Range Interim-Year Approved (Baseline and Plus Project) conditions. As Table 3.17.J indicates, all study area roadway segments are forecast to operate at satisfactory LOS in the Baseline (No Project) condition, with the exception of the following roadway segments:

- Sand Canyon Avenue between the I-5 northbound off-ramp and Marine Way (LOS F)
- Sand Canyon Avenue between Marine Way and the I-5 southbound off-ramp (LOS E)
- Sand Canyon Avenue between Alton Parkway to the I-405 northbound off-ramp (LOS F)
- Sand Canyon Avenue between the I-405 northbound off-ramp and I-405 southbound ramps (LOS F)

With the addition of the Project in the Long-Range Interim-Year Approved condition, the previously stated roadway segments would continue to operate at unsatisfactory LOS. However, the roadway segment v/c ratio would not increase by 0.02 or greater at these locations. Therefore, Project implementation would not create daily LOS impacts on roadway segments in the Long-Range Approved condition.

Table 3.17.I: Long-Range Approved Intersection Level of Service Summary

Int No.	ITAM Node No.	Intersection	Baseline				Plus Project				Peak-Hour Δ		LOS Impact?
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		ICU		
			ICU / Delay	LOS	AM	PM							
1	291	Jeffrey Road/Alton Parkway	0.88	D	0.88	D	0.89	D	0.89	D	0.01	0.01	No
2	303	Sand Canyon Avenue/I-5 Northbound Ramps	0.70	B	0.73	C	0.71	C	0.74	C	0.01	0.01	No
		<i>HCM</i>	60.8	E	57.5	E	60.6	E	57.5	E	-	-	N/A
3	304	Sand Canyon Avenue/Marine Way	0.40	A	0.43	A	0.40	A	0.43	A	0.00	0.00	No
4	305	Sand Canyon Avenue/I-5 Southbound Ramps	0.74	C	0.66	B	0.75	C	0.66	B	0.01	0.00	No
		<i>HCM</i>	31.0	C	24.0	C	32.6	C	24.3	C	-	-	N/A
5	444	Sand Canyon Avenue/Burt Road	0.78	C	0.74	C	0.80	C	0.74	C	0.02	0.00	No
6	306	Sand Canyon Avenue/Laguna Canyon Road - Oak Canyon	0.68	B	0.63	B	0.68	B	0.63	B	0.00	0.00	No
7	307	Sand Canyon Avenue/Irvine Center Drive	0.62	B	0.68	B	0.63	B	0.69	B	0.01	0.01	No
8	308	Sand Canyon Avenue/Waterworks Way	0.45	A	0.56	A	0.47	A	0.55	A	0.02	(0.01)	No
9	309	Sand Canyon Avenue/Barranca Parkway	0.64	B	0.67	B	0.66	B	0.68	B	0.02	0.01	No
10	500	Sand Canyon Avenue/Hoag Irvine	0.47	A	0.55	A	0.47	A	0.61	B	0.00	0.06	No
11	310	Sand Canyon Avenue/Alton Parkway	0.71	C	0.78	C	0.71	C	0.78	C	0.00	0.00	No
12	311	Sand Canyon Avenue/I-405 Northbound Off-Ramp	0.54	A	0.44	A	0.56	A	0.44	A	0.02	0.00	No
		<i>HCM</i>	3.4	A	5.5	A	3.5	A	5.5	A	-	-	N/A
13	312	Sand Canyon Avenue/I-405 Southbound Ramps	0.94	E	0.57	A	0.96	E	0.57	A	0.02	0.00	Yes
		<i>HCM</i>	>80.0	F	22.7	C	>80.0	F	23.5	C	-	-	N/A
14	501	Hoag Irvine – Kaiser Permanente/Alton Parkway	0.53	A	0.58	A	0.55	A	0.60	A	0.02	0.02	No
15	315	Laguna Canyon Road/Alton Parkway	0.71	C	0.51	A	0.72	C	0.51	A	0.01	0.00	No

Source: Table F, *Hoag Hospital Irvine Traffic Study* (LSA, October 2020).

Δ = change

■ = exceeds City of Irvine’s level of service criteria

Delay is reported in seconds.

HCM = *Highway Capacity Manual*

I-405 = Interstate 405

I-5 = Interstate 5

ICU = intersection capacity utilization

Int = Intersection

ITAM = Irvine Transportation Analysis Model

LOS = level of service

N/A = not applicable

Table 3.17.J: Long-Range Approved ADT Volumes and V/C Ratios

ITAM Post No.	Roadway	Segment	Capacity	Baseline			Plus Project			Δ V/C	LOS Impact?
				ADT	V/C Ratio	LOS	ADT	V/C Ratio	LOS	Ratio	
793	Alton Parkway	Jeffrey Road to Sand Canyon Avenue	32,000	26,200	0.82	D	26,300	0.82	D	0.00	No
797		Sand Canyon Avenue to Hoag Irvine	49,500	33,600	0.68	B	34,300	0.69	B	0.01	No
798		Hoag Irvine to Laguna Canyon Road	32,000	22,800	0.71	C	23,100	0.72	C	0.01	No
647	Sand Canyon Avenue	I-5 Northbound Off-Ramp to Marine Way	54,000	54,400	1.01	F	54,600	1.01	F	0.00	No
1217		Marine Way to I-5 Southbound Off-Ramp	63,000	59,900	0.95	E	60,100	0.95	E	0.00	No
310		I-5 Southbound Off-Ramp to Burt Road	63,000	35,900	0.57	A	36,200	0.57	A	0.00	No
311		Burt Road to Laguna Canyon Road	54,000	35,100	0.65	B	35,400	0.66	B	0.01	No
314		Laguna Canyon Road to Irvine Center Drive	54,000	32,800	0.61	B	33,400	0.62	B	0.01	No
317		Irvine Center Drive to Waterworks Way	54,000	34,300	0.64	B	35,200	0.65	B	0.01	No
318		Waterworks Way to Barranca Parkway	54,000	34,100	0.63	B	35,000	0.65	B	0.02	No
319		Barranca Parkway to Hoag Irvine	54,000	35,300	0.65	B	36,300	0.67	B	0.02	No
320		Hoag Irvine to Alton Parkway	58,500	33,600	0.57	A	33,500	0.57	A	0.00	No
321		Alton Parkway to I-405 Northbound Off-Ramp	36,000	45,800	1.27	F	46,100	1.28	F	0.01	No
961		I-405 Northbound Off-Ramp to I-405 Southbound Ramps	32,000	32,500	1.02	F	32,600	1.02	F	0.00	No

Source: Table G, *Hoag Hospital Irvine Traffic Study* (LSA, October 2020).

Δ = change

= exceeds City of Irvine's level of service criteria

ADT = average daily trips

ITAM = Irvine Transportation Analysis Model

I-405 = Interstate 405

LOS = level of service

I-5 = Interstate 5

V/C = volume-to-capacity ratio

Buildout Approved Baseline and Plus Project Traffic Volumes and LOS. Table 3.17.K presents a summary of the intersection LOS for the Buildout Approved (Baseline and Plus Project) conditions. As Table 3.17.K indicates, all study area intersections are forecast to operate at satisfactory LOS in the Baseline (No Project) condition, with the exception of Jeffrey Road/Alton Parkway (LOS E in the a.m. peak hour) and Sand Canyon Avenue/I-405 southbound ramps (LOS E in the a.m. peak hour).

With the addition of the Project in the Buildout Approved condition, all study area intersections would continue to operate at satisfactory LOS, with the exception of the previously stated intersections. However, the ICU would not increase by 0.02 or greater at Jeffrey Road/Alton Parkway. The ICU would increase by 0.02 at Sand Canyon Avenue/I-405 southbound ramps. Therefore, a peak-hour LOS impact would occur at one study area intersection in the Buildout Approved condition. The Project would be responsible for a fair share contribution to improvements at the Sand Canyon Avenue/I-405 southbound ramps.

Table 3.17.L presents the ADT volumes and v/c ratios for the Buildout Approved (Baseline and Plus Project) conditions. As Table 3.17.L indicates, all study area roadway segments are forecast to operate at satisfactory LOS in the Baseline (No Project) condition, with the exception of the following roadway segments:

- Sand Canyon Avenue between the I-5 northbound off-ramp and Marine Way (LOS F)
- Sand Canyon Avenue between Marine Way and the I-5 southbound off-ramp (LOS F)
- Sand Canyon Avenue between Alton Parkway to the I-405 northbound off-ramp (LOS F)
- Sand Canyon Avenue between I-405 northbound off-ramp and I-405 southbound ramps (LOS F)

With the addition of the project in the Buildout Approved condition, the previously stated roadway segments would continue to operate at unsatisfactory LOS. However, the roadway segment v/c ratio would not increase by 0.02 or greater at these locations. Therefore, Project implementation would not create daily LOS impacts on roadway segments.

Summary. Based on the results of the Traffic Study, the proposed Project would result in a peak-hour LOS impact at one study area intersection (Sand Canyon Avenue/I-405 southbound ramps) in the Long-Range and Buildout Approved conditions. The intersection of Sand Canyon Avenue/I-405 southbound ramps is forecast to operate at LOS E in the Long-Range and Buildout, No Project and Plus Project conditions during the a.m. peak hour, and would contribute 0.02 of ICU. There is a planned improvement to add an additional eastbound left-turn lane in the Buildout condition. However, the Project would still contribute to this deficiency in the Buildout condition with the planned improvement. The proposed improvement at this intersection is to add an additional eastbound left-turn lane (three left-turn lanes), and add an additional northbound through lane to accommodate the three left-turn lanes. The Project would be responsible for a fair share contribution to these improvements at the Sand Canyon Avenue/I-405 southbound ramps. The fair share contribution would be a condition of Project approval to ensure the Project's consistency with the City's General Plan Circulation Element.

Table 3.17.K: Buildout Approved Intersection Level of Service Summary

Int No.	ITAM Node No.	Intersection	Baseline				Plus Project				Peak-Hour Δ		LOS Impact?
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		ICU		
			ICU / Delay	LOS	AM	PM							
1	291	Jeffrey Road/Alton Parkway	0.91	E	0.87	D	0.91	E	0.87	D	0.00	0.00	No
2	303	Sand Canyon Avenue/I-5 Northbound Ramps	0.78	C	0.87	D	0.79	C	0.87	D	0.01	0.00	No
		HCM	>80.0	F	>80.0	F	>80.0	F	>80.0	F	-	-	N/A
3	304	Sand Canyon Avenue/Marine Way	0.43	A	0.44	A	0.43	A	0.44	A	0.00	0.00	No
4	305	Sand Canyon Avenue/I-5 Southbound Ramps	0.82	D	0.76	C	0.84	D	0.76	C	0.02	0.00	No
		HCM	45.5	D	31.6	C	48.0	D	32.3	C	-	-	N/A
5	444	Sand Canyon Avenue/Burt Road	0.88	D	0.83	D	0.90	D	0.84	D	0.02	0.01	No
6	306	Sand Canyon Avenue/Laguna Canyon Road - Oak Canyon	0.84	D	0.76	C	0.84	D	0.77	C	0.00	0.01	No
7	307	Sand Canyon Avenue/Irvine Center Drive	0.64	B	0.68	B	0.65	B	0.68	B	0.01	0.00	No
8	308	Sand Canyon Avenue/Waterworks Way	0.49	A	0.65	B	0.51	A	0.66	B	0.02	0.01	No
9	309	Sand Canyon Avenue/Barranca Parkway	0.63	B	0.70	B	0.65	B	0.72	C	0.02	0.02	No
10	500	Sand Canyon Avenue/Hoag Irvine	0.53	A	0.55	A	0.53	A	0.60	A	0.00	0.05	No
11	310	Sand Canyon Avenue/Alton Parkway	0.77	C	0.84	D	0.76	C	0.86	D	(0.01)	0.02	No
12	311	Sand Canyon Avenue/I-405 Northbound Off-Ramp	0.66	B	0.43	A	0.67	B	0.43	A	0.01	0.00	No
		HCM	4.3	A	5.2	A	4.6	A	5.2	A	-	-	N/A
13	312	Sand Canyon Avenue/I-405 Southbound Ramps	0.95	E	0.48	A	0.97	E	0.48	A	0.02	0.00	Yes
		HCM	34.7	C	8.2	A	37.3	D	8.1	A	-	-	N/A
14	501	Hoag Irvine – Kaiser Permanente/Alton Parkway	0.51	A	0.58	A	0.55	A	0.59	A	0.04	0.01	No
15	315	Laguna Canyon Road/Alton Parkway	0.70	B	0.52	A	0.71	C	0.52	A	0.01	0.00	No

Source: Table H, Hoag Hospital Irvine Traffic Study (LSA, October 2020).

Δ = change

 = exceeds City of Irvine’s level of service criteria

Delay is reported in seconds.

HCM = Highway Capacity Manual

Int = Intersection

I-405 = Interstate 405

I-5 = Interstate 5

ICU = intersection capacity utilization

ITAM = Irvine Transportation Analysis Model

LOS = level of service

N/A = not applicable

Table 3.17.L: Buildout Approved ADT Volumes and V/C Ratios

ITAM Post No.	Roadway	Segment	Capacity	Baseline			Plus Project			Δ V/C Ratio	LOS Impact?
				ADT	V/C Ratio	LOS	ADT	V/C Ratio	LOS		
793	Alton Parkway	Jeffrey Road to Sand Canyon Avenue	32,000	25,200	0.79	C	25,100	0.78	C	(0.01)	No
797		Sand Canyon Avenue to Hoag Irvine	49,500	33,200	0.67	B	33,700	0.68	B	0.01	No
798		Hoag Irvine to Laguna Canyon Road	32,000	22,200	0.69	B	22,500	0.70	B	0.01	No
647	Sand Canyon Avenue	I-5 Northbound Off-Ramp to Marine Way	54,000	64,100	1.19	F	64,200	1.19	F	0.00	No
1217		Marine Way to I-5 Southbound Off-Ramp	63,000	70,500	1.12	F	70,700	1.12	F	0.00	No
310		I-5 Southbound Off-Ramp to Burt Road	63,000	41,900	0.67	B	42,200	0.67	B	0.00	No
311		Burt Road to Laguna Canyon Road	54,000	41,300	0.76	C	41,600	0.77	C	0.01	No
314		Laguna Canyon Road to Irvine Center Drive	54,000	37,500	0.69	B	38,000	0.70	B	0.01	No
317		Irvine Center Drive to Waterworks Way	54,000	38,900	0.72	C	39,700	0.74	C	0.02	No
318		Waterworks Way to Barranca Parkway	54,000	39,800	0.74	C	40,600	0.75	C	0.01	No
319		Barranca Parkway to Hoag Irvine	54,000	40,300	0.75	C	41,100	0.76	C	0.01	No
320		Hoag Irvine to Alton Parkway	58,500	38,000	0.65	B	37,700	0.64	B	(0.01)	No
321		Alton Parkway to I-405 Northbound Off-Ramp	36,000	50,800	1.41	F	50,900	1.41	F	0.00	No
961		I-405 Northbound Off-Ramp to I-405 Southbound Ramps	32,000	35,300	1.10	F	35,400	1.11	F	0.01	No

Source: Table I, *Hoag Hospital Irvine Traffic Study* (LSA, October 2020).

Δ = change

 = exceeds City of Irvine’s level of service criteria

ADT = average daily trips

ITAM = Irvine Transportation Analysis Model

I-405 = Interstate 405

LOS = level of service

I-5 = Interstate 5

V/C = volume-to-capacity ratio

Although a daily LOS impact would occur at two study area roadway segments (Sand Canyon Avenue between Alton Parkway and the I-405 northbound off-ramp and between the I-405 northbound off-ramp and I-405 southbound ramps) in the Existing and Short-Term Interim-Year Approved conditions, a peak-hour link analysis shows that each segment would operate at satisfactory LOS in both directions during both peak hours. Therefore, no improvement is necessary for the roadway segments.

For the reasons stated above, the proposed Project would result in a less than significant impact related to conflicts with an applicable plan, program, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities. No mitigation is required.

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

Less Than Significant Impact. According to *State CEQA Guidelines* Section 15064.3(a), project-related transportation impacts are generally best measured by evaluating the Project's vehicle miles traveled (VMT). VMT refers to the amount and distance of automobile travel attributable to a project. *State CEQA Guidelines* Section 15064.3(b) sets forth criteria for analyzing transportation impacts, breaking down the methodology based on project type and specifying other criteria for conducting VMT analysis.

For land use projects, VMT exceeding an applicable threshold of significance may indicate a significant impact. Generally, projects within 0.5 mile of an existing high-quality transit corridor should be considered to have a less than significant impact. *State CEQA Guidelines* Section 15064.3(b)(2) addresses VMT associated with transportation projects and states that projects that reduce VMT, such as pedestrian, bicycle, and transit projects, should be presumed to have a less than significant impact. Subdivision (b)(3) of the *State CEQA Guidelines*, Section 15064.3, acknowledges that Lead Agencies may not be able to quantitatively estimate VMT for every project type; in these cases, a qualitative analysis may be used. The regulation goes on to state that Lead Agencies have the discretion to formulate a methodology that would appropriately analyze a project's VMT (*State CEQA Guidelines* Section 15064.3(b)(4)). Statewide implementation commenced on July 1, 2020.

Based on the City's Guidelines for transportation projects, if a land use project would implement transportation improvements to address LOS operational deficiencies and these improvements are not screened out, the improvements must be analyzed as part of the land use project's VMT impact analysis. Although the proposed Project would not implement roadway improvements, it would contribute a fair share to future planned improvements. Specifically, the VMT analysis evaluated the addition of 704,740 sf of hospital use to the Hoag Campus and the increase in roadway capacity attributable to the improvements at the Sand Canyon Avenue/I-405 southbound ramps. The Project would be subject to a condition of approval requiring the Project Applicant to contribute a fair share toward improvements at the intersection, which include adding an eastbound left-turn lane (there would be a total of three left-turn lanes), and adding an additional northbound through lane to accommodate the three left-turn lanes. Therefore, the VMT analysis includes both the proposed land use changes as well as the increase in roadway capacity attributable to those improvements to which the proposed Project would contribute a fair share to be consistent with the City's General Plan Circulation Element.

According to the Traffic Study, the City’s VMT traffic model (ITAM TransCAD 2018 VMT) was used to estimate both the regional (Irvine) and Project VMT. Based on the City’s Guidelines, for nonresidential projects, the project’s nonresidential VMT per employee rate is evaluated against the nonresidential VMT per employee threshold. If the project’s nonresidential VMT rate is less than or equal to the City’s adopted nonresidential VMT rate threshold, the project does not have a VMT impact, and no mitigation is required. If the proposed Project’s nonresidential VMT rate is greater than the City’s adopted nonresidential VMT rate threshold, the project has a VMT impact, and requires mitigation.

The City’s goal and associated significance criteria for new nonresidential projects are to generate 15 percent less VMT per employee compared to existing conditions, which is consistent with the Office of Planning and Research’s Technical Advisory recommendations.

Table 3.17.M illustrates the VMT per employee comparison between the proposed Project and the City’s nonresidential threshold goal (15 percent reduction). As shown in Table 3.17.M, the VMT for the proposed Project is less than the City’s VMT rate under existing (2020) conditions.

Table 3.17.M: Existing (2020) Regional and Project VMT per Capita Comparison

Land Use	City	Project
Non-Residential	41.33	28.43

Source: Irvine Transportation Analysis Model.
VMT = vehicle miles traveled

Therefore, the proposed Project would have less than significant impacts related to VMT and would not conflict or be inconsistent with CEQA Guidelines §15064.3, subdivision (b). No mitigation is required.

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

Less than Significant Impact. Vehicular traffic to and from the Project site would use the existing network of regional and local roadways that serve the Project area. Access to the Project site would continue to be provided via existing signalized access points at Sand Canyon Avenue/Hoag Irvine and Hoag Irvine – Kaiser Permanente/Alton Parkway, and a new ingress-only unsignalized driveway along Alton Parkway.

Project access was analyzed based on the City’s TDPs (adopted in February 2007). As a result, no impacts to vehicle access were identified using the following TDPs:

- **TDP-1:** Turn lane pocket lengths
- **TDP-10:** Distance between driveways and intersections
- **TDP-14:** Driveway lengths

TDP-4 requires right turn lanes at uncontrolled driveways. According to the Traffic Study, the proposed Project meets the intent of TDP-4. However, as the Project would not provide a dedicated right-turn lane at the new Project driveway along Alton Parkway, a request for deviation from TDP-4 has been prepared for the City's review and approval.

According to the Traffic Study, the Project access points at Sand Canyon Avenue/Hoag Irvine, Hoag Irvine—Kaiser Permanente/Alton Parkway, and the new ingress-only driveway on Alton Parkway were analyzed based on the design criteria recommended in the City's TDPs. The TDPs establish uniform policies and procedures for reviewing traffic design plans within Irvine. The TDPs were used to evaluate the roadway design features that may be impacted by the Project.

Project trips were generated using ITE trip rates (refer to Table 3.17.D, above). The Project trip generation (627 trips in the a.m. peak hour and 684 trips in the p.m. peak hour) represent 704,740 sf of hospital use. The trip distribution percentages at the project driveways were derived from the ITAM Buildout Approved Baseline Plus Project select zone assignments and trip distribution adjustments at the project access point at Hoag Irvine—Kaiser Permanente/Alton Parkway and Sand Canyon Avenue/Alton Parkway. The TDP evaluation of both Project access points and the new Project driveway on Alton Parkway is based on the Existing and Existing Plus Project conditions.

Based on analysis in the Traffic Study, the Project would meet the requirements of TDP-1, TDP-10, and TDP-14. As stated previously, the proposed Project meets the intent of TDP-4. However, as the Project would not provide a dedicated right-turn lane at the new Project driveway along Alton Parkway, a request for deviation from TDP-4 is provided for the City's review and approval. The deviation would not result in an unsafe traffic condition for the Project site. Further, the proposed Project represents an expansion of existing uses on the Project site, and, therefore, the Project would not introduce incompatible uses. Therefore, the proposed Project would not substantially increase hazards due to a geometric design feature (e.g., a sharp curve or dangerous intersection) or incompatible uses (e.g., farm equipment). No mitigation is required.

d. Would the project result in inadequate emergency access?

Less Than Significant Impact. As stated previously, the Project site would be accessed via the existing access points at Sand Canyon Avenue/Hoag Irvine, Hoag Irvine—Kaiser Permanente/Alton Parkway, and the new ingress-only driveway on Alton Parkway. As discussed above under response to Threshold 3.17(c), the Project driveways would be designed and improved to conform to the City's TDP standards. Specifically, the Traffic Study determined that the Project would meet the requirements of TDP-1, TDP-10, and TDP-14. As stated previously, the proposed Project meets the intent of TDP-4. However, as the Project would not provide a dedicated right-turn lane at the new Project driveway along Alton Parkway, a request for deviation from TDP-4 is provided for the City's review and approval. The deviation would not result in an unsafe traffic condition for the Project site and would not adversely impact emergency access. In addition, the proposed Project's ingress and egress would be subject to review by the City's Department of Public Works and the OCFA. Therefore, the Project's impacts associated with emergency access would be less than significant. No mitigation is required.

3.17.2 Cumulative Impacts

As analyzed in the Traffic Study, the traffic volume forecasts were developed by accounting for growth in traffic from ambient traffic growth and related projects. Therefore, the analysis of future traffic conditions as discussed in Section 3.17.1, Impacts Analysis, above, is inherently cumulative in that it considers traffic generated by future planned land uses. Cumulative Impacts were determined to be less than significant.

3.18 TRIBAL CULTURAL RESOURCES

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
i. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k)? Or	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3.18.1 Impact Analysis

- a. *Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:*
- i. *Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k);*
or
 - ii. *A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1? In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.*

Less than Significant with Mitigation Incorporated. The following response addresses Thresholds 3.18(a)(i) and (ii).

Chapter 532, Statutes of 2014 (i.e., Assembly Bill [AB] 52), requires that Lead Agencies evaluate a project’s potential to impact “tribal cultural resources.” Such resources include sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native

American tribe that are eligible for inclusion in the California Register or included in a local register of historical resources (PRC Section 21074). AB 52 also gives Lead Agencies the discretion to determine, supported by substantial evidence, whether a resource falling outside of the definition stated above nonetheless qualifies as a “tribal cultural resource.”

In accordance with AB 52 (specifically PRC 21080.3.1), a CEQA Lead Agency must consult with California Native American tribes that are traditionally and culturally affiliated with the geographic area of the proposed Project and that have previously requested that the Lead Agency provide the tribe with notice of such projects.

On July 14, 2020, the Native American Heritage Commission provided City staff with a list of tribal representatives in the Orange County area to include in the City’s tribal consultation process. This list includes the following tribal representatives:

- Campo Band of Diegueno Mission Indians, Ralph Goff, Chairperson
- Ewiiapaayp Band of Kumeyaay Indians, Robert Pinto, Chairperson
- Ewiiapaayp Band of Kumeyaay Indians, Michael Garcia, Vice Chairperson
- Gabrieleno Band of Mission Indians—Kizh Nation, Andrew Salas, Chairperson
- Gabrieleno/Tongva San Gabriel Band of Mission Indians, Anthony Morales, Chairperson
- Gabrielino/Tongva Nation, Sandonne Goad, Chairperson
- Gabrielino Tongva Indians of California Tribal Council, Robert Dorame, Chairperson
- Gabrielino-Tongva Tribe, Charles Alvarez
- Juaneno Band of Mission Indians Acjachemen Nation—Belardes, Matias Belardes, Chairperson
- La Posta Band of Diegueno Mission Indians, Gwendolyn Parada, Chairperson
- La Posta Band of Diegueno Mission Indians, Javaughn Miller, Tribal Administrator
- Manzanita Band of Kumeyaay Nation, Angela Elliott Santos, Chairperson
- Mesa Grande Band of Diegueno Mission Indians, Michael Linton, Chairperson
- Pala Band of Mission Indians Shasta Gaughen, Tribal Historic Preservation Officer
- Soboba Band of Luiseno Indians, Scott Cozart, Chairperson
- Sycuan Band of the Kumeyaay Nation, Cody Martinez, Chairperson

The City sent letters for the purposes of AB 52 consultation to all of the tribal representatives listed above on July 30, 2020, and letters were delivered between July 31 and August 6, 2020 via the United States Postal Service. The 30-day consultation period concluded for all tribes on September 4, 2020. The letters and the response received are included in Appendix G of this IS/MND.

In a letter dated August 5, 2020, Andrew Salas, Chairman of the Gabrieleno Band of Mission Indians—Kizh Nation, requested consultation with the City because the Project site is within the tribe’s ancestral tribal territory. On September 17, 2020, City staff met with tribal representatives from the Gabrieleno Band of Mission Indians—Kizh Nation. Consultation between the Gabrieleno Band of Mission Indians—Kizh Nation and the City is ongoing.

As discussed in response to Threshold 3.5(a), the Project site does not contain any “historical resources” as defined by CEQA. Therefore, the proposed Project would not cause a substantial

adverse change in the significance of a historical resource as defined in Section 15064.5 of the *State CEQA Guidelines* or PRC 5020.1(k).

To date, no Tribe has presented substantial evidence of Tribal Cultural Resources on the Project site. As discussed in detail in response to Threshold 3.5(b), the Project site was included in a record search conducted of the California Historical Resources Information System at the South Central Coastal Information Center on September 11, 2020 (Records Search File No. 21621.7752). Based on the presence of previously recorded precontact cultural resources near the Project site and the age of subsurface sediment deposits of the Project site, there is the potential to encounter subsurface cultural resources deposits – which may include tribal cultural resources – during ground-disturbing activities included as part of the Project. As discussed in response to Threshold 3.5(b), the Project would be required to implement MM-CUL-1, which requires construction activities to cease in the event that archaeological or tribal cultural resources are discovered during Project construction. Therefore, potential impacts to previously undiscovered tribal cultural resources would be less than significant with the incorporation of MM-CUL-1.

3.18.2 Cumulative Impacts

The proposed Project, in conjunction with other development in Irvine, has the potential to cumulatively impact unknown or buried tribal cultural resources; however, it should be noted that each development proposal received by the City undergoes environmental review pursuant to CEQA. If there is a potential for significant impacts to subsurface tribal cultural resources, an investigation would be required to determine the nature and extent of the resources and to identify appropriate mitigation measures. As discussed in response to Threshold 3.5(b), Mitigation Measure MM-CUL-1 would be implemented during construction of the proposed Project to reduce potential Project impacts by requiring construction activities to cease in the event that tribal cultural resources are discovered during Project construction. Therefore, with implementation of MM-CUL-1, the contribution of the proposed Project to the cumulative loss of known and unknown tribal cultural resources throughout Irvine would be reduced to below a level of significance.

3.19 UTILITIES AND SERVICE SYSTEMS

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

3.19.1 Impact Analysis

- a. *Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?*

Less Than Significant Impact.

Potable and Recycled Water. The Project is within IRWD's service area. IRWD provides water and wastewater treatment services to approximately 380,000 customers in Irvine, Costa Mesa, Lake Forest, Newport Beach, Orange, and Tustin as well as in the unincorporated areas of Orange County. IRWD's water supply comes from four sources: local ground water (48 percent), imported water (27 percent), groundwater (21 percent), and water banking (4 percent).¹ Because IRWD's existing utility master plans do not account for the proposed Project, the *Sub-Area Master Plan (SAMP) Addendum* (West Yost Associates, July 2020) (Appendix H) was prepared to evaluate the Project's potential impacts on IRWD utility systems. According to the SAMP Addendum, the Project site falls within IRWD Planning Area 13C.

The proposed Project would require connections to existing on- and off-site potable and recycled water systems. In the existing condition, the Project site is served by an inner loop which supplies potable water to the existing buildings. This inner loop includes a 10-inch line which connects to 16-

¹ Irvine Ranch Water District. Water Supply and Reliability. Website: <https://www.irwd.com/services/water-supply-reliability> (accessed August 17, 2020).

inch transmission mains in both Sand Canyon Avenue and Alton Parkway. These existing connections would continue to serve the Project site. Additionally, two new domestic potable water lines would be located on the eastern and western portions of the Project site. A new Non-structural Performance Category 5 (NPC-5) storage tank would be located below grade adjacent to the domestic cold-water pump and water treatment room. NPC-5 storage tanks provide onsite supplies of water and holding tanks for sewage and liquid waste, sufficient to support 72 hours of emergency operations, which are integrated into the building's plumbing systems.

The Project site is currently being served through two connections to the recycled water system. On the northwest side of the Project site, a 4-inch line connects to a 12-inch line in Sand Canyon Avenue. On the southwest side of the Project site, a 4-inch line connects to an 8-inch line in Alton Parkway. The proposed Project would continue to use these existing connections, as no new recycled water infrastructure is proposed as part of the Project. An additional connection point exists along Sand Canyon Avenue, but this is not being utilized currently and will not be utilized following Project implementation.

According to the SAMP Addendum, the potable water system was evaluated for deficiencies based on IRWD's potable water system hydraulic criteria. Pipe velocity (measured in feet per second [fps]) and junction pressure (measured in pounds per square inch [psi]) were analyzed under both existing and proposed conditions. The SAMP Addendum determined that during peak hour demand in the existing condition, there are several pipes that have velocity results that are under IRWD's 1 fps minimum velocity criteria. However, these deficiencies are not worsened by the proposed Project. Additionally, it was determined that all of the junction pressures are above IRWD's criteria of 40 psi during the peak hour demand scenario and above 20 psi during fire flow conditions. As such, no improvements are proposed or recommended for the IRWD potable water system based on the implementation of the proposed Project.

The SAMP Addendum also evaluated the recycled water system for deficiencies based on IRWD's recycled water system hydraulic criteria. Pipe and junction pressure were analyzed under both existing and proposed conditions. The SAMP Addendum determined that there is an increase in pipe velocities when comparing the existing and proposed conditions that is attributable to the proposed Project. However, despite the increase in flows, there are no velocities violating the maximum velocity criteria of 8 fps. Implementation of the proposed Project increases the number of junctions that are below the minimum pressure requirement and that are, therefore, deficient by IRWD criteria. However, the pressure is reduced by only slightly more than 2 psi, which is negligible considering the minimum and maximum pressures are 60 psi and 150 psi, respectively. Additionally, these deficiencies are observed in both future scenarios (with and without the proposed Project), and the SAMP Addendum concluded that they are not caused or significantly worsened by the proposed Project. As such, the SAMP Addendum concluded that no improvements are proposed or recommended for the IRWD recycled water system based on the implementation of the proposed Project.

For the reasons stated above, implementation of the proposed Project would not require or result in the relocation or construction of new or expanded water treatment or collection facilities, and no mitigation is required.

Wastewater. As stated previously, IRWD provides water and wastewater treatment services to approximately 380,000 customers in six cities and unincorporated portions of Orange County. IRWD's sanitary sewer system contains approximately 102,000 sewer connections. IRWD operates and maintains 1,100 miles of sanitary sewer mains and 12 miles of force mains spanning 181 square miles (84,000 acres) of service area.¹ The Project site is in Planning Area 13C of IRWD's service area.

According to the SAMP Addendum, the Project site is served via four connections to the wastewater collection system: two that discharge into a 15-inch gravity main in Alton Parkway and two that discharge into a 21-inch gravity main in Sand Canyon Avenue. The flow then travels southwest along Sand Canyon Avenue via a 24-inch gravity main for about 750 feet to I-405, where it discharges into the San Diego Creek Interceptor (SDCI). The SDCI conveys flows by gravity northwest alongside I-405 to Culver Drive, then crosses underneath I-405 and San Diego Creek by siphon. Flows then discharge to the Michelson Water Recycling Plant (MWRP).

According to the SAMP Addendum, the proposed Project is anticipated to have an average dry weather flow of 170,300 gpd of wastewater. The average dry weather flow was multiplied by IRWD's design flow factor of 1.298 to determine that the design average dry weather would be 221,000 gpd of wastewater. Although the proposed Project would result in an increase in wastewater generation, the maximum amount of anticipated wastewater generation by the Project per day represents 2.9 percent of the available treatment capacity of MWRP. The increase of wastewater generated by the proposed Project is anticipated to be accommodated within the existing design capacity of the MWRP.

The SAMP Addendum determined that there is a minor increase in flows between the existing and proposed Project scenarios. During proposed Project scenarios, there are two large trunk main segments that have peak weather dry flow values that slightly exceed IRWD's criteria. However, these deficiencies are observed in both future scenarios (with and without the proposed Project), and the SAMP Addendum concluded that they are not caused or significantly worsened by the proposed Project. These deficiencies do not represent an immediate risk to the collection system. Further, the SAMP Addendum did not identify any recommendations for improvements to IRWD's wastewater systems that Project implementation would require. Therefore, implementation of the proposed Project would not require or result in the relocation or construction of new or expanded wastewater treatment or collection facilities, and no mitigation is required.

Stormwater. The City's Public Works and Transportation Department manages the storm drain system in Irvine. Specifically, the Public Drainage Program is responsible for the maintenance of the City's public drainage facilities. The City's storm drain system conveys untreated stormwater into flood control channels, creeks, and ultimately the Pacific Ocean.²

¹ Irvine Ranch Water District. 2018. Sewer System Management Plan. June. Website: https://www.irwd.com/images/pdf/water-sewer/irwd_sewer_system_management_plan.pdf (accessed August 17, 2020).

² City of Irvine. Public Drainage. Website: <https://www.cityofirvine.org/public-works-department/public-drainage> (accessed August 17, 2020).

The City is a co-permittee on the North Orange County MS4 permit issued by the Santa Ana RWQCB pursuant to the NPDES program (North Orange County MS4 Permit). This permit regulates urban stormwater runoff, surface runoff, and drainage that flow into the MS4 system.

The proposed Project includes 278,397 sf of landscaping (24.9 percent of the Project site area), which would capture stormwater runoff. Implementation of the proposed Project would decrease the impervious surface area on the Project site, which would improve management of runoff from the site. In addition, the proposed Project would increase the pervious surface area on the Project site, which would increase infiltration of stormwater. As discussed in Section 3.10, Hydrology and Water Quality, a Final WQMP would be prepared for the project in compliance with the North Orange County MS4 Permit and the City's Municipal Code. As stated in Regulatory Compliance Measure RCM-WQ-4, the Final WQMP will detail the BMPs that would be implemented to treat stormwater runoff and reduce impacts to water quality during Project operation. The permanent operational BMPs (such as stormwater basins) would capture and treat stormwater runoff and reduce pollutants of concern in stormwater runoff. With implementation of RCM-WQ-4, the Project would comply with recommendations in the Final WQMP, including Operational BMPs, which would reduce impacts related to stormwater. Additionally, the proposed Project would include a new storm drain that would supplement the existing stormwater infrastructure (refer to Figure 1-6, Utility Plan, in Section 1.2, Project Description). Therefore, the proposed Project would not exceed the capacity of downstream stormwater drainage facilities or cause the expansion of existing facilities. The proposed Project would not require or result in the construction of new stormwater drainage facilities or expansion of existing facilities beyond the on-site improvements included as part of the proposed Project. Therefore, impacts to stormwater drainage facilities would be less than significant with the incorporation of RCM-WQ-4. No mitigation is required.

Electric Power. Refer to Section 3.6, Energy, for further discussion related to the proposed Project's impacts with respect to existing and projected supplies of electricity. The proposed Project includes a new 47,550 sf Central Utility Plant. The existing 10,200 sf utility plant would remain in place for a total of 57,750 square feet of utility plant services on the Project site. The Central Utility Plant would be supported with cooling towers and emergency power generators at grade level.

The specific planned future improvements related to the proposed Central Utility Plant—equipment, fuel type, and installation methods—are unknown at this time and speculative. Expansion of the Central Utility Plant will be required to undergo separate CEQA review under the SCAQMD and future discretionary action by SCAQMD per SCAQMD Regulation XIII, New Source Review.

Natural Gas. As stated previously, the proposed Project includes a new 47,550 sf Central Utility Plant, and the existing 10,200 sf utility plant will remain in place for a total of 57,750 square feet of utility plant services on the Project site. The Central Utility Plant would be supported with cooling towers and emergency power generators at grade level. A new medium pressure natural gas line would be provided to the eastern hospital addition for boilers and water heating. This natural gas improvement is minimal, and therefore, would not cause significant environmental effects. Therefore, although the proposed Project would require the construction of natural gas facilities, the construction of these improvements would not cause significant environmental effects. No mitigation is required.

As stated above, the specific planned future improvements related to the proposed Central Utility Plant—equipment, fuel type, and installation methods— are unknown at this time and speculative. Expansion of the Central Utility Plant will be required to undergo separate CEQA review under the SCAQMD and future discretionary action by SCAQMD per SCAQMD Regulation XIII, New Source Review.

Telecommunications. The primary cable and telephone service providers available to residents within the Project site’s vicinity (and more generally, within Irvine) are AT&T and Cox Communications. Construction activities associated with the proposed Project would not increase the demand for telecommunications facilities. In addition, the proposed Project would not involve the construction or relocation of new or expanded telecommunications facilities. Therefore, implementation of the proposed Project would not result in impacts related to the construction or relocation of existing telecommunications facilities, and no mitigation would be required.

Summary. The proposed Project would not require or result in the relocation or construction of new or expanded facilities for water, wastewater treatment, storm drainage, electric power, natural gas, or telecommunications. Existing facilities have the capacity to serve the anticipated uses, and the proposed Project would not substantially increase demand upon these facilities compared to historic and existing conditions at the Project site. Therefore, impacts to these utility facilities would be less than significant, and no mitigation is required.

Regulatory Compliance Measure. No mitigation is required; however, Regulatory Compliance Measure RCM-WQ-4, presented in Section 4.10, Hydrology and Water Quality, would be implemented to reduce Project-related impacts to stormwater drainage facilities.

b. Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?

Less Than Significant Impact.

Construction. Short term demand for water may occur during construction activities on-site. Water demand for soil watering (fugitive dust control), cleanup, masonry, painting, and other activities would be temporary and would cease at Project build out. It is estimated that 1 to 2 af of water per day (325,851 gallons per af) would be used at the site during earthmoving activities. To control fugitive dust, an additional 30 to 35 gallons per cubic yard of material to be moved would be used. For the proposed Project, that would result in a water demand of approximately 4,189,500 gallons (12.86 af)¹ for fugitive dust control.

IRWD encourages construction contractors to use recycled water for fugitive dust control. As stated above, recycled water is available on the Project site; all water used during construction to control fugitive dust is expected to be recycled water.

¹ Calculation: 90,700 cubic yards (cy) cut + 29,000 cy fill = 119,700 cy total material to be moved; 119,700 cy x 35 gallons = 4,189,500 gallons = 12.86 acre feet

IRWD is not currently experiencing a shortage related to recycled nonpotable water. According to IRWD, reclaimed water production remains constant and is considered “drought-proof” as a result of the fact that sewage flows remain virtually unaffected by dry years. Therefore, water supply is available to meet the incremental increase in demand from the proposed Project during construction. The Project would not necessitate new or expanded water entitlements, and IRWD would be able to accommodate the increased demand for recycled water. Therefore, Project impacts associated with an increase in recycled water demand are considered less than significant, and no mitigation is required.

Operation. Water demand associated with the proposed Project would be typical of medical/hospital water usage in Irvine. Because the proposed Project involves an expansion of existing medical uses, water usage would increase compared to current conditions. The Project site contains existing water services in support of the existing medical uses, but services would need to be extended to the point of connections for the proposed new buildings. The proposed Project’s exterior water demand for landscaping would be served by recycled water. As recycled water is not permitted for internal use in behavioral health type hospitals or clinics, it is assumed potable water would serve all interior water demand.

According to the 2015 Urban Water Management Plan (UWMP), based on IRWD’s diversified water supply portfolio, water supplies have remained essentially constant between normal, single dry and multiple dry years. Based on IRWD’s assessment of its available water supplies and the historic reliability of these supplies, IRWD determined that water supply projections will be reliable under single dry and multiple dry years. As such, IRWD’s projected water supply is able to meet projected water demands in 2015, 2020, 2025, 2030, and 2035, during normal years, single dry years, and multiple dry years. In 2015, the actual water supply under IRWD was 64,154 af.

According to the SAMP Addendum, the proposed Project is anticipated to have an average potable water demand of 118 gallons per minute (gpm) and a maximum potable water demand of 157 gpm. This equates to an average potable water demand of 169,920 gallons per day (gpd) (190.3 af per year¹) and a maximum potable water demand of 226,080 gpd (253.2 af per year²). Additionally, the recycled water demand was estimated at approximately 4,950,000 gallons per year (gpy) (15.2 af per year).

The supply and demand forecasts for the third-dry-year scenario (considered to be the worst-case scenario) included in the IRWD’s 2015 UWMP are shown in Table 3.19.A. As shown in Table 3.19.A, in the multiple-dry-year scenario, the IRWD’s projected water demand in 2025 would be 113,378 afy, and the IRWD’s projected water supply in 2025 would be 154,549 afy. This would result in a projected surplus of 41,171 afy of water.

¹ Calculation: 169,920 gallons per day (gpd) x 365 days = 62,020,800 gallons per year (gpy) = 190.33 acre-feet (af) per year

² Calculation: 226,080 gpd x 365 days = 82,519,200 gpy = 253.24 af per year

**Table 3.19.A: Water Supply and Demand Projections Comparison
Third-Dry-Year Supply (2020–2035)**

Year	Water Supply (afy ¹)	Water Demand (afy)	Surplus (afy)
2020	142,197	103,195	39,002
2025	154,549	113,378	41,171
2030	154,549	117,091	37,458
2035	154,549	119,066	35,483

Source: Table 7-4, 2015 Urban Water Management Plan (IRWD 2016).

¹ An acre-foot is the amount of water necessary to cover 1 acre of surface area to a depth of 1 foot and is approximately 326,000 gallons of water.

afy = acre-feet per year

Although the proposed Project would result in an increase in water usage, the maximum amount of anticipated potable water usage by the Project per year represents 0.7 percent of the 2035 projected surplus water supply in IRWD’s service area. Therefore, because the potable water demand associated with the proposed Project would only represent 0.7 percent of the surplus water supply in the IRWD’s service area in 2035 under the worst-case scenario, the proposed Project would not necessitate new or expanded water facilities, and the IRWD would be able to accommodate the increased demand for potable water. Therefore, sufficient water supplies from existing entitlements are available to serve the proposed Project. Further, the SAMP Addendum did not identify any recommendations for improvements to IRWD’s potable or recycled water systems that Project implementation would require.

For the reasons stated above, water demand from the proposed Project would be within IRWD’s current and projected water supplies available to serve the Project and reasonably foreseeable future development during normal, dry and multiple dry years. Impacts related to water supplies would be less than significant, and no mitigation is required.

c. Would the project result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project’s projected demand in addition to the provider’s existing commitments?

Less Than Significant Impact. The proposed Project includes the expansion of existing medical uses on the Project site. Infrastructure components to be implemented as part of the proposed Project would require connections to existing off-site infrastructure systems. These systems, which would include sanitary sewer, would be constructed on the Project site and would be fully provided and maintained by the Developer/Applicant. All on-site systems would connect to existing infrastructure on Sand Canyon Avenue and Alton Parkway.

As previously identified, IRWD is also the wastewater service provider for the Project site. Wastewater collected through IRWD’s system is sent to one of two of IRWD’s water recycling plants, the MWRP in Irvine or the Los Alisos Water Recycling Plant (LAWRP) in Lake Forest. According to the 2015 UWMP, the MWRP and LAWRP’s permitted tertiary treatment capacities are 28 million gallons per day (mgd) and 5.5 mgd, respectively. The combined treatment capacity of MWRP and LAWRP is 33.5 mgd. Flows from the Project site are treated at MWRP so this discussion focuses on that facility.

Based on flow-monitoring information, approximately 20.3 mgd are currently being conveyed to the MWRP for treatment for treatment.¹ Therefore, the MWRP is currently operating at approximately 72.5 percent of its daily design capacity. The majority of the sewage generated in IRWD's service area is treated to disinfected tertiary recycled water standards and used for nonpotable purposes.

As stated in response to Threshold 3.19(a), the proposed Project is anticipated to have an average dry weather flow of 170,300 gpd of wastewater. The average dry weather flow was multiplied by IRWD's design flow factor of 1.298 to determine that the design average dry weather would be 221,000 gpd of wastewater. Although the proposed Project would result in an increase in wastewater generation, the maximum amount of anticipated wastewater generation by the Project per day represents 2.9 percent of the available treatment capacity of MWRP. The increase of wastewater generated by the proposed Project is anticipated to be accommodated within the existing design capacity of the MWRP. Further, the SAMP Addendum did not identify any recommendations for improvements to IRWD's wastewater systems that would be necessitated by Project implementation.

Consequently, the wastewater flows from the proposed Project can be accommodated within the existing design capacity of the wastewater treatment plants serving the City. As such, IRWD would have adequate capacity to serve the Project's projected demand in addition to the providers' existing commitments. Therefore, impacts related to wastewater generation are less than significant, and no mitigation is required.

d. Would the project generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

Less Than Significant Impact. The City contracts with Waste Management of Orange County to provide waste collection services to Irvine's residents and businesses. Waste Management provides three different carts for automated collection of trash, recyclables, and green waste.² Solid waste collected from the Project site would likely be hauled to Frank R. Bowerman Landfill at 11002 Bee Canyon Access Road in Irvine. The County owns and operates Frank R. Bowerman Landfill, which opened in 1990.³ The landfill is scheduled to close in 2053, and it is permitted to accept up to 11,500 tons of solid waste per day and currently accepts a daily average of approximately 8,500 tons of solid waste per day.⁴ As such, the landfill has an excess capacity of approximately 3,000 tons of solid waste per day.

Construction. The anticipated construction schedule would occur in two construction phases (1) Phase 1 build out will occur over approximately 48 months beginning in 2021, and (2) Phase 2 build out will occur over approximately 30 months beginning in 2027 for a complete Project build out in

¹ IRWD. IRWD Sewer System Management Plan 2018 Appendices.

² Waste Management. Welcome Residents of Irvine. Website: <https://www.wm.com/us/local/ca/irvine/residential> (accessed August 14, 2020).

³ OC Waste and Recycling. Frank R. Bowerman Landfill. Website: <https://www.oilandfills.com/landfills/active-landfills/frank-r-bowerman-landfill> (accessed August 14, 2020).

⁴ Ibid.

2030. Construction of the proposed Project would require demolition of the existing 3,260 sf auditorium as well as portions of the surface lots on the Project site. Demolition is expected to generate approximately 900 tons of waste.¹ Demolition waste (e.g., asphalt, concrete, carpet, drywall, scrape metal) would be spread out over several weeks and would not exceed the available daily capacity of the Frank R. Bowerman Landfill. The majority of waste generated during construction, would occur during construction of new on-site structures. Construction is expected to generate approximately 1,632 tons of waste. Construction waste (e.g., asphalt, concrete, metals, carpet, drywall, corrugated cardboard) would also be spread out over the length of the construction period and would not exceed the available daily capacity of the Frank R. Bowerman Landfill. Further, the generation of construction waste would be temporary, would cease upon construction completion. Nonhazardous waste from project construction activities would be recycled to the extent feasible.

The Title 6, Division 7 – Chapter 9 of the City’s Municipal Code and Sections 4.408, 5.408, and 5.713.8 of the California Green Building Standards Code (CALGreen) require that construction development, renovation, and demolition projects recycle or otherwise divert construction and demolition debris from landfills. These requirements promote the reuse of resources and help extend the useful life of landfills in compliance with the CALGreen Code and State laws including the California Integrated Waste Management Act (AB 939) and Mandatory Construction and Demolition Waste Diversion (Senate Bill 1374).

For non-residential projects required to comply with these provisions, percentages of materials subject to recycling under the CALGreen Code and the City’s Municipal Code are as follows:

- 100 percent of all non-hazardous excavated soil and land-clearing debris.
- 75 percent of all non-hazardous concrete and asphalt construction and demolition debris.
- 65 percent of all other non-hazardous construction, demolition debris.

As stated in RCM-UTL-1, and prior to issuance of building permits, the Developer/Applicant would be required to obtain approval of a Waste Management Plan by the City’s Chief Building Official, or designee. The Waste Management Plan would detail the Project’s compliance with the City’s waste diversion requirements. Thus, the proposed Project would be required to meet the City’s waste diversion requirements as they pertain to Project construction. Furthermore, construction waste is anticipated to be minimal compared to waste generated throughout the lifetime of the Project during operation. With incorporation of RCM-UTL-1, Project construction would result in a less than significant impact to solid waste and landfill facilities, and no mitigation is required.

Operation. As stated in response to Threshold 3.9(b), Hazards and Hazardous Materials, the proposed Project would generate medical waste. Therefore, the proposed Project would be required to comply with the MWMA (California Health and Safety Code Section 117600—118360), which provides for regulation of medical waste generators, haulers, and treatment facilities. The MWMA requires that transportation of medical waste be conducted by a registered medical waste hauler.

¹ United States Environmental Protection Agency. Estimating 2003 Building Related C&D Materials Amounts.

The proposed Project would increase the number of on-site visitors and personnel, and consequently, would increase the generation of solid waste on the Project site. Under existing conditions, hospital uses on the Project site generate a total of 2.68 tons of solid waste per day (977.81 tons per year).¹ The proposed hospital uses on the Project site would generate a total of 7.93 tons of solid waste per day (2,894.04 tons per year) during Project operation,² which would represent a net increase in solid waste generation of 5.25 tons of solid waste per day (1,916.23 tons per year). The Project's estimated solid waste generation incorporates a 75 percent reduction as required by State law solid waste reduction measures.³ As stated previously, the Frank R. Bowerman Landfill has the capacity to process an additional 3,000 tons of solid waste per day. The net increase in the amount of solid waste generated by the proposed Project would constitute less than 0.1 percent of the remaining daily available capacity at the Frank R. Bowerman Landfill. As such, solid waste generated by the proposed Project would not cause the capacity of the Frank R. Bowerman Landfill to be exceeded. The proposed Project would not generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure. Moreover, the Project would not otherwise impair the attainment of solid waste reduction goals. Therefore, Project operation would result in a less than significant impact to solid waste and landfill facilities, and no mitigation is required.

Regulatory Compliance Measure. The following Regulatory Compliance Measure is an existing regulation that is applicable to the proposed Project and is considered in the analysis of potential impacts related to solid waste. The City considers this requirement to be mandatory for all projects; therefore, it is not a mitigation measure.

RCM-UTL-1 Preparation of a Waste Management Plan. In accordance with Title 6, Division 7 – Chapter 9 of the City's Municipal Code, prior to the issuance of building permits, the Project Developer/Applicant would be required to obtain approval of a Waste Management Plan by the City's Chief Building Official, or designee. The Waste management Plan will detail the Project's compliance with the City's waste diversion requirements and Sections 4.408, 5.408, and 5.713.8 of the California Green Building Standards Code.

e. Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

Less than Significant Impact. The California Integrated Waste Management Act of 1989 (AB 939) changed the focus of solid waste management from landfill to diversion strategies (e.g., source reduction, recycling, and composting). The purpose of the diversion strategies is to reduce dependence on landfills for solid waste disposal. AB 939 established mandatory diversion goals of 25 percent by 1995 and 50 percent by 2000. AB 341 (2011) amended the California Integrated Waste Management Act of 1989 to include a provision declaring that it is the policy goal of the State that not less than 75 percent of solid waste generated be source-reduced, recycled, or composted by

¹ California Emissions Estimator Model. Compiled by LSA (September 2020).

² Ibid.

³ Cal Recycle. California's 75 Percent Initiative. Website: <https://www.calrecycle.ca.gov/75percent> (accessed September 18, 2020).

2020 and annually thereafter. In addition, AB 341 required the California Department of Resources Recycling and Recovery (CalRecycle) to develop strategies to achieve the State's policy goal. CalRecycle has conducted multiple workshops and published documents that identify priority strategies to assist the State in reaching the 75 percent goal by 2020.

As stated in response to Threshold 3.19(d), above, the proposed Project would be required to implement RCM-UTL-1 and thereby meet the City's construction waste diversion requirements (as stipulated in Title 6, Division 7 – Chapter 9 of the Municipal Code). In addition, the proposed Project would be required to comply with all federal, State, and local regulations related to solid waste. Furthermore, the proposed Project would comply with all standards related to solid waste diversion, reduction, and recycling during project construction and operation. Therefore, the proposed Project is anticipated to result in less than significant impacts related to potential conflicts with federal, State, and local management and reduction statutes and regulations pertaining to solid waste. No mitigation is required.

3.19.2 Cumulative Impacts

Implementation of the proposed Project in conjunction with the related projects and other regional growth would increase the demand for water within IRWD's service area. As a public water service provider, IRWD is required to prepare and periodically update its UWMP to ensure that adequate water supplies are available to serve existing and projected water demand. According to the 2015 UWMP, based on IRWD's assessment of its available water supplies and the historic reliability of these supplies, IRWD determined that water supply projections will be reliable under single-dry and multiple-dry years. As such, IRWD's projected water supply is able to meet projected water demands in 2015, 2020, 2025, 2030, and 2035, during normal years, single-dry years, and multiple-dry years. As discussed previously, the proposed Project would not necessitate new or expanded water facilities, and the IRWD would be able to accommodate the increased demand for potable water. Therefore, the proposed Project's cumulative impact related to water demand is less than significant. No mitigation is required.

The proposed Project, in combination with the related projects, would result in increased demand for wastewater conveyance and treatment in the IRWD service area. As described above, the Project site is served via four connections to the wastewater collection system, which ultimately discharges to the MWRP. The increase of wastewater generated by the proposed Project is anticipated to be accommodated within the existing design capacity of the MWRP. Additionally if system upgrades are required as a result of a project's additional wastewater flow, arrangements would be made between the applicant/developer and the City to construct the necessary infrastructure. Therefore, the proposed Project's cumulative impact related to wastewater infrastructure is less than significant. No mitigation is required.

The related projects could, individually and cumulatively, increase impervious surface area and potentially increase the volume of stormwater runoff reaching both the City's storm drain system. The City's Public Drainage Program is responsible for the maintenance of the City's public drainage facilities. Construction projects are reviewed on a case-by-case basis to ensure that sufficient local and regional drainage capacity is available. Thus, cumulative impacts to storm drain facilities would be less than significant and no mitigation is required.

Operation of the proposed Project in conjunction with the related projects would generate municipal solid waste and result in a cumulative increase in the demand for waste disposal capacity at area landfills. As stated previously, the Frank R. Bowerman Landfill has the capacity to process an additional 3,000 tons of solid waste per day. The net increase in solid waste generated by the proposed Project would constitute less than 0.1 percent of the remaining daily available capacity at the Frank R. Bowerman Landfill. Therefore, Frank R. Bowerman Landfill has sufficient permitted capacity to provide adequate future capacity for the related project's solid waste needs. Therefore, cumulative impacts to solid waste would be less than significant and no mitigation is required.

3.20 WILDFIRE

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

3.20.1 Impact Analysis

- a. *Would the project substantially impair an adopted emergency response plan or emergency evacuation plan?*
- b. *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?*
- c. *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?*
- d. *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?*

No Impact. The following response addresses Thresholds 3.20(a), (b), (c), and (d).

The California Department of Forestry and Fire Protection (CAL FIRE) has mapped areas of significant fire hazards in the State through its Fire and Resources Assessment Program. These maps place areas of California into different fire hazard severity zones, based on a hazard scoring system using subjective criteria for fuels, fire history, terrain influences, housing densities, and occurrence of severe fire weather where urban conflagration could result in catastrophic losses. As part of this mapping system, CAL FIRE is responsible for wildland fire protection for land areas that are generally unincorporated, and they are classified as SRAs. In areas where local fire protection agencies (e.g., OCFAs) are responsible for wildfire protection, the lands are classified as LRAs. CAL FIRE currently

identifies the Project site as an LRA. In addition to establishing local or State responsibility for wildfire protection in a specific area, CAL FIRE designates areas as VHFHSZ or non-VHFHSZ.

According to the CAL FIRE Very High Fire Hazard Severity Zone in LRAs Map, the majority of Irvine, including the Project site, is not designated as a VHFHSZ.¹ In LRAs, the nearest VHFHSZ to the Project site is approximately 1 mi southwest in the Quail Hill Open Space Preserve.² Irvine has no SRAs.³ The nearest SRA is in Laguna Coast Wilderness Park, approximately 2.5 mi southeast of the Project site.⁴ Because the Project site is not in or near an SRA or a VHFHSZ, implementation of the Project would not result in any impacts related to wildfire. No mitigation is required.

3.20.2 Cumulative Impacts

As described above, the majority of Irvine, including the Project site, is not designated as a VHFHSZ. The proposed Project would not result in impacts related to wildfires; therefore, the proposed Project would not contribute to cumulative impacts related to wildfires.

¹ California Department of Forestry and Fire Protection (CAL FIRE). 2011. Very High Fire Hazard Severity Zones in LRA, Irvine. Website: https://osfm.fire.ca.gov/media/5884/c30_irvine_vhfhsz.pdf (accessed August 6, 2020).

² Ibid.

³ CAL FIRE. 2007. Fire Hazard Severity Zones in SRA, Orange County. Website: https://osfm.fire.ca.gov/media/6737/fhszs_map30.pdf (accessed August 6, 2020).

⁴ Ibid.

3.21 MANDATORY FINDINGS OF SIGNIFICANCE

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a 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.)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3.21.1 Impact Analysis

a. Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

Less than Significant with Mitigation Incorporated. The Project site is currently developed with medical uses and is in an urbanized portion of Irvine predominantly developed with medical, hotel, and office uses. In its existing condition, the Project site contains the HHI campus, the Rhodes MOB, and surface parking lots. The proposed Project includes the expansion of the existing medical uses and would add approximately 436,740 sf of hospital services with 225 beds, approximately 260,000 sf of hospital support services, a 47,550 sf Central Utility Plant, an 8,000 sf auditorium and conference center, 2 parking structures, and surface parking areas.

Based on the discussion in Section 3.4, Biological Resources, the proposed Project is anticipated to result in less than significant impacts related to habitat, wildlife species, and/or plant and animal communities. Due to the developed nature of the Project site and surrounding area, the proposed Project would not eliminate a plant or animal community, nor would it substantially reduce the number or restrict the range of a rare or endangered plant or animal.

As discussed in Section 3.5, Cultural Resources, response to Threshold 3.5(a), the Project site does not contain any buildings or structures that meet any of the California Register criteria or qualify as "historical resources" as defined by CEQA. Further, neither the City nor the County has designated

the Project site as a historical/archaeological landmark. Therefore, the proposed Project would not cause a substantial adverse change in the significance of a historical resource.

As discussed in response to Threshold 3.5(b), implementation of the Project has a low potential to unearth unknown subsurface archaeological resources on the site during construction. To avoid impacts to archaeological resources, the Project would be required to implement MM-CUL-1, which requires construction activities to cease in the event that archaeological resources are discovered during Project construction. Therefore, potential impacts to previously undiscovered archaeological resources would be less than significant with the incorporation of MM-CUL-1.

For the reasons stated above, the project does not have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory. Impacts would be less than significant with incorporation of MM-CUL-1.

b. Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a 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)?

Less Than Significant with Mitigation Incorporated. As stated previously, the Project site is currently developed with medical uses and is in an urbanized portion of Irvine predominantly developed with medical, hotel, and office uses. The proposed Project involves the expansion of existing medical uses on the site. The Project site is bounded by Sand Canyon Avenue to the northwest; medical, office, and hotel uses to the northeast with San Diego Creek beyond; Irvine Oaks Executive Park and surface parking lots to the southeast; and Alton Parkway to the southwest.

As presented in this IS/MND, potential Project-related impacts are either less than significant or would be less than significant with mitigation incorporated. As discussed throughout this IS/MND, cumulative impacts would be less than significant. Additionally, further environmental documentation would be required to analyze potential environmental impacts as a result of separate future projects (refer to Table 3.1.B in Section 3.1, Aesthetics, for a list of current a future probable projects in Irvine). Therefore, the proposed Project's contribution to any significant cumulative impacts would be less than cumulatively considerable. As discussed in Sections 3.1 through 3.20 of this IS/MND, mitigation would be required and incorporated as necessary.

c. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

Less Than Significant with Mitigation Incorporated. Based on the Project Description and the preceding responses in Sections 3.1 through 3.20 of this IS/MND, implementation of the proposed Project would not cause substantial adverse effects to human beings because all potentially significant impacts of the proposed Project would be mitigated to a less than significant level. Therefore, since all potentially significant impacts of the proposed Project are expected to be mitigated to a less than significant level, implementation of the proposed Project would not cause substantial adverse effects on human beings.

4.0 LIST OF PREPARERS

4.1 CITY OF IRVINE

The following individuals were involved in the review of the IS/MND and/or the Traffic Impact Analysis (TIA):

- Bill Rodrigues, Principal Planner
- Hernan DeSantos, Senior Planner

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4.2.1 LSA

The following individuals were involved in the preparation of the IS/MND and/or the TIA:

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- Ken Wilhelm, Principal, Traffic
- Michael Hendrix, Associate, Climate Change and Sustainability
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4.2.2 LPA

The following individuals were involved in the design of the Project and review of the IS/MND and/or the TIA:

- Rick Wood, Director of Healthcare, Principal, Architecture

4.2.3 Leighton Consulting, Inc.

The following individuals were involved in the preparation of the Geotechnical Report (Appendix B of this IS/MND) prepared for the Project:

- Jeffrey M. Pflueger, PG, CEG 2499, Associate Geologist
- Carl C. Kim, GE 2620, Senior Principal Engineer

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