University of California, Irvine Medical Center
Long Range Development Plan

Draft Environmental Impact Report
SCH No. 200021111

Volume I

Prepared for:

University of California, Irvine
Office of Campus & Environmental Planning
4199 Campus Drive, Suite 750
Irvine, California 92697-2325

Contact: Richard Demerjian, Director

Prepared by:

BonTerra Consulting
151 Kalmus Drive, Suite E-200
Costa Mesa, California 92626

Contact: Dana C. Privitt, AICP

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EXECUTIVE SUMMARY

1.1 INTRODUCTION

The University of California, Irvine (UCI) Medical Center is located at 101 The City Drive South in the City of Orange, Orange County, California. The Medical Center site is bound by Chapman Avenue to the north, Dawn Way to the south, the Santa Ana Freeway (I-5) to the east, and The City Drive South to the west. Regional access to the Medical Center is provided via I-5, the Garden Grove Freeway (SR-22), and the Orange Freeway (SR-57).

The UCI Medical Center is approximately 33 acres and is situated in an urbanized setting. The project site is relatively flat (minimum topographical relief). The maximum onsite elevations range from 129 to 135 feet above mean sea level (msl). The Medical Center site is developed and contains approximately 43 structures and facilities.

1.2 BACKGROUND

1.2.1 UCI MEDICAL CENTER BACKGROUND

Each campus and medical center in the University of California (UC) system is required to periodically reexamine its academic goals and formulate physical plans to support these goals. This reexamination takes the form of a Long Range Development Plan (LRDP), which guides the physical development of a campus to achieve the academic, research, patient care, and community service goals of the institution. The LRDP identifies goals to be achieved during a specified period, or "horizon year," and estimates the types and amounts of new building space required to achieve these goals. The "horizon year" is defined as year 2020. As such, the proposed UCI Medical Center LRDP will serve as the "general plan" to guide the physical development of the UCI Medical Center through horizon year 2020. Development activities at the main UCI campus in the City of Irvine are guided by a separate LRDP and will not be amended as a part of the proposed UCI Medical Center project.

1.2.2 PROJECT DESCRIPTION SUMMARY

This Environmental Impact Report (EIR) assesses the potential individual and collective impacts that could result from the proposed intensified development at the UCI Medical Center. The proposed project will allow for an increase of development from approximately 910,365 gross square feet (gsf) of uses, 391 hospital beds, and 1,590 parking spaces to approximately 1,902,049 gsf of onsite facilities, 527 hospital beds, and 4,200 parking spaces, inclusive of new and retained development.

Phase I assumes the construction of a 498,000-square-foot 254-bed hospital, 8,000-square-foot central chiller plant (first phase), a 75,000 gsf modular building, and surface parking, and the demolition of 15 buildings and structures (including one parking structure), as well as the rehabilitation/alteration of other structures to increase their efficiency and allow for compliance with the Alfred E. Alquist Hospital Facilities Seismic Safety Act (SB 1953) and UC Seismic Policy. Replacement parking for parking displaced as a part of the Phase I project will be provided onsite and offsite. Phase I assumes the retention of 618,741 gsf of buildings and structures, including 186 hospital beds and 1,172 parking spaces. Therefore, at the completion of Phase I, the UCI Medical Center will have 1,199,741 gsf of structures, 445 hospital beds, and 1,432 parking spaces.

Full LRDP implementation will result in 1,902,049 gsf of uses, 527 hospital beds, and 4,200 onsite parking spaces, inclusive of retained uses and Phase I development. All parking could be provided at the Medical Center. No new buildings and structures within the Medical Center will exceed 10 above-ground levels. Proposed LRDP construction activities will require the demolition of 16 additional onsite structures (135,014 gsf) and 182 parking spaces.

The proposed project is intended to provide building space, circulation, parking, and infrastructure sufficient to support the patient care, teaching, and research missions of the UCI Medical Center and UCI College of Medicine. The proposed UCI LRDP will identify the general development and redevelopment areas within the existing Medical Center campus, where the following facility categories will be accommodated within one land use designation, *Academic Medical Center.* The one *Academic Medical Center* land use designation will be divided into three planning zones: the north, south, and east sectors.

- ***Inpatient Care.*** Includes all inpatient treatment facilities such as hospital and neuropsychiatric facilities.

- ***Ambulatory Care.*** Includes all outpatient services including primary care, cancer care, occupational therapy, dialysis, and diagnostic services.

- ***Instruction and Research.*** Includes all academic functions such as academic offices, teaching and research labs, classrooms, and libraries

- ***Administration/Office.*** Includes general administrative uses, medical office, and general office space.

- ***Service.*** Includes service support uses such as central plant, electrical facilities, laundry, child care, materials management, and waste management.

- ***Parking.*** Includes onsite surface parking, parking structures, and other infrastructure to support site parking and transportation.

1.3 SCOPE OF THE EIR

The UCI Medical Center Long Range Development Plan EIR (state Clearinghouse No.2000021111) has been prepared in accordance with the California Environmental Quality Act (CEQA) of 1970 (California Public Resources Code §21000 et seq.), as amended, the state CEQA Guidelines (Title 14, California Code of Regulations, Chapter 3, §15000 et seq.), as amended, and the *University of California Procedures for the Implementation of CEQA*.

The CEQA Guidelines identifies “categorical exemptions” for classes of projects which have been determined not to have a significant effect on the environment. CEQA Guidelines §15302(b) defines the Class 2 categorical CEQA exemption as follows: “Class 2 consists of replacement or reconstruction of existing structures and facilities where the new structure will be located on the same site as the structure replaced and will have substantially the same purpose and capacity as the structure replaced, including but not limited to replacement or reconstruction of existing schools and hospitals to provide earthquake resistant structures which do not increase capacity more than 50 percent.” Phase I of the proposed UCI Medical Center project qualifies as being except.

The proposed Phase I UCI Medical Center LRDP project includes the replacement and reconstruction of various structures which are a part of the Medical Center campus. In order to complete the reconstruction project, construction of a replacement hospital, while implementing

the University's objectives as outline in Section 2, Project Description, various facilities and programs will be relocated to new facilities within the Medical Center campus. Replacement of the existing main hospital with a new hospital will have the same purpose as the existing hospital and will not result in an increase in capacity of more than 50 percent. Therefore, by definition, the Phase I project is categorically exempt from CEQA pursuant to state CEQA Guidelines §15302.

While an EIR is not required for Phase I project, an EIR is required for the overall UCI Medical Center LRDP project. As such, this EIR is being prepared in accordance with CEQA Statute §21080.09, as an EIR for an LRDP. CEQA Statute §21080.09 (public higher education; campus location; long range development plans) states:

(a) For purposes of this section, the following definitions apply:

(1) "Public higher education" has the same meaning as specified in Section 66010 of the Education Code.

(2) "Long range development plan" means a physical development and land use plan to meet the academic and institutional objectives for a particular campus or medical center of public higher education.

(b) The selection of a location for a particular campus and the approval of a long range development plan are subject to this division and require the preparation of an environmental impact report. Environmental effects relating to changes in enrollment levels shall be considered for each campus or medical center of public higher education in the environmental impact report prepared for the long range development plan for the campus or medical center.

(c) The approval of a project on a particular campus or medical center of public higher education is subject to this division and may be addressed, subject to the other provisions of this division, in a tiered environmental analysis based upon a long range development plan environmental impact report.

(d) Compliance with this section satisfies the obligations of public higher education pursuant to this division to consider the environmental impact of academic and enrollment plans as they affect campuses or medical centers, provided that any such plans shall become effective for a campus or medical center only after the environmental effects of those plans have been analyzed as required by this division in a long range development plan environmental impact report or tiered analysis based upon that environmental impact report for that campus or medical center, and addressed as required by this division.

While an EIR is not legally required for categorically exempt and statutorily exempt projects such as the Phase I project, the University believes that the EIR format and the EIR process will assist the UCI Medical Center in providing information to individuals and public agencies about the Phase I and full LRDP implementation project, and will provide the public with opportunity to comment on the proposed project. Accordingly, without waiving the CEQA Guidelines §15302(b) exemption for Phase I, the University has decided to prepare this environmental report that follows the EIR content requirements and distribute this report following the same CEQA procedures used for the preparation and distribution of an EIR.

1.4 USE OF THIS EIR

The proposed UCI Medical Center LRDP will serve as the "general plan" to guide the physical development of the UCI Medical Center. It does not constitute a commitment to any specific projects, construction schedules, or funding priorities.

This EIR has been prepared to evaluate the potential environmental impacts associated with the construction and implementation of the UCI Medical Center LRDP project. The EIR provides a comprehensive evaluation of the reasonable anticipated scope of the project. It is intended to serve as an informational document for public agency decision-makers and the general public regarding the objectives and components of the proposed project, and any potentially significant environmental impacts that may be associated with the planning, construction, and operation of the project, as well as to identify appropriate feasible mitigation measures and alternatives that may be adopted to reduce or eliminate these significant impacts. The EIR is intended to also provide project-level environmental analysis for near-term individual construction projects associated with the LRDP, in particular, Phase I development.

This EIR is further intended to serve as the primary environmental document for all future approvals associated with the proposed project, including all discretionary approvals requested or required to implement the project whether or not these actions are explicitly stated in the EIR. A lead agency can approve subsequent actions without additional environmental documentation unless as otherwise required by Public Resources Code §21166 and state CEQA Guidelines §15162. The University of California has the principal responsibility for processing and approving the project, as well as subsequent site-specific developments. Other public agencies (i.e., responsible and trustee agencies) may use this EIR in their decision making or permitting processes, and will consider the information in this EIR along with other information that may be presented during the CEQA process for the LRDP and/or future related actions. In addition, this EIR is the primary reference document in the formulation and implementation of a mitigation monitoring and reporting program for the proposed project.

1.4.1 LEAD AGENCY

The UCI Medical Center is owned and operated by the University of California. Consistent with CEQA Guidelines §15367, the University of California is the Lead Agency because it has "...the principal responsibility for carrying out or approving a project." Because the project site is located within another jurisdiction–the City of Orange–assignment of the lead agency is also addressed in CEQA Guidelines §15051(a) which states "If the project will be carried out by a public agency, that agency shall be the Lead Agency even if the project would be located within the jurisdiction of another public agency." The University of California Board of Regents (The Regents), as the governing body of the University of California, will be responsible for consideration of certification of the UCI Medical Center LRDP Final EIR and determining whether to approve, revise, or deny the proposed project.

Discretionary actions by The Regents are as follows:

The Regents of the University of California

- Certification of the UCI Medical Center LRDP Final EIR. The project requires the certification of an environmental document as having been prepared in compliance with California Environmental Quality Act (CEQA), as amended (Public Resources Code §21000 et seq.), the CEQA Guidelines (California Code of Regulations §15000 et seq.), and in accordance with the *University of California Procedures for the Implementation of CEQA*.

Finally, the project requires certification that the data contained in the LRDP Final EIR were considered in the final decisions on the project.

- Approval of the UCI Medical Center LRDP project.

- Approval of the Phase I project.

1.4.2 RESPONSIBLE AGENCIES

In accordance with CEQA Guidelines §15381, a Responsible Agency "...means a public agency which proposes to carry out or approve a project, for which a Lead Agency is preparing or has prepared an EIR or Negative Declaration. For the purposes of CEQA, the term 'Responsible Agency' includes all public agencies other than the Lead Agency which have discretionary approval power over the project." In the case of the proposed project, specific discretionary approvals are required. Responsible agencies (as well as trustee agencies) may use this EIR in their decision making or permitting processes, and will consider the information in this EIR along with other information that may be presented during the CEQA process for the LRDP and/or future related actions. The following actions are required for the UCI Medical Center LRDP project:

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

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

1.5 EIR FOCUS AND EFFECTS FOUND TO BE NOT SIGNIFICANT

1.5.1 EIR FOCUS

In considering the proposed project, the University has determined through preparation of the Initial Study and through the scoping process, that implementation of the proposed project may, either by itself or cumulatively with existing, planned, and foreseeable future projects in the area, have potentially significant impacts. As such, the following topics are addressed in this EIR:

- Aesthetics
- Air Quality
- Cultural Resources
- Geology and Soils
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning

- Noise
- Population and Housing
- Public Services
- Transportation and Traffic
- Utilities and Service Systems

Specific impact topics were identified for each of these environmental issues, and are discussed in this EIR with respect to existing conditions, potential impacts, the significance of these potential impacts, and proposed mitigation for significant impacts.

In accordance with CEQA Guidelines §15126.6, Section 4, Alternatives to the Proposed Project, includes an discussion that analyzes a reasonable range of alternatives that could feasibly attain the basic objectives of the project and evaluates the comparative merits of the alternatives. This EIR includes an evaluation of the following alternatives to the proposed project:

- No Project–Development consistent with the 1977 University of California, Irvine Medical Center Redevelopment Master Plan

- No Development Alternative–Retention of Site in its Existing Conditions

- In-Kind Replacement Alternative

- SB 1953: Scenario A and Scenario B

- Offsite Location Alternative

- Full LRDP Implementation Offsite Parking Alternative

Other mandatory sections required by CEQA include a discussion of growth inducement, cumulative impacts, significant irreversible environmental changes are also presented in this EIR.

1.5.2 EFFECTS FOUND TO BE NOT SIGNIFICANT

The following statements identify the items that were checked "No Impact" on the Initial Study checklist and the reasons that these various possible "significant effects" were not considered significant or applicable to the project, and therefore are not addressed in this EIR:

- *Aesthetics–Scenic Vistas and Scenic Resources Within a State Scenic Highway:* The project site is not located within or in proximity to a scenic vista or state scenic highway.

- *Agricultural Resources–Agricultural Zoning or a Williamson Act Contract, or Offsite Farmland Conversion:* The site is an existing medical center facility. The site is located within an urban setting and is not under a Williamson Act Contract.

- *Air Quality–Objectionable Odors:* None of the proposed uses are anticipated to result in objectionable odors that will affect onsite or offsite land uses.

- *Biological Resources–Substantial Effect on Candidate, Sensitive, or Special Status Species, or Substantial Effect on Riparian Habitat or Other Sensitive Communities, or Substantial Effect on Federally Protected Wetlands, or Interfere with Movement of Fish or Wildlife, or Conflict with Local Policies, or Conflict with Adopted Natural Community*

Conservation Plan: The site is currently developed with medical center uses; the only undeveloped areas have been landscaped with ornamental vegetation.

- *Geology–Alquist-Priolo Zone or Landslides:* The project site is not identified as being located in an Alquist-Priolo Zone (source: California Division of Mines and Geology). The Medical Center site is relatively flat with minimum topographical relief. The maximum onsite elevations range from 129 to 135 feet above msl across the 33-acre site. There is no visible or documented evidence of onsite conditions that could result in landsliding or slope failure.

- *Geology–Soil Erosion or Loss of Topsoil:* The project site is a relatively flat, developed site. In accordance with county and state requirements, as individual construction projects are proposed, the project contractor will be required to implement measures to control short-term potential siltation and erosion on and off the site.

- *Geology and Soils–Use of Alternative Waste Water Disposal Systems:* The site is within the service area of the Orange County Sanitation District. There are no site conditions that would require the use of septic tanks or alternative waste water disposal systems.

- *Hazards and Hazardous Materials–Wildfires:* The Medical Center is in an urbanized area. No wildlands are intermixed with or adjacent to the site. Therefore, no exposure to people or the project site itself would result; no impacts would occur.

- *Hydrology and Water Quality–Groundwater Supply and Recharge:* The depth to groundwater beneath and adjacent to the site ranges from 75 to 100 feet. The lack of significant variation in water levels between well sites suggests that a lack of groundwater barriers within or adjacent to the site. Exploratory borings did not note the presence of perched groundwater.

- *Hydrology and Water Quality–Housing in Floodplain, or Indundation by Seiche, Tsunami, or Mudflow:* The project site is surrounded by flat land. The movement of water through the Santa Ana River Channel would not result in a seiche or tsunami.

- *Land Use and Planning–Physically Divide Established Community, or Conflict with Natural Community Conservation Plan:* The site is currently developed with medical facilities, and will not displace any land uses unrelated to the existing Medical Center. Further, the project site is not in or contiguous to a natural community conservation plan area.

- *Mineral Resources*: Prior environmental documentation conducted for the project site did not identify the presence of any known mineral resources.

- *Population and Housing–Displacement of Substantial Housing and Persons*: No residences or residents will be displaced as a part of project implementation.

- *Recreation–Increase Use and/or Expansion of Existing Parks and Recreational Facilities*: The proposed expansion of the Medical Center will not result in the direct need for recreational facilities, nor are employees or visitors to the hospital expected to use recreational facilities in the project vicinity excessively and thereby resulting in any significant impacts to these existing and/or planned recreational facilities.

- *Transportation and Circulation–Alternative Transportation*: The existing UCI Medical Center provides onsite bicycle racks. The Orange County Transportation Authority (OCTA)

provides bus service to the Medical Center. Such uses will continue to be accommodated at the Medical Center.

1.5.3 AREAS OF CONTROVERSY KNOWN TO THE LEAD AGENCY/ISSUES TO BE RESOLVED

CEQA requires an EIR to address areas of environmental controversy and environmental issues to be resolved which are known to the lead agency or were raised by agencies and the public during the scoping process. No issues of controversy were identified. The issues to be resolved by The Regents include the choice among alternatives, including the proposed project, and whether or how to mitigate the environmental effects of the project.

1.6 ENVIRONMENTAL PUBLIC REVIEW PROCESS

This EIR addresses the potential environmental effects of the proposed UCI Medical Center LRDP project and alternatives to the project. The scope of the EIR includes issues identified by the University of California during the preparation of the Initial Study and Notice of Preparation, as well as environmental issues raised by agencies and the general public in response to the scoping process, the Initial Study, and Notice of Preparation.

In compliance with the state CEQA Guidelines, The Regents have taken steps to maximize opportunities to participate in the environmental process. An IS and an NOP were distributed on February 29, 2000 to federal, state, regional, and local government agencies and other interested parties to solicit comments and inform the public of the proposed project. The project was described, potential environmental effects associated with project implementation were identified, and agencies and the public were invited to review and comment on the IS and NOP. The NOP review and comment period closed on March 30, 2000, although letters received later were accepted.

The UCI Medical Center LRDP EIR has been distributed to responsible and trustee agencies, other affected agencies, surrounding cities, and interested parties, as well as all parties requesting a copy of the Draft EIR in accordance with Public Resources Code §21092. The Notice of Completion for the Draft EIR will be distributed as required by CEQA. During the 45-day public review period, the EIR, including the technical appendices, is available for review at the following address.

Written comments on the EIR should be addressed to:

Richard Demerjian, Director
University of California, Irvine
Office of Campus and Environmental Planning
4199 Campus Drive, Suite 750
Irvine, CA 92697-2325

In accordance with CEQA §21092.5, the University will provide written responses to public agency comments at least 10 days prior to consideration of certification of the Final EIR by The Regents. These environmental comments and their responses are a part of the environmental record for consideration by The Regents for the project. A public hearing will be held on November 20, 2002 at 6:00 p.m. at the following location:

UCI Medical Center
Chao Family Comprehensive Cancer Center
Associates Conference Room
101 The City Drive
Orange, California

No action will be taken on the proposed UCI Medical Center LRDP EIR and project at the public hearing. Consideration of certification of the Final EIR and action on the project will occur at a subsequent meeting by The Regents.

1.7 MITIGATION MONITORING

State law, as well as The Regents' *University of California Procedures for the Implementation of CEQA*, requires the preparation of a mitigation monitoring or reporting program designed to ensure that mitigation measures adopted as conditions of approval to mitigate or avoid significant environmental effects are carried out. Mitigation measures identified within this EIR have been described in sufficient detail to provide the necessary information to identify the party(ies) responsible for carrying out the mitigation, when the mitigation will be implemented, and why the mitigation has been required. A mitigation monitoring program will be adopted by The Regents at the time of Final EIR certification.

1.8 SUMMARY OF SIGNIFICANT ENVIRONMENTAL IMPACTS AND MITIGATION PROGRAM

Table 1-1 summarizes the potential environmental effects of the proposed project, the recommended mitigation measures, and the level of significance after mitigation. This EIR also identifies other effects, which are either not considered significant or which are beneficial effects of the proposed project, but these are not the focus of this summary. The reader is referred to the full text of this EIR for a description of the environmental effects of the proposed project and feasible mitigation measures.

TABLE 1-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

IMPACT	SIGNIFICANCE	MITIGATION PROGRAM	LEVEL OF SIGNIFICANCE AFTER MITIGATION
3.1 Aesthetics			
Impact 3.1-1: The proposed project would alter views from and of the site. This is considered a less than significant impact. The proposed parking structure to be located adjacent to the Orange County Juvenile Hall as a part of full LRDP implementation is considered a significant visual impact.	Significant Impact	**Mitigation Measure** 3.1-1 As a part of site design associated with full LRDP implementation, the UCI Medical Center shall address and implement an option(s) to reduce visual effects associated with the siting of a seven-story parking structure adjacent to the Orange County Juvenile Hall facility. These options include, but are not limited to, relocation of the parking structure within the UCI Medical Center campus, reduction in parking structure height, and visual buffering of the uses.	Less than Significant
Impact 3.1-2: Project implementation would produce shade and shadows on the onsite and offsite land uses. This would be considered a less than significant impact.	Less than Significant	No mitigation is required.	Less than Significant
Impact 3.1-3: The project would result in additional nighttime light sources and new potential sources for glare caused by light reflections from pavement, vehicles, and building materials such as reflective glass and polished surfaces. Because the design of individual projects has not been determined, the potential for the generation of glare is considered a significant impact.	Significant Impact	**Mitigation Measure** 3.1-3 Prior to the completion final construction documents, the UCI Medical Center shall ensure that Medical Center projects use low-reflective materials on buildings and parking structures that do not promote glare to the greatest extent feasible.	Less than Significant
Impact 3.1-4: The project would cumulatively contribute to the intensification and visibility of development in the local area. This is considered a less than significant impact.	Less than Significant	No mitigation is required.	Less than Significant

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

IMPACT	SIGNIFICANCE	MITIGATION PROGRAM	LEVEL OF SIGNIFICANCE AFTER MITIGATION
3.2 Air Quality			
Impact 3.2.1: The proposed project would result in construction-related air quality emission due to demolition activities, grading and excavation, debris loading, exhaust emissions from construction equipment, trucks and employee vehicles, and paint and coating emissions. This would result in significant impacts.	Significant Impact	**Standard Conditions and Requirements** • The UCI Medical Center shall require the following measures specified in South Coast Air Quality Management District (SCAQMD) regulations, including Rule 402, the Nuisance Rule, and Rule 403, Fugitive Dust be enforced for all construction projects. These actions include but are not limited to the following: a. Develop a project grading plan or contingency plan and submit the plan to the SCAQMD consistent with the provisions of Rule 403. b. All disturbed areas, including storage piles, which are not being actively used for construction purposes shall be stabilized within five days of completing grading of dust emissions using water, chemical stabilizers/suppressants, or vegetative ground cover. c. Any onsite unpaved roads shall be stabilized of dust emissions using water or chemical stabilizers/suppressants. d. All land clearing, scraping, excavation, land leveling, grading, cut and fill, and demolition activities shall be controlled of fugitive dust emissions using applications of water or by presoaking. e. With the demolition of all buildings up to six stories in height, all exterior surfaces of the building shall be wetted during demolition.	Significant Impact

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

IMPACT	SIGNIFICANCE	MITIGATION PROGRAM	LEVEL OF SIGNIFICANCE AFTER MITIGATION
		f. Water exposed surfaces at least twice a day under calm conditions. Water as often as needed on windy days when winds are less than 25 miles per day or during very dry weather in order to maintain a surface crust and prevent the release of visible emissions from the construction site. g. Wash mud-covered tires and undercarriages of trucks leaving construction sites. h. Provide for street sweeping at least once every 24 hour on adjacent roadways to remove dirt dropped by construction vehicles or mud which would otherwise be carried off by trucks departing project sites. i. When materials are transported offsite, securely cover loads with a tight fitting tarp on any truck leaving the construction sites. j. Following the addition of materials to or the removal of materials from the surface of outdoor storage piles, said piles shall be effectively stabilized of fugitive dust emissions by using water or a chemical stabilizer/suppressant. k. Cease grading during periods when winds exceed 25 miles per hour. **Mitigation Measure** 3.2-1(a) Prior to construction, the UCI Medical Center shall implement the following measures to reduce impacts of ozone precursor emissions from construction equipment exhaust. (1) In order to reduce diesel fuel engine emissions, the UCI Medical Center shall require that all construction bid packages include a separate "Diesel Fuel Reduction	

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

IMPACT	SIGNIFICANCE	MITIGATION PROGRAM	LEVEL OF SIGNIFICANCE AFTER MITIGATION
		Plan." This plan shall identify the actions to be taken to reduce diesel fuel emissions during construction activities (inclusive of grading, demolition, and excavation activities). Reductions in diesel fuel emissions can be achieved by measures including, but not limited to, the following: a) use of alternative energy sources, such as compressed natural gas or liquefied petroleum gas, in mobile equipment and vehicles; b) use of "retrofit technology," including diesel particulate trips, on existing diesel engines and vehicles; c) other appropriate measures. (2) Turn equipment off when not in use for more than five minutes.	
Impact 3.2-2: Phase I and full LRDP implementation would result in increased long-term regional air quality emissions. Phase I emissions are considered less than significant; full LRDP implementation emissions are considered significant impacts.	Significant Impact	**Mitigation Measure** 3.2-2 To reduce emissions associated with full LRDP implementation project-related vehicle trips, the UCI Medical Center shall prepare, prior to occupancy of the Phase I project, a Transportation Demand Management Program to reduce vehicle miles traveled to the maximum extent feasible. Such measures can include: a. Preferential parking for carpool vehicles b. Bicycle parking and shower facilities c. Information provided to employees on transportation alternatives d. Rideshare vehicle loading areas e. Vanpool vehicle accessibility f. Bus stop improvements	Significant Impact
Impact 3.2-3: Phase I and full LRDP implementation would not result in an exceedance of carbon monoxide standards.	Less than significant	No mitigation is required.	Less than significant

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

IMPACT	SIGNIFICANCE	MITIGATION PROGRAM	LEVEL OF SIGNIFICANCE AFTER MITIGATION
Impact 3.2-4: The project is considered consistent with the State Implementation Plan (SIP). No impacts would occur.	No Impact	No mitigation is required.	No Impact
Impact 3.2-4: Development of the project, in conjunction with cumulative development in the project vicinity, would not result in significant health risks from the emissions of toxic air contaminants. This is considered a less than significant impact. Development of the project, in conjunction with cumulative development in the project vicinity, would not result in significant health risks from the emissions of toxic air contaminants. This would be considered a less than significant impact.	Less than Significant	**Standard Conditions and Requirements** • The UCI Medical Center shall comply with all applicable federal, state, and local laws, rules, and regulations relating to both criteria pollutants and toxic air contaminants, including the Federal Clean Air Act, the California Clean Air Act, and the State Air Toxics Hot Spot Information and Assessment Act, and similar requirements. **Mitigation Measures** The following measure is recommended. 3.2-4(a) Prior to the completion of final construction documents, the UCI Medical Center shall conduct a wind/fume discharge study, for facilities that include fume hoods, to determine whether the desired fume exhaust stack height must be greater than seven feet. The wind/fume discharge study shall address the relationship between fresh air intake and exhaust fume stacks for individual development projects at the UCI Medical Center, as well as its relationship to other existing facilities on the campus. The analysis will determine acceptable intake and exhaust positions to ensure that these projects are in conformance with emission regulations.	Less than Significant
3.3 Cultural Resources			
Impact 3.3-1: Phase I project implementation would result in the demolition of 12 of the 24 pre-1963 buildings and structures at the UCI Medical Center. This is considered a less than significant impact.	Less than Significant	No mitigation is required.	Less than Significant

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

IMPACT	SIGNIFICANCE	MITIGATION PROGRAM	LEVEL OF SIGNIFICANCE AFTER MITIGATION
Impact 3.3-2: Full LRDP implementation would result in the demolition of nine additional pre-1963 buildings and structures at the UCI Medical Center. This is considered a less than significant impact.	Less than Significant	No mitigation is required.	Less than Significant
Impact 3.3-3: Project implementation is not expected to affect prehistoric archaeological resources. (See Initial Study, Appendix A)	Significant Impact	**Mitigation Measures** 3.3-3 A Register of Professional Archaeologists-certified archaeologist shall be retained to perform periodic project-specific inspections of ground disturbing activities. The archaeologist shall be allowed to divert or direct grading in the areas of resources in order to facilitate evaluation and, if necessary, salvage any buried artifacts that may be uncovered. a. A final monitoring report, including an itemized inventory and pertinent field data, shall be sent to the University of California and to the South Central Coastal Information Center at California State University at Fullerton following the completion of each construction project. b. Any recovered prehistoric and historic artifacts shall be offered, on a first right-of-refusal basis, to a repository with a retrievable collection system and an educational and research interest in the materials such as the Fowler Museum of Cultural History (UCLA) or California State University, Fullerton, or alternatively to the Pacific Coast Archaeological Society where collections are held locally.	Less than Significant

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

IMPACT	SIGNIFICANCE	MITIGATION PROGRAM	LEVEL OF SIGNIFICANCE AFTER MITIGATION
Impact 3.3-4: Project implementation is not expected to affect any unique paleontological resources. (See Initial Study, Appendix A)	Less than Significant	**Mitigation Measures** 3.3-4 A qualified paleontologist shall be retained to perform periodic project-specific inspections of excavations and salvage exposed fossils. The paleontologist shall be allowed to divert or direct grading in the areas of an exposed fossil in order to facilitate evaluation and, if necessary, salvage the exposed fossil. a. During monitoring, any scientifically significant specimens shall be properly salvaged after evaluation by, and under the supervision of, the paleontologist. During fossil salvage, contextual stratigraphic data shall also be collected. This will include lithologic descriptions, localities plotted on a USGS 7.5' Series topographic quadrangle, photographs, and field notes. b. Specimens shall be prepared to the point of identification, identified, and curated on a long-term loan basis in a suitable repository that has a retrievable storage system, such as the Los Angeles County Museum of Natural History. c. A final report shall be prepared at the end of earthmoving activities for each construction project, and shall include an itemized inventory of recovered fossils and appropriate stratigraphic and locality data. This report shall be sent to the University of California to signify the end of mitigation. Another copy shall accompany any recovered fossils, along with field logs and photographs, to the designated repository.	Less than Significant

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

IMPACT	SIGNIFICANCE	MITIGATION PROGRAM	LEVEL OF SIGNIFICANCE AFTER MITIGATION
Impact 3.3-5: The project would not directly contribute to the loss of any historic offsite buildings, structures, or features located in the City of Orange. This would be considered a less than significant impact.	Significant Impact	No mitigation is required.	Less than Significant
3.4 Geology and Soils			
Impact 3.4-1: Construction of the proposed project would require grading to reconfigure topography and soil conditions. The project would not require cut or fill slopes. Impacts to site topography would be less than significant.	Less than Significant	No mitigation is required.	Less than Significant
Impact 3.4-2: The proposed project would result in demolition, construction, and excavation activities. Onsite soils would not pose significant constraints to project development. Impacts are considered less than significant.	Less than Significant	**Standard Conditions and Requirements** • For projects under the jurisdiction of the California Office of Statewide Health Planning and Development (OSHPD) (i.e., general acute care hospital, psychiatric hospital, and multiple-story skilled nursing home, and intermediate care facilities), prior to grading, the UCI Medical Center shall submit a soils and geological report for the area to be graded, including foundation plans, by a registered geotechnical engineer to OSHPD for review and approval. • Prior to the completion of final construction documents, the UCI Medical Center shall ensure that all project structures shall be designed to comply with all applicable geological and seismic safety requirements of the Uniform Building Code and mitigation as defined in the Public Resources Code Section 2693(c). Verification of such compliance will be confirmed during the California Office of Statewide Health Planning and Development (OSHPD) plan review processes, for buildings subject to OSHPD review.	Less than Significant

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

IMPACT	SIGNIFICANCE	MITIGATION PROGRAM	LEVEL OF SIGNIFICANCE AFTER MITIGATION
		• Prior to initiation of building construction for structures subject to review and approval by the California Office of Statewide Health Planning and Development (OSHPD), UCI shall submit for review and approval by OSHPD, detailed foundation design information for the subject building(s), prepared by a registered civil engineer, based on recommendations by a geotechnical engineer. Plans shall show that project designs have been analyzed by a registered civil engineer for earthquake loading and designed according to the most recent seismic standards in the Uniform Building Code, and/or standards required by OSHPD. • All grading and earthwork shall be performed under the observation of a registered geotechnical engineer in order to achieve proper sub-grade preparation, selection of satisfactory materials, and placement and compaction of all structural fill.	
Impact 3.4-3: The proposed project could affect the rate or extent of erosion through site preparation and construction activities. This is considered potentially significant.	Significant Impact	**Mitigation Measures** 3.4-3(a) The UCI Medical Center shall construct interceptor ditches and diversion dikes to divert runoff away from graded areas during the implementation of the project. 3.4-3(b) Erosion control during construction activities shall be maximized to the extent feasible; adequate erosion control methods may include, but are not limited to the following: (1) During construction, soil on any graded slopes shall be revegetated where feasible. (2) During grading or before any landscape areas have established root, straw, wood chips, or plastic shall be used to stabilize the ground.	Less than Significant

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

IMPACT	SIGNIFICANCE	MITIGATION PROGRAM	LEVEL OF SIGNIFICANCE AFTER MITIGATION
		(3) Air-born and vehicle-born sediment shall be controlled during construction by the regular sprinkling of exposed soils; the moistening of vehicle loads; and by providing gravel and paved driveways between the construction site(s) and public streets. (4) Sediment shall be removed from storm flows with sediment filters, before the runoff leaves the construction site. (5) During the period of construction activity, vegetation shall be protected from traffic by the use of fences. Buffer strips of vegetative filter strips, such as tall strands of grass, shall be used to protect against sediment buildup. (6) Street sweeping services will be required for to maintain the quality of surface water being discharged. 3.4-3(c) After individual construction projects are completed, the following measures, as applicable, shall be observed in order to protect and promote landscaping at the UCI Medical Center as a form of erosion control: (1) Landscaping shall be placed along manufactured slopes, drainageways, or other disturbed areas which are subject to sheet flows. (2) Mulch shall be added to topsoil prior to landscaping, to reduce the erosive force of raindrops and encourage plant establishment. (3) In areas where soil is inhospitable to plant growth, topsoiling shall be used to create a medium more suitable for landscaping.	

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

IMPACT	SIGNIFICANCE	MITIGATION PROGRAM	LEVEL OF SIGNIFICANCE AFTER MITIGATION
		(4) Slopes shall be scarified or grooved to aid in the establishment of vegetative cover from seed, and to reduce slope runoff velocity. 3.4-3(d) If construction occurs between the period of October 15 to April 15, the UCI Medical Center shall implement project-specific erosion control measures to control any runoff from construction site. 3.4-3(e) The level of construction site sediment and the velocity of sheet flows shall be minimized by the use of sandbag, gravel bag, or straw bale barriers. The barriers shall be placed around drainage inlets. Due to the short life expectancy of these barriers (i.e., one rainy season), these shall be used only where other measures of sediment control are not possible. 3.4-3(f) To reduce/eliminate mud and sediment carried by vehicles or runoff onto public right-of-ways, a temporary gravel entrance shall be located at every construction site entrance, where needed. The gravel shall cover the entire width of the entrance, and its length shall be no less than 50 feet. 3.4-3(g) Filter berms, consisting of a ridge of gravel, shall be placed across graded right-of-ways to decrease and filter runoff levels while permitting construction traffic to continue. Prior to the stabilization of the construction site area, sediment flows shall be prevented from entering storm drainage systems by the construction of temporary filter inlets around existing storm drain inlets. The sediment trapped in these impounding areas shall be removed after each storm.	

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

IMPACT	SIGNIFICANCE	MITIGATION PROGRAM	LEVEL OF SIGNIFICANCE AFTER MITIGATION
Impact 3.4-4: Operation of the project could expose people to seismic hazards. Seismic upgrades to existing structures is considered a beneficial effect.	Beneficial Effect	**Standard Conditions and Requirements** • Seismic rehabilitation projects shall provide, as a minimum, an acceptable level of earthquake safety based on the sole consideration of the protection of life and prevention of personal injury, insofar as predictable, at a level of safety equivalent to that which would be established by compliance with the current seismic provisions of CCR, Title 24, California Building Standards Code, or local seismic requirements, whichever requirements are more stringent, disregarding, insofar as possible, potential building damage not jeopardizing life, which would be expected from one earthquake of the intensity of at least IX on the Modified Mercalli Intensity Scale (modified by Charles F. Richter in 1958). The intent of seismic rehabilitation shall be to reconstruct buildings and other structures so that they would have a Good seismic performance rating based on the present state of the practice of earthquake engineering. Verification of compliance shall be confirmed during California Office of Statewide Health Planning and Development's (OSHPD) or UCI's plan review processes, as applicable. • Preliminary plans for all seismic rehabilitation projects shall be reviewed by a consulting structural engineer, who shall verify the scope of the rehabilitation work and shall prepare any recommendations regarding any special criteria which should be considered in the project design. Upon completion of plans and specifications, the consulting structural engineer shall review the plans and structural calculations for completeness, general accuracy, appropriateness of details, and for compliance with any special criteria. The design structural engineer shall incorporate comments into the plans, where feasible, prior to bidding. • The design and construction of new buildings and other facilities on University premises shall, as a minimum, comply with the current seismic provisions of CCR, Title 24, California Building Standards Code, or local seismic requirements, whichever requirements are more stringent. In addition, provisions shall be made for adequate	Less than Significant

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

IMPACT	SIGNIFICANCE	MITIGATION PROGRAM	LEVEL OF SIGNIFICANCE AFTER MITIGATION
		anchorage for seismic resistance of nonstructural building elements including, but not limited to, glass, fixtures, furnishings, and other contents, equipment, material storage facilities, and utilities (gas, high-temperature water, steam, fire protection water, etc.) with respect to potential hazards to persons in the event of seismic disturbances. Verification of compliance shall be confirmed during California Office of Statewide Health Planning and Development's (OSHPD) or UCI's plan review processes, as applicable. The following measures are applicable to new structures at the UCI Medical Center: 3.4-4(a) Preliminary plans for new major capital improvement projects, except pre-engineered buildings, wood-framed buildings of less than 3,000 square feet, and buildings not intended for human occupancy other than hospitals proposed for construction shall be examined by the consulting structural engineer, who shall prepare recommendations regarding any special criteria that, in that engineer's opinion, should be recognized in providing adequate resistance to seismic forces to minimize the risk of injury to persons and damage to property. Upon completion of the final plans, the consulting structural engineer shall review the plans and structural calculations for completeness, general accuracy, structural details, and for compliance with any special criteria previously established. Should seismic design standards be revised during the period between completion of final plans and the date of advertisement for bids, the consulting structural engineer shall review again the plans and structural calculations before advertising for bids. The design structural engineer shall incorporate comments into the plans, where feasible, prior to bidding.	

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

IMPACT	SIGNIFICANCE	MITIGATION PROGRAM	LEVEL OF SIGNIFICANCE AFTER MITIGATION
		3.4-4(b) Prior to the release of construction funds for structures other than hospital or for seismic rehabilitation projects, a letter or report from the campus consulting structural engineer shall be submitted, stating that the construction plans are in general conformance with the University policy on seismic safety. The design and construction of new facilities or alterations for hospitals, skilled nursing facilities, and intermediate-care facilities as defined in Section 15001 of the California Health and Safety Code, on University premises or under University operation shall comply with CCR, Title 24, California Building Standards Code.	
Impact 3.4-5: The proposed project could be exposed to liquefaction. The risk of impact is considered less than significant.	Less than Significant	No mitigation is required.	Less than Significant
Impact 3.4-6: The proposed project would not cumulatively contribute to any geotechnical or seismic conditions in the area. Any incremental contribution of the project to soils and geologic impacts is not considered cumulatively considerable because the proposed project would comply with the applicable requirements of the Uniform Building Code and the mitigation program would be implemented during construction.	Less than Significant	No mitigation is required.	Less than Significant
3.5 Hazards and Hazardous Materials			
Impact 3.5-1: The proposed project would result in the use, storage, transportation, and disposal of hazardous materials. Because the types of hazardous materials would be similar to those currently in use, the impact would be considered less than significant.	Less than Significant	No mitigation is required.	Less than Significant.

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

IMPACT	SIGNIFICANCE	MITIGATION PROGRAM	LEVEL OF SIGNIFICANCE AFTER MITIGATION
Impact 3.5-2: Construction activities could result in short-term exposure of people to asbestos-containing materials or lead-based materials. This is considered a potentially significant impact.	Significant Impact	**Standard Conditions and Requirements** • In accordance with the South Coast Air Quality Management District (SCAQMD) Rule 1403 (Asbestos Emissions from Demolition/Renovation Activities), a registered environmental assessor shall conduct surveys for each onsite structure to be demolished or renovated as a part of the project to determine the presence of asbestos-containing materials and potential emissions from asbestos. The project is required to comply with the notification and removal processes identified in SCAQMD Rule 1403. **Mitigation Measures** 3.5-2(a) Prior to demolition activities at each location, the UCI Medical Center shall develop a decommissioning plan for facilities known or suspected to contain hazardous materials in building features including, but not limited to, exterior surfaces such as rooftops and stacks, and interior features such as floors, walls, ceilings, countertops, and storage areas, and plumbing and ventilation fixtures. Potential contaminants to be evaluated shall include, but not be limited to, the following: friable asbestos, lead-based paint, mercury or other chemical substances, Polychlorinated Biphenyls (PCBs), radioactive materials, and biohazardous materials. The decommissioning plan shall identify, at a minimum, the following information: (1) the location, type, and estimated amount of exterior and interior features known or suspected to contain contaminants. Measures to evaluate the potential for contaminants to be present could include, but would not be limited to, a review of departmental history, UCI Medical Center records pertaining to use, hazardous materials purchases, consultation with knowledgeable individuals, and sample collection where practical;	

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

IMPACT	SIGNIFICANCE	MITIGATION PROGRAM	LEVEL OF SIGNIFICANCE AFTER MITIGATION
		(2) specific tasks that would be performed to determine the type, location, and amount of contaminants that could be present; (3) a mechanism for ensuring removal of contaminated items in compliance with all applicable hazardous materials management laws and regulations. Such measures could include identification fo individuals or companies permitted or licensed to handle the contaminants, procedures, contract specifications, periodic monitoring during demolition, and documentation of activities; (4) for each affected location, health and safety precautions that meet the intent of California Occupational Safety and Health Administration (Cal/OSHA) requirements shall be developed and identified in the decommissioning plan; and (5) the decommissioning plan shall identify specific steps that will be taken to account for and relocate all stored chemical and radioactive wastes and other hazardous wastes and other hazardous substances used in routine operations. This mitigation would occur during the design phase. 3.5-2(b) The UCI Medical Center, through its contractor or designee, shall ensure proper implementation of all demolition activities in which hazardous wastes may be encountered. 3.5-2(c) In the event unidentified, obvious, or suspected hazardous materials or contamination are discovered during decommissioning or demolition, such activities shall cease immediately until evaluated by a qualified health and safety professional. Work shall not continue until appropriate actions recommended by the health and safety professional	

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

IMPACT	SIGNIFICANCE	MITIGATION PROGRAM	LEVEL OF SIGNIFICANCE AFTER MITIGATION
		have been implemented to demonstrated that there would be no unacceptable health risk to exposed individuals. 3.5-2(d) All buildings shall be tested by a registered environmental assessor for the presence of lead-based paint prior to demolition. If lead-based paint is detected, the material shall be removed and transported to an approved waste disposal facility in accordance with the requirements of the County of Orange Health Care Agency.	
Impact 3.5-3: Demolition activities could result in short-term exposure of people to hazardous substances other than asbestos or lead in building materials. Because removal of contaminated materials could result in an increased risk of adverse health effects, this is considered a potentially significant impact.	Significant Impact	Please refer to Mitigation Measure 3.5-2(a), 3.5-2(b), 3.5-2(c).	Less than Significant
Impact 3.5-4: Demolition activities would result in short-term increases in hazardous waste generated on campus. This is considered a less than significant impact.	Less than Significant	The following measures are recommended. 3.5-4(a) Prior to final construction documents, in conjunction with building surveys (required to comply with asbestos and lead abatement recommendations, and as required by standard conditions and Mitigation Measures 3.5-2(a) through 3.5-2(d)), the UCI Medical Center shall estimate the amount of demolition debris and residues (including, but not limited to, building materials, fixtures, containers, and soils) that would need to be disposed of as hazardous waste. 3.5-4(b) Prior to demolition, or prior to site preparation that could generate contaminated soils, the UCI Medical Center shall identify waste-segregation and processing activities that would minimize the amount of hazardous waste generated. Waste reduction measures for hazardous building debris may include, but are not limited to, shredding, compaction, and other measures to reduce waste volume.	Less than Significant

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

IMPACT	SIGNIFICANCE	MITIGATION PROGRAM	LEVEL OF SIGNIFICANCE AFTER MITIGATION
		3.5-4(c) Prior to demolition which could result in the generation of hazardous chemical waste, or prior to site preparation that could generate contaminated soils, the campus shall identify appropriate disposal sites and confirm that these sites will have sufficient capacity to accept the waste at the time the waste is generated. In the event disposal site options are not available or capacity is limited, the campus shall redesign the demolition activity or delay demolition of the affected building until a disposal option is identified. 3.5-4(d) Prior to demolition of the first building that could generate low-level radioactive waste, in the event an offsite disposal facility for low-level radioactive waste has not been identified, the UCI Medical Center shall coordinate with the California DHS Radiologic Health Branch to identify appropriate options that could be implemented to provide sufficient and secured space to accommodate the interim storage of the waste until the waste can be transported to a licensed facility. Such options could include onsite storage or transport to an offsite temporary storage location. If one of these options (or another option) is identified, the UCI Medical Center shall prepare a management plan that would include, but not be limited to, the following: identification of types and quantities of wastes to be stored; transportation procedures; site security; monitoring and inspection procedures; emergency response measures; and administrative responsibilities, including amendments to the Radioactive Materials License, if necessary. Appropriate environmental documentation shall also be prepared prior to approval of the selected storage option. In the event appropriate storage or disposal options cannot be identified, the UCI Medical Center shall redesign the demolition activity to reduce the amount of waste or delay demolition of the affected building until a storage/disposal option is identified.	

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

IMPACT	SIGNIFICANCE	MITIGATION PROGRAM	LEVEL OF SIGNIFICANCE AFTER MITIGATION
Impact 3.5-5: Demolition and construction activities could expose people to hazardous substances that may be present in soil or groundwater. In the absence of site-specific information and because unmitigated exposure or release could result in adverse health or environmental effects, this impact is considered a potentially significant impact.	Significant Impact	**Mitigation Measures** 3.5-5(a) Prior to any demolition or construction activity, the UCI Medical Center shall evaluate the site to determine the appropriate level of investigation that would be required to assess the possible presence of hazardous chemical and radioactive materials in soil and groundwater. Investigative measures could include, but would not be limited to, a review of historic maps and aerial photographs; Sanborn maps; review of available campus, city, county, and state records; and consultation with knowledgeable individuals. In the event soil and/or groundwater testing is deemed appropriate, the campus shall ensure the testing is performed in accordance with professional standards for such evaluations, using appropriate EPA testing methods. The UCI Medical Center shall evaluate the results and implement recommended actions. The Medical Center shall document the results of all investigations and shall notify the appropriate local or state agencies in the event contaminants are detected at levels that could present a human health or environmental risk. 3.5-5(b) In the event that testing finds evidence of contamination, waste discharges, underground storage tanks, hazardous debris, or other environmental impairment at locations to be developed, a risk management plan shall be prepared by the UCIMC prior to construction at that location that: (1) identifies the contaminants of concern and potential risk each contaminant would pose to human health and the environment during construction and post-development; and (2) describes measures to be taken to protect workers and the public from exposure to potential site hazards. Such measures could include a range of options, including, but not limited to, physical site controls during construction,	Less than Significant

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

IMPACT	SIGNIFICANCE	MITIGATION PROGRAM	LEVEL OF SIGNIFICANCE AFTER MITIGATION
		remediation, long-term monitoring, post-development maintenance or access limitations, or some combination thereof. 3.5-5(c) For locations where remediation is determined to be necessary to reduce contaminant concentrations to levels that would not exceed risk-based criteria appropriate to that location, commencement of construction in the areas of potential hazard shall not proceed until a site remediation plan has been completed. Depending on the nature of contamination, if any, appropriate agencies shall be notified (e.g., the Regional Water Quality Control Board for groundwater contamination). 3.5-5(d) A site health and safety plan, which meets California Occupational Safety and Health Administration (Cal/OSHA) requirements, shall be prepared and in place prior to commencing work on any contaminated sites. The UCI Medical Center, through its contractor, shall ensure proper implementation of the health and safety plan. 3.5-5(e) In the event of obvious or suspected contamination in underground tanks or other features or materials that could present a threat to human health or the environment are discovered, construction in that immediate area shall cease immediately. A qualified professional shall evaluate the find and make appropriate recommendations. Work shall not commence at the site until appropriate actions have been implemented to demonstrate that there would be no unacceptable health risk to exposed individuals or the environment.	
Impact 3.5-6: Future Medical Center development could result in the use, storage, transport, and disposal of hazardous materials which could incrementally add to hazardous	Significant	No mitigation is required beyond that set forth for the project-specific impacts of the proposed project.	Less than Significant

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

IMPACT	SIGNIFICANCE	MITIGATION PROGRAM	LEVEL OF SIGNIFICANCE AFTER MITIGATION
waste generation. Detailed hazardous material and waste disposal tracking would assist in monitoring hazardous material and waste disposal trends. Therefore, cumulative impacts of the proposed project would be considered cumulatively significant.			
3.6 Hydrology and Water Quality			
Impact 3.6-1: Construction of the proposed project would not alter regional hydrologic conditions, and would not divert stormwater discharges to other watersheds or to drainage facilities that have not historically received site runoff. Therefore, onsite development would not affect regional hydrology and drainage conditions and would not have significant impacts. The Caltrans lot is an approximately four-acre dirt site. If this site is selected to provide needed offsite parking, paving of the lot to provide surface parking would change the character of the site from a pervious to impervious condition. Site improvements would preclude increased stormwater runoff should it be determined that downstream systems cannot accommodate increased flows. ***No significant impacts*** are anticipated.	Less than Significant	To ensure that no significant impacts occur, the following measure is required. 3.6-1 Prior to design approval, the UCI Medical Center shall be responsible for the preparation of a hydrological analysis to determine the quantity of runoff associated with development of the Caltrans lot as a surface parking facility and if the existing storm drain system can accommodate the additional runoff without adversely impacting existing and planned development flows. If the project would adversely affect the storm drain system, the UCI Medical Center shall be responsible for project-related improvements to ensure potential impacts are mitigated to a less than significant level. Improvement options include offsite improvements or increasing the size of the onsite catch basin to allow for the rate of future flows from the Caltrans lot to remain at existing levels.	Less than Significant
Impact 3.6-2: Construction of the proposed project could result in soil erosion. This is considered a significant impact.	Significant Impact	**Standard Conditions and Requirements** • Prior to the initiation of grading activities, the UCI Medical Center shall be responsible for filing a Notice of Intent and paying the appropriate fees with the Regional Water Quality Control Board (RWQCB) pursuant to the National Pollutant Discharge Elimination	Less than Significant

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

IMPACT	SIGNIFICANCE	MITIGATION PROGRAM	LEVEL OF SIGNIFICANCE AFTER MITIGATION
		System (NPDES) program for a General Construction Permit. As a prerequisite of obtaining an NPDES permit, the UCI Medical Center shall be responsible for the preparation of a Water Quality Management Plan and a Stormwater Pollution Prevention Plan consistent with the latest version of the state's General Construction Activity Storm Water Permit and shall be subject to the review and approval of the RWQCB. The Water Quality Management Plan and Stormwater Pollution Prevention Plan shall specifically identify the BMPs that will be used onsite to control predictable pollutant runoff. BMPs that will be implemented as part of the proposed project to reduce the volume of urban runoff contaminants from the project site include, but are not limited to: **Structural Controls** a. Use of sand bags and temporary desilting basins during project grading and construction during the rainy season (November through April) to prevent discharge of sediment-laden runoff into stormwater facilities. b. Installation of landscaping as soon as practicable after completion of grading to reduce sediment transport during storms. c Filtration. d. Hydroseeding of graded building pads if they are not built upon before the onset of the rainy season. e. Efficient irrigation systems. f. Runoff-minimizing landscape design. g. Incorporation of structural controls (e.g., velocity dissipation devices, grease traps, debris screens, continuous deflection separators, oil/water separators, drain inlet inserts and inlet trash racks) into the project design to provide detention and filtering of contaminants in urban runoff from the developed site prior to discharge to stormwater facilities. h. Stenciling of catch basins and other publicly visible flood control facilities with the phrase "No Dumping-Drains to the Ocean."	

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

IMPACT	SIGNIFICANCE	MITIGATION PROGRAM	LEVEL OF SIGNIFICANCE AFTER MITIGATION
		Non-structural Controls i. Education, j. Activity restrictions, k. Common area landscape management, l. Litter control, m. Catch basin inspection, n. BMP maintenance, and o. Street sweeping The SWPPP shall be kept at the construction site and be released to the public and/or Regional Water Quality Control Board upon request. Please also refer to standard conditions for Impact 3.2-1 and Mitigation Measures 3.4-3(a) through 3.4-3(g).	
Impact 3.6-3: Construction of the proposed project could affect long-term water quality. This is considered a significant impact.	Significant Impact	See standard conditions for Impact 3.2-1 and Mitigation Measures 3.4-3(a) through 3.4-3(g), and 3.6-2.	Less than Significant
Impact 3.6-4: The proposed project is not expected to alter the quality of stormwater runoff and, with the implementation of operational BMPs, could improve the quality of runoff. No adverse impacts would result.	No Impact	See Mitigation Measure 3.6-2.	No Impact
Impact 3.6-5: The project's contribution to potentially significant cumulative water quality impacts are considered less than significant.	Less than Significant	See Mitigation Measure 3.6-2.	Less than Significant
3.7 Land Use and Planning			
Impact 3.7-1: The proposed project would result in the displacement of some existing onsite land uses during demolition and	Less than Significant	No mitigation is required.	No Impact

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

IMPACT	SIGNIFICANCE	MITIGATION PROGRAM	LEVEL OF SIGNIFICANCE AFTER MITIGATION
construction. There would be no significant construction-related impacts, parking impacts, or other onsite land use impacts.			
Impact 3.7-2: The proposed project is considered compatible with surrounding land uses, with the exception of the relationship of the proposed parking structure to the Orange County Juvenile Hall.	Significant Impact	See Mitigation Measure 3.1-1	Less than Significant
Impact 3.7-3: The proposed project does not conflict with related planning programs.	No Impact	No mitigation is required.	No Impact
Impact 3.7-4: Existing and proposed land uses are inconsistent with the City of Orange zoning designation for the project site. However, the site has been used as a medical facility since the late 1800s, and a rezone would not be required as part of this project.	No impact	No mitigation is required.	No Impact
Impact 3.7-5: The project is consistent with applicable SCAG policies. No adverse impacts would result.	No Impact	No mitigation is required.	No Impact
Impact 3.7-6: The UCI Medical Center LRDP project is compatible with existing and proposed adjacent land uses, and no cumulative impacts are anticipated.	No Impact	No mitigation is required.	No Impact
3.8 Noise			
Impact 3.8-1: Demolition and construction activities associated with the proposed project would result in short-term noise increases.	Less than Significant	**Standard Conditions and Requirements** • All noise generating construction activities shall be limited to the hours between 7 a.m. and 8 p.m., Monday through Saturday, when activities occur near a residential area.	Less than Significant

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

IMPACT	SIGNIFICANCE	MITIGATION PROGRAM	LEVEL OF SIGNIFICANCE AFTER MITIGATION
		Mitigation Measures 3.8-1(a) All construction equipment shall be equipped with improved noise muffling and have the manufacturer's recommended noise abatement measures, such as mufflers, engine covers, and engine vibration isolators in good working order. 3.8-1(b) To the maximum extent feasible, hydraulic equipment (instead of pneumatic impact tools) and electric powered tools (instead of diesel powered equipment) shall be used for all exterior construction work. 3.8-1(c) Maintaining equipment in an idling mode shall be minimized. All equipment shall be turned off if not in use. 3.8-1(d) A noise barrier 8 to 10 feet in height shall be provided at the project site perimeter, where construction would be adjacent to onsite or offsite sensitive receptors, that will break the line-of-sight between construction equipment and noise receptors, where feasible. 3.8-1(e) Physical separation between noise generators and noise receptors shall be minimized to the extent feasible.	
Impact 3.8-2: Project demolition and construction activities associated with the proposed project would generate vibration at sensitive land uses. This impact is considered significant.	Significant Impact	3.8-2(a) Prior to the initiation of vibration-generating demolition and construction activities, the UCI Medical Center construction project manager shall notify building/department representatives that these activities are planned. This notification will allow for the relocation of vibration-sensitive equipment in portions of buildings that could be affected or scheduling modifications to avoid vibration disruptions.	Less than Significant

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

IMPACT	SIGNIFICANCE	MITIGATION PROGRAM	LEVEL OF SIGNIFICANCE AFTER MITIGATION
		3.8-2(b) The UCI Medical Center construction staff shall work with the project contractor to schedule demolition and construction activities that use heavy equipment and are located within 50 feet of buildings where vibration-sensitive medical procedures occur, such that demolition and construction activities are not scheduled concurrent with sensitive medical operations. A system of communications would be established between selected vibration-sensitive uses/areas and the construction managers to avoid noise or vibration affecting patient care or research activities.	
Impact 3.8-3: The proposed project would result in long-term, operational noise impacts to surrounding land uses. This change is considered potentially significant.	Significant Impact	Compliance with the City of Orange Noise Ordinance would preclude onsite activities from generating noise levels in excess of the City of Orange Noise Ordinance at the Juvenile Hall located south of the project or the hotel located to the west of the project, both which are considered residential land uses. **Standard Conditions and Requirements** • All activities on the project site shall comply with the City of Orange Noise Ordinance standards. **Mitigation Measures** The following measures are recommended. 3.8-3(a) The UCI Medical Center shall prepare an acoustical study(ies) prepared by a qualified acoustical expert for any activities found to potentially exceed the City of Orange Noise Ordinance. The study(ies) shall be prepared by a qualified acoustical expert and describe the noise levels generated by the use and show any measured required for compliance with the Noise Ordinance standards.	Less than Significant

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

IMPACT	SIGNIFICANCE	MITIGATION PROGRAM	LEVEL OF SIGNIFICANCE AFTER MITIGATION
		3.8-3(b) The UCI Medical Center shall prepare detailed plans for all parking structures. Said plans shall be accompanied by a acoustical study prepared by an acoustical expert. The acoustical study shall demonstrate that all feasible sound attenuation in compliance with the City of Orange Noise Ordinance has been incorporated into parking structure design, including but not limited to brushed driving surfaces (textured), limited openings oriented toward sensitive noise sources, etc.	
Impact 3.8-4: The proposed project would result in long-term, operational noise impacts to onsite land uses associated with traffic noise. Depending on the location of buildings within the project site, some uses will be subject to significant noise impacts.	Significant Impact	**Mitigation Measures** 3.8-4(a) As specific projects are developed and prior to the completion of final construction documents, the site plans shall be reviewed by a qualified acoustical expert to determine the noise reduction required by the buildings. Noise studies should be prepared for any building areas requiring more than 20 dB of outdoor-to-indoor noise attenuation. These assessments shall be prepared by a qualified acoustical expert and demonstrate the measures required to met the applicable indoor standard. 3.8-4(b) Outdoor areas subject to the 65 CNEL noise standard shall be reviewed prior to the completion of final construction documents by a qualified acoustical expert to determine if the less than 65 CNEL standard will be achieved or can be met with sound barriers or other mitigation. Outdoor areas where noise barriers cannot provide enough reduction to achieve the 65 CNEL standard should be relocated, if feasible. Areas that will require sound barriers should have detailed noise studies prepared by a qualified acoustical expert to show the location and height of the noise barrier required to meet the 65 CNEL standard.	Less than Significant

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

IMPACT	SIGNIFICANCE	MITIGATION PROGRAM	LEVEL OF SIGNIFICANCE AFTER MITIGATION
Impact 3.8-5: Project parking structure operations could expose sensitive receptors to vibrations. However, impacts would not disrupt sensitive activities or operations at the Medical Center or surrounding land uses, and would be less than significant.	Less than Significant	No mitigation is required.	Less than Significant
3.9 Population and Housing			
Impact 3.9-1: The project would indirectly result in population increases.	Less than Significant	No mitigation is required.	Less than Significant
Impact 3.9-2: Direct employment opportunities would be created by the project, but no significant impacts would result.	Less than Significant	No mitigation is required.	Less than Significant
Impact 3.9-3: Job creation will increase the demand for housing in Orange County. No significant impacts are expected.	Less than Significant	No mitigation is required.	Less than Significant
Impact 3.9-4: The project's limited impact on population, employment, and housing demand within the County and local areas would not be cumulatively considerable. This increase is considered less than significant.	Less than Significant	No mitigation is required.	Less than Significant
3.10 Public Services			
Fire Protection **Impact 3.10-1:** The project would increase the demand for fire protection services. This impact is expected to be less than significant.	Less than Significant	**Standard Conditions and Requirements** • Prior to the completion of the final construction documents, the UCI Medical Center shall ensure that all buildings are designed according to all applicable fire protection standards.	Less than Significant

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

IMPACT	SIGNIFICANCE	MITIGATION PROGRAM	LEVEL OF SIGNIFICANCE AFTER MITIGATION
		Mitigation Measures 3.10-1(a) Prior to design approval, the UCI Medical Center shall have a water delivery system designed to provide adequate fire flows to the project site. Each site development project shall provide sufficient capacity for fire flows, as required by the City of Orange Fire Department. 3.10-1(b) Prior to design approval, the UCI Medical Center shall ensure that emergency pathways and accessways to buildings are of sufficient width to allow for the passage of emergency service vehicles. Spacing between buildings shall be sufficient to allow for the required turning radius of emergency response vehicles. 3.10-1(c) Prior to commencement of demolition and construction activities for each structure/facility, the UCI Medical Center or its designee shall file an emergency access plan with the City of Orange Fire Department. The plan shall identify alternative routes for emergency access during construction to areas blocked by project-related construction activities. 3.10-1(d) Emergency vehicle access shall be provided to all required fire hydrants and be operational throughout construction.	
Fire Protection **Impact 3.10-2**: The project would cumulatively contribute to an increased demand for fire protection services. This is considered a less than significant impact.	Less than Significant	No mitigation is required.	Less than Significant

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

IMPACT	SIGNIFICANCE	MITIGATION PROGRAM	LEVEL OF SIGNIFICANCE AFTER MITIGATION
Police Protection **Impact 3.10-3:** The project would impact law enforcement services. However, no significant public service impacts would occur to either the UCI or City of Orange Police Departments.	No Impact	**Mitigation Measures** Although no significant impacts are anticipated, the following measures are recommended. 3.10-3(a) Security and design measures which employ defensible space concepts should be integrated into the project design and construction plans prior to design approval by the UCI Medical Center. These measures incorporate the concepts of Crime Prevention Through Environmental Design (CPTED), which involve the placement, and orientation of structures, access and visibility of common areas, placement of doors, windows, addressing and landscaping. CPTED promotes public safety, physical security and allows employees the ability to monitor activity. 3.10-3(b) Prior to commencement of demolition and construction activities for each structure/facility, the UCI Medical Center shall file an emergency access plan with the UCIMC Security Department and the City of Orange Police Department. The plan shall identify alternative routes for emergency access during construction to areas blocked by project-related construction activities.	No Impact
Police Protection **Impact 3.10-4:** The project would not result in significant cumulative impacts.	Less than Significant	No mitigation is required.	Less than Significant
3.11 Transportation and Traffic			
Impact 3.11-1: Trips from construction trucks associated with Phase I and full LRDP implementation could temporarily impact traffic conditions. This is considered a less than significant impact.	Less than Significant	Although no significant impacts are anticipated, the following measure is recommended.	Less than Significant

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

IMPACT	SIGNIFICANCE	MITIGATION PROGRAM	LEVEL OF SIGNIFICANCE AFTER MITIGATION
		Mitigation Measure 3.11-1 During periods of high construction traffic (such as peak demolition and excavation), the UCI Medical Center shall coordinate construction truck traffic with daily traffic patterns in the project vicinity. Such coordination would seek to minimize short-term construction traffic conflicts to the extent feasible.	
Impact 3.11-2: Phase I project-related traffic will not significantly impact intersections within the traffic study area.	Less than Significant	No mitigation is required.	Less than Significant
Impact 3.11-3: The Phase I project will result in a reduction in onsite parking, including during construction and demolition activities and for construction workers. With parking provided offsite, no significant impacts would result.	Less than Significant	No mitigation is required.	Less than Significant
Impact 3.11-4: Local traffic and circulation patterns would change during the timeframe of full LRDP implementation. The project's traffic contribution to intersections is considered significant.	Significant Impact	**Mitigation Measure** 3.11-4 The UCI Medical Center shall implement a fee system or other mechanism to fund its fair share of costs for transportation improvements as identified in Table 3.11-16. The fair share payments will be linked to future (post-Phase I) traffic generating development projects within the LRDP and shall occur only after the City or Orange or other applicable jurisdiction has: (1) determined through reasonable traffic engineering analysis that the intersection or roadway link is operating at an unacceptable Level of Service; (2) established and implemented a mechanism for collecting funds from any other developers and entities contributing to traffic impacts; and (3) constructed the relevant intersection or roadway improvement.	Less than Significant

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

IMPACT	SIGNIFICANCE	MITIGATION PROGRAM	LEVEL OF SIGNIFICANCE AFTER MITIGATION
Impact 3.11-4: Full LRDP implementation would result in the need for additional Medical Center parking. The full LRDP project would result in no impact to parking as long as adequate parking is provided onsite/offsite in anticipation of planned development at the Medical Center.	No Impact	No mitigation is required.	No Impact
3.12 Utilities and Service Systems			
Water Service **Impact 3.12-1:** The proposed project would increase the demand on local water supplies. Phase I and full LRDP implementation would not result in significant impacts.	Less than Significant	**Standard Conditions and Requirements** • The UCI Medical Center shall pay water fees to the City of Orange Water Department based on the existing agreement between the two parties. **Mitigation Measures** 3.12-1(a) The UCI Medical Center shall be responsible for the provision of all onsite water system improvements necessary to serve the UCI Medical Center Phase I and Long Range Development Plan projects. Improvements shall be coordinated with the City of Orange to ensure that the project will have no net decrease in service to existing and future water customers served by the City of Orange Water Department.	Less than Significant
Water Service **Impact 3.12-2:** The project would incrementally increase the demand on local water supplies. Project implementation would not result in significant impacts.	Less than Significant	No mitigation is required.	Less than Significant

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

IMPACT	SIGNIFICANCE	MITIGATION PROGRAM	LEVEL OF SIGNIFICANCE AFTER MITIGATION
Wastewater and Sewer Service **Impact 3.12-3:** The proposed project would place additional demands on local wastewater and sewer services. There is adequate capacity to serve the project. This is considered a less than significant impact.	Less than Significant	**Standard Conditions and Requirements** • The UCI Medical Center shall pay sewer fees to the Sanitation Districts of Orange County (SDOC) based on the existing agreement between the two parties. **Mitigation Measures** Although no significant impacts have been identified, the following measure is recommended. 3.12-3(a) New construction should incorporate all practical and mandated water conservation measures. All developments should use ultra-low flow water fixtures to reduce the volume of wastewater generated.	Less than Significant
Wastewater and Sewer Service **Impact 3.12-4:** The project will cumulatively contribute to demands on the wastewater and sewer services. This is a significant impact.	Significant impact	See standard conditions and requirements for Impact 3.12-3.	Less than Significant

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

IMPACT	SIGNIFICANCE	MITIGATION PROGRAM	LEVEL OF SIGNIFICANCE AFTER MITIGATION
Electrical Service **Impact 3.12-5***:* The proposed project would impact local electrical services, but the impact would be less than significant.	Less than Significant	**Standard Conditions and Requirements** Although no significant impacts have been identified, the following measures are recommended to minimize the demands on electrical services: • Structures on the site shall be required to meet the Energy Building Regulations adopted by the California Energy Commission (Title 24). Meeting these specifications would conserve non-renewable natural resources to levels acceptable to the state. • The UCI Medical Center shall comply with guidelines provided by Southern California Edison Company with respect to easement restrictions, construction guidelines, and potential amendments to right-of-way in the areas of any existing Southern California Edison Company easements.	Less than Significant
Electrical Service **Impact 3.12-6:** The proposed project would cumulatively contribute to the need for electrical service. This is considered a less than significant impact.	Less than Significant	No mitigation is required.	Less than Significant
Natural Gas Service **Impact 3.12-7:** The project would increase the demand for natural gas facilities and services. This is a less than significant impact.	Less than Significant	No mitigation is required.	Less than Significant
Natural Gas Service **Impact 3.12-8:** The would increase the demand for natural gas facilities and services. This is a less than significant impact.	Less than Significant	No mitigation is required.	Less than Significant

TABLE 1-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

IMPACT	SIGNIFICANCE	MITIGATION PROGRAM	LEVEL OF SIGNIFICANCE AFTER MITIGATION
Solid Waste **Impact 3.12-9:** The proposed project would result in the generation of solid waste from demolition activities which could affect area landfills.	Less than Significant	**Mitigation Measures** Although no significant impacts have been identified, the following measure is recommended. 3.12-9 Prior to the initiation of demolition and construction activities, the UCI Medical Center shall prepare a waste reduction plan. During the term of the demolition and construction, the UCI Medical Center shall establish a goal to recycle or divert 50 percent of construction and demolition wastes and keep records thereof in tonnage or in other measures deemed acceptable to the City of Orange. To the maximum extent feasible, onsite separation of scrap wood and clean green waste shall occur to permit chipping and mulching for soil enhancement or land cover purposes.	Less than Significant
Solid Waste **Impact 3.12-10:** The proposed project would result in the generation of solid waste which could affect area landfills.	Less than Significant	No mitigation is required.	Less than Significant
Solid Waste **Impact 3.12-11:** The proposed project would cumulatively contribute to the generation of solid waste which could affect county landfills.	Less than Significant	No mitigation is required.	Less than Significant

SECTION 2
PROJECT DESCRIPTION

This Environmental Impact Report (EIR) addresses the potential environmental effects of the proposed University of California, Irvine (UCI) Medical Center Long Range Development Plan project located in Orange, California. Development of the main UCI campus in the City of Irvine is guided by a separate Long Range Development Plan (LRDP). The source of data and statistics upon which the Section 2, Project Description, is based was provided by the UCI Medical Center unless otherwise noted.

2.1 PROJECT SITE LOCATION

The UCI Medical Center is located at 101 The City Drive, in the City of Orange, Orange County, California. The UCI Medical Center is depicted in its regional and local context in Exhibits 2-1 and 2-2, respectively. The 33-acre Medical Center site is generally bound by Chapman Avenue to the north, Dawn Way to the south, the Santa Ana Freeway (I-5) to the east, and The City Drive to the west. Regional access to the Medical Center is provided from I-5, the Garden Grove Freeway (SR-22), and the Orange Freeway (SR-57). The Medical Center is located approximately 13 miles from the main UCI campus, located in the City of Irvine.

In addition to the UCI Medical Center in the City of Orange, the Medical Center maintains outpatient health centers. The UCI health centers are: UCI Family Health Center-Anaheim in the City of Anaheim; Gottschalk Medical Plaza (on the main UCI campus) in the City of Irvine; UCI Family Health Center-Santa Ana in the City of Santa Ana; and UCI Westminster Medical Center in the City of Westminster. These outpatient health centers provide general primary care services, in addition to speciality services such as pediatric, obstetrical, and geriatric care. The UCI Medical Center's administrative offices are located at 200 Manchester Avenue in the City of Orange, one block west of the Medical Center. No modifications to these offsite facilities are proposed as a part of the UCI Medical Center LRDP project.

2.1.1 OFFSITE SURROUNDING LAND USES

The UCI Medical Center is situated in an urbanized area of the City of Orange. Land uses in the immediate vicinity of the project site are depicted on Exhibit 2-3 and include the following:

- North: Chapman Avenue, I-5, and a vacant parcel. The vacant parcel of land owned by the California Department of Transportation (Caltrans) is bound by I-5 to the north and east, Chapman Avenue to the south, and The City Drive to the west. Further to the north (north of I-5) are office, commercial, and mobile home uses and the Edison International Field of Anaheim, the baseball stadium for the Anaheim Angels. Residential uses are located north of Chapman Avenue.

- South: Orangewood Children's Home, City of Orange Fire Station, the County of Orange Betty Lou Lamoreaux Justice Center, Orange County Juvenile Hall, and the Theo Lacy Facility (county jail). Further to the south is SR-22.

- East: I-5. Further to the east is the Santa Ana River (east of I-5) and State Route 57 (SR-57).

- West: The City Drive, The Block at Orange shopping center, office buildings including the 20-story City Tower One building, and the 19-story Doubletree Hotel. The six-story Country Inn Hotel is located on the northwest of Chapman Avenue and The City Drive.

Administrative functions for the UCI Medical Center are also located at 200 South Manchester Avenue, on the southwest corner of Manchester Boulevard/The City Way and Chapman Avenue; "Building 200" is west of the Medical Center.

2.1.2 ONSITE LAND USES

The UCI Medical Center site is relatively flat (minimal topographical relief). Onsite elevations range from 129 to 135 feet above mean sea level (msl) across the 33-acre site. The project site is currently developed and used as a medical center for UCI. The UCI Medical Center serves as a teaching hospital and clinical facility for the UCI College of Medicine, located at the UCI main campus in the City of Irvine. Housing more than 300 medical specialities, the existing Medical Center is the only university hospital in Orange County. The Medical Center provides acute care and general care services, including a neuropsychiatric center, the UCI Regional Burn Center, Level I Trauma Center (the only one in Orange County), and the National Cancer Institute-designated Chao Family Comprehensive Cancer Center.

As depicted on Exhibit 2-4, the existing UCI Medical Center has four functional zones: *Inpatient*, *Ambulatory*, *Academic/Research/Administrative*, and *Service*.

- ***Inpatient Facilities*** include the hospital and neuropsychiatric facilities.

- ***Ambulatory Care Facilities*** provide outpatient services, including cancer care, occupational therapy, dialysis, and diagnostic services.

- ***Academic/Research/Administrative Facilities*** include academic, department, and research offices, research and psychiatry labs, classrooms, and medical library. Administrative facilities are located throughout the Medical Center to support medical and research uses at the facility.

- ***Service Facilities*** include storage facilities, the central plant, and electrical facility.

The Medical Center contains approximately 910,365 gross square feet (gsf) of development within 43 structures and facilities, distributed between four categories of facilities/functional zones. Table 2-1 quantifies the existing land uses associated with these four land use categories at the UCI Medical Center. The locations of structures and facilities at the Medical Center are depicted on Exhibit 2-5. Characteristics of these structures and facilities are presented in Table 2-2.

TABLE 2-1
UCI MEDICAL CENTER
CATEGORIES OF FACILITIES

Facility Category	Existing Area (gsf)[a.]	Existing Beds in Use[b.]
Inpatient	374,695	391 beds
Ambulatory Care	167,633	n/a
Academic/Research/Administrative	320,643	n/a
Service	47,394	n/a
Total	**910,365 gsf**	**391 hospital beds**

a. gsf: gross square feet.
b. The UCI Medical Center is licensed for 453 beds (source: Office of Statewide Health Planning and Development, April 19, 2001).
Source: Lee, Burkhart, Liu, Inc., July 1999.

Regional Location

Exhibit 2-1

UCI Medical Center LRDP EIR
University of California, Irvine

N

Scale: 1" = 20 miles

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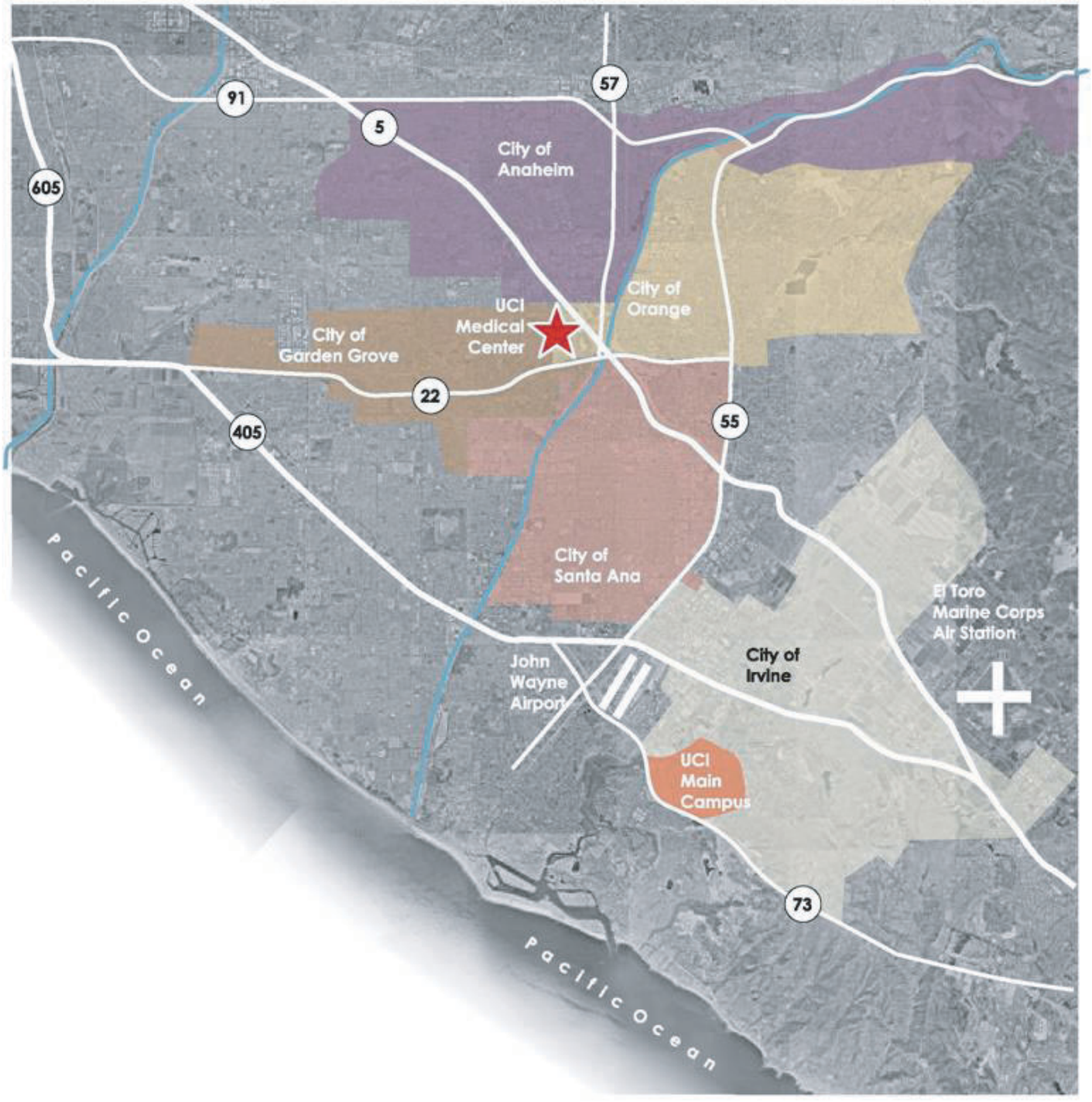
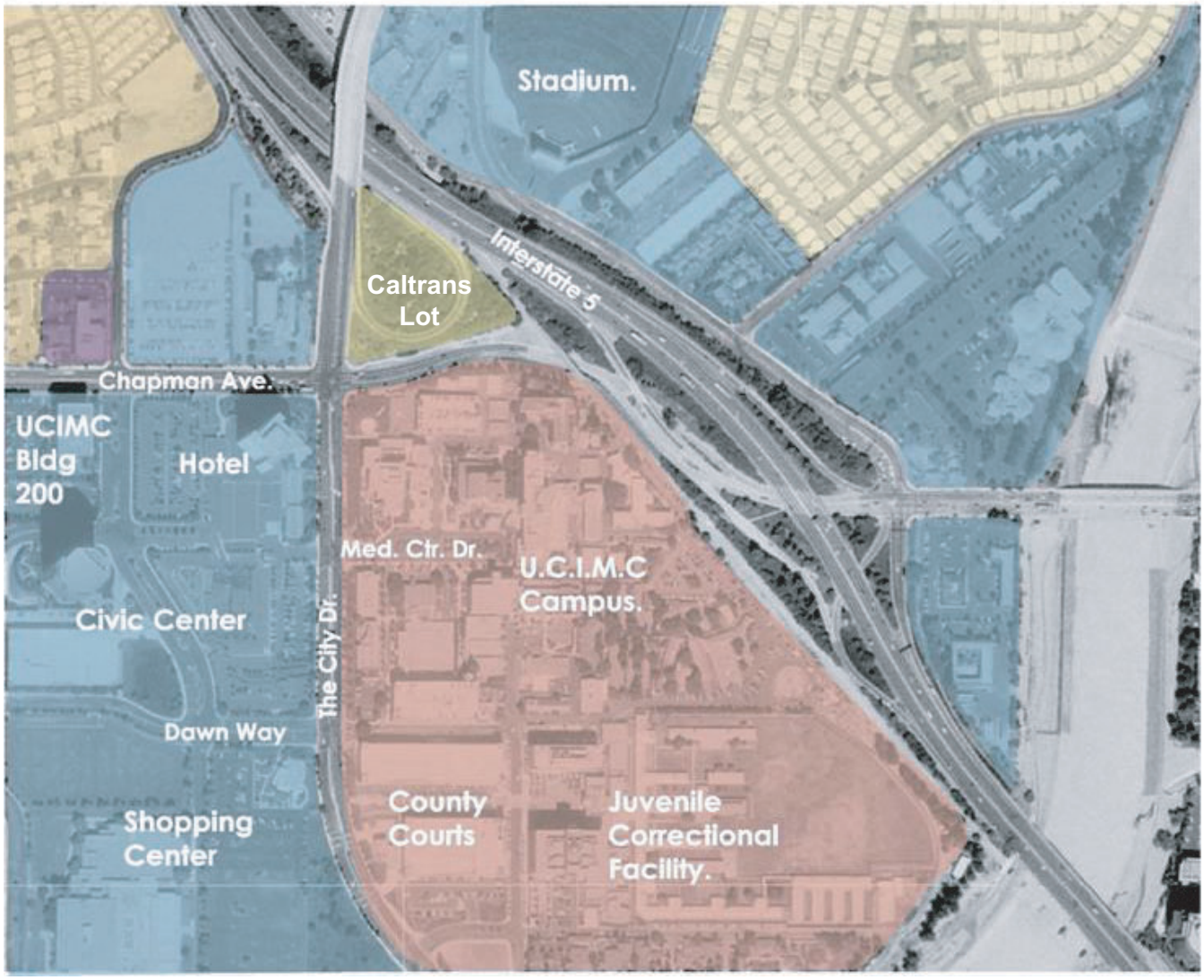


Vicinity Map **Exhibit 2-2**

UCI Medical Center LRDP EIR
University of California, Irvine

N
Scale: Not to Scale
Source: Lee, Burkhart, Liu

BonTerra CONSULTING



SURROUNDING AREA

LEGEND

- Public Facilities / Quasi Public
- Low Density Residential
- Low Medium Density Residential
- Commercial
- Office / Professional
- Caltrans Lot

Surrounding Area

Exhibit 2-3

UCI Medical Center LRDP EIR
University of California, Irvine

N

Scale: Not to Scale
Source: Lee, Burkhart, Liu

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CURRENT LAND USE

LEGEND

- Inpatient Services
- Ambulatory Services
- Academic / Research / Admin
- Service
- Open Space
- Transition Area
- Site Boundary

Current Land Use Designations

Exhibit 2-4

UCI Medical Center LRDP EIR
University of California, Irvine

N
Scale: Not to Scale
Source: Lee, Burkhart, Liu

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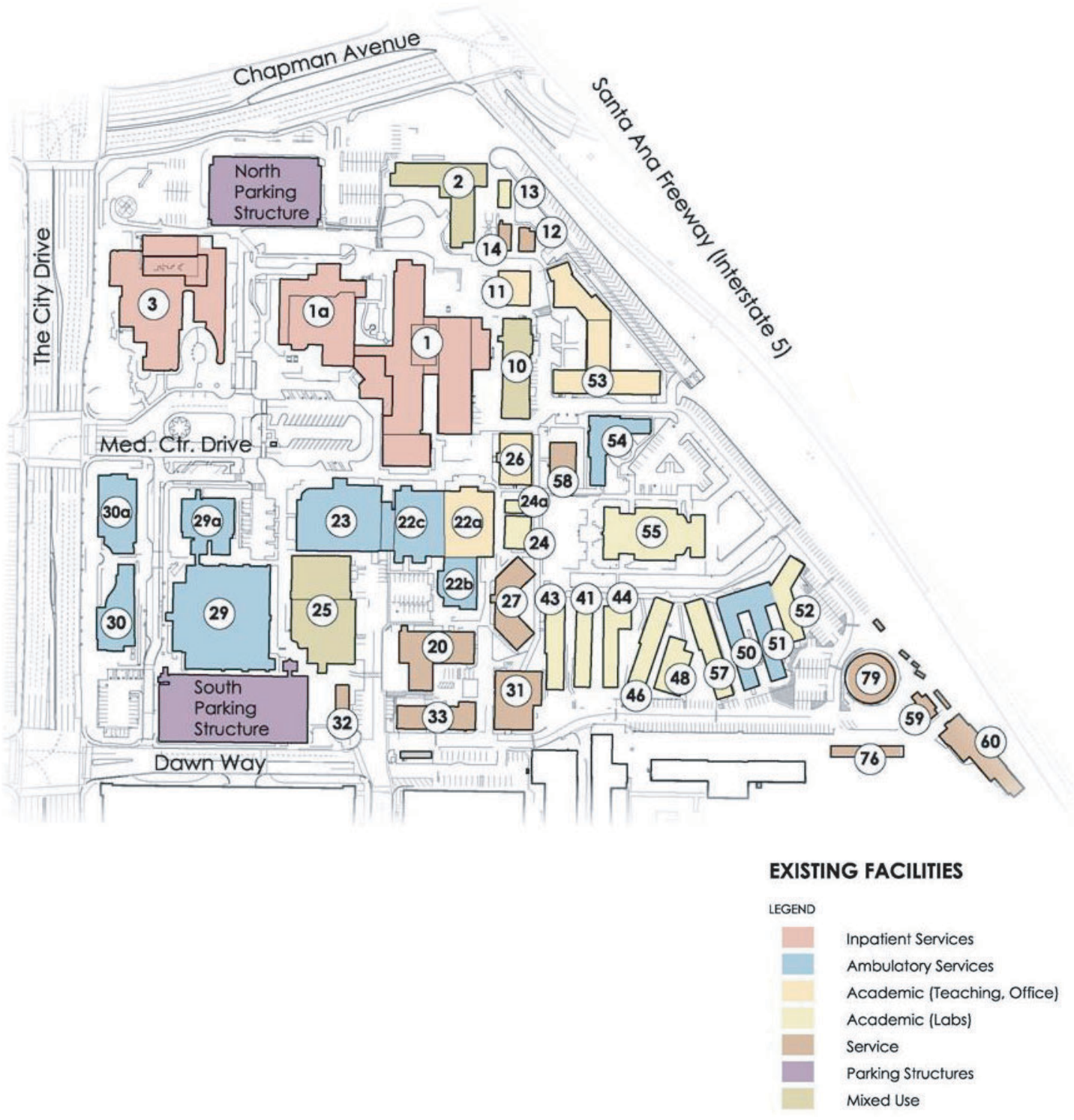

Existing Facilities

Exhibit 2-5

UCI Medical Center LRDP EIR
University of California, Irvine

Scale: Not to Scale
Source: Lee, Burkhart, Liu

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TABLE 2-2
CHARACTERISTICS OF EXISTING STRUCTURES

Building Number	Building Description	gsf[a.] or Beds	Number of Floors	Year Constructed
INPATIENT FACILITIES				
1	Main Hospital: all adult critical care units, all pediatric and infant beds, several Medical/Surgical units, Burn Unit, Acute Rehabilitation Unit, Surgery/Recovery, Cardiac Cath, Nuclear Medicine, Laboratory, Pharmacy, Dietary, Administration	181,500 205 beds	6	1962
1a	Medical Center Tower: Perinatal Services, Progressive Care (monitored unit), Oncology beds, several Medical/Surgical units, Emergency Department, Urgent Care, Occupational Medicine, Diagnostic Imaging Services	101,105 102 beds	6	1981
2[b.]	Resident Services	1,319	4	1959
3	Neuropsychiatric Center: Adolescent, adult, geriatric, and research units; outpatient psychiatric care services	81,358 84 beds	3	1993
10	Pathology Laboratory Facilities	6,303	4	1914
52	Service Lab	3,110	1	1958
Subtotal: Inpatient Facilities				**374,695 gsf 391 beds**
AMBULATORY CARE FACILITIES				
22b	MRI Center	6,007	1	1984
22c	Diagnostic Services Center	17,509	3	1986
23	Chao Family Comprehensive Cancer Center	37,321	4	1991
29	Pavilion III	36,615	1	1973
29a	Pavilion III	16,416	2	1978
30	Pavilion I	18,525	2	1988
30a	Pavilion II	18,972	2	1989
50	Occupational Therapy	4,672	1	1958
51	Outpatient Dialysis	6,172	1	1958
54	Physical Therapy	5,424	1	1952
Subtotal: Ambulatory Care Facilities				**167,633 gsf**
ACADEMIC/RESEARCH/ADMINISTRATIVE FACILITIES				
2	Academic Offices; Administrative Services	41,221	4	1959
10	Academic Offices and Support Services	20,181	4	1914
11	Department Offices	3,555	1	1975
13	Storage	852	1	1943
20	Administrative Offices	2,739	1	1948
22a	Medical Library	33,643	3	1982
23	Chao Family Comprehensive Cancer Center	34,038	4	1991
24	Research Lab	1,900	1	1949
24a	Research Lab	1,000	1	1949
25	Academic Offices, Administrative Services, Storage, Medical Records Facility	24,839	3	1948
26	Academic Offices; Administrative Offices	6,040	1	1972

TABLE 2-2 (continued)
CHARACTERISTICS OF EXISTING STRUCTURES

Building Number	Building Description	gsf[a.] or Beds	Number of Floors	Year Constructed
33	Academic Offices/Resources	1,771	1	1943
41	Research Lab	3,813	1	1943
43	Research Lab	4,228	1	1943
44	Volunteer Services/Department Offices	5,193	1	1949
46	Research Lab	4,906	1	1943
48	Research Lab	3,851	1	1971
52	Research Lab	1,444	1	1958
53	College of Medicine Office Building: academic offices, instructional space	51,538	4	1958
55	UCI Health Sciences Laboratories	59,200	4	1997
57	Research Lab	5,114	1	1943
58	Academic Offices; Administrative Services	2,964	1	1972
60	Vivarium	6,613	1	1969
Subtotal: Academic and Research Facilities				**320,643 gsf**
SERVICE FACILITIES				
10	Storage	1,161	4	1914
12	Hospital Storage	1,313	1	1914
14	Hospital Storage	1,306	1	1914
20	Facilities Services/Facilities Planning; Design and Construction	7,796	1	1948
25	Facilities Services	11,960	3	1948
27	Storage	6,153	1	1929
31	Steam Plant	9,383	1	1958
32	Primary Electrical Facility	3,800	1	1981
33	Facilities Management/Facilities Services	4,037	1	1943
59	Storage	350	1	1955
76	Storage	135	1	1948
Subtotal: Service Facilities				**47,394 gsf**
PARKING				
72	North Parking Structure	318 spaces		
0	South Parking Garage	675 spaces		
–	Surface Parking	597 spaces		
Subtotal: Parking				**1,590 spaces**
MEDICAL CENTER TOTAL				**910,365 gsf** **391 beds** **1,590 parking spaces**

a. gsf: gross square feet
b. Gross square feet of certain buildings is allocated between the four functional zones: *Inpatient*, *Ambulatory*, *Academic/Research/Administrative*, and *Service*.

Sources: Lee, Burkhart, Liu, Inc., July 1999; UCI Medical Center, 2001.

Circulation and Access

Onsite Access

As depicted on Exhibit 2-6, the primary access into the Medical Center is from The City Drive onto Medical Center Drive. Dawn Way is the entrance to the adjacent County of Orange property, but also provides access to the Medical Center. Medical Center use of Dawn Way is predominately for access to patient/public/staff parking and provides service vehicle circulation. There is limited vehicular access to the eastern portion of the campus; existing routes are circuitous.

Patient Care Access

Medical Center Drive provides direct drop-off and pick-up access to all patient care facilities that are located in the Inpatient zone and the Ambulatory Care zone. Vehicular access is indirect and difficult for those patient care functions located at the back of the site in the Academic/Research/ Administrative Zone.

Emergency Access

There are two emergency access routes available to the public. The primary emergency access route is from the main entrance at Medical Center Drive; the secondary access route is from Chapman Avenue. There is no dedicated emergency access drive associated with the Medical Center. Ambulances and other emergency vehicles generally access the Medical Center from Chapman Avenue; this is the most direct route to the Emergency Department.

The UCI Medical Center helistop provides emergency helicopter access. The helistop is located on-grade near the southeast corner of The City Drive at Chapman Avenue. The Federal Aviation Administration (FAA) approved flight path is to and from the northeast, which is the prevailing wind direction. Upon arrival, patients are transported along an exterior path to a controlled access point within the Emergency Department. The Medical Center averages four to six flights per month.

Pedestrian Circulation

Primary pedestrian paths are sited in north-south and east-west directions, linking the South Parking Structure and the Ambulatory zone to the Inpatient zone facilities. Similar to the vehicular system, pedestrian circulation is more circuitous in an east-west direction.

Pedestrian circulation is also provided between the Medical Center and offsite uses. Staff walk to/from the Medical Center's 200 Building located one block west of the facility across The City Drive. Pedestrians can also cross The City Drive to visit The Block shopping center which contains restaurant, entertainment, and retail uses.

Parking Facilities

As identified in Table 2-3 and shown on Exhibit 2-7, Medical Center parking is provided in two onsite parking structures and surface parking lots throughout the Medical Center site totaling 1,590 spaces. Because there is insufficient onsite parking to serve the Medical Center, the University currently leases 875 offsite parking spaces to serve the needs of the existing facility. Because of the short-term nature of these leases, these offsite locations cannot be assumed as a long-term source of parking for the LRDP project.

TABLE 2-3
UCI MEDICAL CENTER
ONSITE AND OFFSITE PARKING

Parking Description	Parking Spaces	Number of Floors
Onsite Parking		
North Parking Structure	318	4
South Parking Garage	675	6
Surface Parking	597	n/a
Total Onsite Parking	**1,590 parking spaces**	
Offsite Parking		
Various Locations	875	n/a
Total Offsite Parking	**875 parking spaces**	
Total Onsite and Offsite Parking	**2,465 parking spaces**	
Source: UCI Medical Center, August 1999.		

Onsite parking structures are located along the perimeters of the Medical Center. The South Parking Structure is within the Ambulatory Care zone and provides patient and visitor parking, as well as limited staff parking. The North Parking Structure is reserved for staff and physicians. Emergency Department visitors can use the designated parking spaces located to the north of Building No. 1a or in the North Parking Structure.

Plant and Utility Infrastructure

As depicted on Exhibit 2-8, utilities at the Medical Center are provided from a combination of centralized plant facilities and decentralized services. The centralized plant facilities include the Steam Plant (Building No. 31) and the Primary Electrical Facility (Building No. 32). Chilled water is provided at each building.

Steam Plant

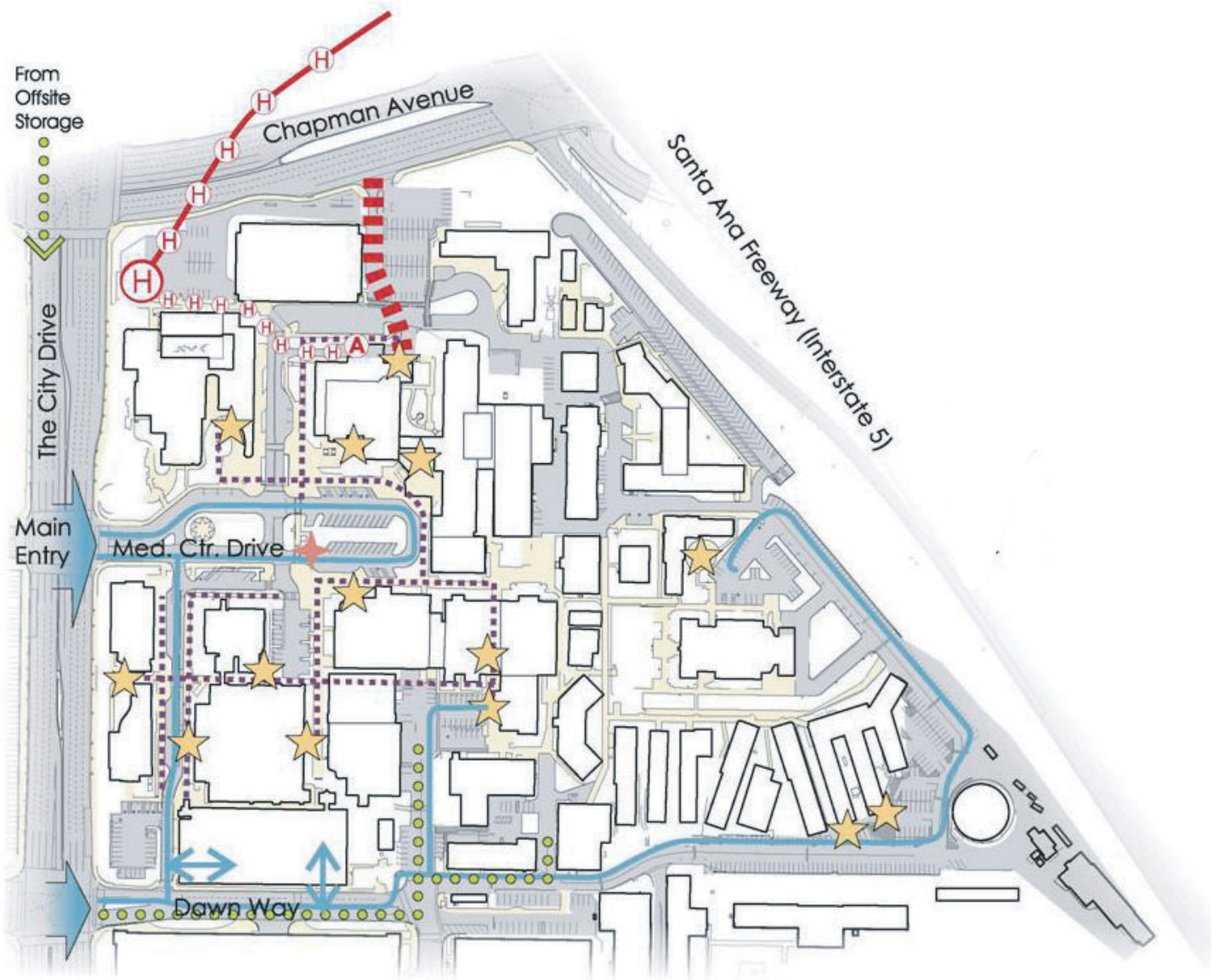
The Steam Plant (Building No. 31) provides high-pressure steam to most of the structures at the Medical Center for heating and domestic hot water. The hospital uses steam for sterilization and humidification.

Gas and Electrical Power

The Medical Center is served by Southern California Gas Company. The Primary Electrical Facility (Building No. 32) supplies normal and emergency power to the entire Medical Center via 5kV service.

Distribution System

Utilities are distributed through the Medical Center via two routes: an underground utility tunnel and an overhead canopy distribution system. The utility tunnel runs from the plant facilities in the south



SITE CIRCULATION

LEGEND

- Patient / Visitor Vehicular
- Patient / Visitor Pedestrian
- Service Vehicular
- Emergency Vehicular
- Helicopter Flight Path
- Helicopter to E.R. Path
- Ambulance Entry
- Patient /Public Access Point
- Information Kiosk

Existing Site Circulation

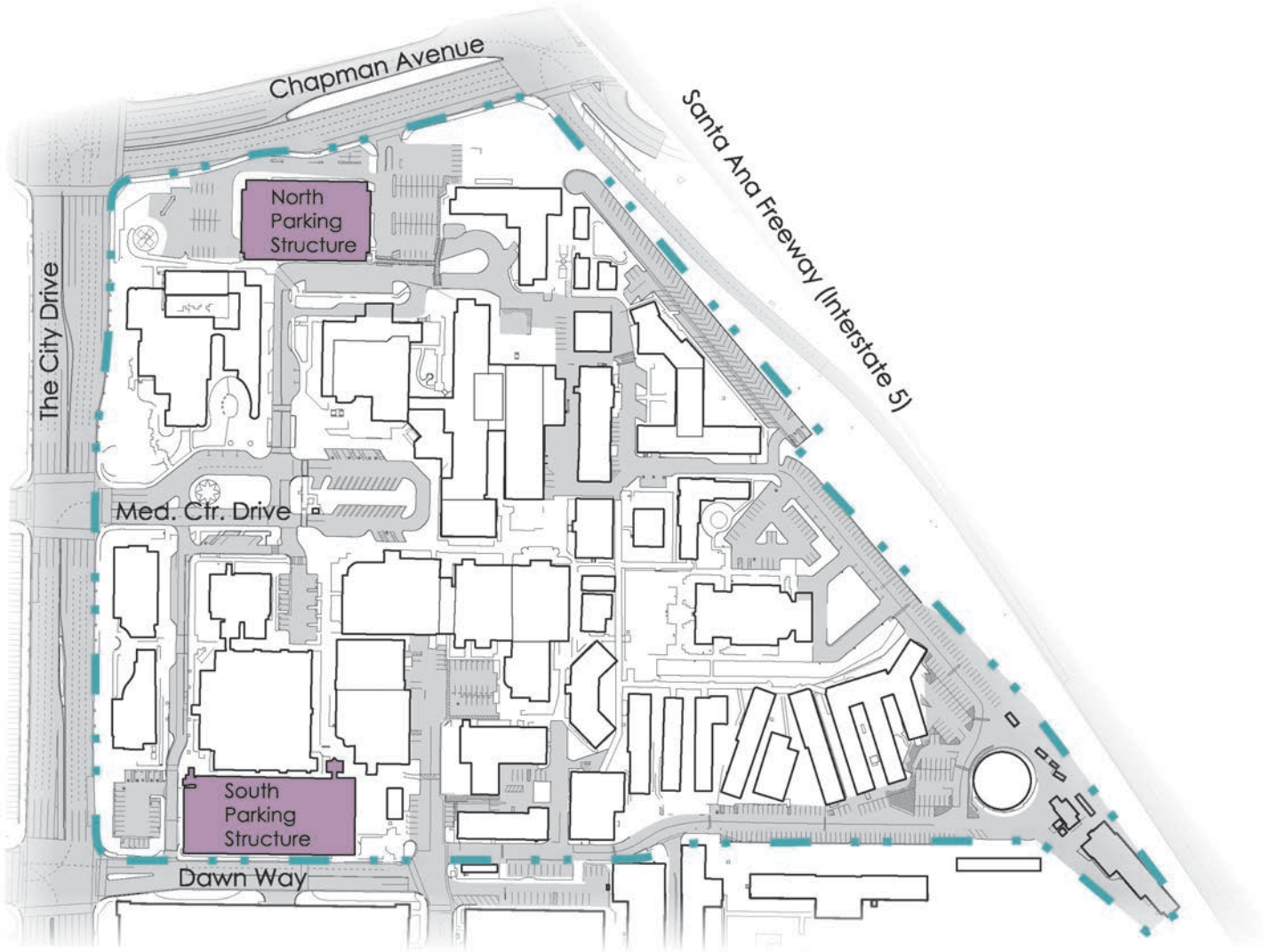
Exhibit 2-6

UCI Medical Center LRDP EIR
University of California, Irvine

N

Scale: Not to Scale
Source: Lee, Burkhart, Liu

BonTerra CONSULTING



EXISTING PARKING

LEGEND

Existing Parking Structures

Existing Onsite Parking

Exhibit 2-7

UCI Medical Center LRDP EIR
University of California, Irvine

N

Scale: Not to Scale
Source: Lee, Burkhart, Liu

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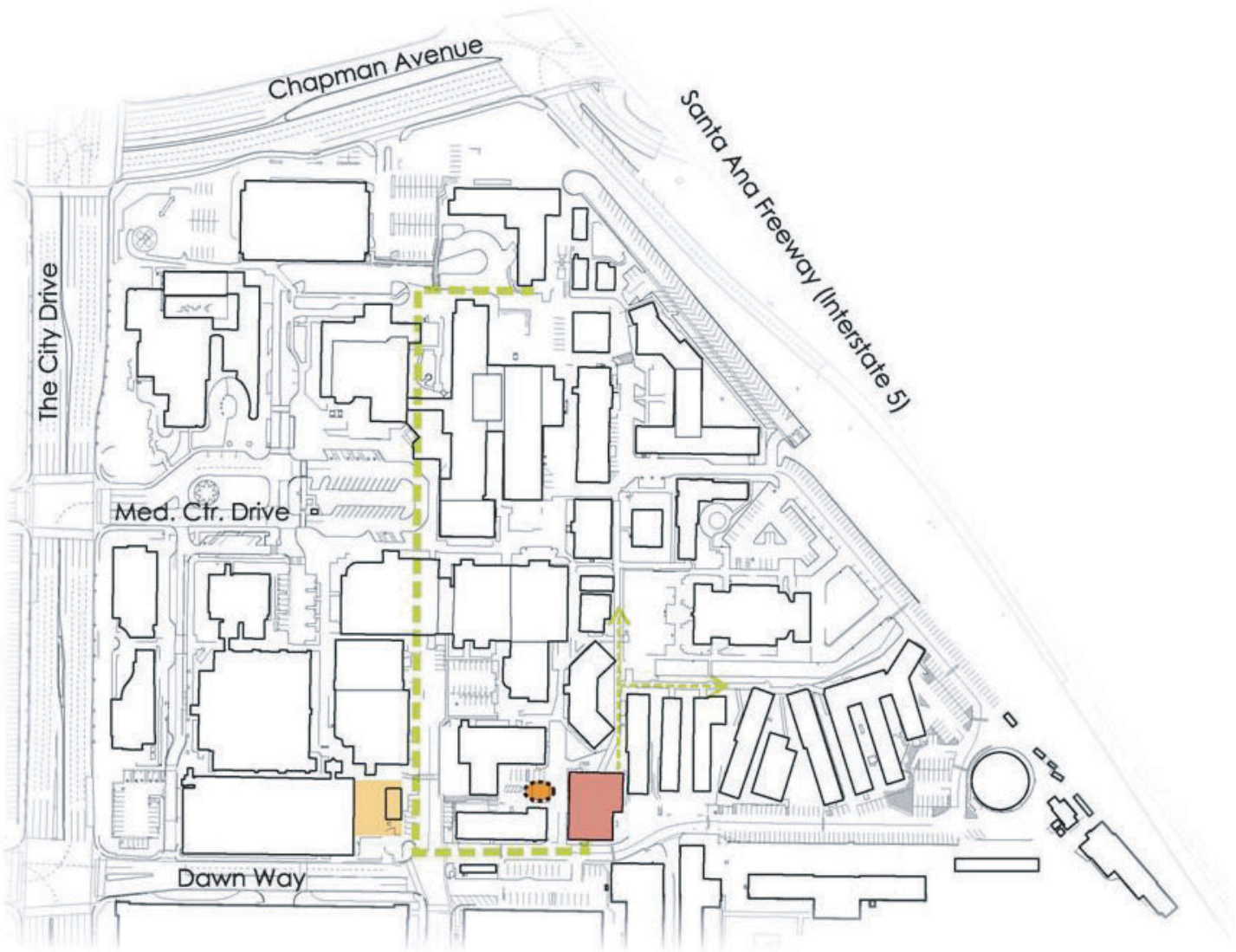

UTILITY INFRASTRUCTURE

LEGEND

- Underground Utilities Tunnel
- Underground Fuel Tank
- Utilities (Canopy)
- Steam Plant
- Primary Electrical Facility

Utility Infrastructure

Exhibit 2-8

UCI Medical Center LRDP EIR
University of California, Irvine

N

Scale: Not to Scale
Source: Lee, Burkhart, Liu

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to the northern portion of the site. The overhead canopy distribution system (located in the covered walkways) provides service primarily to the eastern portion of the Medical Center.

Water, Sanitary Sewer, and Storm Drains

The domestic water system is comprised of a public and private system. The public water system is provided by the City of Orange and connects to offsite water mains at four locations: two at The City Drive and two at the southern boundary of the Medical Center. The City of Orange owns and operates water mains (varying from eight-inch to 16-inch lines), as well as various water facilities in the Medical Center including a water reservoir. The University-owned private system provides irrigation water and additional potable water to meet the requirements of the Medical Center.

A City of Orange 800,000 gallon water reservoir is located in the southeast portion of the Medical Center site. In addition to the city reservoir, the City of Orange has a pump station (pumping water from the reservoir into the city's water system), a well site (non-operational), and water mains located on the project site. The reservoir provides additional water storage capacity for the City of Orange water system which serves both the Medical Center and City of Orange customers. An additional city well site is planned to be located north of and adjacent to the existing reservoir.

The sanitary sewer system at the Medical Center is a private system connected to the City of Orange's local sewer lines and discharges into the Sanitation Districts of Orange County's sewer line system. The Medical Center conveys storm water runoff through an underground system that discharges into the Santa Ana River.

Communication Systems

UCI's Data Center is located offsite in Building 200 at the corner of Chapman Avenue and Manchester Avenue. Network connections to the Medical Center are provided via two trunk lines of multi-mode fiber extending from Chapman Avenue through the North Parking Structure and into the utility tunnel. The main point of entry is from The City Drive where lines travel along Dawn Way and into the utility tunnel. A redundant connection is provided via a T1 line to Building 200. Phone service is provided by Pacific Bell.

Other Onsite Land Uses

In addition to the UCI Medical Center facilities, the site contains easements and uses outside the ownership of the University. Easements are provided through the site for the provision of onsite and offsite services, including water, sewer, natural gas, electricity, and telecommunications.

A portion of a United States Department of Defense military jet fuel pipeline and easement is located within the Medical Center site. An eight-inch-diameter jet fuel line runs underground in a generally north-to-south direction at the north and east perimeters of the Medical Center property. The pipeline originates in the City of Norwalk and terminates at the Marine Corps Air Station, El Toro. The line is no longer in use and has been filled with an inert gas by a contractor to the Department of Defense.

2.2 UCI MEDICAL CENTER LONG RANGE DEVELOPMENT PLAN

2.2.1 BACKGROUND AND PURPOSE

In 1977, the University of California, Irvine prepared the *University of California, Irvine Medical Center Redevelopment Master Plan*. Prior to 1977, the University initiated plans for the upgrading

of the Medical Center as a part of the transfer to the facilities from the County of Orange to the University of California, Irvine. The University and its College of Medicine evaluated the Medical Center, identified assets and deficiencies, and established goals and objectives for the Medical Center to achieve in order to become a first class teaching hospital. Out of this effort, the University established a program outlining the initial steps to direct the redevelopment of the Medical Center. As depicted in Exhibit 2-9, key elements of the *Redevelopment Master Plan* were:

- Distinct land use zones with ambulatory services at the front of the site for convenience and accessibility.
- Creation of a pedestrian spine around a cluster of buildings.
- Improved vehicular circulation with a loop road system.
- Parking outside the loop and near the uses they serve.
- Consolidation of inpatient services to fewer buildings.
- De-intensification of use of the oldest buildings with construction of new, highly flexible building types to house those users requiring the most intensive space.

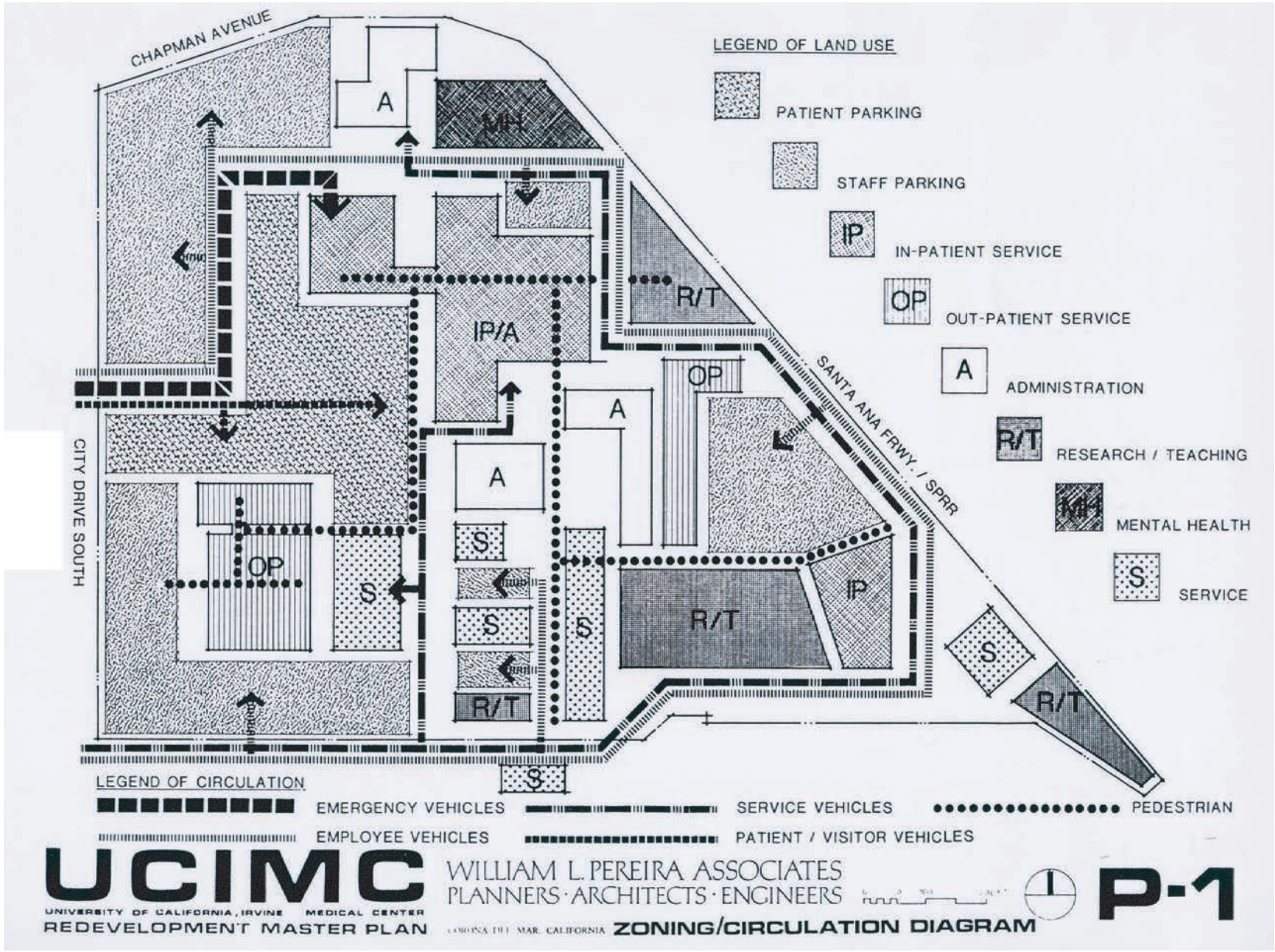
Each campus and medical center in the University of California (UC) system is required to periodically reexamine its academic goals and formulate physical plans to support these goals. This reexamination takes the form of an LRDP (or formerly a Master Plan) which guides the physical development of a campus to achieve the teaching, research, patient care, and community service goals of the institution. While some components and objectives of the *University of California, Irvine Medical Center Redevelopment Master Plan* have been implemented, 25 years have passed since its preparation and it no longer reflects the goals and needs of the UCI Medical Center. More detailed information regarding the Redevelopment Master Plan is provided in Section 3.7, Land Use and Planning, of this EIR.

As such, the proposed UCI Medical Center LRDP will serve as the "general plan" to guide the physical development of the UCI Medical Center. The LRDP identifies goals to be achieved during a specified period or "horizon year," and estimates the types and amounts of new building space required to achieve these goals. The "horizon year" for this LRDP is 2020. Development activities at the main UCI campus in the City of Irvine are guided by a separate LRDP and will not be amended as a part of the proposed UCI Medical Center project.

2.2.2 UCI MEDICAL CENTER LRDP PROJECT OBJECTIVES

The UCI Medical Center's mission and strategic goals are the guiding principles for the physical planning of the Medical Center. The Medical Center's mission is "To provide high quality patient care in a manner that supports the education and research programs of the UCI College of Medicine." These principles are also based on the vision that the UCI Medical Center is a dynamic organization that is:

- Dedicated to continuously improving quality of care and organizational performance;
- A financially sound clinical enterprise that provides for the continuum of care necessary to fulfill the mission of the College of Medicine;



1977 UCI Medical Center Redevelopment Master Plan **Exhibit 2-9**

UCI Medical Center LRDP EIR, University of California Irvine

Source: William L. Pereira Associates

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- A recognized leader in providing for the advancement of medical care through teaching and research activities.

Adequate facilities that will enable the Medical Center to fulfill its mission and goals to the fullest extent possible are fundamental. UCI Medical Center's existing facilities have been evaluated as a part of an ongoing master planning process. The evaluation determined that there is a shortage of space at the Medical Center. As the Medical Center's functions continue to grow, space rationing will be required if no physical expansion of the Medical Center occurs. Future space needs will be prioritized so that available limited resources are assigned in a manner which best supports the Medical Center's mission.

The objectives of the proposed UCI Medical Center Long Range Development Plan project are:

- Update the UCI Medical Center Long Range Development Plan to best meet the UCI Medical Center's planning goals and current regulatory requirements;

- Serve as a framework for the physical development of the UCI Medical Center to provide adequate facilities in support of the strategic mission of the Medical Center;

- Establish a physical plan that represents the best possible relationship between the UCI Medical Center's teaching and research goals, patient care needs, site character, and allows for the proper integration with the surrounding community;

- Provide a high-quality physical environment for patients and their families, faculty, students, staff, and visitors;

- Meet the seismic retrofit and replacement needs of the UCI Medical Center required by state law (Senate Bill 1953) and the Office of Statewide Health Planning and Development (OSHPD) at the UCI Medical Center;

- Provide for the efficient staging of seismic retrofit projects and the economic utilization of existing facilities. Note: the seismic requirements for the Medical Center are addressed in Section 2.2.4 of the Project Description;

- Provide a critical mass of facilities necessary to support the future operational and research space needs of the UCI Medical Center;

- Provide adequate parking for both Phase I and full LRDP implementation.

- Accommodate new construction in order to provide the most flexible space for the highest priority functions;

- Accommodate the increasing need for medical services to the growing population in Orange County.

2.2.3 PATIENT AND EMPLOYMENT POPULATION PROJECTIONS

As previously noted, the UCI Medical Center LRDP is intended to better serve the local, existing population within Orange County. Table 2-4 identifies the projected patient care population for the UCI Medical Center. The total inpatient, outpatient, and emergency room patient population is expected to increase from an existing total of 462,121 patients, to 598,881 patients in 2010, and to 732,870 patients in 2020.

TABLE 2-4
EXISTING AND FUTURE UCI MEDICAL CENTER
PATIENT CARE PROJECTIONS

Patient Category	2001	Projected 2010	Projected 2020
Inpatient	93,459	112,150	126,170
Outpatient	326,662	436,331	550,000
Emergency Room	42,000	50,400	56,700
Total	**462,121**	**598,881**	**732,870**
Visitors	1,100,000	1,330,690	1,482,608
Total Patient and Visitors	**1,562,121**	**1,929,571**	**2,215,478**

Note: Existing and projected patient care figures refer to the number of patient visits.

Source: UCI Medical Center, April 2002.

Table 2-5 summarizes the existing and projected employment at the Medical Center.

TABLE 2-5
PHASE I AND FULL LRDP IMPLEMENTATION
PROJECTED EMPLOYMENT

Employee Category	2001	Projected 2010	Projected 2020
UCI Medical Center Staff	2,787	3,371	3,756
College of Medicine Staff	1,469	1,776	1,979
Faculty	489	635	748
Volunteer Faculty	900	900	900
Residents	250	250	250
Medical Students	184	184	184
Total	**6,079**	**7,116**	**7,817**

Source: UCI Medical Center, April 2002.

2.2.4 SAFETY REQUIREMENTS

In 1994, the Alfred E. Alquist Hospital Facilities Seismic Safety Act of 1983, state Senate Bill (SB) 1953, was amended as a result of the 1994 Northridge Earthquake to require that acute care health facilities are structurally retrofitted, replaced, or decommissioned to meet current seismic regulations. All acute care facilities must be capable of remaining fully functional and operational for at least 72 hours after a major earthquake in order to provide required emergency medical services to those in need. Acute care facilities are required to develop and submit a compliance plan to the California Office of Statewide Health Planning and Development (OSHPD) indicating the intent and actions to be taken to ensure compliance. For hospitals constructed before 1973, such as the Main Hospital at the UCI Medical Center, structural retrofits are required by 2008 for life safety, by 2030 for fully operational acute care services, and by 2002 for nonstructural retrofits.

An evaluation was performed for all buildings within the UCI Medical Center in order to determine the potential for continued use of existing facilities in the future. Each building was rated based on the following criteria (listed from highest to lowest priority):

- Seismic status (Senate Bill 1953 and UC standards)
- General condition
- Age
- Construction type
- Number of floors/density
- Building efficiency (usable area vs. gross area)
- Image

The results of this evaluation allowed for buildings to be categorized as Good, Fair, or Poor Facilities; no buildings were rated Very Poor. These categories are defined in the University of California Seismic Safety Policy as follows:

Good seismic performance rating would apply to buildings and other structures whose performance during a major seismic disturbance "is anticipated to result in some structural and/or nonstructural damage and/or falling hazards" that would not *significantly* jeopardize life. Buildings and other structures with a "Good " rating would have a level of seismic resistance such that funds need not be spent to improve their seismic resistance to gain greater life safety, and would represent an acceptable level of earthquake safety.

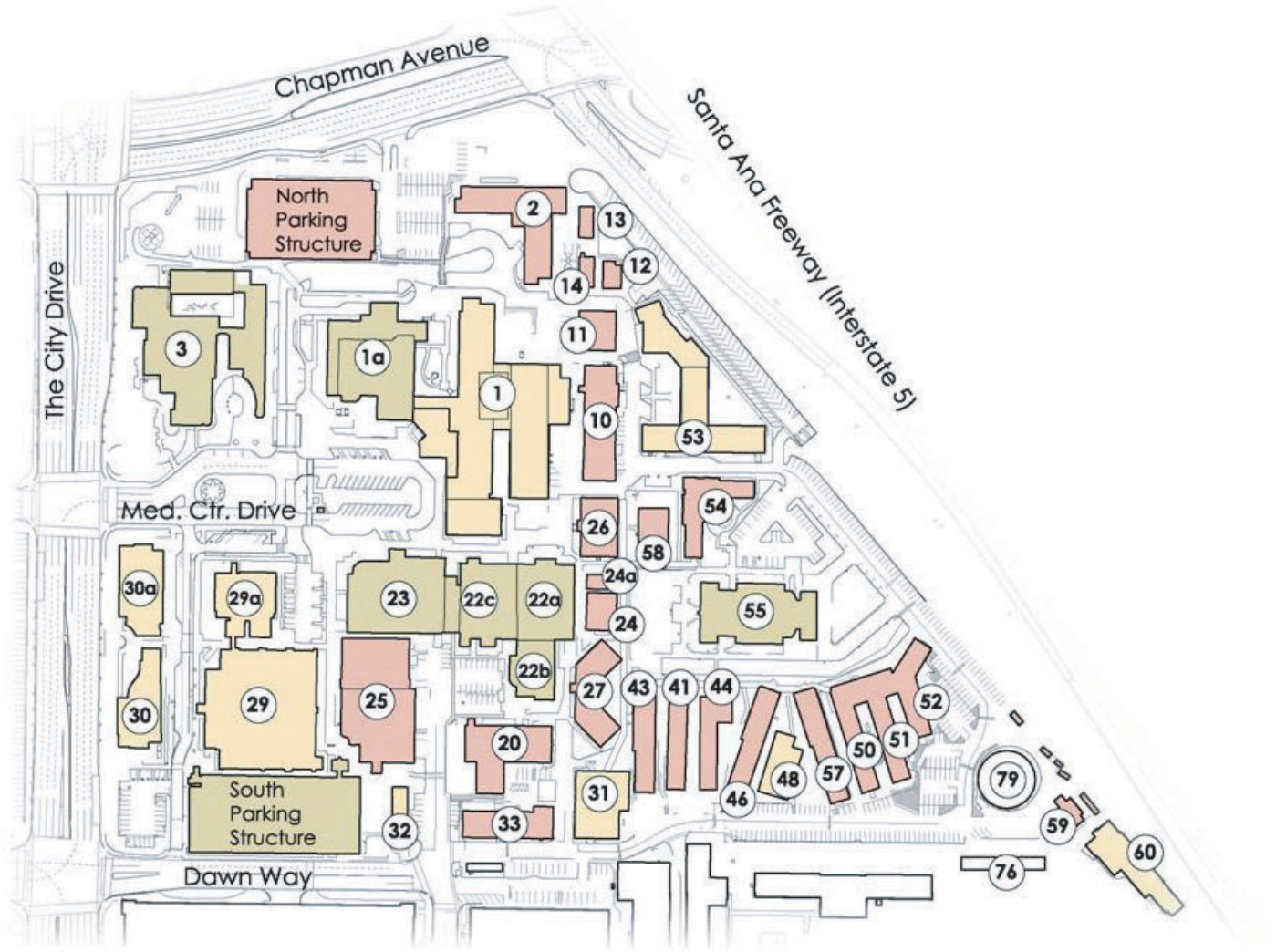
Fair seismic performance rating would apply to buildings and other structures whose performance during a major seismic disturbance is anticipated to result in structural and nonstructural damage and/or falling hazards that would represent low life hazards. Buildings and other structures with a "Fair" seismic performance rating would be given a low priority for expenditures to improve their seismic resistance and/or to reduce falling hazards so that the building could be reclassified "Good."

Poor seismic performance rating would apply to buildings and other structures whose performance during a major seismic disturbance is anticipated to result in significant structural and nonstructural damage and/or falling hazards that would represent *appreciable* life hazards. Such buildings or structures either would be given a high priority for expenditures to improve their seismic resistance and/or to reduce falling hazards so that the building could be reclassified as "Good," or would be considered for other abatement programs, such as reduction of occupancy.

Building evaluation results are identified in Table 2-6; Exhibit 2-10 identifies the buildings evaluated. A majority of the Medical Center facilities are currently beyond their useful lives (60 percent of buildings are rated Poor), and many more facilities will reach this stage over the next several years. Facilities rated Good typically had favorable seismic ratings, were more recently built (generally ranging from 1982 to 1997), were in good condition, and provided increased site density. In addition, current building codes have responded to changes in health care delivery, and new technology with an emphasis on health and safety issues. These changes have increased the required space for building components such as minimum clear areas, new required clinical rooms/spaces, access for the disabled, and functional relationships.

TABLE 2-6
BUILDING EVALUATION RESULTS

Building No.	Good Quality	Building No.	Fair Quality	Building No.	Poor Quality
1a	Medical Center Tower	26	Academic Offices; Administrative Offices	1	Main Hospital
3	Neuropsychiatric Center	29, 29a	Pavilion III	2	Resident Services; Academic Offices; Administrative Services
22a	Medical Library	30, 30a	Pavilions I and II	10	Pathology Laboratory Facilities; Academic Offices; Support Services; Storage
22b	MRI Center	31	Steam Plant	11	Departmental Offices
22c	Diagnostic Services Center	32	Primary Electrical Facility	12, 13, 14	Hospital Storage
23	Chao Family Comprehensive Cancer Center	48	Research Laboratory	20	Administrative Offices; Facilities Services and Facilities Planning; Design and Construction
55	UCI Health Sciences Laboratories	53	College of Medicine Office Building	24, 24a	Research Laboratory
0	South Parking Garage			25	Academic Offices; Administrative Services, Storage, Medical Records Facility; Facilities Services
				27	Storage
				33	Facilities Management/Facilities Services; Academic Offices/Resources
				41, 43, 46, 57	Research Laboratory
				44	Volunteer Services; Departmental Offices
				50	Occupational Therapy
				51	Outpatient Dialysis
				52	Service Lab; Research Lab
				54	Physical Therapy
				58	Academic Offices; Administrative Services
				59	Storage
				60	Vivarium
				72	North Parking Structure
				76	Storage
				79	Reservoir



FACILITY EVALUATION

LEGEND

- Good
- Fair
- Poor

Facility Evaluation

Exhibit 2-10

UCI Medical Center LRDP EIR
University of California, Irvine

N

Scale: Not to Scale
Source: Lee, Burkhart, Liu

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2.2.5 UCI MEDICAL CENTER LRDP CONCEPTS

The proposed UCI Medical Center LRDP project integrates components of previous planning efforts with new concepts to meet long range planning goals. Factors such as future health care trends, demographics, the UCI Heath Sciences Strategic Plan, existing site and facility deficiencies, sound planning principles, and design goals have been considered in the development of this LRDP. These concepts are summarized in the following discussion:

Continuation of Previous Concepts

- ***Flexibility***–Develop a flexible physical framework to accommodate appropriate building siting, circulation, and infrastructure.

- ***Planning Zones***–Continue to concentrate functionally common services together into defined zones. The approach supports key adjacencies, allows efficient utility infrastructure, and provides flexibility for program growth and contraction.

- ***De-intensification***–Reduce the intensity of use for the oldest buildings and construct new, highly flexible building types to house those uses requiring the most intensive space (building infrastructure).

- ***Consolidation***–Regroup fragmented services to provide appropriate relationships and use.

- ***Circulation***–Improve site circulation by developing a clear loop road vehicular system that provides access to all zones.

- ***Parking***–Locate parking structures outside the loop and near the uses they serve.

New Concepts

- ***Academic Character***–Enhance the environmental character of the campus as an academic center through the use of formal building relationships, courts, pedestrian elements, etc.

- ***Density***–Increase the site density to an urban scale to provide needed expansion, increase open space, and improve circulation.

- ***Proactive Replacement Strategy***–Create opportunity sites for future facilities by removing outdated buildings. Whenever feasible, coordinate new building projects with demolition. This strategy will reduce interim relocations and operational fragmentation.

- ***Plant/Utility Infrastructure***–Strategically locate service facilities and distribution paths so that utility systems are provided in an efficient, yet flexible manner.

- ***Pedestrian Orientation***–Create a network of defined pedestrian paths to help unify the entire campus.

The following discussion identifies the key design elements intended to establish a physical planning framework to create an image that identifies the UCI Medical Center as a leading academic medical center.

Campus Identification

The UCI Medical Center campus is currently comprised of a collection of buildings of varying architectural styles with little relationship to each other. Transformation is needed to unify the Medical Center campus. Changes in the site's vehicular and pedestrian circulation to provide access to all site zones will help unify the campus. In addition, the following planning elements are intended to further the cohesiveness of the campus:

- Related architecture: building forms, mass, imagery
- Common material, color, and finish palettes for buildings, hardscapes, etc.
- Similar treatment of landscape elements
- Consistent signage

Design for Health and Healing

Changes in the health care industry are transforming the physical character of medical centers. Health care has become increasingly consumer-oriented with a focus on prevention and wellness and the creation of healing environments. Design elements that have been shown to have a positive affect on health and healing include:

- Natural light and views
- Gardens, water, and other landscape elements
- Places for meditation and spirituality
- Colors that tend to calm and soothe
- Materials and finishes that are not institutional in quality
- Sound/noise control elements
- Easy access to family members, care givers, and information
- Elements that emphasize privacy, promote independence, and provide control of a person's environment

Design for the Academic Environment

The physical environment of the UCI Medical Center can be enhanced to reflect its academic character through the use of the following design elements:

- Campus unification
- Timeless architecture
- Formal building relationships
- Clear building and site order
- Scale and proportion
- Campus "quadrangles" (open space, landscaped areas)
- Courts, plazas, and other carefully formed exterior spaces
- Open space
- Pedestrian pathways and devices
- Gardens and other landscape elements

2.3 PROJECT DESCRIPTION

The UCI Medical Center LRDP will allow for the phased reuse of the site with an intensification of facilities. The LRDP identifies building space, circulation, parking, and infrastructure sufficient to support the patient care, teaching, and research missions of the UCI Medical Center and UCI College of Medicine.

The LRDP identifies the general development and redevelopment areas within the existing Medical Center campus, where the following categories of facilities will be accommodated within one land use designation, *Academic Medical Center.* The one *Academic Medical Center* land use designation will be divided into three planning zones: the north, south, and east sectors.

- ***Inpatient Care.*** Includes all inpatient treatment facilities such as hospital and neuropsychiatric facilities.

- ***Ambulatory Care.*** Includes all outpatient services including primary care, cancer care, occupational therapy, dialysis, and diagnostic services.

- ***Instruction and Research.*** Includes all academic functions such as academic offices, teaching and research labs, classrooms, and libraries

- ***Administration/Office.*** Includes general administrative uses, medical office, and general office space.

- ***Service.*** Includes service support uses such as central plant, electrical facilities, laundry, child care, materials management, and waste management.

- ***Parking.*** Includes onsite surface parking, parking structures, and other infrastructure to support site parking and transportation.

To accommodate anticipated growth at the Medical Center, the intensity of development will increase. Inpatient facilities (e.g., hospital) will have the highest density. Intensification of development will allow for increased open space areas at the campus with an emphasis on areas between buildings. Medical Center Drive will be the primary open space and central organizational element on the campus.

2.3.1 LAND USE DESIGNATION

In order to guide the future siting of facilities and ensure that the Medical Center is redeveloped in a cohesive manner, the LRDP establishes a planning framework to organize the site, identifies planning zones to guide the design of facilities, and establishes general design principles to guide the design of future buildings.

Exhibit 2-11 depicts the LRDP Planning Framework, including the identification of entries, public open space, landscape framework, edge buffers, vehicular circulation, pedestrian circulation, and building opportunity sites. Future facilities will be planned within this framework to ensure the cohesive redevelopment of the site and establish a high quality physical environment. Certain elements of this framework exist today and will be strengthened through implementation of the LRDP.

Exhibit 2-12 depicts the LRDP Zoning. Although all LRDP uses will fall under one general land use designation, *Academic Medical Center*, specific planning zones have been established to guide the siting of future facilities, manage land use intensity, and plan for long-term infrastructure needs. The site is divided into three planning zones: the north, south, and east sectors. Permitted uses and land use intensities are identified for each sector in Table 2-7. Aggregate development within the three planning zones will not exceed the LRDP development program. Service uses and parking as described in the overall LRDP program will be distributed throughout the three zones to support each use.

TABLE 2-7
PLANNING ZONE PERMITTED USES

Planning Zone	Permitted Uses	Allowable Building Intensity[a.]
North Sector	Inpatient Care Ambulatory Care Instruction (Academic) Research Administrative Service Parking	High Density 955,277 gsf Maximum 10 levels
South Sector	Ambulatory Care Instruction (Academic) Research Administration Service Parking	Low and Medium Density 441,499 gsf Average 4 to 5 levels
East Sector	Academic/Research Administration Service Parking	Medium Density 505,073 gsf Average 4 to 5 stories
Total		**1,902,049 gsf**

a. In gross square feet (gsf).
Source: UCI, July 2002.

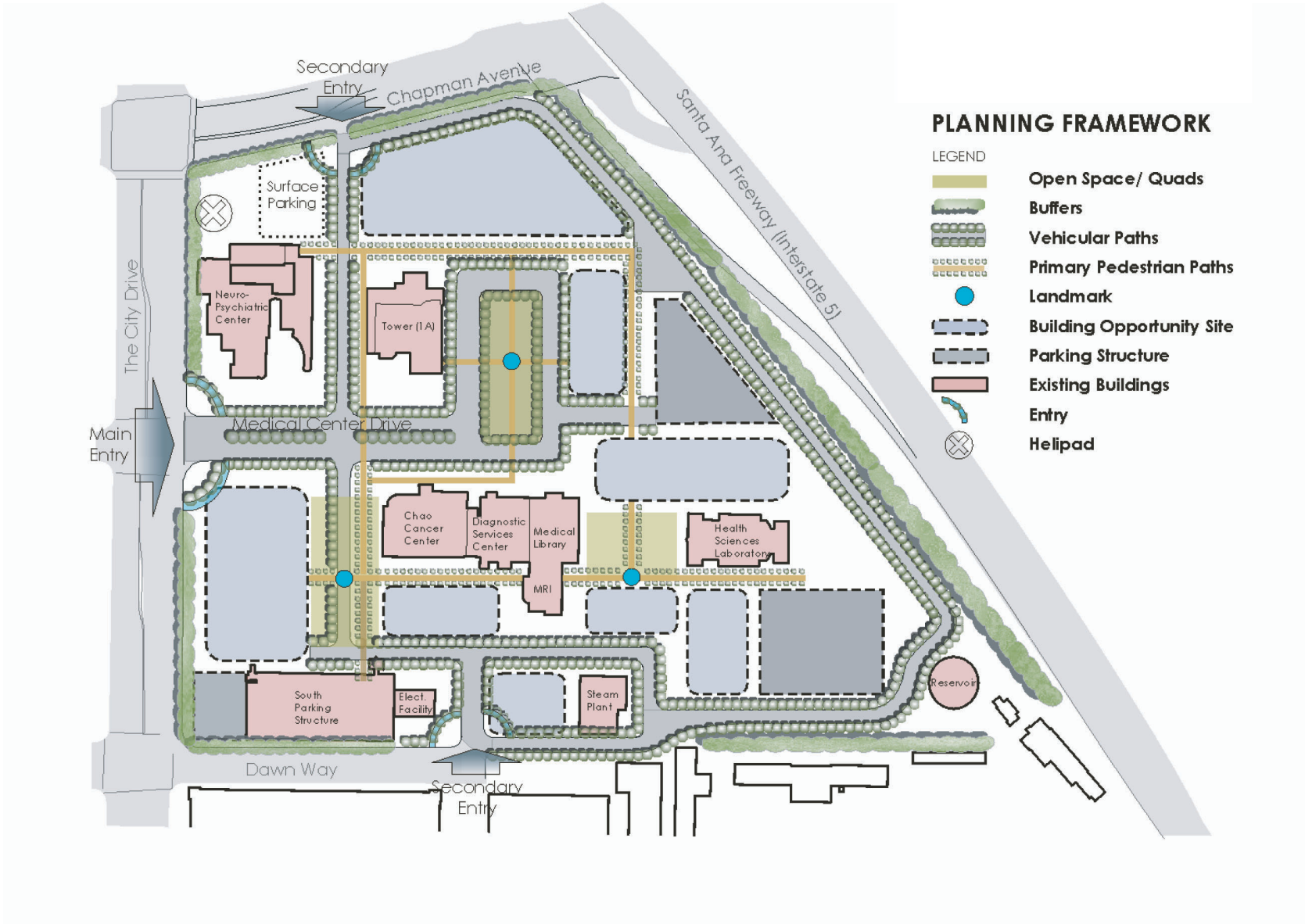
2.3.2 PROPOSED DEVELOPMENT

The proposed intensification of development at the UCI Medical Center will result in approximately 1,902,049 gsf of onsite facilities and 4,200 parking spaces, inclusive of new and retained onsite development. The proposed UCI Medical Center LRDP project assumes the provision of 527 hospital beds, an increase of 136 beds from the 391 beds in use (or an increase of 74 beds above the 453 licensed beds) at the Medical Center. Hospital beds will be distributed to respond to targeted programs and services, and to increase operational efficiency and cost effectiveness. Hospital beds are currently provided in three buildings: Building No. 1, Main Hospital; Building No. 1a, Medical Center Tower; and Building No. 3, Neuropsychiatric Center. Table 2-8 identifies the existing and proposed distribution of beds by service categories.

TABLE 2-8
EXISTING AND PROPOSED HOSPITAL BED DISTRIBUTION

Existing Location: Building No.	Hospital Bed Distribution	Existing Beds In Use	Net Change	Proposed Beds[a.] (Retained + New Construction)
1, 1a	Adult Critical Care	47	+43	90
1, 1a	Medical/Surgical	180	+74	254
1, 1a	Women & Children	80	+19	99
3	Neuropsychiatry	84	0	84
Total		**391 beds**	**+136 beds**	**527 beds[b.]**

a. With full LRDP implementation.
b. The UCI Medical Center is licensed for 453 beds. The net change between proposed beds and existing licensed beds is 74 additional beds.



Planning Framework

Exhibit 2-11

UCI Medical Center LRDP EIR, University of California Irvine

Scale: 1/4" = 100'
Source: Li, Burkhart, Liu

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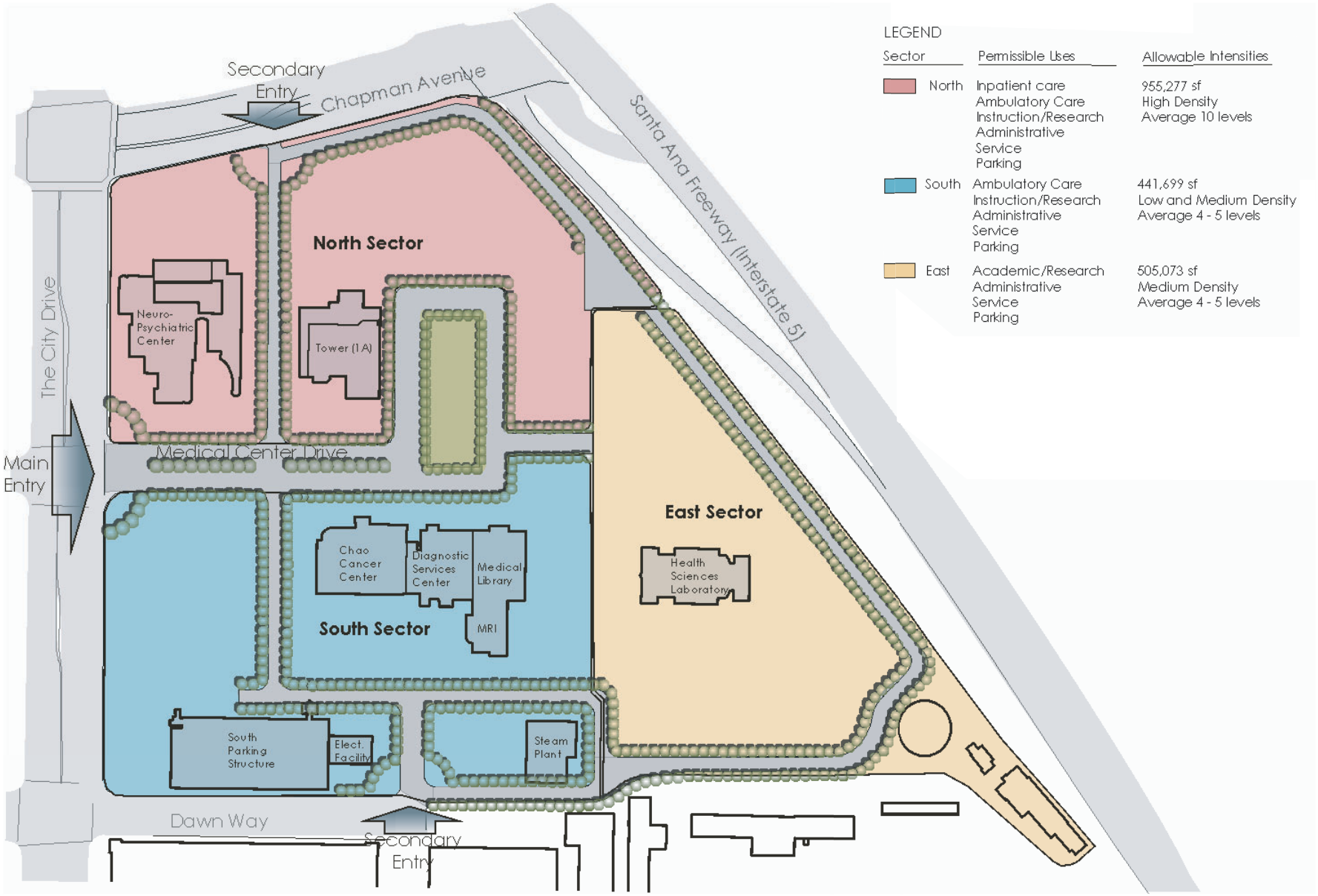


UCI Medical Center LRDP Zoning

Exhibit 2-12

UCI Medical Center LRDP EIR, University of California Irvine

Scale: 1/4" = 100'
Source: Li, Burkhart, Liu

BonTerra CONSULTING

Table 2-9 provides statistics related to the existing and proposed percentage for the various types of hospital rooms. Patient care units are planned as a mix of private and semi-private rooms.

TABLE 2-9
EXISTING AND PROPOSED HOSPITAL ROOM DISTRIBUTION

Bed Type	Current	Proposed
Private Beds	38%	82%
Semi-Private Beds	22%	18%
Multi-Bed Wards (3+ beds)	40%	0%
Total	**100%**	**100%**
Note: Does not include Neuropsychiatric care.		

2.4 UCI MEDICAL CENTER PHASE I PROJECT DESCRIPTION

2.4.1 OVERVIEW

As previously discussed, the UCI Medical Center LRDP will serve as the "general plan" to guide the physical development of the UCI Medical Center. It does not constitute a commitment to any specific projects, construction schedules, or funding priorities. Multiple activities are required for project implementation. These include:

- the relocation of existing uses in structures proposed for demolition to other existing structures within the UCI Medical Center and/or offsite locations;
- the demolition of several facilities;
- preparation of building sites within the UCI Medical Center; and
- new construction of onsite facilities.

2.4.2 PHASE I DEVELOPMENT

Phase I of the UCI Medical Center project will allow for the construction of new facilities and uses including a new hospital facility, surface parking, central chiller plant, infrastructure improvements including a new underground utility corridor, landscaping, and circulation improvements. Demolition of several buildings is required to accommodate new development. Replacement parking for parking displaced as a part of the Phase I project will be provided onsite and offsite. At the completion of Phase I, the UCI Medical Center will have 1,199,741 gsf of structures, 445 hospital beds, and 1,432 parking spaces.

The Phase I project is summarized in Table 2-10. The location of these proposed uses are depicted on Exhibit 2-13.

TABLE 2-10
PHASE I DEVELOPMENT SUMMARY

Activity		gsf[a] or Beds
Existing Total:	Gross Square Feet Hospital Beds Parking Spaces	910,365 gsf 391 beds 1,590 spaces
Phase I Demolition		<291,624 gsf>[b] <205 beds> <418 spaces>
Phase I New Construction		581,000 gsf 259 beds 260 spaces
Phase I Total		1,199,741 gsf 445 beds 1,432 spaces

a. gsf: gross square feet
b. exclusive of North Parking Structure and surface parking.

Phase I assumes the following:

New Construction

- 498,000 gsf, 254-bed hospital
- 8,000 gsf central chiller plant
- 75,000 gsf modular building
- 260 surface parking spaces
- underground utility corridor
- pedestrian linkages

Reconfiguration

To implement Phase I, the proposed project assumes the rehabilitation/alteration of other structures to increase their efficiency and allow for compliance with the Alfred E. Alquist Hospital Facilities Seismic Safety Act (SB 1953) and UC Seismic Policy.

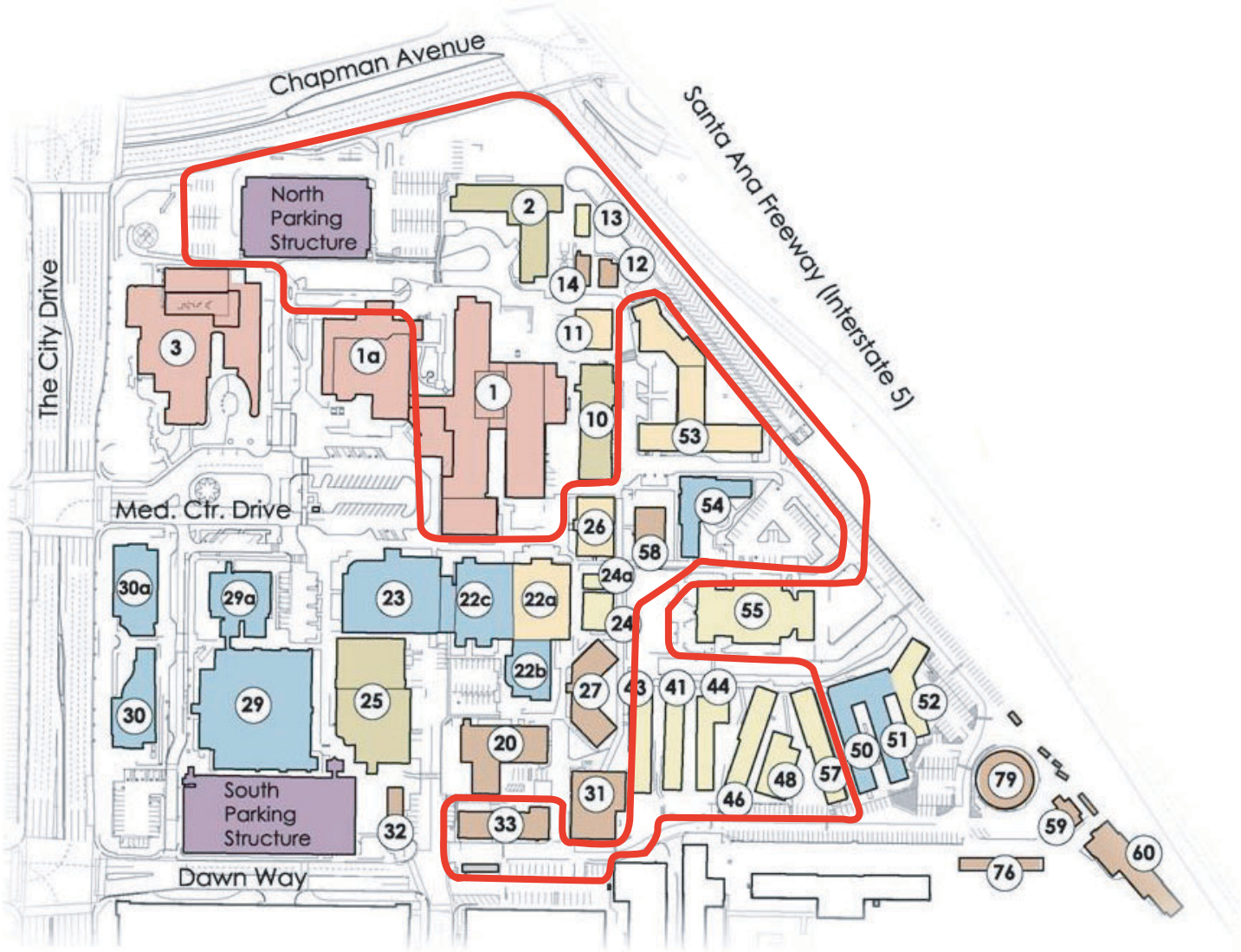
- Reconfiguration of the Medical Center Tower, Building No. 1a, to add five hospital beds, demolition of existing and construction of new waiting room, and construction of a new trauma elevator. No change in square footage in Building No. 1a is assumed.

- Building 31, Steam Plant, upgrades

Demolition

To implement Phase I, the proposed project assumes the demolition of several of the site's existing structures.

- 14 buildings and the North Parking Structure
- 205 hospital beds in the Main Hospital, Building No. 1
- 418 parking spaces: North Parking Structure and surface parking areas



LEGEND

- Inpatient Services
- Ambulatory Services
- Academic (Teaching, Office)
- Academic (Labs)
- Service
- Parking Structures
- Mixed Use

Phase I Facility Locations

Exhibit 2-13

UCI Medical Center LRDP EIR
University of California, Irvine

N

Scale: Not to Scale
Source: Lee, Burkhart, Liu

BonTerra CONSULTING

Retained

- 618,741 gsf of buildings and structures
- 186 hospital beds
- 1,172 parking spaces

Table 2-11 identifies the proposed changes at the Medical Center that will occur as a part of Phase I by facility category.

2.4.3 PHASE I: HOSPITAL

As shown on Exhibit 2-14, the new hospital will be located in the northern portion of the Medical Center at the site of existing Building Nos. 1, 2, 11, 12, 13, and 14 and the North Parking Structure. The 498,000 gsf, 254-bed hospital is expected to be eight to ten above-ground levels with one basement level within an approximate 60,000-square-foot footprint. The hospital is conceptually depicted in Exhibits 2-15 and 2-16.

The proposed hospital will be oriented to the south onto a new campus quadrangle (Exhibit 2-14). The campus quadrangle will serve as a landscape feature, as well as provide surface parking and pedestrian access to the hospital. The building facade will be a pre-cast concrete cladding system with stone accents and an aluminum window system. The southern elevation (Exhibit 2-15) will serve as the main entrance to the hospital. The central section of the southern elevation will feature bands of windows on the first three levels topped by an exterior roof garden and vertical stone clad panels. The western elevation (Exhibit 2-15) and eastern elevation (Exhibit 2-16) will use the same building materials, but will not have garden elements. The northern elevation (Exhibit 2-16) will use the same building materials and have an exterior roof garden.

The hospital will be organized into five major categories: Inpatient Services, Diagnostic and Treatment Services, Administrative Services, General Support Services, and Patient/Public Services. A description of each of these areas follows.

Inpatient Services. These areas will include all licensed bed units, including the Intensive Care and Burn Units, the Medical/Surgical Units, and Pediatric and Infant Services. Intensive Care Units provide constant observation, treatment, and nursing care of patients experiencing acute life-threatening impairments due to medical, surgical, cardiac, or neurological conditions. All intensive care rooms will be single-bed rooms designed large enough to allow for surgical procedures to take place in the rooms. A dedicated burn unit will also be provided.

Medical/Surgical Care Units provide continuing care to general medical and surgical patients. All beds will be provided in private rooms to maximize flexibility of utilization and occupancy. Some of the rooms will be designated for isolation and equipped with special air handling systems. All rooms will be designed large enough to provide adequate levels of patient care and caregiver space, family space, private facilities (i.e., toilet, shower or bathtub, and sink), and technology and supporting infrastructure.

Pediatric and Infant Services provide both acute and continuing care for infants and children. Included in this area will be the Infant Special Care Unit providing an intensive care unit for infants, a pediatric intensive care unit, and a pediatric acute care unit. Each unit will include some rooms designated for insolation and equipped with special air handling systems. Beds in the two pediatric units will be provided in private rooms; most beds in the Infant Special Care Unit will be provided in a large open area.

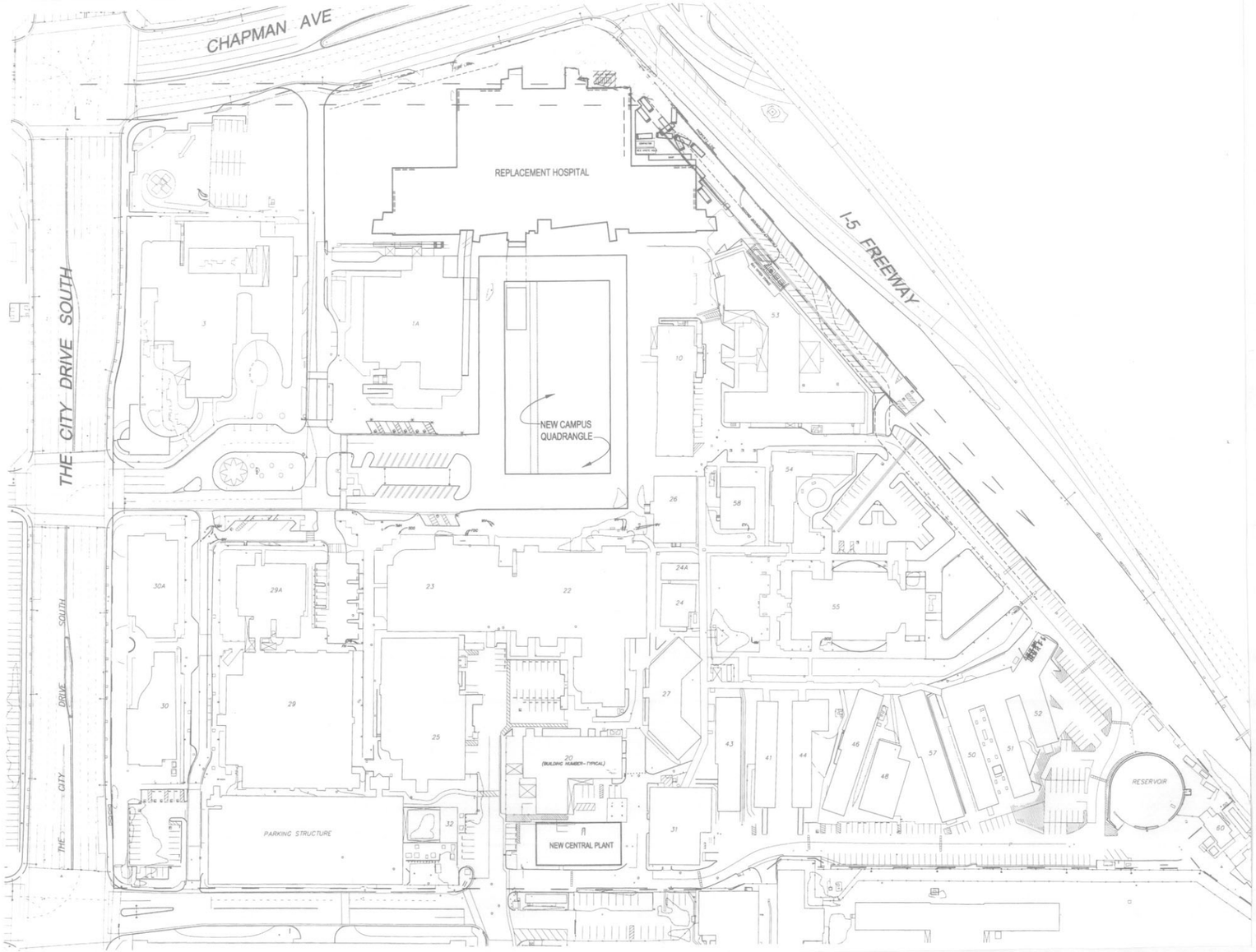
TABLE 2-11
PHASE I: DEMOLITION AND CONSTRUCTION

Building No.	Building Description	gsf[a] or Beds
INPATIENT FACILITIES		
Existing Facilities		**374,695 gsf** **391 beds**
Demolition		
1	Main Hospital	<181,500> <205 beds>
2	Resident Services	<1,319>
10	Pathology Laboratory Facilities	<6,303>
Demolition		**<189,122 gsf>** **<205 beds>**
Retained (Existing - Demolition)		**185,573 gsf** **186 beds**
New Construction		
–	Hospital	498,000 gsf 254 beds
1a.	Medical Center Tower (no increase in square footage; reconfiguration results in the gain of 5 hospital beds)	<0> 5 beds
New Construction		**498,000 gsf** **259 beds**
Inpatient Total: (Retained and New Construction)		**683,573 gsf** **445 beds**
AMBULATORY CARE FACILITIES		
Existing Facilities		**167,633 gsf**
Demolition		**0**
Retained (Existing - Demolition)		**167,633 gsf**
New Construction		**0**
Ambulatory Care Total: (Retained and New Construction)		**167,633 gsf**
ACADEMIC/RESEARCH/ADMINISTRATIVE FACILITIES		
Existing Facilities		**320,643 gsf**
Demolition		
2	Academic Offices; Administrative Services	<41,221>
10	Academic Offices; Support Services	<20,181>
11	Department Offices	<3,555>
13	Storage	<852>
33	Academic Offices/Resources	<1,771>
41	Research Lab	<3,813>
43	Research Lab	<4,228>
44	Volunteer Services/Department Offices	<5,193>
46	Research Lab	<4,906>
48	Research Lab	<3,851>
57	Research Lab	<5,114>
Demolition		**<94,685 gsf>**
Retained (Existing - Demolition)		**225,958 gsf**

TABLE 2-11 (continued)
PHASE I DEMOLITION AND CONSTRUCTION

Building No.	Building Description	gsf[a] or Beds
New Construction		
–	Modular Building	75,000 gsf
New Construction		**75,000 gsf**
Academic/Research/Administrative Facilities Total: (Retained and New Construction)		**300,958 gsf**
SERVICE FACILITIES		
Existing Facilities		**47,394 gsf**
Demolition		
10	Storage	<1,161>
12	Hospital Storage	<1,313>
14	Storage	<1,306>
33	Facilities Management/Facilities Services	<4,037>
Demolition		**<7,817 gsf>**
Retained (Existing - Demolition)		**39,577 gsf**
New Construction		
–	Central Chiller Plant	8,000 gsf
New Construction		**8,000 gsf**
Service Facilities Total: (Retained and New Construction)		**47,577 gsf**
PARKING		
Existing Parking Spaces		**1,590 spaces**
Demolition		
72	North Parking Structure	<318>
–	Surface Parking (various locations)	<100>
Demolition		**<418 spaces>**
Retained (Existing - Demolition)		**1,172 spaces**
New Construction		
–	Emergency Room Surface Parking	60 spaces
–	Handicapped Surface Parking (adjacent to new Hospital)	50 spaces
–	Eastern Perimeter Surface Parking	150 spaces
New Construction		**260 spaces**
Parking Total: (Retained and New Construction)		**1,432 spaces**
EXISTING TOTAL:	**GROSS SQUARE FEET** **HOSPITAL BEDS** **PARKING SPACES**	**910,365 gsf** **391 beds** **1,590 spaces**
PHASE I DEMOLITION		**<291,624 gsf>** **<205 beds>** **<418 spaces>**
PHASE I NEW CONSTRUCTION		**581,000 gsf** **259 beds** **260 spaces**
PHASE I TOTAL		**1,199,741 gsf** **445 beds** **1,432 spaces**

a. gsf: gross square feet



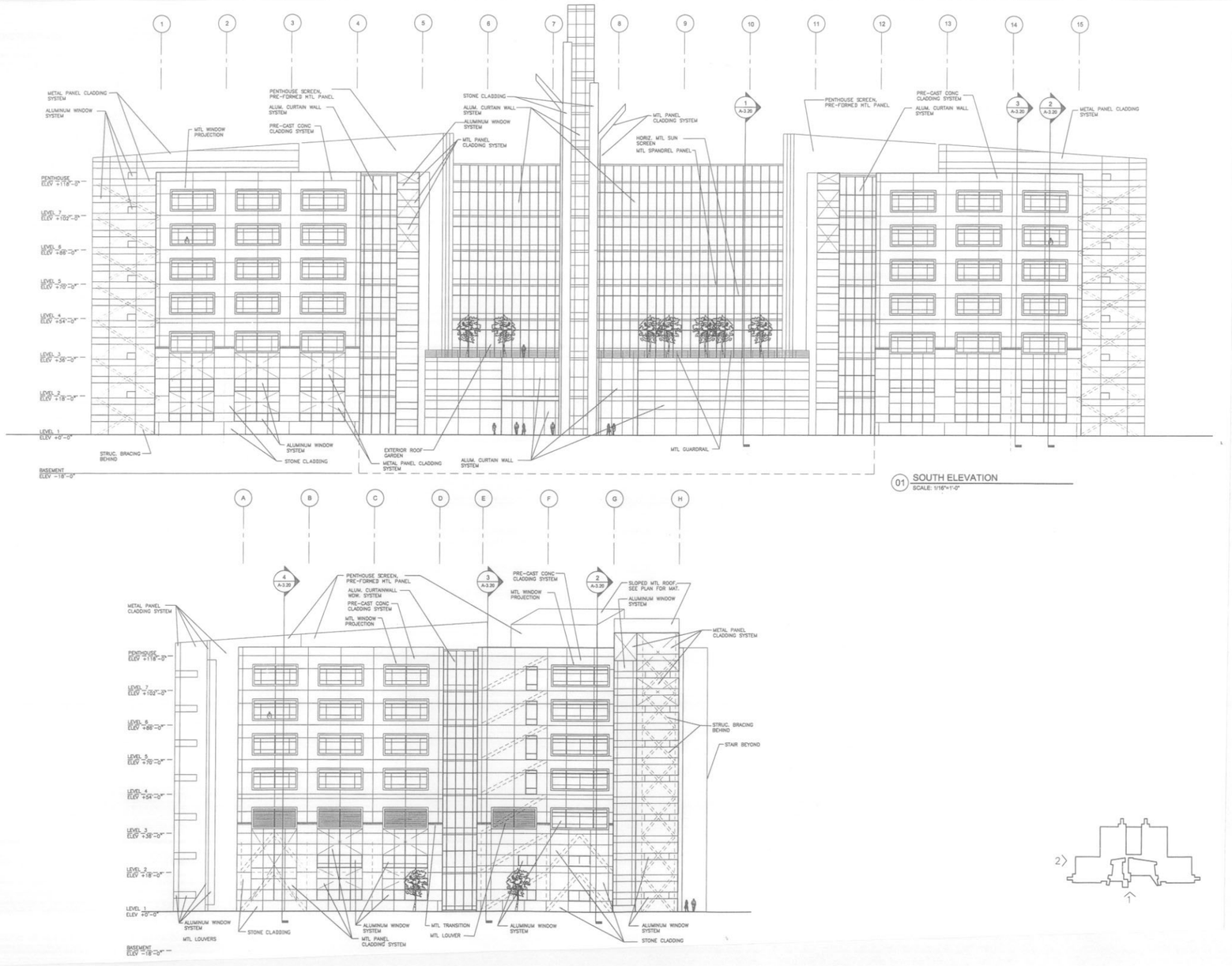
Phase I Site Plan

UCI Medical Center LRDP EIR, University of California Irvine

Exhibit 2-14

Scale: Not to Scale
Source: Nabih Youssef & Associates

Bonterra CONSULTING



01 SOUTH ELEVATION
SCALE: 1/16"=1'-0"

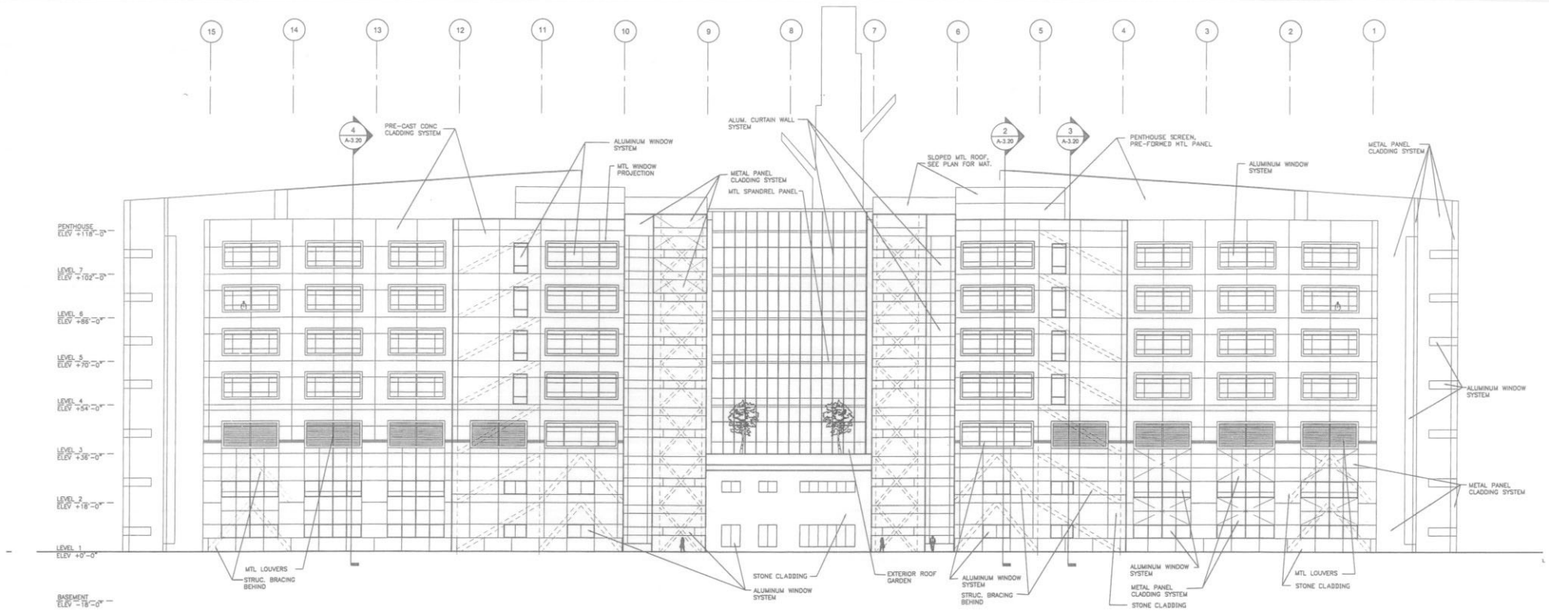
Hospital Conceptual Elevations: South and West Elevations

Exhibit 2-15

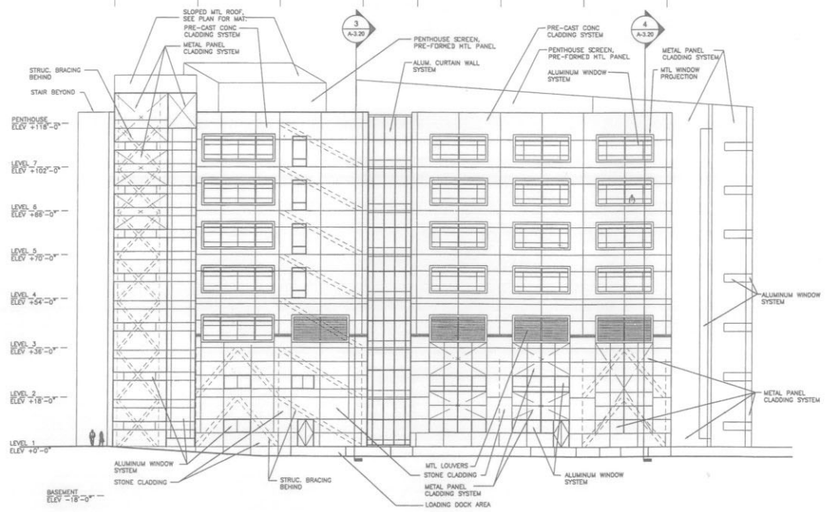
UCI Medical Center LRDP EIR, University of California Irvine

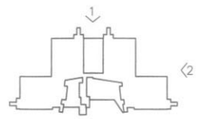
Scale: Not to Scale
Source: Nabih Youssef & Associates

BonTerra CONSULTING



01 NORTH ELEVATION
SCALE: 1/16"=1'-0"





Hospital Conceptual Elevations: North and East Elevations

Exhibit 2-16

UCI Medical Center LRDP EIR, University of California Irvine

Scale: Not to Scale
Source: Nabih Youssef & Associates

BonTerra CONSULTING

Each area in Inpatient Services will be served by its own nurses' stations. Nursing units will be supported by a variety of distinct functional areas to carry out patient care. Space will be provided in each nursing unit for clean and soiled utility (laundry) rooms, a medication room, a nourishment station, equipment storage, offices for nurse managers and other critical staff, monitoring and physician dictation workstations, and a unit workroom. Each nursing floor will be provided with centralized support areas shared among nursing units. Services will include family waiting areas and consultation rooms, family sleep facilities, conference rooms, staff lockers and shower facilities, hoteling offices, and storage areas.

A small amount of clinical research space will also be provided adjacent to medical/surgical units. This space will include work stations for clinical researchers and clerical support, storage space for files and specimens, a sample preparation laboratory, and a small pharmacy.

Diagnostic and Treatment Services. Diagnostic and Treatment Services will provide space for procedural services, including a procedural suite with operating rooms, minor procedure rooms, and rooms for image-guided, cardiac invasive, and interventional procedures. Additionally, there will be a post-anesthesia care unit, a procedure prep/recovery unit, and shared support areas, as well as an inpatient pharmacy, clinical laboratory, and nuclear medicine facility.

Administrative Services. This area will include offices for hospital administration, including an executive suite, Dean's office, Nursing Administration, Risk Management, and Information Services.

General Support Services. These areas will include space for food services, the Central Sterile Processing Department, and materials management.

Patient/Public Services. These areas will include space for lobby services, patient/guest relations, a gift shop, pastoral care, and a Patient Services Center.

2.4.4 PHASE I: CENTRAL CHILLER PLANT

As a part of Phase I, a new central chiller plant will be constructed. The first phase of the 16,000 gsf central chiller plant will be sited in the location of Building No. 33 (Exhibit 2-5); 8,000 gsf will be developed in Phase I. Building No. 33, totaling 5,080 gsf, will be demolished to allow for the construction of the new central chiller plant. As depicted in Exhibit 2-17, the new central chiller plant will be constructed as a maximum two-level facility clad in corrugated metal siding. The chiller plant will have two 1,100-ton electrical centrifugal chillers with variable frequency drive, cooling towers, and condenser water pumps. These chiller units are intended to serve the new hospital and Building No. 1a. It is expected that the chiller plant will be constructed as a hybrid facility. Hybrid plants have both electric and gas chillers. The gas chillers operate during high-peak electricity rate hours and the electric chillers operate during off-peak electricity rate hours (evenings and weekends).

The existing utility tunnel system at the Medical Center is intended to be used for the necessary chiller plant piping. Two 14-inch pipes will connect the chiller plant to the new hospital facility and Building No. 1a. A new energy efficient variable speed primary pumping system will deliver chilled water to the Inpatient Zone. Separate piping loops will serve the other zones in the future as the central chiller plant is expanded as a part of full LRDP implementation. Cooling towers will be located on the roof of the central chiller plant building.

2.4.5 PHASE I: PARKING

Onsite Parking

As a part of Phase I, 260 surface parking will be constructed in the northwest portion of the Medical Center. Approximately 60 spaces will be constructed on the site of the existing North Parking Structure, and 50 handicapped parking spaces will be provided in front of the new hospital. In addition, approximately 150 surface parking spaces will be constructed near the eastern perimeter of the Medical Center site.

Offsite Parking

To allow for the construction of the new hospital, the existing North Parking Structure (318 parking spaces) and 100 surface parking spaces will be demolished. Although 260 surface parking spaces will be constructed at the Medical Center as a part of Phase I, there will be a net loss of 158 onsite parking spaces at the completion of Phase I. Therefore as a part of Phase I, additional faculty and staff parking will be provided off of the site. Table 2-12 identifies parking replacement options available to UCI. The optional locations of these offsite parking areas are depicted on Exhibit 2-18.

Construction Parking

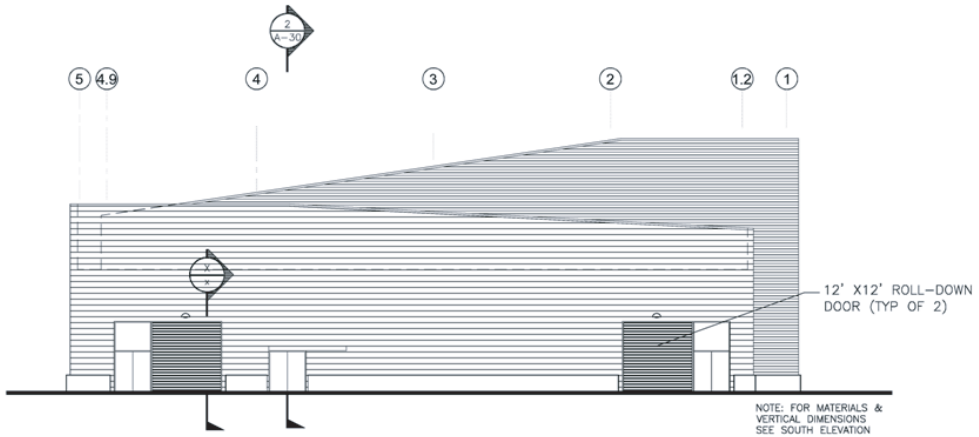
During Phase I, up to 750 short-term workers may be involved in the construction of the Phase I project. Therefore, up to 750 parking spaces could be required. This EIR assumes that construction worker parking will be provided off of the project site at one or more of the offsite parking areas identified in Table 2-12. Alternatively, contractors to the UCI Medical Center will arrange for remote parking and transportation to the Medical Center.

TABLE 2-12
PHASE I: REPLACEMENT PARKING LOCATIONS

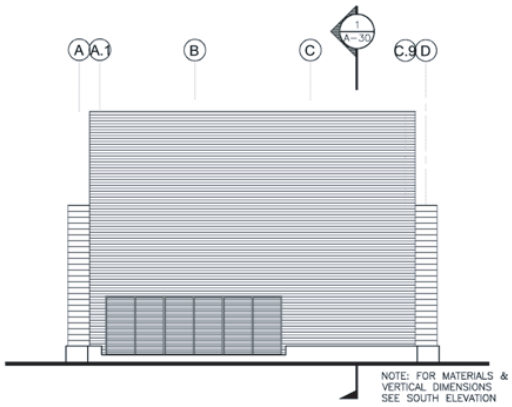
Site	Address	Parking Spaces
1. Four-acre Caltrans Lot	Northeast corner of Chapman Avenue and The City Drive, City of Orange	452
2. State College Warehouse	2040 State College Boulevard, City of Anaheim	200
3. Equity Partners	Chapman Avenue/Manchester Avenue, City of Orange	200
4. Edison Field	State College Boulevard, City of Anaheim	418
Source: UCI Medical Center, March 2002.		

2.4.6 PHASE I: MODULAR BUILDING

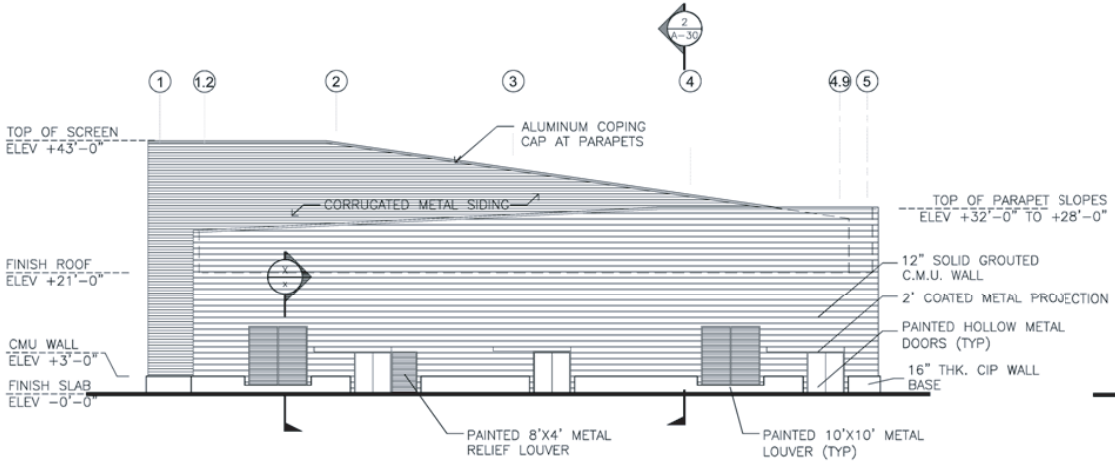
To allow for new development on the UCI Medical Center as a part of Phase I, several buildings and one parking structure will be demolished. To accommodate personnel that will be displaced associated with onsite demolition activities, one two-story 75,000 gsf modular building will be constructed. The modular building will house academic, administrative, and clinical support functions. The modular building will be located on the sites of existing Building Nos. 41, 44, 46, 48, and 57, and a portion of the Building No. 43 site (Exhibit 2-13). As new development is proposed associated with the full LRDP implementation project, the modular building will be removed from the Medical Center site and replaced with an academic, research, and administration building.



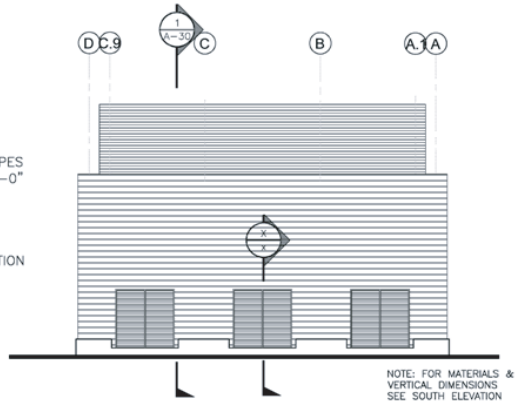
1 - NORTH ELEVATION



2 - WEST ELEVATION



3 - SOUTH ELEVATION



4 - EAST ELEVATION

Central Chiller Plant Conceptual Elevations

Exhibit 2-17

UCI Medical Center LRDP EIR, University of California Irvine

Source: Nabih Youssef & Associates

BonTerra CONSULTING

Parking Replacement Locations

Exhibit 2-18

UCI Medical Center LRDP EIR
University of California, Irvine

N

Scale: 1" = 800'

BonTerra CONSULTING

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2.4.7 PHASE I: EXISTING BUILDING NO. 1A

Building No. 1a, the Medical Center Tower, will be reconfigured to add five hospital beds without any changes in the square footage of the building. Therefore, at the completion of Phase I, there will be 473 hospital beds (total of new hospital, reconfigured space in Building No. 1a, and existing facilities within the UCI Medical Center campus), for an increase of 82 beds when compared to the existing beds at the Medical Center.

Other modifications to Building No. 1a include the demolition of existing and construction of new waiting room, construction of a new trauma elevator, and the construction of a pedestrian bridge between Building No. 1a and the new hospital. The existing waiting room in Building No. 1a will be demolished and a new waiting room will be constructed under the existing emergency room canopy. A new trauma elevator to the second floor will be constructed at the location of the existing waiting room.

Lastly, a 20-foot-wide divided pedestrian bridge will be constructed north of Building No. 1a. The bridge will accommodate two types of traffic flows: one side of the bridge will connect the emergency room located in Building No. 1a to the operating room in the new hospital; the other half of the bridge will serve as a staff connection between the two buildings. A 12-foot-wide freestanding glass and steel enclosed connector/walkway east of Building No. will be constructed to transport staff and patients from Building No. 1a to the bridge.

2.4.8 PHASE I: INFRASTRUCTURE AND UTILITY IMPROVEMENTS

Underground Utility Tunnel

As previously noted, utilities are distributed through the Medical Center via two routes: an underground utility tunnel and an overhead canopy distribution system. The utility tunnel runs from the plant facilities in the south to the northern portion of the site. The overhead canopy distribution system (located in the covered walkways) provides service primarily to the eastern portion of the Medical Center. As a part of the Phase I project, the existing utility tunnel running east and west to Building No. 2 will be demolished. Certain portions of the tunnel at the north section will also be demolished. Additionally, Building No. 43 will be demolished to accommodate the utility tunnel. A new underground utility corridor will be constructed to reroute the utilities.

Steam Plant Upgrades

Building No. 31, the steam plant, provides high-pressure steam to most of the structures at the Medical Center for heating and domestic hot water. The hospital uses steam for sterilization and humidification. The steam plant improvements will include structural upgrades of the building, and upgrade of the existing piping and equipment to bring the steam plant into current code compliance.

Jet Fuel Line

As previously noted, a portion of a United States Department of Defense military jet fuel pipeline and easement is located within the Medical Center site. An eight-inch-diameter jet fuel line runs underground in a generally north-to-south direction at the north and east perimeters of the Medical Center property. The pipeline originates in the City of Norwalk and terminates at the Marine Corps Air Station, El Toro. The line is no longer in use and has been filled with an inert gas by a contractor to the Department of Defense. As a part of the proposed Phase I project, the jet fuel line will be moved 10 to 30 feet to the north and east of its existing location on the north and east

side of the new hospital respectively. The relocation will require standard infrastructure construction practices of trenching, shoring, installing the new section of pipe, and backfilling.

2.4.9 PHASE I AND FULL LRDP IMPLEMENTATION: TRANSPORTATION, CIRCULATION, AND ACCESS

Vehicular Access

As depicted on Exhibit 2-19, primary access to the Medical Center will continue to be from The City Drive onto Medical Center Drive. Dawn Way will continue to be used for patient/public/staff parking and service vehicle access related to facility plant services. Chapman Avenue will be used for limited service vehicle access to the inpatient uses, as well as continued emergency vehicle access.

Future onsite vehicular access will be provided via a loop road system. The loop road will link service functions (i.e., Inpatient, Outpatient, Academic/Research/Administrative, and Service) and provide access to parking structures sited around the perimeter of the Medical Center. The loop road is intended to improve circulation to the rear of the Medical Center where access is circuitous.

Patient Care Vehicular Access

Medical Center Drive will provide direct drop-off and pick-up access to all patient care facilities in the Inpatient and Ambulatory zones.

Emergency Access

The public access route for emergency services will be from Medical Center Drive. Ambulances and other emergency vehicles will access the Medical Center from Chapman Avenue. The helistop will remain in its existing location as a part of the proposed project.

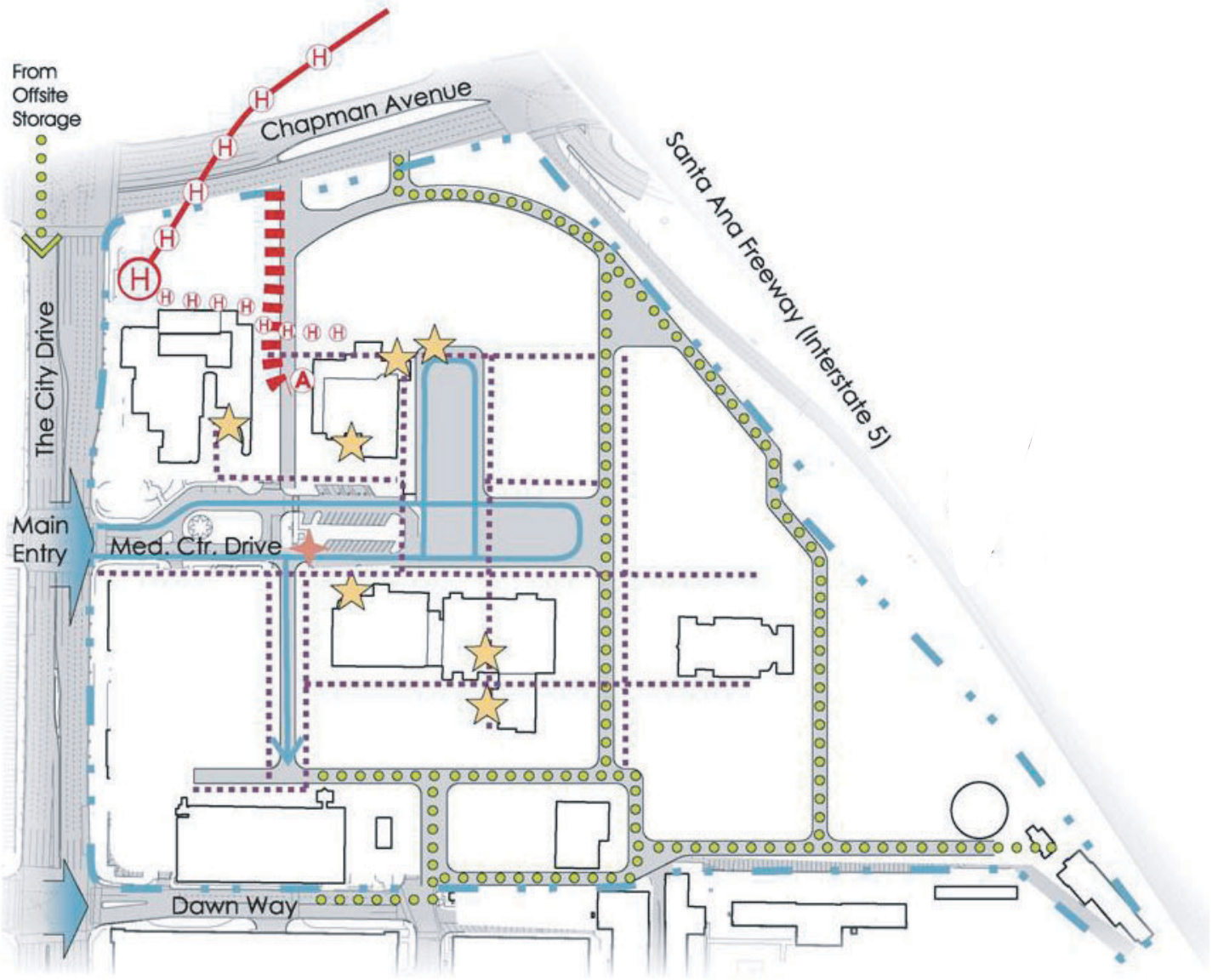
Pedestrian Circulation

The proposed pedestrian circulation system includes the following components:

- Strengthen the existing north-south paths including: a) the primary route from the South Parking Structure through the Ambulatory Care zone to the Inpatient Care zone; b) the path under the Diagnostics Services Center to the Inpatient zone; and c) redevelopment of the north-south path along the eastside of the site in the Academic/Research/Administrative zone.

- Extend the existing east-west pathways located in the southern portion of the site through the Academic/Research/Administrative zone upon redevelopment of this portion of the Medical Center.

- Add new east-west pathways in the northern portion of the Medical Center.



Proposed Site Circulation **Exhibit 2-19**

UCI Medical Center LRDP EIR
University of California, Irvine

Scale: Not to Scale
Source: Lee, Burkhart, Liu

BonTerra CONSULTING

2.4.10 PHASE I: DEMOLITION AND EXCAVATION ACTIVITIES

Hospital and Surface Parking

The following structures will be demolished in Phase I to allow for the construction of the new hospital and related surface parking areas. The locations of these structures are depicted on Exhibit 2-20.

- Building No. 1: Main Hospital
- Building No. 2: Academic Offices, Administrative Services, and Resident Services
- Building No. 11: Departmental Offices
- Building No. 12: Hospital Storage
- Building No. 13: Storage
- Building No. 14: Hospital Storage
- North Parking Structure
- 100 surface parking space

The Main Hospital (Building No. 1) will be demolished subsequent to completion of the Phase I hospital facility. Table 2-13 identifies the estimated demolition quantities associated with the proposed Phase I project.

Phase I will result in the one-time generation of approximately 36,019 cubic yards (cy) of demolition debris. Of the total demolition debris, approximately 30,411 cy are associated with the hospital site and associated surface parking areas. Excavation activities associated with site preparation and construction of the basement level of the hospital will require the removal of approximately 45,000 cy of dirt, based on a 20-foot excavation depth.

Central Chiller Plant

Building No. 33, totaling 5,080 gsf, will be demolished to allow for the construction of the new central chiller plant. Demolition of this building will result in a one-time generation of approximately 538 cy of demolition debris.

Modular Buildings

Five buildings (Building Nos. 41, 44, 46, 48, and 57), totaling 22,877 gsf, will be demolished to allow for the construction of the new modular building. Demolition of these buildings will result in the one-time generation of approximately 2,119 cy of demolition debris.

Infrastructure Improvements/Other

In addition to the above noted structures, Building No. 10 will demolished as part of Phase I to create a future (post Phase I) building opportunity site (Exhibit 2-20). Building No. 31 will be demolished to allow for utility tunnel improvements. Demolition of these buildings will result in the one-time generation of approximately 2,951 cy of demolition debris.

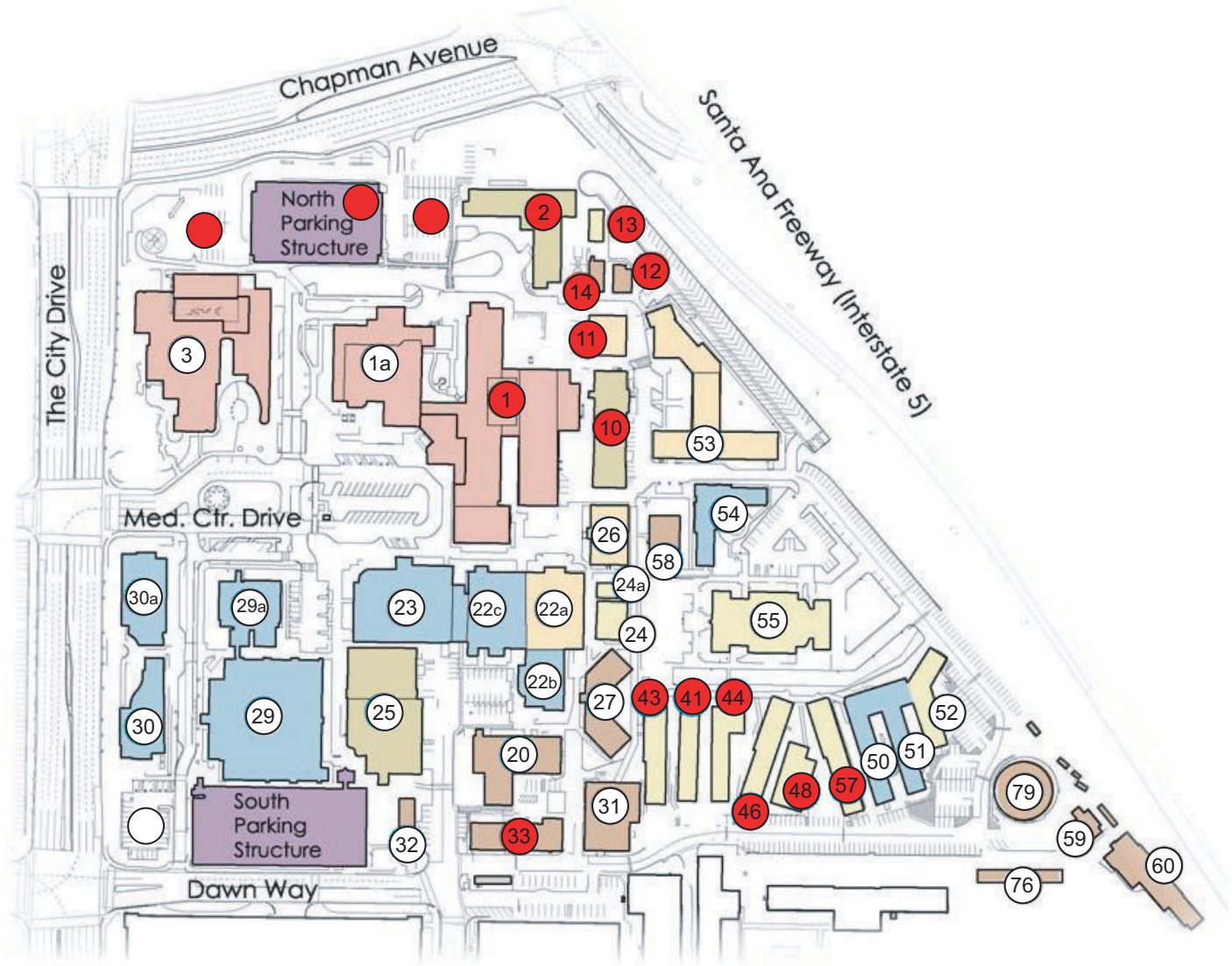
TABLE 2-13
PHASE I: ESTIMATED DEMOLITION QUANTITIES

Building Number	Building Description	Gross Square Feet (gsf)[a.]	Quantity[b.] (cubic yards)
HOSPITAL AND SURFACE PARKING AREAS			
1	Main Hospital	<181,500>	16,806
2	Academic Offices; Administrative Services; Resident Services	<42,540>	3,939
11	Department Offices	<3,555>	329
12	Hospital Storage	<1,313>	122
13	Storage	<852>	79
14	Storage	<1,306>	121
72	North Parking Structure: 318 parking spaces	<86,693>	8,027
–	Surface Parking (various locations): 100 parking spaces	<40,000>	988[c.]
Demolition		**<357,759 gsf>**	**30,411 cy**
CENTRAL CHILLER PLANT			
33	Facilities Management/Facilities Services/Academic Offices	<5,808>	538
Demolition		**<5,808 gsf>**	**538 cy**
MODULAR BUILDINGS			
41	Research Lab	<3,813>	353
44	Volunteer Services/Department Offices	<5,193>	481
46	Research Lab	<4,906>	454
48	Research Lab	<3,851>	357
57	Research Lab	<5,114>	474
Demolition		**<22,877 gsf>**	**2,119 cy**
OTHER: SITE IMPROVEMENTS, ETC.			
10	Academic Offices; Support Services; Storage; Pathology Laboratory Facilities	<27,645>	2,560
43	Research Lab	<4,228>	391
Demolition		**<31,873 gsf>**	**2,951 cy**
PHASE I DEMOLITION		**<418,317 gsf>**	**36,019 cy**

a. gsf: gross square feet
b. gsf x 2.5 cubic feet ÷ 27
c. 400 sq.ft. per parking space x 0.667 ÷ 27

2.4.11 PHASE I: PHASING PLAN

Implementation of Phase I is planned for completion by 2008. In order to implement the proposed project, the University has developed a conceptual phasing plan for the probable sequencing of demolition, construction, and seismic renovation activities. This conceptual phasing plan is provided for information purposes and is subject to change as more detailed planning and design assessments are prepared. The timing and level of construction activities assumed for Phase I have been prepared to ensure that the maximum potential effects of the project have been identified in this EIR regardless of the order and schedule of project implementation.



To be demolished in Phase 1

EXISTING FACILITIES

LEGEND

- Inpatient Services
- Ambulatory Services
- Academic (Teaching, Office)
- Academic (Labs)
- Service
- Parking Structures
- Mixed Use

Phase I Facility Demolition

Exhibit 2-20

UCI Medical Center LRDP EIR

University of California, Irvine

N

Scale: Not to Scale

Source: Lee, Burkhart, Liu

BonTerra CONSULTING

Table 2-14 identifies the anticipated phasing of demolition and construction activities associated with the Phase I project. Exhibits 2-21 through 2-24 depict the phasing for the Phase I project. To prepare a site for the new hospital, Building Nos. 2, 11, 12, 13, and 14 and the North Parking Structure will be demolished. Functions within these buildings will be accommodated through a more efficient use of space in the remaining buildings and relocation of uses to the new modular building that will be constructed on the site of existing Building Nos. 41, 43, 44, 46, 48, and 57. All of the functions within Building No. 1 and some of the functions in Building No. 10 will be accommodated in the new hospital. The remaining functions will be provided for in other existing buildings, new leased space, or subsequently constructed buildings at the UCI Medical Center and/or offsite locations.

TABLE 2-14
PHASE I PHASING PLAN

Activity	Timeframe
PHASE ONE: SITE PREPARATION (see Exhibit 2-21)	
New underground utilities • Remove existing utility tunnel in conjunction with construction • Related demolition and construction of a new (east) utility tunnel Utility tunnel upgrade Relocated utilities	Fall 2003 Demolition: 14 to 18 weeks Excavation: 12 to 15 weeks
Building No. 31 • Steam Plant structural, mechanical, and architectural upgrades	
Relocate occupants and demolish: • North Parking Structure • Building Nos. 2, 11, 12, 13, 14 • Relocate jet fuel line	
Central Chiller Plant • Demolish Building Nos. 33 and 43 • Construct Central Chiller Plant and connections to site utility distribution	
PHASE TWO: NEW CONSTRUCTION (see Exhibit 2-22)	
New Hospital • Construct new hospital; conduct site work to north, east, and west • Construct bridge from Building No. 1a to new hospital • Revise service access along east edge of campus; construct bulk oxygen storage and associated piping to new hospital • Open temporary entrance to hospital	Fall 2003 to late 2006
PHASE THREE: RENOVATION (see Exhibits 2-23 and 2-24)	
Occupy new Hospital	late 2006
Alterations to Building No. 1a • Modifications to Emergency (ambulance) entrance	
Building Nos. 1 and 10 • Vacate Building No. 1 • Abate hazardous materials • Demolish Building No. 1, including existing link to Building No. 1a and tunnel to Building No. 2	early 2007 Demolition: 20 to 24 weeks
Complete Phase I • Open new entrance to new hospital • Remove temporary entrance to hospital • Open new access road to the new campus quadrangle	2,008
Sources: UCI, July 2002; Nabih Youssef & Associates, July 2002.	

2.5 UCI MEDICAL CENTER FULL LRDP IMPLEMENTATION PROJECT DESCRIPTION

2.5.1 FULL LRDP IMPLEMENTATION DEVELOPMENT

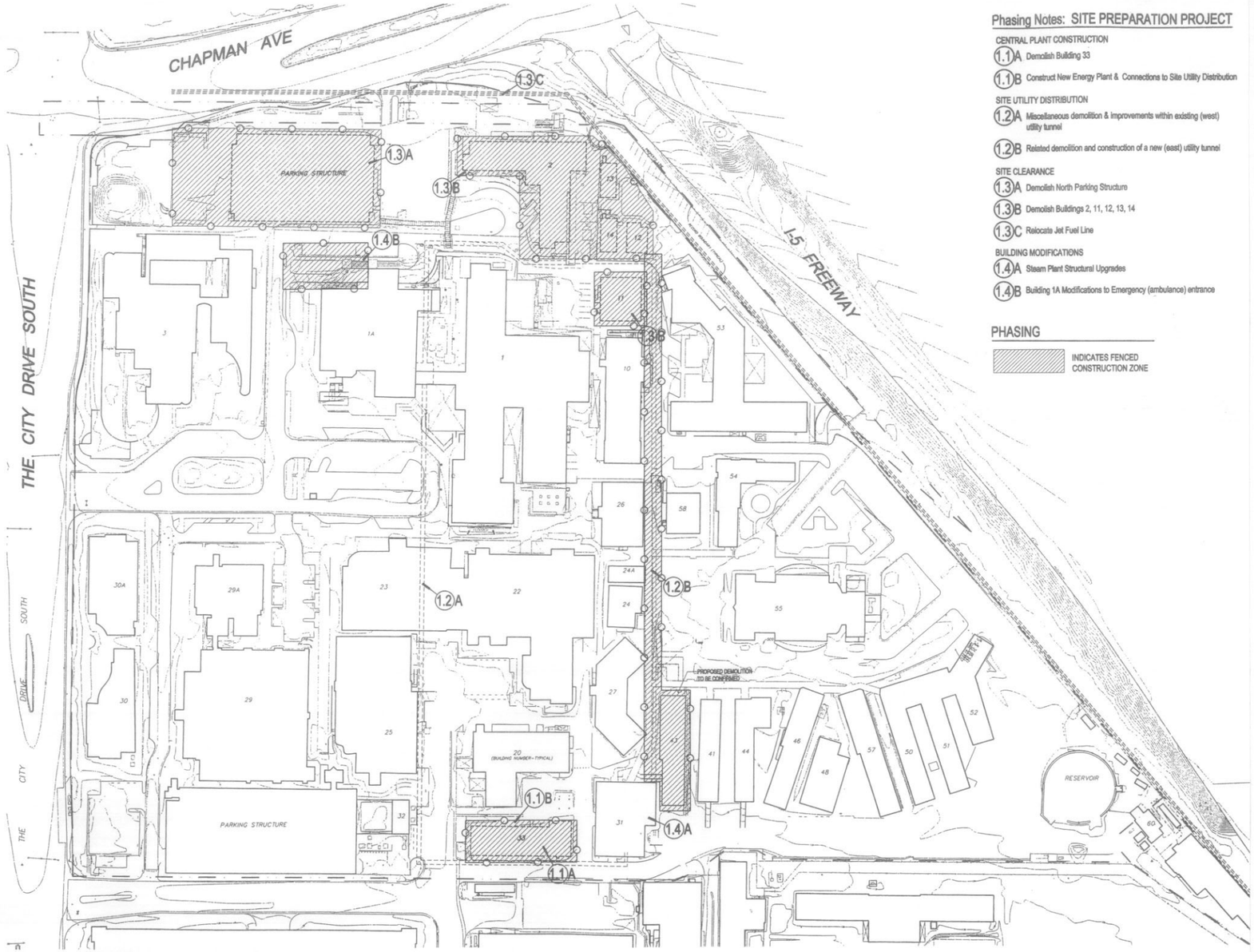
Full LRDP implementation will result in 1,902,049 gsf of uses, 527 hospital beds, and 4,200 onsite parking spaces, inclusive of retained uses and Phase I development. The additional beds will be located in an additional medical/surgical unit. No new buildings and structures within the Medical Center will exceed ten above-ground levels. The full LRDP implementation project is summarized in Table 2-15. The location of these proposed uses are depicted on Exhibit 2-25.

TABLE 2-15
FULL LRDP IMPLEMENTATION
DEVELOPMENT SUMMARY

Activity		gsf[a.] or Beds
Existing Total:	Gross Square Feet Hospital Beds Parking Spaces	910,365 gsf 391 beds 1,590 spaces
Phase I Total		1,199,741 gsf 445 beds 1,432 spaces
Full LRDP Implementation Demolition[b.]		<591,793 gsf> <205 beds> <600 spaces>
Full LRDP Implementation New Construction[b.]		1,515,387 gsf 341 beds 3,210 spaces
Full LRDP Implementation Total[b.]		1,902,049 gsf 527 beds 4,200 spaces
a. gsf: gross square feet b. Inclusive of Phase I.		

With the exception of completion of the central chiller plant and identification of locations for onsite parking structures, no project-specific developments are assumed as a part of full LRDP implementation (post-Phase I development). The UCI LRDP establishes a planning framework to organize the site, identifies planning zones to guide the siting and design of facilities, and establishes general design principles to guide the design of future buildings. It identifies entries, public open space, landscape framework, edge buffers, vehicular circulation, pedestrian circulation, and building opportunity sites that are applicable to the Phase I and full LRDP implementation (Exhibit 2-11). Future facilities will be planned within this framework to ensure the cohesive redevelopment of the site and establishment of a high quality physical environment. The LRDP's specific planning zones (Exhibit 2-12) will guide the siting of future facilities, manage land use intensity, and plan for long-term infrastructure needs. Permitted uses and land use intensities are set forth in the LRDP for these planning zones: North Sector, South Sector, and East Sector (Table 2-7).

Table 2-16 identifies demolition and new construction activities that will occur at the UCI Medical Center with full implementation of the LRDP project by facility category.



Phasing Notes: SITE PREPARATION PROJECT

CENTRAL PLANT CONSTRUCTION

1.1A Demolish Building 33

1.1B Construct New Energy Plant & Connections to Site Utility Distribution

SITE UTILITY DISTRIBUTION

1.2A Miscellaneous demolition & improvements within existing (west) utility tunnel

1.2B Related demolition and construction of a new (east) utility tunnel

SITE CLEARANCE

1.3A Demolish North Parking Structure

1.3B Demolish Buildings 2, 11, 12, 13, 14

1.3C Relocate Jet Fuel Line

BUILDING MODIFICATIONS

1.4A Steam Plant Structural Upgrades

1.4B Building 1A Modifications to Emergency (ambulance) entrance

PHASING

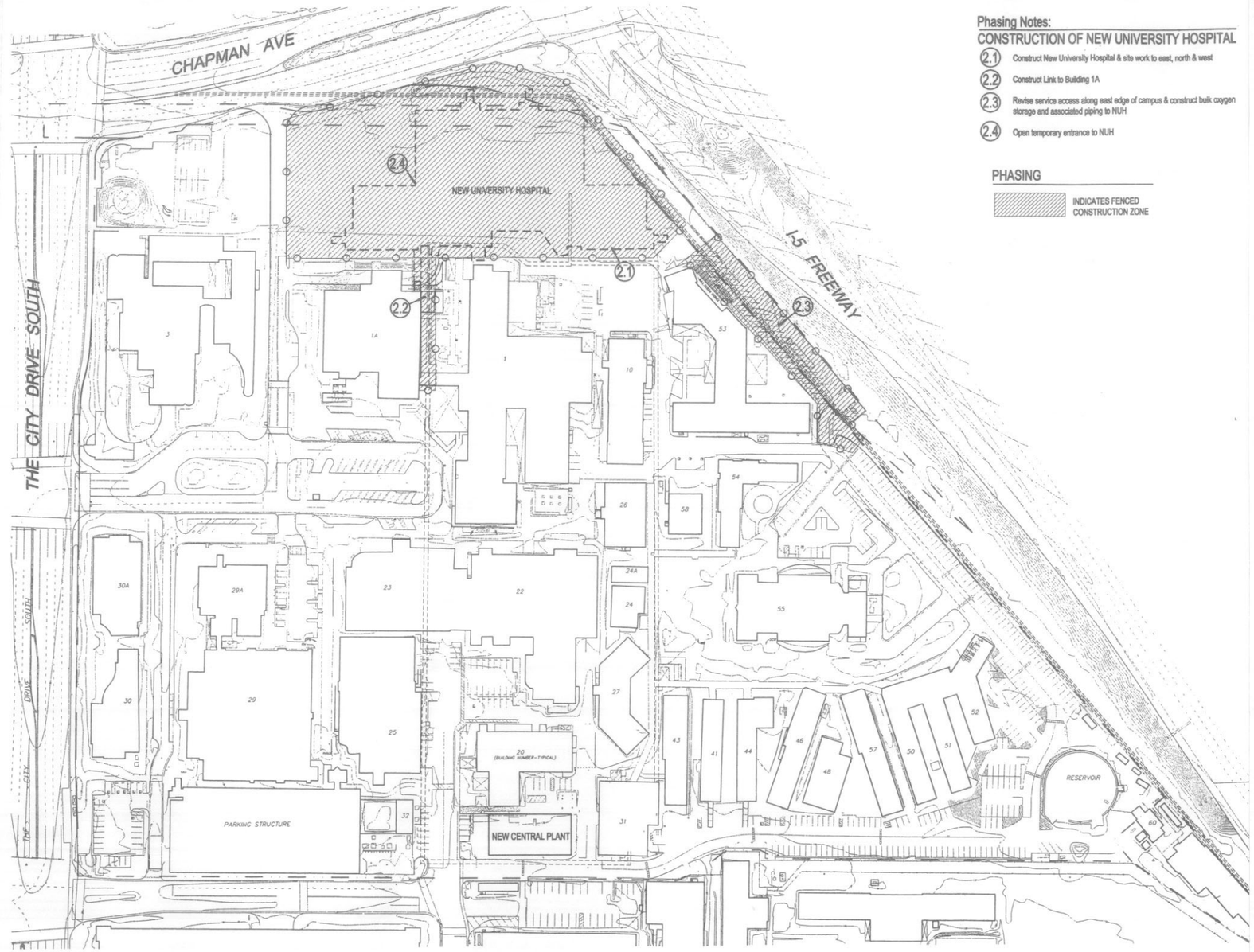
INDICATES FENCED CONSTRUCTION ZONE

Phase I Phasing: Site Preparation — **Exhibit 2-21**

UCI Medical Center LRDP EIR, University of California Irvine

Scale: Not to Scale
Source: Nabih Youssef & Associates

BonTerra CONSULTING



Phasing Notes:

CONSTRUCTION OF NEW UNIVERSITY HOSPITAL

2.1 Construct New University Hospital & site work to east, north & west

2.2 Construct Link to Building 1A

2.3 Revise service access along east edge of campus & construct bulk oxygen storage and associated piping to NUH

2.4 Open temporary entrance to NUH

PHASING

INDICATES FENCED CONSTRUCTION ZONE

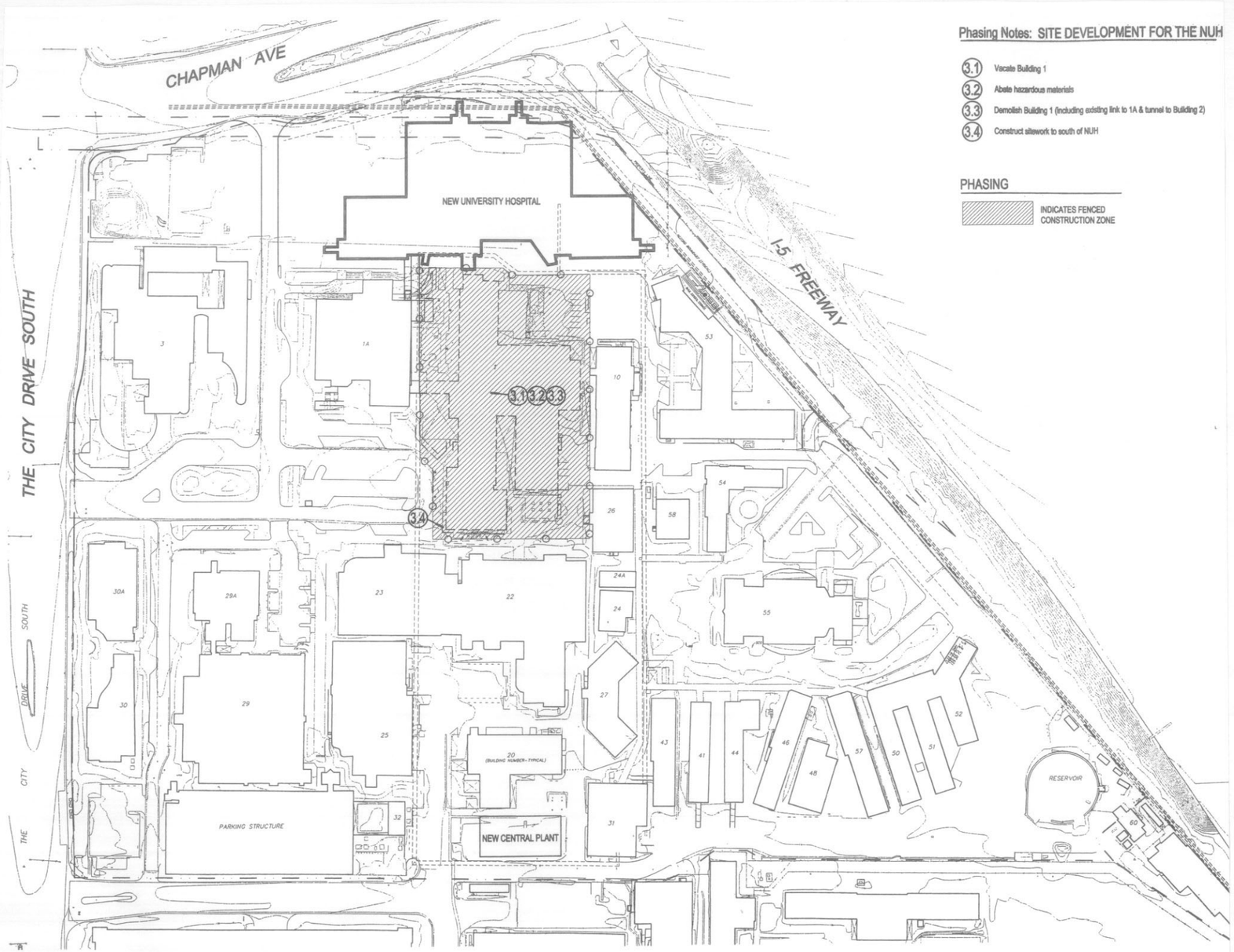
Phase I Phasing: Hospital Construction

Exhibit 2-22

UCI Medical Center LRDP EIR, University of California Irvine

Scale: Not to Scale
Source: Nabih Youssef & Associates

BonTerra CONSULTING



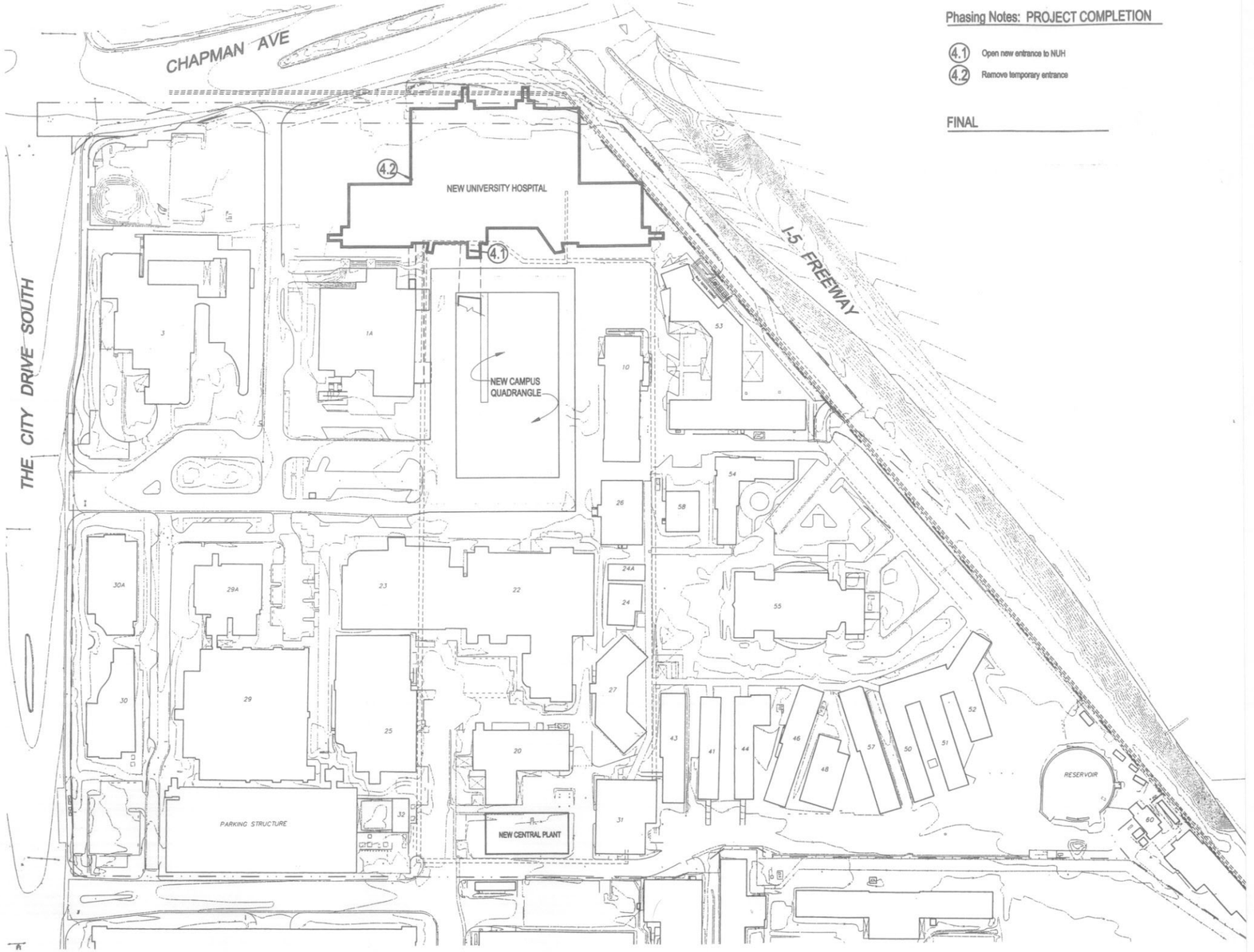
Phase I Phasing: Site Development

Exhibit 2-23

UCI Medical Center LRDP EIR, University of California Irvine

Scale: Not to Scale
Source: Nabih Youssef & Associates

BonTerra CONSULTING



Phasing Notes: PROJECT COMPLETION

(4.1) Open new entrance to NUH

(4.2) Remove temporary entrance

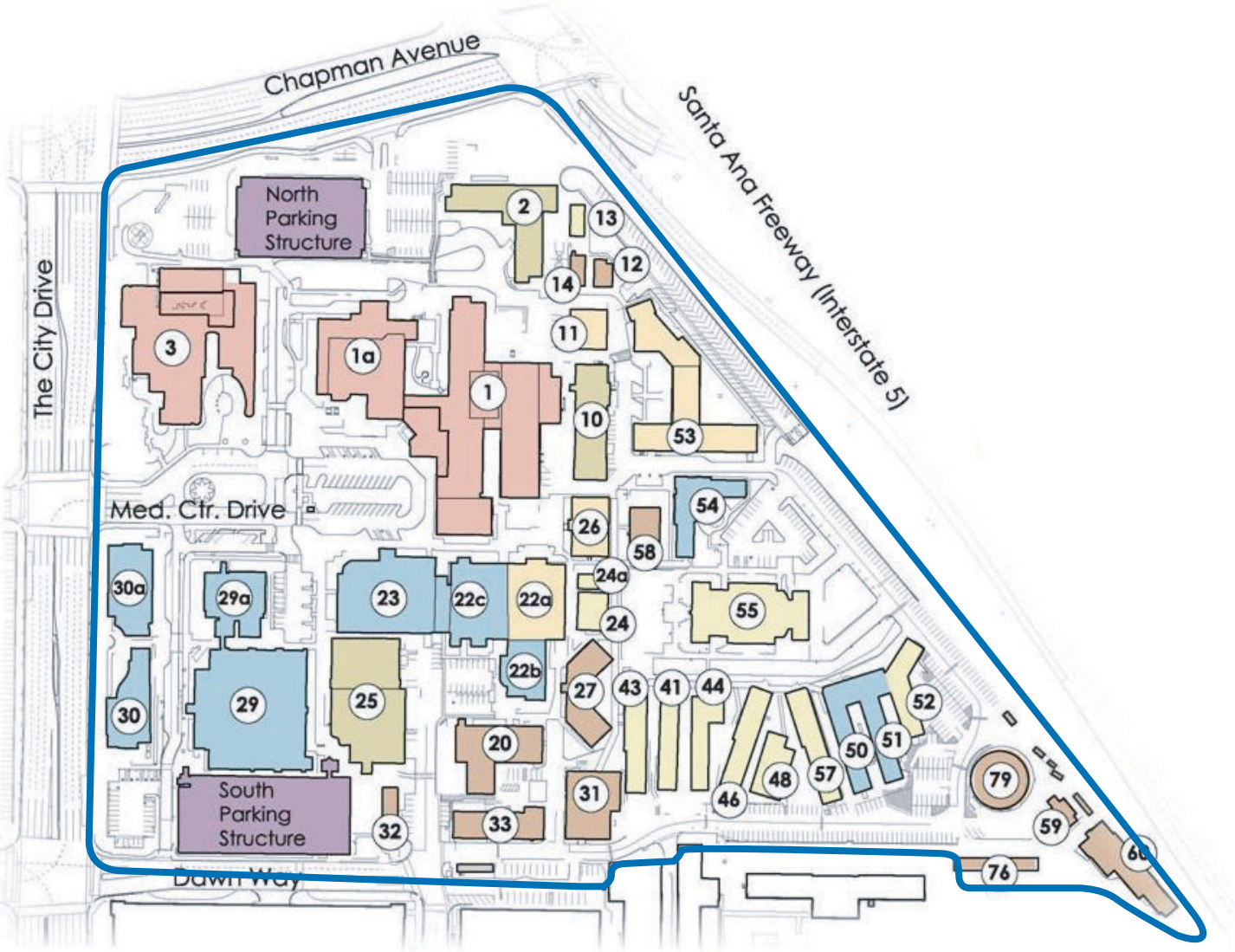
FINAL

Phase I Phasing: Project Completion **Exhibit 2-24**

UCI Medical Center LRDP EIR, University of California Irvine

Scale: Not to Scale
Source: Nabih Youssef & Associates

Boniterra CONSULTING



Full LRDP Implementation Facility Locations **Exhibit 2-25**

UCI Medical Center LRDP EIR
University of California, Irvine

N
Scale: Not to Scale
Source: Lee, Burkhart, Liu

BonTerra CONSULTING

TABLE 2-16
FULL LRDP IMPLEMENTATION: DEMOLITION AND CONSTRUCTION

Building No.	Building Description	GSF[a.] or Beds
INPATIENT FACILITIES		
Demolition		**0**
New Construction		
–	New hospital expansion	275,000 gsf 82 beds
Demolition		**0**
Phase I + Full LRDP Implementation Demolition		**<189,122 gsf> <205 beds>**
New Construction		**275,000 gsf 82 beds**
Phase I + Full LRDP Implementation Construction		**773,000 gsf 341 beds**
Retained (Existing - Demolition)		**185,573 gsf 186 beds**
Inpatient Facilities Total (Retained + New Construction)		**958,573 gsf 527 beds**
AMBULATORY CARE FACILITIES		
Demolition		
29	Pavilion III	<36,615>
29a	Pavilion III	<16,416>
30	Pavilion I	<18,525>
30a	Pavilion II	<18,972>
50	Occupational Therapy	<4,672>
51	Outpatient Dialysis	<6,172>
54	Physical Therapy	<5,424>
Demolition		**<106,796 gsf>**
Phase I + Full LRDP Implementation Demolition		**<106,796 gsf>**
Retained (Existing - Demolition)		**60,837 gsf**
New Construction		**320,000 gsf**
Phase I + Full LRDP Implementation Construction		**320,000 gsf**
Ambulatory Facilities Total (Retained + New Construction)		**380,837 gsf**
ACADEMIC/RESEARCH/ADMINISTRATIVE FACILITIES		
Demolition		
20	Administrative Offices	<2,739>
24	Research Lab	<1,900>
24a	Research Lab	<1,000>
25	Academic Offices, Administrative Services, Storage, Medical Records Facility	<24,839>
26	Academic Offices; Administrative Offices	<6,040>
52	Research Lab	<1,444>
53	College of Medicine Academic Offices	<51,538>
58	Academic Offices; Administrative Services	<2,964>
–	Phase I Modular Building	<75,000>
Demolition		**<167,464 gsf>**

TABLE 2-16 (continued)
FULL LRDP IMPLEMENTATION: DEMOLITION AND CONSTRUCTION

Building No.	Building Description	GSF[a.] or Beds
Phase I + Full LRDP Implementation Demolition		**<262,149 gsf>**
Retained (Existing - Demolition)		**58,494 gsf**
New Construction		**365,000 gsf**
Phase I + Full LRDP Implementation Construction		**440,000 gsf**
Academic/Research/Administrative Facilities Total (Retained + New Construction)		**498,494 gsf**
SERVICE FACILITIES		
Demolition		
20	Facilities Services/Facilities Planning; Design and Construction	<7,796>
25	Facilities Services	<11,960>
27	Storage	<6,153>
Demolition		**<25,909 gsf>**
Phase I + Full LRDP Implementation Demolition		**<33,726 gsf>**
Retained (Existing - Demolition)		**13,668 gsf**
New Construction		**42,477 gsf**
Phase I + Full LRDP Implementation Construction		**50,477 gsf**
Service Facilities Total (Retained + New Construction)		**64,145 gsf**
PARKING		
Demolition		
–	Surface Parking (various locations)	<182>
Demolition		**<182 spaces>**
Phase I + Full LRDP Implementation Demolition		**<600 spaces>**
Retained (Existing - Demolition)		**990 spaces**
New Construction		
–	Parking Structure 1	1,600 spaces
–	Parking Structure 2 and/or a combination of surface, subsurface, and structured parking	1,150 spaces
–	South Parking Structure: West Addition	200 spaces
New Construction		**2,950 spaces**
Phase I + Full LRDP Implementation Construction		**3,210 spaces**
Parking Total (Retained + Construction)		**4,200 spaces**
TOTAL DEMOLITION		**<523,703 gsf> <205 beds> <600 spaces>**
TOTAL RETAINED (Existing - Demolition)		**386,662 gsf 186 beds 990 spaces**
TOTAL CONSTRUCTION		**1,515,387 gsf 341 beds 3,210 spaces**
TOTAL ONSITE DEVELOPMENT		**1,902,049 gsf 527 beds 4,200 parking spaces**

a. gsf: gross square feet

Full LRDP implementation assumes the following:

New Construction (exclusive of Phase I)

- 275,000 gsf, 82-bed addition to the new hospital constructed in Phase I
- 320,000 gsf of Ambulatory Care Facilities
- 365,000 gsf of Academic/Research/Administrative Facilities
- 42,477 gsf of Service Facilities, including completion of the central chiller plant (8,000 gsf)
- 1,600-space parking structure
- 1,100-space parking structure
- 200-space addition to the South Parking Structure
- 50 surface parking spaces
- pedestrian linkages

Demolition (exclusive of Phase I)

Full LRDP implementation requires the demolition of several of the site's structures.

- 16 buildings
- 182 surface parking spaces

Retained (inclusive of Phase I)

- 318,572 gsf of buildings and structures
- 186 hospital beds
- 990 parking spaces

2.5.2 FULL LRDP IMPLEMENTATION: CENTRAL CHILLER PLANT

The final phase (8,000 gsf) of the central chiller plant will be constructed. As a part of the LRDP implementation program, the chiller plant will be expanded to have five, 1,100-ton electrical centrifugal chillers to serve the needs of the entire Medical Center. No additional buildings/structures will be demolished to complete the chiller plant expansion.

2.5.3 FULL LRDP IMPLEMENTATION: PARKING

As a part of full LRDP implementation, two parking structures (or a combination of surface, subsurface, and structured parking) and the expansion of an existing parking structure are assumed.

Parking Structure 1

As depicted on Exhibit 2-26, the new seven-story parking structure will be located in the East Sector, in southeastern portion of the Medical Center. Levels 2 through 7 of the seven-story parking structure will accommodate approximately 1,600 parking spaces for employees, faculty, and staff at the UCI Medical Center. It is proposed that the first level will be used in the future for service needs associated with the Medical Center. This parking structure could either be oriented in a general north-south or east-west direction.

Parking Structure 2

A second parking structure is expected to be also located in the East Sector, in the eastern portion of the Medical Center site (Exhibit 2-26). It is envisioned that this parking structure will be a maximum of seven levels and accommodate approximately 1,100 vehicles.

South Parking Structure

The existing 665-space, six level South Parking Structure will be expanded to the west to accommodate approximately 200 additional vehicles.

Surface Parking

Approximately 50 additional surface parking spaces will be constructed at the Medical Center.

2.5.4 FULL LRDP IMPLEMENTATION: INFRASTRUCTURE AND UTILITY IMPROVEMENTS

As previously discussed, utilities are currently distributed through the Medical Center via an underground utility tunnel and an overhead canopy distribution system. As a part of the Phase I project, the existing utility tunnel running east and west to Building No. 2 will be demolished. Certain portions of the tunnel at the north section will also be demolished. Additionally, Building No. 43 will be demolished to accommodate the utility tunnel. A new underground utility corridor will be constructed to reroute the utilities. Additional utility tunnel improvements may be required as a part of full LRDP implementation.

2.5.5 FULL LRDP IMPLEMENTATION: TRANSPORTATION, CIRCULATION, AND ACCESS

Vehicular and pedestrian access and circulation for Phase I and full LRDP implementation were previously addressed in Section 2.4.9.

2.5.6 FULL LRDP IMPLEMENTATION: DEMOLITION AND EXCAVATION ACTIVITIES

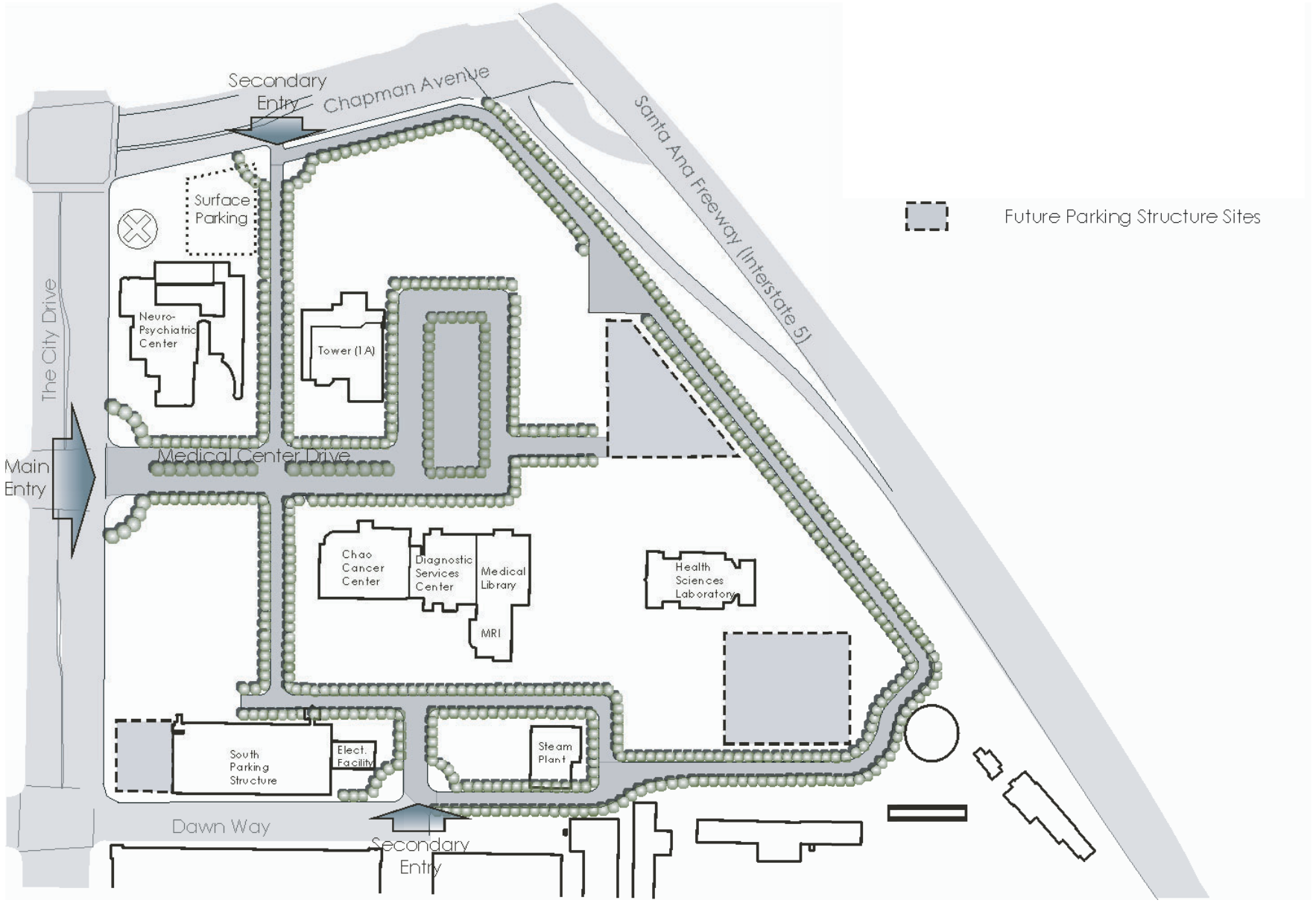
Exhibit 2-27 identifies the locations of facilities that would be demolished as a part of full LRDP implementation. Table 2-17 identifies the estimated demolition quantities associated with full LRDP implementation. Full LRDP implementation will result in the one-time generation of approximately 22,648 cy of demolition debris, exclusive of Phase I.

North Sector Land Uses

The only building that will be demolished in the North Sector to accommodate full LRDP implementation improvements will be Building No. 26, Academic Offices. Demolition of Building No. 26 will result in the one-time generation of 559 cy of demolition debris.

South Sector Land Uses

Building Nos. 20, 24, 24a, 25, 27, 29, 29a, 30, and 30a, and 25 surface parking spaces will be demolished to accommodate future South Sector land uses and the expansion of the South Parking Structure. Demolition of these buildings and parking area will result in the one-time generation of approximately 13,851 cy of demolition debris.



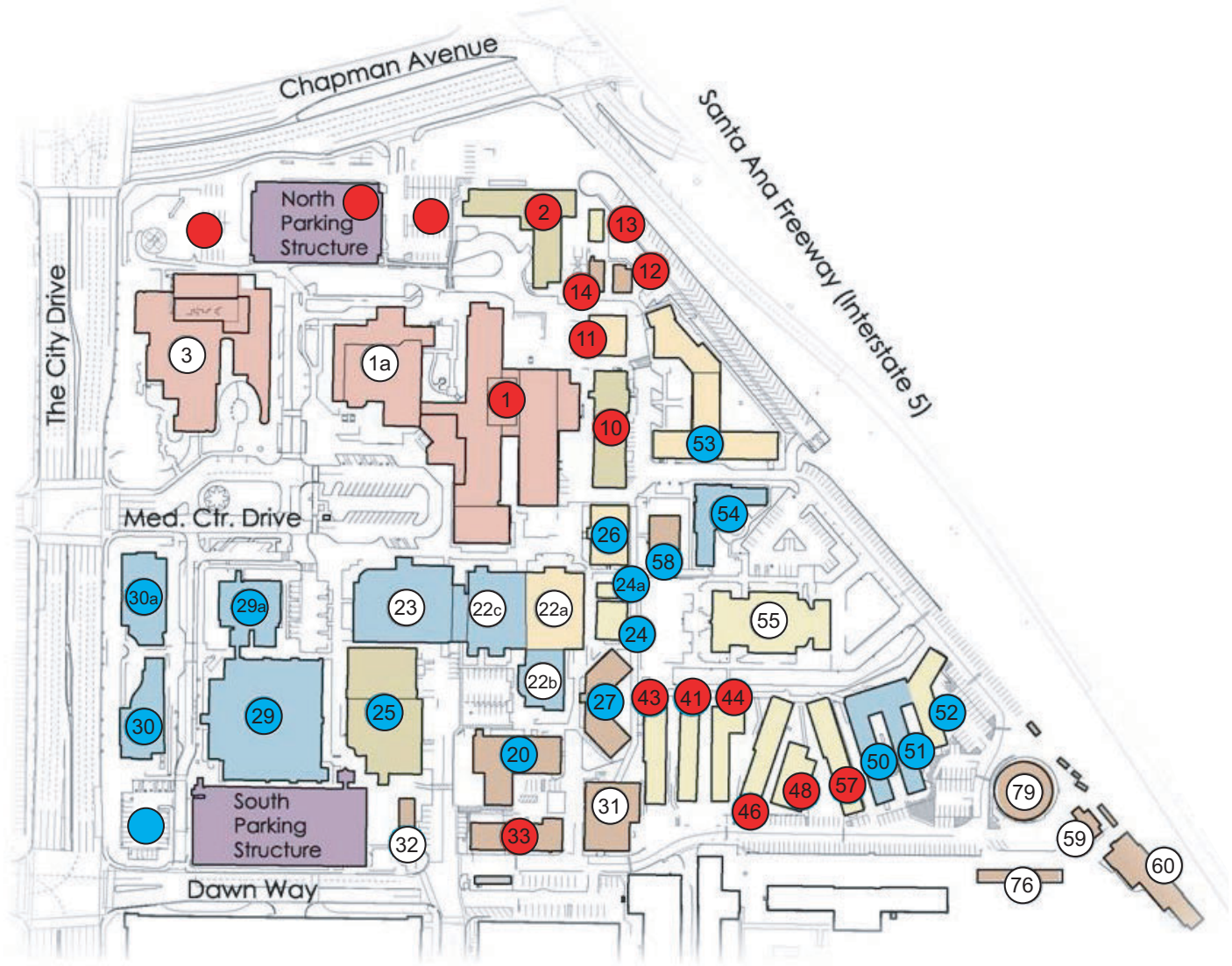
Full LRDP Implementation Onsite Parking Locations

Exhibit 2-26

UCI Medical Center LRDP EIR, University of California Irvine

Scale: 1/4" = 100'
Source: Li, Burkhart, Liu

BonTerra CONSULTING



To be demolished in Phase 1

To be demolished with full LRDP implementation

EXISTING FACILITIES

LEGEND

- Inpatient Services
- Ambulatory Services
- Academic (Teaching, Office)
- Academic (Labs)
- Service
- Parking Structures
- Mixed Use

Full LRDP Implementation Facility Demolition

Exhibit 2-27

UCI Medical Center LRDP EIR
University of California, Irvine

Scale: Not to Scale
Source: Lee, Burkhart, Liu

BonTerra CONSULTING

TABLE 2-17
FULL LRDP IMPLEMENTATION: ESTIMATED DEMOLITION QUANTITIES

Building Number	Building Description	Gross Square Feet (gsf)[a.]	Quantity[b.] (cubic yards)
NORTH SECTOR			
26	Academic Offices; Administrative Offices	<6,040>	559
Demolition		**<6,040 gsf>**	**559 cy**
SOUTH SECTOR			
20	Facilities Services/Facilities Planning; Design and Construction; Administrative Offices	<10,535>	976
24	Research Lab	<1,900>	176
24a.	Research Lab	<1,000>	93
25	Academic Offices, Administrative Services, Storage, Medical Records Facility; Facilities Services	<36,799>	3,407
27	Storage	<6,153>	570
29	Pavilion III	<36,615>	3,390
29a	Pavilion III	<16,416>	1,520
30	Pavilion I	<18,525>	1,715
30a	Pavilion II	<18,972>	1,757
SOUTH PARKING STRUCTURE			
–	Surface Parking Spaces: 25 parking spaces	<10,000>	247[c.]
Demolition		**<156,915 gsf>**	**13,851 cy**
EAST SECTOR			
54	Physical Therapy	<5,424>	502
58	Academic Offices; Administrative Services	<2,964>	274
PARKING STRUCTURE 1			
50	Occupational Therapy	<4,672>	433
51	Outpatient Dialysis	<6,172>	572
52	Research Lab	<1,444>	134
–	Surface Parking Spaces: 157 parking spaces	<62,800>	1,551[c.]
PARKING STRUCTURE 2			
53	College of Medicine Academic Offices	<51,538>	4,772
Demolition		**<135,014 gsf>**	**8,238 cy**
FULL LRDP IMPLEMENTATION DEMOLITION		**<297,969 gsf>**	**22,648 cy**

a. gsf: gross square feet
b. gsf x 2.5 cubic feet ÷ 27
c. 400 sq.ft. per parking space x 0.667 ÷ 27

South Parking Structure. Approximately 25 surface parking spaces will be demolished in the South Sector to allow for the expansion of the South Parking Structure to the west. Of the total 13,851 cy of demolition debris associated with South Sector land uses, approximately 247 cy is associated with the South Parking Structure.

East Sector Land Uses

Building Nos. 50, 51, 52, 53, 54, and 58, and approximately 182 surface parking spaces will be demolished to accommodate future North Sector land uses, including Parking Structures 1 and 2 and additional surface parking. Demolition of these buildings and parking area will result in the one-time generation of approximately 8,238 cy of demolition debris.

Parking Structure 1. The following structures will be demolished to allow for the construction of Parking Structure 1 in the East Sector. Of the 8,238 cy of demolition debris associated with East Sector land use, approximately 1,551 cy is associated with Parking Structure 1.

- Building No. 50: Occupational Therapy
- Building No. 51: Outpatient Dialysis
- Building No. 52: Research Lab
- Approximately 182 surface parking spaces

Parking Structure 2. Building No. 53, College of Medicine Academic Offices, will be demolished to allow for the construction of Parking Structure 2 in the East Sector. Of the 8,238 cy of demolition debris associated with East Sector land uses, approximately 4,772 cy is associated with Building No. 53.

2.5.7 FULL LRDP IMPLEMENTATION: PHASING PLAN

Project-specific Medical Center development projects will be phased over a period of 18 years with full implementation of the UCI Medical Center LRDP uses expected to be completed by 2020. Implementation of medical facility uses could commence during the time frame and overlap with the completion of Phase I. As previously discussed, the UCI Medical Center LRDP will serve as the "general plan" to guide the physical development of the UCI Medical Center. It does not constitute a commitment to any specific projects, construction schedules, or funding priorities. Multiple activities are required for project implementation.

2.6 PROJECT ACTIONS

The following lead agency and responsible and trustee agencies are expected to use the information contained in this EIR for consideration of approvals related to and involved in the implementation of this project. Anticipated approval authority by the University of California and other public agencies whose action is required (e.g., permits, financing approval, or participation agreement) are identified below:

The Regents of the University of California

- Certification of the UCI Medical Center LRDP Final EIR. The project requires the certification of an environmental document as having been prepared in compliance with California Environmental Quality Act (CEQA), as amended (Public Resources Code §21000 et seq.), the CEQA Guidelines (California Code of Regulations §15000 et seq.), and in accordance with the University of California Procedures for the Implementation of CEQA. CEQA, and certification that the data were considered in the final decisions on the project.

- Approval of the UCI Medical Center LRDP.

- Approval of the Phase I project.

State of California

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

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

SECTION 3
EXISTING CONDITIONS, PROJECT AND CUMULATIVE ENVIRONMENTAL IMPACTS, MITIGATION PROGRAM, AND LEVEL OF SIGNIFICANCE AFTER MITIGATION

The UCI Medical Center Long Range Development Plan (LRDP) EIR provides an analysis of impacts for those environmental topics where it was determined that the proposed project resulted in "potentially significant impacts," as identified in the Initial Study included in Appendix A.

Each topical section of the EIR (Sections 3.1 through 3.12) includes the following information: description of the existing setting; identification of thresholds of significance; analysis of potential project-specific and cumulative effects; identification of a mitigation program, if required, to reduce the identified impacts; and identification of unavoidable significant adverse impacts, if applicable.

EXISTING CONDITIONS

CEQA Guidelines §15125(a) states that "An EIR must include a description of the physical environmental conditions in the vicinity of the project, as they exist at the time the notice of preparation is published, or if no notice of preparation is published, at the time environmental analysis is commenced, from both a local and regional perspective. This environmental setting will normally constitute the baseline physical conditions by which a lead agency determines whether an impact is significant..."

PROJECT AND CUMULATIVE IMPACTS

Project Impacts

As stated in CEQA Guidelines §15064:

> "In evaluating the significance of the environmental effect of a project, the Lead Agency shall consider direct physical changes in the environment which may be caused by the project and reasonably foreseeable indirect physical changes in the environment which may be caused by the project.
>
> (1) A direct physical change in the environment is a physical change in the environment which is caused by and immediately related to the project. Examples of direct physical changes in the environment are the dust, noise, and traffic of heavy equipment that would result from construction of a sewage treatment plant and possible odors from operation of the plant.
>
> (2) An indirect physical change in the environment is a physical change in the environment which is not immediately related to the project, but which is caused indirectly by the project. If a direct physical change in the environment in turn causes another change in the environment, then the other change is an indirect physical change in the environment. For example, the construction of a new sewage treatment plant may facilitate population growth in the service area due to the increase in sewage treatment capacity and may lead to an increase in air pollution.
>
> (3) An indirect physical change is to be considered only if that change is a reasonably foreseeable impact which may be caused by the project. A change which is speculative or unlikely to occur is not reasonably foreseeable...."

Cumulative Impacts

A cumulative impact "...refers to two or more individual impacts that, when considered together, are considerable or that compound or increase other environmental impacts.... The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time" (source: CEQA Guidelines §15355).

CEQA Guidelines §15130 states that an EIR "shall discuss cumulative impacts of a project when the project's incremental effect is cumulatively considerable....a cumulative impact consists of an impact which is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts...."

Pursuant to CEQA Guidelines §15130(b)(1), the following elements are necessary for an adequate discussion of significant cumulative impacts, either: "(A) A list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the agency or, (B) A summary of projections contained in an adopted general plan or related planning document, or in a prior environmental document which has been adopted or certified which described or evaluated regional or area-wide conditions contributing to the cumulative impact...." Therefore, cumulative development for the UCI Medical Center LRDP project refers to buildout of land within the project study area which is inclusive of portions of the cities of Orange, Anaheim, Santa Ana, and Garden Grove based on current land use designations set forth in the cities' respective General Plans, as well as all known General Plan amendment requests for additional development in the study area.

Table 3-1 provides a breakdown of land uses as set forth in the General Plans for the cities of Orange, Anaheim, Garden Grove, and Santa Ana. Table 3-2 identifies General Plan amendment projects that have been proposed and/or approved in these cities since the distribution of the UCI Medical Center Long Range Development Plan Initial Study and Notice of Preparation on February 29, 2000. These projects were determined to affect or be affected by the proposed UCI Medical Center Long Range Development Plan project and would not have been included in the General Plans of the respective cities. Table 3-3 identifies for each of the specific development projects, the environmental topical issues that were considered in the UCI Medical Center Long Range Development Plan Draft EIR as a part of the cumulative impact analysis. The analysis of potential cumulative effects from implementation of the proposed project is presented for each topical issue in Sections 3.1 through 3.12 of this EIR.

TABLE 3-1
CITIES OF ORANGE, ANAHEIM, GARDEN GROVE, AND SANTA ANA
GENERAL PLAN BUILDOUT LAND USE ASSUMPTIONS

Land Use Category	Area (acres)	Dwelling Units or Square Feet
City of Orange[a.]		
Residential	9,970	49,466 du
Commercial	1,479	23,477 sq.ft.
Industrial	1,537	25,446 sq.ft.
Public Facilities	976	16,177 sq.ft.
Open Space	2,668	n/a
Resource Areas	208	n/a
Transportation	403	n/a
City of Orange Total	**17,241 acres**	**49,466 du 65,100 sq.ft.**
City of Anaheim		
Residential[b.]	not available	104,023 du
Residential[c.]	11,871	100,125 du
Agriculture/Vacant[d.]	3,760	163,792,489 sq.ft.
Commercial[d.]	2,587	112,672,800 sq.ft.
Community Services[d.]	4,594	200,117,951 sq.ft.
Industrial[d.]	3,050	132,869,461 sq.ft.
Waterway[d.]	33	n/a
Other[d.]	178	7,737,530 sq.ft.
City of Anaheim Total[d.]	**26,073 acres**	**100,125 du 617,190,231 sq.ft.**
City of Garden Grove[e.]		
Residential	5,823	50,509 du
Commercial	665	10,244,700 sq.ft.
Office Professional	121	1,780,600 sq.ft.
Mixed Use	436	6,953,000 sq.ft.
Industrial	711	17,979,800 sq.ft.
Open Space	1,058	n/a
Roadways	2,770	n/a
City of Garden Grove Total	**11,584 net acres**	**50,509 du 36,958,100 sq.ft.**
City of Santa Ana[f.]		
Residential	7,463	78,248 du
Commercial	2,008	43,734,240 sq.ft.
Industrial	2,597	50,906,394sq.ft.
Institutional	798	6,952,176 sq.ft.

TABLE 3-1 (continued)
CITIES OF ORANGE, ANAHEIM, GARDEN GROVE, AND SANTA ANA
GENERAL PLAN BUILDOUT LAND USE ASSUMPTIONS

Land Use Category	Area (acres)	Dwelling Units or Square Feet
Open Space	877	7,640,424 sq.ft.
City of Santa Ana Total	**13,743 acres**	**78,248 du** **109,233,234 sq.ft.**

a. Source: City of Orange General Plan, 1989.
b. Future housing projections. Source: Center for Demographic Research, California State University at Fullerton.
c. Existing dwelling units. Source: Center for Demographic Research, California State University at Fullerton.
d. Existing conditions. Source: City of Anaheim Land Use GIS data, October 2002. Future development assumptions would assume an increase of development associated with General Plan buildout and a commensurate reduction in agricultural and vacant land.
e. Source: City of Garden Grove General Plan.
f. Source: City of Santa Ana General Plan, 1998.

Thresholds of Significance

CEQA Guidelines §15064.7 addresses thresholds of significance and encourages each public agency to develop thresholds of significance through a public review process. Subsequently, these thresholds must be published and adopted by agency ordinance, code, or regulation. UCI has not formally adopted a comprehensive list of thresholds of significance. Therefore, the thresholds used in this EIR have been derived from several sources, including the City of Orange Noise Ordinance, the State CEQA Guidelines Appendix G Environmental Checklist, and adopted thresholds from other agencies (such as the South Coast Air Quality Management District).

Mitigation

The Mitigation Program identified to reduce potential project impacts is inclusive of Standard Conditions and Requirements and Mitigation Measures. The components of the Mitigation Program are described below:

- *Standard Conditions and Requirements*–Standard conditions and requirements are based on local, state, or federal regulations or laws that are frequently required independently of CEQA review, but can also serve to offset or prevent specific impacts. Typical standard conditions and requirements include compliance with the Uniform Building Code, South Coast Air Quality Management District Rules 401, 403, etc. The standard conditions identified in the EIR include those where implementation of the conditions would mitigate potential significant environmental impacts.

- *Mitigation Measures*–Where a potentially significant environmental effect has been identified and is not reduced to a level considered less than significant, project-specific mitigation measures have been recommended.

TABLE 3-2
CITIES OF ORANGE, ANAHEIM, GARDEN GROVE, AND SANTA ANA: PROPOSED AND APPROVED GENERAL PLAN AMENDMENT PROJECTS

Lead Agency	Project	Land Uses	Location; Direction and Approximate Distance from UCI Medical Center	Determination/Status
CITY OF ORANGE				
City of Orange	Chapman University Specific Plan EIR[a.]	Amend existing Specific Plan boundaries; establish new land use regulations; define historic preservation process; establish sign program; remove Specific Plan area from Southwest Redevelopment Area; identify expansion areas.	Glassell Street, Lemon Street, Rose Street, Shaffer Street, and Palm Avenue 2.5 miles, east	NOP received Nov. 10, 2001
City of Orange	Santiago Hills II Supplemental EIR[a.]	1,754 residences	East Orange: Jamboree Road/Handy Creek Road/Chapman Avenue 10 miles, southeast	EIR certified October 10, 2000; approved, not yet constructed
CITY OF ANAHEIM				
City of Anaheim	Anaheim Resort Third Theme Park EIR[b.]	Theme park, hotel, retail, dining, and entertainment uses and parking	East Parking Area north of Disney Way and Future Expansion District located south of Katella Avenue and east of Harbor Boulevard 2.5 miles, northwest	NOP filed July 24, 2000; project on hold
City of Anaheim	Anaheim Gateway EIR[b.]	335,000 sq.ft. of retail, restaurant, and service station uses on former drive-in theater site	Lemon Street at Durst Street 4 miles, northwest	Draft EIR recirculated April 28, 2000
CITY OF GARDEN GROVE				
No projects subject to a General Plan amendment in the project study area were identified.				
CITY OF SANTA ANA				
City of Santa Ana	Armstrong Ranch EIR[c.]	47-acre site: 156 single-family residences, 99,000 sq.ft. church facilities for the Roman Catholic Diocese of Orange County, and future public uses.	MacArthur Blvd. at Bear Street 10 miles, south	Notice of Determination filed in October 2002.

TABLE 3-2 (cont.)
CITIES OF ORANGE, ANAHEIM, GARDEN GROVE, AND SANTA ANA:
PROPOSED AND APPROVED GENERAL PLAN AMENDMENT PROJECTS

Lead Agency	Project	Land Uses	Location; Direction and Approximate Distance from UCI Medical Center	Determination/Status

ND: Negative Declaration
MND: Mitigated Negative Declaration
EIR: Environmental Impact Report
EIS: Environmental Impact Statement
sq.ft.: square feet
asf: assignable square feet

a. Noted documents are available for review during regular business hours at the City of Orange Community Development Department, 300 E. Chapman Avenue, Orange.
b. Noted documents are available for review during regular business hours at the City of Anaheim Planning Department, 200 South Anaheim Boulevard, Anaheim.
c. The noted document is available for review during regular business hours at the City of Santa Ana Planning and Building Agency, 20 Civic Center Plaza, Ross Street Annex, Santa Ana.

Sources: www.ceganet.ca.gov; www.yahoo.com

TABLE 3-3
PROPOSED AND APPROVED GENERAL PLAN AMENDMENT PROJECTS
ENVIRONMENTAL ISSUES

Project Name	Applicable Environmental Resource Issues	
CITY OF ORANGE		
Chapman University Specific Plan EIR	Historic Resources	Public Services and Utilities
Santiago Hills II Supplemental EIR	Population & Housing	Public Services and Utilities
CITY OF ANAHEIM		
Anaheim Resort Third Theme Park EIR	Land Use	
Anaheim Gateway EIR	Land Use	
CITY OF GARDEN GROVE		
No projects subject to a General Plan amendment were identified.		
CITY OF SANTA ANA		
Armstrong Ranch EIR	Population and Housing	

ND: Negative Declaration
MND: Mitigated Negative Declaration
EIR: Environmental Impact Report
EIS: Environmental Impact Statement

3.1 AESTHETICS

3.1.1 INTRODUCTION

This section describes the aesthetic and visual characteristics of the UCI Medical Center site and immediate vicinity, and evaluates the potential change in the existing visual character of the area associated with the implementation of the proposed project with regard to light, glare, shadows, visual quality, and views.

3.1.2 TERMINOLOGY

Aesthetics

Aesthetics addresses the visual character of a project area and how a proposed project may change that character. Aesthetics deals with issues of building heights, mass, and location and the interface between buildings and site layout in the context of its environment. Three factors are considered when assessing existing and future views and aesthetics:

- ***Prominence***–the degree to which the building/structure/feature being viewed stands out within the available view.

- ***Coverage***–the proportion of the total field of view occupied by the building/structure/feature being viewed.

- ***Contrast***–the consistency of new development with existing development.

The degree to which visual character is changed is dependent on such factors as architecture, height, compatibility, mass, building materials and colors relative to adjacent development (i.e., prominence), the degree to which the building(s) occupy the field of view (i.e., coverage), and consistency in form, height, and massing of current development with future development (i.e., contrast).

Views

Views assessments address accessibility to the visual resources available in the project vicinity. Views may focus on individual visual scenic resources, such as a mountain peak, or may be panoramic, covering a wide field of view. Views are a function of prominence and coverage because the degree to which a view of a visual resource is blocked depends on the degree to which the visual resource stands out in the total view (i.e., prominence) and the degree to which the visual resource occupies the total field of view (i.e., coverage).

Shadows

The issue of shadow pertains to the blockage of direct sunlight by buildings, other structures, or grade change which affects adjacent properties. Shading can be an issue where there is an expectation to receive direct light and warmth from the sun. Shadow patterns are typically calculated for the winter solstice and summer solstice, December 22 and June 22, respectively. These dates are when maximum and minimal seasonal shading occurs.

Topography is an important factor when considering the impact of shadows because large differentials in elevation between the source of the shadow and adjacent uses will affect the length of the shadow cast. Shadows cast by buildings on land which is elevated about surrounding areas

would extend into the surrounding areas to a greater extent than they would if there were no elevational differential and vice versa. Shadows cast up a slope are shortened, while shadows cast downslope are lengthened.

Light

Artificial light may be generated from point sources (i.e., unshielded bulbs) or from non-point sources such as directly or indirectly illuminated surfaces. The effects of modifications of nighttime light conditions are contextual and depend on the existing lighting environment, light intensity, and proximity to light sources. Light can affect visual prominence, decrease available views, alter neighborhood character, and/or illuminate sensitive land uses. Nighttime illumination of sensitive land uses can adversely affect land use functions, such as those of a nighttime-occupied institutional nature (e.g., hospital) or residential nature. Such uses constitute sensitive receptors because the uses are occupied during evening and nighttime hours and can be subject to disturbance by bright light sources.

Glare

Glare addresses the phenomenon associated with the reflection of light off various surfaces. Two types of glare are most common: daytime glare associated with sunlight and nighttime glare associated with artificial light sources. Glare is common in urban areas where it can be an annoyance for residents and pedestrians, and create hazards for motorists. Instances of adverse glare generation are typically associated with structures with exterior facades largely or entirely constructed with reflective glass or mirror-like building materials. Glare can be a transitory condition related to the sun or to automobile headlights. Some glare is more permanent, such as glare associated with streetlights or other permanent lighting fixtures. Glare may adversely affect anyone or anything in an area, in particular residents, institutional users, pedestrians, and motorists.

3.1.3 EXISTING CONDITIONS

Visual Characteristics of the Surrounding Area

The proposed project is located in the southwestern portion of the City of Orange. The area is generally bound by I-5 on the north and northwest, the Santa Ana River on the east, SR-22 on the south, the City of Garden Grove on the east, and the City of Anaheim to the northwest. The area is highly developed and consists of institutional/governmental, commercial, office uses. As noted on Table 3.1-1, there are mid- and high-rise office, hotel, and institutional buildings ranging in height from 4 to 20 stories in the vicinity of the UCI Medical Center. The location of these uses are depicted on Exhibit 3.1-1. Further away from and west of the immediate project area are residential uses, including single- and multiple-family units.

Immediately south of the Medical Center are institutional/governmental uses, including the Orangewood Children's Home, City of Orange Fire Station No. 6, the County of Orange Betty Lou Lamoreaux Justice Center (juvenile court), Orange County Juvenile Hall, and the County of Orange Theo Lacy Facility (i.e., county jail) (five stories). The Orange County Juvenile Hall and the Lamoreaux Justice Center are located immediately south of the eastern half of the Medical Center. The Orange County Juvenile Hall consists of a series of one-story buildings used to administrative, residential, and educational uses, as well as outdoor recreational fields. The Justice Center consists of the seven-story Juvenile, Family Law, and Probate Courts, as well as the five-story Manchester Office Building, which also houses the Probation Department. The other noted uses are located further to the south. Views from the Justice Center of the Medical Center include parking areas and several one-story bungalows, research laboratories, and administrative services.

Surrounding Mid- to High-Rise Buildings

Exhibit 3.1-1

UCI Medical Center LRDP EIR
University of California, Irvine

N

Scale: 1" = 800'
Source: Lee, Burkhart, Liu

BonTerra CONSULTING

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Views from the UCI Medical Center of the Justice Center buildings include outdoor recreational areas, a parking lot for maintenance vehicles, the five-story Manchester Office Building, and one-story buildings that are part of the Orange County Juvenile Hall.

TABLE 3.1-1
BUILDING HEIGHTS

Building	Land Use	Stories
Existing		
1. City Tower One	Office	20
2. Doubletree Hotel	Hotel	19
3. City Plaza One	Office	18
4. Crystal Cathedral	Church	12
5. 505 Building	Office	10
6. 600 Building	Office	10
7. 3800 W. Chapman	Office	8
8. 4050 W. Chapman	Office	8
9. Bergen Brunswig Building	Office	4
10. 500 Building	Office	4
11. UCI Medical Center Hospital and Tower	Hospital	6
12. Country Inn Hotel	Hotel	6
13. Betty Lou Lamoreaux Justice Center	County Courts	5 and 7
14. Theo Lacy Facility	County Jail	5
15. Orangewood Children's Home	Institutional Facility	1 and 2
Planned/Approved		
16. City Plaza Two	Office, Parking Structure	19; 6
17. 605 Building	Office, Parking Structure	10; 5
18. Chapman Site	Office, Parking Structure	6; 5
19. City Tower Two	Office, Parking Structure	24; 8
20. Hotel	Hotel	4

a. www.greatbuildings.com
b. Building heights not noted in the *Spieker Properties Office Development Project EIR*.

Source: Spieker Properties Office Development Project EIR, 2001.

Orangewood Children's Home is located south of the Lamoreaux Justice Center. This facility includes many one- and two-story buildings, landscaped grounds, play areas, a swimming pool, and a one-story administrative building. Many of the institutional/governmental uses in the project vicinity (i.e., Theo Lacy Jail, Fire Station No. 6) do not have views of the Medical Center nor can they be viewed from the Medical Center.

Visual Character of the UCI Medical Center Site

The UCI Medical Center is densely developed with buildings ranging in height from one to six stories with a wide range of architectural styles and characters. The northwest portion of the site, near the corner of Chapman Avenue and The City Drive, contains several multi-story buildings, including the north parking garage, the Neuropsychiatric Center, and the Medical Center Tower. The area of the Medical Center north of Medical Center Drive is generally dedicated to inpatient and emergency service. The area between Medical Center Drive and Dawn Way to the south is generally dedicated to outpatient services. The eastern portion of the center is dedicated to the UCI Medical School.

3.1.4 THRESHOLDS OF SIGNIFICANCE

The following standards of significance are based on Appendix G, Environmental Checklist, of the CEQA Guidelines. For the purposes of this EIR, impacts would be considered significant if the following were to occur:

- The project would substantially degrade the existing visual character or quality of the project site and its surroundings.

- The project would create new sources of substantial light or glare which would adversely affect day or nighttime views in the area.

In addition, the following significance criteria applies to the UCI Medical Center LRDP project. For the purposes of this EIR, impacts would be considered significant if the following were to occur:

- The project would cast shade or shadow effects onto sensitive land uses in adjacent offsite areas for more than two hours between the hours of 10:00 a.m. and 3:00 p.m.

Visual impacts of a project include both the objective physical change created by the project and the subjective viewer response to that change. Distance from the project, frequency of view, length of view, viewer activity, viewer perception, and viewing conditions contribute to the assessment of a visual impact. The physical limits and changes of the views, and the quantity of the viewers are objective and can be measured (i.e., number of people, distance to view). However, viewer perception is subjective and is usually difficult, if not impossible, to measure.

The perception of different viewer groups to the visual environment and its elements varies based on viewer activity and awareness. Activities such as commuting in heavy traffic can distract an observer from many aspects of the visual environment. Conversely, pleasure driving or relaxing in a scenic environment can encourage an observer to look at the view more closely and at greater length, thereby increasing the observer's attention to detail. Sensitivity is also determined by how much the viewer has at stake in the viewshed. Typically, people who own property in an area are more sensitive to change than those just passing through an area.

Because the Medical Center does not contain scenic resources or vistas, or have views of or from scenic resources or vistas, the following impact analysis does not address scenic resources or vistas.

3.1.5 VIEWSHED ASSESSMENT METHODOLOGY

To illustrate potential visual changes associated with project implementation, a viewshed analysis was prepared. Photographs were taken using a standard 35 millimeter (mm) camera with a 50 mm

lens. Camera lens height was approximately five feet above ground level. In the case of panoramic views, several photographs are taken with a 30 percent to 50 percent overlap in each frame to aid in the compositing process.

A computer model of the project site and buildings was created from criteria set forth in the *University of California, Irvine Medical Center 2002 Long Range Development Plan Summary*. Phase I conditions reflect the completion of the new hospital, reconfigured surface parking, the first phase of the Chiller Plant, a 75,000 gsf two-story modular building, as well as the demolition of buildings necessary for the implementation of Phase I.

As previously addressed in this EIR, no site-specific building information is known for full LRDP implementation conditions. To determine the potential visual effects associated with full LRDP implementation of Medical Center uses on the site, certain development assumptions were made to characterize this scenario. Visual simulations for full LRDP implementation are based on the maximum proposed square footage, height limits (10 stories above ground level), and parking requirements associated with the proposed development. The intent of these assumptions was to address maximum potential visual impacts associated with full LRDP implementation at a comparable in detail to the analysis accomplished for Phase I. It should be noted that all buildings and parking structures siting, design, materials, and colors shown in these exhibits are conceptual. It is important to note that the simulations do not include architectural details (i.e., colors and architectural treatments) or landscaping. These details will be determined on a project-specific development basis. Some existing buildings and features were also modeled to aid in aligning the computer model to the photographs. The software used for the modeling and image creation was Autodessys FormZ solid modeling software. The various parts of the computer model were colored and textured to give them a more realistic appearance during final rendering. The computer model was aligned to the various scanned photographs using aerial photographs, maps, and the existing structures included in the computer model. The final images were then rendered and superimposed into the originally scanned photographs; any foreground objects were preserved using a masking technique.

3.1.6 PROJECT IMPACTS

Impact 3.1-1: The proposed project would alter views from and of the site. Views from the Orange County Juvenile Hall of the parking structure are considered a significant visual impact.

The proposed project has the potential to alter the view from surrounding land uses, as well as for motorists passing through the area on local roadways, because of the project's land use intensification, potential for increased light and glare, and potential shade and shadows from onsite structures. The potential aesthetic impacts of the LRDP project can be evaluated considering the scale, mass, and typical construction material and landscaping associated with the design of the proposed project. In addition, this section assesses the aesthetic compatibility of the proposed project with the surrounding area and potential effects on "sensitive viewers."

Sensitive viewers are generally associated with residential, school, church, and recreational land uses. Using this definition, sensitive viewers within the project area would consist of the residential uses to the west of the project site and the Orange County Juvenile Hall, Theo Lacy Facility (jail), and Orangewood Children's Home residents and staff south of the project site. The Orange County Juvenile Hall is located directly adjacent to and has existing views of the Medical Center.

The proposed project was assessed and compared to the existing Medical Center complex in terms of character and compatibility with the existing landscape. Exhibits 3.1-2 through 3.1-11 present

visual simulations prepared to assist in the viewshed analysis. Each exhibit includes a map to show where the photographs were taken, a "before" view which shows the existing conditions, and an "after" view which shows the simulation of what the view would look like after the proposed project is implemented.

Photo simulations were prepared for the following locations, which are described in more detail below:

- View from southbound I-5 at the end of the Chapman Avenue on-ramp. View of the northern edge of the Medical Center (Exhibits 3.1-2 and 3.1-3).

- View from a restaurant parking lot on Chapman Avenue, across I-5. View of the eastern portion of the Medical Center (Exhibits 3.1-4 and 3.1-5).

- View from the southwestern corner of The City Drive and Dawn Way. View of the South Parking Structure and Medical Center buildings to north (Exhibits 3.1-6 and 3.1-7).

- View from the northwestern corner of Chapman Avenue and The City Drive looking southeast. View of the existing North Parking Structure, helipad area, and buildings to the south (Exhibits 3.1-8 and 3.1-9).

- View from the center of Medical Center Drive from the center of The City Drive. View of the main Medical Center entrance (Exhibits 3.1-10 and 3.1-11).

Exhibit 3.1-2 depicts the Phase I development from southbound I-5 at the end of the Chapman Avenue on-ramp. From this viewpoint, the new hospital will be visible south of Chapman Avenue; the existing North Parking Structure (shown as a low wall in the foreground of the "before" shot) has been demolished. The hospital is expected to be similar in style, function, and character to the existing facilities, with landscaping and architectural details to be determined. Replacement of the hospital facility will appear in context to other buildings within the Medical Center and will not be out of character in the project vicinity. Because the proposed development is similar in intensity to other uses at the Medical Center, changes are considered ***less than significant***.

Exhibit 3.1-3 depicts full LRDP implementation. Based on the conceptual siting of facilities, new facilities will be visible to motorists traveling at freeway speeds along I-5. As discussed above, the new buildings are expected to be similar to the existing facilities will appear in context to other buildings within the Medical Center, and will not be out of character in the project vicinity. Additionally, motorists traveling along the freeway will have views of this portion of the project site for a short-term interval. As a result, their opportunity to view the area is brief. Because the proposed development is similar in intensity to other uses at the Medical Center, changes are considered ***less than significant***.

Exhibits 3.1-4 and 3.1-5 depict the project site from the restaurant parking lot on Chapman Avenue, west of I-5. From the viewpoint shown in Exhibit 3.1-4 for Phase I, the eastern side of the new hospital will be a prominent feature. In Exhibit 3.1-5, showing full LRDP implementation, most of the new buildings will be visible. As conceptually sited, views will be of the eastern side of the proposed seven-story parking structure and other Medical Center structures. These new buildings will be visible to motorists traveling at freeway speeds along I-5, as well as to patrons at the restaurant. It is expected that the new buildings will be similar in style, function, and character to the existing facilities. Additionally, restaurant patrons will not be considered sensitive receptors, and the proposed improvements will not obstruct view of scenic resources, or degrade the existing

After

Before

Phase I: View from Southbound I-5 at End of Chapman Avenue On-ramp

Exhibit 3.1-2

UCI Medical Center
Orange, California

Scale: Not to Scale
Source: Digital Preview

BonTerra CONSULTING

After

Before

Full LRDP: View from Southbound I-5 at End of Chapman Avenue On-ramp

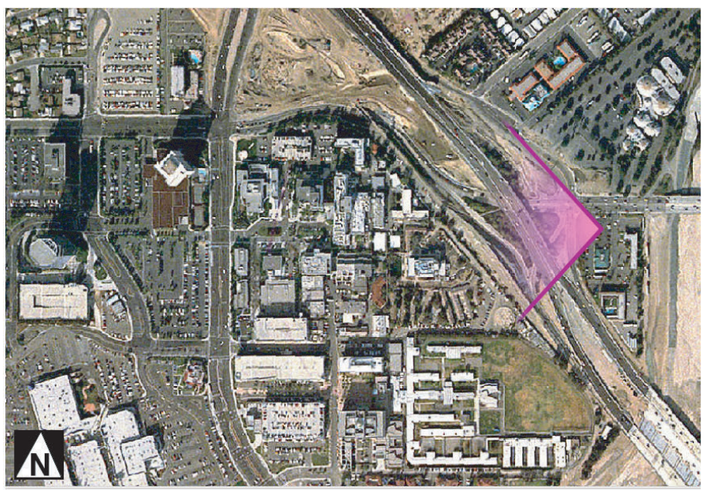
Exhibit **3.1-3**

UCI Medical Center
Orange, California

Scale: Not to Scale
Source: Digital Preview

Bonterra CONSULTING

After



Before

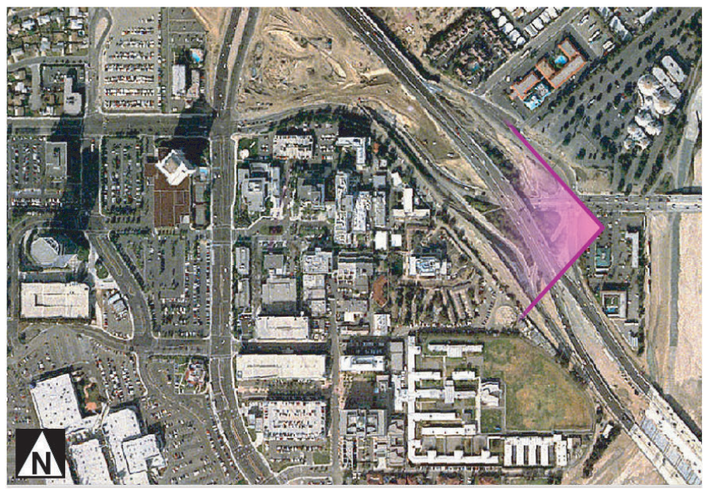
Phase I: View from Denny's Parking Lot on Chapman Avenue **Exhibit 3.1-4**

UCI Medical Center LRDP EIR

Scale: Not to Scale
Source: Digital Preview

BonTerra CONSULTING

After



Before

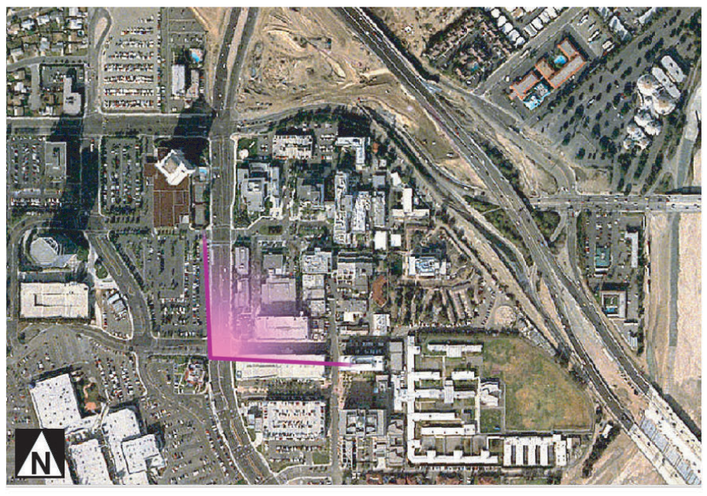
Full LRDP: View from Denny's Parking Lot on Chapman Avenue **Exhibit 3.1-5**

UCI Medical Center LRDP EIR

Scale: Not to Scale
Source: Digital Preview

BonTerra CONSULTING

After



Before

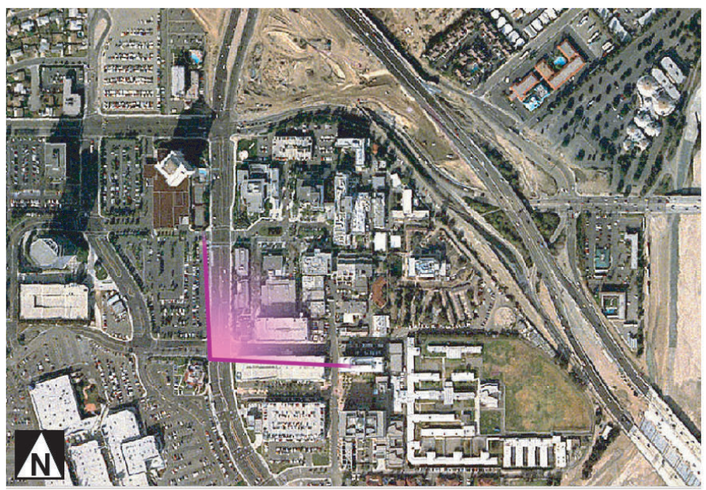
Phase I: View from Southwest Corner of The City Drive and Dawn Way **Exhibit 3.1-6**

UCI Medical Center LRDP EIR

Scale: Not to Scale
Source: Digital Preview

BonTerra CONSULTING

After



Before

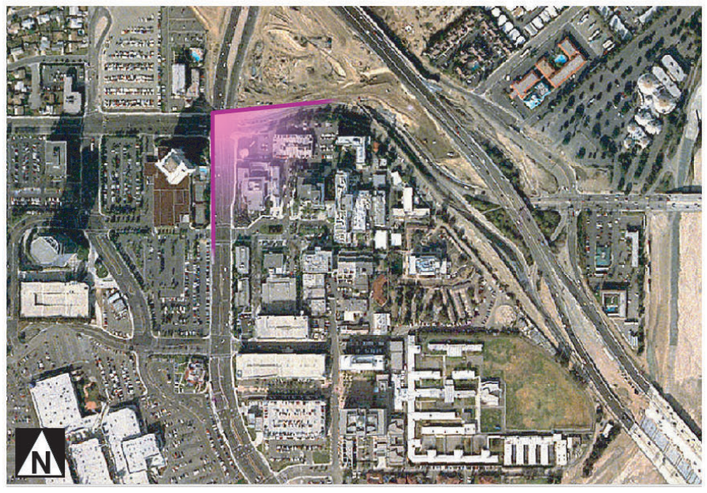
Full LRDP: View from Southwest Corner of The City Drive and Dawn Way **Exhibit 3.1-7**

UCI Medical Center LRDP EIR

Scale: Not to Scale
Source: Digital Preview

BonTerra CONSULTING

After



Before

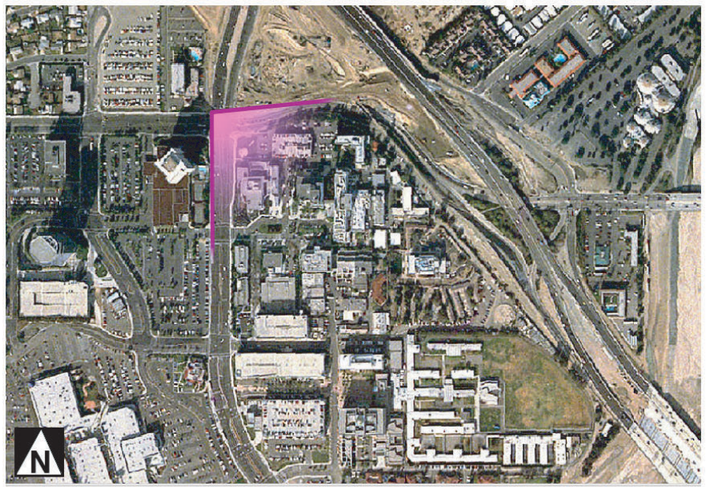
Phase I: View from Northwest Corner of Chapman Avenue and The City Drive Looking Southeast **Exhibit 3.1-8**

UCI Medical Center LRDP EIR

Scale: Not to Scale
Source: Digital Preview

BonTerra CONSULTING

After



Before

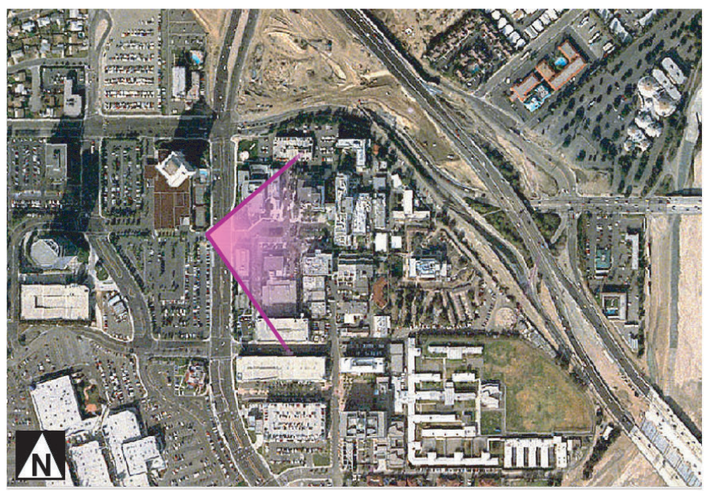
Full LRDP: View from Northwest Corner of Chapman Avenue and The City Drive Looking Southeast **Exhibit 3.1-9**

UCI Medical Center LRDP EIR

Scale: Not to Scale
Source: Digital Preview

BonTerra CONSULTING

After



Before

Phase I: View from Center of Medical Center Drive at West Side of The City Drive

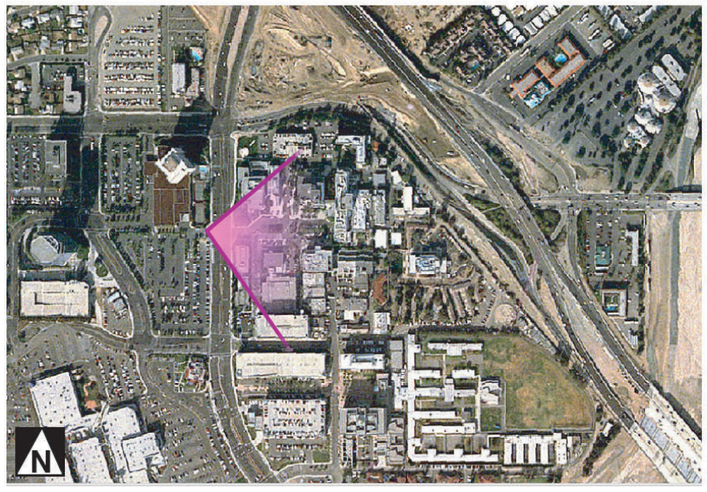
Exhibit 3.1-10

UCI Medical Center LRDP EIR

Scale: Not to Scale
Source: Digital Preview

BonTerra CONSULTING

After



Before

Full LRDP: View from center of Medical Center Drive at West Side of The City Drive **Exhibit 3.1-11**

UCI Medical Center LRDP EIR

Scale: Not to Scale
Source: Digital Preview

BonTerra CONSULTING

visual character or quality of the site. As a result, the changes represented in these exhibits, even with an intensification of use, will result in a ***less than significant*** visual impact.

Exhibits 3.1-6 and 3.1-7 depict views from the southwest corner of The City Drive and Dawn Way. Exhibit 3.1-6 (Phase I) portrays the uppermost portion of the new hospital, behind Pavilions I and II. (Only a small portion of the hospital is visible to the left of the traffic signal arm.). In Exhibit 3.1-7 (full LRDP implementation), the proposed west addition to the South Parking Structure and another Medical Center building are visible. New onsite structures will be designed to be similar in style, function, and character to existing facilities. Although onsite development will be visible from Orange County Juvenile Hall, Phase I uses will be similar in use and character to existing Medical Center facilities. As a part of full LRDP implementation, a seven-story, 1,600 parking space parking structure is proposed adjacent to the Juvenile Hall (Building Nos. 50, 51, and 52 would be demolished). This parking structure would be visible from the adjacent Juvenile Hall and is considered a ***significant visual impact***. Residents to the west of The Block at Orange, the Theo Lacy Facility, and Orangewood Children's Home do not have views of the Medical Center and would result in a ***less than significant*** visual impact from these locations.

Exhibits 3.1-8 and 3.1-9 show views from the northwest corner of The City Drive and Chapman Avenue. From this viewpoint shown in Exhibit 3.1-8 (Phase I), the new hospital building will be prominent; the existing North Parking Structure has been demolished. Exhibit 3.1-9 (full LRDP implementation) includes a new Medical Center building conceptually sited south of Medical Center Drive. The new buildings will be similar in style, function, and character to the existing facilities so as not to degrade the existing visual character of the area. The introduction of buildings at these locations will not significantly change or impact the viewshed. As a result, these buildings will result in ***less than significant*** visual impacts.

Exhibits 3.1-10 and 3.1-11 show views from the center of Medical Center Drive, across The City Drive, of the main hospital entrance. In Exhibit 3.1-10 (Phase I), the existing hospital (Building No. 1) has been demolished and a new central traffic circle and tree-lined boulevard has been constructed. From the viewpoint shown in Exhibit 3.1-11 (full LRDP implementation), a new Medical Center structure is visible from its conceptual siting at the end of the boulevard, as well as another structure to the right. The new buildings will be similar in style and function to the existing facilities, characteristic of surrounding uses. These changes are considered ***less than significant***.

Residential areas west of The Block at Orange and residents at the Theo Lacy Facility and Orangewood Children's Home further to the south of the Medical Center will not see the new facilities proposed at the Medical Center because of the distance between these land uses and the visual barrier created by intervening structures. The Orange County Juvenile Hall is located immediately contiguous to the UCI Medical Center. Existing Building Nos. 41, 43, 44, 46, 48, 50, 51, 52, 57, and 60 (all one story in height), the City of Orange reservoir, and surface parking areas are adjacent to the Juvenile Hall. As a part of the Phase I project, Building Nos. 41, 43, 44, 48, and 57 will be demolished; one 75,000 gsf modular building will be constructed on the site of these buildings. The replacement of several one-story buildings with one single-story building is considered a less than significant impact. As noted above, as a part of full LRDP implementation, a seven-story parking structure is proposed for construction contiguous to one-story Orange County Juvenile Hall buildings, including living quarters. This is considered a ***significant impact***.

Mitigation Program

Implementation of the following measure will mitigate impacts to a level that is considered ***less than significant***.

Mitigation Measure

3.1-1 As a part of site design associated with full LRDP implementation, the UCI Medical Center shall address and implement an option(s) to reduce visual effects associated with the siting of a seven-story parking structure adjacent to the Orange County Juvenile Hall facility. These options include, but are not limited to, relocation of the parking structure within the UCI Medical Center campus, reduction in parking structure height, and visual buffering of the uses.

Impact 3.1-2: Project implementation would produce shade and shadows on onsite and offsite land uses. This is considered a less than significant impact.

The sun is the highest and lowest in the sky on the summer solstice (June 22) and the winter solstice (December 22), respectively. During the summer solstice, building shadows move clockwise, starting in the early morning to the west of the buildings, at noon approximately on top of the buildings, and in the early evening extending to their furthest points to the east of the buildings. During the winter solstice, building shadows move clockwise, starting in the early morning to the northwest of the buildings, at noon slightly to the north of the buildings, and in mid-afternoon to the northeast of the buildings; the length of morning and afternoon shadows are similar during the winter solstice.

Proposed onsite buildings will not exceed 10 above-ground levels. As a part of Phase I, a new hospital will be constructed in the northern portion of the site adjacent to Chapman Avenue, surface parking will be constructed internal to and provided external to the site, and the first phase of the Chiller Plant will be constructed in the southern portion of the site. Neither the provision of surface parking or two-story Chiller Plant will result in shadow impacts. Implementation of the 10-story hospital will cast shadows over Chapman Avenue and the proposed offsite Caltrans surface parking lot. Because these are not sensitive land uses, project-related changes are considered ***less than significant***.

As a part of full LRDP implementation, new site development will occur internal to the center of the medical center campus, as well as along the boundaries of the site along Dawn Way to the south, I-5 to the east, and The City Drive to the west. New construction in the central portion of the site will cast shadows on land uses internal to the site. Areas affected by shadows will not be sensitive to this type of impact and/or are currently affected by shade/shadow effects. Internal to the Medical Center, shade and shadow impacts are considered ***less than significant***. New site development along Chapman Avenue will cast shadows onto the roadway during the morning hours, similar to existing onsite development along this roadway. During the remainder of the day, shadows will be cast within the Medical Center site. Because no sensitive land uses will be affected and project-related changes will be similar to existing site conditions, these changes are considered ***less than significant***.

Full LRDP implementation site development in the southern portion of the site will include the completion of the Chiller Plant (two stories) and new buildings which could range in height from one story to 10 stories. Contiguous offsite land uses to the south are a parking structure and the County of Orange Theo Lacy Facility (i.e., county jail). Shadows associated with onsite development move counterclockwise from the west to the east. Because the adjacent land uses are not considered sensitive and shadows will not be cast on these uses, ***no impact*** will occur.

Full LRDP implementation site development in the eastern portion of the site is expected to include a seven-story parking structure(s). Shadows may extend off of the site to the east in the early evening during the summer solstice and to the northeast in the afternoon during the winter solstice.

Interstate 5 is located to the east. Any shadows cast onto I-5 during these time periods will not be dissimilar to conditions that exist along I-5 associated with development in an urban setting. The potential introduction of shadows in this location is considered a ***less than significant impact***.

Full LRDP implementation site development in the western portion of the site along The City Drive is expected to be similar to existing Medical Center development along the roadway. During the morning hours, shadows will be cast onto The City Drive. Because there is existing development along The City Drive extending from SR-22 to I-5 and there are no sensitive land uses, project-related shadows are considered ***less than significant***.

Mitigation Program

No mitigation is required.

Impact 3.1-3: The project would result in additional nighttime light sources and new potential sources for glare. This is considered a significant impact.

Glare is caused by light reflections from pavement, vehicles, and building materials, such as reflective glass and polished surfaces. During daylight hours, the amount of glare depends on intensity and direction of sunlight. Glare can create hazards to motorists and nuisances for pedestrians and other viewers. Although buildings and structures associated with Phase I and full LRDP implementation have not been designed, this EIR assumes that materials will be used to minimize glare to the extent feasible. The use of non-reflective building materials is most important for development along Chapman Avenue, The City Drive, and I-5 where glare could adversely impact motorists. However, because the design of individual projects is unknown, the potential for the generation of glare in the absence of project-specific information is considered a ***significant impact***.

The proposed UCI Medical Center LRDP project will include outdoor and area accent lighting around all proposed buildings. Although night lighting of buildings, parking lots, and parking structures will be visible, this change does not represent a substantial change from existing light levels, and will not conflict with the urban character of the project vicinity. The new lighting has the potential to shine into the adjacent Lamoreaux Justice Center (i.e., jail) and disturb the residents there. However, the light levels will not be substantially different from those currently at the Medical Center. As a result, this change is considered ***less than significant***.

Mitigation Program

Implementation of the following measure will reduce the potential impact to a ***less than significant level***.

Mitigation Measure

3.1-3 Prior to the completion final construction documents, the UCI Medical Center shall ensure that Medical Center projects use low-reflective materials on buildings and parking structures that do not promote glare to the greatest extent feasible.

3.1.7 CUMULATIVE IMPACTS

Impact 3.1-4: The project would cumulatively contribute to the intensification and visibility of development in the local area. This is considered a less than significant impact.

The cumulative study area for visual impacts related to the UCI Medical Center project is generally defined as the area extending to the north to I-5, to the south to SR-22, to the east of I-5 along Chapman Avenue, and to Lewis Street (west of The Block at Orange) (see Exhibit 3.1-1 and Tables 3-1 and 3-2 of Section 3). The Medical Center campus is located in a highly urbanized area. Existing surrounding development includes buildings ranging in height from one story (Orangewood Children's Home) to 20 stories (City Tower One) (see Table 3.1-1). The City of Orange has also approved additional development west of The City Drive which will result in the intensification of development between The City Drive to the east I-5 and north of Chapman Avenue, SR-22 to the south, and Lewis Street to the west. Approved office and hotel development will allow for buildings ranging in height from four stories (hotel) to 24 stories (office).

The intensification of development at the Medical Center campus will incrementally add to the amount of visible developed areas in this portion of the City of Orange. Maximum onsite building heights at the Medical Center will increase from six stories to ten stories, with proposed development ranging from one to ten stories. Therefore, the implementation of the UCI Medical Center LRDP project, in combination with past, current, and probable future projects, will result in a cumulative change to the visual character of the area; however, based on the thresholds of significance set forth in this EIR, this change is considered ***less than significant***.

The implementation of the project will incrementally increase nighttime lighting through the provision of new light sources associated with buildings, parking structures, and ancillary lighting. However, project-related lighting will not substantially exceed the conditions that currently exist or will occur in the future in this urbanized area. As such, increases in nighttime illumination that will result, together with additional illumination that will occur from new offsite development, is expected to result in impacts considered ***less than significant***.

Existing offsite buildings have been constructed in various architectural styles using a variety of building materials, including glass sheathing, and concrete and glass. With respect to probable future projects, visual simulations contained in the *Spieker Properties Office Development Project EIR* depict office buildings and parking structures constructed using muted colors with no mirrored glass. Although, the design of individual projects associated with the Medical Center project is unknown, compliance with Mitigation Measure 3.1-3 would preclude the use of highly reflective building materials. Therefore, cumulative development is not expected to result in significant sources of glare. The proposed project may result in project-specific significant glare impacts; on a cumulative basis, the impact is considered ***less than significant***.

Mitigation Program

No mitigation is required.

3.2 AIR QUALITY

An air quality assessment was prepared by JHA Environmental Consultants for the UCI Medical Center LRDP project. Traffic volume information used in the assessment to project air emissions was provided by Austin-Foust Associates, Inc. A screening health risk assessment was prepared by URS Corporation for the UCI Medical Center LRDP project. Both the air quality and health risk assessments are summarized below and included in their entireties in Appendix B of this EIR.

3.2.1 METEOROLOGICAL SETTING

California is divided by the California Air Resources Board (CARB) into air basins which share similar meteorological and topographical features. The City of Orange is within the South Coast Air Basin (air basin), a 6,600-square-mile area comprised of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino counties. The basin's climate and topography are highly conducive to the formation and transport of air pollution. Peak ozone concentrations in the last two decades have occurred at the base of the mountains around Azusa and Glendora in Los Angeles County and at Crestline in the mountain area above the City of San Bernardino. Both peak ozone concentrations and the number of standard exceedances have decreased everywhere in the basin throughout the 1990s. Concentrations in Orange County have declined, despite the population growth that has continued during this period. Carbon monoxide concentrations have also dropped significantly throughout the air basin as a result of strict new emission controls and reformulated gasoline sold in winter months.

3.2.2 POLLUTANT DEFINITIONS AND HEALTH EFFECTS

The following paragraphs briefly define the pollutants and their potential adverse health effects.

Carbon Monoxide (CO): Carbon monoxide is a colorless and odorless gas. Motor vehicles are the main source of this pollutant in the South Coast Air Basin. In high concentrations, CO can cause physiological and pathological changes by incapacitating red blood cells and interfering with their ability to carry oxygen to body tissues.

Nitrogen Dioxide (NO_2): Nitrogen dioxide is a by-product of fuel combustion. The principal form of nitrogen oxide produced by combustion is nitric oxide; nitric oxide reacts quickly to form nitrogen dioxide, creating the mixture of nitrogen oxide and nitrogen dioxide commonly called NO_x. Nitrogen dioxide absorbs blue light; the result is a brownish-red cast to the atmosphere and reduced visibility. Nitrogen dioxide also contributes to the formation of PM_{10}. Nitrogen dioxide acts as an acute irritant; in atmospheric concentrations it is only potentially irritating. Some increase in bronchitis in toddlers has been observed.

Ozone (O_3): Ozone is one of a number of substances called photochemical oxidants that are formed by reactive organic compounds (ROC) and nitrogen oxides, both by-products of the internal combustion engine. Ozone reacts in the presence of ultraviolet sunlight. Ozone is present in relatively high concentrations in the Basin, and the damaging effects of photochemical smog are generally related to the concentrations of ozone. Ozone may pose its worst health effects to individuals suffering from respiratory diseases. Effects can include difficulty in breathing during work and exercise, and a 10 to 15 percent loss in lung function in children.

Fine Particulate Matter (PM_{10}): Fine particulate matter consists of extremely small suspended particles or droplets 10 microns or smaller in diameter that can lodge in the lungs contributing to respiratory problems. PM_{10} can be generated from road dust, diesel soot, combustion products, abrasion of tires and brakes, construction operations, and wind storms. It is also formed from

nitrogen dioxide and sulfur dioxide reactions with ammonia; PM_{10} scatters light and reduces visibility.

3.2.3 REGULATORY BACKGROUND

The project area is subject to major air quality planning programs set forth in the federal Clean Air Act (CAA) of 1970 and the California Clean Air Act of 1988. Both the federal and state statutes provide for ambient air quality standards to protect public health, timetables for achieving and maintaining ambient standards, and the development of plans to guide the air quality improvement efforts of state and local agencies. The federal CAA required the EPA to establish national ambient air quality standards (NAAQS) with states retaining the option to adopt more stringent standards or to include other specific pollutants.

Criteria Pollutants

Historically, air quality laws and regulations have divided air pollutants into two broad categories: criteria pollutants and toxic air contaminants. Federal and state air quality standards have been established for six ambient air pollutants (criteria pollutants). The criteria air pollutants for which federal and state ambient standards have been established are ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, suspended particulates/fine particulate matter, and lead; lead is not of concern in California. State and federal air quality standards are identified in Table 3.2-1. Toxic air contaminants are a category of air pollutants that have been shown to have an impact on human health, but are not defined as criteria pollutants.

In the project area, air quality is monitored, evaluated, and controlled by the United States Environmental Protection Agency (EPA), California Air Resources Board (CARB), South Coast Air Quality Management District (SCAQMD), and the South California Association of Governments (SCAG). The EPA, CARB, and SCAQMD develop rules and regulations to attain the goals and directives imposed by legislation. Both state and local regulations may be more, but not less, stringent than EPA regulations. California has several air standards that are more restrictive than EPA standards and were in place prior to the establishment of federal standards.

Ambient air quality standards identify the level of air quality considered to be safe to protect the public health and welfare, especially for those most susceptible to respiratory distress, such as asthmatics, the very young, the elderly, persons weak from other illnesses or diseases, or persons who engage in heavy work or exercise. Healthy adults can tolerate periodic exposure to air pollution levels somewhat above these standards before adverse health effects are observed.

Emission limitations are typically imposed upon individual sources or air pollutants by local agencies or upon certain large or unique facilities by the EPA. Mobile sources of air pollutants, such as automobiles, aircraft, and trains, are controlled primarily through state and federal agency regulations.

Federal

The 1990 CAA Amendments require emission controls on factories, businesses, and automobiles. The CAA Amendments affect automobiles by lowering the limits on reactive organic gases emissions (ROG) and nitrogen oxide emissions (NO), ozone precursors, by: a) requiring the phasing in of alternative fuel cars; b) requiring on-board canisters to capture vapors during refueling; and c) extending emission-control warranties. Airborne toxins are reduced by requiring factories to install “maximum achievable control technology” and installing urban pollution control programs.

TABLE 3.2-1
STATE AND FEDERAL AMBIENT AIR QUALITY STANDARDS

Pollutant Standards	Averaging Time	State Standards	Federal Standards		SCAQMD Compliance	
			Primary	Secondary	State Status	Federal Status
Ozone (O_3)	1-hour 8-hour	0.09 ppm –	0.12 ppm 0.08 ppm	Same as primary	Nonattainment	Nonattainment Extreme
Carbon Monoxide (CO)	1-hour 8-hour	20 ppm 9 ppm	35 ppm 9.5 ppm	Same as primary	Nonattainment	Nonattainment
Nitrogen Dioxide (NO_2	1-hour Annual Arithmetic Mean	0.25 ppm –	– 0.0534 ppm	Same as primary	Attainment	Attainment
Suspended Particulates/Fine Particulate Matter (PM_{10})	24-hour Annual Arithmetic Mean Annual Geometric Mean	50 µg/m^3 – 30 µg/m^3	150 µg/m^3 50 µg/m^3 –	Same as primary – Same as primary	Nonattainment	Nonattainment
Suspended Particulates/Fine Particulate Matter ($PM_{2.5}$)	24-hour	–	65 µg/m^3			Not yet designated

ppm: parts per million
µg/m^3: micrograms per cubic meter

The CAA Amendments require each state to have an air pollution control plan called a State Implementation Plan (SIP). The SIP includes strategies and control measures to attain the NAAQS by deadlines established by the CAA. The CAA Amendments dictate that each state containing areas violating the NAAQS revise its SIP to include extra control measures to reduce air pollution. The EPA reviews each SIP to determine if the plan conforms to the CAA Amendments and achieves the air quality goals. The EPA may prepare a Federal Implementation Plan for the nonattainment area if the EPA determines a SIP to be inadequate.

A SIP contains a discussion of ambient air quality data and trends, a baseline emissions inventory, future year projections of emissions which account for growth projections and already adopted control measures, a comprehensive control strategy of additional measures needed to reach attainment, an attainment demonstration which generally involves complex modeling, and contingency measures. A SIP may also include interim milestones for progress toward attainment.

Under the EPA's general conformity rule (40 CFR Parts 53 and 91), a detailed analysis of conformity with state air quality implementation plans is required if a project exceeds the established threshold of emissions. In addition, the conformity rule requires that a proposed project must be consistent with emission growth factors (land use and population forecasts that were used to generate emission forecasts) contained in the local air district's clean air plan (Table 3.2-1).

The EPA has classified air basins (or portions thereof) as being in attainment, nonattainment, or unclassified for each criteria pollutant, based on whether the NAAQS have been achieved. The

air basin's status relative to attaining federal standards is discussed in Appendix B of this EIR. The basin is in nonattainment for ozone (0_3), carbon monoxide (CO), and fine particulate matter (PM_{10}). Nitrogen dioxide (NO_2) in the basin has met federal standards for three years in a row and, therefore, qualifies for attainment status. A maintenance plan for nitrogen dioxide is included in the 1997 AQMP. Attainment of all federal PM_{10} health standards are to be achieved by December 31, 2006, and ozone standards are to be achieved by November 15, 2010. The deadline for the attainment of carbon monoxide standards was December 31, 2000. The basin did not meet the carbon monoxide standards in 2000; the federal EPA has given the SCAQMD a two-year extension to reach attainment. The City of Orange is in the Central Orange County Source Receptor Area. The Central Orange County Source Receptor Area had no exceedances of the federal standards, except for ozone.

State of California

The California Air Resources Board (CARB) regulates mobile emission sources, oversees the activities of county and regional air pollution control districts and air quality management districts, and implements the California Clean Air Act (CCAA) of 1988. The CARB regulates local air quality indirectly by establishing state ambient air quality standards and vehicle emission standards, by conducting research activities, and through its planning and coordination activities.

Until the passing of the federal CAA Amendments, there was no specific deadline for the attainment of state standards. The CCAA requires that nonattainment areas within the state develop plans to attain state air quality standards. These plans include the following: emission reduction requirements of all feasible control measures for an annual five percent reduction for each nonattainment pollutant or its precursors; emission control standards that require local districts to stringently control emissions through varying degrees of stationary and mobile source control programs; application of additional control measures if a regional air quality management district or unified air pollution control district area contributes to downwind nonattainment areas; cost-effectiveness estimates for all proposed emission control measures; and development and implementation of transportation controls for cities and counties to enforce.

The City of Orange is in the Central Orange County Source Receptor Area. Within the Central Orange County Source Receptor Area in 2000, the state standards for ozone were exceeded on nine days and the federal standards were exceeded on one day. The state standards for fine particulate matter were exceeded on 13 days. The state standards for carbon monoxide and nitrogen dioxide were not exceeded in 2000.

South Coast Air Quality Management District

As previously noted, nonattainment areas are required by the federal Clean Air Act to adopt plans to meet federal standards and by the California Clean Air Act to adopt plans to meet state standards. Regionally, the South Coast Air Quality Management District (SCAQMD) and the Southern California Association of Governments (SCAG) prepare an Air Quality Management Plan (AQMP), which contains measures to meet state and federal requirements. When approved by CARB and the federal EPA, the AQMP becomes part of the SIP.

The SCAQMD adopted a comprehensive attainment plan in 1989 to meet federal standards and in 1991 to meet state standards; these attainment plans were revised in 1994 and 1997. The 1994 AQMP relied on future technology to project attainment of the national ozone standard by the year 2010. This plan was approved by the EPA in 1996 as part of the State Implementation Plan. In November 1996, the SCAQMD adopted the 1997 AQMP, which contained strategies to attain the national PM_{10} standards and revised the 1994 ozone attainment strategy by finding that the region

could attain both ozone and PM_{10} national standards with fewer emission reductions than previously projected. However, EPA disapproved the 1997 AQMP on December 30, 1998. The SCAQMD amended the 1997 AQMP in December 1999 to eliminate EPA objections and facilitate EPA's approval of the 1997 AQMP as the federally-enforceable State Implementation Plan for the region.

Toxic Air Contaminants

Federal

Air toxics have been regulated at the federal level since the CAA Amendments of 1977. Following the passage of this federal law, regulations for seven hazardous air pollutants were promulgated as National Emission Standards for Hazardous Pollutants over a 13-year period. The federal CAA Amendments of 1990 revamped the National Emission Standards for Hazardous Air Pollutants Program to offer a technology-based approach for reducing the emissions of a greater number of air toxic compounds. Under the CAA Amendments of 1990, 189 substances were identified as hazardous air pollutants and slated for regulation. The program requires certain facilities to control air toxic emissions through the installation of Maximum Achievable Control Technology, which is implemented and enforced in this air basin by the SCAQMD.

State

In California, the state air toxics control program began in 1983 with the passage of the Toxic Air Contaminant Identification and Control Act, know as Assembly Bill 1807 (AB 1807) or the Tanner Bill. The Tanner Bill established a regulatory process for the scientific and public review of individual toxic compounds. When a compound becomes listed as a "toxic air contaminant" (TAC) under the Tanner process, the California Air Resources Board (ARB) normally establishes minimum statewide emission control measures to be adopted by local air pollution control districts/ air quality management districts. By 1992, 18 of the 189 federal hazardous air pollutants had been listed by the ARB as state TACs. Later legislative amendments (AB 2728, Tanner, 1992) required the ARB to incorporate the 189 federal hazardous air pollutants into the state list of TACs. In April 1993, the ARB added 171 substances to the state program to make the state TAC list equivalent to the federal hazardous air pollutants list.

The second major component of California's air toxics program, supplementing the Tanner process, was provided by the passage of AB 2588, the Air Toxics "Hot Spots" Information and Assessment Act of 1987. AB 2588 currently regulates over 600 air compounds, including all of the Tanner-designated TACs. Under AB 2588, specified facilities must quantify emissions of the regulated air toxics and report them to the local air pollution control district/air quality management district, in this case the SCAQMD. If the SCAQMD were to determine that there is a potentially significant public health risk posted by a facility, the applicant for the facility is required to have prepared a health risk assessment and notify the public in the affected area if the calculated risks exceed specified criteria.

In addition, Proposition 65 was passed by California voters in 1986. Proposition 65 required that a list of carcinogenic and reproductive toxicants found in the environment be compiled, the discharge of these toxicants into drinking water be prohibited, and warnings of public exposure by air, land, or water be posted if a potential public health risk is posed. The handling of any of these substances by a facility would require a public warning unless health risks could be demonstrated to be insignificant. This program is administered by the Office of Environmental Health Hazard Assessment.

On August 27, 1998, the CARB formally identified particulate matter emitted by diesel-fueled engines as a TAC. Diesel engines emit TACs in gaseous and particulate forms. The particles emitted by diesel engines are coated with chemicals, many of which have been identified by the EPA as hazardous air pollutants and by the CARB as TACs. The majority of diesel exhaust particles are very small (94 percent of their combined mass consists of particles less than 2.5 micrometers in diameter), both the particles and their coating of TACs are inhaled into the lung. While the gaseous portion of diesel exhaust also contains TACs, the CARB's August 1998 action was specific to diesel particulate emissions which, according to supporting CARB studies, represent 50 to 90 percent of the mutagenicity of diesel exhaust (CARB, 1998). The 1998 ruling prompted the CARB to begin investigating methods to reduce diesel particulate matter emissions. The CARB's Diesel Risk Reduction Plan outlines a comprehensive and ambitious program that includes the development of new control measures over the next several years targeted at substantially reducing emissions from new and existing on-road vehicles (e.g., heavy duty trucks and buses), off-road equipment (e.g., graders, tractors, forklifts, sweepers, and boats), portable equipment (e.g., pumps), and stationary engines.

Title 8 of the California Code of Regulations contains California Occupational Safety and Health Administration (Cal/OSHA) requirements for fume hoods. The top of the fume hood stack must be located at least seven feet above the roof. The regulations focus on worker health and safety, requiring a minimum flow of speed, face velocity, and certain design features to protect laboratory personnel in their workplaces. In addition, the code established specific requirements for the use and storage of carcinogens, including a requirement to scrub or filter air emissions from areas where carcinogens are used.

3.2.4 AIR QUALITY SETTING

Ambient Air Quality

The City of Orange is in the Central Orange County Source Receptor Area (SRA 17). The air monitoring station for this source receptor area is located in the City of Anaheim. As shown in Table 3.2-2, there were minor changes in readings of all pollutants over the five-year time frame, but concentrations have remained relatively constant. Readings in SRA 17 are generally low for all pollutants and did not show the marked improvements in air quality recorded in other areas of the air basin where concentrations were extremely high at the beginning of the period and exceedances of national standards were more common. Ozone concentrations were slightly higher in 2000 than in 1999, but declined again in 2001.

Ambient Air Toxics Emissions

Air toxics are generated by numerous sources, including stationary sources, such as gas stations and laboratories; mobile sources, such as automobiles; and area sources, such as construction sites. The project site is located in an urban area containing a mix of office, institutional, retail, and service uses including gas stations. Table 3.5-1 of Section 3.5 of this EIR identifies existing and future nonradioactive chemical use at the UCI Medical Center. Table 3.5-3 of Section 3.5 identifies surrounding land uses which use hazardous materials.

TABLE 3.2-2
CENTRAL ORANGE COUNTY (SRA 17)
AIR MONITORING STATION AIR QUALITY DATA

Pollutant Standards	1997	1998	1999	2000	2001*
Ozone (O_3)					
State standard (1-hr. avg. 0.09 ppm)					
National standard (1-hr avg. 0.12 ppm)					
National standard (8-hr avg 0.08 ppm)					
Maximum 1-hr concentration (in ppm)	0.10	0.14	0.10	0.13	0.11
Maximum 8-hr concentration (in ppm)	0.09	0.11	0.08	0.08	0.07
Number of days state standard exceeded	1	10	1	9	2
Number of days national 1-hr standard exceeded	0	2	0	1	0
Number of days national 8-hr standard exceeded	n/m	4	0	1	0
Carbon Monoxide (CO)					
State standard (1-hr. avg. 20 ppm)					
National standard (1-hr avg. 35 ppm)					
State standard (8-hr. avg. 9.1 ppm)					
National standard (8-hr avg. 9.5 ppm)					
Maximum concentration 1-hr period (in ppm)	8	8	8	8	11
Maximum concentration 8-hr period (in ppm)	5.8	5.3	5.3	6.8	4.7
Number of days state/nat'l 1-hr standard exceeded	0	0	0	0	0
Number of days state 8-hr standard exceeded	0	0	0	0	0
Number of days national 8-hr standard exceeded	0	0	0	0	0
Nitrogen Dioxide (NO_2)					
State standard (1-hr avg. 0.25 ppm)					
National standard (0.0534 AAM in ppm)					
Annual arithmetic mean (in ppm)	.0332	.0336	.0327	.0300	.0293
Percent national standard exceeded	0	0	0	0	0
Maximum 1-hr concentration	0.13	0.13	0.12	0.13	0.12
Number of days state 1-hr standard exceeded	0	0	0	0	0
Suspended Particulates (PM10)					
State standard (24-hr. avg. 50 $\mu g/m^3$)					
National standard (24-hr avg. 150 $\mu g/m^3$)					
Maximum 24-hr concentration	91	81	122	126	93
Percent samples exceeding state standard	18.3	19.7	39	13	20
Percent samples exceeding national standard	0	0	0	0	0
Suspended Particulates (PM2.5)					
National Standard (24-hr. avg. 65 $\mu g/m^3$)					
Maximum 24-hr concentration	nm	nm	69	114	71
Percent of samples exceeding national standard			2	2.2	0.4

* Incomplete data
ppm: parts per million
$\mu g/m^3$: micrograms per cubic meter
n/m: not monitored

Source: SCAQMD Air Quality Data 1997 through 2001.

3.2.5 THRESHOLDS OF SIGNIFICANCE

The following standards of significance are based on Appendix G of the CEQA Guidelines. For the purposes of this EIR, impacts would be considered significant if the following were to occur:

Criteria Pollutants

- Conflict with or obstruct implementation of the applicable air quality plan.
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation.
- 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 (including releasing emissions which exceed quantitative thresholds for ozone precursors).
- Expose sensitive receptors to substantial pollutant concentrations.
- Create objectionable odors affecting a substantial number of people.

In addition, for projects in the South Coast Air Basin, the University relies on significance thresholds recommended by the SCAQMD in its *CEQA Air Quality Handbook*, as revised in November 2001 and approved by the SCAQMD's Board of Directors. Therefore, the following significance criteria also apply to the UCI Medical Center LRDP project.

- Construction and operational emissions are considered by the SCAQMD to be significant if they exceed the thresholds shown in Table 3.2-3.
- SCAQMD considers any increase in emissions which exceeds the state CEQA Guideline parameters to be a significant impact. An increase in carbon monoxide concentrations in an area that already exceeds national or state CO standards is also considered significant if the increase exceeds one part per million (ppm) for a 1-hour average or 0.45 ppm for an 8-hour average.

TABLE 3.2-3
EMISSION THRESHOLDS OF SIGNIFICANCE

Pollutant	Construction		Project Operations (pounds/day)
	pounds/day	tons/quarter	
Carbon Monoxide (CO)	550	24.75	550
Sulfur Oxides (SO_x)	150	6.75	150
Nitrogen Oxides (NO_x)	100	2.5	55
Particulate Matter (PM_{10})	150	6.75	150
Reactive Organic Compounds (ROC)	75	2.5	55
Source: South Coast Air Quality Handbook, 1993.			

Toxic Air Contaminants

Toxic air contaminants (TACs) can cause short-term (acute) and/or long-term (chronic or carcinogenic) health effects. Unlike criteria air pollutants, with the exception of vinyl chloride, there are no regional ambient standards for toxic air contaminants. This fact is primarily due to the localized nature of the adverse nature of the health effects caused by toxic air contaminants. TACs

are typically of greatest concern near facilities that store or use such toxic compounds. Stationary sources that potentially emit TACs are regulated through performance standards and emission limitations in federal and SCAQMD regulations. Mobile sources are not directly regulated as a source of toxic contaminants, except for lead. Improvement of fuel efficiency performance and reformulation of fuels provide indirect control of lead and other toxic contaminants from mobile sources.

The acceptable risk level standard adopted by the SCAQMD is 10 in one million (10×10^{-6}). Non-cancer health effects associated with both acute and chronic exposures to TACs are evaluated by calculating hazard indices. A hazard index is the ratio of the anticipated maximum concentration of a TAC to a toxicology-based reference exposure level. A hazard index (HI) threshold of 1.0 has been established by most agencies, including the SCAQMD, and would be considered a significant project impact. Carcinogenic risks are calculated as the increased probability of a person developing cancer, assuming that the person is exposed to a given concentration of a compound known (or suspected) of causing cancer for a period of 24 hours per day, 365 days per year for 70 years (lifetime exposure).

3.2.6 PROJECT AND CUMULATIVE IMPACTS

Project Development Characteristics

The proposed intensification of development at the UCI Medical Center would result in approximately 1,902,049 gross square feet (gsf) of onsite facilities and 4,200 parking spaces, inclusive of new and retained development. The existing medical center contains approximately 910,365 gsf of buildings, inclusive of 391 hospital beds, and 1,590 surface and structured parking spaces. As a part of the Phase I project, 269,041 gsf of development (inclusive of 205 hospital beds) and 418 parking spaces would be demolished. Phase I development includes the construction of 581,000 gsf of buildings (inclusive of 287 hospital beds) and 260 onsite parking spaces. Therefore, at the end of Phase I there would be 1,199,741 gsf of uses (inclusive of 473 hospital beds) and 1,432 spaces.

At full LRDP implementation (inclusive of Phase I), 523,703 gsf of structures and buildings (inclusive of 205 hospital beds) and 600 parking spaces will have been demolished. New construction would total 1,515,387 gsf (inclusive of 341 hospital beds) and 3,210 parking spaces. At completion, the UCI Medical Center would result in 1,902,049 gsf feet of medical and related uses (inclusive of 527 hospital beds) and 4,200 onsite parking spaces.

Cumulative Development Assumptions

As previously identified, the project site is located within the South Coast Air Basin, a 6,600-square-mile area comprised of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino counties. The City of Orange is in the Central Orange County Source Receptor Area (SRA 17). Within the Central Orange County Source Receptor Area in 2000, the state standards for ozone were exceeded on nine days and the federal standards were exceeded on one day. The state standards for fine particulate matter were exceeded on 13 days. The state standards for carbon monoxide and nitrogen dioxide were not exceeded in 2000.

Regional air quality plans and emission assumptions are based on the population projections prepared by the Southern California Association of Governments (SCAG) for the four-county region (Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino counties) included in the South Coast Air Basin of the South Coast Air Quality Management District (SCAQMD). Local air quality impacts are based on General Plan assumptions identified in

Table 3-1, as well as those General Plan amendment projects identified in Tables 3-2 and 3-3 (see Section 3).

The following analysis addresses both the project-specific and cumulative air quality impacts associated with future development because the greatest source of emissions is from mobile sources which extend beyond the project site and, therefore, occur in a cumulative context. As noted in the thresholds of significance for cumulative development, a project which contributes to a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment is considered to result in a cumulatively significant impact.

Impact 3.2-1: The proposed project would result in short-term construction-related air quality emissions. This is considered a significant impact.

Phase I Construction Impacts

Although both demolition and grading/excavation require the use of trucks to haul debris and excavated soil from the site, the amount of exported soil (45,000 cubic yards) would exceed the amount of exported debris (36,019 cubic yards) and the excavated soil would be removed over a shorter period of time (12-15 weeks compared to 14-18 weeks for debris removal). This would result in more truck trips per day and fewer total trips in the quarter. Therefore, the peak day and peak quarter would occur during the grading and excavation phase for the new hospital. Truck and heavy equipment emissions would be different, but lower, during other phases of construction. Employee vehicle emissions would be similar in all phases. Final painting, parking lot surfacing, and landscaping would occur after the peak day and are not included in the totals for Tables 3.2-4 and 3.2-5. Although paints and other coatings, including asphalt, must comply with SCAQMD regulations and would, therefore, be reduced to the maximum extent feasible, the highest ROC emissions would still occur during this subsequent phase.

TABLE 3.2-4
MAXIMUM DAILY CONSTRUCTION EMISSIONS[a.]

Source Category	Pollutant				
	Carbon Monoxide (CO)	**Reactive Organic Compounds (ROC)**	**Oxides of Nitrogen (NO_x)**	**Oxides of Sulfur (SO_x)**	**Particulate Matter (PM_{10})**
Earthmoving and Grading (Fugitive Dust)	n/a	n/a	n/a	n/a	211
Diesel-Powered Equipment	83	34	212	25	19
Trucks	26	3	53	6	1
Employee Vehicles	271	26	24	0	1
Maximum Daily Construction Emissions	**380**	**63**	**289**	**31**	**242**
SCAQMD Significance Thresholds for Construction	550 lb/day	75 lb/day	100 lb/day	150 lb/day	150 lb/day
Significant?	No	No	**YES**	No	**YES**

a. in pounds per day
n/a: not applicable
Source: JHA Environmental Consultants, 2002.

TABLE 3.2-5
PEAK QUARTER CONSTRUCTION EMISSIONS[a]

Source Category	Pollutant				
	Carbon Monoxide (CO)	**Reactive Organic Compounds (ROC)**	**Oxides of Nitrogen (NO_x)**	**Oxides of Sulfur (SO_x)**	**Particulate Matter (PM_{10})**
Earthmoving and Grading (Fugitive Dust)	n/a	n/a	n/a	n/a	6.86
Diesel-Powered Equipment	2.70	1.10	6.88	0.82	0.63
Trucks	0.83	0.10	1.72	0.20	0.05
Employee Vehicles	8.79	0.86	0.78	0.00	0.05
Maximum Quarter Construction Emissions	**12.32**	**2.06**	**9.38**	**1.02**	**17.59**
SCAQMD Significance Thresholds for Construction	24.75 tons/qtr	2.5 tons/qtr	2.5 tons/qtr	6.75 tons/qtr	6.75 tons/qtr
Significant?	No	No	**YES**	No	**YES**

a. in tons per quarter
n/a: not applicable
Source: JHA Environmental Consultants, 2002.

Demolition. Phase I demolition will result in the demolition of facilities for the replacement hospital and the new parking structure. However, the existing hospital (Building No. 1) would not be demolished until after the replacement hospital is completed. All demolition will occur either prior to or after the peak quarter; therefore, PM_{10} totals are not included in this analysis. However, all demolition will follow the mitigation procedures listed in this document for abating fugitive dust or PM_{10} emissions.

In addition, some buildings may contain asbestos, which is a hazardous substance. Prior to demolition, the contractor will comply with requirements of SCAQMD Rule 1403 regarding asbestos control during demolition and renovation. This rule ensures that asbestos is removed and encapsulated prior to demolition so that no asbestos fibers are released to the atmosphere.

Grading/Excavation. Soil may be left disturbed during excavation of a building's footprint, during grading for landscaping, roads and walkways, or when exposed for storing project-related equipment. The SCAQMD *CEQA Handbook* estimates that each acre of disturbed soil creates 26.4 pounds/day of PM_{10}. The LRDP specifies that construction will be phased in order to minimize impacts at the Medical Center. To account for worst-case conditions, this air quality analysis assumes that existing uses on the new hospital site have been demolished and are exposed on the peak day and throughout the peak quarter. An area adjacent to the hospital is also assumed to be exposed for storing equipment. This phase is estimated to last 12 to 15 weeks. For the purpose of this analysis, the grading/excavation phase is assumed to require 15 weeks to complete. Peak day and peak quarter fugitive dust emissions from grading and excavation are shown in Tables 3.2-4 and 3.2-5.

Debris Loading. The analysis assumes there will be 39 truck round trips a day over a period of 65 days, each averaging 25 miles one way, to dispose of the soil excavated for foundations and the basement for the hospital. Trucks will be loaded directly by excavator/dozers and will not require stockpiling on the site. The analysis also assumes there would be four round trips a day by heavy duty trucks to bring supplies and equipment. Peak day and peak quarter truck emissions

are shown in Tables 3.2-4 and 3.2-5 under the heading "Trucks." No fugitive dust emissions are assumed in transport because all truck loads will be securely covered.

Exhaust Emissions From Construction Equipment. The peak construction day and quarter will come during the grading and excavation phases. The project will require both heavy duty and small equipment, which do not emit significant pollution. Representative heavy equipment use for this period includes one off-highway water truck, four dozers, two excavators, one scraper, one roller, and six pieces of miscellaneous equipment. The truck is assumed to operate four hours a day, and all other equipment for eight hours on the peak day and to average four hours a day during the peak quarter. Exhaust emissions for this equipment were calculated on the basis of heavy equipment emission factors contained in Tables A9-8-A in the SCAQMD *CEQA Handbook*.

Trucks. Dirt would be exported from the Medical Center and disposed of at the nearest disposal site. Excavation activities for Phase I will occur over an estimated 12- to 15-week period. As identified in Section 2, Project Description, Phase I will result in the excavation of approximately 45,000 cubic yards of soil. Excavated soils will be exported from the Medical Center site. Assuming that the capacity of the haul trucks is 20 cubic yards per truck and the trucks will be filled with up to 18 cubic yards to prevent loss of dirt in transport, approximately 2,500 truck trips will be generated, or an average of 38.46 truck trips per day over the 15-week or 65-day quarter. For purposes of the analysis, the disposal site is assumed to be 25 miles from the project site. There would also be four round trips per day to bring equipment and supplies to the site. The distance for these trips is assumed to be 10 miles each way.

Employee Vehicles. Different workers are on the site at different phases of construction. The maximum average number of construction workers is estimated to be 750. The largest number of employees would be expected during the building erection and finishing stages. However, the analysis assumes, under worst case conditions, that all 750 workers are required on the peak day and throughout the 65-day peak construction quarter. Worker vehicle trips are assumed at the regional trip length of 11.2 miles each way and would park offsite and be shuttled to the UCI Medical Center (see Section 3.11, Transportation and Traffic).

Paint and Coatings. Finishing will not occur in the peak quarter; therefore, ROC emissions from this sources are not included in the totals. The project contractor will use SCAQMD-compliant coatings and approved application methods to reduce emissions from these sources to the maximum extent feasible.

Implementation of the Phase I project would result in ***significant impacts*** related to emissions of NO_x and PM_{10} on the peak day and in the peak quarter without mitigation.

Mitigation Program

Implementation of required South Coast Air Quality Management District regulations would reduce air emissions from the UCI Medical Center project. The reduction in air quality emissions on the peak day and in the peak quarter after the implementation of mitigation for the project site are identified in Tables 3.2-6 and 3.2-7. After applying mitigation, construction emissions of NO_x would remain ***significant and unavoidable*** for the peak day, and NO_x emissions would remain ***significant and unavoidable*** for the peak quarter.

TABLE 3.2-6
PHASE I: MAXIMUM DAILY CONSTRUCTION EMISSIONS AFTER MITIGATION (in pounds per day)

Source Category	Pollutant				
	Carbon Monoxide (CO)	Reactive Organic Compounds (ROC)	Oxides of Nitrogen (NO_x)	Oxides of Sulfur (SO_x)	Particulate Matter (PM_{10})
Total Daily Emissions Before Mitigation	380	63	289	31	242
Earthmoving/Grading (Fugitive Dust) (60% reduction)	n/a	n/a	n/a	n/a	84
Diesel-Powered Equipment (10% reduction)	75	31	191	23	17
Trucks	26	3	53	6	1
Employee Vehicles	271	26	24	0	1
Maximum Daily Construction Emissions	**372**	**60**	**268**	**29**	**103**
SCAQMD Significance Thresholds for Construction	550 lb/day	75 lb/day	100 lb/day	150 lb/day	150 lb/day
Significant?	No	No	**Yes**	No	No

n/a: not applicable
Source: JHA Environmental Consultants, 2002.

TABLE 3.2-7
PHASE I: PEAK QUARTER CONSTRUCTION EMISSIONS AFTER MITIGATION (in tons per quarter)

Source Category	Pollutant				
	Carbon Monoxide (CO)	Reactive Organic Compounds (ROC)	Oxides of Nitrogen (NO_x)	Oxides of Sulfur (SO_x)	Particulate Matter (PM_{10})
Total Emissions Before Mitigation	12.32	2.06	9.38	1.02	17.59
Earthmoving/Grading (Fugitive Dust) (60 percent reduction)	n/a	n/a	n/a	n/a	2.74
Diesel-Powered Equipment (10 percent reduction)	2.43	0.99	6.19	0.74	0.57
Trucks	0.83	0.10	1.72	0.20	0.05
Employee Vehicles	8.79	0.86	0.78	0	0.05
Maximum Daily Construction Emissions	**12.05**	**1.95**	**8.69**	**0.94**	**3.41**
SCAQMD Significance Thresholds for Construction	24.75 tons/qtr	2.5 tons/qtr	2.5 tons/qtr	6.75 tons/qtr	6.75 tons/qtr
Significant?	No	No	**YES**	No	Np

n/a: not applicable
Source: JHA Environmental Consultants, 2002.

Standard Conditions and Requirements

- The UCI Medical Center shall require the following measures specified in South Coast Air Quality Management District (SCAQMD) regulations, including Rule 402, the Nuisance Rule, and Rule 403, Fugitive Dust be enforced for all construction projects. These actions include but are not limited to the following:

  a. Develop a project grading plan or contingency plan and submit the plan to the SCAQMD consistent with the provisions of Rule 403.

  b. All disturbed areas, including storage piles, which are not being actively used for construction purposes shall be stabilized within five days of completing grading of dust emissions using water, chemical stabilizers/suppressants, or vegetative ground cover.

  c. Any onsite unpaved roads shall be stabilized of dust emissions using water or chemical stabilizers/suppressants.

  d. All land clearing, scraping, excavation, land leveling, grading, cut and fill, and demolition activities shall be controlled of fugitive dust emissions using applications of water or by presoaking.

  e. With the demolition of all buildings up to six stories in height, all exterior surfaces of the building shall be wetted during demolition.

  f. Water exposed surfaces at least twice a day under calm conditions. Water as often as needed on windy days when winds are less than 25 miles per day or during very dry weather in order to maintain a surface crust and prevent the release of visible emissions from the construction site.

  g. Wash mud-covered tires and undercarriages of trucks leaving construction sites.

  h. Provide for street sweeping at least once every 24 hours on adjacent roadways to remove dirt dropped by construction vehicles or mud which would otherwise be carried off by trucks departing project sites.

  i. When materials are transported offsite, securely cover loads with a tight fitting tarp on any truck leaving the construction sites.

  j. Following the addition of materials to or the removal of materials from the surface of outdoor storage piles, said piles shall be effectively stabilized of fugitive dust emissions by using water or a chemical stabilizer/suppressant.

  k. Cease grading during periods when winds exceed 25 miles per hour.

Mitigation Measure

3.2-1(a) Prior to construction, the UCI Medical Center shall implement the following measures to reduce impacts of ozone precursor emissions from construction equipment exhaust.

(1) In order to reduce diesel fuel engine emissions, the UCI Medical Center shall require that all construction bid packages include a separate “Diesel Fuel

Reduction Plan." This plan shall identify the actions to be taken to reduce diesel fuel emissions during construction activities (inclusive of grading, demolition, and excavation activities). Reductions in diesel fuel emissions can be achieved by measures including, but not limited to, the following: a) use of alternative energy sources, such as compressed natural gas or liquefied petroleum gas, in mobile equipment and vehicles; b) use of "retrofit technology," including diesel particulate trips, on existing diesel engines and vehicles; c) other appropriate measures.

(2) Turn equipment off when not in use for more than five minutes.

Impact 3.2-2: Phase I and full LRDP implementation would result in increased long-term regional air quality emissions. Phase I emissions are considered less than significant; full LRDP implementation emissions are considered significant impacts.

As described earlier, the project will be completed in two phases. Phase I will be completed by 2008 and the full implementation of the LRDP by 2020. Traffic impacts for Phase I were calculated by Austin-Foust Associates, Inc. for year 2010. Operational impacts at full LRDP implementation were calculated for 2020. Phase I, including both the remaining existing and new facilities, would generate 14,128 average daily trips in 2010 compared to 13,800 existing trips associated with the existing Medical Center. At full LRDP implementation, the project site would generate 24,694 average daily trips, inclusive of Phase I development.

Emissions were calculated with the California Air Resources Board model, URBEMIS 2001, with the assignment of trips based on land uses. Emissions were calculated for summertime conditions.

A comparatively small amount of pollution will occur from gaseous emissions from natural gas and electricity usage. NO_x emissions from electrical are no longer capped by SCAQMD Regulation XX, which required that new emissions be offset. Therefore, all electrical generation emissions are included in the total. Utility emissions were calculated using Tables A9-11 and A9-12 in the SCAQMD CEQA Handbook. All numbers were rounded to the nearest pound.

Daily operational emissions for Phase I and full LRDP implementation are shown in Table 3.2-8. Phase I operational emissions are considered ***less than significant.*** Operational emissions associated with full LRDP implementation will result in ***significant impacts*** related to emissions of CO, ROC, and NO_x, based on SCAQMD significance thresholds. At full LRDP implementation, the proposed project is considered to cumulatively contribute to ***significant air emissions*** in the South Coast Air Quality Management Basin and Central Orange County Source Receptor Area.

TABLE 3.2-8
NET INCREASE IN DAILY OPERATIONAL EMISSIONS
(in pounds per day)[a.]

Source Category	Pollutant				
	Carbon Monoxide (CO)	**Reactive Organic Compounds (ROC)**	**Oxides of Nitrogen (NO_x)**	**Oxides of Sulfur (SO_x)**	**Particulate Matter (PM_{10})**
PHASE I					
Vehicle Emissions	96	8	8	0	6
Utilities	38	1	14	0	1
Daily Operational Emissions	**134**	**9**	**22**	**0**	**7**
SCAQMD Significance Thresholds for Operations	550 lbs/day	55 lbs/day	55 lbs/day	150 lbs/day	150 lbs/day
Significant?	**No**	**No**	**No**	**No**	**No**
FULL LRDP IMPLEMENTATION					
Vehicle Emissions[a.]	991	68	60	1	80
Utilities	142	8	44	2	8
Daily Operational Emissions	**1133**	**76**	**104**	**3**	**88**
SCAQMD Significance Thresholds for Operations	550 lbs/day	55 lbs/day	55 lbs/day	150 lbs/day	150 lbs/day
Significant?	**YES**	**YES**	**YES**	**No**	**No**

[a.] vehicle emissions calculated with URBEMIS 2001
Note: Daily utility emissions based on annual utility emission factors provided by UC Irvine.

Source: JHA Environmental Consultants, 2002

Mitigation Program

Phase I

No mitigation is required associated with Phase I.

Full LRDP Implementation

Implementation of required South Coast Air Quality Management District regulations would reduce air emissions from the full LRDP implementation project. With the implementation of mitigation, operational emissions would remain ***significant and unavoidable*** for CO, ROC, and NO_x. At full LRDP implementation, the project's contribution to cumulative impacts is considered ***significant and unavoidable***.

Mitigation Measure

3.2-2 To reduce emissions associated with full LRDP implementation project-related vehicle trips, the UCI Medical Center shall prepare, prior to occupancy of the Phase I project, a Transportation Demand Management Program to reduce vehicle miles traveled to the maximum extent feasible. Such measures can include:

a. Preferential parking for carpool vehicles
b. Bicycle parking and shower facilities
c. Information provided to employees on transportation alternatives
d. Rideshare vehicle loading areas
e. Vanpool vehicle accessibility
f. Bus stop improvements

Impact 3.2-3: Phase I and full LRDP implementation would not result in an exceedance of carbon monoxide standards.

To determine the potential for local carbon monoxide hot spots, two intersections were selected for modeling with the ARB model, CALINE4. These two intersections are: The City Drive at The City Way, where the greatest project-related increases in traffic would occur, and I-5 southbound on-ramp at Chapman Avenue, where the highest project-related level of service change would occur.

The analysis of possible future carbon monoxide hot spots was conducted in accordance with procedures and parameters outlined in the Caltrans Protocol for Assessing Carbon Monoxide developed by consultants at UC Davis. Emission factors for use in conformity analyses in the South Coast Air Basin were selected in consultation with CARB staff in Sacramento. The decision was made to use EMFAC7G for this analysis because that emission factor model was used in determining the SCAB emissions budget in the approved State Implementation Plan (SIP) for the basin and is therefore the foundation upon which federal conformity is based.

It is important to note that CARB's understanding of motor vehicle emissions has improved since the development of the 7G model, as is reflected by CARB's new EMFAC2000 model. The revised version of 7G used in this analysis does not reflect CARB's latest understanding of motor vehicle emissions and how they are expected to change in the future. The Caline model was developed when each individual vehicle produced far higher amounts of carbon monoxide than at present and increases in traffic always resulted in higher concentrations of CO. For future years, when CO emissions per vehicle decrease, reconfigurations of traffic at intersections sometimes result in the model showing slightly lower peak concentrations even when there are slight increases in traffic.

This EIR analysis is based on project plus cumulative. Consistent with SCAQMD requirements, background concentrations at the nearest monitoring site were added to modeled concentrations to provide a margin of safety. Existing and future concentrations projected by the SCAQMD in 2002 were used for the 2000, 2010, and 2020 baselines. The SCAQMD projections show a decline in 2000 and 2010 levels and over those in 1999, but no change after 2010.

As required by the CO Protocol, 8-hour CO concentrations are assumed at 70 percent of 1-hour concentrations. Existing and future 1-hour and 8-hour CO concentrations are shown in Tables 3.2-9 through 3.2-12. Tables 3.2-9 and 3.2-10 apply to the Phase I project. Tables 3.2-11 and 3.2-12 apply to the full LRDP implementation project.

The following assumptions were used in the CALINE4 analyses for 1-hour and 8-hour carbon monoxide concentrations:

- Extrapolation of 8-hour averages using techniques outlined in the Caltrans CO Protocol at 0.70 of the 1-hour modeled concentrations.

- A temperature of 52 degrees Fahrenheit.

TABLE 3.2-9
PHASE I: PEAK 1-HOUR CO CONCENTRATION (in ppm)

Intersection	Existing			Phase I: 2010				Project Increase	Significant Impact?
	2000	Modeled Existing Intersection	Adjusted Existing Intersection	2010	Monitored Concentration Without Project	Modeled Concentration With Phase I	Adjusted With Phase I		
A.M. Peak Hour									
I-5 SB On-Ramp/Chapman	7.70	4.90	12.60	5.80	4.00	4.00	9.80	0.00	No
The City Drive/The City Way	7.70	5.30	13.00	5.80	3.40	3.40	9.20	0.00	No
P.M. Peak Hour									
I-5 SB On-Ramp/Chapman	7.70	7.00	14.70	5.80	4.40	4.60	10.40	0.20	No
The City Drive/The City Way	7.70	4.90	12.60	5.80	3.00	2.60	8.40	-0.40	No
Source: SCAQMD. *2000 Air Quality Data*. Peak 1-hr. CO concentration at Anaheim (SRA 17) monitoring station									

TABLE 3.2-10
PHASE I: PEAK 8-HOUR CO CONCENTRATION (in ppm)

Intersection	Existing			Phase I: 2010				Project Increase	Significant Impact?
	2000	Modeled Existing Intersection	Adjusted Existing Intersection	2010	Monitored Concentration Without Project	Modeled Concentration With Phase I	Adjusted With Phase I		
A.M. Peak Hour									
I-5 SB On-ramp/Chapman	5.10	3.43	8.53	3.90	2.80	2.80	6.70	0.00	No
The City Drive/The City Way	5.10	3.21	8.31	3.90	2.38	2.38	6.28	0.00	No
P.M. Peak Hour									
I-5 SB On-ramp/Chapman	5.10	4.90	10.00	3.90	3.08	3.22	7.12	0.14	No
The City Drive/The City Way	5.10	3.43	8.53	3.90	2.10	1.82	5.72	-0.28	No
Source: SCAQMD. *2000 Air Quality Data*. Peak 1-hr. CO concentration at Anaheim (SRA 17) monitoring station.									

TABLE 3.2-11
FULL LRDP IMPLEMENTATION: PEAK 1-HOUR CO CONCENTRATION (in ppm)

Intersection	Existing			Full LRDP Implementation				Project Increase	Significant Impact?
	2000	Modeled Existing Intersection	Adjusted Existing Intersection	2020	Monitored Concentration Without Project	Modeled Concentration With Full LRDP Implementation	Adjusted With Project		
A.M. Peak Hour									
I-5 SB On-Ramp/Chapman	7.70	4.90	12.60	5.80	3.40	3.60	9.40	0.20	No
The City Drive/The City Way	7.70	5.30	13.00	5.80	2.10	2.30	8.10	0.20	No
P.M. Peak Hour									
I-5 SB On-Ramp/Chapman	7.70	7.00	14.70	5.80	3.90	4.30	10.10	0.40	No
The City Drive/The City Way	7.70	4.90	12.60	5.80	2.20	3.30	9.10	1.10	No
Source: SCAQMD. *2000 Air Quality Data*. Peak 1-hr. CO concentration at Anaheim (SRA 17) monitoring station									

TABLE 3.2-12
FULL LRDP IMPLEMENTATION: PEAK 8-HOUR CO CONCENTRATION (in ppm)

Intersection	Existing			Full LRDP Implementation				Project Increase	Significant Impact?
	2000	Modeled Existing Intersection	Adjusted Existing Intersection	2020	Monitored Concentration Without Project	Modeled Concentration With Full LRDP Implementation	Adjusted With Project		
A.M. Peak Hour									
I-5 SB On-ramp/Chapman	5.1	3.43	8.53	3.9	2.38	2.52	6.42	0.14	No
The City Drive/The City Way	5.1	3.21	8.31	3.9	1.47	1.61	5.51	0.14	No
P.M. Peak Hour									
I-5 SB On-ramp/Chapman	5.1	4.90	10.0	3.9	2.73	3.01	6.91	0.28	No
The City Drive/The City Way	5.1	3.43	8.53	3.9	1.54	2.31	5.44	0.77	No
Source: SCAQMD. *2000 Air Quality Data*. Peak 1-hr. CO concentration at Anaheim (SRA 17) monitoring station.									

The SCAQMD has established criteria for determining if CO increases from a project are significant. Since all sites in California currently meet the state and national 1-hour CO standards, and are projected to meet these standards in the future, the 8-hour concentrations are now the focus for determining whether there would be a significant impact. A project would have a significant impact if it would cause projected CO concentrations to exceed 9.0 ppm (which is the 8-hour California ambient air quality standard) when there would be no exceedance without the project. Where CO concentrations would exceed 9.0 ppm whether or not the project is constructed, the project would be considered significant for CO air quality impacts if its contribution would increase future CO 8-hour concentrations by 0.45 ppm or more.

The tables show that there would be no exceedance of a state or national CO standard in either 2010 or 2020, even when adding the SCAQMD's projected future year background concentrations for the Anaheim station to the modeled concentrations, as specified in the SCAQMD's *CEQA Air Quality Handbook*. The only apparent CO hotspot, using this methodology, would be the existing traffic at the I-5 southbound on-ramp at Chapman Avenue, where the 8-hour adjusted concentration is projected as 10.0 ppm or 1.0 ppm greater than the state 8-hour CO standard of 9.0 ppm.

Mitigation Program

No mitigation is required.

Impact 3.2-4: The project is considered consistent with the State Implementation Plan (SIP). No impacts would occur.

Employment at the UCI Medical Center in 2001 was 6,079 persons. This is inclusive of UCI Medical Center and College of Medicine staff, faculty, volunteer faculty, residents, and medical students. Employment is projected to increase to 7,116 by 2010, and to 7,817 by 2020. The proposed project conforms to the federal requirements. The employment projected for the Medical Center is within the employment forecasts for Orange County through 2020. These employment forecasts are incorporated within the 1999 regional Air Quality Management Plan, which is the approved SIP for the region. The project does not directly add new population. It is part of the infrastructure assumed in the 1999 AQMP as necessary to support existing and projected population in 2020. Therefore, the ***project is consistent*** with the applicable SIP.

The project would not require any federal permits or receive federal funding. Therefore, the project would not be subject to Clean Air Act conformity regulations.

Mitigation Program

No mitigation is required.

Impact 3.2-5: Development of the project, in conjunction with cumulative development in the project vicinity, would not result in significant health risks from the emissions of toxic air contaminants. This is considered a less than significant impact.

Toxic air contaminants could potentially be emitted from the central plant, research laboratory facilities, and laboratory facilities/uses, similar to and in addition to existing uses at the Medical Center. To determine the potential risk of contracting cancer (carcinogenic risk), other long-term health effects (chronic non-carcinogenic effects), and short-term health effects (acute non-

carcinogenic effects) that may impact the general public, a screening health risk assessment (HRA) was prepared.

The methodology for performing this HRA is a simplified risk assessment approach using the most recent SCAQMD Risk Assessment Procedures for Rules 1401 and 212 (Version 6.0, August 2000) as a reference. Offsite receptors located at the property boundary and beyond, and up to 1 kilometer (approximately 0.62 mile) from the boundary were analyzed.

As required for the HRA, carcinogenic risks were calculated for the increased probability of a person developing cancer, assuming that the person were exposed to a given concentration of a compound known (or suspected) of causing cancer for a period of 24 hours per day, 365 days per year, for 70 years (lifetime exposure). The potential for non-carcinogenic health effects is determined differently and is calculated as the ratio of predicted concentrations to a level that is known to have either long-term or short-term health effects for a given compound that may affect a given part of the body (hazard quotients). The sum of the hazard quotients is the hazard index. In order to perform a screening HRA, source information including maximum annual emissions and hourly emissions for each air toxic, stack height or building dimensions, operation schedule, and geographic location of the source are needed; assumptions were made to conduct the analysis. These assumptions are included in Appendix B of this EIR. Additional assumptions were made with regard to distance an air toxic contaminant travels, the height of release, and meteorological conditions such as wind speed and atmospheric stability, in order to determine amount of dispersion that would occur under specific conditions. Once the dispersion factor is estimated, the Maximum Individual Cancer Risk (MICR) and non-cancer health risks due to the short-term (acute) and long-term (chronic) exposure of the air toxic can be quantified.

The specific design of future laboratory facilities that will be developed as a part of the project, as well as the specific research programs that will occur in these future facilities, is not known at this time. Therefore, the screening HRA used assumptions to project future increases in chemical use for research that could volatilize and be released through laboratory hood vents. Projected increases in chemical use are commensurate with the increase in full LRDP implementation research space identified in Section 2, Project Description.

While the specific location and number of facilities have not been determined, the University's laboratory facilities will incorporate the following design features:

- Laboratories will have a variable air volume 100 percent outside air system. Air handling units will be installed in a mechanical equipment room, with supply air distribution to each floor level. Exhaust from each unit will be ducted separately to a common exhaust air plenum at the roof level.

- Each fume hood will be equipped with a flow-measuring device and monitored locally to confirm adequate hood performance. All laboratory fume hoods will be equipped with visual and audible alarms warning of unsafe air flow.

- Exhaust ports will be provided for equipment requiring direct exhaust connections. Some equipment may have separate exhaust systems.

The findings of the screening HRA indicate that the potential maximum cancer risks at the nearest offsite residential and commercial receptors associated with routine operations at the UCI Medical Center are 0.8 in one million and 9.3 in one million, respectively. Diesel emergency generators contribute 94 and 83 percent to the total cancer risks at the maximum residential and commercial receptors, respectively. The maximum cancer risks at all receptors are below the SCAQMD

significance level for public notification of 10 in one million. The potential maximum chronic hazard index to the nearest receptors is 0.06, below the significance level of 1.0. The potential maximum acute hazard index to the nearest receptors is 0.5, below the level of 1.0 required by the SCAQMD for public notification. As a result, the potential health hazard from campus-related toxic air emissions is considered to be ***less than significant***.

There are no other known major sources of TACs present with a sufficiently proximate radius that such emissions would combine with localized emissions of TACs to create a public health risk. Because of existing regulations pertaining to TACs from stationary sources, the cumulative impact is considered ***less than significant***.

Mitigation Program

Standard Conditions and Requirements

- The UCI Medical Center shall comply with all applicable federal, state, and local laws, rules, and regulations relating to both criteria pollutants and toxic air contaminants, including the Federal Clean Air Act, the California Clean Air Act, and the State Air Toxics Hot Spot Information and Assessment Act, and similar requirements.

Mitigation Measures

The following measure is recommended.

3.2-4(a) Prior to the completion of final construction documents, the UCI Medical Center shall conduct a wind/fume discharge study, for facilities that include fume hoods, to determine whether the desired fume exhaust stack height must be greater than seven feet. The wind/fume discharge study shall address the relationship between fresh air intake and exhaust fume stacks for individual development projects at the UCI Medical Center, as well as its relationship to other existing facilities on the campus. The analysis will determine acceptable intake and exhaust positions to ensure that these projects are in conformance with emission regulations.

3.3 CULTURAL RESOURCES

3.3.1 METHODOLOGY

An historic resources assessment was prepared by Chattel Architecture, Planning & Preservation, Inc. in 2001 for the UCI Medical Center LRDP project. Onsite buildings, structures, and objects had not been previously surveyed. The purpose of the assessment was to determine if any onsite buildings, structures, and/or objects were eligible properties for the National Register of Historic Place or the California Register of Historical Resources, and if so, how would these resources be affected by the proposed project. To make this determination, Chattel Architecture conducted a literature review of the project site; prepared a resources survey of every existing building, structure, and object on the project site; and prepared a development chronology for the project site. Surveys were conducted by Chattel Architecture using the State of California Department of Parks and Recreation 523A forms. The historic resources assessment is included in the EIR as Appendix C and is summarized below.

Potential effects to archaeological and paleontological resources were addressed and fully mitigated in the Initial Study for the proposed project; required mitigation is identified later in this section of the EIR.

3.3.2 EXISTING CONDITIONS

Project Site History

The project site has served as a medical facility since the late 1800s when it was a makeshift medical office and provided indigent housing in the local jail. The site operated as Orange County's public hospital from 1914 until 1976, and as the poor farm from 1914 through the early 1930s. In 1912, the Orange County Board of Supervisors purchased a 72-acre site in unincorporated West Orange for a new Orange County Farm & Hospital (also known as the County Almshouse and the Poor Farm); this is the site of the existing UCI Medical Center. The first structures constructed as a part of the facility were four bungalows and a foreman's cottage; the main hospital building (Building No. 10), lighting and heating plant, two laboratories (Building Nos. 12 and 14), a clubhouse, and laundry were designed and constructed in 1914. The hospital and original hospital grounds were influenced by the City Beautiful Movement, a progressive, turn of the 20th century trend in civic design, focused on formal grounds, symmetry in planning, and Classically-inspired buildings. The hospital opened on September 1, 1914. A nurses training school opened in 1915.

The poor farm component of the facility was intended to be self-sufficient. By 1920, the Orange County Farm & Hospital had citrus groves, vegetable gardens, hogs, dairy cows, and steer. By 1925, the facilities had expanded to include 125 beds, a structure for indigent sick (Building No. 11), nurses, employee, indigent housing, and a chapel. The complex was configured in a rectangle west of Building No. 10. Access to the Orange County Farm & Hospital was provided from a formal drive southeast of Building No. 10 and leading to the State Route (present day I-5), the main road connecting the City of Santa Ana to the City of Los Angeles.

In 1926, a large rectangular addition to the south side of Building No. 10 was constructed, doubling the size of the building. This addition changed the symmetry and proportions of the structure. In 1927, the project site was annexed into the City of Orange. To respond to a nationwide tuberculosis outbreak, a Tuberculosis Ward (Building No. 27) was constructed on the site in 1929; by 1950, Building Nos. 34, 46, and 57 were operating as tuberculosis wards.

During the Depression, with the advent of New Deal social welfare programs, the hospital began to phase out the "poor farm" operations. The hospital's dairy and stock operations were abandoned and much of the livestock was sold. The name of the facility was also changed to Orange County General Hospital.

In the 1940s, an ambitious hospital building expansion program was launched. Between 1946 and 1949, the staff and budget were doubled. As a result of the building expansion program, several buildings were constructed between 1948 and 1963, most by architects W.L. Faulkner and H.C. Wildman. Buildings and structures constructed in this time period included a morgue (Building No. 13), electrical shop (Building No. 33), laundry (Building Nos. 17 and 20), chlorinator (Building No. 76), reservoir (Building No. 79), incinerator/crematorium (Building No. 59), steam plant (Building No. 58), psychiatric building/mental health building/academic and support (Building No. 2), the new acute disease unit of Building No. 1, and covered walkways.

With the end of World War II, nine surplus barracks constructed in 1941 at the Santa Ana Army Air Base were relocated to the Orange County General Hospital; five of the nine buildings remain on the site today (Building Nos. 41, 43, 44, 46, and 57). The large number of military bases in the area induced growth as families of soldiers who had been stationed in the area during the war settled permanently in Orange County. Throughout the area, citrus groves were felled to allow for the construction of post-World War II suburban residential development. To keep pace with growth, construction commenced in 1950 to replace the State Route with Interstate 5 (I-5). This freeway project required the reconfiguration of the main driveway into the Orange County General Hospital. Closing the main driveway resulted in the loss of the hospital's formal entrance and setting.

In the 1950s, Orange County General Hospital continued to expand to serve the community's needs. By 1954, the hospital had 594 beds and 505 employees, 102 medical staff, 85 nurses in nursing school, and 17 medical interns. In that year, the hospital's accredited professional school of nursing became affiliated with Fullerton Junior College, and a nursing school building (Building No. 53) was constructed and contained a library, auditorium, classrooms, recreation area, and housing for 96 nurses.

In the early 1960s in Los Angeles, the California College of Medicine, a school of osteopathic medicine, was recognized by the American Medical Association. At the same time, The Regents were actively looking for another medical school to be located in southern California. With the California College of Medicines's recognition as a "conventional" medical school, The Regents acted to incorporate it into the University system. This action was made official through the passage of Senate Bill 1414 in 1963. In 1965, the ninth UC campus, the University of California at Irvine (UCI) opened on 1,510 acres of the Irvine Ranch in Irvine.

Additional facilities were constructed in the 1960s, including a new Acute Disease Unit (Building No. 1). Building No. 1 became the main and largest building at the complex. In 1966, the facility changed its name from Orange County General Hospital to Orange County Medical Center. As a part of this transition, the hospital began admitting private patients. Additionally, a Master Plan was prepared for the Medical Center by Welton Becket/Rose & Fears to evaluate hospital facilities and make recommendations for its orderly growth and expansion.

UCI administrators wanted a medical school to become part of UCI. In 1967, The Regents agreed that the California College of Medicine would be administratively responsible to the University of California and would ultimately relocate to the UCI campus in Irvine. Later that year, the Orange County Medical Center became a teaching hospital for the California College of Medicine.

During the late 1960s, the University began conceptual plans for the construction of a hospital at UCI's main campus in the City of Irvine. While additional buildings were constructed during this time period, other more ambitious plans for expansion and improvement to buildings were put on hold awaiting a determination of whether a new medical center would be constructed. Opposition and support for this facility continued through 1972. In late 1972, then Governor Jerry Brown felt that the existing Medical Center in the City of Orange (the Orange County Medical Center) was proximate to an underprivileged area, making its location pivotal to public health care. In 1976, the University of California purchased the hospital campus as a teaching hospital for use as the UCI Medical Center. By this time, the surrounding citrus groves had been replaced by roads, shopping centers, commercial buildings, and county buildings.

Upon the facility's acquisition by the University, campus architect, William Pereira Associates, prepared a two-volume study to evaluate all buildings, parking, landscaping, mechanical equipment, and signage. The report made recommendations for building demolition, new construction, site layout, and campus-wide improvements. UCI commenced implementation of Pereira's recommendations. Starting in 1978, the North Parking Structure was constructed. This structured was followed in the 1980s by several buildings including the five-story Medical Center Tower (Building No. 1A), electrical facility (Building No. 32), medical library (Building No. 22a), Magnetic Resonance Imaging Center (Building No. 22b), Diagnostic Service Center (Building 22c), Pavilions I and II (Building No. 30 and 30a, respectively), and the South Parking Garage (Building 73). The ultimate goal of new construction was to develop a central master planned campus. However, by the late 1980s, most of the clinical departments continued to operate in barracks, former tuberculosis wards, and the old nursing school building.

In the early 1990s, the Chao Cancer Center (Building No. 23), Neuropsychiatric Center (Building No. 3), and the Health Sciences Lab/Academic Lab Facility (Building No. 55) were built. The UCI Medical Center continues to be the only university hospital in Orange County, offering full acute and general health care services.

National Register of Historic Places and the California Register of Historical Resources

CEQA Guidelines §15064.5 defines an historical resource as "A resources listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the California Register of Historical Resources."

The National Register of Historic Places (National Register) was established by the National Historic Preservation Act of 1966, as "an authoritative guide to be used by federal, state, and local governments, private groups and citizens to identify the Nation's cultural resources and indicate what properties should be considered for protection from destruction or impairment." The National Register recognizes properties that are significant at the national, state, and local levels. The National Register's standards for evaluating the significance of properties were developed to recognize the accomplishments of all persons who have made a significant contribution to our country's history and heritage. For a property to qualify for the National Register of Historic Places, it must meet one of the National Register Criteria for evaluation by:

- being associated with an important historic context; or
- retaining historic integrity of those features necessary to convey its significance.

The quality of significance in American history, architecture, archeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and that meet one or more of the following:

Criterion A: That are associated with events that have made a significant contribution to the broad patterns of our history; or

Criterion B: That are associated with the lives of significant persons in our past; Criterion B applies to properties associated with individuals whose specific contributions to history can be identified and documented. Persons "significant in our past" refers to individuals whose activities are demonstrably important within a local, state, or national historic context. The criterion is generally restricted to those properties that illustrate (rather than commemorate) a person's important achievements. Examples of properties associated with a significant person would include the home of an important merchant or labor leader, the studio of a significant artist, or the business headquarters of an important industrialist; or,

Criterion C: That refer to properties that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction. This criterion applies to properties significant for their physical design or construction, including such elements as architecture, landscape architecture, engineering, and artwork. To be eligible under Criterion C, a property must meet at least one of the following requirements:

- Embody distinctive characteristics of a type, period, or method of construction
- Represent the work of a master
- Possess high artistic value
- Represent a significant and distinguishable entity whose components may lack individual distinction; or,

Criterion D: That have yielded or may be likely to yield, information important in history or prehistory.

Further, a determination is required as to whether the property has retained its integrity based on the aspects of location, design, setting, workmanship, materials, feeling, and association that the property must retain to convey its historic significance.

In addition to the National Register of Historic Places, California has created the California Register of Historical Resources (California Register). The California Register was established in 1992 as a comprehensive listing of California's historic resources, including those of national, state, and local significance. The criteria for listing historical resources in the California Register are consistent with those developed by the National Park Service for listing historical resources in the National Register, but were modified for state use in order to include a range of historical resources that reflect the history of California. Historical resources on the California Register include California resources listed in, or formally determined eligible for, the National Register.

Existing Buildings and Structures

The UCI Medical Center campus contains 56 buildings and structures, of which 34 were constructed before 1965. Five of the buildings were relocated from the Santa Ana Army Air Base in 1949. Table 3.3-1 identifies each building and structure by name and number, year built, architect (if known), known building alterations, and proposed action for the building. None of the existing buildings, structures, or objects on the campus are listed on the National Register of Historic Places and no National Register nominations are known to be pending.

TABLE 3.3-1
UCI MEDICAL CENTER BUILDINGS AND STRUCTURES

Bldg. No.	Building Description *Former Name(s)*	Year Constructed	GSF[a]/ Beds	Architect	Alterations	Significant?	Proposed Action
1	Medical Center-East (Main Hospital) ***New Acute Disease Unit***	1962	181,500 205 beds	H.C. Wildman and W.L. Faulkner	1981: connected to Building No. 1a.; entrance demolished	No	Demolish
1a.	Medical Center Tower	1981	101,105 102 beds	William L. Periera Associates	None noted	No	Reconfigure interior space
2	Resident Services ***Psychiatric Building (1957)*** ***Mental Health Building (1968)***	1959	13,996	W.L. Faulkner	c. 1979: original guard shack removed; 1984: gift shop and elevator tower added to front elevation; 1988: gazebo added; 1990: new driveway; interior alterations	No	Demolish
3	Neuropsychiatric Center	1993	81,358 84 beds	Ratleiffe Architects	Reconfiguration of interior space	No	No change
10	Pathology Laboratory Facilities ***Orange County Farm & Hospital main building***	1914	27,645	Frederick H. Eley (1914); M. Eugene Durfee (1926)	1926: south end addition; 1952: stair demolished, elevator installed on exterior; 1962: basement built out and entrance reconfigured; 1963: corridor connected to Building No. 1; 1966: lab and x-ray center added; 1967: north elevation, ramp, and stairwell added, doors/windows infilled and gunited, all windows replaced with metal frames, transoms/arches infilled, connection to Bldg. 30 demolished and all walls gunited; 1970: additional alternations (not identified); interior alterations. Interior no longer intact.	No	Demolish
11	Department Offices	1975	3,555	n/a (trailer)	None noted. Built on site of earlier Building No. 11 (Psycho-Pathic Ward) which was connected on the second floor to Building No. 10.	No	Demolish
12	Hospital Storage ***Laboratory (1950)*** ***Intern Dormitory (1955)*** ***Micro-Biology (1979)***	1914	1,313	unknown	No date: windows infilled on east side; front door boarded over; interior has coved ceilings but many rooms clad with acoustic tiles (ceilings, walls, etc.) Note: used for storage since 1996	No	Demolish
13	Storage ***Sleep and Dream Lab (1943)*** ***Morgue (1955)*** ***Psycho-Physiology Lab***	1943	852	unknown	1969: doors and windows altered, roof replaced with Spanish tile; no date: shed roof addition on south side, glazing replaced with obscure patterned glass, windows on east side infilled with stucco and doors. Note: used as storage since 1996	No	Demolish

TABLE 3.3-1 (cont.)
UCI MEDICAL CENTER BUILDINGS AND STRUCTURES

Bldg. No.	Building Description *Former Name(s)*	Year Constructed	GSF[a]/ Beds	Architect	Alterations	Significant?	Proposed Action
14	Hospital Storage ***Laboratory (1950)*** ***Bacteriology (1975)***	1914	1,306	unknown	No date: Three-part windows modified, additions to east (cold room) and north (autoclave) sides. Note: used for storage since 1996	No	Demolish
20	Facilities Services/Facilities Planning; Design and Construction ***Dormitory (1955)*** ***Laundry***	1948	10,535	unknown	1955: washroom addition; 1977 and 1987: remodeled; 1977: Butler-type storage addition	No	Demolish
22a.	Medical Library	1982	33,642	Leo A. Daly	None noted	No	No change
22b.	MRI (Magnetic Resonance Imaging) Center	1985	6,007	unknown	None noted	No	No change
22c.	Diagnostic Services Center	1986	17,509	unknown	None noted	No	No change
23	Chao Family Comprehensive Cancer Center	1991	71,359	Kaplan McLaughlin Diaz	None noted	No	No change
24	Research Lab ***Hemodialysis***	1949[b]	1,900	H.C. Wildman & W.L. Faulkner	None noted; the building may have been moved after 1955	No	Demolish
24a.	Research Lab	c. 1980s	1,000	n/a (trailer)	None noted	No	Demolish
25	Academic Offices, Administrative Services, Storage, Med. Rec. Facility ***Central Services Building***	1948	36,799	unknown	1955: large addition on south side; 1975: Building No. 16 (storage and maintenance/Clinical Teaching Unit, built 1962; W.L. Faulkner, architect) & Building No. 17 (laundry, built 1948; Faulkner, architect) were joined	No	Demolish
26	Academic Offices; Administrative Offices	1972	6,040	n/a (trailer)	None noted	No	Demolish
27	Storage ***Tuberculosis Ward (1949)*** ***Communicable Disease Ward (1950)***	1929	6,153	unknown	1950: remodeled; no date: ramp added on west side (reoriented entrance), overpainted transoms, stairs added on north and south elevations. Note: used as pediatric tuberculosis ward	No	Demolish
29	Pavilion III	1973	36,615	unknown	None noted	No	Demolish
29a.	Pavilion III	1979	16,416	unknown	None noted	No	Demolish
30	Pavilion I	1988	18,525	PBS (now Mobil Modular)	None noted. Note: building is comprised of 18 trailers	No	Demolish

TABLE 3.3-1 (cont.)
UCI MEDICAL CENTER BUILDINGS AND STRUCTURES

Bldg. No.	Building Description *Former Name(s)*	Year Constructed	GSF[a.]/ Beds	Architect	Alterations	Significant?	Proposed Action
30a.	Pavilion II	1989	18,972	Coleman/Casky	None noted	No	Demolish
31	Power Plant	1958	9,383	W.L. Faulkner	1991: steam generator addition (30 feet) added on east side	No	No change
32	Electrical Facility	1981	3,800	unknown	None noted; Building No. 19 was demolished to construct this structure.	No	Demolish
33	Facilities Management/Facilities Services ***Maintenance Shop (1955)*** ***Radiology Lab*** ***Electrical Shops***	1943	5,808	H.C. Wildman and W.L. Faulkner	Post-1955: gable roof portion called "The Barn" may have been relocated after 1955	No	Demolish
41	Research Lab ***Geriatrics (female) (1955)*** ***Inservice Education (1962)***	1949[a.]	3,813	unknown	1949: roof and windows replaced; 1969: doors replaced, windows reconfigured. Note: relocated to site in 1949 from Santa Ana Army Air Base	No	Demolish
43	Research Lab ***Pediatrics***	1949[a.]	4,228	unknown	1949: roof and windows replaced; 1962: remodeled; 1993: renovated. Relocated in 1949 from Santa Ana Army Air Base	No	Demolish
44	Volunteer Services/Department Offices ***OB (1955)***	1949[b.] Formerly Bldg. No. 39	5,193	unknown	1962: remodeled; recent: enclosed side door, new vinyl windows (east side). Relocated in 1949 from Santa Ana Army Air Base	No	Demolish
46	Research Lab ***Tuberculosis Ward (female) (1955)*** ***Surgery Research (1996)***	1949[b.] Formerly Bldg. No. 8	4,906	unknown	1949: roof and windows replaced. Note: relocated to site in 1949 from Santa Ana Army Air Base	No	Demolish
48	Research Lab	1971 Formerly Bldg. No. 35	3,851	unknown	None noted	No	Demolish
50	Occupational Therapy	1958	4,672	unknown	Cinder block construction. Post-1976: exterior stuccoed.	No	Demolish
51	Outpatient Dialysis ***Patient Care (Rehabilitation)***	1958	6,172	unknown	Cinder block construction. None modifications noted.	No	Demolish
52	Service Lab	1958	4,554	unknown	Cinder block construction. Post-1976: exterior stuccoed.	No	Demolish

TABLE 3.3-1 (cont.)
UCI MEDICAL CENTER BUILDINGS AND STRUCTURES

Bldg. No.	Building Description *Former Name(s)*	Year Constructed	GSF[a.]/ Beds	Architect	Alterations	Significant?	Proposed Action
53	Academic Offices (COM) ***"A Nurses School & Home"*** ***College of Medicine (1968)*** ***Department Office (1972)*** ***Research Lab (1973)***	1958	51,538	W.L. Faulkner & H.C. Wildman	1982: library moved/space remodeled; 1995: auditorium remodeled; 2001: second floor pedestrian access removed (window and brick replaced to match existing), lobby enclosed, large paired doors removed, rooms added, remaining classroom remodeled. Note: built to serve as a nursing school	No	Demolish
54	Physical Therapy ***Oncology (1962)*** ***Geriatrics (1955-1964)***	1957 Formerly Bldg. No. 25	5,424	W.L. Faulkner	1964: addition and remodeled	No	Demolish
55	UCI Health Sciences Laboratories	1997	59,200	Leo A. Daly	None noted	No	No change
57	Research Lab ***Tuberculosis Ward (male) (1955)*** ***Research Lab for Anaesthesiology***	1949[b.] Formerly Bldg. No. 37	5,114	unknown	None noted. Note: relocated to site in 1949 from Santa Ana Army Air Base	No	Demolish
58	Academic Offices; Admin. Services	1972	2,964	unknown	None noted	No	Demolish
59	Storage ***Incinerator/Crematorium (1955)***	post 1996	350	W.L. Faulkner	1983: added container, dumper, and compactor; facility demolished c. 1996; storage constructed.	No	No change
60	Vivarium	1969	6,613	unknown	1977 and 1987: remodeled; 1992: upgraded	No	Demolish
72	North Parking Structure	1978	87,000	Conrad Associates	None noted	No	Demolish
73	South Parking Structure	1988	216,733	Wayne Banks & Associates, Inc.	None noted	No	Expand
76	Storage/Chlorinator	1949	135	W.L. Faulkner	1969: chlorinator vault. Note: not a part of Medical Center, owned by the City of Orange Water Dept.	No	No change
79	Reservoir	1949	87	unknown	1962: improved.	No	No change
--	Utility Tunnel	1959	n/a	W.L. Faulkner	1963: an additional "leg" was built to serve Bldg. 1A.	No	Unknown
--	Information booth (at entrance)	1999	unknown	UCIMC Facilities	None noted	No	Unknown
--	Covered Walkways	1949	n/a	H.C. Wildman & W.L. Faulkner	1957: additional covered walkways added. Utility lines (steam, gas, water, telephone, and fiber optics) are carried beneath the roof.	No	Demolish

a. gsf: gross square feet
b. Date building relocated to site from the Santa Ana Army Air Base.

UCI Medical Center Campus

Characteristics of the site's pre-1963 buildings and structures (buildings that would be 50 years or older at full LRDP implementation) identified in Table 3.3-1 are provided below.

Building No. 1, Medical Center-East : Main Hospital (New Acute Disease Unit). Building No. 1 is a long rectangular, five-story, 181,500-square-foot building. Designed by W.L. Faulkner and H.C. Wildman, it was constructed in 1962. The building is three bays wide; a very wide central bay has continuous, ribbon windows protected by louvered metal awnings. The short side bays are lower and are only four bays wide. When originally constructed, Building No. 1 had a low, C-shaped, free form pavilion that served as the building's formal entrance. The building was connected to Building No. 1A in 1981. Modifications are identified in Table 3.3-1. These alterations have significantly changed the character of the structure. Building No. 1 does not qualify under Criterion A, B, or C of the National Register of Historic Places or the criteria of the California Register of Historical Resources.

Building No. 2, Resident Services (Psychiatric Building; Mental Health Building). Building No. 2 is a three-story, 42,540-square-foot building configured in an irregular "L." The simple, contemporary building was designed by W.L. Faulkner and constructed in 1959. The structure is board-formed concrete with continuous ribbon windows shaded by angular metal louvers. The building has a long pedestrian ramp on the east side leading to a plain storefront-style entrance. A central elevator penthouse punctuates the flat, parapeted roof. Building alterations, identified in Table 3.3-1, include the removal of the original guard shack, changes to the front elevation, the addition of a new driveway, and interior alterations. These alterations have significantly changed the original interior and exterior of the structure. Building No. 2 does not qualify under Criterion A, B, or C of the National Register of Historic Places or the criteria of the California Register of Historical Resources.

Building No. 10, Pathology Laboratory Facilities (Orange County Farm & Hospital Main Building). Building No. 10 is a two-story, 27,645-square-foot, six-bay-wide building configured in an elongated, rectangular plan. Executed in the Classical Revival style, the facility was designed by Frederick H. Eley and constructed in 1914. It is finished in heavy, gunite cladding. A formerly central entrance bay includes a formal entrance; the entry bay has a classical portico with four Ionic columns on a raised porch. The shallow portico features a triangular pediment with smooth column shafts. The central door has a rectangular classical surround and is flanked by narrow, round-headed windows. There is a central three-part window above, and rectangular windows at the sides. The regular fenestration is expressed in three, window-wide bays. The first floor windows have round headed, arched, infilled transoms, and one-over-one, narrow casement windows. A simple stringcourse separates the first and second floors. The second floor windows are simple rectangular openings; casement windows (consistent with the others) have infilled rectangular transoms. A classically inspired continuous band of stone balusters follows the roofline. There is a partial basement and various rooftop additions.

Multiple building additions, identified in Table 3.3-1, have significantly altered the interior and exterior of the building. There was a large addition to the building; it was connected and later detached from at least three other buildings. Window openings have been infilled, altered, and modified. The building's exterior has been clad in gunite, and the setting for the building has been significantly altered. Building No. 10 does not qualify under Criterion A, B, or C of the National Register of Historic Places or the criteria of the California Register of Historical Resources.

Building No. 12, Hospital Storage (Laboratory; Intern Dormitory; Micro-Biology). Building No. 12 is a small, single-story building configured in a rectangular plan. Built in 1914, the 1,313-square-foot structure has a flat roof. Obscured by foliage, the building's principal feature is a central door that is three-lights-wide and five-lights-high. A projecting, plat pediment is over the door and is supported by shaped, decorative knee braces. Used for storage since 1996, the interior and exterior of the structure has been significantly altered (see Table 3.3-1); modifications include the infilling of windows and installation of acoustic wall and ceiling tiles. Building No. 12 does not qualify under Criterion A, B, or C of the National Register of Historic Places or the criteria of the California Register of Historical Resources.

Building No. 13, Storage (Sleep and Dream Lab; Morgue; Psycho-Physiology Lab). Building No. 13 is a small, single-story rectangular structure. Built in 1943, the 852-square-foot building has a side-facing, gabled roof with a shed extension. It is clad in stucco and has few openings. Used for storage since 1996, the structure has been significantly altered (Table 3.3-1). Modifications include replacement of the roof, infilling and changes to windows, and the construction of a shed roof addition. Building No. 13 does not qualify under Criterion A, B, or C of the National Register of Historic Places or the criteria of the California Register of Historical Resources.

Building No. 14, Hospital Storage (Laboratory; Bacteriology). Building No. 14 is a small, single-story structure configured in a rectangular plan. The 1,306-square-foot structure was constructed in 1914, has a symmetrical front elevation and is clad in stucco with a parapeted, flat roofline. The structure is three-bays-wide with a central elevation. The setback, raised entry features a flat pediment; on either side of the entrance is a three-part window with wide, fixed lights flanked by narrow, one-over-one sashes. Narrow horizontal "eyebrows" are set high above the windows. The three-part windows have been modified; additions have been constructed on the east and north sides of the structure (Table 3.3-1). Building No. 14 does not qualify under Criterion A, B, or C of the National Register of Historic Places or the criteria of the California Register of Historical Resources.

Building No. 20, Facilities Services (Dormitory; Laundry). Building No. 20 is one high-bay-story in height and three-bays-wide. Configured in a rectangular plan, the 10,535-square-foot structure has a concrete exterior and a flat roofline at the parapet. The central front door has a simple, flat canopy. There is a Butler-type addition (1977) on the south side of the structure. Building No. 20 was modified in 1955, 1977, and 1987 (Table 3.3-1). Building No. 20 does not qualify under Criterion A, B, or C of the National Register of Historic Places or the criteria of the California Register of Historical Resources.

Building No. 24, Research Lab (Hemodialysis). Building No. 24 is a single-story structure configured in a long, narrow rectangle. The 1,900-square-foot structure has a front-facing, gabled roof with single, overhanging eves and plain, four-sided louvered cupola at the roof ridge. The building is clad in stucco. Alterations are noted on Table 3.3-1. Building No. 24 does not qualify under Criterion A, B, or C of the National Register of Historic Places or the criteria of the California Register of Historical Resources.

Building No. 25, Academic Offices (Central Services Building). Building No. 25 is a two-story, 36,799-square-foot, flat-roofed building configured in a large, irregular "L" plan. The building is constructed of reinforced concrete (lightly scored) with few openings. The main (west) elevation is asymmetrical and industrial in character; a central, single-story loading dock occupies the center bay. Alterations (Table 3.3-1) include a contemporary, curtain wall addition (1955). Building No. 25 does not qualify under Criterion A, B, or C of the National Register of Historic Places or the criteria of the California Register of Historical Resources.

Building No. 27, Storage (Tuberculosis Ward; Communicable Disease Ward). Building No. 27 is a one-story, 6,153-square-foot building constructed in 1929. The building is Spanish Eclectic in style with features including "Santa Barbara-style-finished" thick stucco walls, side-facing medium gabled Spanish tiled roof, overhanging eaves with carved roof brackets, decorative ceramic tile at the main entrance, and a small oculus window. The symmetrical building has a raised, recessed entrance with blue Mexican tile wainscoting lining the walls of the recessed entry vestibule. Vertical, three-part windows flank the entrance and are deeply recessed. The simple windows are repeated on all elevations; the transoms on all of the windows have been painted over. Alterations (Table 3.3-1) include the addition of a ramp and stairs. Building No. 27 does not qualify under Criterion A, B, or C of the National Register of Historic Places or the criteria of the California Register of Historical Resources. Building No. 27 is not a rare example of this architectural style or its use as a tuberculosis treatment facility.

Building No. 31, Power Plant. Building No. 31 is a 9,383-square-foot, single-story building configured in an irregular square plan. Designed by W.L. Faulkner and constructed in 1958, the utilitarian building is clad in metal and has a front-facing, medium pitched, gabled roof, interrupted by various utilitarian vertical penetrations. Fenestration is random, consisting of a variety of different types of multi-light windows (e.g., awning and fixed type windows). Standard doors are located on three sides with large, sliding doors on the fourth side. A steam generator addition was added to the east side of the building in 1991 (Table 3.3-1). Building No. 31 does not qualify under Criterion A, B, or C of the National Register of Historic Places or the criteria of the California Register of Historical Resources.

Building No. 33, Facilities Management (Maintenance Shop; Radiology Lab; Electrical Shops). Building No. 33 is a 5,808-square-foot, single-story building configured in a narrow, rectangular plan. Designed by H.C. Wildman and W.L. Faulkner and constructed in 1943, this utilitarian structure is clad in stucco. The east side has a front-facing, medium pitched, gabled roof; the west end has a flat roof with overhanging eves. Fenestration is random and consists of a variety of multi-light windows. The entrance is set off-center and is on the north side of the building. Building modifications are identified in Table 4.5-1. Building No. 33 does not qualify under Criterion A, B, or C of the National Register of Historic Places or the criteria of the California Register of Historical Resources.

Building No. 41, Research Lab (Geriatrics; Inservice Education). Building No. 41 is a single-story structure configured in a narrow, rectangular plan. The 3,813-square-foot structure is clad in stucco and has a front-facing, gabled roof, with plain, open eaves. The building entrance is located at the north elevation and is connected at the northern door to the covered hospital pedestrian walkway. Modifications, including the replacement of the roof, doors, and windows, are identified on Table 3.3-1. Building No. 41 does not qualify under Criterion A, B, or C of the National Register of Historic Places or the criteria of the California Register of Historical Resources.

Building No. 43, Research Lab (Pediatrics). Building No. 43 is a single-story structure configured in a narrow, rectangular plan. The 4,228-square-foot structure has a front-facing, gabled roof with plain, open eaves. The building is connected at the north door to the hospital pedestrian walkway system. The building has been significantly altered; modifications include the replacement of the roof and windows (Table 3.3-1). Building No. 43 does not qualify under Criterion A, B, or C of the National Register of Historic Places or the criteria of the California Register of Historical Resources.

Building No. 44, Volunteer Services (OB). Building No. 44 is a single-story structure configured in a long, irregular "L" plan. The 5,193-square-foot structure has a front-facing, gabled roof with simple, overhanging eaves and is clad in smooth stucco. The building is connected at the north

door to the hospital pedestrian walkway system. The building was remodeled in 1962; modifications include the new windows and door (Table 3.3-1). Building No. 44 does not qualify under Criterion A, B, or C of the National Register of Historic Places or the criteria of the California Register of Historical Resources.

Building No. 46, Research Lab (Tuberculosis; Surgery Research). Building No. 46 is a single-story, 4,906-square-foot building configured in a narrow, rectangular plan. Relocated from the Santa Ana Army Air Base in 1949, the stucco clad building has a front-facing, gabled roof with overhanging eaves. The deeply inset entry is located at the north end and is connected to the covered walkways. Simple windows are six-over-six light, sash-style windows. Both the roof and windows of the building have been replaced (Table 3.3-1). Building No. 46 does not qualify under Criterion A, B, or C of the National Register of Historic Places or the criteria of the California Register of Historical Resources.

Building No. 50, Occupational Therapy; Building No. 51, Outpatient Dialysis (Patient Care: Rehabilitation); Building No. 52, Service Lab. Building Nos. 50, 51, and 52 are interconnected on the north end by a common spine. The buildings, constructed in 1958, form an irregular "E" plan. They are of cinder-block construction with front-facing gabled roof and slightly overhanging eaves. The south-facing, symmetrical end wall elevations each have central double doors protected by raked pediments and supported on simple knee braces. The door is flanked by small, multi-light sash windows. Post-1976, Building Nos. 50 and 52 were stuccoed (Table 3.3-1). These buildings do not qualify under Criterion A, B, or C of the National Register of Historic Places or the criteria of the California Register of Historical Resources.

Building No. 53, Academic Offices ("A Nurses School & Home;" College of Medicine; Department Office; Research Lab). Building No. 53 is a three-story, 51,538-square-foot building configured in a square "U" plan. Designed by W.L. Faulkner and H.C. Wildman and constructed in 1958, the building is clad in brick and stone with ribbon windows set in slim, concrete bands. The main entrance is located on the longest central "leg" and features a single-story, projecting, flat roofed portico. The building is symmetrical, balanced by auditorium and classroom wings. Building No. 53 has been significantly altered (see Table 3.3-1); modifications include the interior remodeling, removal of the second floor pedestrian access, and enclosing the lobby. Building No. 53 does not qualify under Criterion A, B, or C of the National Register of Historic Places or the criteria of the California Register of Historical Resources. Building No. 53 is not a distinctive or rare example of post-World War II modern style or type.

Building No. 54, Physical Therapy (Oncology; Geriatrics). Building No. 54 is a 5,424-square-foot, single-story building configured in an irregular "L" plan. Designed by W.L. Faulkner and constructed in 1957, the building has a front-facing, intersecting gabled roof with simple, overhanging eaves. The stucco clad structure has a pair of simple doors on an end wall that serve as the building's entrance. Four light casement windows are located in the longer elevations of the structure. An addition and remodel occurred in 1964 (Table 3.3-1). Building No. 54 does not qualify under Criterion A, B, or C of the National Register of Historic Places or the criteria of the California Register of Historical Resources.

Building No. 57, Research Lab (Tuberculosis Ward: Male; Research Lab for Anesthesiology). Building No. 57 is a 5,114-square-foot, single-story structure configured in a long, narrow rectangle. Moved to the site in 1949 from the Santa Ana Army Air Base, the building has entrances on the north and south elevations; side elevations include six-over-six, sash windows, many of which have wall mounted air conditioning units. The front-facing, gabled roof has simple, overhanging eaves. The building is finished in smooth stucco. Building No. 5714 does not qualify under Criterion A, B,

or C of the National Register of Historic Places or the criteria of the California Register of Historical Resources.

Structure No. 76, Storage/Chlorinator. Structure 76 is comprised of a group of water treatment equipment, set on a two-level slab and enclosed by a simple chain link fence. This equipment does not qualify under Criterion A, B, or C of the National Register of Historic Places or the criteria of the California Register of Historical Resources.

Structure No. 79, Reservoir. Structure No. 79 is a subterranean reservoir. The round reservoir has steps leading to the southwest side and is paved in concrete. The reservoir was built in 1949 and improved in 1962. The reservoir does not qualify under Criterion A, B, or C of the National Register of Historic Places or the criteria of the California Register of Historical Resources.

Covered Walkways. Designed by W.L. Faulkner and H.C. Wildman and constructed in 1949, the covered walkways are a series of interconnected structures that form a large, irregular "T" between the smaller buildings on the southeast side of the Medical Center campus. The walkway structures serve as a continuous, protected pathway between Building Nos. 27 and 43 (north/south) and Building Nos. 43, 41, 44, 46, 48, 57, 50, 51, and 52 (east-to-west). The walkways are single-story with no vertical walls, and are characterized by a low, continuous front-facing, gabled roof. The long roof is supported on welded, round metal posts, and are held together by a pair of parallel, horizontal handrails. Utilities are carried in grouped chases under the roofline. The walkways have been repaired and altered over the years. These covered walkways do not qualify under Criterion A, B, or C of the National Register of Historic Places or the criteria of the California Register of Historical Resources.

3.3.3 THRESHOLDS OF SIGNIFICANCE

The following standards of significance are based on Appendix G of the CEQA Guidelines. For the purposes of this EIR, impacts would be considered significant if the following were to occur:

- Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5.

- Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?

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

- Disturb any human remains, including those interred outside of formal cemeteries?

In accordance with the state CEQA Guidelines §15064.5, "A project with an effect that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment."

> "Substantial adverse change in the significance of an historical resource means physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired.

The significance of an historical resource is materially impaired when a project:

(A) Demolishes or materially alters in an adverse manner those physical characteristics or an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register of Historical Resources; or

(B) Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources...unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or

(C) Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register of Historical Resources as determined by a lead agency for purposes of CEQA."

"The fact that a resource is not listed in, or determined to be eligible for listing in the California Register of Historical Resources, not included in a local register of historic resources (pursuant to section 5020.1(k) of the Public Resources Code), or identified in an historical resources survey (meeting the criteria in section 5024.1(g) of the Public Resources Code) does not preclude a lead agency from determining that the resources may be an historical resource as defined in Public Resources Code sections 5020.1(j) or 5024.1." CEQA Guidelines §15064.5(a)(4).

Potential effects to archaeological and paleontological resources were addressed and fully mitigated in the Initial Study for the proposed project. No further analysis is required in this EIR.

3.3.4 PROJECT IMPACTS

Impact 3.3-1: Phase I project implementation would result in the demolition of 12 of the 24 pre-1963 buildings and structures at the UCI Medical Center. This is considered a less than significant impact.

The proposed UCI Medical Center Phase I LRDP project assumes the demolition of 12 of the 24 pre-1963 buildings and structures. They are:

- Building No. 1, Medical Center-East : Main Hospital (New Acute Disease Unit)
- Building No. 2, Resident Services (Psychiatric Building; Mental Health Building)
- Building No. 10, Pathology Laboratory Facilities (Orange County Farm & Hospital Main Building)
- Building No. 12, Hospital Storage (Laboratory; Intern Dormitory; Micro-Biology)
- Building No. 13, Storage (Sleep and Dream Lab; Morgue; Psycho-Physiology Lab)
- Building No. 14, Hospital Storage (Laboratory; Bacteriology)
- Building No. 33, Facilities Management (Maintenance Shop; Radiology Lab; Electrical Shops)

- Building No. 41, Research Lab (Geriatrics; Inservice Education)
- Building No. 43, Research Lab (Pediatrics)
- Building No. 44, Volunteer Services (OB)
- Building No. 46, Research Lab (Tuberculosis; Surgery Research)
- Building No. 57, Research Lab (Tuberculosis Ward: Male; Research Lab for Anesthesiology)
- Covered walkways

As previously noted, none of the existing buildings, structures, or objects at the UCI Medical Center are currently listed on the National Register of Historic Places and no National Register applications are known to be pending. Based on the assessment of each of the individual buildings and structures and their context to the overall project site, none of the buildings and structures are considered eligible for listing on the National Register of Historic Places or the California Register of Historical Places, and none are considered eligible for designation as local landmarks either individually or as a part of a district.

The buildings and structures do not retain sufficient integrity of design, setting, materials, workmanship, feeling, or association for consideration under Criteria A (for its association with the development of Orange County public health care) or Criteria C (for its remaining Classical Revival buildings) of the National Register of Historic Places.

The project site does not fit the definition of a historic district because it does not "possess a significant concentration, linkage, or continuity of sites, buildings, structures, or objects united historically or aesthetically by plan or physical development." The remaining buildings from the Orange County Farm & Hospital have been severely altered. Their original setting has been paved and infilled with additional contemporary buildings that do not respect the arrangements of the original buildings and the carefully crafted interrelationships of the original City Beautiful-inspired plan. The campus was once a carefully arranged, landscaped setting, with carefully ordered buildings and structures set in a park-like setting by 1955. Only 11 buildings and one structure (all altered) remain from that time frame, five of which are relocated Army surplus barracks. The property does not retain sufficient integrity to be considered for National or California Register eligibility.

Under the City of Orange Historic District zoning criteria, none of the buildings, structures, or objects would be eligible for inclusion in a local historic district zone. Under Criterion A, none of the remaining early buildings possess sufficient integrity to convey their earlier significance because of alterations, demolitions, and changes in setting. Therefore, an intact potential historic district zone is not present. Under Criterion B, there are other local (St. Joseph's/Children's Hospital of Orange) and regional (Rancho Los Amigos medical Center) hospital properties that possess integrity and better exemplify the shared historic context of hospitals and public hospitals in a rapidly developing region. The city's Criteria C and D do not apply to the project site.

Because the site does not contain potentially historic resources, implementation of the Phase I project would result in a ***less than significant impact*** to any such resources.

Mitigation Program

No mitigation is required.

Impact 3.3-2: Full LRDP implementation would result in the demolition of nine additional pre-1963 buildings and structures at the UCI Medical Center. This is considered a less than significant impact.

Full LRDP implementation will result in the demolition of nine additional pre-1963 buildings and structures. In total, 21 of the 24 pre-1963 buildings and structures will be demolished. Building/Structures Nos. 31 and 76 will be retained. Buildings that will be demolished as a part of full LRDP implementation are:

- Building No. 20, Facilities Services (Dormitory; Laundry)
- Building No. 24, Research Lab (Hemodialysis)
- Building No. 25, Academic Offices (Central Services Building)
- Building No. 27, Storage (Tuberculosis Ward; Communicable Disease Ward)
- Building No. 50, Occupational Therapy
- Building No. 51, Outpatient Dialysis (Patient Care: Rehabilitation)
- Building No. 52, Service Lab
- Building No. 53, Academic Offices ("A Nurses School & Home;" College of Medicine; Department Office; Research Lab)
- Building No. 54, Physical Therapy (Oncology; Geriatrics)

These nine buildings at the UCI Medical Center are currently listed on the National Register of Historic Places and no National Register applications are known to be pending. Based on the assessment of each of the individual buildings and their context to the overall project site, none are considered eligible for listing on the National Register of Historic Places or the California Register of Historical Places, and none are considered eligible for designation as local landmarks either individually or as a part of a district.

The buildings do not retain sufficient integrity of design, setting, materials, workmanship, feeling, or association for consideration under Criteria A (for its association with the development of Orange County public health care) or Criteria C (for its remaining Classical Revival buildings) of the National Register of Historic Places.

The project site does not fit the definition of a historic district because it does not "possess a significant concentration, linkage, or continuity of sites, buildings, structures, or objects united historically or aesthetically by plan or physical development." The remaining buildings from the Orange County Farm & Hospital have been severely altered. Their original setting has been paved and infilled with additional contemporary buildings that do not respect the arrangements of the original buildings and the carefully crafted interrelationships of the original City Beautiful-inspired plan. The campus was once a carefully arranged, landscaped setting, with carefully ordered buildings and structures set in a park-like setting by 1955. Only 11 buildings and one structure (all

altered) remain from that time frame, five of which are relocated Army surplus barracks. The property does not retain sufficient integrity to be considered for National or California Register eligibility.

Under the City of Orange Historic District zoning criteria, none of the nine buildings would be eligible for inclusion in a local historic district zone. Under Criterion A, none of the remaining early buildings possess sufficient integrity to convey their earlier significance because of alterations, demolitions, and changes in setting. Therefore, an intact potential historic district zone is not present. Under Criterion B, there are other local (St. Joseph's/Children's Hospital of Orange) and regional (Rancho Los Amigos medical Center) hospital properties that possess integrity and better exemplify the shared historic context of hospitals and public hospitals in a rapidly developing region. The city's Criteria C and D do not apply to the project site.

Because the site does not contain potentially historic resources, full LRDP implementation, inclusive of Phase I, will result in a ***less than significant impact*** to any such resources.

Mitigation Program

No mitigation is required.

Impact 3.3-3: Project implementation is not expected to affect prehistoric archaeological resources.

The UCI Medical Center site is developed and has been subject to ongoing demolition and construction activities. Associated with these activities, no prehistoric archaeological resources have been noted. However, archaeological resources can be uncovered and consequently impacted by excavation and construction activities. Any potential impacts to prehistoric archaeological resources are expected to mitigated to a ***less than significant level*** through implementation of the following measure.

Mitigation Program

Implementation of the following measure would mitigate potential impacts to a ***less than significant*** level.

Mitigation Measure

3.3-3 A Register of Professional Archaeologist-certified archaeologist shall be retained to perform periodic project-specific inspections of ground disturbing activities. The archaeologist shall be allowed to divert or direct grading in the areas of resources in order to facilitate evaluation and, if necessary, salvage any buried artifacts that may be uncovered.

a. A final monitoring report, including an itemized inventory and pertinent field data, shall be sent to the University of California and to the South Central Coastal Information Center at California State University at Fullerton following the completion of each construction project.

b. Any recovered prehistoric and historic artifacts shall be offered, on a first right-of-refusal basis, to a repository with a retrievable collection system and an educational and research interest in the materials such as the Fowler Museum of Cultural History (UCLA) or California State University, Fullerton, or alternatively to the Pacific Coast Archaeological Society where collections are held locally.

Impact 3.3-4: Project implementation is not expected to affect any unique paleontological resources.

The UCI Medical Center site is developed and has been subject to ongoing demolition and construction activities. Associated with these activities, no unique paleontological resources have been noted. However, paleontological resources can be uncovered and consequently impacted by excavation and construction activities. Any potential impacts to unique paleontological resources are expected to mitigated to a ***less than significant level*** through implementation of the following measure.

Mitigation Program

Implementation of the following measure would mitigate potential impacts to a ***less than significant*** level.

Mitigation Measure

3.3-4 A qualified paleontologist shall be retained to perform periodic project-specific inspections of excavations and to salvage exposed fossils. The paleontologist shall be allowed to divert or direct grading in the areas of an exposed fossil in order to facilitate evaluation and, if necessary, salvage the exposed fossil.

a. During monitoring, any scientifically significant specimens shall be properly salvaged after evaluation by, and under the supervision of, the paleontologist. During fossil salvage, contextual stratigraphic data shall also be collected. This will include lithologic descriptions, localities plotted on a USGS 7.5' Series topographic quadrangle, photographs, and field notes.

b. Specimens shall be prepared to the point of identification, identified, and curated on a long-term loan basis in a suitable repository that has a retrievable storage system, such as the Los Angeles County Museum of Natural History.

c. A final report shall be prepared at the end of earthmoving activities for each construction project, and shall include an itemized inventory of recovered fossils and appropriate stratigraphic and locality data. This report shall be sent to the University of California to signify the end of mitigation. Another copy shall accompany any recovered fossils, along with field logs and photographs, to the designated repository.

3.3.5 CUMULATIVE IMPACTS

Impact 3.3-5: The project would not directly contribute to the loss of any historic offsite buildings, structures, or features located in the City of Orange. This is considered a less than significant impact.

The cumulative study area for historic resources is defined as areas inclusive of the historic resources identified on the *City of Orange Historic Building Survey Data Citywide Resources*. There are no historic resources in proximity to the UCI Medical Center identified on the Historic Building Survey, including on Chapman Avenue and The City Drive. Direct impacts to onsite cultural resources are site-specific. As defined in CEQA Guidelines §15130, a cumulative impact consists of an impact which is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts. "An EIR should not discuss impacts which do not result in part from the project evaluated in the EIR" (source: CEQA Guidelines §15130(a)(1)). The UCI Medical Center project would not contribute to a cumulative effect on historic resources because a determination has been made that onsite structures are not historically significant. As such, the proposed project will not contribute to the loss of significant historic resources. ***No impacts*** will occur.

Mitigation Program

No mitigation is required.

3.4 GEOLOGY AND SOILS

3.4.1 INTRODUCTION

This section describes the existing geologic, soils, and seismic conditions at the UCI Medical Center site and analyzes the potential physical environmental effects that could result from implementation of the proposed project. Several documents were reviewed during the preparation of this section. Pertinent information was incorporated into this analysis; however, because only portions of these documents are relevant to the proposed UCI Medical Center project, these documents are not incorporated by reference. The following documents are available for review during regular business hours at the UCI Medical Center, Planning and Development Services Office (Building No. 20): *Soil Survey of Orange County and Western Park of Riverside County, California*, United States Department of Agriculture (1978); *Mitigated Negative Declaration for the UCI Medical Center Academic Laboratory Seismic Replacement Facility* (1996); and, *City of Orange General Plan* (1989). The *Geotechnical Data Report and Geologic-Seismic Study for University of California, Irvine, Medical Center Replacement Hospital Orange, California*, Geobase, Inc. (November 2000) is included in Appendix D to this EIR.

3.4.2 EXISTING CONDITIONS

Site Topography

The UCI Medical Center site is located in the western portion of the City of Orange, west of the Santa Ana River. Onsite elevations range from 129 to 135 feet above mean sea level (msl) across the 33-acre site.

Local Geology and Soil Conditions

Soil types for Orange County were classified by the United States Department of Agriculture, Soil Conservation Service in 1978. The Medical Center site is developed and is underlain by soils of the Metz series, including Metz loamy sand. The Metz series consists of somewhat excessively drained soils typically found on floodplains and alluvial fans that form in mixed alluvium. Metz soils are typically used for row crops, field crops, and urban development.

The Medical Center site is situated on the Santa Ana River floodplain; the existing Santa Ana River Channel is east of the site. Recent alluvial deposits underlie the site to depths of 80 to 100 feet. Below the recent alluvium is older alluvium or stream terrace deposits to depths of 800 feet.

A field investigation of the proposed new hospital site was conducted by Geobase, Inc. in October 2000. The field investigation included 41 borings and 2 cone penetration tests within the proposed development area for the hospital. This included 37 borings to a depth of 61.5 feet, 3 borings to a depth of 101 feet, 1 boring to a depth of 150 feet, and 3 cone penetration tests to depths ranging from 72 to 76 feet. According to boring results, soils in the northern portion of the site are comprised of Holocene age unconsolidated alluvium consisting of sands, sandy clays, sandy silts, and clays. The general stratigraphic profile consists of approximately 2.5 to 8 feet of fill soil (silty sands and clays) overlying interbedded native sands and silty sands. A layer of clays and sandy soils was encountered at approximately 15, 30, and 55 to 60 feet below existing grade. The clay and sandy silt lays located at approximately 15 and 30 feet appeared discontinuous (i.e., not encountered at some boring locations). Four borings had native sandy soils between approximately 70 to 100 feet blow existing grade that contained considerable amounts of gravel and occasional cobbles. Based on testing of the boring sites, the upper 15 feet of native sandy soils are generally in a medium dense state with occasional loose pockets. Below 15 feet, the

sands and silty sands are considered to be in a dense to very dense state; native clays and sandy silts are inferred to have a very stiff to hard consistency. The upper 5 feet of the onsite sandy soils have a "very low" to "low" expansion potential and the clays at 15 to 20 feet have a "low" to "medium" expansion potential.

Although project-specific geotechnical investigations have not been prepared for each location proposed for reuse at the Medical Center, geologic and soils conditions beneath the site are expected to be consistent with previous geotechnical investigations were conducted for the proposed new hospital, as well as for other prior onsite developments (e.g., soil borings were conducted in 1995 for the Academic Laboratory Facility located in the southeastern portion of the Medical Center).

Faulting and Seismicity

Fault Locations

Faults are categorized by the California Division of Mines and Geology as active, potentially active, or inactive. Active faults are those that show evidence of surface displacement during the Holocene Epoch, which is within the last 11,000 years. Potentially active faults are those that show evidence of last displacement during the Quaternary Epoch, which is within the last 1.6 million years. Faults showing no evidence of displacement within the last 1.6 million years may be considered inactive for most purposes, except for some critical structures.

The Medical Center site is located in southern California, a seismically active region. The type and magnitude of seismic hazards affecting a site are primarily dependent on the distance to active faults. Regional faults and blind faults in the vicinity of the project site are identified in Table 3.4-1; the maximum expected groundshaking intensity is provided. The seismic potential of an active or potentially active fault is generally evaluated by estimating the magnitude on the Richter Scale.

TABLE 3.4-1
REGIONAL FAULTS

Fault Name	Distance and Direction from Site (miles)	Maximum Expected Groundshaking (Richter magnitude)
Faults		
Whittier	9.9 miles, northeast	6.8
Newport-Inglewood	10.6 miles, southwest	6.9
Chino-Cental Avenue	11.8 miles, northeast	6.7
Elsinore	14.9 km, northeast	6.8
San Jose	17.4 miles, northeast	6.5
Blind Thrusts		
Elysian Park	3.4 miles, northwest	6.7
Compton	5.0 miles, northwest	6.8
Source: Geotechnical Data Report and Geologic-Seismic Study for the University of California Medical Center Replacement Hospital, Geobase, Inc., November 30, 2000.		

No known active or potentially active faults have been identified as projecting toward or through the project site. The site is proximate to several surface faults that are presently designated as active or potentially active pursuant to the guidelines of the Alquist-Priolo Earthquake Fault Zoning Act of 1994 (Alquist-Priolo Act). The nearest of these faults, the Whittier fault, is located approximately 16 kilometers northeast of the site. Several active blind thrust faults are located at depths beneath the Los Angeles basin. These blind thrust faults are generally low angle and terminate within folds or other faults, and do not break the surface. These faults are not considered a hazard with regard to surface rupture, but are capable of generating earthquakes with potential strong ground motions that may affect the site.

California State-Imposed Geological (Seismic Hazards) Zones

The Alquist-Priolo Earthquake Fault Zoning Act of 1994 (Alquist-Priolo Act) and the Urban Seismic Hazard Mapping Act (USHMA) require the State of California to delineate zones that, due to known regional geological conditions, need investigations of seismic hazards, specifically tectonic ground rupture along known active faults (Alquist-Priolo Act) or for secondary potential hazards that include liquefaction potential and slope stability during strong regional earthquakes.

Liquefaction

Liquefaction is a secondary effect of seismic activity. Liquefaction is defined as the transformation of a granular material (soil) from a solid state into a liquified state as a consequence of increased pore water pressure. Groundshaking resulting from an earthquake is capable of providing the mechanism for liquefaction, usually in saturated, loose, medium- to fine-grained sands, silty sands, and certain types of clayey soils. The likelihood of liquefaction occurring depends on many factors including: proximity to active faults; differences in the compaction of soils layers, nature of the soil, and depth of the deposits; and depth to the water table. Soils subject to liquefaction consist of saturated fine-grained sands to coarse silts. Coarser-grained soils are considered free-draining and, therefore, dissipate excess pore pressures, while fine-grained soils possess undrained shear strength.

The California Department of Conservation, Division of Mines and Geology's mapping for the Anaheim Quadrangle (March 25, 1999), prepared pursuant to the requirements of the Seismic Hazards Mapping Act of 1990, identifies the southeastern corner of the Medical Center site as being located within an area "where historic occurrence of liquefaction, or local geological, geotechnical, and groundwater conditions indicate a potential for permanent ground displacements such that mitigation as defined in the Public Resources Code Section 2693(c) would be required." This mitigation refers to compliance with applicable liquefaction provisions of the Uniform Building Code. As a part of the geological investigation for the proposed replacement hospital, Geobase, Inc. performed 44 borings on the project site, which varied in depth from 61.5 feet to 150 feet. Groundwater was observed in four of the borings. Groundwater was not encountered in the remaining 40 borings to a depth of 61.5 feet. Because of the depth to the water table and density and types of soils observed at the onsite boring locations, the possibility of liquefaction in the underlying soils on the Medical Center site is considered to be very low.

Seismically-Induced Settlement

Seismically-induced settlement is expected to be relatively minor and range from one-fourth-inch to two inches.

Surface Rupture

The likelihood of direct surface fault rupture at the project site is considered very low based on the known techtonic framework at the site and local vicinity. Surface cracking from shaking caused by distant seismic events is not considered a significant hazard, but is possible at any site in southern California.

Landsliding

The project site is flat and is located more than five miles from any prominent upland slopes. These conditions preclude the potential for hazards associated with seismically-induced landsliding.

Regulatory Requirements and Policies

Alfred E. Alquist Hospital Seismic Safety Act

The Sylmar Earthquake of 1971 caused the collapse of several hospitals, endangering the lives of hospital patients and rendering these facilities incapable of providing emergency health care to persons injured during the earthquake. As a result, the California Legislature passed the Alfred E. Alquist Hospital Seismic Safety Act (Alquist Act) in 1973. In 1983, the Alquist Act was amended (Health and Safety Code, §129675) to preempt local building departments in order to ensure statewide uniformity in health facility construction standards. Building plan check and inspection responsibilities were transferred to the California Office of Statewide Health Planning and Development (OSHPD) and the Division of the State Architect. In 1991, all responsibilities were transferred to OSHPD. The health facility construction standards are intended to ensure that vulnerable patients are safe in an earthquake, and the facilities remain functional after such a disaster in order to care for injured persons in the community.

OSHPD is responsible for overseeing all aspects of construction of general acute care hospital, psychiatric hospital, and multiple-story skilled nursing home, and intermediate care facilities in California. This responsibility includes:

- establishing building standards adopted in the California Building Standards Code which govern construction of these types of facilities;

- reviewing plans and specifications for new construction, alteration, renovation, or additions to health facilities; and,

- observing construction in progress to ensure compliance with the approved plans and specifications.

California Senate Bill 1953 (SB 1953), signed into law on September 21, 1994, was an amendment to and furtherance of the Alfred E. Alquist Hospital Seismic Safety Act of 1983. SB 1953 (Chapter 740, 1994), is now chaptered into statute in Sections 130000 through 130070 of the Alfred E. Alquist Hospital Seismic Safety Act and is part of the California Health and Safety Code. Hospitals built in accordance with the standards of the Alquist Act were able to withstand the January 1994 Northridge Earthquake with minimal structural damage, while several facilities built prior to the Alquist Act experienced major structural damage and had to be evacuated. However, certain nonstructural components of hospitals did incur damage, including those facilities built in accordance with the Alquist Act. The provisions and subsequent regulation language of SB 1953 were developed to address the issues of survivability of both nonstructural and structural components of hospital buildings during and after a seismic event.

Hospitals, as defined in Section 129725 and licensed pursuant to subdivision (a) of Section 1250 of the California Health and Safety Code, must comply with the regulations developed by OSHPD, as mandated by SB 1953. One of the main provisions of SB 1953 was the development of earthquake or seismic performance categories, specifically Structural Performance Categories (SPC) and Nonstructural Performance Categories (NPC), for older hospitals (pre-1973 locally approved, non-conforming buildings), and new hospitals (post-1973 OSHPD approved, conforming buildings). These include seismic performance categories in various subgradations (i.e., from those capable of providing services to the public after a seismic event to those at significant risk of collapse and represent a danger to the public). Each acute care facility must receive a SPC and NPC designation, with both seismic performance categories considered for determination of a facility's compliance with the provisions of the Alquist Act. Compliance requirements for SB 1953 are summarized in Table 3.4-2 and addressed in the following discussion.

TABLE 3.4-2
SEISMIC PERFORMANCE CATEGORIES

Structural Performance Categories (SPC)	
SPC 1	Pre-1973 buildings judged to pose significant risk to life safety.
SPC 2	Pre-1973 buildings that do not pose significant risk to life safety.
SPC 3	Post-1973 steel moment frame building in a seismic zone 4, near a major fault; no retrofits required unless altered or damaged in an earthquake.
SPC 4	Buildings between 1973 and 1988. No structural retrofits are required. These are categorized so that OSHPD can track them.
SPC 5	Buildings built after 1988. No structural retrofits are required. These are also categorized so that OSHPD can track them.
Non-Structural Performance Categories (NPC)	
NPC 1	Few, if any, systems or equipment are braced.
NPC 2	Emergency power, medical gases, communications, and fire alarm systems are braced.
NPC 3	Equipment and systems are braced in critical care areas, including fire sprinkler branch lines.
NPC 4	NPC 3 requirements, plus building meets non-structural bracing and anchorage requirements of Title 24.
NPC 5	NPC 4 requirements, plus back-up water and sewer services.

- Perform a seismic evaluation of acute care health facilities and related buildings;

- Classify each building into seismic performance categories:

  a. Structural Ratings are ratings of the actual building's structure. Structural Performance Categories (SPC) are based on building age, construction type, and physical condition per onsite analysis. Seismic Performance Categories[1] are as follows:

     SPC-0 The hospital evaluated this building but did not provide any rating in its report to OSHPD.

[1] Source: Summary of Hospital Seismic Performance Ratings, Office of Statewide Health Planning and Development, April 2001.

SPC-1 These buildings pose a significant risk of collapse and a danger to the public after a strong earthquake. These buildings must be retrofitted, replaced, or removed from acute care service by January 1, 2008.

SPC-2 These are buildings in compliance with the pre-1973 California Building Standards Code or other applicable standards, but are not in compliance with the structural provisions of the Alquist Hospital Facilities Seismic Safety Act. These buildings do not significantly jeopardize life, but may not be repairable or functional following strong ground motion. These buildings must be brought into compliance with the Alquist Act by January 1, 2030 or be removed from acute care service.

SPC-3 These buildings are in compliance with the structural provisions of the Alquist Hospital Facilities Seismic Safety Act. In a strong earthquake, they may experience structural damage that does not significantly jeopardize life, but may not be repairable or functional following strong ground motion. Buildings in this category will have been constructed or reconstructed under a building permit obtained through OSHPD. They can be used to 2030 and beyond.

SPC-4 These are buildings in compliance with the structural provisions of the Alquist Hospital Facilities Seismic Safety Act that may experience structural damage which could inhibit the building's availability following a strong earthquake. Buildings in this category will have been constructed or reconstructed under a building permit obtained through OSHPD. They may be used to 2030 and beyond.

SPC-5 These buildings are in compliance with the structural provisions of the Alquist Hospital Facilities Seismic Safety Act, and are reasonably capable of providing services to the public following strong ground motion. Buildings in this category will have been constructed or reconstructed under a building permit obtained through OSPHD. They may be used without restriction to 2030 and beyond.

b. Non-structural Ratings cover a building's non-structural systems including communications, emergency power supplies, bulk medical gas, fire alarms, and emergency lighting.[2] The Non-Structural Performance Categories are as follows:

NPC-0 The hospital evaluated the building's non-structural components, but did not report any rating.

NPC-1 In these buildings, the basic systems essential to life safety and patient care are inadequately anchored to resist earthquake forces. Hospitals must brace the communications, emergency power, bulk medical gas, and fire alarm systems in these buildings by January 1, 2002.

NPC-2 In these buildings, essential systems vital to the safe evacuation of the buildings are adequately braced. The building is expected to suffer significant non-structural damage in a strong earthquake.

[2] Source: Summary of Hospital Seismic Performance Ratings, Office of Statewide Health Planning and Development, April 2001.

NPC-3 In these buildings, non-structural systems are adequately braced in critical areas of the hospital. If the building structure is not badly damaged, the hospital should be able to provide basic emergency medical care following the earthquake.

NPC-4 In these buildings, the contents are braced in accordance with current code. If the building structure is not badly damaged, the hospital building should be able to function, although interruption of the municipal water supply or sewer system may impede operations.

NPC-5 These buildings meet all the above criteria and have water and wastewater holding tanks–sufficient for 72 hours of emergency operations–integrated into the plumbing systems. They also contain an onsite emergency system and are able to provide radiological service and an onsite fuel supply for 72 hours of acute care operation.

- Develop and submit a compliance plan to the Office of Statewide Health Planning & Development (OSHPD) indicating the intent and actions to be taken for compliance. The SB-1953 required Compliance Plan for the UCI Medical Center was submitted to OSHPD in November 2000.

- Comply with NPC 2 structural requirements by January 1, 2002. Emergency power, medical gases, communication and fire alarm systems must be seismically braced. This work has been completed at the UCI Medical Center.

- SPC 1 buildings to comply with SPC 2 category or better; otherwise, decommission. Compliance is required by January 1, 2008.

- SPC 2 buildings must be in substantial compliance with either SPC 3, 4 or 5 categories or be decommissioned by January 1, 2030. Facilities are also required to comply with NPC 5 category.

Seismic retrofit regulations apply to all existing general acute care hospital buildings, such as those at the UCI Medical Center. The goal of the regulations is to develop retrofit and repair designs for existing hospital buildings to yield predictable seismic performance, whether at the essential life safety level or post-earthquake continued operations level. The requirements of the seismic retrofit regulations must be used to upgrade from an existing seismic performance category to a higher category level. Specifically, these regulations were explicitly developed for use in the retrofit, repair, modification, or alteration of existing hospital buildings.

University of California Seismic Safety Policy

It is the policy of the University of California–to the maximum extent feasible by present earthquake engineering practice– to acquire, build, maintain, and rehabilitate buildings and other facilities which provide an acceptable level of earthquake safety, as defined in this policy, for students, employees, and the public who occupy those buildings and other facilities at all locations where University operations and activities occur (source: University of California Seismic Safety Policy, January 20, 1975; revised, January 17, 1995; editorial revision, April 20, 2000). Feasibility is to be determined by weighing the practicability and cost of protective measures against the gravity and probability of injury resulting from a seismic occurrence.

The design and construction of new buildings and other facilities on University premises shall, as a minimum, comply with the current seismic provisions of CCR, Title 24, California Building Standards Code, or local seismic requirements, whichever requirements are more stringent. In addition, provisions shall be made for adequate anchorage for seismic resistance of nonstructural building elements including, but not limited to, glass, fixtures, furnishings, and other contents, equipment, material storage facilities, and utilities (gas, high-temperature water, steam, fire protection water, etc.) with respect to potential hazards to persons in the event of seismic disturbances. The design and construction of new facilities or alterations for hospitals, skilled nursing facilities, and intermediate-care facilities as defined in Section 15001 of the California Health and Safety Code, on University premises or under University operation shall comply with CCR, Title 24, California Building Standards Code.

UCI Medical Center Compliance Results

The UCI Medical Center has completed SB 1953 compliance requirements 1 through 3. The results of the seismic evaluation are documented in the *UC Irvine Medical Center SB-1953 Report* (April 1999). Table 3.4-3 summarizes the findings of the seismic evaluation for the acute care facilities at the Medical Center.

TABLE 3.4-3
UCI MEDICAL CENTER
SB 1953 SEISMIC RATINGS

Building	Structural Performance Category Rating	Non-Structural Performance Category Rating
1 Main Hospital	SPC 1	NPC 1
1a. Tower	SPC 3	NPC 1
31 Power Plant	SPC 1	NPC 1
32 Primary Electrical Facility	SPC 2	NPC 1
Source: UC Irvine Medical Center SB 1953 Report, April 1999; UCI Irvine Medical Center SB 1953 Compliance Report, November 2000.		

The seismic evaluation found that the Main Hospital (Building No. 1) is structurally rated SPC 1 which means it must be upgraded to SPC 2 by the year 2008. Both Building No.1 and the Medical Center Tower (Building 1a.) are non-structurally rated NPC 1 which means that few systems or equipment are braced and must also be upgraded by both 2002 and 2008. Other supporting facilities (Building No. 31, Power Plant and Building No. 32, Electrical Facility) require minor structural and non-structural upgrades.

Following the completion of the required SB 1953 seismic evaluation, the UCI Medical Center undertook an evaluation of all onsite buildings as part of the overall master planning process. The development plan as set forth in Section 3, Project Description, have been developed in consideration of not only SB 1953 requirements but also the following factors: UC seismic rating, age, construction type, condition, image, density, and functional efficiency.

3.4.3 THRESHOLDS OF SIGNIFICANCE

The following standards of significance are based on Appendix G of the CEQA Guidelines. For the purposes of this EIR, impacts would be considered significant if the project would:

- Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

  – Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geology for the area or based on other substantial evidence of a known fault; or

  – Strong seismic ground shaking; or

  – Seismic-related ground failure, including liquefaction; or

  – Landslides.

- Be located on a geologic unit or soil type that is unstable, or that could become unstable as a result of the project, and potentially result in onsite or offsite landslides, lateral spreading, subsidence, liquefaction, or collapse.

- Be located on expansive soil, creating substantial risks to life or property.

3.4.4 PROJECT IMPACTS

Project Characteristics

The proposed intensification of development at the UCI Medical Center will result in approximately 1,902,049 gross square feet (gsf) of onsite facilities and 4,200 parking spaces, inclusive of new and retained development. The existing medical center contains approximately 910,365 square feet of buildings, inclusive of 391 hospital beds, and 1,590 surface and structured parking spaces. As a part of the Phase I project, 291,624 gsf of development (inclusive of 205 hospital beds) and 418 parking spaces will be demolished. New Phase I development includes 581,000 gsf of buildings (inclusive of 287 hospital beds) and 260 onsite parking spaces. Therefore, at the end of Phase I there will be 1,99,7414 square feet of uses (inclusive of 473 hospital beds) and 1,432 parking spaces.

At full LRDP implementation (inclusive of Phase I), 523,703 gsf of structures and buildings will have been demolished (inclusive of 205 hospital beds) and 600 parking spaces. New construction will total 1,515,387 gsf (inclusive of 341 hospital beds) and 3,210 parking spaces. Specific locations and building designs have not been determined. At completion, the UCI Medical Center will result in 1,902,049 gsf of medical center and related uses (inclusive of 527 hospital beds) and 4,200 onsite parking spaces.

Impact 3.4-1: Construction of the proposed project would require grading. This is considered a less than significant impact.

The UCI Medical Center site is currently developed. It is relatively flat with elevations ranging from 129 to 135 feet above mean sea level (msl). Implementation of Phase I and the LRDP projects will result in minor modifications to the existing flat topography and soils conditions on the site during site grading. Grading will involve reconfiguring topography to conform to specific building development plans and soils conditions at each site-specific location. The project will not require cut or fill slopes. Impacts to site topography resulting from the construction of the proposed project are ***less than significant***.

Mitigation Program

No mitigation is required.

Impact 3.4-2: The proposed project would result in demolition, construction, and excavation activities. This is considered a less than significant impact.

As a part of Phase I, 15 buildings (including the North Parking Structure) and surface parking areas will be demolished and the sites for the new hospital, chiller, modular building, and surface parking areas will be prepared for new construction. Earthmoving activities are expected to include excavation, grading, backfilling, and compaction. Excavation will be required for the basement level of the new hospital, foundation work for the hospital, and infrastructure improvements including water, sewer, and gas and chiller lines. At the proposed hospital site, the maximum depth of excavation is expected to be 20 feet below grade, requiring the export of approximately 45,000 cubic yards (cy) of soils from the Medical Center to an undetermined offsite location (e.g., landfill or other construction site).

Phase I will result in the one-time generation of approximately 36,019 cubic yards (cy) of demolition debris (see Table 2-13). Of the total demolition debris, approximately 30,411 cy are associated with the hospital site and associated surface parking areas. Building No. 33, totaling 5,080 gsf, will be demolished to allow for the construction of the new central chiller plant. Demolition of this building will result in a one-time generation of approximately 538 cy of demolition debris. Five buildings (Building Nos. 41, 44, 46, 48, and 57), totaling 22,877 gsf, will be demolished to allow for the construction of the new modular building. Demolition of these buildings will result in the one-time generation of approximately 2,119 cy of demolition debris. In addition to the above noted structures, Building No. 10 will demolished as part of Phase I to create a future (post Phase I) building opportunity site (Exhibit 2-20). Building No. 31 will be demolished to allow for utility tunnel improvements. Demolition of these buildings will result in the one-time generation of approximately 2,951 cy of demolition debris.

Site-specific projects are not proposed at this time as a part of full LRDP implementation (post Phase I development). Therefore, the exact amount of grading and excavation that will be required cannot be determined. Full LRDP implementation (exclusive of Phase I) will require the demolition of 16 buildings and surface parking areas resulting in the one-time generation of approximately 22,648 cy of demolition debris, exclusive of Phase I (see Table 2-17).

Onsite soils may experience settlement or expansion during implementation of the project. Potential settlement includes primary and secondary settlement on the order of one quarter inch to two inches of the fill and underlying materials due to the weight of the fill. Primary settlement due to the weight of the fill will be complete at the conclusion of grading and long-term settlement related to secondary consolidation (compacted soils beneath building foundations settling over time due to seismic activity or other natural occurrences) is anticipated to be negligible. As previously noted, the onsite soils have a low shrink-swell potential.

Typically, the removal and recompaction of compressible soils provides suitable mitigation for settlement-related effects where relatively low-rise structures are constructed. For medium- to high-rise buildings, such as the new hospital and parking structures, special foundation designs, pilings, or caissons can address the potential effects from differential settlement. With the application of appropriate standard building design and engineering techniques during construction, as required by the Uniform Building Code and OSHPD, the onsite soils will not pose significant constraints to project development and ***less than significant impacts*** related to soils will occur with implementation of the project.

Based on the available geotechnical investigations and with the incorporation of recommendations contained in site-specific geotechnical investigation to be prepared for future Medical Center projects, local soils are capable of support the projects without extraordinary structure measures.

Mitigation Program

The following sets forth standard requirements associated with grading and excavation activities:

Standard Conditions and Requirements

- For projects under the jurisdiction of the California Office of Statewide Health Planning and Development (OSHPD) (i.e., general acute care hospital, psychiatric hospital, and multiple-story skilled nursing home, and intermediate care facilities), prior to grading, the UCI Medical Center shall submit a soils and geological report for the area to be graded, including foundation plans, by a registered geotechnical engineer to OSHPD for review and approval.

- Prior to the completion of final construction documents, the UCI Medical Center shall ensure that all project structures shall be designed to comply with all applicable geological and seismic safety requirements of the Uniform Building Code and mitigation as defined in the Public Resources Code Section 2693(c). Verification of such compliance will be confirmed during the California Office of Statewide Health Planning and Development (OSHPD) plan review processes, for buildings subject to OSHPD review.

- Prior to initiation of building construction for structures subject to review and approval by the California Office of Statewide Health Planning and Development (OSHPD), UCI shall submit for review and approval by OSHPD, detailed foundation design information for the subject building(s), prepared by a registered civil engineer, based on recommendations by a geotechnical engineer. Plans shall show that project designs have been analyzed by a registered civil engineer for earthquake loading and designed according to the most recent seismic standards in the Uniform Building Code, and/or standards required by OSHPD.

- Prior to initiation of building construction for structures that are not subject to the California Office of State Health Planning and Development (OSHPD) review, UCI shall prepare detailed foundation design for subject building(s) prepared by a registered civil or structural engineer, based on recommendations by a geotechnical engineer. Plans shall show that project designs have been analyzed by a registered civil or structural engineer for earthquake loading and designed according to the most recent seismic standards in the Uniform Building Code. These plans shall be submitted for an independent third-party structural review by a qualified civil or structural engineer.

- All grading and earthwork shall be performed under the observation of a registered geotechnical engineer in order to achieve proper sub-grade preparation, selection of satisfactory materials, and placement and compaction of all structural fill.

Impact 3.4-3: The proposed project could affect the rate or extent of erosion. This is considered a potentially significant impact.

Potential hazards associated with erosion include: a) removal of soils, resulting in unstable slopes that can undermine adjacent development or land surface; b) deposits of sediment and soils in drainage strictures that discharge to natural or manmade water bodies and on roadways; and/or c) wind generated erosion resulting in increased particulate matter in the air. Erosion is frequently

accelerated by site preparation activities, such as excavation and grading. The following analysis discusses the potential effects of erosion on stability and safety,. Project-specific and cumulative effects on water resources due to the potential erosion of excavated materials is presented in Section 3.6, Hydrology and Water Quality. Project-specific and cumulative impacts related to erosion-generated dust that could occur during demolition and construction were previously evaluated in Section 3.2, Air Quality.

Site preparation and construction activities will include excavation for the placement of foundations and subgrade components of buildings. Earth disturbing activities associated with construction activities will be temporary, and erosion effects will depend largely on the areas excavated, the quantity of excavation, and length of time that soils are subject to erosional processes.

Proposed development projects are required to comply with building code requirements related to excavation, trenching, and shoring. Compliance with these regulations will also ensure that uncovered or uncompacted soils are managed to reduce the potential for movement which will also reduce erosional effects.

Following construction activities, development sites will consist primarily of imperious surfaces with associated landscaping, similar to the existing conditions at the UCI Medical Center site. The operation and use of the project site will not result in activities or include features or amenities that will increase or exacerbate erosion when compared to existing site conditions. Therefore, the operational erosion impacts are considered ***potentially significant***.

Mitigation Program

As set forth in the UCI Medical Center Long Range Development Plan Initial Study, the following measures, as well as Mitigation Measures 3.2-1(a) and 3.6-2, will be implemented to mitigate impacts to a ***less than significant*** level.

Mitigation Measures

3.4-3(a) The UCI Medical Center shall construct interceptor ditches and diversion dikes to divert runoff away from graded areas during the implementation of the project.

3.4-3(b) Erosion control during construction activities shall be maximized to the extent feasible; adequate erosion control methods may include, but are not limited to the following:

(1) During construction, soil on any graded slopes shall be revegetated where feasible.

(2) During grading or before any landscape areas have established root, straw, wood chips, or plastic shall be used to stabilize the ground.

(3) Air-born and vehicle-born sediment shall be controlled during construction by the regular sprinkling of exposed soils; the moistening of vehicle loads; and by providing gravel and paved driveways between the construction site(s) and public streets.

(4) Sediment shall be removed from storm flows with sediment filters, before the runoff leaves the construction site.

(5) During the period of construction activity, vegetation shall be protected from traffic by the use of fences. Buffer strips of vegetative filter strips, such as tall strands of grass, shall be used to protect against sediment buildup.

(6) Street sweeping services will be required for to maintain the quality of surface water being discharged.

3.4-3(c) After individual construction projects are completed, the following measures, as applicable, shall be observed in order to protect and promote landscaping at the UCI Medical Center as a form of erosion control:

(1) Landscaping shall be placed along manufactured slopes, drainageways, or other disturbed areas which are subject to sheet flows.

(2) Mulch shall be added to topsoil prior to landscaping, to reduce the erosive force of raindrops and encourage plant establishment.

(3) In areas where soil is inhospitable to plant growth, topsoiling shall be used to create a medium more suitable for landscaping.

(4) Slopes shall be scarified or grooved to aid in the establishment of vegetative cover from seed, and to reduce slope runoff velocity.

3.4-3(d) If construction occurs between the period of October 15 to April 15, the UCI Medical Center shall implement project-specific erosion control measures to control any runoff from construction site.

3.4-3(e) The level of construction site sediment and the velocity of sheet flows shall be minimized by the use of sandbag, gravel bag, or straw bale barriers. The barriers shall be placed around drainage inlets. Due to the short life expectancy of these barriers (i.e., one rainy season), these shall be used only where other measures of sediment control are not possible.

3.4-3(f) To reduce/eliminate mud and sediment carried by vehicles or runoff onto public right-of-ways, a temporary gravel entrance shall be located at every construction site entrance, where needed. The gravel shall cover the entire width of the entrance, and its length shall be no less than 50 feet.

3.4-3(g) Filter berms, consisting of a ridge of gravel, shall be placed across graded right-of-ways to decrease and filter runoff levels while permitting construction traffic to continue. Prior to the stabilization of the construction site area, sediment flows shall be prevented from entering storm drainage systems by the construction of temporary filter inlets around existing storm drain inlets. The sediment trapped in these impounding areas shall be removed after each storm.

Impact 3.4-4: Operation of the project could expose people to seismic hazards. Seismic upgrades to existing structures is considered a beneficial effect.

As previously discussed, the UCI Medical Center has complied with the first four requirements of the SB 1953: (1) perform seismic evaluation; (2) classify each building into seismic performance categories; (3) develop and submit a Compliance Plan to the OSHPD; and (4) comply with NPC 2 structural requirements (seismic bracing of emergency power, medical gases, and communication

and fire alarm systems). The remaining requirements of SB 1953 (upgrading and/or decommissioning acute care facilities to acceptable SPC and NPC levels within specified timeframes) will be accomplished either before or concurrent with implementation of the proposed project.

As part of the compliance strategy identified in the Compliance Plan, the Main Hospital (Building No. 1) will be replaced prior to the 2008 deadline. Following relocation of services from Building No. 1 into the new acute care replacement facility, Building No. 1 will be decommissioned (i.e., removed from acute care service) and ultimately demolished. The functions of the Medical Center Tower (Building No. 1a.) will not be modified. Other uses, including emergency/urgent care, radiology, and OB/Labor & Delivery will be upgraded to achieve an NPC 3 rating for this building based on SB 1953 requirements. Building Nos. 31 and 32 will be upgraded for continued use with acute care facilities. The remaining areas in Building No. 1a. will be upgraded to be in compliance with nonstructural requirements. All of the required improvements will be implemented in accordance with the timeframes outlined in SB 1953. The existing utility tunnel will be upgraded to meet NPC requirements because the existing tunnel is non-compliant.

Based on the geologic data, there are no known or mapped active or potentially active faults that are projected to trend toward or through the site. No evidence of recent or ancient near-surface faulting has been observed. Therefore, the possibility of ground rupture at the site is considered remote. However, the project site is located in southern California, a seismically active region which faces an ongoing threat from major earthquakes. The type and magnitude of seismic hazards affecting a site are dependent on the distance to active faults or seismic sources. Regional faults could potentially result in ground shaking at the project site. The project site may experience moderate to strong ground shaking from an earthquake on one of the active earthquake faults in the region. Risks associated with seismic activity cannot be completely avoided.

To respond to various emergency situations, the UCI Medical Center has adopted the state recommended Hospital Emergency Incident Command System (HEICS) as a model for responding to any disruption of normal service. HEICS compliments the process known as the Incident Command System used by fire, law, and civil services throughout California. The *UCI Medical Center Emergency Preparedness Plan* includes an organizational breakdown by chain of command and incorporates specific job-related actions needed by Medical Center staff to respond to any emergency. The Emergency Preparedness Plan is designed to coordinate with the UCI main campus and community response plans.

The purpose of the Emergency Preparedness Plan is to outline the procedures for UCI Medical Center staff to use in responding to an emergency. Emergencies include natural or manmade disasters, ranging from catastrophic events such as earthquakes, explosions, floods, and transportation accidents, to localized events such as fires, utility failures, bomb threats, and violence/hostage situations. Such events can also effect the Medical Center's essential equipment and systems.

Essential equipment and systems are defined as those which will, if out of service, post an immediate danger to patients, public, staff, and/or property, or the disruption of a service function essential to patient care or essential administrative service. They are:

- Electrical power failure
- Medical air system emergency
- Medical vacuum and suctioning system emergency
- Deionized water system emergency
- Elevator and dumbwaiter emergency maintenance and inspection

- Reverse osmosis water system emergency
- Oxygen system emergency
- Nitrous oxide gas system emergency
- Nitrogen gas system

Conformance with building and construction design standards and requirements for seismic safety set forth by the state and policies of the University of California (source: University of California Seismic Safety Policy, January 20, 1975; revised, January 17, 1995; editorial revision, April 20, 2000), implementation of the compliance plan required by SB 1953 (refer to the following discussion), and use of the *UCI Medical Center Emergency Preparedness Plan* is considered a ***beneficial effect***.

Mitigation Program

The following measures are applicable to all structures at the UCI Medical Center undergoing seismic rehabilitation:

Standard Conditions and Requirements

- Seismic rehabilitation projects shall provide, as a minimum, an acceptable level of earthquake safety based on the sole consideration of the protection of life and prevention of personal injury, insofar as predictable, at a level of safety equivalent to that which would be established by compliance with the current seismic provisions of CCR, Title 24, California Building Standards Code, or local seismic requirements, whichever requirements are more stringent, disregarding, insofar as possible, potential building damage not jeopardizing life, which would be expected from one earthquake of the intensity of at least IX on the Modified Mercalli Intensity Scale (modified by Charles F. Richter in 1958). The intent of seismic rehabilitation shall be to reconstruct buildings and other structures so that they would have a Good seismic performance rating based on the present state of the practice of earthquake engineering. Verification of compliance shall be confirmed during California Office of Statewide Health Planning and Development's (OSHPD) or UCI's plan review processes, as applicable.

- Preliminary plans for all seismic rehabilitation projects shall be reviewed by a consulting structural engineer, who shall verify the scope of the rehabilitation work and shall prepare any recommendations regarding any special criteria which should be considered in the project design. Upon completion of plans and specifications, the consulting structural engineer shall review the plans and structural calculations for completeness, general accuracy, appropriateness of details, and for compliance with any special criteria. The design structural engineer shall incorporate comments into the plans, where feasible, prior to bidding.

- The design and construction of new buildings and other facilities on University premises shall, as a minimum, comply with the current seismic provisions of CCR, Title 24, California Building Standards Code, or local seismic requirements, whichever requirements are more stringent. In addition, provisions shall be made for adequate anchorage for seismic resistance of nonstructural building elements including, but not limited to, glass, fixtures, furnishings, and other contents, equipment, material storage facilities, and utilities (gas, high-temperature water, steam, fire protection water, etc.) with respect to potential hazards to persons in the event of seismic disturbances. Verification of compliance shall be confirmed during California Office of Statewide Health Planning and Development's (OSHPD) or UCI's plan review processes, as applicable.

The following measures are applicable to new structures at the UCI Medical Center:

3.4-4(a) Preliminary plans for new major capital improvement projects, except pre-engineered buildings, wood-framed buildings of less than 3,000 square feet, and buildings not intended for human occupancy other than hospitals proposed for construction shall be examined by the consulting structural engineer, who shall prepare recommendations regarding any special criteria that, in that engineer's opinion, should be recognized in providing adequate resistance to seismic forces to minimize the risk of injury to persons and damage to property. Upon completion of the final plans, the consulting structural engineer shall review the plans and structural calculations for completeness, general accuracy, structural details, and for compliance with any special criteria previously established. Should seismic design standards be revised during the period between completion of final plans and the date of advertisement for bids, the consulting structural engineer shall review again the plans and structural calculations before advertising for bids. The design structural engineer shall incorporate comments into the plans, where feasible, prior to bidding.

3.4-4(b) Prior to the release of construction funds for structures other than hospital or for seismic rehabilitation projects, a letter or report from the campus consulting structural engineer shall be submitted, stating that the construction plans are in general conformance with the University policy on seismic safety. The design and construction of new facilities or alterations for hospitals, skilled nursing facilities, and intermediate-care facilities as defined in Section 15001 of the California Health and Safety Code, on University premises or under University operation shall comply with CCR, Title 24, California Building Standards Code.

Impact 3.4-5: The proposed project could be exposed to liquefaction. This is considered a less than significant impact.

As previously identified, the southeastern corner of the Medical Center site is located within a liquefaction zone. Liquefaction can occur if ground water levels are relatively close to the surface during the seismic event. However, the possibility of liquefaction is considered very low because of the depth to groundwater and the dense character of the underlying native soils at the Medical Center site. The risk of impact from liquefaction is considered ***less than significant***.

Mitigation Program

No mitigation is required.

3.4.5 CUMULATIVE IMPACTS

Impact 3.4-6: The proposed project would not cumulatively contribute to any geotechnical or seismic conditions in the area. This is considered a less than significant impact.

As noted in Section 3 of this EIR, the cumulative analysis for the UCI Medical Center LRDP project–unless otherwise noted–refers to the buildout of land within the project study area which is inclusive of portions of the cities of Orange, Anaheim, Santa Ana, and Garden Grove based on current land use designations set forth in the cities' respective General Plans, as well as all known General Plan amendment requests for additional development in the study area. A cumulative impact consists of an impact which is created as a result of the combination of the project

evaluated in the EIR together with other projects causing related impacts. Cumulative geology and soils impacts can occur where there would be an ongoing alteration to the natural topography; past, present, and foreseeable future development would occur in seismically active areas; grading activities would affect the stability of past, present, and foreseeable future development; erosion would cumulatively affect water quality.

The UCI Medical Center would not result in any changes to onsite or offsite topography. As such and in accordance with CEQA Guidelines §15130(a)(1), "An EIR should not discuss impacts which do not result in part from the project evaluated in the EIR."

Generally, effects related to soil conditions are site-specific and limited to areas within the development boundaries of a project site. Soil stability and erosive soil conditions for development sites in the immediate vicinity of the project site are expected to be similar to the UCI Medical Center site. Past, pending, and future construction activity associated with the UCI Medical Center LRDP project as well as projects in the project vicinity (see Tables 3-1 and 3-2 of Section 3) will further alter soil conditions; excavation and grading activities associated with these projects may require the excavation, recompaction, and/or transport of earth materials. These impacts could be potentially significant, but would be expected to be mitigated to a level considered less than significant with the implementation of site-specific/project-specific mitigation set forth in the respective soils and geotechnical reports prepared for these projects. Buildings and facilities on and off of the Medical Center campus are required to be sited, designed, and constructed in accordance with geotechnical and seismic building codes. Any incremental contribution of the UCI Medical Center project to soils and geological impacts is not considered cumulatively considerable because the proposed project will comply with the applicable requirements of the Uniform Building Code and the mitigation program requirements will be implemented during project construction. The project's contribution to cumulative impacts is considered ***less than significant***.

Related projects in the study area would experience seismically related impacts similar to those described for the proposed project. Buildings, structures, and infrastructure are affected by earthquakes relative to the intensity of the seismic activity. The overall intensity of the seismic activity may vary based on site-specific geotechnical and soil conditions, as well as the type of onsite development. Mandated building standards are applicable to all developments to reduce seismic-related risks. These requirements will avoid any cumulative geotechnical impacts that may occur within the geographic area in which the project is located. Cumulative seismic effects to which the project will contribute are not cumulatively considerable and are, therefore, considered ***less than significant***.

Mitigation Program

No mitigation is required.

3.5 HAZARDS AND HAZARDOUS MATERIALS

This section describes the potential environmental impacts on human health and the environment due to exposure to hazardous materials that could be encountered as a result of implementation of the proposed projects. Potential effects evaluated include those associated with existing identified or suspected contamination sites and potential exposure to hazardous materials used, stored, or transported during project construction and operation. Applicable regulatory requirements are described and, where necessary, mitigation measures have been recommended. For purposes of the analysis, hazardous materials includes inorganic and organic chemicals and products containing such substances as defined by California laws and regulations, radioactive materials, biohazardous materials, and medical waste. Potential hydrologic and water quality effects related to construction activity surface water runoff are also discussed in Section 3.6.

Hazardous materials issues were addressed in an EDR Radius Map with GeoCheck Report (Environmental Data Resources, 2002). This document is hereby incorporated by reference and is available for review at the UCI Medical Center, Office of Planning and Development Services. Information presented in this section summarizes relevant information from this document regarding existing conditions.

3.5.1 DEFINITIONS

A material is considered “hazardous” if it appears on a list of hazardous materials prepared by a federal or state regulatory agency, or if it has characteristics defined as hazardous by such an agency. The California Department of Health Services (DHS) defines the term “hazardous materials” as a substance or combination of substances which, because of its quantity, concentration, or physical, chemical, or infectious characteristics, may either: (1) cause, or significantly contribute to, an increase in mortality or an increase in serious, irreversible, or incapacitating illness; or (2) pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported or disposed of, or otherwise managed.

A “hazardous waste,” for the purpose of this analysis, is any hazardous material that is abandoned, discarded, or to be recycled. In addition, hazardous waste occasionally may be generated by actions that change the composition of previously non-hazardous materials. The same criteria that render a material hazardous make a waste hazardous: toxicity, ignitability, corrosivity, or reactivity.

Two types of materials that are often regulated separately from “conventional” hazardous materials are radioactive materials and infectious biohazardous material. Radioactive material is any material or combination of materials that spontaneously emits ionizing radiation. Biohazardous material is any potentially harmful biological material, including infectious agents, oncogenic viruses, and recombinant DNA, or any material contaminated with a potentially harmful biological material.

Exposure to certain hazardous materials, commercial products containing hazardous materials, and hazardous wastes can result in adverse health effects in some individuals. The potential effects of exposure to hazardous materials are a function of a complex interaction of factors: the exposure pathway (the route by which a hazardous material enters the body); the amount of material to which the person is exposed; the physical form (e.g., liquid, vapor) and characteristics (e.g., toxicity) of the material; the frequency and duration of exposure; and the individual's unique biological characteristics such as age, gender, weight, and general health. Potential health effects from exposure to hazardous materials may be short-term (acute) or long-term (chronic). Acute effects, which may result from a single exposure to a hazardous material, can include damage to organs or systems in the body, and possibly death, depending on the amount or type of material. Chronic effects, which may result from long-term exposure to a hazardous material, can also include organ

or systemic damage, but chronic effects of particular concern include birth defects, genetic damage, and cancer. In the case of pathogenic (disease-causing) organisms or biohazardous materials, for transmission to humans to occur, the pathogen must be present in sufficiently high numbers to cause infection, and there must be contact with the organism.

3.5.2 REGULATORY BACKGROUND

Hazardous materials and hazardous waste management are subject to numerous laws and regulations at all levels of government. These laws apply to instructional and research activities, operations and maintenance work, and other activities on campus just as they do to other hazardous materials users. A brief summary of these regulations is described below.

Hazardous Materials Management

State and federal laws require detailed planning to ensure that hazardous materials are properly handled, used, stored, and disposed of, and in the event that such materials are accidentally released, to prevent or to mitigate injury to health or the environment.

Worker Safety

The California Occupational Safety and Health Administration (Cal/OSHA) and the federal Occupational Safety and Health Administration (Fed/OSHA) are the agencies responsible for assuring worker safety in the handling and use of chemicals in the workplace. In California, Cal/OSHA assumes primary responsibility for developing and enforcing standards for safe workplaces and work practices.

Hazardous Waste Handling

The California Environmental Protection Agency (Cal-EPA) Department of Toxic Substances Control (DTSC) regulates the generation, transportation, treatment, storage, and disposal of hazardous waste under the Resource Conservation and Recovery Act (RCRA) and the California Hazardous Waste Control Law. Both laws impose “cradle to grave” regulatory systems for handling hazardous waste in a manner that protects human health and the environment.

Radioactive Materials

The Radioactive Health Branch of the California DHS administers the federal Atomic Energy Act, the California Radiation Control Law, and related regulations, which govern the receipt, storage, use, transportation, and disposal of sources of ionizing radiation (radioactive material), and provide for protecting the users of these materials and the general public from radiation hazards.

Biohazardous Materials and Animals

The United States Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention, and the National Institutes of Health prescribe containment and handling principles for use in microbiological, biomedical, and animal laboratories. Although following these guidelines is not legally required for most activities, all UCI Medical Center laboratories will operate with the intent to follow these good hygienic practices. Based on the potential for transmitting biological agents and the rate of transmission of these agents, and based on the quality and concentrations of biological agents produced at a laboratory, Biosafety Levels may be instituted as prescribed by these principles.

Procedures involving laboratory animals are required to comply with protocols established by the National Institutes of Health and the Animal Welfare Act. Animal parts, tissues, or fluids suspected of containing an infectious agent must be managed as a biohazardous material, in accordance with California Health and Safety Code Section 25020.5. The management of biohazardous materials, if any, generated by research animals must comply with U.S. Department of Health and Human Services guidelines and California DHS regulations pertaining to such materials. Such laws are enforced by the U.S. Department of Agriculture and the California Department of Fish and Game. Further, UCI Medical Center policies for monitoring, routine inspection, reporting, and waste management have been developed to reduce potential community and worker exposure to hazards associated with the use of animals in research.

Medical Waste Handling

Medical (biohazardous) waste is generally regulated in the same manner as hazardous waste, except that special provisions apply to storage, disinfection, containment, and transportation. The California DHS, Medical Waste Management Program enforces the Medical Waste Management Act and related regulations. Generators of medical waste are regulated by the County of Orange Health Care Agency, Environmental Health Division.

Hazardous Materials Transportation

The U.S. Department of Transportation regulates hazardous materials transportation between states. The state agency with primary responsibility in California for enforcing federal and state regulations and responding to hazardous materials transportation emergencies is the California Highway Patrol. Together, these agencies determine container types used, and license hazardous waste haulers for hazardous waste transportation on public roads.

Emergency Response to Hazardous Materials Incidents

California has developed an Emergency Response Plan to coordinate emergency services provided by federal, state, and local government and private agencies. Response to hazardous materials incidents is one part of this plan. The Plan is administered by the state Office of Emergency Services, which coordinates the responses of other agencies, including the Cal-EPA, the California Highway Patrol (CHP), the California Department of Fish and Game (CDFG), California Regional Water Quality Control Board (RWQCB), and the Radiologic Health Branch of the California DHS. The plan will continue to be implemented through the UCI Medical Center Office of Environmental Health and Safety, in cooperation with the local City of Orange Fire Department serving the Medical Center.

3.5.3 EXISTING CONDITIONS

Existing conditions and project activities that could result in exposure of people to hazards or hazardous materials, or potential health effects are presented in this section. The potential also exists for certain project development locations to have been contaminated by various hazardous substances as a result of former uses of the sites, leaks from unidentified underground storage tanks, or unidentified buried debris that could contain hazardous substances or hazardous byproducts. If not managed safely, contaminated soil or building materials have the potential to pose hazards to construction workers and existing and future campus occupants and nearby development. This issue is discussed in more detail later in this section.

Potential Hazardous Materials at UCI Medical Center

Many materials, some of which are considered hazardous, are used for instructional and research activities. These can include the following hazardous materials:

- solvents, used for cleaning, extraction, or other laboratory activities;
- reagents (chemical reaction starting materials);
- reaction products (products of chemical reactions), which may have unknown composition;
- radioisotopes, radioactive elements used to stimulate or trace chemical reactions;
- infection agents, including bacterial, viruses, and other materials encountered in biological studies; and
- test samples (e.g., specimens such as blood, tissue, soil, or water), prior to use in a testing procedure.

In addition, paints, solvents, cleaning agents and degreasers, pesticides and herbicides, and fuels are used for building and grounds maintenance, and many of these products are also used during building construction and landscaping during site development. Such commercial products may contain ingredients considered hazardous substances by law. Some hazardous materials use generates hazardous byproducts that must eventually be handled and disposed of as hazardous wastes. Examples of these include the following:

- fuels (gasoline and diesel);
- oils and lubricants;
- antifreeze;
- cleaners, which may include solvents and corrosives in addition to soaps and detergents;
- paints and paint thinners (both oil-based on latex);
- freons (refrigerants); and
- pesticides and herbicides

Virtually all of the buildings at the Medical Center campus contain commercial products such as cleansers and copier toners, which could be considered “hazardous materials” under regulatory definitions. Significant quantities of non-household-type hazardous materials are used in many of the buildings on the Medical Center campus. Most of the hazardous materials used on the campus are associated with research, instruction, or medical diagnosis/treatment uses.

One exception are underground storage tanks (USTs). All USTs currently in use at the Medical Center are registered and permitted by the City of Orange Fire Department and are subject to Uniform Fire Code requirements to minimize the potential for fire and explosion. In accordance with federal, state, and local regulations and standards, all USTs are double-walled and equipped with leak detection devices and anti-corrosion features.

The following sections describe hazardous materials according to three broad categories: chemical (nonradioactive), radioactive materials, and biohazardous materials.

Hazardous Chemicals (Nonradioactive)

The quantities of nonradioactive hazardous chemicals to be used on site are not available. However, the UCI Medical Center is required to include an inventory of the names and quantities of all hazardous chemical materials used onsite for which quantities are greater than 55 gallons of liquid, 500 pounds of solid, or 200 cubic feet of gas per building.

Radioactive Materials

Radioactive substances may be used in certain types of research at the UCI Medical Center. As required by the Radiation Control Lab, the Medical Center has a Radiation Safety Program providing protective measures against exposure and routine monitoring program (including wipe samples, radiation leak detection, and visual inspection) for specified radioactive materials under the law. Furthermore, and similar to other UC medical facilities and campuses, prior to obtaining radioactive materials, each principal investigator must receive a Radiation Use Authorization.

Biohazardous Materials

Various biological hazardous substances may be used for research at the Medical Center such as recombinant DNA molecules, infections agencies, parasites, and other biological agents. The UCI Medical Center uses the Department of Health and Human Services guidelines contained in *Biosafety in Microbiological and Biomedical Laboratories and Guidelines for Research Involving Recombinant DNA Molecules* to classify biohazardous agents and to determine the level of safety precautions that must be used. Biosafety levels for infections agents are based on the characteristics of the agent (i.e., virulence, pathenogenicity, route of spread, biological stability, and communicability), the quantity and concentration of the agent, the procedures to be followed in the laboratory, and the availability of therapeutic measures and vaccines. Four biosafety levels apply to biohazardous materials operations, depending on the potential of the hazard used. Biosafety Level 1 is for the least hazardous biological agents, and Biosafety Level 4 is for the most hazardous biological agents. Biosafety Level 1 agents pose minimal or no known potential hazard to laboratory personnel and the environment. Biosafety Level 2 agents are considered to be of ordinary (not special) potential hazard and may produce varying degrees of disease through accidental inoculation, but Biosafety Level 2 agents may be effectively contained by ordinary laboratory techniques. Biosafety Level 3 agents pose serious risks; therefore, work with these agents must be conducted in contained facilities with special ventilation systems and controlled with access separate from public areas.

The majority of biological research conducted at the Medical Center involves the use of relatively low-level biohazardous materials and nearly all biological research conducted at Biosafety Level 1 or 2. The Medical Center also adheres to a Biosafety Program to minimize community and worker exposure to biohazardous materials through skin contact, ingestion, and inhalation.

Laboratory Animal Use

Laboratory testing at UCI Medical Center occasionally involves animals and animal care activities that produce biohazardous wastes. Safety hazards are associated with handling of research animals. The type and number of vertebrate animals that will be used in research projects are not available at this time, but are expected to include rodents.

Hazardous Materials Generation

Hazardous wastes will be generated at the UCI Medical Center where hazardous materials are used, including research and teaching laboratories, medical diagnosis/treatment centers, and maintenance facilities. Because of the nature of campus research and medical needs, chemicals used at any particular time may change rapidly and sporadically, as may the quantities of materials used. Table 3.5-1 identifies the existing hazardous chemicals and quantities of materials used at the UCI Medical Center, as well as the types of wastes and quantities that are expected to be generated in the future associated with the proposed project.

The quantities of nonradioactive hazardous chemicals to be used at the UCI Medical Center are tracked by the UCI Medical Center Office of Environmental Health and Safety. Current inventories are maintained in the various Medical Center departments and usage reviewed on an annual basis. Hazardous materials and waste selection, handling, storage, usage, and disposal from receipt or generation through use or final disposal are also tracked by the UCI Medical Center Office of Environmental Health and Safety. The UCI Medical Center is required to submit a Hazardous Materials Disclosure Form annually to the City of Orange Fire Department, as required by City of Orange Municipal Code and Health and Safety Code, Chapter 6.95. This requirement applies to a business or person using, storing, or handling a hazardous material in excess of 55 gallons, 500 pounds, or 200 cubic feet per year. This weight and volume limit for specific hazardous materials may be lowered in response to public health concerns or to meet the intent of the Uniform Building Code.

TABLE 3.5-1
ESTIMATED ANNUAL CHEMICAL USAGE

Chemicals	2002 Annual Usage	2020 Estimated Annual Usage
Acids[a.]	150.0 gallons	229.6 gallons
Acetic Acid	25.0 pounds	38.5 pounds
Acetone	10.0 gallons	15.3 gallons
Acetonitrile	175.0 gallons	269.0 gallons
Ammonium Hydroxide	20.0 gallons	31.7 gallons
Bleach (household)	5.0 gallons	7.8 gallons
β-mercaptoethanol	1.0 pound	1.5 pounds
Chloroform	10.0 gallons	15.4 gallons
Ethanol	200.0 gallons	305.8 gallons
Ethidium Bromide	15.0 pounds	23.2 pounds
Ethyl Acetate	20.0 gallons	30.7 gallons
Ethyl Ether	20.0 gallons	30.8 gallons
Formaldehyde	30.0 gallons	46.1 gallons
Formamide	5.0 gallons	7.7 gallons
Gases[b.]	4,763.0 cylinders	7,290.7 cylinders
Isopropanol	125.0 gallons	191.1 gallons
Metals[c.]	347.0 pounds	530.9 pounds
Methanol	150.0 gallons	231.1 gallons
Methylene Chloride	5.0 gallons	7.7 gallons

TABLE 3.5-1 (continued)
ESTIMATED ANNUAL CHEMICAL USAGE

Chemicals	2002 Annual Usage	2020 Estimated Annual Usage
Nickel Chloride	5.0 pounds	7.7 pounds
n-hexane	75.0 gallons	115.2 gallons
Phenol	30.0 gallons	46.2 gallons
Potassium Hydroxide	200.0 pounds	307.4 pounds
Scintillation cocktail	2.0 gallons	3.1 gallons
Sodium Azide	1.5 pounds	2.3 pounds
Sodium Hydroxide	30.0 pounds	46.2 pounds
Succinic Anydride	2.0 pounds	3.1 pounds
Toluene	10.0 gallons	15.4 gallons
1,1,1 Trichloroethane	5.0 gallons	7.7 gallons
Triethylamine	5.0 gallons	7.7 gallons
Trifluoroacetic acid	5.0 gallons	7.7 gallons
Urea	5.0 pounds	7.2 pounds
Xylene	10.0 gallons	15.4 gallons

a. HCL 20%, H_2SO_4 75%, HNO_3 2%, HF 1%, H_3PO_4 2%
b. helium, nitrogen, oxygen, air, argon
c. Current metal use: silver salts 10%, gold salts 0.5%, mercury 89.5%
Memorandum of Understanding between EPA and the American Hospital Association, with cooperation from the State Department of Health Services, established framework for a "Mercury Waste Virtual Elimination Plan" to virtually eliminate Mercury-containing wastes from the health care industry waste stream by 2005.

Source: UCI Medical Center, August 2002.

A search of available hazardous materials records was conducted by EDR in June 2002. The purpose of this database search was to evaluate the potential for hazardous material concerns on the project site. The report meets government records search requirements of ASTM Standard Practice for Environmental Site Assessments. Each government database has its own standard search radius. The standard search distances for the databases discussed in this section are listed below:

Database	Radius Distance
• California Facility Inventory Database for Underground Storage Tanks (California FID UST)	0.25 mile
• California Hazardous Material Incident Report System (CHMIRS)	1.00 mile
• Cortese Hazardous Waste & Substances Sites List (Cortese)	1.00 mile
• Hazardous Waste Information System (HAZNET)	0.25 mile
• Hazardous Substance Storage Container Database (HIST UST)	0.25 mile
• Leaking Underground Storage Tank Information System (LUST)	0.50 mile
• Active Underground Storage Tank Facilities (UST)	0.25 mile
• Resource Conservation and Recovery Information System (RCRIS)	0.25 mile
• Facility Index System/Facility Identification Initiative Program Summary Report (FINDS)	0.00 mile (site specific)

The UCI Medical Center site was identified in the following government databases. Of the five databases, listed below in Table 3.5-2, only two databases (LUST and CHMIRS) contain information on reported hazardous materials incidents such as accidental releases or spills. However, these incidents either required no action, or remedial action was completed or deemed unnecessary. The other three identify sites which have received or disposed of hazardous materials, or perform work using hazardous materials which are tracked by a governmental agency.

TABLE 3.5-2
HAZARDOUS MATERIALS DATABASE RESULTS
FOR THE UCI MEDICAL CENTER

Database	Reason for Listing in Database	Status
HAZNET–Hazardous Waste Information System	Disposal of organic solids, asbestos-containing waste, and oxygenated solvents (acetone, butanol, ethyl acetate, etc.).	No action required.
FINDS–Facility Index System/Facility Identification Initiative Program Summary Report	Other environmental activity identified at site.	No action required.
LUST–Leaking Underground Storage Tank Information System	Piping for Well 13 leaked diesel fuel, contaminating nearby soil.	Remedial action completed or deemed unnecessary.
CHMIRS–California Hazardous Material Incident Report System	Release of liquid oxygen.	No action required.
RCRIS–Resource Conservation and Recovery Information System	Storage of photochemicals and small quantity generator of photoprocessing waste. Materials recycled.	No violations reported.

An additional 43 properties located in the vicinity of the Medical Center were also listed on government databases. Information regarding these properties is included in Table 3.5-3. None of these properties are currently affecting or being affected by the Medical Center.

TABLE 3.5-3
HAZARDOUS MATERIALS DATABASE RESULTS
FOR PROPERTIES IN THE VICINITY OF THE UCI MEDICAL CENTER

Property/Address	Database	Reason for Listing in Database	Status
Doubletree Hotel 100 The City Drive, Orange	California FID UST	Active underground storage tank location.	No action required.
Gas Station (Masood T. Tabrizi) 3011 W. Chapman Ave., Orange	HIST UST	Regular, unleaded, and premium gasoline storage tanks on site.	No action required.
A&M Mobil Service 3011 W. Chapman Ave. Orange	HAZNET	Disposal of organic residues, waste oil, and mixed oil. Materials recycled.	No action required.
Doubletree Hotel 100 The City Drive, Orange	HAZNET	Disposal of waste oil and mixed oil. Materials recycled.	No action required.
County of Orange, Probation Dept. 301 The City Drive, Orange	HAZNET	Disposal of organic and inorganic solid waste. Materials recycled.	No action required.

TABLE 3.5-3 (continued)
HAZARDOUS MATERIALS DATABASE RESULTS
FOR PROPERTIES IN THE VICINITY OF THE UCI MEDICAL CENTER

Property/Address	Database	Reason for Listing in Database	Status
County of Orange, Health Care Agency, Juvenile Dental 331 The City Drive Orange	HAZNET	Disposal of paint sludge and photochemicals/photoprocessing waste. Sent to Transfer Station for disposal.	No action required.
All Gold 179 N. State College Blvd. Orange	HAZNET	Disposal of metal sludge and solvent mixture waste. Sent to Transfer Station for disposal.	No action required.
Calif. Chemical Specialties 187 N. State College, Orange	HAZNET	Disposal of organic solids and liquids. Sent to Transfer Station for disposal.	No action required.
Orange County Juvenile Justice Center 341 The City Drive South, Orange	California FID UST	Active underground storage tank location.	No action required.
Orange County Juvenile Justice Center 341 The City Drive South, Orange	HAZNET	Disposal of waste oil and mixed oil. Materials recycled.	No action required.
Orange County Juvenile Justice Center 341 The City Drive South, Orange	UST	Active underground storage tank facility.	No action required.
Orange County PFRD 343 The City Drive, Orange	HAZNET	Disposal of waste oil and mixed oil. Materials recycled.	No action required.
200 Manchester Venture 200 South Manchester, Orange	California FID UST	Active underground storage tank location.	No action required.
Caltrans District 12 235 State College Blvd., Orange	HAZNET	Disposal of asbestos-containing waste. Materials landfilled.	No action required.
One City Blvd. West 1 City Blvd., Ste. 1130, Orange	UST	Active underground storage tank facility.	No action required.
HDR Engineering 1 City Blvd., Ste. 900, Orange	HAZNET	Disposal of organic solids. Sent to Transfer Station for disposal.	No action required.
The City 1 City Blvd. West, Orange	California FID UST	Active underground storage tank location.	No action required.
Speiker 1 City Blvd. West, Orange	HAZNET	Disposal of asbestos-containing waste. Disposal method not reported.	No action required.
200 Building 200 S. Manchester Ave., Orange	HIST UST	Diesel gasoline storage tanks on site.	No action required.
American Cat-Cat Palace Hotel 9 City Blvd. West Orange	HAZNET	Disposal of photochemicals/ photoprocessing waste. Materials recycled.	No action required.
Orange County GSA, Service Station #2 485 The City Drive South, Orange	LUST	Unleaded gasoline tank excavated and disposed. Contaminated soil removed and disposed of in approved site.	No action required.
Orange County GSA, Service Station #2 485 The City Drive South, Orange	Cortese	Leaking underground storage tank.	No action required.

TABLE 3.5-3 (continued)
HAZARDOUS MATERIALS DATABASE RESULTS
FOR PROPERTIES IN THE VICINITY OF THE UCI MEDICAL CENTER

Property/Address	Database	Reason for Listing in Database	Status
Taormina Industries, Inc. 300 Anaheim Blvd. Anaheim	LUST and Cortese	Gasoline leak discovered during tank test.	Remedial action completed or deemed unnecessary.
Yorba Linda Disposal 301 Anaheim Blvd. Anaheim	LUST and Cortese	Gasoline spill onto nearby soil.	Remedial action completed or deemed unnecessary.
Unocal 76 Service Station #5618 591 City Drive South, Orange	Cortese and California FID UST	Leaking underground storage tank.	No action required.
City Shopping Center 3400 Metropolitan Dr. Orange	Cortese	Leaking underground storage tank and small quantity medical waste generator. Medical waste sterilized in autoclave, then landfilled.	No action required.
Bridgestone Firestone Facility (closed) 3400 Metropolitan Dr., Orange	LUST	Gasoline spill affected groundwater.	Remedial action (i.e., cleanup) in progress.
City Shopping Center 3400 Metropolitan Dr., Orange	LUST	Hydrocarbon leak from LUST onto soil being confirmed.	Not reported.
Park City Center 630 The City Drive South Orange	LUST	Gasoline leak from LUST onto soil.	Remedial action completed or deemed unnecessary.
Unocal Service Station #4961 4105 W. Chapman Ave. Orange	HAZNET, LUST, Cortese, and California FID UST	Gasoline leak from LUST onto soil. Contaminated soil removed and disposed of in approved site. Vapor extraction.	Remedial action completed or deemed unnecessary.
Unocal 76 Service Station #5618 591 City Drive South Orange	LUST	Gasoline leak from LUST onto soil. Aquifer affected. Contaminated soil removed and disposed of. Remove floating product from water table. Vapor extraction.	Pending.
Caltrans/c.o. Thompson 505 Anaheim Blvd. Orange	LUST and Cortese	Waste oil leak from LUST. MTBE detected.	Remedial action completed or deemed unnecessary.
Everest Electronic 2100 Orangewood Ave. Anaheim	LUST and Cortese	Gasoline leak from LUST onto soil.	Remedial action completed or deemed unnecessary.
Lamcor, Inc. 2025 Orangewood Ave. Anaheim	LUST and Cortese	Gasoline leak from LUST onto soil.	Remedial action completed or deemed unnecessary.
Not Reported 2115 E. Orangewood, Anaheim	CHMIRS	Oil from a transformer released onto the ground.	No action required.

TABLE 3.5-3 (continued)
HAZARDOUS MATERIALS DATABASE RESULTS
FOR PROPERTIES IN THE VICINITY OF THE UCI MEDICAL CENTER

Property/Address	Database	Reason for Listing in Database	Status
Not Reported 2125 E. Orangewood, Anaheim	CHMIRS	Gaseous ammonia released into the air.	No action required.
Pinata Foods 2125 E. Orangewood, Anaheim	Cortese and California FID UST	Leaking underground storage tank.	No action required.
Unocal #6297 2345 Chapman Ave. Orange	Cortese	Leaking underground storage tank and small quantity medical waste generator.	No action required.
Nexus City Square 770 The City Drive South, Orange	Cortese	Leaking underground storage tank.	No action required.
Ultramar, Inc. (Fast Gas) 245 Chapman Ave. Orange	LUST and Cortese	Gasoline leak from LUST onto soil.	Preliminary site assessment under way.
Thrifty Oil #375 2940 Bristol St., Santa Ana	Cortese	Leaking underground storage tank.	No action required.
I-5 10 North SR-22, Orange	CHMIRS	Diesel fuel released onto freeway.	No action required.
Gasco Service Station (Arco/Desert Oil) 2238 Flower St. Santa Ana	LUST and Cortese	Unleaded gasoline leak from LUST onto soil. Aquifer affected. Contaminated soil removed and disposed of in approved site. Remove floating product from water table.	Remedial action completed or deemed unnecessary.

NOTE:
California FID UST — California Facility Inventory Database for Underground Storage Tanks
CHMIRS — California Hazardous Material Incident Report System
Cortese — Cortese Hazardous Waste & Substances Sites List
HAZNET — Hazardous Waste Information System
HIST UST — Hazardous Substance Storage Container Database
LUST — Leaking Underground Storage Tank Information System
UST — Active Underground Storage Tank Facilities

Source: EDR, 2002.

The potential also exists for buildings or sites that will be affected by project development to have been contaminated by various hazardous substances as a result of the former use of the site, leaks from unidentified underground storage tanks, or unidentified buried debris that could contain hazardous substances or hazardous byproducts. Contaminated soils or building materials have the potential to pose hazards to construction workers and existing and future campus occupants and nearby development if not managed and remediated safely. The following describes hazardous materials which may be found during demolition.

Asbestos

Asbestos, a naturally occurring fibrous material, was used for years in many building materials for its fireproofing and insulating properties. Loose insulation, ceiling panels, and brittle plaster are potential sources of friable (easily crumbled) asbestos. In addition, the underground utility tunnel may also contain asbestos. Non-friable asbestos is generally bound to other materials such that it does not become airborne under normal conditions. Any activity that involves cutting, grinding, or drilling during demolition or relocation of underground utilities could release friable asbestos

fibers unless proper precautions are taken. Inhalation of airborne fibers is the primary mode of asbestos entry into the body, making friable materials the greatest potential health risk.

Asbestos is a known human carcinogen and there is no known threshold level of exposure at which adverse health effects are not anticipated (SCAQMD September 14, 1989). Given this, the U.S. Environmental Protection Agency (EPA) has identified asbestos as a hazardous air pollutant pursuant to Section 112 of the Federal Clean Air Act. Further, the California Air Resources Board (CARB) has identified asbestos as a Toxic Air Contaminant (TAC) pursuant to the California Health and Safety Code, Section 39650 et seq. Asbestos is also regulated as a potential worker safety hazard under the authority of the Occupational Safety and Health Administration (OSHA). These rules and regulations prohibit emissions of asbestos from asbestos-related demolition or construction activities, require medical examinations and monitoring of employees engaged in activities that could disturb asbestos, specify precautions and safe work practices that must be followed to minimize the potential for release of asbestos fibers, and require notice to federal and local government agencies prior to beginning renovation or demolition that could disturb asbestos. In accordance with Sections 25915 through 25916 of the California Health and Safety Code, the UCI Medical Center Office of Environmental Health and Safety maintains a campus-wide inventory of locations of asbestos-containing building materials and provides annual campus-wide notification of locations containing asbestos. Appropriate signs are posted when asbestos-containing materials are disturbed during construction or renovation at Medical Center locations, in accordance with state and SCAQMD regulations.

Lead

Lead is a naturally occurring metallic element. Among its numerous uses and sources, lead can be found in paint, water pipes, solder in plumbing systems, and in soils around buildings and structures painted with lead-based paint. In 1978, the federal government required the reduction of lead in house paint to less than 0.06 percent (600 parts per million). However, some paints manufactured after 1978 for industrial uses or marine uses legally contain more than 0.06 percent lead. Because of its toxic properties, lead is regulated as a hazardous material. Inorganic lead is also regulated as a TAC. Inspection, testing, and removing (abatement) lead-containing building materials must be performed by state-certified contractors who are required to comply with applicable health and safety and hazardous materials regulations.

Polychlorinated Biphenyls (PCBs)

PCBs are organic chemicals, usually in the form of an oil, that were formerly used in electrical equipment, including transformers and capacitors, primarily as electrical insulators. Some PCB-containing fluorescent light ballasts could also be present in existing space that will be demolished under the proposed projects. Nearly all ballasts manufactured prior to 1979 contain PCBs. PCB ballasts manufactured after July 1, 1978 that do not contain PCBs must be clearly marked "No PCBs." PCBs, which are highly persistent in the environment, can cause various human health effects, including liver injury, irritation of the skin and mucous membranes, and adverse reproductive effects. It is also a suspected human carcinogen. The California Department of Toxic Substances Control (DTSC) has classified PCBs as hazardous waste when the concentration is equal to or greater than five milligrams/kilograms (mg/kg) in liquids, and 50 mg/kg in non-liquids.

Mercury

Elemental mercury is an insoluble, liquid organic metal and is commonly used in laboratory equipment such as thermometers and manometers (used for measuring pressure). Other uses include electrical equipment such as thermostats. Mercury vapor is present in fluorescent light

tubes. Any mercury containing items (e.g., fluorescent light tubes and switches) encountered during demolition will be removed intact, carefully containerized, and disposed of off-campus.

Hazardous Materials Transportation Routes

Hazardous materials are routinely transported by truck or rail. Section 31303 of the California Vehicle Code and U.S. Department of Transportation (DOT) regulations prohibit the transportation of hazardous materials through residential neighborhoods and require that hazardous materials be transported via routes with the least overall travel time. With the exception of high-level radioactive wastes and certain poisons and explosives, all other hazardous materials may be transported by common carrier on any street within and adjacent to the campus to deliver or remove such materials to and from the campus as well as other businesses in the area. However, through-transport is not allowed. Transportation of hazardous materials along any City or State roadway or rail lines within or near the campus is subject to all DOT and CHP hazardous materials transportation regulations.

Hazardous Materials Emergency Response

As stated in Section 3.9, the City of Orange Fire Department provides fire response services to the campus. The Fire Department also provides hazardous materials incident emergency response services. The Medical Center is required to include an inventory of hazardous chemical materials stored on campus when it files its annual Business Plan with the Fire Department. The Medical Center continues to work with the Fire Department to update the inventory of hazardous chemical materials, and the Fire Department has information on the locations of all large quantities of chemicals stored and used at the Medical Center.

To respond to various emergency situations, the UCI Medical Center has adopted the state recommended Hospital Emergency Incident Command System (HEICS) as a model for responding to any disruption of normal service. HEICS compliments the process known as the Incident Command System used by fire, law, and civil services throughout California. The *UCI Medical Center Emergency Preparedness Plan* includes an organizational breakdown by chain of command and incorporates specific job-related actions to be performed by Medical Center staff in response to any emergency. The Emergency Preparedness Plan is designed to coordinate with the UCI main campus and community response plans.

The purpose of the Emergency Preparedness Plan is to outline the procedures for Medical Center staff to use in responding to an emergency. Emergencies include natural or manmade disasters, ranging from catastrophic events such as earthquakes, explosions, floods, and transportation accidents, to localized events such as fires, utility failures, bomb threats, and violence/hostage situations. Such events can also effect the Medical Center's essential equipment and systems.

3.5.4 THRESHOLDS OF SIGNIFICANCE

The following standards of significance are based on Appendix G of the CEQA Guidelines. For the purposes of this EIR, impacts would be considered significant if:

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

- 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.

- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 1/4-mile of an existing or proposed school.

- 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.

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

3.5.5 PROJECT IMPACTS

Impact 3.5-1: The proposed project would result in the use, storage, transportation, and disposal of hazardous materials. This is considered a less than significant impact.

Demolition and Construction

Use of products containing hazardous materials during demolition and construction will be limited to such items as solvents, cleaning agents, and petroleum-based fuels used in vehicles and equipment. Products containing hazardous materials that will be used during these activities will be transported to, used, and stored at work sites in accordance with applicable hazardous materials management laws and regulations. As discussed in Section 3.6, Best Management Practices (BMP) will be implemented to ensure runoff from work sites does not contain hazardous materials that could affect receiving water quality. The use and storage of such materials represents a short-term increase, limited only to the duration of work at the site. Therefore, hazardous materials impacts during demolition and construction are ***less than significant***.

Operation

Instructional activities, research, medical diagnosis and treatment, and routine maintenance conducted at the proposed Medical Center facilities will involve the use of hazardous materials and radioactive wastes. The types of hazardous materials will be similar to those currently in use (Table 3.5-1). The UCI Medical Center currently generates approximately 25 tons per year of hazardous waste. This amount will increase as a part of Phase I to 28 tons per year; full LRDP implementation will generate 35 tons per year. Existing and future quantities of waste resulting from the use of radioactive materials is disposed of in accordance with the UCI Medical Center radioactive material license, number 0278-30, issued by the California Department of Health Services.

Although the project will incrementally contribute to an increase in hazardous chemical and radioactive waste, it will not result in any new or significant impacts that were not previously present at the Medical Center. Further, compliance with all applicable federal and state laws and regulations, and University of California policies pertaining to hazardous materials use, storage, and transportation will ensure that operational effects related to hazardous materials use and transport to campus as part of the proposed project is a ***less than significant*** impact.

The use of hazardous chemical materials will also generate hazardous waste, representing an increase over existing conditions. Medical Center-generated hazardous chemical waste is managed by the Environmental Services Facility. Accumulation and processing this increase in hazardous waste will not result in any new or significant impacts related to hazardous waste, and impacts are ***less than significant***.

In accordance with the California Health and Safety Code § 25500 et seq., the UCI Medical Center has prepared a Hazardous Materials Response Release and Inventory Plan (known as the UCIMC Business Plan). The UCIMC Business Plan describes the appropriate response to an accidental release of hazardous materials. The project, therefore, will not create a significant hazard to the public or the environment through reasonably foreseeable upset or accident conditions involving the release of hazardous materials into the environment.

In addition to existing regulations and campus policies addressing hazardous materials and waste management, as well as the Emergency Preparedness Plan and HEICS for responding to emergencies and disruptions of normal service, the Medical Center has developed a Disaster Response Plan that covers a broad range of emergency situations related to both human-made and natural disasters, and works with the City of Orange Fire Department to continually review and update policies and procedures to ensure a coordinated approach to hazardous material incident planning and response. The proposed project will not conflict with the Disaster Response Plan, and there are no foreseeable conditions that will impair implementation of, or physically interfere with, the adopted Disaster Response Plan during construction or operation that will adversely affect how hazardous materials and wastes are managed on campus.

Mitigation Program

No mitigation is required.

Impact 3.5-2: Construction activities could result in short-term exposure of people to asbestos-containing materials or lead based paint materials. This is considered a potentially significant impact.

Demolition of buildings and building features could expose construction personnel, staff, patients, students, and visitors to asbestos-containing building materials and lead-based paint. The majority of the buildings to be demolished were constructed prior to 1970s, when asbestos-containing building materials were still being manufactured and used (Building Nos. 30, 30a., and 32 were constructed in the 1980s). Therefore, there is a potential for encountering asbestos-containing building materials in the roof/ceiling and floor tiles and building insulation. Because exposure to such materials can result in adverse health effects in uncontrolled situations, several regulations and guidelines pertaining to abatement of and protection from exposure to asbestos have been adopted for demolition activities.

Regulations that will be followed during construction/demolition activities include: (1) SCAQMD Rules and Regulations pertaining to asbestos abatement (including Rule 1403), (2) Construction Safety Orders 1629 (pertaining to asbestos and 1532.1 (pertaining to lead) from Title 8 of the California Code of Regulations, Part 61, Subpart M of the Federal Code of Regulations pertaining to asbestos), and (3) lead exposure guidelines provided by the U.S. Department of Housing and Urban Development (HUD). In accordance with Rule 1403, any demolition work involving asbestos-containing materials must be identified and potential emissions from asbestos must be determined.

In California, asbestos and lead abatement must be performed and monitored by contractors with appropriate certifications from the California DHS. In addition, Cal/OSHA has regulations concerning the use and management of such hazardous materials. Cal/OSHA enforces the hazard communication program regulations. All demolition that could result in the release of lead and asbestos must be conducted according to Cal/OSHA standards.

These standards have been developed to protect the general population and construction workers from hazards associated with exposure to these materials. Young children, the elderly, and people in poor health (i.e., patients at the Medical Center) may be more susceptible to adverse health effects from exposure to asbestos and lead released to environment. There will be no portion of the proposed project undergoing asbestos or lead abatement that will be contiguous or close to facilities where sensitive individuals will be present. The existing facilities at the Medical Center will be demolished in phases. Abatement will be conducted early in the demolition of each structure, with little potential for exposure in adjacent areas. Prior to demolition, asbestos- and lead-containing materials and other hazardous materials requiring special handling will be managed and/or removed and disposed of by qualified contractors in accordance with applicable regulations. Therefore, assuming adherence to applicable procedures and regulations, the removal and disposal of these materials is not considered a significant health hazard, and impacts will be ***less than significant***.

Mitigation Program

The following measures will mitigate impacts to a ***less than significant*** level.

Standard Conditions and Requirements

- In accordance with the South Coast Air Quality Management District (SCAQMD) Rule 1403 (Asbestos Emissions from Demolition/Renovation Activities), a registered environmental assessor shall conduct surveys for each onsite structure to be demolished or renovated as a part of the project to determine the presence of asbestos-containing materials and potential emissions from asbestos. The project is required to comply with the notification and removal processes identified in SCAQMD Rule 1403.

Mitigation Measures

3.5-2(a) Prior to demolition activities at each location, the UCI Medical Center shall develop a decommissioning plan for facilities known or suspected to contain hazardous materials in building features including, but not limited to, exterior surfaces such as rooftops and stacks, and interior features such as floors, walls, ceilings, countertops, and storage areas, and plumbing and ventilation fixtures. Potential contaminants to be evaluated shall include, but not be limited to, the following: friable asbestos, lead-based paint, mercury or other chemical substances, Polychlorinated Biphenyls (PCBs), radioactive materials, and biohazardous materials. The decommissioning plan shall identify, at a minimum, the following information:

(1) the location, type, and estimated amount of exterior and interior features known or suspected to contain contaminants. Measures to evaluate the potential for contaminants to be present could include, but would not be limited to, a review of departmental history, UCI Medical Center records pertaining to use, hazardous materials purchases, consultation with knowledgeable individuals, and sample collection where practical;

(2) specific tasks that would be performed to determine the type, location, and amount of contaminants that could be present;

(3) a mechanism for ensuring removal of contaminated items in compliance with all applicable hazardous materials management laws and regulations. Such

measures could include identification fo individuals or companies permitted or licensed to handle the contaminants, procedures, contract specifications, periodic monitoring during demolition, and documentation of activities;

(4) for each affected location, health and safety precautions that meet the intent of California Occupational Safety and Health Administration (Cal/OSHA) requirements shall be developed and identified in the decommissioning plan; and

(5) the decommissioning plan shall identify specific steps that will be taken to account for and relocate all stored chemical and radioactive wastes and other hazardous wastes and other hazardous substances used in routine operations. This mitigation would occur during the design phase.

3.5-2(b) The UCI Medical Center, through its contractor or designee, shall ensure proper implementation of all demolition activities in which hazardous wastes may be encountered.

3.5-2(c) In the event unidentified, obvious, or suspected hazardous materials or contamination are discovered during decommissioning or demolition, such activities shall cease immediately until evaluated by a qualified health and safety professional. Work shall not continue until appropriate actions recommended by the health and safety professional have been implemented to demonstrated that there would be no unacceptable health risk to exposed individuals.

3.5-2(d) All buildings shall be tested by a registered environmental assessor for the presence of lead-based paint prior to demolition. If lead-based paint is detected, the material shall be removed and transported to an approved waste disposal facility in accordance with the requirements of the County of Orange Health Care Agency.

Impact 3.5-3: Demolition activities could result in short-term exposure of people to hazardous substances other than asbestos or lead in building materials. This is considered a potentially significant impact.

Other hazardous materials could also be found in fixtures, in certain rooms, or exterior to structures to be demolished. Past renovation work at other University of California facilities has identified potential hazardous materials and features requiring special handling. In addition to asbestos-containing materials and lead based paint, the following other suspect hazardous materials were encountered: PCBs, HVAC unit refrigerants, fluorescent light tubes, floor drains and trenches, and freight elevator hydraulic oils.

Because it is impractical to assess precise locations and quantity or extent of all contaminated fixtures or materials at this time, it is assumed for purposes of this analysis that fixtures or certain building components contaminated with chemical substances may be present in structures or features to be demolished at the project site. It is also assumed that hazardous substances present in those fixtures that will be removed during demolition could result in an increased risk of adverse health effects to individuals exposed to the contaminants. This is considered a ***potentially significant impact*** of the proposed project.

Mitigation Program

Implementation of the following mitigation program will mitigate impacts to a level that is considered ***less than significant***.

Mitigation Measures

Please refer to Mitigation Measure 3.5-2(a), 3.5-2(b), 3.5-2(c).

Impact 3.5-4: Demolition activities would result in short-term increases in hazardous waste generated on campus. This is considered a less than significant impact.

The potential exists for hazardous materials to be present in the existing onsite structures to be demolished. In some cases, the type or amount of the substance may be sufficient for some of the debris or residual material to be considered a hazardous waste. Demolition plans for the proposed project have not been finalized, and the amount of debris or residual material containing hazardous substances that will need to be removed from the project sites and disposed of at a facility permitted to accept hazardous materials-contaminated waste has not been determined. It is assumed that a moderate amount of contaminated material will need to be disposed.

Therefore, demolition and renovation activities could result in a short-term increase in the quantity of hazardous waste that could adversely affect existing hazardous waste disposal facilities. Because there is adequate disposal capacity for such materials, this is considered a ***less than significant impact***.

Mitigation Program

The following measures are recommended.

3.5-4(a) Prior to final construction documents, in conjunction with building surveys (required to comply with asbestos and lead abatement recommendations, and as required by Mitigation Measures 3.5-2(a) through 3.5-2(e)), the UCI Medical Center shall estimate the amount of demolition debris and residues (including, but not limited to, building materials, fixtures, containers, and soils) that would need to be disposed of as hazardous waste.

3.5-4(b) Prior to demolition, or prior to site preparation that could generate contaminated soils, the UCI Medical Center shall identify waste-segregation and processing activities that would minimize the amount of hazardous waste generated. Waste reduction measures for hazardous building debris may include, but are not limited to, shredding, compaction, and other measures to reduce waste volume.

3.5-4(c) Prior to demolition which could result in the generation of hazardous chemical waste, or prior to site preparation that could generate contaminated soils, the campus shall identify appropriate disposal sites and confirm that these sites will have sufficient capacity to accept the waste at the time the waste is generated. In the event disposal site options are not available or capacity is limited, the campus shall redesign the demolition activity or delay demolition of the affected building until a disposal option is identified.

3.5-4(d) Prior to demolition of the first building that could generate low-level radioactive waste, in the event an offsite disposal facility for low-level radioactive waste has not been identified, the UCI Medical Center shall coordinate with the California DHS Radiologic Health Branch to identify appropriate options that could be implemented to provide sufficient and secured space to accommodate the interim storage of the waste until the waste can be transported to a licensed facility. Such options could include onsite storage or transport to an offsite temporary storage location. If one of these options (or another option) is identified, the UCI Medical Center shall prepare a management plan that would include, but not be limited to, the following: identification of types and quantities of wastes to be stored; transportation procedures; site security; monitoring and inspection procedures; emergency response measures; and administrative responsibilities, including amendments to the Radioactive Materials License, if necessary. Appropriate environmental documentation shall also be prepared prior to approval of the selected storage option. In the event appropriate storage or disposal options cannot be identified, the UCI Medical Center shall redesign the demolition activity to reduce the amount of waste or delay demolition of the affected building until a storage/disposal option is identified.

Impact 3.5-5: Demolition and construction activities could expose people to hazardous substances that may be present in soil or groundwater. This is considered a potentially significant impact.

The UCI Medical Center has not historically been used for activities that could have resulted in soil or groundwater contamination, so the potential for contamination from past uses at those locations is minimal. Investigations for potential soil or groundwater contamination at the Medical Center have not been conducted. Although the University of California has no knowledge of soil or groundwater contamination within the sites, and there are no indications of any particular potential for subsurface impacts, an environmental assessment may be required for each affected location within the project sites to determine if any hazardous substances are present in soil or groundwater.

It is possible that underground storage tanks that were in use prior to permitting and record-keeping requirements may be present at the project sites. An unidentified underground storage tank, uncovered or disturbed during excavation, could threaten the health and safety of demolition or construction workers by posing a possible explosion hazard. If an underground storage tank were discovered during construction activities, it will be abandoned in place or removed, and closed under local agency authority. Removal activities could pose both health and safety risks, such as the exposure of workers, tank handling personnel, and the public to tank contents or vapors. However, potential risks, if any, posed by underground storage tanks will be minimized by managing the tank according to standards enforced and monitored by the County of Orange.

It is not anticipated that groundwater will be encountered during construction. In the event undiscovered hazardous material contamination is found in soils at the project sites, such contamination could cause various short- or long-term adverse health effects in persons exposed to the hazardous substances. In the absence of more site-specific information and because unmitigated exposure or release could result in adverse health or environmental effects, demolition and construction activities are considered a ***potentially significant impact*** relative to the potential to expose people to hazardous substances that may be present in soil or groundwater. It should be noted that this analysis assumes a conservative scenario; actual hazards will be substantially reduced in magnitude because the potential for contamination in the project site is relatively low.

Mitigation Program

Implementation of the following mitigation program will mitigate impacts to a level that is considered ***less than significant***.

Mitigation Measures

3.5-5(a) Prior to any demolition or construction activity, the UCI Medical Center shall evaluate the site to determine the appropriate level of investigation that would be required to assess the possible presence of hazardous chemical and radioactive materials in soil and groundwater. Investigative measures could include, but would not be limited to, a review of historic maps and aerial photographs; Sanborn maps; review of available campus, city, county, and state records; and consultation with knowledgeable individuals. In the event soil and/or groundwater testing is deemed appropriate, the campus shall ensure the testing is performed in accordance with professional standards for such evaluations, using appropriate EPA testing methods. The UCI Medical Center shall evaluate the results and implement recommended actions. The Medical Center shall document the results of all investigations and shall notify the appropriate local or state agencies in the event contaminants are detected at levels that could present a human health or environmental risk.

3.5-5(b) In the event that testing finds evidence of contamination, waste discharges, underground storage tanks, hazardous debris, or other environmental impairment at locations to be developed, a risk management plan shall be prepared by the UCI Medical Center prior to construction at that location that: (1) identifies the contaminants of concern and the potential risk each contaminant would pose to human health and the environment during construction and post-development; and (2) describes measures to be taken to protect workers and the public from exposure to potential site hazards. Such measures could include a range of options, including, but not limited to, physical site controls during construction, remediation, long-term monitoring, post-development maintenance or access limitations, or some combination thereof.

3.5-5(c) For locations where remediation is determined to be necessary to reduce contaminant concentrations to levels that would not exceed risk-based criteria appropriate to that location, commencement of construction in the areas of potential hazard shall not proceed until a site remediation plan has been completed. Depending on the nature of contamination, if any, appropriate agencies shall be notified (e.g., the Regional Water Quality Control Board for groundwater contamination).

3.5-5(d) A site health and safety plan, which meets California Occupational Safety and Health Administration (Cal/OSHA) requirements, shall be prepared and in place prior to commencing work on any contaminated sites. The UCI Medical Center, through its contractor, shall ensure proper implementation of the health and safety plan.

3.5-5(e) In the event of obvious or suspected contamination in underground tanks or other features or materials that could present a threat to human health or the environment are discovered, construction in that immediate area shall cease immediately. A qualified professional shall evaluate the find and make appropriate

recommendations. Work shall not commence at the site until appropriate actions have been implemented to demonstrate that there would be no unacceptable health risk to exposed individuals or the environment.

3.5.6 CUMULATIVE IMPACTS

Impact 3.5-6: Future development at UCI Medical Center could result in the use, storage, transport, and disposal of hazardous materials which could incrementally add to hazardous waste generation. This impact is considered cumulatively significant.

The cumulative study area assumed for this project is inclusive of the UCI Medical Center site and all sites identified in Table 3.5-3. Future development at UCI Medical Center could result in the use, storage, transport, and disposal of hazardous materials which could incrementally add to hazardous waste generation. The construction of buildings on the campus could result in the exposure of construction workers to potentially hazardous materials due to the previous use of the site or building. Demolition of existing buildings could result in the short-term increases in hazardous materials generation due to the presence of lead-based paints and asbestos-containing materials in existing facilities. Grading and excavation of building sites may require relocation of underground pipes and utilities, some of which may have conveyed potentially hazardous substances. Detailed hazardous material and waste disposal tracking will assist in monitoring hazardous material and waste disposal trends for the campus.

A cumulative impact consists of an impact which is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts. Continued development in the project study area, based on past, present, and foreseeable future development within the project study area which is inclusive of portions of the cities of Orange, Anaheim, Santa Ana, and Garden Grove based on current land use designations set forth in the cities' respective General Plans, as well as all known General Plan amendment requests for additional development in the study area will cumulatively contribute to the generation and disposal of hazardous materials. The quantity of materials and the potential for accidental release would vary based on the type of development (e.g., gas station vs. manufacturing facility). The generation and disposal of hazardous materials is governed by federal, state, and local regulations; all projects must comply with these regulations. Therefore, based on the thresholds of significance set forth in this EIR, the proposed project would contribute to the increased use, storage, transport, and disposal of hazardous materials and the project's contribution is considered ***cumulatively significant***.

Mitigation Program

No additional mitigation is required beyond that set forth for the project-specific impacts of the proposed project. This would mitigate impacts to a ***less than significant*** level.

3.6 HYDROLOGY AND WATER QUALITY

3.6.1 INTRODUCTION

This section describes the existing hydrological and water quality characteristics of the UCI Medical Center site and in the vicinity of the site, and evaluates the potential physical environmental effects related to flooding, grading, and groundwater and surface water quality.

The following documents were reviewed and pertinent information was used in preparation of this section. These documents are the *UCI Medical Center Utility Study* (January 1989), and the *Santa Ana River Basin Water Quality Control Plan* (1995). These documents are available for review during regular business hours at the UCI Medical Center, Office of Planning and Development Services.

3.6.2 EXISTING CONDITIONS

Regional Hydrology

The UCI Medical Center site is located approximately 11.2 miles from the Pacific Ocean, within the Santa Ana River Basin. The climate of the region is generally dry in the summer with mild, wet winters. The average annual rainfall in the region is about 15 inches, occurring primarily between November and March.

The UCI Medical Center is located west of the Santa Ana River. The Santa Ana River is the largest stream system in southern California, extending southwesterly from the San Bernardino Mountains to the Pacific Ocean. The Santa Ana River drains approximately 2,670 square miles, including parts of Orange, San Bernardino, Riverside, and Los Angeles counties. The mainstem of the Santa Ana River is divided into six reaches extending from the area north of Seven Oaks Dam to the Pacific Ocean. The project site is in Reach 2. Santa Ana River Reach 2 carries all the upstream flows down through Santa Ana Canyon to Orange County, where as much water as possible is channeled to recharge the Orange County groundwater basin.

Groundwater recharge from the Santa Ana River is the primary source of water supply for more than two million people in Orange County. The downstream end of the recharge area and, therefore, the ordinary limit of surface flows is at Seventeenth Street in the City of Santa Ana, located south of the Medical Center site.

Local Drainage

The storm drain collection system at the UCI Medical Center consists of three separate systems. The first serves the western portion of the site, the second serves the east-central portion of the site, and the third drains the eastern portion of the site. Onsite drainage flows into catch basins throughout the Medical Center which then drain to underground storm drains located south of the project site. The local storm flow facilities drain directly to the Santa Ana River east of the project site.

Flood Hazard

The largest potential flood hazard to the UCI Medical Center site is the Santa Ana River. On June 14, 2000, the Federal Emergency Management Agency (FEMA) revised the Flood Insurance Rate Map (FIRM) for Orange County and incorporated areas; FEMA submitted a Letter of Map Revision (LOMR) to the City of Orange identifying the revisions to the FIRM map. The revisions

were a result of the U.S. Army Corps of Engineers' (USACE) completion and certification of the restoration of the Santa Ana River flood control system from Imperial Highway to the Pacific Ocean.

As a prerequisite for revising the Santa Ana floodplain boundaries, FEMA required that all underlying residual floodplains be identified and mapped for other watersheds in the affected communities. The floodplain map revisions removed most of the designated A99 special flood hazard areas, including the Zone A99 designation on the UCI Medical Center site; the project site has been re-designated as Zone X (shaded). These zones are defined by FEMA as follows:

- Zone A99: Area of special flood hazard where enough progress has been made on a protective system, such as dikes, dams, and levees, to consider it complete for insurance purposes.

- Zone X (shaded): Areas of 500-year flood; areas of 100-year flood with average depths of less than one foot or with drainage areas less than one square mile; and areas protected by levees from 100-year flood.

The Medical Center site is located in an area protected from the 100-year flood by levee, dike, or other structures subject to possible failure or overtopping during larger floods (e.g., 500-year flood, Zone X), as defined by FEMA. Therefore, based on this reclassification, future structures will not be subject to flooding from a 100-year flood event.

Groundwater

The UCI Medical Center is located in the central portion of the Orange County groundwater basin. The aquifers that comprise the Orange County groundwater basin are over 2,000 feet in depth and form a complex series of interconnected sand and gravel deposits. In the coastal and central portions of the basin, these deposits are separated by extensive lower permeability clay and silt deposits. In the inland area of the groundwater basin (Forebay) northeast of I-5 (near the Medical Center), the clay and silt deposits become thinner and more discontinuous which allows groundwater to flow more easily between shallow and deep aquifers. Therefore, the Orange County Water District performs extensive aquifer recharge in the Anaheim-Orange Forebay area, located along the Santa Ana River in the cities of Anaheim and Orange.

As a part of the geological investigation for the proposed replacement hospital, Geobase, Inc. performed 44 borings on the project site, which varied in depth from 61.5 feet to 150 feet. Groundwater was observed in four of the borings. Groundwater was not encountered in the remaining 40 borings to a depth of 61.5 feet. Groundwater conditions can vary by seasonal and meteorological conditions, construction activities, and geologic conditions between borings. The depths to groundwater at the boring locations are identified in Table 3.6-1.

Due to the proximity of the Santa Ana River channel to the project site, groundwater may accumulate in the alluvium after periods of excessive groundwater recharge (e.g., from substantial storm events). Locally, the Santa Ana River channel slopes are concrete-lined; the channel floor is soft-bottomed to allow for recharge for the upper aquifers when water is present in the channel. The clayey sands, clays, and silts that form the stratigraphy of the subsurface of the project site may form temporary perched groundwater conditions above the 80-foot depth to groundwater detected in the four borings. However, it is considered very unlikely that perched groundwater will occur above the 50-foot level.

TABLE 3.6-1
ONSITE GROUNDWATER LEVELS

Boring Number	Depth to Groundwater Below Existing Grade (feet)	Surface Elevation of Groundwater (feet above mean sea level)
B-2	80.0	54.0
B-14	80.0	55.0
B-35	80.0	54.0
B-44	77.5	54.5
Source: Geobase, Inc., November 30, 2000.		

Based on geotechnical studies conducted for the proposed hospital facility and for prior development projects at the UCI Medical Center, the groundwater level beneath the site varies between 75 and 100 feet below the ground surface. The water levels in the project area wells showed no significant variations and indicated that the average groundwater level over an extended time period is approximately 90 feet below the ground surface. Lack of significant variation in water level between wells suggests that groundwater barriers within, or adjacent to the site, are not present. Groundwater beneath the Medical Center is expected to be lower than 60 to 70 feet below ground surface; there is no historic evidence supporting a higher groundwater table. No proposed site development will require excavation to depths where groundwater could be encountered.

Surface Water and Groundwater Quality

Federal and State Programs

Water quality objectives for all waters in the state are established under applicable provisions of Section 303 of the federal Clean Water Act (CWA) and the state Porter-Cologne Water Quality Control Act. The State of California State Water Resources Control Board (SWRCB) and the Regional Water Quality Control Boards (RWQCB) are responsible for assuring implementation of and compliance with the federal CWA and the Porter-Cologne Water Quality Control Act provisions.

Federal Clean Water Act. Section 303 of the CWA requires states to adopt water quality standards for all surface water of the United States. Section 304(a) requires the Environmental Protection Agency (EPA) to publish water quality criteria that accurately reflects the latest scientific knowledge of the kind and extent of all effects on health and welfare that may be expected from the presence of pollutants in water. Where multiple uses exit, water quality standards must protect the most sensitive use.

Section 303(c)(2)(b) of the CWA requires states to adopt numerical water quality standards for toxic pollutants for which the EPA has published water quality criteria and which reasonably could be expected to interfere with designated uses in a water body.

National Pollutant Discharge Elimination Systems Permits. The National Pollutant Discharge Elimination System (NPDES) permit system was established as part of implementation of the CWA to regulate municipal and industrial discharges to surface waters of the United States. The CWA prohibits the discharge of any pollutant into navigable waters from a point source unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) Program permit. The purpose of the NPDES program is to manage urban storm water minimizing

pollution of the environment to the maximum extent practicable. The NPDES program consists of characterizing receiving water quality, identifying harmful constituents, targeting potential sources of pollutants, and implementing a Comprehensive Storm Water Management Program.

The NPDES Program requires local agencies and project applicants to obtain permits to discharge storm water into "waters of the State." The regulations provide that discharges of storm water to waters of the United States from construction activities are effectively prohibited unless the discharge is conducted in compliance with an NPDES permit. Construction activities subject to this General Permit include clearing, grading, disturbances to the ground such as stockpiling, or excavation. Disturbance refers to exposed soil resulting from activities such as clearing, grading, and excavating. Construction activities can include road building, construction of buildings, and demolition.

In 1990, the EPA promulgated rules establishing Phase I of the NPDES storm water program. Phase I address, among other discharges, discharges from large construction activities disturbing five acres or more of land. Operators of construction activity disturbing less than five acres are also required to obtain a NPDES permit if the activity is a part of a "larger common plan of development or sale" with a planned disturbance of five acres or greater of a contiguous area where multiple separate and distinct construction activities are occurring under one plan.

The EPA finalized the Phase II Storm Water Program in December 1999. The Phase II Storm Water Program generally provides that regulated operators of small "municipally owned storm water systems (MS4s)" located in urban areas, which are defined to include universities, shall implement programs and policies to control polluted storm water runoff through the use of NPDES permits. Phase II also covers small construction activities that result in land disturbance of equal to or greater than one acre and less than five acres.

The UCI Medical Center will be responsible for compliance with the Phase II Storm Water Program requirements. The Phase II Final Rule requires that all operators of small MS4s in urbanized areas and operators of small construction activities obtain NPDES permit coverage no later than March 10, 2003. As such, the UCI Medical Center will be required to file a Notice of Intent and develop a storm water pollution prevention plan (SWPPP) that identifies storm water discharge management controls (known as "best management practices" [BMPs]). BMPs, measurable goals, and timeframes for implementation are required for each of the six minimum control measures: 1) Public education and outreach on storm water impacts; 2) Public participation/involvement; 3) Illicit discharge detection and elimination; 4) Construction site storm water runoff control; 5) Post-construction storm water management in new development/redevelopment; and 6) Pollution prevention/good housekeeping for municipal operations.

Each NPDES permit contains limits on allowable concentrations and mass emissions of pollutants contained in the discharge. Sections 401 and 402 of the CWA contain general requirements regarding NPDES permits. Section 402(p) of the CWA (an amendment to Section 404) established a framework for regulating construction storm water discharges under the NPDES Program. Section 307 describes the factors that EPA must consider in setting effluent limits for priority pollutants.

State Water Quality Regulations

In California, the NPDES Program is administered by the nine California Regional Water Quality Control Boards (RWQCB). Each of the nine RWQCBs is required to adopt a Water Quality Control Plan, or Basin Plan, as required by Section 303 of the CWA and the Porter-Cologne Water Qaulity Control Act. The plans establish water quality standards and objectives for California rivers and

their tributaries. The Porter-Cologne Water Quality Control Act requires that basin plans recognize and reflect regional differences in existing water quality, the beneficial uses of the region's ground and surface waters, local water quality conditions and problems, and implement a program for achieving water quality objectives (California Water Code, Section 13050[j]).

Regional Water Quality Regulations

General Construction Activity Storm Water NPDES permits (General Permit) are issued for storm water discharges by the RWQCB. The Medical Center site is within the RWQCB, Santa Ana Region (Region 8). Within Region 8, the adopted *Santa Ana River Basin Plan* provides the framework for its regulatory programs. The *Santa Ana River Basin Plan* designates the beneficial uses of the waters of the region and specifies water quality objectives intended to protect the beneficial uses of all regional waters. Beneficial uses and water quality objectives, together with an antidegradation policy, comprise federal "water quality standards." The Basin Plan also specifies an implementation plan that includes discharge prohibitions.

Storm water flows that are discharged to municipal storm drain systems in Orange County are tributary to various receiving water bodies. The ultimate goal of a storm water management program is to protect the beneficial uses of the receiving waters. Beneficial uses are those necessary for the survival and well-being of man, plants, and wildlife. The following beneficial uses have been identified in the *Santa Ana River Basin Plan* for the Santa Ana River.

- **Agricultural Supply**–Includes use of water for farming, horticulture, or ranching. These uses may include, but are not limited to, irrigation, stock watering, and support of vegetation for range grazing.

- **Ground Water Recharge**–Includes uses of water for natural or artificial recharge of ground water for purposes of future extraction, maintenance of water quality, or halting of saltwater intrusion into freshwater aquifers.

- **Water Contact Recreation**–Includes the uses of water for recreational activities involving body contact with water where ingestion of water is reasonably possible. These uses may include, but are not limited to, swimming, wading, water-skiing, skin and scuba diving, surfing, whitewater activities, fishing, and use of natural hot springs.

- **Non-contact Water Recreation**–Includes the uses of water for recreational activities involving proximity to water, but not normally involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, picnicking, sunbathing, hiking, beach combing, camping, boating, tidepool and marine life study, hunting, sightseeing, or aesthetic enjoyment in conjunction with the above activities.

- **Warm Freshwater Habitat**–Includes uses of water that support warm water ecosystems including, but not limited to, preservation and enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.

- **Wildlife Habitat**–Includes uses of water that support wildlife habitats that may include, but are not limited to, the preservation and enhancement of vegetation and prey species used by waterfowl and other wildlife.

- **Rare, Threatened, or Endangered Species**–Includes uses of water that support habitats necessary for the survival and successful maintenance of plant or animal species designated under state or federal law as rare, threatened, or endangered.

Based on these, as well as other potential beneficial uses, the RWQCB, Santa Ana Region, has prepared water quality objectives for inland surface waters and groundwater for specific hydrology units. These objectives are the levels of water quality constituents or characteristics which must not be exceeded to protect beneficial uses. For Reach 2 of the Santa Ana River, the water quality objective for total dissolved solids (TDS) is 650 mg/L. Water quality objectives for other constituents have not yet been developed for Reach 2 (Kathleen Boyd, RWQCB, personal communication, June 20, 2001). Compliance with the TDS water quality objective is based on a five-year moving average of the annual TDS content of total flow to allow the effects of wet and dry years to be averaged over the five-year period. The TDS objective of 650 mg/L is currently being met.

Surface Water Quality

Storm water runoff from the site carries typical urban pollutants such as suspended sediments and contaminants associated with motor vehicle operation including oils and grease, as well as fertilizers and pesticides associated with grounds maintenance. Studies to characterize typical urban runoff quality conducted as a part of the Nationwide Urban Runoff Program identified heavy metals as the most prevalent priority pollutant constituents. Concentrations of heavy metals in urban runoff were found, in many cases, to exceed EPA ambient water quality criteria and drinking water standards. Organic priority pollutants were also identified, but at a lower frequency and at lower concentrations than heavy metals. Constituents found in typical urban runoff vary as a result in differences in rainfall intensity and occurrence, geographic features, land use, as well as vehicle traffic and percent of imperious surfaces. The EPA estimates that short-term runoff from construction sites without adequate erosion control can contribute more sediment to receiving waters than that deposited by natural processes over a period of decades.

As previously addressed, storm water runoff from the UCI Medical Center site is conveyed by storm drain facilities to the Santa Ana River, and ultimately the Pacific Ocean. The majority of the project site is primarily covered with impermeable surfaces associated with existing Medical Center facilities (e.g., buildings, parking areas, etc.) with limited landscaping throughout the site. There are currently no structural or non-structural best management practices in place at the Medical Center to address the potential for pollutants to enter storm flows.

3.6.3 THRESHOLDS OF SIGNIFICANCE

The following standards of significance are based on Appendix G of the CEQA Guidelines. For the purposes of this EIR, impacts would be considered significant if:

- Violate any water quality standards or waste discharge requirements.

- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted).

- Substantially alter the existing drainage pattern of the site or area in a manner which would result in substantial erosion or siltation onsite or offsite.

- Substantially alter the existing drainage pattern of the site or area or substantially increase the rate or amount of surface runoff in a manner which would result in flooding onsite or offsite.

- Create or contribute to runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff.
- Otherwise substantially degrade water quality.
- Place within the 100-year flood hazard area structures which would impede or redirect flood flows.
- Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam.

3.6.4 PROJECT IMPACTS

Impact 3.6-1: Construction of the proposed project is not expected to affect regional hydrology and drainage conditions. No significant impacts would occur.

Proposed development at the UCI Medical Center LRDP will not alter regional hydrologic conditions. Onsite development will not divert storm water discharges to other watersheds or to drainage facilities that have not historically received site runoff. Therefore, ***no significant impacts*** to regional hydrology are anticipated.

The UCI Medical Center campus is currently developed and covered with impervious surfaces, with the exception of limited landscaping. Implementation of the proposed project will not change this developed impervious condition and will, therefore, not significantly increase the rate and volume of runoff from the site during rainfall events. Therefore, the rate and amount of storm water runoff entering the onsite and local facilities, and ultimately draining to the Santa Ana River, will not be substantially changed compared to existing conditions, and ***no significant impacts*** at the Medical Center site related to local drainage will occur.

To allow for the construction of the new hospital, the existing North Parking Structure (318 parking spaces) and 100 surface parking spaces will be demolished. While 260 replacement parking spaces will be constructed at the Medical Center, there will be a net loss of 158 onsite parking spaces at the completion of Phase I. As a part of Phase I, a minimum of 158 additional faculty and staff parking will need to be provided off campus because of the loss of onsite parking spaces. The parking replacement options available to the University are as follows (see Exhibit 2-18):

Site	Address	Parking Spaces
Caltrans Lot	Northeast corner of Chapman Avenue and The City Drive, City of Orange	452
State College Warehouse	2040 State College Boulevard, City of Anaheim	200
Equity Partners	Chapman Avenue/Manchester Avenue, City of Orange	200
Edison Field	State College Boulevard, City of Anaheim	418

With the exception of the Caltrans lot, the offsite parking locations are existing paved surface parking lots. The Caltrans lot is an approximately four-acre dirt site. If this site is selected to provide needed offsite parking, site improvements will be required including but not limited to

grading, extension of services (e.g., electricity), and paving. Paving of the lot to provide surface parking will change the character of the site from a pervious to impervious condition. Peak flow rates in a 25-year storm event will increase from 8.4 cubic feet per second (cfs) under existing conditions to 12.5 cfs under proposed conditions. A new 14-foot-wide concrete catch basin will be constructed within the four-acre site to handle storm water flows. Flows from the catch basin will drain via an existing 24-inch reinforced concrete pipe (rcp) storm drain pipe into an existing public catch basin located in The City Drive. There is an existing 45-inch rcp storm drain that runs east-west in Chapman Avenue into which the existing public catch basin drains. If it is determined that the downstream system cannot accommodate increased flows from the parking lot, the size of the onsite catch basin will be increased. Increasing the size of the onsite catch basin will allow for the rate of future flows from the parking lot to remain the same as existing conditions. ***No significant impacts*** are anticipated.

Mitigation Program

To ensure that surface water runoff from the Caltrans lot would result in ***less than significant impacts***, the following measure is required.

3.6-1 Prior to design approval, the UCI Medical Center shall be responsible for the preparation of a hydrological analysis to determine the quantity of runoff associated with development of the Caltrans lot as a surface parking facility and if the existing storm drain system can accommodate the additional runoff without adversely impacting existing and planned development flows. If the project would adversely affect the storm drain system, the UCI Medical Center shall be responsible for project-related improvements to ensure potential impacts are mitigated to a less than significant level. Improvement options include offsite improvements or increasing the size of the onsite catch basin to allow for the rate of future flows from the Caltrans lot to remain at existing levels.

Impact 3.6-2: Construction of the proposed project would result in soil erosion. This is considered a significant impact.

Implementation of the project will involve the demolition of many existing buildings, one parking structure, and surface parking areas, as well as the construction of buildings, onsite access roads, onsite parking structures and onsite and offsite parking lots, and infrastructure improvements which will require grading, excavation, and other construction-related activities that could cause soil erosion from exposed soil at an accelerated rate during storm events if not properly controlled. A major source of storm water pollution common to many construction sites relates to earthmoving activities. The major pollutant generated by earthmoving activities is sediment, typically produced by wind and/or water erosion. Site clearance and excavation activities can increase erosion. This is considered a ***significant impact.***

The amount and rate of erosion will vary depending on a number of factors, including the time of year of construction, the size of the development site, the amount and intensity of rainfall, and the amount of natural and/or artificial fill. Storm water runoff from the project site during construction could contain soils and sediments from these activities. The issuance of a NPDES permit requires the preparation of an Urban Storm Water Mitigation Plan and a Storm Water Pollution Prevention Plan (SWPPP) to control possible pollutant loading in storm water discharges from the project site resulting in land disturbance of one or more acres, or less than one acre where the construction project is a part of a larger common plan of development. An SWPPP describes the measures or practices to control pollutants during both the construction and post-construction phases of the project. An SWPPP typically identifies project design features and a list of target structural and

non-structural best management practices (BMPs) that will be used to control, prevent, remove, or reduce pollution. In addition to the requirements of the NPDES program, provisions of the Uniform Building Code include elements that also require reduction of erosion and sedimentation impacts.

Mitigation Program

After implementation of all permit conditions, standard construction practices, and BMPs, impacts to short-term water quality will be ***less than significant***.

Standard Conditions and Requirements

- Prior to the initiation of grading activities, the UCI Medical Center shall be responsible for filing a Notice of Intent and paying the appropriate fees with the Regional Water Quality Control Board (RWQCB) pursuant to the National Pollutant Discharge Elimination System (NPDES) program for a General Construction Permit. As a prerequisite of obtaining an NPDES permit, the UCI Medical Center shall be responsible for the preparation of a Water Quality Management Plan and a Storm Water Pollution Prevention Plan consistent with the latest version of the state's General Construction Activity Storm Water Permit and shall be subject to the review and approval of the RWQCB. The Water Quality Management Plan and Storm Water Pollution Prevention Plan shall specifically identify the Best Management Practices (BMPs) that will be used onsite to control predictable pollutant runoff. BMPs that will be implemented as part of the proposed project to reduce the volume of urban runoff contaminants from the project site include, but are not limited to:

  Structural Controls

  a. Use of sand bags and temporary desilting basins during project grading and construction during the rainy season (November through April) to prevent discharge of sediment-laden runoff into storm water facilities.

  b. Installation of landscaping as soon as practicable after completion of grading to reduce sediment transport during storms.

  c. Filtration.

  d. Hydroseeding of graded building pads if they are not built upon before the onset of the rainy season.

  e. Efficient irrigation systems.

  f. Runoff-minimizing landscape design.

  g. Incorporation of structural controls (e.g., velocity dissipation devices, grease traps, debris screens, continuous deflection separators, oil/water separators, drain inlet inserts and inlet trash racks) into the project design to provide detention and filtering of contaminants in urban runoff from the developed site prior to discharge to storm water facilities.

  h. Stenciling of catch basins and other publicly visible flood control facilities with the phrase "No Dumping-Drains to the Ocean."

Non-structural Controls

i. Education,

j. Activity restrictions,

k. Common area landscape management,

l. Litter control,

m. Catch basin inspection,

n. BMP maintenance, and

o. Street sweeping.

The SWPPP shall be kept at the construction site and be released to the public and/or Regional Water Quality Control Board upon request.

Mitigation Measures

Please also refer to standard conditions for Impact 3.2-1 and Mitigation Measures 3.4-3(a) through 3.4-3(g).

Impact 3.6-3: Construction of the proposed project would affect long-term water quality. This is considered a significant impact.

A significant amount of urban contaminants are contained in the runoff that occurs during the first rainfall event each year (typically called the "first flush" effect). Current regulations require the use of Best Management Practices (BMPs) to remove contaminants in urban runoff prior to discharge into flood control systems. BMPs that focus on reducing the volume of urban runoff contaminants that are carried by storm water are the most effective means of reducing the water quality impacts of urban development. Implementation of such practices can serve to mitigate any potential effects. The majority of the Medical Center site is currently covered with impermeable surfaces and the storm water runoff contains pollutants typical of urban runoff. Although the proposed project will result in a change the constituents of water quality runoff from the project site, water quality runoff is considered a ***significant impact***.

Mitigation Program

Implementation of standard conditions for Impact 3.2-1 and Mitigation Measures 3.4-3(a) through 3.4-3(g) and 3.6-2 will be expected to mitigate impacts to a ***less than significant*** level.

Impact 3.6-4: The proposed project would not be inconsistent with established water quality objectives. No adverse impact is anticipated.

Surface water quality objectives applicable to the Santa Ana River were previously discussed. The proposed project is not expected to alter the quality of storm water runoff from the site. With the implementation of operational BMPs, the project could improve the quality of the runoff from the site. The project will therefore have ***no adverse impact*** on the ability of the established water quality objectives to be achieved.

Mitigation Program

See standard conditions and requirements for Impact 3.6-2.

3.6.5 CUMULATIVE IMPACTS

Impact 3.6-5: The proposed project would incrementally contribute to significant surface water quality impacts.

A cumulative impact consists of an impact which is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts. The cumulative project study area is defined as past, present, and foreseeable future development within the project study area (which is inclusive of portions of the cities of Orange, Anaheim, Santa Ana, and Garden Grove based on current land use designations set forth in the cities' respective General Plans), as well as all known General Plan amendment requests for additional development in the study area (see Tables 3-1 through 3-3 in Section 3 of this EIR). As previously addressed, the UCI Medical Center is located west of the Santa Ana River. Surface water runoff from the project site as well as existing and planned development proximate to the Santa Ana River flows directly into the river via a series of storm drains. The Santa Ana River drains approximately 2,670 square miles; the project site is located within Reach 2 of the Santa Ana River where as much water as possible is channeled to recharge the Orange County groundwater basin. Water that is not recharged is eventually transported via the Santa Ana River to the Pacific Ocean.

Implementation of the project will incrementally increase the amount of impervious surface area in the project vicinity thereby cumulatively impacting water quality associated with surface runoff. The Caltrans lot is the only remaining undeveloped vacant parcel located between the boundaries of I-5 to the north and east, Lewis Street to the west, and SR-22 to the south. The remainder of this area is developed and has only limited landscaping with the exception of the Orangewood Children's Home which has play fields.

The proposed project will incrementally increase the amount and adversely affect the quality of runoff from the project site thereby incrementally contributing to adverse long-term effects on the quality of storm water runoff from the site. However, it should be noted that all construction projects that result in the land disturbance of greater than five acres, between one and five acres, or less than one acre when the project is a part of a larger common plan of development or sale are also subject to the drainage and water quality requirements to be imposed on the UCI Medical Center project. This includes all development based on the buildout of the cities of Orange, Anaheim, Garden Grove, and Santa Ana as set forth in their respective General Plans, as well as additional development identified in Tables 3-1 through 3-3 (see Section 3 of this EIR). As such the project's contribution to potentially significant cumulative water quality impacts is considered ***significant***.

Mitigation Program

Mitigation set forth in this EIR for Impact 3.6-2 would mitigate the project's contribution to cumulatively significant impacts to a level that is considered ***less than significant***.

3.7 LAND USE AND PLANNING

This section describes the land use conditions for the UCI Medical Center site and the immediate vicinity, and discusses potential land use impacts that could result from implementation of the proposed project. This section also addresses the relationship of land use changes to relevant planning policies.

3.7.1 EXISTING CONDITIONS

Onsite Land Uses

The 33-acre UCI Medical Center site is currently developed and used as a medical facility for the University. It serves as both a teaching hospital and a clinical facility for the UCI College of Medicine located at the UCI main campus in the City of Irvine. The existing Medical Center is the only university teaching hospital in Orange County, and houses more than 300 medical specialties. In addition to providing acute and general care services, the Medical Center includes a neuropsychiatric center, the UCI Regional Burn Center, a Level I Trauma Center (the only one in Orange County), and the National Cancer Institute-designated Chao Family Comprehensive Cancer Center.

The Medical Center is organized into four major land use zones: Inpatient, Ambulatory Care, Academic/Research/Administrative, and Service. Structured parking is located in the Inpatient and Ambulatory Care zones.

The majority of patient care activity is concentrated at the front of the site with non-patient activity situated at the back of the site. Several of the zones overlap in use, such as Inpatient overlapping the Academic/Research/Administrative functions and Ambulatory Care overlapping the Service functions. These "transition areas" developed primarily due to evolving program expansion/ contraction and the need to have functionally-related activities located together.

Medical Center Drive provides vehicular and pedestrian circulation to the Inpatient and Ambulatory Care zones; this roadway is the central organizing element on the site.

Structures and Facilities

The existing Medical Center contains approximately 910,365 gross square feet of development within approximately 43 structures and facilities. Because the majority of existing onsite buildings are one or two stories, the Medical Center has a high site coverage but low density. Onsite uses are distributed among the following four functional zones: *Inpatient*, *Ambulatory*, *Academic/Research/Administrative*, and *Service*.

- ***Inpatient Facilities*** include the hospital and neuropsychiatric facilities.

- ***Ambulatory Care Facilities*** provides outpatient services, including cancer care, occupational therapy, dialysis, and diagnostic services.

- ***Academic/Research/Administrative Facilities*** include academic, department, and research offices, research and psychiatry labs, classrooms, and the medical library. Administrative facilities are located throughout the Medical Center to support medical and research uses. Additional administrative functions, including human resources, information services, nursing recruitment, patient financial services, and the Women's Healthcare

Center and Center for Fetal Evaluation, are located at the administrative building located west of the main Medical Center site at 200 South Manchester off Chapman Avenue.

- ***Service Facilities*** include storage space, the central plant, and the electrical facility.

Table 2-1 in Section 2 quantifies the existing land uses associated with these five land use categories at the Medical Center. The locations of structures and facilities at the Medical Center are depicted on Exhibit 2-5. Characteristics of these structures and facilities are presented in Table 2-2 (see Section 2).

Parking Structures and Lots

Parking at the Medical Center is provided in two onsite parking structures and surface parking lots throughout the Medical Center site. The South Parking Structure is a six-story visitor parking structure located at the southwestern portion of the Medical Center at the corner of Dawn Way and Pavilion Way. This parking structure has 675 spaces, including handicapped spaces. The North Parking Structure is a four-story staff parking structure located at the northern boundary of the Medical Center, east of the helipad, near the corner of The City Drive South and Chapman Avenue. This parking structure contains 318 spaces, including handicapped spaces. An additional 597 parking spaces are available throughout the Medical Center in surface parking lots. The four largest surface parking areas are located along southern and eastern property boundaries, west of the North Parking Garage, west of the South Parking Garage, and near the entrance to the Main Hospital.

Because there is insufficient parking at the Medical Center, the University leases additional offsite properties that provide 875 parking spaces to serve the needs of the existing facility. Because of the changing availability of offsite parking lots, the location and number of offsite parking spaces has varied over the years.

Other Onsite Land Uses

In addition to the UCI Medical Center facilities, the site contains easements and uses outside the ownership of the University. Easements are provided through the site for the provision of site services, including water, sewer, natural gas, electricity, and telecommunications. The City of Orange owns and maintains an 800,000-gallon water reservoir located in the southeast portion of the Medical Center site. In addition, the City of Orange has a pump station (for pumping water from the reservoir into the City's water system), a non-operational well site, and water mains. The reservoir provides additional water storage capacity for the City of Orange water system, which serves both the Medical Center and City of Orange customers. An additional city well is planned north of and adjacent to the existing reservoir.

A portion of a United States (U.S.) Department of Defense (DOD) military jet fuel pipeline and easement traverses the Medical Center site. An eight-inch-diameter jet fuel line runs underground in a generally north-to-south direction at the north and east perimeters of the Medical Center property. The pipeline originates in the City of Norwalk and terminates at the Marine Corps Air Station, El Toro.

Surrounding Land Uses

The project site is located within an existing developed area of the City of Orange. The cities of Anaheim, Garden Grove, and Santa Ana are located proximate to the project site, to the north, west, and south, respectively. The aerial photograph of the project site (Exhibit 3.7-1) provides a

Aerial View **Exhibit 3.7-1**

UCI Medical Center LRDP EIR, University of California, Irvine

N Scale: 1" = 300'

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general overview of the site in relation to surrounding uses. As shown, the site is generally bound by governmental/institutional, commercial, and office uses. The following is an identification of land uses in the immediate vicinity of the project site based on a field reconnaissance conducted in November 2001.

The Medical Center is bordered on the north by Chapman Avenue and, further north, I-5. A vacant parcel of land owned by the California Department of Transportation (Caltrans) is adjacent to I-5 to the north and east, Chapman Avenue and the Medical Center to the south, and The City Drive to the west. Further to the north (north of I-5) are office and commercial uses and Edison Field, the baseball stadium for the Anaheim Angels.

South of the Medical Center are a variety of governmental/institutional uses; further to the south is SR-22. These government/institutional uses are described in more detail below.

Orangewood Children's Home–This facility is the county's shelter for abused, neglected, or abandoned children, and one of several entry-points into the county's Children and Youth Services Programs. This facility has a capacity to house 235 children.

City of Orange Fire Station No. 6–This fire Station, located at 345 The City Drive South, between Dawn Way and Justice Center Way, contains Engine No. 6, Reserve Truck No. 6, and an antique fire engine.

County of Orange Betty Lou Lamoreaux Justice Center–Located at 341 The City Drive, between Dawn Way and Justice Center Way, the Justice Center (formerly the Juvenile Justice Center) handles family law, juvenile, mental health, and probate issues.

Orange County Juvenile Hall–Located at 331 The City Drive, the Orange County Juvenile Hall is located contiguous to the UCI Medical Center. It is a 434-bed institution for juvenile law violators operated by the Orange County Probation Department. It houses boys and girls, generally between ages 12 and 18, who are detained pending Juvenile Court hearings in the adjacent Betty Lou Lamoreaux Juvenile Justice Center or who remain in custody by order of the court. The facility has outdoor sports fields.

County of Orange Theo Lacy Facility–This facility, located south of and adjacent to the Orangewood Children's Home, is the county jail and provides for the custody of 2,068 minimum- to maximum-security pre-trial and sentenced inmates. A staff of 174 deputy sheriffs and 82 non-sworn personnel provide for the security and well-being of the inmates.

East of the Medical Center is the Santa Ana River and I-5. Further east is a small commercial office complex with a fast-food restaurant adjacent to SR-57. Beyond SR-57 is a mix of commercial and residential uses.

The City Drive is the western boundary of the Medical Center complex. West of The City Drive is The Block at Orange regional shopping center, various free-standing restaurants, office buildings (including the 20-story City Tower One building), and the 19-story Doubletree Hotel. The offsite Medical Center administrative offices are located at 200 Manchester at the corner of Chapman Avenue.

3.7.2 PLANNING PROGRAMS

In accordance with CEQA Guidelines §15125(d), "The EIR shall discuss any inconsistencies between the proposed project and applicable general plans and regional plans. Such regional

plans include, but are not limited to, the applicable air quality attainment or maintenance plan or State Implementation Plan, area-wide waste treatment and water quality control plans, regional transportation plans, regional housing allocation plans, habitat conservation plans, natural community conservation plans and regional land use plans for the protection of the Coastal Zone, Lake Tahoe Basin, San Francisco Bay, and Santa Monica Mountains."

Although the University of California is constitutionally exempt from local land use controls in accordance with Article IX Section 9 of the California Code of Regulations, this EIR section addresses plans and policies, including related planning programs governing existing and future conditions for the project site and surrounding areas. The following plans and programs apply to development in and around the site, and are discussed below: UCI Medical Center Redevelopment Master Plan, City of Orange General Plan, City of Orange Zoning Code, Southern California Association of Governments (SCAG) Regional Comprehensive Plan and Guide, and applicable regional programs.

UCI Medical Center Redevelopment Master Plan

In 1977, the University of California, Irvine prepared the *University of California, Irvine Medical Center Redevelopment Master Plan*. Prior to 1977, the University began plans for the upgrading of the Medical Center as a part of the transfer to the facilities from the County of Orange to the University of California, Irvine. The University and its College of Medicine evaluated the Medical Center, identified assets and deficiencies, and established goals and objectives for the Medical Center to achieve in order to become a first class teaching hospital.

Out of this effort, the University established a program outlining the initial steps to be taken to direct the redevelopment of the Medical Center. Key elements of the *Redevelopment Master Plan* were:

1. Distinct land use zones with ambulatory services at the front of the site for convenience and accessibility.

2. Creation of a pedestrian spine around a cluster of buildings.

3. Improved vehicular circulation with a loop road system.

4. Parking outside the loop and near the uses they serve.

5. Consolidation of inpatient services to fewer buildings.

6. De-intensification of use of the oldest buildings with construction of new, highly flexible building types to house those users requiring the most intensive space.

The *Redevelopment Master Plan* was presented in the form of six Project Planning Guides which were approved by the State of California in November 1975. The *Redevelopment Master Plan* established the framework necessary to achieve immediate goals (implementation of the six Project Planning Guides) and long-range goals (the total renovation of the Medical Center). The *Redevelopment Master Plan* proposed to implement the immediate and long-range goals in six phases, with Phases 1 and 2 representing the immediate goals for the Medical Center. The University prepared an Initial Study/Negative Declaration in January 1977 which addressed the Redevelopment Plan and Phase I projects proposed at that time for the Medical Center (Exhibit 2-9).

Had the redevelopment project been fully implemented, the area of land covered by buildings would have been reduced from 6.8 acres to 5.4 acres; parking, roads, and paved areas would have increased from 16 acres to 19.3 acres; and the remaining area, including landscaped areas, would have decreased from 8.3 to 6.3 areas. In addition, the gross building area would have increased from 516,190 sq.ft. to 800,000 sq.ft.

The objectives of Phases 1 through 6, as stated in the *Redevelopment Master Plan* were:

Phase 1: Implement the six Planning Program Guides, establish buildings systems, and initiate the process of deintensifying the use of existing buildings. Phase 1 would have allowed for the construction of additions to Building No. 1a. and Building No. 9 and a new parking structure (Northwest Parking Structure). Building Nos. 1,10, 52, and 53 would have been remodeled; Building Nos. 4, 12, 14, 33, and 34 would have been demolished.

With respect to the implementation of Phase 1, modifications have been made to Building No. 1a. Building Nos. 4 and 34 were demolished.

Phase 2: Accommodate the remainder of inpatient services in new construction, occupy Building 1 with administrative and teaching functions, and establish a land bank at the eastern side of the site. New construction assumed an expansion of Building No. 1A with the relocation of some uses in Building No. 1 to Building No. 1a. and the addition of a dental clinic in Building No. 9/9A. Upon relocation of uses into Building No. 1a., the following buildings were to be demolished: Building Nos. 10, 25, 27, 30, 35, 37 through 42, and 48 through 52.

With respect to the implementation of Phase 2, Building No. 1 continues to serve as the main hospital at the Medical Center. Building Nos. 35, 37 through 40, and 49 were demolished.

Phases 3 to 6: Establish the building connection system (pedestrian/service "spine") at the geographic center of the site; cluster new construction about the spine; develop peripheral service/access road and parking. Phase 3 was intended to begin the physical linkage of in-patient and out-patient services and establish the east-west pedestrian/service corridor in the southern portion of the site. Phase 3 included the construction of a new service building, expansion of an out-patient clinic, demolition of all service buildings with the exception of the central plant, and the improvement and repair of parking areas, the circulation system, and landscaping.

Few of the concepts set forth for Phases 3 through 6 have been implemented. The Medical Center has few pedestrian corridors and there is limited peripheral vehicular access. Most of the service buildings remain.

Phase 4 assumed the construction of an administrative/teaching/research facility, the demolition of Building Nos. 1 and 53, and the repair of parking areas and landscaping. Phase 5 assumed the construction of a new Mental Health Facility, out-patient clinic, and parking structure, and the demolition of Building Nos. 2, 9, and 9A.

With respect to Phases 4 and 5, Building Nos. 9 and 9A were demolished. New research facilities, such as Building No. 3, the Neuropsychiatric Center and Building No. 23, the Chao Family Comprehensive Center have been constructed since 1991. No parking structures have been demolished.

Phase 6 assumed that all existing facilities would be "rehoused" in new flexible structures to create a "terminal setting of buildings." This phase also assumed that the portion of the Medical

Center site north of the Mental Health Complex would have provided sufficient square footage to provide for long-range medical and surgical expansion needs. The expansion of the central plant and relocation of the vivarium was to have also occurred in Phase 6.

With respect to Phase 6, the existing UCI Medical Center has exceeded the estimated total square footage assumed in the redevelopment plan. The plan assumed a maximum 800,000 square feet; the existing facility has 910,365 square feet. The central plant has not been expanded, and the "terminal setting of buildings" concept has not been implemented.

City of Orange General Plan

The City of Orange General Plan was adopted on August 22, 1989; the Housing Element was adopted in August 1993. The General Plan establishes "definitive land use and development policy to guide the City..." The overall focus of the General Plan is to achieve the following goals:

- To preserve the character and densities of existing residential neighborhoods;
- To upgrade older commercial and industrial districts and thereby attract new business to the City;
- To allow for the intensification of commercial office uses in areas of the City where infrastructure can accommodate, or can be made to accommodate, increased use and where residential neighborhoods will not be affected adversely;
- To preserve the character of Old Towne and other historic areas;
- To provide a circulation system that allows for the efficient movement of people and goods throughout the City to provide a wide range of housing opportunities for all income groups;
- To preserve open space areas for a range of uses and purposes, including for active and passive recreational use, preservation of significant ridgelines, protection of public safety, and conservation of aggregate resource areas;
- To protect people living and working in the City from natural and man-made hazards such as flooding, earthquakes, landslides and hazardous materials; and
- To protect residents from excessive and potentially harmful noise sources associated with the urban environment.

The City of Orange General Plan is organized into seven elements: Land Use, Circulation, Housing, Open Space and Conservation, Safety, Noise, and Historic Preservation. Goals, policies, and objectives of the General Plan, relevant to the proposed project, are discussed below.

City of Orange General Plan Land Use Element

The Land Use Element is a guide for future development in the City of Orange and has major linkages to key issues and subject areas examined in other elements of the General Plan. The city intends to achieve a number of objectives through the goals and policies contained in their Land Use Element. These objectives include:

- To continue to provide a balanced and functional mix of development consistent with the long-range goals, objectives, and values of the City;

- To provide a guide for both public and private investments, indicating the nature, density, and intensity of that development;

- To identify opportunities for new development and the redevelopment and revitalization of existing development in the City and to identify any constraints that might affect this new development;

- To reduce loss of life, injury, and property damage that might result from flooding, seismic hazards, and other natural and man-made hazards that need to be considered in future land use planning and decision making;

- To preserve those undeveloped portions of the City that are of value to the residents due to the natural and cultural resources found there; and

- To preserve and maintain the existing character of the neighborhoods that comprise the City.

The Orange General Plan has 13 land use designations within six land use categories; these land use categories are: Residential, Commercial, Industrial, Public Facilities, Open Space, and Resource Areas. The UCI Medical Center site is designated *Public Facilities.* The General Plan Land Use Element states that the *Public Facilities* designation "…covers several types of public, quasi-public and institutional land uses, including schools, City and County facilities, hospitals and major utility easements and properties." Major institutional uses (e.g., hospitals, colleges) are noted to have a maximum floor area ratio (FAR) of 2.0. FAR is the ratio between total gross floor area of all buildings on a lot and the total area of that lot.

As previously noted, the University of California is constitutionally exempt from local land use controls. The goals and policies of the Orange General Plan Land Use Element relevant to the proposed UCI Medical Center LRDP project are as follows:

GOAL 1.0: Land use policy will continue to promote a balance of residential, commercial, and industrial development.

Policies

1.1 Maintain a balance between jobs and housing, and encourage the types of activities that will provide employment for the City's existing and future residents, as well as revenue for the City.

GOAL 6.0: The City will continue to promote good urban design.

Policies

6.1 Emphasize urban design in new development, and encourage rehabilitation efforts which incorporate good design features into rehabilitation plans.

GOAL 11.0: The City's infrastructure system must be adequate to meet the needs of existing and future residents.

Policies

11.1 Identify the useful life of key infrastructure (e.g., storm drains, streets, public buildings, etc.), and establish appropriate rehabilitation programs.

GOAL 12.0: Manage development of high intensity land uses in a way that ensures that the capacity of the circulation system is not exceeded.

Policies

12.1 Establish a development capacity for each traffic zone in the City, and monitor development within traffic zones to determine when development capacity is being reached.

12.2 Require projects which would exceed the development capacity of the traffic zone in which they are located to perform detailed circulation system analysis to identify system-wide impacts and mitigation measures. Require such projects to fully fund these measures or include these measures in the City's Transportation Systems Improvement Program.

GOAL 13.0: The City will continue to recognize the need to coordinate planning efforts both within the City and with other jurisdictions in the region.

Policies

13.1 Coordinate planning efforts among the various City departments and agencies, property owners, residents, and special districts.

City of Orange General Plan Circulation Element

The City of Orange General Plan Circulation Element is intended to provide for a safe, convenient, and efficient circulation system for the city. This general plan element also serves as a master plan for other infrastructure improvements such as sewer lines. The goals and policies of the Orange General Plan Circulation Element relevant to the proposed UCI Medical Center LRDP project are as follows:

GOAL 1.0: Provide a comprehensive circulation system that serves the needs of the existing community and that will meet projected traffic demands.

Policies

1.1 Improve overall circulation in the City by focusing on measures designed to improve movement through key intersections.

1.2 Coordinate with adjacent cities to plan and develop major east/west and north/south arterials to connect the City with the cities of Anaheim, Tustin, Santa Ana, and Irvine, as well as developing areas within the Orange Sphere of Influence.

1.4 Work with Caltrans to ensure that area freeways provide ready access to and circulation through the City.

1.5 Work with and support local and regional agencies' efforts to develop regional arterials adequate to handle increasing traffic congestion.

1.7 Require developers to pay for the portions of circulation improvements which are necessary to accommodate traffic generated by the new projects.

GOAL 2.0: Work toward the attainment of roadway service level objectives as defined by the General Plan.

Note: While there are no policies for Goal 2.0, the city's General Plan's goal is to ensure that all roadway segments operate at level of service (LOS) D or better.

GOAL 3.0: Coordinate circulation improvements with land use planning to minimize adverse impacts of the circulation system on land use.

Policies

3.1 Coordinate land use planning with future development of freeway or transportation corridors.

3.2 Ensure that the circulation system can accommodate proposed new development.

GOAL 4.0: Consider the parking needs of the community in all land use planning efforts.

Policies

4.1 Plan for onsite parking in all new developments.

GOAL 5.0: Encourage alternate transportation methods, including buses and carpools, whenever possible.

Policies

5.1 Work with the Orange County Transit District (note: now the Orange County Transportation Authority) and other transit agencies to assess City public transportation needs and to assure delivery of public transportation when and where it is needed.

5.2 Make public transportation more accessible and easier to use.

5.3 Promote the greater use of bicycles, and encourage the use of bike racks and safe storage facilities at major parking areas.

5.4 Encourage the use of carpools and vanpools for work trips.

City of Orange General Plan Housing Element

The City of Orange General Plan Housing Element, adopted in August 1993, identifies strategies and programs to address housing affordability, rehabilitation of substandard units, and the supply

of housing needed to meet future demands. The goals and policies of the Orange General Plan Housing Element relevant to the proposed UCI Medical Center LRDP project are as follows:

GOAL 3.0: The City will continue to encourage and promote development of affordable housing in order to meet the needs of all residents of the City of Orange within the various income ranges.

Policies

There are no policies relevant to the proposed project.

City of Orange General Plan Open Space and Conservation Element

The City of Orange General Plan Open Space and Conservation Element identifies the City's open space and establishes policies directed toward managing these resources for the long-term benefit of the community. The goals and policies of the Orange General Plan relevant to the proposed project are as follows:

GOAL 1.0: The City will continue to recognize the need to consider environmental issues in all aspects of land use planning, with special emphasis on regional air quality, surface and groundwater resources, and environmental pollution.

Policies

1.1 Cooperate with the South Coast Air Quality Management District (SCAQMD) and other regional agencies to implement and enforce regional air quality management plans.

1.2 Protect significant groundwater recharge areas to ensure continued recharge of local groundwater basins.

1.3 Cooperate with water supply agencies to protect the quantity and quality of local groundwater supplies.

1.4 Continue to participate in regional programs designed to reduce the growing need for sanitary landfill land area.

GOAL 6.0: The City will make every effort to preserve areas and artifacts of significant archaeological interest.

Policies

6.1 Ensure protection of significant archaeological and paleontological resources.

City of Orange General Plan Safety Element

The purpose of the Safety Element is to identify hazards and establish appropriate policy to minimize the exposure of Orange residents to the hazards. An emphasis is placed on typing land use decisions to public safety concerns. The Safety Element stresses the importance of emergency preparedness in reducing the risk of community upset in the event of a disaster.

The following goals and policies are relevant to the proposed UCI Medical Center LRDP project.

GOAL 1.0: The City will make every effort to identify the hazards associated with seismic and other geologic constraints.

Policies

1.1 Continue to identify and evaluate local seismic and geologic hazards.

GOAL 2.0: The City will make every effort to minimize flood-related risks and hazards.

Policies

2.1 Ensure that flood and flood-related hazards are considered in land use planning and decision-making.

GOAL 4.0: The City will make every effort to minimize the risks to life and property associated with producing, using, or transporting hazardous materials in the urban environment.

Policies

4.1 Assess any risks involving the disposal, transport, manufacture, and storage of hazardous materials in future land use planning and decision-making.

GOAL 5.0: The City will maintain an adequately manned and equipped police force and relevant crime prevention programs designed to protect residents and property from crime.

Policies

5.1 Promote and integrate the concept of "defensible space" into all phases of the planning and development process.

5.3 Ensure that the City of Orange Police Department has adequate resources to meet existing and projected demand.

GOAL 7.0: The importance of emergency preparedness will continue to be emphasized at all levels of City government.

Policies

7.2 Coordinate disaster preparedness with other public and private agencies.

City of Orange General Plan Noise Element

The purpose of the Noise Element is to identify noise sources in the community, to describe anticipated future noise levels, and to put forth policies and programs designed to minimize the effects of noise on people living and working in Orange. The city has one Noise Element goal.

GOAL 1.0: The City will continue to recognize the importance of protecting residents from unnecessary and harmful noise.

Policies

1.1 Consider noise impacts in future land use planning and decision making.

1.3 Protect identified noise sensitive land uses, especially for all residential neighborhoods, from significant noise sources.

City of Orange Zoning Code

As previously noted, the University of California is constitutionally exempt from local land use controls. The existing City of Orange zoning designations for the UCI Medical Center site are *R-1-6: Single Family Residential* and *Unzoned*. That portion of the site adjacent to The City Drive is zoned *R-1-6* (minimum lot area of 6,000 square feet) and the remainder of the site south of South Coast Drive is zoned *Unzone* (undefined in the Zoning Ordinance). The Zoning Ordinance identifies those uses that are: 1) permitted, 2) permitted by conditional use permit, 3) permitted as an accessory use, or 4) not permitted in a residential zone. Hospitals are not permitted on properties zoned *R-1-6*. It should be noted that the project site has been used as a medical facility since the late 1800s.

Commissions, Districts, and Authorities

South Coast Air Quality Management District

The designated air quality planning agency in Orange County is the South Coast Air Quality Management District (SCAQMD). Please refer to Section 3.2, Air Quality, for a discussion of the SCAQMD, the District's plan, and the proposed project's effects on the plan.

Southern California Association of Governments

The Southern California Association of Governments (SCAG) is a Joint Powers Agency established under California Government Code §6502 et seq. SCAG is designated as a Council of Governments (COG), a Regional Transportation Planning Agency (RTPA), and a Metropolitan Planning Organization (MPO) for the six-county region of Orange, Los Angeles, San Bernardino, Riverside, Ventura, and Imperial counties. The region encompasses a population exceeding 16.4 million persons in an area of more than 38,000 miles. For projects of regional significance, SCAG reviews proposed projects for consistency with regional plans.

As the region's Metropolitan Planning Organization, SCAG is mandated to a "continuing, cooperative, and comprehensive transportation planning process resulting in a Regional Transportation Plan and Regional Transportation Improvement Program..." As the designated Regional Transportation Planning Agency, SCAG is responsible for the preparation of the aforementioned Regional Transportation Plan and Regional Transportation Improvement Program. SCAG is also responsible for developing demographic projections and the integrated land use, housing, employment, and transportation programs, measures, and strategies portions of the South Coast Air Quality Management Plan for the South Coast Air Quality Management District. SCAG is responsible under the federal Clean Air Act for determining the conformity of projects, plans, and programs to the Air Plan. SCAG is also responsible for the review of all Congestion Management Plans for consistency with regional transportation plans. For projects of regional significance, SCAG reviews proposed projects for consistency with regional plans (source: CEQA Guidelines §15206).

Policies of SCAG's Regional Comprehensive Plan and Guide and the Regional Transportation Plan that are applicable to the proposed UCI Medical Center project are identified below. The Regional Comprehensive Plan and Guide (RCPG) is a regional plan designed as "...A guide for local governments to use in addressing regional issues; fulfilling local goals and objectives and satisfying state and federal requirements." The RCPG includes several chapters, including growth management, regional mobility, and housing.

Regional Comprehensive Plan and Guide

The Regional Comprehensive Plan and Guide (RCPG) is a regional plan designed as "...A guide for local governments to use in addressing regional issues; fulfilling local goals and objectives and satisfying state and federal requirements." The RCPG includes several chapters, including growth management, regional mobility, and housing.

SCAG Regional Comprehensive Plan and Guide: Growth Management Chapter. The Growth Management Chapter of SCAG's Regional Comprehensive Plan and Guide (adopted June 1994) contains goals to "...attain mobility and clean air goals and to develop urban forms that enhance quality of life, that accommodate a diversity of life styles, that preserve open space and natural resources, and that are aesthetically pleasing and preserve the character of communities, enhance the regional the regional strategic goal of maintaining the regional quality of life." Policies related to the proposed project are as follows:

3.01 The population, housing, and jobs forecasts, which are adopted by SCAG's Regional Council and that reflect local plans and policies, shall be used by SCAG in all phases of implementation and review.

3.03 The timing, financing, and location of public facilities, utility systems, and transportation systems shall be used by SCAG to implement the region's growth policies.

3.11 Support provisions and incentives created by local jurisdictions to attract housing growth in job rich subregions and job growth in housing rich subregions.

3.13 Encourage local jurisdictions' plans that maximize the use of existing urbanized areas accessible to transit through infill and redevelopment.

3.14 Support local plans to increase density of future development located at strategic points along the regional commuter rail, transit systems, and activity centers.

3.16 Encourage developments in and around activity centers, transportation corridors, underutilized infrastructure systems, and areas needing recycling and redevelopment.

3.17 Support and encourage settlement patterns which contain a range of urban densities.

3.18 Encourage planned development in locations least likely to cause environmental impact.

3.21 Encourage the implementation of measures aimed at the preservation and protection of recorded and unrecorded cultural resources and archaeological sites.

3.22 Discourage development, or encourage the use of special design requirements, in areas with steep slopes, high fire, flood, and seismic hazards.

3.23 Encourage mitigation measures that reduce noise in certain locations, measures aimed at preservation of biological and ecological resources, measures that would reduce exposure to seismic hazards, minimize earthquake damage, and to develop emergency response and recovery plans.

The Growth Management Goal to "...develop urban forms that avoid economic and social polarization promotes the regional strategic goal of minimizing social and geographic disparities and of reaching equity among all segments of society." Policies related to the proposed project are identified below.

3.27 Support local jurisdictions and other service providers in their efforts to develop sustainable communities and provide, equally to all members of society, accessible and effective services such as: public education, housing, health care, social services, recreational facilities, law enforcement, and fire protection.

3.7.3 THRESHOLDS OF SIGNIFICANCE

Thresholds of Significance

The following standard of significance is based on Appendix G of the CEQA Guidelines. For the purposes of this EIR, impacts would be considered significant if the following were to occur:

- Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the LRDP, general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect.

3.7.4 PROJECT IMPACTS

Impact 3.7-1: The proposed project would result in the displacement of some existing onsite land uses during demolition and construction. This is considered a less than significant impact.

Structures and Facilities

As discussed in Section 2, Project Description, the proposed project will provide building space, circulation, parking, and infrastructure improvements to support the patient care, teaching, and research missions of the UCI Medical Center and UCI College of Medicine. The proposed intensification of development at the UCI Medical Center will result in approximately 1,902,049 square feet of onsite facilities and 4,200 parking spaces, inclusive of new and retained development.

Implementation of Phase I and full LRDP implementation will require the temporary relocation of various uses within the Medical Center complex, demolition of certain buildings, and construction of new facilities. While the Medical Center will experience short-term construction effects (i.e., increase noise, fugitive dust, etc., which are discussed elsewhere in this EIR) and various hospital functions will be relocated during the various stages of construction, these temporary impacts are not considered significant. The existing Main Hospital will not be demolished prior to completion of the Phase I hospital facility. All hospital, administrative, and service functions will be moved to other buildings at the UCI Medical Center or other existing offsite facilities during construction. Upon full LRDP implementation, all of the existing onsite uses and functions will be

provided for in the new hospital or in other new buildings within the UCI Medical Center site. As a result, there will be ***no significant construction-related*** land use impacts.

As previously noted, the project site has been and will continue to be used for medical uses, teaching, and research. As such, the proposed project's land uses are considered compatible with existing land uses on site, and will not result in a substantial adverse change in the existing land use patterns.

Parking Structures and Parking Lots

As discussed above in Section 2 and identified in Table 3.7-1, the Medical Center has 1,590 parking spaces distributed among the Northern Parking Structure, South Parking Structure, and various surface parking lots. As a part of the Phase I project, 418 onsite parking spaces will be removed associated with the demolition of the North Parking Structure and surface parking areas. While 260 surface parking spaces will be constructed at the Medical Center as a part of Phase I, offsite parking will be required to provide adequate parking for visitors, patients, faculty, staff, and medical students. Additionally, offsite parking will be available at one or more of the offsite replacement parking lots identified in Table 2-12. With the use of offsite parking, there will be ***no significant impacts*** associated with parking.

Site	Address	Parking Spaces
Caltrans Lot	Northeast corner of Chapman Avenue and The City Drive, City of Orange	452
State College Warehouse	2040 State College Boulevard, City of Anaheim	200
Equity Partners	Chapman Avenue/Manchester Avenue, City of Orange	200
Edison Field	State College Boulevard, City of Anaheim	418

As a part of full LRDP implementation, one or two additional parking structures (or a combination of surface, subsurface, and structured parking) and the expansion of an existing parking structure are assumed. One new parking structure is conceptually proposed to be constructed in the southeastern portion of the Medical Center. This parking structure will accommodate approximately 1,600 parking spaces for employees, faculty, and staff at the UCI Medical Center. A second new parking structure is proposed to be located in the eastern portion of the Medical Center site. It is envisioned that this parking structure will accommodate 1,100 vehicles. The existing 665-space, South Parking Structure will also be expanded to the west to provide 200 additional parking spaces. Approximately 50 additional surface parking spaces will be constructed at the Medical Center. Once completed, the proposed project would have 4,200 parking spaces and could accommodate all parking demands for the Medical Center at the project site. Full LRDP implementation will result in ***no significant parking impacts***.

During construction, there will be a short-term, temporary reduction in parking. However, construction staging planning will ensure that the maximum possible number of parking spaces are available at all times at the Medical Center and at the offsite parking lots previously identified. Please also refer to Section 3.11, Transportation and Traffic, of this EIR.

Other Onsite Land Uses

As discussed above, various easements and uses outside the ownership of the University are located within the Medical Center. A majority of these easements will not be affected by the proposed project. A portion of a United States Department of Defense military jet fuel pipeline and easement is located within the Medical Center site. An eight-inch-diameter jet fuel line runs underground in a generally north-to-south direction at the north and east perimeters of the Medical Center property. The pipeline originates in the City of Norwalk and terminates at the Marine Corps Air Station, El Toro. The line is no longer in use and has been filled with an inert gas by a contractor to the Department of Defense. As a part of the proposed Phase I project, the jet fuel line will be moved 10 to 30 feet to the north and east of its existing location on the north and east side of the new hospital respectively. The relocation will require standard infrastructure construction practices of trenching, shoring, installing the new section of pipe, and backfilling, and a revision to the easement.

Impacts to the site services, including water, sewer, natural gas, electricity, and telecommunications, are discussed in Section 3.12. The identification of impacts and appropriate mitigation measures for these impacts will occur with the assistance of the individual service providers, and will continue during the final design of project-specific developments on the Medical Center campus. ***No significant impacts*** are anticipated.

Mitigation Program

No mitigation is required.

Impact 3.7-2: The proposed project is considered compatible with surrounding land uses, with the exception of the proposed parking structure to the Orange County Juvenile Hall.

New onsite structures will be designed to be similar in style, function, and character to existing facilities. While the proposed project will include a substantial number of new buildings, many of which are taller than the ones they are replacing, this intensification is not considered significant because of the lack of scenic views or view corridors, the consistency in type of development, and overall urban character of the project area. The addition of wider, tree-lined internal streets and large courtyard areas throughout the property will provide the Medical Center with a sense of space and building order not currently offered at the Medical Center.

Land Uses to the North. Surrounding land uses to the north include Chapman Avenue, a vacant parcel of land owned by Caltrans (an offsite Phase I parking option), and I-5. The proposed project will intensify uses on the Medical Center but will not result in a change of use. The Medical Center will continue to house medical, research, and teaching facilities. The project is considered compatible with the uses to the north. ***No significant land use impacts*** are anticipated.

Land Uses to the South. South of the Medical Center are a variety of governmental/institutional uses. The proposed project will intensify uses on the Medical Center. As a part of Phase I, existing Building Nos. 41, 43, 44, 48, and 57 will be demolished and one 75,000 gsf two-story modular building will be constructed on the site of these buildings. The replacement of several one-story buildings with one single-story building is considered compatible. As a part of full LRDP implementation, Building Nos. 50, 51, and 52 will be demolished. The South Parking Structure will be expanded to the west, and new buildings and a seven-story parking structure are proposed for construction. Residential areas west of The Block at Orange and residents at the Theo Lacy Facility and Orangewood Children's Home further to the south of the Medical Center will not see

the new facilities proposed at the Medical Center because of the distance between these land uses and intervening structures. Therefore, intensification of development is considered ***less than significant***. However, the Orange County Juvenile Hall is located immediately contiguous to the UCI Medical Center where a seven-story parking structure is proposed for construction contiguous to the one-story Orange County Juvenile Hall buildings, which include living quarters. The adjacency of the existing Juvenile Hall (residential use) to the proposed parking structure is not considered compatible and considered a ***significant impact***.

Land Uses to the East. Interstate 5 and the Santa Ana River serve to buffer the project site from existing land uses east of the freeway. Land uses east of I-5 include a mix of commercial and residential uses. ***No significant land use impacts*** are expected.

Land Uses to the West. The project site is located east of The Block at Orange. The City Drive, an eight-lane roadway separates the project site from office, retail, and hotel land uses to the west. Development of the proposed project will not constitute a new use in this area, and are not be considered incompatible with existing and planned land uses to the west. Planned uses in the area include new office buildings within The Block development. While the proposed project will be visible from the higher floors of the development, they will not be incompatible with the proposed use. As a result, ***no significant land use impacts*** will occur.

Mitigation Program

Please refer to Mitigation Measure 3.1-1 in Section 3.1, Aesthetics.

Impact 3.7-3: The proposed project does not conflict with related planning programs. No impacts are anticipated.

City of Orange General Plan

As previously noted, the UCI Medical Center is constitutionally exempt from local land use controls. However, the goals, objectives, and policies of the City of Orange General Plan, relevant to the UCI Medical Center LRDP project, were reviewed. The analysis involved determining the consistency of the proposed project on a policy-by-policy basis. The following discussion summarizes the findings of this analysis. In summary, ***no impacts*** will occur.

Land Use Element. The focus of the General Plan Land Use Element policies is to ensure that land uses are located and implemented in a manner that provides a balanced and functional mix of development consistent with the long-range goals, objectives, and values of the city. The proposed project is considered consistent with the goals and policies of the Land Use Element. The project will provide additional employment opportunities, and provide infrastructure and transportation improvements to support the intensification of site development.

The proposed project is consistent with the site's General Plan land use designations of *Public Facilities.* The proposed intensification of the site will remain under the maximum floor area ratio (FAR) of 2.0. The project's proposed FAR will be 0.73.

Circulation Element. The City of Orange General Plan Circulation Element is intended to provide for a safe, convenient, and efficient circulation system for the city. As a part of the proposed project, a subregional traffic model and a traffic study were prepared to address existing, planned, and proposed development in the western portion of the City of Orange. The intent of the traffic study was to identify potential project-related and cumulative development traffic impacts and determine feasible and adequate measures to mitigate for significant traffic impacts. The project

will be responsible for the mitigation of its traffic impacts. Further, the project will provide for adequate parking to serve the Phase I and full LRDP implementation projects. Please refer to Section 3.11.

Housing Element. While the project does not include the construction of new housing, it will not preclude the City of Orange from fulling its goal of promoting the development of affordable housing.

Open Space and Conservation Element. This EIR addresses issues of concern identified in the Open Space and Conservation Element including, but not limited to, air quality, surface and groundwater resources, water quality, and solid waste. Please refer to Sections 3.2, 3.5, and 3.12. Mitigation set forth in the Initial Study will allow for the protection of prehistoric archaeological resources; the project site does not contain any significant historical resources (see Section 3.3).

Safety Element. The purpose of the Safety Element is to identify hazards and establish appropriate policy to minimize the exposure of Orange residents to the hazards. One of the primary purposes of the UCI Medical Center LRDP project is to ensure that onsite structures meet the Alfred E. Alquist Hospital Facilities Seismic Safety Act of 1983 (State Senate Bill [SB] 1953) requirements for seismic stability. The proposed project will not cause structures to be constructed in a flood hazard area. The existing Medical Center uses hazardous materials associated with medical procedures and laboratory research; these activities will continue with the intensification of the project site. The Medical Center has existing programs in place associated with the disposal, transport, and storage of hazardous materials. Please refer to Section 3.5. As addressed in Section 3.10, the UCI Police Department's Medical Center Security Department provide police protection services to the Medical Center; this practice will continue as a part of the proposed project.

Noise Element. Section 3.8 of this EIR includes a noise assessment for the project, including the identification of noise sensitive land uses and the mitigation of noise impacts.

Mitigation Program

No mitigation is required.

Impact 3.7-4: Existing and proposed land uses are inconsistent with the City of Orange zoning designation for the project site. No impacts are anticipated.

City of Orange Zoning Code

The UCI Medical Center site has zoning designations of *R-1-6: Single Family Residential* and *Unzoned*. That portion of the site adjacent to The City Drive is zoned *R-1-6* (minimum lot area of 6,000 square feet) and the remainder of the site south of South Coast Drive is zoned *Unzone*. Hospitals are not permitted on properties zoned *R-1-6*. The Zoning Ordinance does not define *Unzoned*.

While the city's zoning designations for the site doe not permit hospital and medical uses, the site has been used as a medical facility since the late 1800s. The University is constitutionally exempt from local land use controls per Article IX Section 9. As such, a rezone is not required as a part of the proposed project. As such, ***no impacts*** will occur.

Mitigation Program

No mitigation is required.

Impact 3.7-5: The project is consistent with applicable SCAG policies. No impacts are anticipated.

Commissions, Districts, and Authorities

South Coast Air Quality Management District

An assessment of the project's consistency with the South Coast Air Quality Management District's Air Quality Management Plan and significance criteria is provided in Section 3.2, Air Quality.

SCAG Regional Comprehensive Plan and Guide: Growth Management Chapter

The proposed project is considered consistent with the Growth Management Chapter policies previously identified, resulting in ***no impacts***. Following is an explanation of this consistency determination.

Policies 3.01 and 3.11. This EIR has used population, housing, and jobs forecasts available from SCAG, the U.S. Bureau of the Census, State Department of Finance, the Center for Demographic Research at California State University, Fullerton, and the City of Orange. The project will result in additional employment opportunities associated with the Medical Center. Please refer to Section 3.9.

Policies 3.03, 3.13, 3.14, 3.16, 3.17, and 3.27. The proposed project is considered an in-fill project that will allow for the intensification of the existing site near major roadway and freeway corridors, retail, entertainment, and dining opportunities, and residential areas. The project will use existing infrastructure (including roadways and utilities), with upgrades to existing facilities and installation of new infrastructure as identified in this EIR and determined necessary by the affected service purveyors. Transit service is and will continue to be provided in the project area.

Policies 3.18, 3.21, 3.22, and 3.23. The site is currently in use as a medical center. As such, there are limited natural environmental resources on the project site. The EIR has identified measures to mitigate significant effects, and to phase the project such that existing and planned infrastructure can accommodate the development and provide for a sustainable community. Potential impacts of the project are discussed in Sections 3.1 through 3.12 of this EIR.

Mitigation Program

No mitigation is required.

3.7.5 CUMULATIVE IMPACTS

Impact 3.7-6: The project is considered compatible with existing, planned, and foreseeable future development. No significant impacts are expected.

The cumulative land use area is defined as those projects assumed in the City of Orange General Plan, as well as the general plans of the cities of Orange, Anaheim, Garden Grove, and Santa Ana that could reasonably be affected by or affect the proposed project because of their geographical

distance or use. For example, new residents may require medical services that could be provided at the UCI Medical Center. Specific proposed and approved projects identified by these jurisdictions are identified on Tables 3-1 through 3-3.

With the exception of the Anaheim Resort Third Theme Park project (theme park, hotel, retail, dining, and entertainment uses and parking) and the Anaheim Gateway project (335,000 sq.ft. of retail, restaurant, and service station uses on former drive-in theater site), located approximately 2.5 miles and 4.0 miles from the project site, respectively, there are no additional projects in the area that are reasonably foreseeable that would not have been addressed in the General Plans for the cities of Orange, Anaheim, Garden Grove, and Santa Ana. The UCI Medical Center LRDP project would not be incompatible with or adversely affect the implementation or ongoing use of these projects as proposed. Conversely, these proposed City of Anaheim projects are not anticipated to adversely impact the UCI Medical Center LRDP project. Project-specific mitigation would be required, where necessary, to address land use impacts related to the proposed project, as well as development as set forth in the cities' General Plans and projects subject to an amendment to a General Plan.

As previously addressed, the project is considered compatible with existing, planned, and reasonably foreseeable future development projects in the project study area. As defined in CEQA Guidelines §15130, a cumulative impact consists of an impact which is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts. "An EIR should not discuss impacts which do not result in part from the project evaluated in the EIR" (source: CEQA Guidelines §15130(a)(1)). As such, the project would not contribute to any cumulative land use impacts and ***no significant impacts*** are anticipated.

Other planned and permitted future development in the surrounding area could allow for the ongoing intensification of urban land uses, including office, retail, and institutional. Such uses have been anticipated by the City of Orange and will further the goals and policies of the city as set forth in the City of Orange General Plan. As such, ***no cumulative impacts*** are anticipated.

Mitigation Program

No mitigation is required.

3.8 NOISE

A noise study was prepared for the UCI Medical Center LRDP by Mestre Greve Associates. Traffic volume information used in this study to project traffic noise levels were provided by Austin-Foust Associates, Inc. The noise study is summarized below, and the study is included in its entirety as Appendix E of this EIR. This section also addresses potential vibration effects.

3.8.1 TERMINOLOGY

To account for the varying nature of environmental noise, noise scales consider that the potential effect of noise upon people is largely dependent upon the total acoustical energy content of the noise, as well as the time of day when the noise occurs. Common measures along these scales are as follows:

Leq, the equivalent energy noise level, is the average acoustic energy content of noise, usually measures over one hour. Therefore, Leq of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure. Leq values do not include a penalty for noise that may occur at night.

Ldn, the day-night average noise level, is a 24-hour-average Leq with a 10 dBA penalty added to noise occurring during the hours of 10 p.m. to 7 a.m. to account for the greater nocturnal noise sensitivity of people.

CNEL, a day-night average noise level, is a 24-hour-average Leq with a 5 dBA penalty added to noise occurring during the hours of 7 p.m and 10 p.m. and a 10 dBA penalty added to noise occurring during the hours of 10 p.m. and 7 a.m.

Other noise measures provide information on the range of instantaneous noise levels experienced over time. Examples include:

Lmax is the peak instantaneous noise level experienced during a given period of time.

L_n values indicate that noise levels were exceeded “n” percent of the time. For example, L_{25} is the noise level that was exceeded 25 percent of the time during a measurement period (e.g., 15 minutes in an hour measurement period).

3.8.2 METHODOLOGY

Sound is technically described in terms of the loudness (amplitude) and frequency (pitch) of the sound. The standard unit of measurement of the loudness of sound is the decibel (dB). Decibels are based on a logarithmic scale. In terms of human response to noise, a sound 10 dB higher than another is judged to be twice as loud, a 20 dB higher is four times as loud, etc. Everyday sounds normally range from 30 dB (very quiet) to 100 dB (very loud). Generally, noise increases of less than 3 dB are not detectable by the human ear.

Because the human ear is not equally sensitive to sound at all frequencies, a special frequency-dependent rating scale has been devised to relate noise to human sensitivity. The A-weighted decibel scale (dBA) performs this compensation by discriminating against frequencies in a manner approximating the sensitivity of the human ear. Community noise levels are measured in terms of the "A-weighted decibel." Table 3.8-1 provides examples of various noises and their typical A-weighted noise level.

TABLE 3.8-1
TYPICAL A-WEIGHTED NOISE LEVELS[a.]

dB(A)	Overall Level: Sound Pressure Level[b.]	Community (Outdoor)	Home or Industry	Loudness in Relation to 70 dBA
130		Military Jet Aircraft Take-Off With After Burner From Aircraft Carrier @ 50 ft. (130)	Oxygen Torch (121)	120 dB(A) 32 Times as Loud
120 110	Uncomfortably Loud	Turbo-Fan Aircraft @ Take Off Power @ 200 Ft. (110)	Riveting Machine (110) Rock-N-Roll Band (108-114)	110 dB(A) 16 Times as Loud
100		Jet Flyover @ 1000 Ft. (103) Boeing 707 DC-8 @ 6080 Ft. Before Landing (106) Bell J-2A Helicopter @ 100 Ft. (100)		100 dB(A) 8 Times as Loud
90	Very Loud	Power Mower (96) Boeing 707 DC-9 @ 6,080 Ft. Before Landing (97) Motorcycles @ 25 Ft. (90)	Newspaper Press (97)	90 dBA (4) Times as Loud
80		Car Wash @ 20 Ft. (89) Prop Airplane Flyover @ 1000 Ft. (88) Diesel Truck, 40 MPH @ 50 Ft. (84) Diesel Train, 45 MPH @ 100 Ft. (83)	Food Blender (88) Milling Machine (85) Garbage Disposal (80)	80 dB(A) 2 times as Loud
70	Moderately Loud	High Urban Ambient Sound (80) Passenger Car, 65 MPH @ 25 Ft. (77) Freeway @ 50 Ft. From Pavement Edge, 10:00 AM (76 + or - 6)	Living Room Music (76) TV-Audio, Vacuum Cleaner)	70 dB(A)
60		Air Conditioning Unit @ 100 Ft. (60)	Cash Register @ 10 Ft. (65-70) Electric Typewriter @ 10 Ft. (64) Dishwasher (Rinse) @ 10 Ft. (60) Conversation (60)	60 dB(A) ½ as Loud
50	Quiet	Large Transformers @ 100 Ft. (50)		50 dB(A) 1/4 as Loud
40		Bird Calls (44)		40 dB(A) 1/8 as Loud
20	Just Audible	Desert at Night (dB(A) Scale Interrupted)		
10	Threshold of Hearing			

a. Numbers in parentheses are the A-scale weighted sound levels for that noise event.
b. Reference: 0.0002 Mirobars.
c. Human judgement of different sound levels.

Source: Reproduced from Melville C. Branch and R. Dale Beland, "Outdoor Noise in the Metropolitan Environment," Published by the City of Los Angeles, 1970, page 2.

Several rating scales have been developed for measurement of community noise. These account for the parameters of noise that have been shown to contribute to the effects of noise on humans: the variety of noises found in the environment; the variations in noise levels that occur as a person moves through the environment; and the variations associated with the time of day. They are designed to account for the known health effects of noise on people described previously. Based on these effects, the observation has been made that the potential for a noise to impact people is dependent on the total acoustical energy content of the noise. A number of noise scales have been developed to account for this observation. Two of the most commonly used noise scales are

the Equivalent Noise Level (LEQ) and the Community Noise Equivalent Level (CNEL). Noise limits set forth in the City of Orange General Plan Noise Element are addressed in CNEL.

CNEL is the predominant rating scale used in California for land use compatibility assessment. The CNEL scale represents a time weighted 24-hour average noise level based on the A-weighted decibel. "Time weighted" means that noise that occurs during certain sensitive time periods is penalized in noise analyses. Noises occurring in the evening time period (7 p.m. to 10 p.m.) are penalized by 5 dBA and nighttime (10 p.m. to 7 a.m.) noises are penalized by 10 dBA. A CNEL noise level may be reported as a "CNEL of 60 dBA," "60 dBA CNEL," or simply "60 CNEL." Typical noise levels in terms of the CNEL scale for different types of communities are presented in Exhibit 3.8-1.

Noise Criteria

The City of Orange General Plan Noise Element noise standards for residential land uses state that the exterior noise exposure level shall not exceed 65 CNEL and the interior noise level shall not exceed 45 CNEL. The City of Orange Noise Ordinance (Chapter 8.24 of the City of Orange Municipal Code) establishes exterior and interior noise standards that protect areas categorized as residential uses (e.g., single-family and multi-family residences, jail facilities, hotels). Table 3.8-2 presents the City of Orange Noise Ordinance standards. The Noise Ordinance is designed to control unnecessary, excessive, and annoying sounds from sources on private property by setting limits that cannot be exceeded at adjacent properties. The Noise Ordinance requirements cannot be applied to mobile noise sources such as heavy trucks when traveling on public roadways. Control of the mobile noise sources on public roads is preempted by federal and state laws.

TABLE 3.8-2
CITY OF ORANGE NOISE ORDINANCE STANDARDS

Maximum Time of Exposure	Noise Metric	Noise Level not to be Exceeded	
		7 a.m. to 10 p.m. (daytime)	10 p.m. to 7 a.m. (nighttime)
Exterior Noise Standards			
30 minutes/hour	L50	55 dBA	50 dBA
15 minutes/hour	L25	60 dBA	55 dBA
5 minutes/hour	L8.3	65 dBA	60 dBA
1 minute/hour	L1.7	70 dBA	65 dBA
Any Period of Time	Lmax	75 dBA	70 dBA
Interior Noise Standards			
5 minutes/hour	L8.3	55 dBA	45 dBA
1 minute/hour	L1.7	60 dBA	50 dBA
Any Period of Time	Lmax	65 dBA	55 dBA
Source: City of Orange Noise Ordinance.			

Vibration

Vibration is an unique form of noise that is carried through structures and the earth; most noise forms are carried through the air. Therefore, vibration is generally felt and heard. Some vibration effects are caused by noise, for example, the rattling of windows can be caused by truck pass-bys. Ths phenomenon is related to the coupling of the acoustic energy at frequencies that are close to the resonant frequency of the material being vibrated. Typically, ground-born vibration generated by man-made activities attenuates rapidly with distance from the source of the vibration. Vibration can be caused by construction equipment working at or below ground level. Certain uses, such as residences and specific hospital uses, are considered vibration-sensitive because vibrations received by these receptors can be annoying or disruptive to sensitive activities.

3.8.3 EXISTING CONDITIONS

Noise Measurements

The primary noise generators in the project vicinity are vehicles on I-5, Chapman Avenue, and The City Drive. Other sources of noise in the area include vehicles in parking lots and mechanical equipment. To determine the existing noise environment at the project site, ambient noise measurements were taken on July 31, 2001 between 3:00 p.m. and 4:30 p.m. at two locations. Measurement Site 1 is located near the northeastern boundary of the project site along I-5. I-5 is approximately 10 feet above the elevation of the Medical Center; there is a 10-foot-high soundwall located along I-5. This wall significantly reduces freeway traffic noise. Traffic noise from I-5 and vehicles in the parking lot are the primary sources of noise at Site 1. Measurement Site 2 is located along the southern boundary of the Medical Center near the Lamoreaux Justice Center (i.e., jail). The primary noise sources are vehicles in the parking lot, mechanical equipment at the Justice Center, and vehicles traveling on I-5.

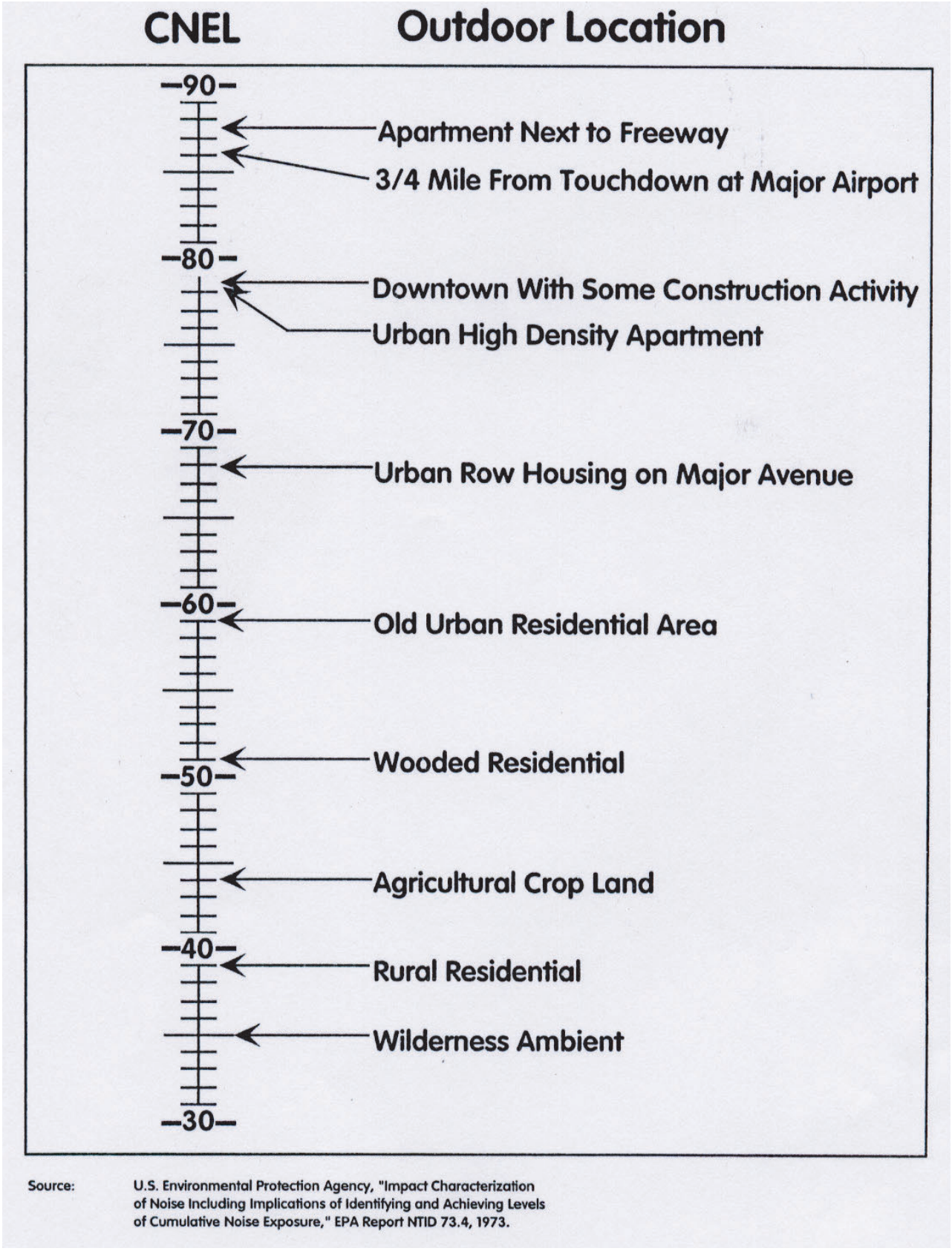
Fifteen minute measurements were made at each of the four measurement sites. The measurements were made with a Brüel & Kjær Modular Precision Sound Level Meter, Type 2236. The sound meters were calibrated before and after each measurement series with calibration traceable to the National Institute of Standards and Technology. Wind speeds during the time of measurements were light (zero to five miles per hour). Noise measurement results are provided in Table 3.8-3.

TABLE 3.8-3
EXISTING NOISE MEASUREMENTS

Site	Leq	Lmax	Lmin
1	60	65	56
2	58	69	54
Source: Mestre Greve Associates, 2001.			

Roadway Noise Levels

An estimate of highway noise levels in terms of CNEL was computed for the roadways affected by project traffic. The Highway Noise Model published by the Federal Highway Administration (*FHWA Highway Traffic Noise Prediction Model*, FHWA-RD-77-108, December 1978) was used as well as the CALVENO noise emission curves developed by Caltrans to better model the California vehicle mix.



Source: U.S. Environmental Protection Agency, "Impact Characterization of Noise Including Implications of Identifying and Achieving Levels of Cumulative Noise Exposure," EPA Report NTID 73.4, 1973.

Typical Outdoor Noise Levels **Exhibit 3.8-1**

UCI Medical Center LRDP EIR
University of California, Irvine

N Scale: Not to Scale
Source: U.S. Environmental Protection Agency, EPA Report, 1973.

BonTerra CONSULTING

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Distances to the existing 60, 65, and 70 CNEL contours for the roadways in the project vicinity are identified in Table 3.8-4. The CNEL at 100 feet from the roadway centerline is also presented. These represent the distance from the centerline of the road to the contour value shown. The values given in the table represent existing noise levels and do not take into account the effect of any existing noise barriers or topography that may affect ambient noise levels.

TABLE 3.8-4
EXISTING ROADWAY TRAFFIC NOISE LEVELS

Roadway Segment	CNEL Level at 100 Feet (dBA)	Distance to CNEL Contour From Centerline of Roadway (feet)		
		70 CNEL	65 CNEL	60 CNEL
Haster Street				
Katella Avenue to Orangewood Avenue	62.4	RW	67	144
Orangewood Ave. to Chapman Avenue	64.0	40	86	184
Chapman Avenue to Lampson Avenue	61.9	RW	62	134
Lampson Ave. to Garden Grove Blvd.	63.5	37	79	171
Garden Grove Blvd. to SR-22 ramp	64.3	41	89	192
Fairview Street				
South of Garden Grove Boulevard	66.6	59	127	274
Lewis Street				
Orangewood Ave. to Chapman Avenue	59.8	RW	45	97
Chapman Ave. to City Parkway	62.2	RW	65	141
City Parkway to Lampson Avenue	62.2	RW	65	141
Lampson Avenue to SR-22	61.9	RW	62	134
SR-22 to Garden Grove Boulevard	61.6	RW	59	127
Manchester Avenue				
South of Orangewood Avenue	50.8	RW	RW	RW
North of Chapman Avenue	49.3	RW	RW	RW
South of Chapman Avenue	55.5	RW	RW	50
City Boulevard				
North of The Block Drive	56.0	RW	RW	54
Anaheim Boulevard				
Orangewood Avenue to The City Drive	50.8	RW	RW	RW
State College Avenue				
Howell Avenue to Katella Avenue	65.2	48	104	223
Katella Avenue to Gene Autry Way	65.5	50	109	234
Gene Autry Way to Orangewood Ave.	65.4	49	06	229
Orangewood Avenue to I-5 ramps	65.2	48	104	223
I-5 ramps to I-5 ramps	65.5	50	109	234
I-5 ramps to Chapman Avenue	65.8	53	113	244
The City Drive				
Chapman Avenue to Dawn Way	64.3	RW	89	192
Dawn Way to Justice Center Way	64.0	RW	85	184
Justice Ctr. Way to Entertainment Ave.	64.1	RW	87	188
Entertainment Ave. to The Block Drive	64.4	RW	91	196
The Block Drive to SR-22 ramps	65.3	48	104	224
SR-22 ramps to SR-22 ramps	65.3	48	104	224
SR-22 ramps to Garden Grove Blvd.	63.0	RW	73	158
Rampart Street				
Orangewood Ave. to Chapman Avenue	58.5	RW	37	80
Katella Avenue				
Lewis St. to State College Avenue	65.5	50	109	234
State College Ave. to Howell Avenue	65.8	53	113	244
Howell Avenue to SR-57 ramps	67.5	68	146	315
SR-57 ramps to SR-57 ramps	66.9	62	134	288
East of SR-57 ramps	66.2	56	120	259

TABLE 3.8-4 (continued)
EXISTING ROADWAY TRAFFIC NOISE LEVELS

Roadway Segment	CNEL Level at 100 Feet (dBA)	Distance to CNEL Contour From Centerline of Roadway (feet)		
		70 CNEL	65 CNEL	60 CNEL
Gene Autry Way				
Lewis Street to State College Avenue	50.8	RW	RW	RW
Orangewood Avenue				
Haster Street to Lewis Street	63.3	RW	77	166
Lewis St. to State College Avenue	63.1	RW	74	160
State College Ave. to Rampart Street	64.9	46	99	213
Rampart Street to SR-57 ramps	64.9	46	99	213
SR-57 ramps to SR-57 ramps	65.2	48	104	223
East of SR-57 ramps	65.7	51	111	239
Chapman Avenue				
Haster Street to Lewis Street	65.2	48	104	223
Lewis St. to Manchester Avenue	65.7	51	111	239
Manchester Avenue to The City Drive	66.2	56	120	259
The City Drive to I-5 ramps	66.2	56	120	259
I-5 ramps to Rampart Street	66.1	55	118	254
Rampart Street to I-5 ramp	66.6	59	127	274
I-5 ramp to SR-57 ramps	65.2	48	104	223
SR-57 ramps to SR-57 ramps	65.2	48	104	223
East of SR-57 ramps	65.4	49	106	229
The City Parkway				
East of Lewis Street	56.3	RW	RW	57
Lampson Avenue				
Haster Street to Lewis Street	60.8	RW	52	112
Lewis St. to City Boulevard	56.6	RW	RW	59
City Boulevard to The City Drive	58.5	RW	37	80
Garden Grove				
West of Haster Street	65.8	53	113	244
Haster Street to SR-22	66.6	59	127	274
SR-22 to Lewis Street	64.7	45	96	207
Lewis Street to The City Drive	64.6	43	94	202
The City Drive to Bristol	64.7	45	96	207
SR-22				
West of Garden Grove Boulevard	79.4	423	910	1,961
Garden Grove Blvd. to The City Drive	79.6	437	942	2,030
The City Drive to I-5/SR-57	79.8	449	968	2,085
East of I-5/SR-57	78.7	378	814	1,754
I-5				
North of State College Avenue	79.6	438	944	2,035
State College Ave. to SR-22/SR-57	80.0	463	998	2,150
South of SR-22/SR-57	79.0	401	863	1,859
SR-57				
North of Katella Avenue	80.2	480	1,034	2,229
Katella Avenue to Orangewood Avenue	80.1	468	1,009	2,175
Orangewood to Chapman Avenue	80.0	465	1,002	2,159
Chapman Avenue to I-5/SR-57	79.8	448	965	2,080

RW: Contour falls within right-of-way

Source: Mestre Greve Associates, August 2001.

Vibration Environment

Aside from seismic events, the primary source of existing ground-borne vibration is the vicinity of the UCI Medical Center site is from roadway traffic. Vibration generated by individual heavy truck pass-byes tend to have minor effects on nearby land uses, except for those uses that house extremely vibration-sensitive equipment. Roadway traffic occurs along the major roadways and highway near the site, including The City Drive, Chapman Avenue, and I-5. Vehicular movement on the site, including within the parking structures, can be a source of vibration.

3.8.4 THRESHOLDS OF SIGNIFICANCE

The following standards of significance are based on Appendix G, Environmental Checklist, of the CEQA Guidelines. For the purposes of this EIR, impacts would be considered significant if the following were to occur:

- Exposure of persons to or generation of noise levels in excess of standards established in any applicable plan or noise ordinance, or applicable standards of other agencies.

- Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.

- A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.

- A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

For purposes of the UCI Medical Center project, the University is using the City of Orange Noise Ordinance significance criteria. The Noise Ordinance is designed to control unnecessary, excessive, and annoying sounds generated from stationary sources impacting an adjacent property. The Noise Ordinance is identified earlier in Table 3.8-2, and contains the following noise criteria:

- The daytime (7 a.m. to 10 p.m.) noise level for a stationary noise source measured at an outdoor area of a residential property cannot exceed 75 dBA; 70 dBA for more than one minute of any hour; 65 dBA for more than five minutes of any hour; 60 dBA for more than 15 minutes of any hour; or 55 dBA for more than 30 minutes of any hour. The nighttime (10 p.m. to 7 a.m.) noise levels for a stationary noise source measured at an outdoor area of a residential property are penalized by 5 dB to reflect the increased sensitivity to noise occurring during this time period.

- The noise level for a stationary source measured at an indoor area of a residential property cannot exceed 65 dBA; 60 dBA for more than one minute of any hour; and 55 dBA for more than five minutes of any hour. The nighttime noise levels are penalized by 10 dB for the indoor noise standards.

The City of Orange does not have standards for hospital or medical center uses. However, the applicable noise standards shall be based on the city's residential use noise standards. Specifically, the following noise standards shall apply:

- The interior noise levels of patient rooms shall not exceed 45 CNEL; private offices and examination rooms shall not exceed 50 CNEL; and general office, circulation, reception, and lobby areas shall not exceed 55 CNEL.

- The exterior noise levels of locations such as balconies, terraces, outdoor dining areas, park, and playground area shall not exceed 65 CNEL.

Offsite impacts from onsite activities–temporary and long-term–are measured against the city's Noise Ordinance criteria. Construction activities, parking lot activity, mechanical equipment, and any loading dock activity must comply with the Noise Ordinance. Orange Municipal Code Chapter 8.24 requires significant noise-generating construction activities be limited to daytime hours (i.e., 7 a.m. to 8 p.m.), Monday through Saturdays, when occurring near residential areas.

Long-term offsite impacts from traffic noise are measured against two criteria. Both criteria must be met for a significant impact to occur. First, project traffic must cause a noise level increase greater than 3 dB CNEL on a roadway segment adjacent to a noise sensitive land use. Second, the resulting "future with project" noise level must exceed the criteria level for the noise sensitive land use. For example, the criteria level is 65 CNEL for residential land uses.

For purposes of the UCI Medical Center Long Range Development Plan project, "excessive vibration" is defined as follows in Table 3.8-5:

TABLE 3.8-5
VIBRATION STANDARDS

Area	Vibration Limits[a.]
Operating Rooms	0.0040
MRI Rooms	0.0005
Residential Areas	0.0500
Sources: American Society of Heating, Refrigerating and Air-Conditions Engineers (ASHRAE), 1995 ASHRAE Handbook, Chapter 43, as sourced in the Santa Monica-UCLA Medical Center Facilities Reconstruction Plan EIR, November 1998.	

3.8.5 PROJECT AND CUMULATIVE IMPACTS

Potential noise impacts are commonly divided into two groups: short-term construction and long-term operational impacts. Short-term impacts are usually associated with noise generated by construction activities. Long-term impacts are further divided into impacts on surrounding land uses generated by the proposed project and those impacts which occur at a project site.

The following analysis addresses both the project-specific and cumulative noise impacts associated with future development. Where short-term demolition and construction activities can result in direct, project-specific impacts, long-term impacts take into consideration project-specific and cumulative development assumptions and therefore occur in a cumulative context. For example, an individual would not discriminate between vehicular noise increases associated with the UCI Medical Center and non-project-related vehicular noise.

As noted in the thresholds of significance for cumulative development, a project impact occurs (for long-term offsite impacts associated with traffic noise) when 1) the project's traffic causes a noise level increase greater than 3 db CNEL on a roadway segment adjacent to a noise sensitive land

use and 2) the resulting "future with project" noise level exceeds the criteria level for the noise sensitive land use.

Cumulative development assumptions are based on the West Orange Circulation Study Model (traffic model) prepared by Austin-Foust Associates, Inc. to address existing and future traffic conditions in the western portion of the City of Orange. The traffic model study area includes the City Center area, the UCI Medical Center, the Uptown Specific Plan area, and portions of the cities of Anaheim and Garden Grove. As applicable to the proposed UCI Medical Center LRDP project, the traffic model provides average daily traffic and a.m. and p.m. peak hour volumes for existing conditions (year 2000 land use and traffic count data), year 2010, and year 2020 that respond to anticipated changes in land use and circulation during this time period. Travel patterns contained in the traffic model are extracted from the Orange County Traffic Analysis Model (OCTAM 3.01). As such, regional travel patterns from the regional modeling database were incorporated into the project traffic model to provide both external and thru-trip patterns for the study area.

Impact 3.8-1: Demolition and construction activities associated with the proposed project would result in short-term noise increases.

Noise generated by construction equipment, including trucks, graders, bulldozers, concrete mixers, and portable generators, can reach high levels. Demolition and site preparation (grading) generate the highest levels of noise during construction. The peak noise level for most of the equipment used during the construction is 70 to 95 dBA at a distance of 50 feet. At 200 feet, the peak construction noise levels range from 58 to 83 dBA. At 400 feet, the peak noise levels range from 52 to 77 dBA.

Demolition and construction activities will occur while the Medical Center facilities, including the Main Hospital, are operational. Activities occurring directly adjacent to the occupied buildings will generate significant noise levels. The majority of the activity will generate noise levels below 90 dBA with average noise levels in the 75 to 80 dBA range during periods of peak activities. Indoor noise levels will be approximately 12 dB lower for rooms with open windows and 20 dB lower for rooms with closed windows.

The Orange County Juvenile Hall, located directly south of the Medical Center, and the DoubleTree Hotel, located to the west of The City Drive, are considered equivalent to residential uses in terms of noise sensitivity. Demolition of existing structures and the construction of new buildings (Phase I and full LRDP implementation) and a parking structure (full LRDP implementation) will occur directly adjacent to the Juvenile Hall, approximately 300 feet away with the majority of the activity occurring more than 100 feet from the property line. Activities occurring directly adjacent to the Juvenile Hall will generate significant noise levels at the facility. The majority of the activity will generate noise levels below 90 dBA with average noise levels in the 75 to 80 dBA range during periods of peak activities. Indoor noise levels will be approximately 12 dB lower for rooms with open windows and 20 dB lower for rooms with closed windows.

The DoubleTree Hotel, located to the west of the Medical Center across The City Drive, is more than 300 feet from the nearest demolition and construction locations. At this distance, peak noise levels will reach as high as 80 dBA with average noise levels in the 65 to 70 dBA range. The windows at the hotel are fixed and, therefore, interior noise levels will be at least 20 dB lower than these levels.

Demolition and construction activities will take several months (see Table 2-14). The most effective method of controlling construction noise is through local control of construction hours as required by the city's Noise Ordinance. The city's Noise Ordinance excludes control of noise generated by

construction activities during the hours between 8 a.m. and 7 p.m. on weekdays and Saturdays. Construction noise occurring during these hours is not considered significant. Construction outside of these hours, on federal holidays, or Sundays is required to comply with the Noise Ordinance.

Mitigation Program

To prevent significant short-term noise increases, as defined by the City of Orange Noise Ordinance, the UCI Medical Center project will comply with the following measures.

Standard Conditions and Requirements

- All noise generating construction activities shall be limited to the hours between 7 a.m. and 8 p.m., Monday through Saturday, when activities occur near a residential area.

Mitigation Measures

3.8-1(a) All construction equipment shall be equipped with improved noise muffling and have the manufacturer's recommended noise abatement measures, such as mufflers, engine covers, and engine vibration isolators in good working order.

3.8-1(b) To the maximum extent feasible, hydraulic equipment (instead of pneumatic impact tools) and electric powered tools (instead of diesel powered equipment) shall be used for all exterior construction work.

3.8-1(c) Maintaining equipment in an idling mode shall be minimized. All equipment shall be turned off if not in use.

3.8-1(d) A noise barrier 8 to 10 feet in height shall be provided at the project site perimeter, where construction would be adjacent to onsite or offsite sensitive receptors, that will break the line-of-sight between construction equipment and noise receptors, where feasible.

3.8-1(e) Physical separation between noise generators and noise receptors shall be minimized to the extent feasible.

Impact 3.8-2: Project demolition and construction activities associated with the proposed project would generate vibration at sensitive land uses. This impact is considered significant.

Potential sources of vibration during demolition and construction activities could include truck pass-bys, pieces of building materials striking the ground, and the insertion of piles to create foundations. Project construction activities at 50 feet from the source are expected to generate vibrations that range from 0.0005 to 0.01 inch per second (source: *Santa Monica-UCLA Medical Center Facilities Reconstruction Plan EIR*).

While ground-borne vibration effects are typically attenuated over short distances, the demolition of onsite buildings and parking structures could generate perceptible vibrations at adjacent onsite buildings. Many adjacent onsite buildings will remain operational during demolition and construction activities and could contain equipment whose operation could be disturbed by vibration. Because vibrations could exceed the significance criteria for sensitive land uses, such as operating rooms (0.0040), potential vibration impacts are considered a ***significant impact***.

Mitigation Program

The following mitigation program will reduce impacts to a ***less than significant*** level.

3.8-2(a) Prior to the initiation of vibration-generating demolition and construction activities, the UCI Medical Center construction project manager shall notify building/department representatives that these activities are planned. This notification will allow for the relocation of vibration-sensitive equipment in portions of buildings that could be affected, or scheduling modifications to avoid vibration disruptions.

3.8-2(b) The UCI Medical Center construction staff shall work with the project contractor to schedule demolition and construction activities that use heavy equipment and are located within 50 feet of buildings where vibration-sensitive medical procedures occur, such that demolition and construction activities are not scheduled concurrent with sensitive medical operations. A system of communications would be established between selected vibration-sensitive uses/areas and the construction managers to avoid noise or vibration affecting patient care or research activities.

Impact 3.8-3: The proposed project would result in long-term, operational noise impacts to surrounding land uses. This change is considered potentially significant.

The proposed project could result in noise impacts on surrounding land uses related to activities at the Medical Center and from traffic noise increases associated with the proposed project.

Project Site Activities

Potential noise sources that could result in exceedances of the Noise Ordinance include heating, ventilation, and air-conditioning (HVAC) systems, gas handling systems, other mechanical equipment; vehicles (especially large trucks); and activities normally occurring at loading docks. Phase I of the project will allow for the construction of a replacement hospital, surface parking, a modular building, and a chiller plant. Site-specific full LRDP implementation projects are not proposed at this time, but would include buildings and parking structures. Typically, Medical Center uses do not generate significant noise levels that will exceed Noise Ordinance standards with implementation of site design, operational restrictions, noise barriers, or other reasonable noise reduction measures. Impacts resulting from these proposed project site activities are expected to be ***less than significant***.

The UCI Medical Center helistop provides emergency helicopter access. The helistop is located on-grade near the southeast corner of The City Drive at Chapman Avenue. The Federal Aviation Administration (FAA) approved flight path is to and from the northeast, which is the prevailing wind direction. Upon arrival, patients are transported along an exterior path to a controlled access point within the Emergency Department. The Medical Center averages four to six flights per month.

The highest noise level reached during a noise event is called the "Maximum Noise Level" or Lmax. For example, as an aircraft approaches, the sound of the aircraft begins to rise above ambient noise levels. The closer the aircraft gets to the person on the ground experiencing the noise event, the louder it is until the aircraft is at its closest point directly overhead. Then, as the aircraft passes, the noise level decreases until the sound level again settles to ambient levels. There are no single event noise based noise/land use compatibility criteria for aircraft noise that have been adopted by the federal government or California.

As noted, the Medical Center currently averages four to six emergency helicopter flights per month. The frequency of emergency helicopter flights could change in the future based on increases in countywide population, access to emergency health care facilities, etc. Because of the limited number of flights, noise associated with this emergency activity is considered a ***less than significant*** impact.

Parking Lot/Structure Activity

Traffic associated with parking lots and structures is not of sufficient volume to exceed community noise standards that are based on a time averaged scale such as the CNEL scale or the longer time periods of the City of Orange Noise Ordinance, such as the L50. However, the instantaneous maximum sound levels generated by car door slamming, engine start-up, and car pass-bys can be annoying to nearby residents. Tire squeal may also be a problem depending on the type of parking surface. Estimates of the maximum noise levels associated with some parking lot activities are presented in Table 3.8-6. These levels are based on measurements conducted by Mestre Greve Associates. The noise levels presented are for a distance of 50 feet from the source, and are the maximum noise level generated. A range is given to reflect the variability of noise generated by various automobile types and driving styles.

The Double Tree Hotel located to the west of the project across The City Drive is more than 200 feet from the proposed parking lot. At this distance, maximum parking lot generated noise levels will be 64 dBA. This is well below the Nighttime Outdoor Lmax Noise Ordinance Limit of 70 dBA. Indoor noise levels will be at least 20 dB lower. The resulting 44 dBA interior noise level will be well below the 55 dBA Lmax Interior Nighttime Noise Ordinance Limit. Therefore, the hotel will not be significantly impacted by noise generated by Medical Center parking lot activities.

TABLE 3.8-6
MAXIMUM NOISE LEVELS GENERATED BY PARKING LOTS[a.]

Event	Lmax
Door Slam	60 to 70
Car Alarm Activation	65 to 70
Engine Start-up	60 to 70
Car Pass-by	55 to 70

a. dBA at 50 feet
Source: Mestre Greve Associates.

Two new parking structures and the expansion of the South Parking Structure are proposed as a part of the full LRDP implementation project. The nearest parking structure to the Orange County Juvenile Hall would be located near the southeast corner of the Medical Center approximately 40 feet from the Juvenile Hall's property line. At this distance, maximum noise levels from the activities in the parking structure could be as high as 72 dBA at the Juvenile Hall, above the 70 dBA Nighttime Outdoor Noise Ordinance Limit. The nearest structure at the Juvenile Hall will be approximately 80 feet from the proposed parking structure. With open windows, the Juvenile Hall building provides 12 dB of outdoor-to-indoor noise reduction. This results in a maximum indoor noise level from the parking lot of 54 dBA. This is lower than the 55 dBA Lmax Interior Nighttime Noise Ordinance Limit. Closed windows will reduce this noise level by at least an additional 8 dBA resulting in a maximum noise level of 46 dBA, well below the Noise Ordinance Limit.

The outdoor noise levels at the Juvenile Hall generated by the parking structure is expected to exceed the Nighttime Outdoor Noise Ordinance Limits. However, no outdoor activity takes place at Juvenile Hall during the nighttime hours as defined by the Noise Ordinance (10 p.m. to 7 a.m.). The noise level is projected to be below the Daytime Noise Ordinance Limits when there is outdoor activity at the Juvenile Hall. Further, the noise generated by the parking structure is not expected to exceed the Indoor Noise Ordinance Limits. Therefore, the parking structure will not result in a significant noise impact on the Juvenile Hall. Overall, impacts resulting from the proposed project's parking structures will be ***less than significant***.

Traffic Noise

Table 3.8-7 identifies project-related noise levels on roadways in the project area. The table identifies the project's incremental noise level increase associated with project development. The noise level increases were calculated using traffic volume data prepared for the project by Austin-Foust Associates. The last column in the table indicates whether project implementation will result in a significant noise increase (exceed thresholds of significance).

As shown on the table, no noise level increases greater than 3 dB will occur with the implementation of the UCI Medical Center LRDP project. At full LRDP implementation, the greatest project-related noise increase, 0.5 dB, will occur on Manchester Avenue south of Chapman Avenue. There are no residential uses along this segment of the roadway. The greatest project-related noise increase on a roadway segment with adjacent residential uses will be 0.3 dB on Lampson Avenue between Haster Street and Lewis Street. This project-specific traffic noise increase is considered ***less than significant impact***.

Six roadway segments will experience cumulative noise increases greater than 3 dB. However, only two of these segments have adjacent residential uses. The project will not contribute to the increases along these segments. These increases are solely due to other development in the area.

Along Manchester Avenue north of Chapman Avenue, noise levels are projected to increase 3.0 dB over existing levels. However, the future noise contours presented in Table 3.8-8 show that the 65 CNEL contour is not projected to extend beyond the roadway right-of-way. Therefore, future noise levels at these residences will be under the 65 CNEL standard.

Along Rampart Street between Orangewood Avenue and Chapman Avenue, noise levels are projected to increase 3.7 dB over existing levels. There is a mobile home park located on the west side of the roadway. A sound wall is located between the park and the roadway. With this wall, the noise levels at the mobile home park are just at the 65 CNEL threshold. As previously noted, the project does not contribute to the increase along this segment of road. The noise level increase is exclusively due to other growth in the area.

The distances to the future buildout (post-2020) 60, 65, and 70 CNEL contours with the proposed project for the roadways in the vicinity of the proposed project site are presented in Table 3.8-8. These represent the distance from the centerline of the road to the contour value shown. The CNEL at 100 feet from the roadway centerline is also presented. The contours do not take into account the effect of any noise barriers or topography that may affect ambient noise levels. Overall, impacts resulting from the proposed project will be ***less than significant***.

TABLE 3.8-7
TRAFFIC NOISE LEVEL INCREASES (DB)

Roadway Segment	Cumulative Increase Over Existing CNEL	Increase Due to Project	Impact?
Haster Street			
Katella Ave. to Orangewood Avenue	0.8	0.0	No
Orangewood Ave. to Chapman Ave.	0.8	-0.2	No
Chapman Ave. to Lampson Avenue	0.7	0.2	No
Lampson Ave. to Garden Grove Blvd.	0.0	0.0	No
Garden Grove Blvd. to SR-22 Ramp	0.4	0.0	No
Fairview Street			
South of Garden Grove Boulevard	0.5	0.0	No
Lewis Street			
Orangewood Ave. to Chapman Avenue	1.4	0.0	No
Chapman Avenue to City Parkway	0.8	0.0	No
City Parkway to Lampson Avenue	1.1	0.0	No
Lampson Avenue to SR-22	0.6	0.0	No
SR-22 to Garden Grove Boulevard	0.7	0.0	No
Manchester Avenue			
South of Orangewood Avenue	0.0	0.0	No
North of Chapman Avenue	3.0	0.0	No
South of Chapman Avenue	1.0	0.5	No
City Boulevard			
North of The Block Drive	2.2	-0.3	No
Anaheim Boulevard			
Orangewood Ave. to The City Drive	6.0	0.0	No
State College Avenue			
Howell Avenue to Katella Avenue	1.5	0.0	No
Katella Ave. to Gene Autry Way	2.5	0.0	No
Gene Autry Way to Orangewood Ave.	3.6	0.1	No
Orangewood Ave. to I-5 ramps	3.2	0.1	No
I-5 ramps to I-5 ramps	2.4	0.3	No
I-5 ramps to Chapman Avenue	1.5	0.2	No
The City Drive			
Chapman Avenue to Dawn Way	2.0	0.4	No
Dawn Way to Justice Center Way	1.8	0.3	No
Justice Ctr. Way to Entertainment Ave.	1.5	0.2	No
Entertainment Ave. to The Block Drive	1.3	0.2	No
The Block Drive to SR-22 ramps	0.4	0.2	No
SR-22 ramps to SR-22 ramps	0.4	0.2	No
SR-22 ramps to Garden Grove Blvd.	1.0	0.0	No
Rampart Street			
Orangewood Ave. to Chapman Avenue	3.7	0.0	No
Katella Avenue			
Lewis St. to State College Avenue	1.2	0.0	No
State College Ave. to Howell Avenue	1.2	-0.1	No
Howell Avenue to SR-57 ramps	1.5	0.0	No
SR-57 ramps to SR-57 ramps	1.4	0.0	No
East of SR-57 ramps	1.3	0.0	No
Gene Autry Way			
Lewis St. to State College Avenue	7.8	0.0	No

TABLE 3.8-7 (continued)
TRAFFIC NOISE LEVEL INCREASES (DB)

Roadway Segment	Cumulative Increase Over Existing CNEL	Increase Due to Project	Impact?
Orangewood Avenue			
Haster Street to Lewis Street	1.6	0.0	No
Lewis St. to State College Ave.	2.7	0.0	No
State College Ave. to Rampart Street	2.1	0.1	No
Rampart Street to SR-57 ramps	2.0	0.1	No
SR-57 ramps to SR-57 ramps	1.7	0.0	No
East of SR-57 ramps	1.3	0.0	No
Chapman Avenue			
Haster Street to Lewis Street	0.6	0.1	No
Lewis St. to Manchester Avenue	0.1	0.1	No
Manchester to The City Drive	0.2	0.1	No
The City Drive to I-5 ramps	0.4	0.0	No
I-5 ramps to Rampart Street	0.6	0.2	No
Rampart Street to I-5 ramp	-0.4	0.1	No
I-5 ramp to SR-57 ramps	1.0	0.1	No
SR-57 ramps to SR-57 ramps	1.1	0.1	No
East of SR-57 ramps	1.1	0.1	No
The City Parkway			
East of Lewis Street	1.5	0.0	No
Lampson Avenue			
Haster Street to Lewis Street	2.0	0.3	No
Lewis Street to City Boulevard	2.3	0.0	No
City Boulevard to The City Drive	2.6	0.0	No
Garden Grove			
West of Haster Street	1.1	0.0	No
Haster Street to SR-22	0.5	0.0	No
SR-22 to Lewis Street	1.2	0.1	No
Lewis Street to The City Drive	1.1	0.1	No
The City Drive to Bristol	0.9	0.1	No
SR-22			
West of Garden Grove Boulevard	–	–	–
Garden Grove to The City Drive	0.8	0.0	No
The City Drive to I-5/SR-57	-0.2	0.0	No
East of I-5/SR-57	–	–	–
I-5			
North of State College Avenue	0.9	0.0	No
State College Ave. to SR-22/SR-57	1.2	0.1	No
South of SR-22/SR-57	–	–	–
SR-57			
North of Katella Avenue	–	–	–
Katella Ave. to Orangewood Ave.	0.9	0.0	No
Orangewood Ave. to Chapman Ave.	0.8	0.0	No
Chapman Ave. to I-5/SR-57	0.8	0.0	No

– Roadway traffic volume not reported in traffic study
Source: Mestre Greve Associates, August 2001.

TABLE 3.8-8
MODELED EXISTING ROADWAY TRAFFIC NOISE LEVELS

Roadway Segment	CNEL Level at 100 Feet (dBA)	Distance to CNEL Contour From Centerline of Roadway (feet)		
		70 CNEL	65 CNEL	60 CNEL
Haster Street				
Katella Ave. to Orangewood Avenue	63.1	RW	75	162
Orangewood to Chapman Avenue	64.7	45	96	207
Chapman Avenue to Lampson Avenue	62.6	RW	69	148
Lampson Ave. to Garden Grove Blvd.	63.5	37	79	171
Garden Grove Blvd. to SR-22 ramp	64.7	44	95	205
Fairview				
South of Garden Grove Boulevard	67.1	64	138	297
Lewis Street				
Orangewood to Chapman Avenue	61.2	RW	56	120
Chapman Avenue to City Parkway	63.1	RW	74	160
City Parkway to Lampson Avenue	63.3	RW	77	166
Lampson Avenue to SR-22	62.5	RW	68	147
SR-22 to Garden Grove Boulevard	62.2	RW	65	141
Manchester Avenue				
South of Orangewood Avenue	50.8	RW	RW	RW
North of Chapman Avenue	52.4	RW	RW	31
South of Chapman Avenue	56.4	RW	RW	58
City Boulevard				
North of the Block Drive	58.2	RW	35	76
Anaheim Boulevard				
Orangewood Ave. to The City Drive	56.8	RW	RW	61
State College Avenue				
Howell Avenue to Katella Avenue	66.8	61	131	283
Katella Ave. to Gene Autry Way	68.0	74	159	342
Gene Autry Way to Orangewood Ave.	69.0	85	184	396
Orangewood Ave. to I-5 ramps	68.5	79	170	367
I-5 ramps to I-5 ramps	67.9	73	157	337
I-5 ramps to Chapman Avenue	67.3	66	142	306
The City Drive				
Chapman Avenue to Dawn Way	66.2	56	121	261
Dawn Way to Justice Center Way	65.8	52	113	243
Justice Ctr. Way to Entertainment Ave.	65.6	51	109	235
Entertainment Ave. to The Block Drive	65.7	52	111	239
The Block Drive to SR-22 ramps	65.7	52	111	239
SR-22 ramps to SR-22 ramps	65.7	52	111	239
SR-22 ramps to Garden Grove Blvd.	64.0	RW	85	184
Rampart Street				
Orangewood Ave. to Chapman Avenue	62.2	RW	65	141
Katella Avenue				
Lewis Street to State College Avenue	66.8	61	131	283
State College Ave. to Howell Avenue	67.0	63	136	293
Howell Ave. to SR-57 ramps	69.0	85	184	396
SR-57 ramps to SR-57 ramps	68.3	77	167	359
East of SR-57 ramps	67.5	68	146	315
Gene Autry Way				
Lewis St. to State College Avenue	58.5	RW	37	80
Orangewood Avenue				
Haster Street to Lewis Street	64.9	46	99	213
Lewis Street to State College Avenue	65.8	53	113	244
State College Ave. to Rampart Street	67.0	63	136	293
Rampart Street to SR-57 ramps	66.9	62	134	288
SR-57 ramps to SR-57 ramps	66.9	62	134	288
East of SR-57 ramps	67.0	63	136	293

TABLE 3.8-8 (continued)
MODELED EXISTING ROADWAY TRAFFIC NOISE LEVELS

Roadway Segment	CNEL Level at 100 Feet (dBA)	Distance to CNEL Contour From Centerline of Roadway (feet)		
		70 CNEL	65 CNEL	60 CNEL
Chapman Avenue				
Haster Street to Lewis Street	65.8	53	113	244
Lewis Street to Manchester Avenue	65.8	53	113	244
Manchester Avenue to The City Drive	66.4	58	125	269
The City Drive to I-5 ramps	66.6	59	127	274
I-5 ramps to Rampart Street	66.7	60	129	279
Rampart St. to I-5 ramp	66.2	56	120	259
I-5 ramp to SR-57 ramps	66.2	56	120	259
SR-57 ramps to SR-57 ramps	66.3	57	123	264
East of SR-57 ramps	66.4	58	125	269
The City Parkway				
East of Lewis Street	57.8	RW	33	71
Lampson Avenue				
Haster Street to Lewis Street	62.8	RW	71	154
Lewis St. to City Boulevard	58.9	RW	39	85
City Boulevard to The City Drive	61.1	RW	55	119
Garden Grove Boulevard				
West of Haster Street	66.9	62	134	288
Haster Street to SR-22	67.1	64	138	297
SR-22 to Lewis Street	65.9	54	116	249
Lewis Street to The City Drive	65.7	51	111	239
The City Drive to Bristol	65.7	51	111	239
SR-22				
West of Garden Grove Boulevard	–	–	–	–
Garden Grove Blvd. to The City Drive	80.4	494	1,065	2,295
The City Drive to I-5/SR-57	79.6	439	946	2,037
East of I-5/SR-57	--	--	--	--
I-5				
North of State College Avenue	80.5	503	1,084	2,336
State College Ave. to SR-22/SR-57	81.1	554	1,193	2,570
South of SR-22/SR-57	--	--	--	--
SR-57				
North of Katella Avenue	–	–	–	–
Katella Ave. to Orangewood Ave.	80.9	535	1,153	2,483
Orangewood Ave. to Chapman Avenue	80.8	524	1,129	2,432
Chapman Avenue to I-5/SR-57	80.5	503	1,084	2,335

RW: Contour falls within right-of-way
Source: Mestre Greve Associates, August 2001.

Mitigation Program

Compliance with the City of Orange Noise Ordinance would require that onsite activities not generate noise levels in excess of the City of Orange Noise Ordinance at the Juvenile Hall located south of the project or the hotel located to the west of the project, both of which are considered residential land uses. To promote compliance with the city's noise standards, the following mitigation program is recommended.

Standard Conditions and Requirements

- All activities on the project site shall comply with the City of Orange Noise Ordinance standards.

Mitigation Measures

To ensure that there are ***no significant noise impacts***, the following measures are recommended.

3.8-3(a) The UCI Medical Center shall prepare an acoustical study(ies) prepared by a qualified acoustical expert for any activities found to potentially exceed the City of Orange Noise Ordinance. The study(ies) shall be prepared by a qualified acoustical expert and describe the noise levels generated by the use and show any measured required for compliance with the Noise Ordinance standards.

3.8-3(b) The UCI Medical Center shall prepare detailed plans for all parking structures. Said plans shall be accompanied by a acoustical study prepared by an acoustical expert. The acoustical study shall demonstrate that all feasible sound attenuation in compliance with the City of Orange Noise Ordinance has been incorporated into parking structure design, including but not limited to brushed driving surfaces (textured), limited openings oriented toward sensitive noise sources, etc.

Impact 3.8-4: The proposed project would result in long-term, operational noise impacts to onsite land uses associated with traffic noise. Depending on the location of buildings within the project site, some uses will be subject to significant noise impacts.

Traffic Noise

Table 3.8-8 presented the distances to the future 60, 65 and 70 CNEL contours with the proposed project for the roadways impacting the project site. These represent the distance from the centerline of the road to the contour value shown. These contours are depicted in Exhibit 3.8-2. The contours do not take into account the effect of any noise barriers or topography that may affect ambient noise levels.

Structures, either sound walls or buildings, reduce noise levels where they break the line-of-sight between an observer and the noise source. The greater the structure breaks the line-of-sight, the greater the noise reduction. Noise levels at buildings at ground level along I-5 is much lower than depicted on Exhibit 3.8-2 because of the sound wall. Based on the noise measurements, the highest noise levels at ground level will be less than 65 CNEL along I-5. This is considered a ***less than significant impact.***

The noise levels at building floors overlooking the sound wall along I-5 will be similar to those presented in the exhibit. The upper floors of buildings located along I-5 could be exposed to noise levels as high as 75 CNEL. This is considered a ***significant impact***. These buildings will be required to achieve up to 30 dB of outdoor-to-indoor noise reduction to comply with the 45 CNEL noise standard for hospital rooms. Up to 25 dB of noise reduction will be required to achieve the 50 CNEL standard for private offices and exam rooms and 20 dB will be required to achieve the 55 CNEL standard for general offices, reception areas, and lobbies.

Typical construction achieves at least 20 dB of outdoor-to-indoor noise reduction. This assumes that adequate mechanical ventilation is provided to allow windows and doors to remain closed which is typical for commercial construction. Achieving 25 dB of outdoor-to-indoor noise reduction may require thicker windows or other measures. Achieving 30 dB of outdoor-to-indoor noise reduction will likely require significant acoustical upgrades from standard construction practices. While significant measures may be required to achieve 30 dB of outdoor-to-indoor noise reduction

it is not unreasonable to meet the 45 CNEL interior noise standard under the worst-case noise conditions.

It will be very difficult and potentially impossible to meet the 65 CNEL outdoor noise standard for any outdoor balcony or terrace areas on upper floors that face the freeway and look over the existing sound wall along I-5. Locating these areas on the side of the building opposite I-5 will be acceptable. As such, it is recommended that no frequently used outdoor areas be located above the second floor of buildings along and facing I-5.

Because there are no barriers along The City Drive and Chapman Avenue, noise levels in front of buildings are accurately represented in Exhibit 3.8-2. Noise levels behind buildings along these roadways will be lower. Noise levels between buildings will be somewhat lower than shown depending on how much of the roadway is directly visible from any location.

Along The City Drive and Chapman Avenue, buildings will be exposed to maximum noise levels of 70 CNEL. Indoor areas subject to the 45 CNEL indoor standard will need to achieve up to 25 dB of outdoor-to-indoor noise reduction. Areas subject to the 50 CNEL will need to achieve 20 dB of reduction and areas subject to the 55 CNEL standard will need to achieve 15 dB of reduction. Moderate building upgrades may be required to achieve the 45 CNEL standard. The 50 and 55 CNEL standards will not require any upgrades from typical construction to achieve the required noise reduction.

Outdoor areas subject to the 65 CNEL standard located along The City Drive and Chapman Avenue will likely be able to achieve the standard with sound walls. Depending on topography a maximum wall height of seven feet will be required.

Mitigation Program

Through site design, acoustical upgrades to building structures, and noise barriers, the indoor and outdoor noise standards will be achievable for the project, and project impacts will be ***less than significant***.

3.8-4(a) As specific projects are developed and prior to the completion of final construction documents, the site plans shall be reviewed by a qualified acoustical expert to determine the noise reduction required by the buildings. Noise studies should be prepared for any building areas requiring more than 20 dB of outdoor-to-indoor noise attenuation. These assessments shall be prepared by a qualified acoustical expert and demonstrate the measures required to met the applicable indoor standard.

3.8-4(b) Outdoor areas subject to the 65 CNEL noise standard shall be reviewed prior to the completion of final construction documents by a qualified acoustical expert to determine if the less than 65 CNEL standard will be achieved or can be met with sound barriers or other mitigation. Outdoor areas where noise barriers cannot provide enough reduction to achieve the 65 CNEL standard should be relocated, if feasible. Areas that will require sound barriers should have detailed noise studies prepared by a qualified acoustical expert to show the location and height of the noise barrier required to meet the 65 CNEL standard.

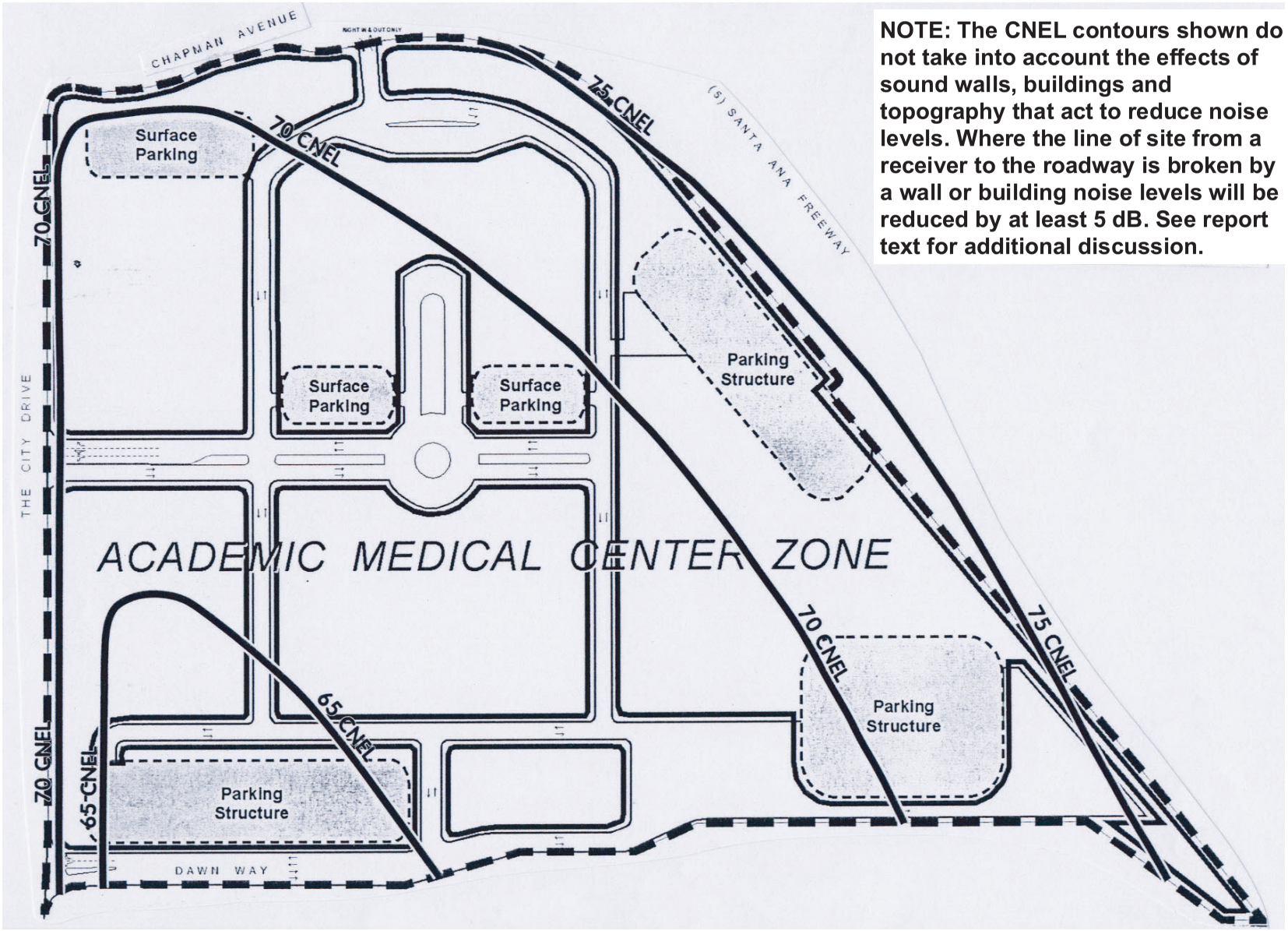
Impact 3.8-5: Project parking structure operations could expose sensitive receptors to vibrations. This is considered a less than significant impact.

Vibration measurements were taken at an existing five-level parking structure comparable to the parking structures associated with the proposed project (source: *Santa Monica-UCLA Medical Center Facilities Reconstruction Plan EIR*). The objective of these measurements was to determine the typical vibration level generated by vehicles traveling inside the parking structure, which could then be used to estimate the potential vibration levels which will be experienced. Vibration measurements were taken approximately 25 feet from the edge of the parking structure. The vibration measurements were conducted during the afternoon (3 p.m. to 4 p.m.). Moderate numbers of moving vehicles were located within the parking structure during the measurement period. The vibration levels generated by vehicles traveling within the structure varied from an average of 0.003 inches/second to a maximum of 0.018 inches/second.

Generally, the maximum vibration level is generated by a single event, such as a large car or van driving over a speed bump or expansion joint, and is not dependent upon the number of vehicles. Therefore, the maximum measured vibration level discussed above is representative of the maximum vibration levels generated by activity within a parking structure, regardless of traffic volume. Thus, the maximum vibration level generated by the parking structures proposed as a part of the project will be similar to the measured level (0.018 inches/second). This vibration level could potentially be felt, but will not disrupt sensitive activities or operations at the Medical Center or surrounding land uses. Therefore, ***less than significant*** vibration impacts will be experienced.

Mitigation Program

No mitigation is required.



NOTE: The CNEL contours shown do not take into account the effects of sound walls, buildings and topography that act to reduce noise levels. Where the line of site from a receiver to the roadway is broken by a wall or building noise levels will be reduced by at least 5 dB. See report text for additional discussion.

Traffic Noise CNEL Contours

Exhibit 3.8-2

UCI Medical Center LRDP EIR, University of California Irvine

Scale: 1" = 300'
Source: Mestre Greve Associates

BonTerra CONSULTING

3.9 POPULATION AND HOUSING

This section identifies existing population, employment, and housing trends in Orange County and the local areas surrounding the UCI Medical Center, estimates employment generation, and examines issues related to housing demand created by new employment opportunities associated with the proposed UCI Medical Center Long Range Development Plan project.

3.9.1 EXISTING CONDITIONS

Population

The UCI Medical Center facility is located within the City of Orange in central Orange County. The estimated 2000 Orange County population was 2,859,100 (source: Southern California Association of Governments). During the period between 2000 and 2020, Orange County's population is expected to increase from 2.86 million to 3.24 million, an increase of approximately 385,700 people and equivalent to an increase of approximately 11.9 percent over 20 years. The majority of Orange County population growth is expected to occur in south Orange County because it is the location of the majority of entitled, but undeveloped, land in the county. Table 3.9-1 presents existing and projected population, employment, and housing figures for Orange County.

TABLE 3.9-1
ORANGE COUNTY
POPULATION, EMPLOYMENT, AND HOUSING TRENDS

Year	Population	Employment	Housing
2000	2,859,100	1,381,700	910,100
2005	3,005,500	1,550,700	952,400
2010	3,105,500	1,717,400	1,013,100
2015	3,165,400	1,882,600	1,064,100
2020	3,244,800	2,116,600	1,102,300
Source: Southern California Association of Governments, 1998 RTP.			

The surrounding area served by the UCI Medical Center is closely represented by Regional Statistical Areas (RSA) G-42 and H-37. RSAs G-42 and H-37 include portions of Anaheim, Stanton, Garden Grove, Villa Park, Orange, Tustin, and Santa Ana. These two RSAs provide a more accurate representation of the communities served by the UCI Medical Center rather than solely examining the City of Orange. Year 2000 population for RSAs G-42 and H-37 is estimated at 989,012 persons (source: Center for Demographic Research, OCP-2000). Forecasted population within RSAs G-42 and H-37 is 1,051,371 in 2010 and 1,082,658 in 2020. Table 3.9-2 presents existing and projected population figures for RSAs G-42 and H-37 through 2020.

UCI Medical Center Patient Population

The UCI Medical Center handles inpatient, outpatient, and emergency room patient care. In 2001, the Medical Center accommodated 93,459 inpatients, 326,662 outpatients, and 42,000 emergency room patients. There were 1,100,000 visitors to the Medical Center in 2001.

TABLE 3.9-2
LOCAL POPULATION TRENDS

Year	RSA G-42 and H-37 Population[a.]	Increase	% Increase
2000	989,012	–	–
2005	1,026,534	37,522	3.7% (‘00 to ‘05)
2010	1,051,371	24,837	2.4% (‘05 to ‘10)
2015	1,068,840	17,469	1.7% (‘10 to ‘15)
2020	1,082,658	13,818	1.3% (‘15 to ‘20)
2000 to 2020	–	93,646	8.7% (‘00 to ‘20)

a. Regional Statistical Areas (RSA) G-42 and H-37.
Source: Center for Demographic Research, OCP-2000.

Employment

In 2000, there were approximately 1,381,700 employment positions within Orange County. By 2020, the county’s employment base is expected to expand to 2,116,600 jobs, representing an increase of 734,900 jobs. This equates to a 34.7 percent rate of growth over 20 years, compared to an 11.9 percent rate of population growth over the same period. On an average annual basis, Orange County employment is estimated to grow approximately 1.7 percent per year over this 20-year period. Table 3.9-3 identifies the existing and projected employment numbers for Orange County.

TABLE 3.9-3
REGIONAL EMPLOYMENT TRENDS

Year	Orange County Employment	Increase	% Increase
2000	1,381,700	–	–
2005	1,550,700	169,000	10.9% (’00 to ’05)
2010	1,717,400	166,700	9.7% (‘05 to ‘10)
2015	1,882,600	165,200	8.8% (’10 to ’15)
2020	2,116,600	234,000	11.1% (‘15 to ‘20)
2000 to 2020	–	734,900	34.7% (’00 to ’20)

Source: Southern California Association of Governments, 1998 RTP.

In 2000, RSAs G-42 and H-37 comprised approximately 33.4 percent of the total employment within the county (source: Center for Demographic Research, OCP-2000). Employment in RSAs G-42 and H-37 was estimated to be 461,851 in 2000 with projections to grow to 491,606 by 2005, an increase of 29,755 employment positions or 6.1 percent over a five-year period (source: Center for Demographic Research, OCP-2000). Forecasts for employment within RSAs G-42 and H-37 indicate an increase of 46,541 positions between 2005 and 2015 and an additional 11,463 positions between 2015 and 2020. Table 3.9-4 presents existing and projected employment rates for RSAs

G-42 and H-37. These employment figures show employment growth rates are expected to be slower in the RSAs over the next 20 years than in the county.

TABLE 3.9-4
LOCAL EMPLOYMENT TRENDS

Year	RSAs G-42 & H-37 Employment	Increase	% Increase
2000	461,851	–	–
2005	491,606	29,755	6.1% (‘00 to ‘05)
2010	516,768	25,162	4.9% (‘05 to ‘10)
2015	538,147	21,379	4.0% (‘10 to ‘15)
2020	549,610	11,463	2.1% (‘15 to ‘20)
2000 to 2020	–	87,759	16.0% (‘00 to ‘20)
Source: Center for Demographic Research, OCP-2000.			

Employment figures by employment category for the existing UCI Medical Center are provided in Table 3.9-5.

TABLE 3.9-5
UCI EMPLOYMENT STATISTICS

Employee Category	2001
UCI Medical Center Staff	2,787
College of Medicine Staff	1,469
Faculty	489
Volunteer Faculty	900
Residents	250
Medical Students	184
Total	6,079
Source: UCI Medical Center, April 2002.	

Housing

The 2000 housing stock in Orange County consisted of 910,100 units. Housing units in Orange County are projected to total 952,400 in 2005 and increasing to 1,102,300 by 2020 (source: Southern California Association of Governments). As of 2000, the total number of housing units within RSAs G-42 and H-37 was estimated to be 282,878 (source: Center for Demographic Research OCP-2000). This represented 31.1 percent of the county’s housing stock in 2000. The number of housing units in RSAs G-42 and H-37 is forecast to increase to 286,760 in 2005, representing approximately 30.1 percent of the county’s housing stock. Table 3.9-6 shows existing and projected housing trends for Orange County and RSAs G-42 and H-37.

TABLE 3.9-6
REGIONAL AND LOCAL HOUSING TRENDS

Housing Data	Orange County[a.]	Increase	% Increase	RSA G-42 & H-37[b.]	Increase	% Increase
2000	910,100	–	–	282,878	–	–
2005	952,400	42,300	4.4%	286,760	3,882	1.4%
2010	1,013,100	60,700	6.0%	288,720	1,960	0.7%
2015	1,064,100	51,000	4.8%	290,687	1,967	0.7%
2020	1,102,300	38,200	3.5%	292,367	1,680	0.6%
2000 to 2020	–	192,200	17.4%	–	9,489	3.3%

a. Southern California Association of Governments, 1998 RTP.
b. Center for Demographic Research, OCP-2000.

3.9.2 THRESHOLDS OF SIGNIFICANCE

The following standards of significance are based on Appendix G of the CEQA Guidelines. For the purposes of this EIR, impacts would be considered significant if the project would:

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

3.9.3 PROJECT IMPACTS

Impact 3.9-1: The project would indirectly result in population increases. This is considered a less than significant impact.

The proposed project's actions include the intensification and reuse of the UCI Medical Center facility through demolition of existing buildings and construction of new buildings. With implementation of the proposed project, the Medical Center facility will increase from 910,365 square feet and 391 beds to 1,902,049 square feet and 527 beds at full LRDP implementation, an increase of over 991,000 square feet. The project does not propose to eliminate existing or to construct new housing units, and therefore will not directly generate a population increase within the City of Orange or in the surrounding area.

As stated in the following section, the Phase I project is expected to create 1,037 new employment positions; full LRDP implementation would result in 1,738 new positions (inclusive of Phase I). As an unlikely, worst-case scenario, it is assumed that all 1,738 new employees would choose to relocate to the area surrounding the Medical Center facility. Under this assumption, the additional of 1,738 new residents would not pose a significant impact to the ability of RSAs G-42 and H-37 to serve their population. Therefore, ***no significant impacts*** are anticipated.

UCI Medical Center Patient Population

The UCI Medical Center Long Range Development Plan is intended to better serve the local, existing population within Orange County. Table 3.9-7 identifies the projected patient care population for the UCI Medical Center. The total inpatient, outpatient, and emergency room patient

population is expected to increase from an existing total of 462,121 patients, to 598,881 patients in 2010, to 732,870 patients in 2020.

TABLE 3.9-7
EXISTING AND FUTURE UCI MEDICAL CENTER
PATIENT CARE PROJECTIONS

Patient Category	2001	Projected 2010	Projected 2020
Inpatient	93,459	112,150	126,170
Outpatient	326,662	436,331	550,000
Emergency Room	42,000	50,400	56,700
Total	**462,121**	**598,881**	**732,870**
Visitors	1,100,000	1,330,690	1,482,608
Total Patient and Visitors	**1,562,121**	**1,929,571**	**2,215,478**

Note: Existing and projected patient care figures refer to the number of patient visits.
Source: UCI Medical Center, April 2002.

Mitigation Program

No mitigation is required.

Impact 3.9-2: Direct employment opportunities will be created by the project. This is considered a less than significant impact.

Direct employment opportunities will be created by the proposed project, including short-term construction jobs and long-term employment positions related to the Medical Center facility. New employment opportunities created through project implementation would include managers/administrators/supervisors, health care professionals, technical, clerical, patient care, skilled craft, nurses, service, and various staff level jobs. Table 3.9-8 summarizes the number and types of anticipated employment opportunities to be available at completion of Phase I and full LRDP implementation.

Development of Phase I of the UCI Medical Center LRDP would create approximately 1,037 employment positions. This figure would represent approximately 1.9 percent of the projected increase of employment positions within RSAs G-42 and H-37 between 2000 and 2010 (54,917 positions). Therefore, ***no significant impacts*** would occur.

Upon full LRDP implementation, total employment for the UCI Medical Center facility would be approximately 7,817 positions. As previously stated, the projected employment numbers for RSAs G-42 and H-37 call for an increase of 32,842 jobs between 2010 and 2020. The employment demands for both Phase I and full LRDP implementation would be within this projected increase as well as the projected increases for 2020; therefore, ***no significant impacts*** would occur.

Mitigation Program

No mitigation is required.

TABLE 3.9-8
PHASE I AND FULL LRDP IMPLEMENTATION
PROJECTED EMPLOYMENT

Employee Category	2001	Projected 2010	Projected 2020
UCI Medical Center Staff	2,787	3,371	3,756
College of Medicine Staff	1,469	1,776	1,979
Faculty	489	635	748
Volunteer Faculty	900	900	900
Residents	250	250	250
Medical Students	184	184	184
Total	**6,079**	**7,116**	**7,817**
Source: UCI Medical Center, April 2002.			

Impact 3.9-3: Job creation will increase the demand for housing in Orange County. This is considered a less than significant impact.

Job creation from implementation of the UCI Medical Center LRDP would increase the demand for housing in Orange County and the surrounding communities. It is difficult to definitively estimate the number of future employees who may choose to relocate to a new residence with their new job. Many factors, both tangible and intangible, influence personal housing decisions. Among the most significant factors are total family income and the cost and availability of suitable housing in the local area. It is assumed that part-time employees are not in a financial position to make the housing location decision for their household, as they will likely be part of a household with at least one other wage earner. A portion of new employment opportunities are anticipated to be in higher income–managerial and professional brackets–where there will be a greater degree of housing mobility. In lower income jobs, there is less locational freedom. The increasing presence of two wage earner families has enhanced the range of housing choices that are affordable to many households. A substantial number of future employees can also be assumed to be currently living within a reasonable commuting distance of the Medical Center.

Using the 1990 Travel Time to Work commuting patterns from the federal census as an indicator, approximately 34 percent of the total work population within the central coast area of Orange County travel under 15 minutes to work. Seventy-four percent of the area residents travel under 30 minutes to work. However, since 1980, population and housing growth trends in the county suggest that a smaller percentage of households would locate within the City of Orange and the surrounding areas. South Orange County areas would most likely receive the majority of household growth (i.e., where the majority of the housing growth is projected) shifting from the more heavily urbanized north county areas.

Housing growth projections for Orange County indicate that 42,300 additional dwelling units are anticipated to be developed between 2000 and 2005, with 3,882 of those units located in RSAs G-42 and H-37. Based on the county factor of 1.5 employees per household in 2000 and the projected year 2020 county factor of 1.8 employees per household, it is assumed that 576 to 691 dwelling units, directly or indirectly, would be demanded as a result of new employees associated with Phase I of the UCI Medical Center LRDP. An additional 389 to 467 units would be demanded, directly or indirectly, as a result of new employees associated with the full LRDP implementation. Therefore, implementation of the project would create a worst-case maximum total need for 1,158

dwelling units. As identified in Table 3.9-9, this represents approximately 0.6 percent of the county's housing and approximately 12 percent of the housing in RSAs G-42 and H-37.

TABLE 3.9-9
PROJECT HOUSING ABSORPTION

Local Projection	Housing Projections (between 2000 & 2020)	Project Demand as a Percent of Projection
Maximum Project Demand	1,158 (total at full LRDP implementation)	–
County	192,200	0.6%
RSAs G-42 & H-37	9,489	12.2%
Sources: Southern California Association of Governments, 1988 RTP; Center for Demographic Research, OCP-2000.		

The demand for housing would be adequately satisfied by the number of housing units projected to be built within both RSAs G-42 and H-37 and Orange County. ***No significant impacts*** are anticipated.

Mitigation Program

No mitigation is required.

3.9-4 CUMULATIVE IMPACTS

Impact 3.9-4: The project will incrementally contribute to increased population and employment and housing demand. This increase is considered less than significant.

Cumulative assumptions are based on data collected by SCAG and the Center for Demographic Research. The Southern California Association of Governments (SCAG) is a Joint Powers Agency established under California Government Code §6502 et seq. SCAG is designated as a Council of Governments (COG), a Regional Transportation Planning Agency (RTPA), and a Metropolitan Planning Organization (MPO) for the six-county region of Orange, Los Angeles, San Bernardino, Riverside, Ventura, and Imperial counties. The region encompasses a population exceeding 16.4 million persons in an area of more than 38,000 miles. For projects of regional significance, SCAG reviews proposed projects for consistency with regional plans. The Center for Demographic Research was established in 1996 to ensure Orange County continues its presence in the development and support of demographic information. The Center for Demographic Research, located at California State University at Fullerton, maintains a centralized data source of Orange County demographic characteristics. The Center for Demographic Research is sponsored by the County of Orange, League of Cities, Orange County Sanitation District, Orange County Transportation Authority, Transportation Corridors Agencies, Municipal Water District of Orange County, Orange County Water District, and California State University at Fullerton.

Increases in population, employment positions, and housing demand associated with full implementation of the UCI Medical Center project represent incremental increases in comparison with the projected increases for both the county and the local communities represented by RSAs G-42 and H-37. Project-related employment represents approximately 0.024 percent of the expected increase of employment in the county between 2000 and 2020. Project-related increased

demand for housing represents approximately 0.6 percent of the expected additional housing to be provided county-wide between 2000 and 2020. Project-related employment represents less than two percent of new employment in RSAs G-42 and H-37 between 2000 and 2020. The project's housing demand represents approximately 12.2 percent of the expected increased housing availability in RSAs G-42 and H-37 between 2000 and 2020. Existing, planned, and foreseeable future development within this area would also incrementally contribute to increases in population and increased demands for employment and housing. Projects implemented consistent with the General Plans for the respective jurisdictions would have been taken into account in projections for the region. As defined in CEQA Guidelines §15130, a cumulative impact consists of an impact which is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts. "An EIR should not discuss impacts which do not result in part from the project evaluated in the EIR" (source: CEQA Guidelines §15130(a)(1)). Therefore, the project's limited impact on population, employment, and housing demand within the county and local areas would not be cumulatively considerable. ***No significant impacts*** would occur.

Mitigation Program

No mitigation is required.

3.10 PUBLIC SERVICES

This section addresses the potential effects on public services associated with implementation of the UCI Medical Center LRDP project. For the purpose of this EIR, public services are law enforcement and fire protection. This section of the EIR describes the existing and proposed public services, and evaluates changes to the physical environment that may result should there be a need to expand such services. Existing and future demand for services is based on information provided from the respective agencies.

3.10.1 FIRE PROTECTION

Existing Conditions

The City of Orange Fire Department is responsible for fire prevention and suppression, emergency medical transport services, and other related services in the project area, including the UCI Medical Center site. The two closest stations serving the project area are the Orange Fire Station Six at 345 City Drive South and the Orange Fire Station 5 at 1345 Maple Avenue. Also located near the project site is the Garden Grove Station 6 located at 1211 East Chapman Avenue in the City of Garden Grove. Fire Station 6 in Orange is staffed by three fire fighter personnel, including one paramedic, and has one engine company (Engine 6). Fire Station 5 is staffed with four fire fighting personnel for Truck 5; three personnel, including one paramedic, for Orange Engine 5; and, two personnel, including one paramedic, for Orange Rescue 5. Fire Station 5 also houses the Orange Urban Search and Rescue 5 unit, which is staffed by Orange Truck 5 persons. The approximate response times to the Medical Center for the fire suppression unit is four minutes with a six minute response time for the first emergency medical transport unit.

The City of Orange Fire Department participates in mutual-aid response agreements with the Orange County Fire Authority and the cities of Garden Grove, Santa Ana, and Anaheim. The mutual-aid program provides mutual aid dispatch of fire apparatus across city boundaries during major and minor emergencies. Within the project area, there are four additional stations located in the cities of Orange, Anaheim, and Garden Grove proximate to the Medical Center. In addition, the Hazardous Materials Services Section of the Orange County Fire Authority is the administering agency for all jurisdictions, including the City of Orange, served by the Orange County Fire Authority. The Hazardous Materials Services Section is located at 145 S. Water Street in the City of Orange, approximately three miles from the UCI Medical Center. Response time for emergencies would be less than five minutes.

The UCI Medical Center has an Emergency Preparedness Plan that includes a Fire Safety and Internal Disaster Plan. The purpose of the Fire Safety and Internal Disaster Plan is to provide an orderly and effective response to an internal emergency that affects or threatens to affect the normal operation of the Medical Center, or compromises the safety of patients, visitors, students, and staff. The Fire Safety and Internal Disaster Plan includes procedures for prevention, isolated/localized events, internal disaster events, and planning and preparation.

Thresholds of Significance

The following standards of significance are based on Appendix G of the CEQA Guidelines. For the purposes of this EIR, impacts would be considered significant if the following were to occur:

- Substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to

maintain acceptable service ratios, response times or other performance objectives for fire protection

In addition, the following significance criteria applies to the UCI Medical Center LRDP project. For the purposes of this EIR, impacts would be considered significant if the following were to occur:

- Conflict with emergency response plans or emergency evacuation plans.

Project Impacts

Impact 3.10-1: The project would increase the demand for fire protection services. This is considered a less than significant impact.

Intensification of development at the UCI Medical Center will result in an increased demand for fire protection services, as well as increased water volumes and pressure requirements for fire flow needs. Improvements to the onsite sprinkler systems and onsite hydrants will be required and will be provided as a part of the project. These minor improvements are not considered significant. The City of Orange Fire Department and Orange County Fire Authority have indicated that service levels will not be substantially reduced and the proposed project will not require the development of new facilities that result in physical impacts. The proposed project will result in ***less than significant impacts*** to fire protection services.

Mitigation Program

Although no significant impacts have been identified, the following measures are recommended to minimize the demands on fire services:

Standard Conditions and Requirements

- Prior to the completion of the final construction documents, the UCI Medical Center shall ensure that all buildings are designed according to all applicable fire protection standards.

Mitigation Measures

3.10-1(a) Prior to design approval, the UCI Medical Center shall have a water delivery system designed to provide adequate fire flows to the project site. Each site development project shall provide sufficient capacity for fire flows consistent with the requirements of the City of Orange Fire Department.

3.10-1(b) Prior to design approval, the UCI Medical Center shall ensure that emergency pathways and accessways to buildings are of sufficient width to allow for the passage of emergency service vehicles. Spacing between buildings shall be sufficient to allow for the required turning radius of emergency response vehicles.

3.10-1(c) Prior to commencement of demolition and construction activities for each structure/facility, the UCI Medical Center or its designee shall file an emergency access plan with the City of Orange Fire Department. The plan shall identify alternative routes for emergency access during construction to areas blocked by project-related construction activities.

3.10-1(d) Emergency vehicle access shall be provided to all required fire hydrants and be operational throughout construction.

Cumulative Impacts

Impact 3.10-2: The project would cumulatively contribute to an increased demand for fire protection services. This is considered a less than significant impact.

As defined in CEQA Guidelines §15130, a cumulative impact consists of an impact which is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts. The cumulative study area for the City of Orange Fire Department would be the City of Orange. Please refer to Tables 3-1 and 3-2 of Section 3 of this EIR. New development projects in the City of Orange, unless otherwise exempt (such as state public entities, including the UCI Medical Center), is imposed a Fire Protection Facilities Program fee. Fees are imposed on 1) a construction or improvement project which will result in an increase of floor area when one or more parcels of land lie wholly or partially within a Fire Protection Facilities Program Area or 2) the estimated cost of the proposed construction or improvement, as determined by the Building Official will exceed $10,000. The City of Orange Municipal Code Chapter 15.38 states that "The purpose of the fire protection facilities program is to improve and/or provide fire protection services to those areas where the fire protection services may experience a significant reduction in the level of service unless adequate revenue is available concurrent with increased fire protection demands. Fees collected for building projects and improvements on properties in a fire protection facilities program area are solely for the purpose of producing revenue for the acquisition, development, maintenance and improvement of fire protection services, in each area and for improvements outside an area when the City Council determines that these improvements will substantially benefit the fire protection within the area where the fee was collected. (Ord. 47-88)."

As noted, intensification of development at the Medical Center will create demand for increased fire protection services. Past, current, and probable future development in the project vicinity as set forth in the City of Orange General Plan and identified on Table 3-2 will also require fire protection services from the City of Orange Fire Department, particularly Orange Fire Station 6 at 345 The City Drive South and the Orange Fire Station 5 at 1345 Maple Avenue, the two closest stations serving the project area. Hazardous materials services will be provided by the Orange County Fire Authority. Continued development will place additional demands on the City of Orange Fire Department and Fire Authority, in terms of manpower, facilities, and equipment. However, existing service levels will not be substantially reduced by implementation of the proposed project; current facilities and equipment will be adequate to serve the project and existing and foreseeable development within the service area of the City of Orange Fire Department and Orange County Fire Authority. As such, the project's incremental effect on fire and hazardous materials protection services is ***not considered cumulatively significant***.

Mitigation Program

No mitigation is required.

3.10.2 POLICE PROTECTION

Existing Conditions

The UCI Police Department and the UCI Medical Center Security Department share onsite security and operational responsibilities at the Medical Center. There is also an existing police services agreement between the City of Orange Police Department and the Medical Center. The Orange Police Department exercises operational responsibility throughout the City of Orange, with the exception of the UCI Medical Center, where it acts only as first responder.

Both UCI and the City of Orange Police Departments:

- assist in the other's jurisdiction, upon request or observed need;
- handle non-emergency incidents, if appropriate, in the other police department's operational jurisdiction and notify the other department;
- handle sudden emergencies, in the other department's operational jurisdiction, that require immediate action and notify the other department as soon as possible; and,
- do not take any action or participate in an activity in conflict with a policy or regulation of their own department.

Per an agreement through the Orange County Police Chiefs Association, the UCI Police Department and the City of Orange Police Department have mutual aid agreements with all Orange County law enforcement agencies. The UCI Police Department works closely with the City of Orange Police Department. Specifically, the City of Orange is partnered with Tustin, Santa Ana, and Garden Grove Police Departments for emergency response. At the UCI Medical Center, mutual aid is required in cases of:

- a minor incident (natural or man-made disaster, civil unrest, or criminal incident) requiring a substantial manpower response from the Orange Police Department, including the response of at least one Orange Police Department supervisor; or
- a major incident (natural or man-made disaster, civil unrest, or criminal incident) involving a total available Orange Police Department response, including supervisors. Mutual aid from other Orange County Law Enforcement Agencies may also be required.

The UCI Medical Center Security Department has 32 uniformed personnel that serve the Medical Center. Additionally, there are six "full-time equivalent" (FTE) support, administrative, and parking service personnel at the Medical Center. There are no control rooms or dispatch services at the Medical Center. When an emergency call is made, the call rings through to the dispatch line at the UCI Police Department on the main UCI campus in Irvine; a radio call is made by a dispatcher to alert the patrolling officers at the Medical Center in the City of Orange.

The City of Orange Police Department facility responsible for police protection in the project study area is the main police station located at 1107 North Batavia Avenue near the intersection of West Katella Avenue and North Batavia Avenue. This station is located approximately three miles from the project site. However, patrol officers are assigned to designated patrol areas and respond to calls for service from their locations in the field rather than directly from the station. For this reason, response times vary. Based on the latest available statistics from January through September 1999, the average response time for all calls for service that required emergency response was under five minutes.

Thresholds of Significance

The following standards of significance are based on Appendix G, Environmental Checklist, of the CEQA Guidelines. For the purposes of this EIR, impacts would be considered significant if the following were to occur:

- Substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities,

the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for fire protection

Project Impacts

Impact 3.10-3: The proposed project would impact law enforcement services. This is considered a less than significant impact.

Implementation of the UCI Medical Center LRDP project will increase demand for security services by the UCI Medical Center Security Department. Full LRDP implementation will create the need for an additional 12.5 FTE uniformed personnel for critical areas (24-hour monitoring, evening access control, and hospital entrance) and six FTE uniformed personnel in general (S. Martin, personal communication, July 9, 2001), resulting in a total need for 18.5 additional FTE personnel within the UCI Medical Center site. Increases in facility space needed to accommodate increased law enforcement at the UCI Medical Center have been assumed in the Phase I and full LRDP implementation building assumptions. Ongoing development at the Medical Center will occur commensurate with increased onsite personnel, as appropriate;***no significant impacts*** will occur to the UCI Police Department. Because the City of Orange Police Department provides service to the project site only on an as-needed basis, ***no significant impacts*** are anticipated to the Orange Police Department.

Mitigation Program

Although no significant impacts have been identified, the following measures are recommended to minimize the demands on police services:

Mitigation Measures

3.10-3(a) Security and design measures which employ defensible space concepts should be integrated into the project design and construction plans prior to the completion of construction documents by the UCI Medical Center. These measures incorporate the concepts of Crime Prevention Through Environmental Design (CPTED), which involve the placement, and orientation of structures, access and visibility of common areas, placement of doors, windows, addressing and landscaping. CPTED promotes public safety, physical security and allows employees the ability to monitor activity.

3.10-3(b) Prior to commencement of demolition and construction activities for each structure/facility, the UCI Medical Center shall file an emergency access plan with the UCIMC Security Department and the City of Orange Police Department. The plan shall identify alternative routes for emergency access during construction to areas blocked by project-related construction activities.

Cumulative Impacts

Impact 3.10-4: The proposed project would not cumulatively contribute to demands on the City of Orange Police Department. No significant impacts are anticipated.

The UCI Medical Center Security Department is responsible for maintaining security of the Medical Center facility. Therefore, cumulative development within the City of Orange or the surrounding areas will not impact the UCI Police Department. Development served by the City of Orange Police

Department will incrementally contribute to increased demands for protection services. As defined in CEQA Guidelines §15130, a cumulative impact consists of an impact which is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts. The cumulative study area for the City of Orange Police Department would be the City of Orange. Please refer to Tables 3-1 and 3-2 of Section 3 of this EIR. New development in the City of Orange is imposed a police facility development fee based on the square footage of the development. The City of Orange Municipal Code Chapter 3.13 states that "The purpose of the police facility development fee is to fund that portion of the costs of: (1) building and financing the new headquarters building of the Orange Police Department and (2) remodeling space in the Civic Center vacated by the Police Department upon completion of the new building; which are attributable to new development's fair share of the total costs for such projects. (Ord. 18-89)...In addition to any other charges, there shall be a fee required as a condition precedent to the issuance of certain building permits and conditional use permits for construction or improvements or use of the properties lying wholly or partially within the City of Orange. A conditional use permit for a hospital or other health facility as set forth in Orange Municipal Code Section 17.10.030 shall require an obligation to pay the fee as a condition of issuance. (Ords. 4-00; 18-89." The proposed project will not contribute to the cumulative demands on the City of Orange Police Department since its services are only provided on an as-needed basis. Additional UCI Medical Center Security officers will be provided at the Medical Center to adequately serve the proposed project. ***No significant cumulative impacts*** will therefore occur at the Medical Center.

Mitigation Program

No mitigation is required.

3.11 TRANSPORTATION AND TRAFFIC

A traffic study was prepared by Austin-Foust Associates, Inc. in October 2001 and updated in September 2002 for the UCI Medical Center LRDP project. The results of the *University of California Irvine Medical Center Long-Range Development Plan Traffic Analysis* are summarized below and included in its entirety in Appendix F of this EIR.

3.11.1 METHODOLOGY

West Orange Circulation Study Traffic Model

A subarea traffic model was created to address existing and future traffic conditions in the western portion of the City of Orange. The West Orange Circulation Study Traffic Model (traffic model) traffic model study area includes the City Center area, the UCI Medical Center, the Uptown Specific Plan area, and portions of the cities of Anaheim and Garden Grove. The traffic model provides average daily traffic (ADT) and a.m. and p.m. peak hour volumes for existing conditions (year 2000 land use and traffic count data), year 2005, year 2010, and year 2020 that respond to anticipated changes in land use and circulation during this time period; the year 2005 analysis is not applicable to the proposed Medical Center LRDP project. Travel patterns contained in the traffic model are extracted from the Orange County Traffic Analysis Model (OCTAM 3.01). As such, regional travel patterns from the regional modeling database were incorporated into the project traffic model to provide both external and thru-trip patterns for the study area. This subregional traffic model allows for the preparation of a transportation improvement program, administered by the City of Orange, applicable to all proposed developments located within the traffic study area whereby all applicants will be responsible for the payment of fair share costs for these transportation improvements.

Traffic Study Area

The traffic study area was defined by the City of Orange, UCI, and Austin-Foust Associates, Inc., with input provided by the cities of Anaheim and Garden Grove. As depicted in Exhibit 3.11-1, the project traffic study area is generally bound by Katella Avenue to the north, Haster Street to the west, Garden Grove Boulevard to the south, and SR-57 to the east. All major intersections in this area were analyzed for potential project impacts using peak hour traffic volume data. The following intersections are included in the project traffic study area (numbers refer to intersection numbers in the West Orange Circulation Study Traffic Model and are depicted in Exhibit 3.11-2.

City of Anaheim

1. State College Boulevard at Katella Avenue
2. SR-57 southbound ramps at Katella Avenue
3. SR-57 northbound ramps at Katella Avenue
4. State College Boulevard at Gene Autry Way
5. State College Boulevard at Orangewood Avenue
34. Howell Avenue at Katella Avenue
35. Haster Street at Orangewood Avenue
36. Lewis Street at Orangewood Avenue
37. Rampart Street at Orangewood Avenue
40. Manchester Avenue at Orangewood Avenue
41. Anaheim Boulevard at Orangewood Avenue
46. North Stadium Way at Katella Avenue
47. State College Avenue at Anaheim Stadium entrance

City of Orange

6. SR-57 southbound ramps at Orangewood Avenue
7. SR-57 northbound ramps at Orangewood Avenue
8. The City Drive at I-5 northbound ramps
9. The City Drive at I-5 southbound ramps
12. Manchester Avenue at Chapman Avenue
13. The City Drive at Chapman Avenue
14. I-5 southbound on-ramp at Chapman Avenue
15. I-5 northbound on-ramp at Chapman Avenue
16. SR-57 southbound ramps at Chapman Avenue
17. SR-57 northbound ramps at Chapman Avenue
18. City Boulevard East at The City Way
19. The City Drive at The City Way
21. The City Drive at Justice Center Way
22. The City Drive at Entertainment Way
25. The City Drive at The Block Drive
26. The City Drive at SR-22 westbound ramps
27. The City Drive at SR-22 eastbound ramps
38. Rampart Street at Chapman Avenue
39. City Boulevard at The Block Drive
42. I-5 northbound off-ramp at Chapman Avenue
43. The City Drive at Medical Center Drive
44. The City Drive at Orange Center
45. SR-22 westbound ramps at The Block Drive

City of Garden Grove

10. Haster Street at Chapman Avenue
23. Haster Street at Lampson Avenue
28. Haster Street at SR-22 westbound ramps
29. Haster Street at Garden Grove Boulevard
30. Fairview Street at Garden Grove Boulevard
33. Fairview Street at SR-22 eastbound off-ramp

Cities of Orange and Garden Grove

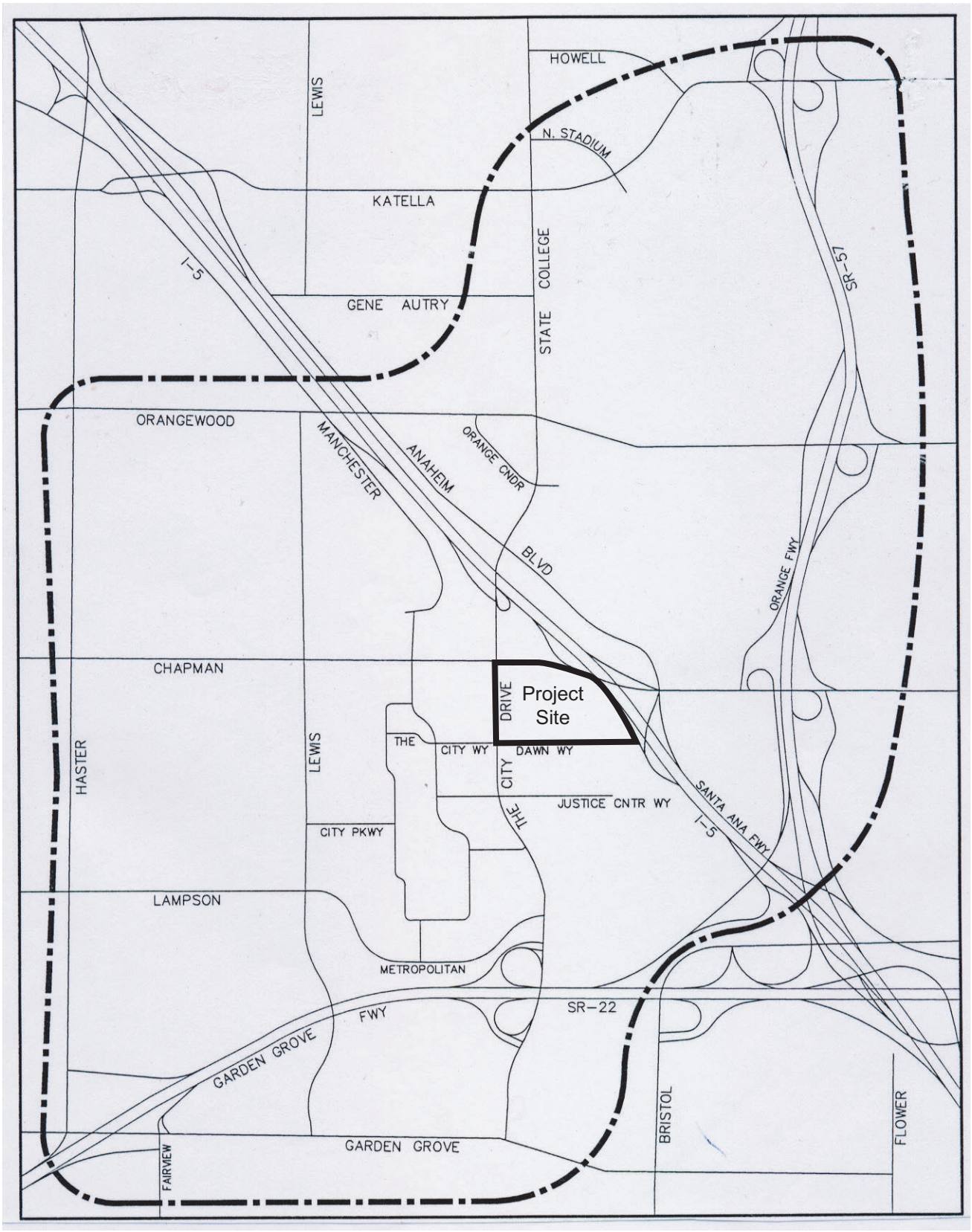
11. Lewis Street at Chapman Avenue
20. Lewis Street at City Parkway West
24. Lewis Street at Lampson Avenue/The Block Drive
31. Lewis Street at Garden Grove Boulevard

Cities of Orange and Santa Ana

32. The City Drive at Garden Grove Boulevard

Trip Generation Methodology

To identify current traffic characteristics for the UCI Medical Center, existing vehicular traffic entering/exiting the Medical Center site and pedestrian traffic oriented toward offsite parking areas entering/exiting the Medical Center were counted in August 1999. Because some of the access points are shared by other users, the vehicular counts were adjusted to discount non-Medical



Traffic Study Area **Exhibit 3.11-1**

UCI Medical Center LRDP EIR
University of California, Irvine

N Scale: Not to Scale
Source: Austin-Foust Associates, Inc.

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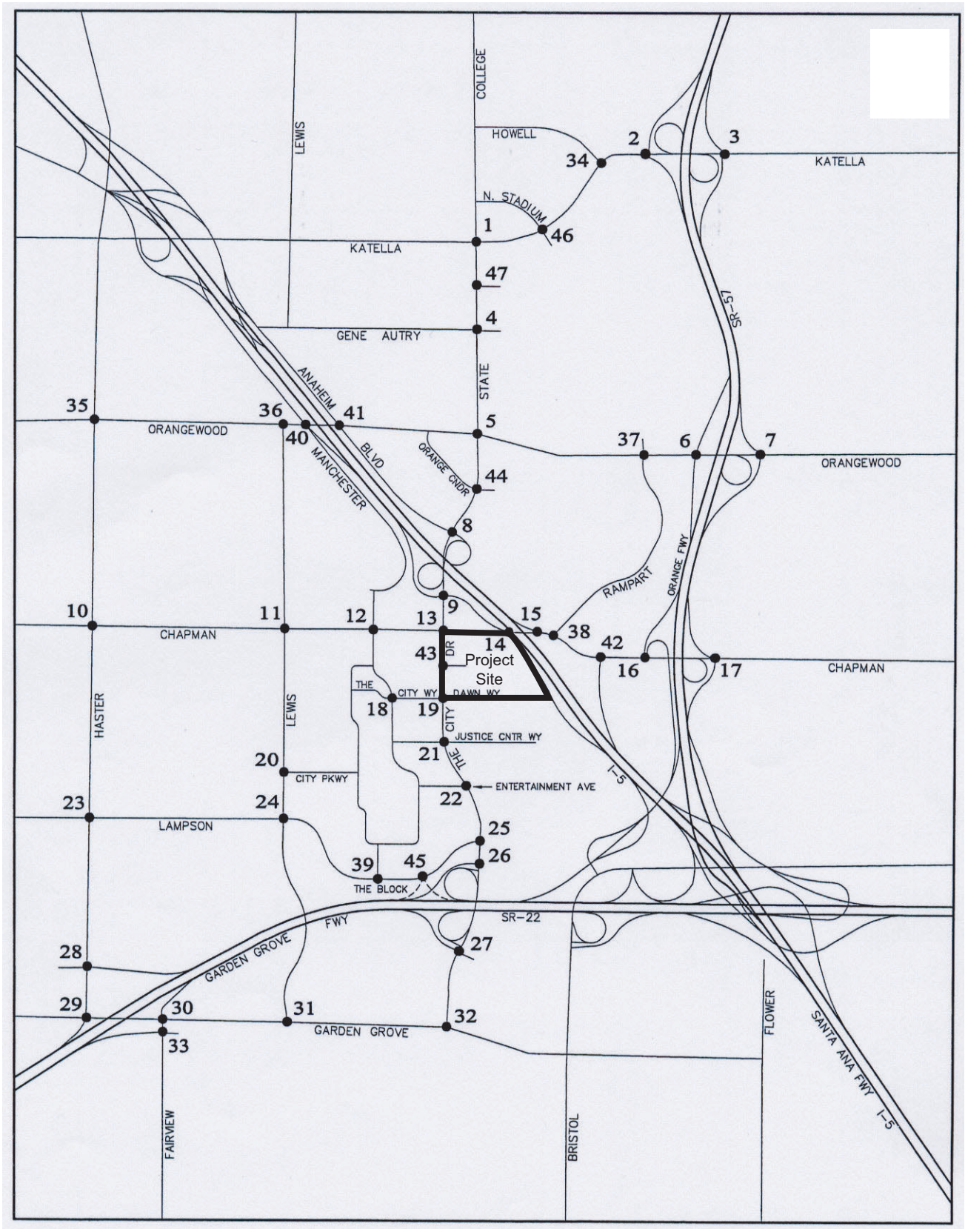

Traffic Study Area Intersections

Exhibit 3.11-2

UCI Medical Center LRDP EIR
University of California, Irvine

N

Scale: Not to Scale
Source: Austin-Foust Associates, Inc.

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Center traffic. Pedestrian counts were converted to equivalent vehicular counts by using an average vehicle occupancy of 1.2 persons per vehicle.

The second part of the trip generation analysis involved separating traffic counts into land use categories applicable to the Medical Center. The Institute of Transportation Engineers (ITE) standard trip rates for hospital, medical office, and general office were used. The proportion of the total generation for each land use within the Medical Center was applied to the actual existing trip generation to obtain applicable trip rates for each land use within the existing facility. Using this methodology, the specific trip making characteristics of the Medical Center are reflected in the traffic study. To estimate trip generation for the proposed project, the derived trip rates were applied to the project characteristics (e.g., square feet, beds, etc.).

Intersection Level of Service Methodology

Roadway performance is most often controlled by the performance of intersections, specifically during peak traffic periods. This is because traffic control at intersections interrupts traffic flow which would otherwise be relatively unimpeded except for the influences of on-street parking, access to adjacent land uses, or other factors resulting in interaction of vehicles between intersections. For this reason, this traffic analysis focuses on peak hour operating conditions for key intersections rather than roadway segments. Operating conditions at intersections are typically described in terms of "level of service" (LOS). As noted on Table 3.11-1, level of service (LOS) is a qualitative measure of a facility's operating performance. Level of Service is described with a letter designation with LOS A representing the best operating conditions and LOS F the worst.

TABLE 3.11-1
LEVEL OF SERVICE DEFINITIONS

Level of Service	Volume to Capacity Ratio	Description
A	0.00 – 0.60	Operations with very low delay. This level of service occurs when progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.
B	0.61 – 0.70	Operations with minimal delay. Generally occurs with short cycle lengths, good progression, or both. More vehicles stop than at LOS A, causing higher levels of average delay.
C	0.71 – 0.80	Operations with moderate delay. These higher delays may result from fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level, though many still pas through the intersection without stopping.
D	0.81 – 0.90	At LOS D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high v/c ratios. Many vehicles stop and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.
E	0.91 – 1.00	Operations with high control delay. This level of service is considered by many agencies to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent occurrences.
F	Above 1.00	Operation with delay in excess of 60 seconds per vehicle. This level, considered to be unacceptable to most drivers, often occurs with oversaturation, that is, when arrival flow rates exceed the capacity of the intersection. It may also occur in high v/c ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also be contributing to delay lengths.
Source: Highway Capacity Manual, 3rd Edition.		

Traffic Analysis Scenarios

Traffic conditions were analyzed for the following scenarios:

- Existing Conditions
- Short-Range (Year 2010) Without Phase I Project
- Short-Range (Year 2010) + Phase I Project
- Long-Range (Year 2020) Without Full LRDP Implementation
- Long-Range (Year 2020) + Full LRDP Implementation

Short-Range conditions (Year 2010) represent the approximate time of completion of Phase I of the Medical Center facility, while long-range conditions (Year 2020) represent full buildout of the UCI Medical Center LRDP project.

3.11.2 EXISTING CONDITIONS

Existing Conditions: UCI Medical Center Traffic Generation

Based on the traffic count data, the existing UCI Medical Center generates approximately 13,800 average daily trips (ADT), of which 1,320 trips occur during the a.m. peak hour and 1,030 trips occur during the p.m. peak hour.

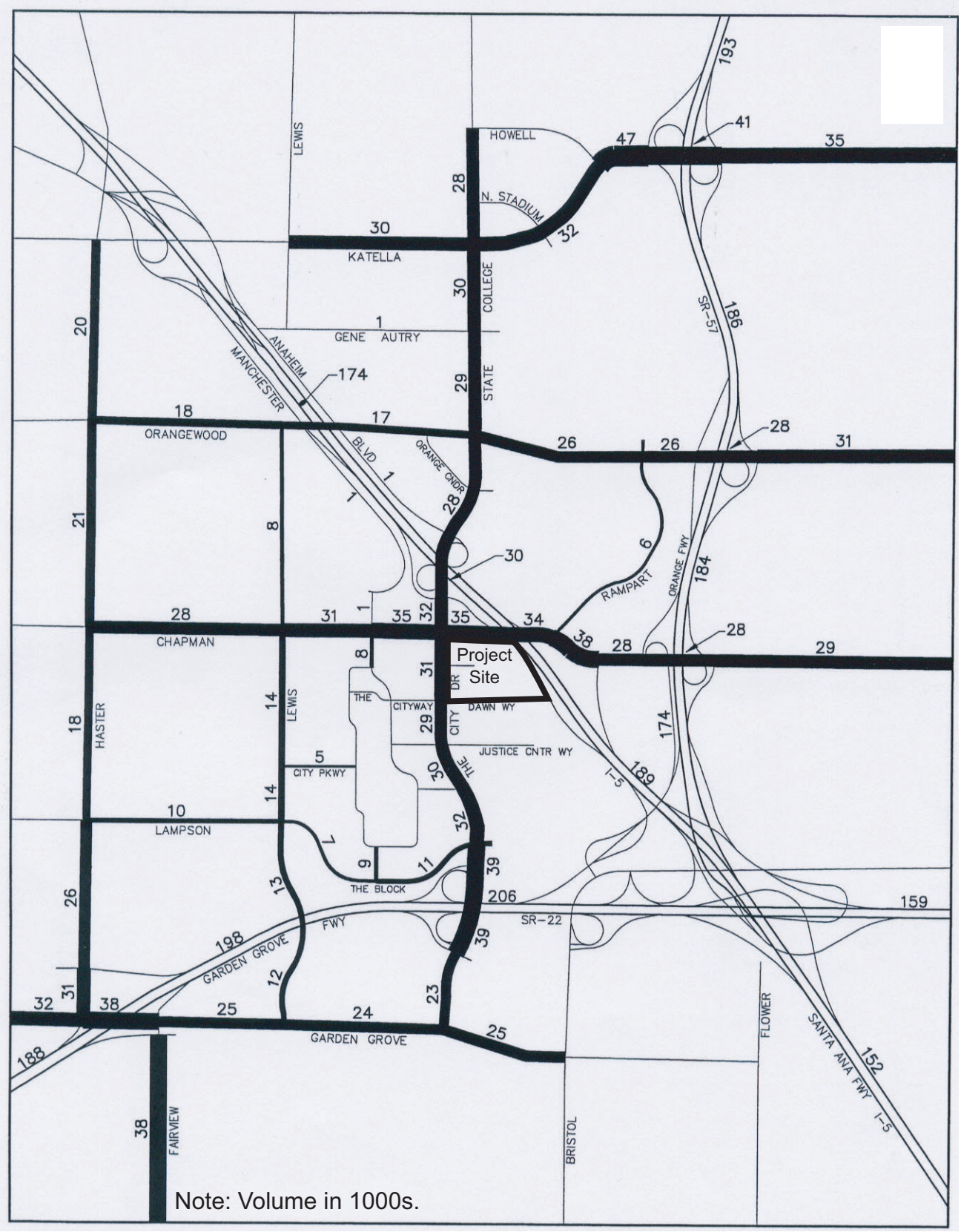
The second part of the trip generation analysis involved separating traffic counts into the different land use categories found at the Medical Center. The Institute of Transportation Engineers (ITE) standard trip rates for hospital, medical office, and general office were used. The proportion of the total generation for each land use within the Medical Center was applied to the actual existing trip generation to obtain applicable trip rates for each land use within the existing facility. Using this methodology, the specific trip making characteristics of the Medical Center are conveyed in the traffic study. Table 3.11-2 summarizes the findings of the analysis.

Existing Conditions: Roadway Segment Volumes

Existing conditions represent year 2000 traffic counts and land uses. Exhibit 3.11-3 depicts existing average daily traffic (ADT) volumes on the study area circulation system.

Existing Conditions: Intersection Volumes

Existing intersection capacity utilization values calculated from peak hour study area intersection counts and existing lane configurations; study area intersection capacity utilization and LOS are identified in Table 3.11-3.



Existing Conditions: Average Daily Traffic Volumes

Exhibit 3.11-3

UCI Medical Center LRDP EIR
University of California, Irvine

Scale: Not to Scale
Source: Austin-Foust Associates, Inc.

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TABLE 3.11-2
EXISTING CONDITIONS: TRIP GENERATION SUMMARY

Land Use	Units	A.M. Peak Hour			P.M. Peak Hour			ADT
		In	Out	Total	In	Out	Total	
ITE 6th EDITION TRIP RATES								
Hospital	Beds	0.77	0.30	1.07	0.41	0.81	1.22	11.77
Medical Office	TSF	1.94	0.49	2.43	0.99	2.67	3.66	36.13
General Office	TSF	1.37	0.19	1.56	0.25	1.24	1.49	11.01
TRIP GENERATION								
Inpatient	391 Beds	301	117	418	160	317	477	4,602
Ambulatory Care	167.63 TSF	325	82	407	166	448	614	6,057
Academic/Research	264.20 TSF	362	50	412	66	328	394	2,909
Administrative	56.44 TSF	77	11	88	14	70	84	621
Services	47.39 TSF	65	9	74	12	59	71	522
Total		1,130	269	1,399	418	1,222	1,640	14,711
PROPORTION OF TRIPS								
Inpatient	Beds			0.30			0.29	0.31
Ambulatory Care	TSF			0.29			0.38	0.41
Academic/Research	TSF			0.30			0.24	0.20
Administrative	TSF			0.06			0.05	0.04
Services	TSF			0.05			0.04	0.04
Total				1.00			1.00	1.00
ESTIMATED TRIP GENERATION BY FUNCTION								
Inpatient	391 Beds	324	65	388	61	238	299	4,278
Ambulatory Care	167.63 TSF	322	64	387	80	312	391	5,658
Academic/Research	264.20 TSF	326	65	391	50	197	247	2,760
Administrative	56.44 TSF	70	14	84	11	41	52	552
Services	47.39 TSF	59	12	70	8	33	41	552
Total		1,100	220	**1,320**	210	820	**1,030**	**13,800**
TRIP RATES BY FUNCTION								
Inpatient	Beds	0.85	0.17	1.02	0.16	0.62	0.78	11.20
Ambulatory Care	TSF	1.92	0.38	2.31	0.48	1.86	2.33	33.75
Academic/Research	TSF	1.23	0.25	1.48	0.19	0.74	0.94	10.45
Administrative	TSF	1.23	0.25	1.48	0.19	0.73	0.91	9.78
Services	TSF	1.23	0.25	1.48	0.18	0.69	0.87	11.65

TSF: thousand square feet of floor area
Sources: University of California Irvine Medical Center Long Range Development Plan Traffic Analysis, Austin-Foust Associates, Inc., September 2002.

TABLE 3.11-3
EXISTING CONDITIONS
INTERSECTION LEVELS OF SERVICE

Intersection	A.M. Peak ICU/LOS	P.M. Peak ICU/LOS
1. State College Boulevard/Katella Avenue	0.60/A	0.72/C
2. SR-57 southbound ramps/Katella Avenue	0.48/A	0.56/A
3. SR-57 northbound ramps/Katella Avenue	0.40/A	0.56/A
4. State College Blvd./Gene Autry	0.44/A	0.50/A
5. State College Blvd./Orangewood Avenue	0.49/A	0.76/C
6. SR-57 southbound ramps/Orangewood Ave.	0.56/A	0.81/D
7. SR-57 northbound ramps/Orangewood Ave.	0.52/A	0.54/A
8. The City Drive/ I-5 northbound ramps	0.25/A	0.33/A
9. The City Drive/I-5 southbound ramps	0.39/A	0.36/A
10. Haster Street/Chapman Avenue	0.70/B	0.89/D
11. Lewis Street/Chapman Avenue	0.72/C	0.75/C
12. Manchester Avenue/Chapman Avenue	0.52/A	0.55/A
13. The City Drive/Chapman Avenue	0.69/B	0.69/B
14. I-5 southbound on-ramp/Chapman Avenue	0.35/A	0.41/A
15. I-5 northbound on-ramp/Chapman Avenue	0.56/A	0.70/B
16. SR-57 southbound ramps/Chapman Avenue	0.53/A	0.67/B
17. SR-57 northbound ramps/Chapman Avenue	0.37/A	0.44/A
18. City Boulevard East/The City Way	0.16/A	0.29/A
19. The City Drive/The City Way	0.66/B	0.58/A
20. Lewis Street/City Parkway West	0.36/A	0.46/A
21. The City Drive/Justice Center Way	0.43/A	0.37/A
22. The City Drive/Entertainment Way	0.30/A	0.38/A
23. Haster Street/Lampson Avenue	0.79/C	0.72/C
24. Lewis St./Lampson Avenue/The Block Drive	0.61/B	0.59/A
25. The City Drive/The Block Drive	0.39/A	0.52/A
26. The City Drive/SR-22 westbound ramps	0.60/A	0.58/A
27. The City Drive/SR-22 eastbound ramps	0.67/B	0.72/C
28. Haster Street/SR-22 westbound off-ramp	0.51/A	0.49/A
29. Haster Street/Garden Grove Boulevard	0.72/C	0.85/D
30. Fairview Street/Garden Grove Boulevard	0.79/C	0.81/D
31. Lewis Street/Garden Grove Boulevard	0.75/C	**0.93/E***
32. The City Drive/Garden Grove Boulevard	0.71/C	0.83/D
33. Fairview Street/SR-22 eastbound off-ramp	0.62/B	0.70/B
34. Howell Avenue/Katella Avenue	0.52/A	0.71/C
35. Haster Street/Orangewood Avenue	0.60/A	0.79/C
36. Lewis Street/Orangewood Avenue	0.57/A	0.46/A

TABLE 3.11-3 (continued)
EXISTING CONDITIONS
INTERSECTION LEVELS OF SERVICE

Intersection	A.M. Peak ICU/LOS	P.M. Peak ICU/LOS
37. Rampart Street/Orangewood Avenue	0.50/A	0.59/A
38. Rampart Street/Chapman Avenue	0.56/A	0.69/B
39. City Boulevard/The Block Drive	0.31/A	0.45/A
42. I-5 northbound off-ramp/Chapman Avenue	0.79/C	**0.93/E***
43. The City Drive/Medical Center Drive	0.47/A	0.46/A
44. The City Drive/Orange Cndr	0.29/A	0.34/A
46. N. Stadium Way/Katella Avenue	0.34/A	0.50/A
47. State College Avenue/Entrance	0.37/A	0.42/A

* Exceeds Level of Service D.

Level of Service Ranges for signalized intersections: 0.00 - 0.60 = A; 0.61 - 0.70 = B; 0.71 - 0.80 = C; 0.81 - 0.90 = D; 0.91 - 1.00 = E; Above 1.00 = F

Note: Intersections 40 and 41 are omitted from this table due to construction to widen I-5; Intersection 45 is a future intersection.

Source: University of California Irvine Medical Center Long Range Development Plan Traffic Analysis, Austin-Foust Associates, Inc., September 2002.

Table 3.11-3 shows that all intersections are currently operating at acceptable levels of service (i.e., LOS D or better) during the a.m. and p.m. peak hours, with the exception of the following intersections (numbers refer to intersection numbers in the traffic model):

Cities of Orange and Garden Grove

31. Lewis Street at Garden Grove Boulevard–LOS E (p.m. peak)

City of Orange

42. I-5 northbound offramp at Chapman Avenue–LOS E (p.m. peak)

Existing Conditions: Site Circulation

Onsite Access: The primary access into the Medical Center is from The City Drive onto Medical Center Drive. Dawn Way is located on County of Orange property but provides access to the Medical Center via a Memorandum of Understanding between the county and the UCI Medical Center. Dawn Way is used predominately to access patient/public/staff parking and provides service vehicle circulation. There is limited vehicular access to the eastern portion of the campus; existing routes are circuitous.

Patient Care Access: Medical Center Drive provides direct drop-off and pick-up access to all patient care facilities that are located in the Inpatient zone and the Ambulatory Care zone. Vehicular access is indirect and difficult for those patient care functions located at the back of the site in the Academic/Research/Administrative Zone.

Emergency Access: There are two emergency access routes available to the public. The primary emergency access route is from the main entrance at Medical Center Drive; the secondary access route is from Chapman Avenue. There is no dedicated emergency access drive associated with the Medical Center. Ambulances and other emergency vehicles generally access the Medical Center from Chapman Avenue; this is the most direct route to the Emergency Department.

The hospital helistop provides emergency helicopter access. The Medical Center averages four to six flights per month. The helistop is located on-grade near the corner of The City Drive at Chapman Avenue. The FAA approved flight path is from the northeast which is the prevailing wind direction. Upon arrival, patients are transported along an exterior path to a controlled access point within the Emergency Department.

Pedestrian Circulation: Primary pedestrian paths are sited in north-south and east-west directions, linking the South Parking Structure and the Ambulatory zone to the Inpatient zone facilities. Similar to the vehicular system, pedestrian circulation is more circuitous in an east-west direction. Pedestrian circulation also occurs between the Medical Center and offsite uses. Staff walk to/from the Medical Center's 200 Building located one block west of the facility across The City Drive. Pedestrians also cross The City Drive to visit The Block shopping center which contains restaurant, entertainment, and retail services.

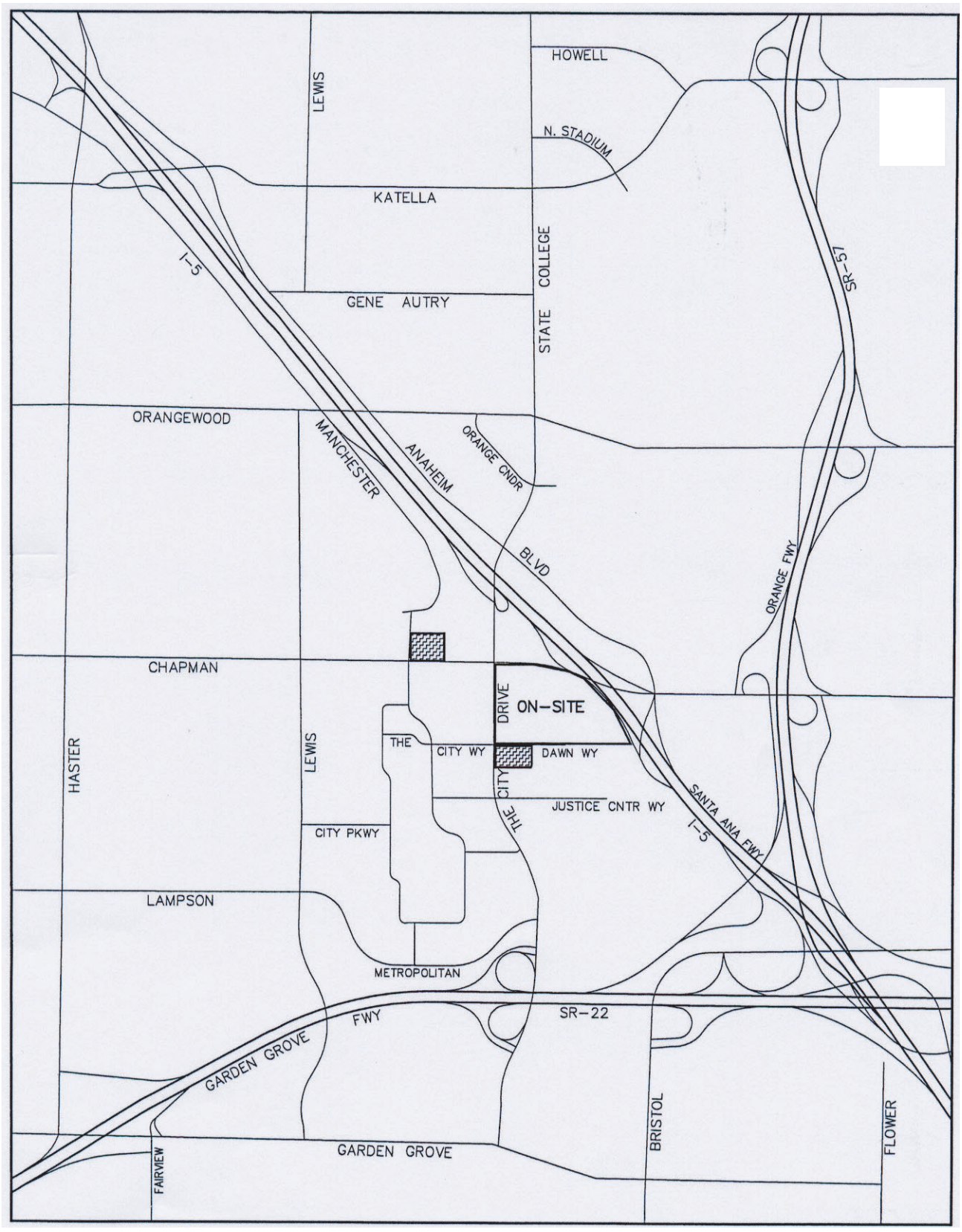
Existing Conditions: Parking

As identified in Table 3.11-4, Medical Center parking is provided in two onsite parking structures and surface parking lots throughout the Medical Center site and leased offsite parking lots (Exhibit 3.11-4). At the Medical Center, there are 1,590 parking spaces; there are 875 parking spaces available in offsite lots totaling 2,465 spaces.

TABLE 3.11-4
UCI MEDICAL CENTER
ONSITE AND OFFSITE PARKING

Parking Description	Parking Spaces	Number of Floors
Onsite Parking		
North Parking Structure	318	4
South Parking Garage	665	6
Surface Parking	607	n/a
Total Onsite Parking	**1,590 parking spaces**	
Offsite Parking		
Various Locations	875	n/a
Total Offsite Parking	**875 parking spaces**	
Total Onsite and Offsite Parking	**2,465 parking spaces**	

Parking was counted in August 1999 at the onsite and offsite locations to determine the existing parking demand. The peak parking demand currently occurs at 10:00 a.m. During the a.m. peak hour, 1,260 parked vehicles were counted at the Medical Center and 740 parked vehicles were counted at the offsite lots for a total of 2,000 parked vehicles. The parking demand was separated



UCI Medical Center Existing Onsite and Offsite Parking Locations — Exhibit 3.11-4

UCI Medical Center LRDP EIR
University of California, Irvine

N
Scale: Not to Scale
Source: Austin-Foust Associates, Inc.

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according to various uses/functions within the Medical Center, using similar procedures to those used to derive trip generation. The results are summarized in Table 3.11-5.

TABLE 3.11-5
EXISTING PARKING DEMAND

Land Use	Units	Proportion of A.M. Trips	Peak Parking Demand (10:00 A.M.)	Parking Rate
Inpatient	391 Beds	0.30	600	1.57/Bed
Ambulatory Care	167.63 TSF	0.29	580	3.46/TSF
Academic/Research	264.20 TSF	0.30	600	2.27/TSF
Administrative	56.44 TSF	0.06	120	2.13/TSF
Services	47.39 TSF	0.05	100	2.11/TSF
Total			**2,000**	

TSF: thousand square feet of floor area

Source: University of California Irvine Medical Center Long Range Development Plan Traffic Analysis, Austin-Foust Associates, Inc., June 2002.

3.11.3 THRESHOLDS OF SIGNIFICANCE

The following standards of significance are based on Appendix G of the CEQA Guidelines. For the purposes of this EIR, impacts would be considered significant if project-related traffic were to:

- Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections).

- Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways.

- Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks.

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

- Result in inadequate emergency access.

- Result in inadequate parking capacity.

- Conflict with applicable policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks).

In addition, the following significance criteria applies to the UCI Medical Center LRDP project. For the purposes of this EIR, impacts would be considered significant if the following were to occur:

- Project-related traffic would cause an intersection to exceed LOS D (intersection capacity utilization value less than or equal to 0.90) for peak hour intersection volumes, or the

project worsens the intersections currently operating at LOS E or LOS F by an intersection capacity utilization increase of greater than 0.01.

3.11.4 PROJECT AND CUMULATIVE IMPACTS

Project Development Characteristics

The proposed intensification of development at the UCI Medical Center will result in approximately 1,902,049 gross square feet (gsf) of onsite facilities and 4,200 parking spaces, inclusive of new and retained development. The existing Medical Center contains approximately 910,365 gsf of buildings, inclusive of 391 hospital beds, and 1,590 surface and structured parking spaces. As a part of the Phase I project, 291,624 gsf of development (inclusive of 205 hospital beds) and 418 parking spaces will be demolished. Phase I development includes 581,000 gsf of buildings (inclusive of 287 hospital beds) and 260 onsite parking spaces. Therefore, at the end of Phase I there will be 1,199,741 gsf of uses (inclusive of 473 hospital beds) and 1,432 spaces.

At full LRDP implementation (inclusive of Phase I), 523,703 square feet of structures and buildings (inclusive of 205 hospital beds) and 598 parking spaces will have been demolished. New construction will total 1,515,387 gsf (inclusive of 341 hospital beds) and 3,210 parking spaces. At completion, the UCI Medical Center will result in 1,902,049 gsf of medical and related uses (inclusive of 527 hospital beds) and 4,200 onsite parking spaces.

The UCI Medical Center helistop provides emergency helicopter access. The Medical Center currently averages four to six emergency helicopter flights per month. The frequency of emergency helicopter flights could change in the future based on increases in countywide population, access to emergency health care facilities, etc.; any change is not directly correlated to intensification of development at the Medical Center.

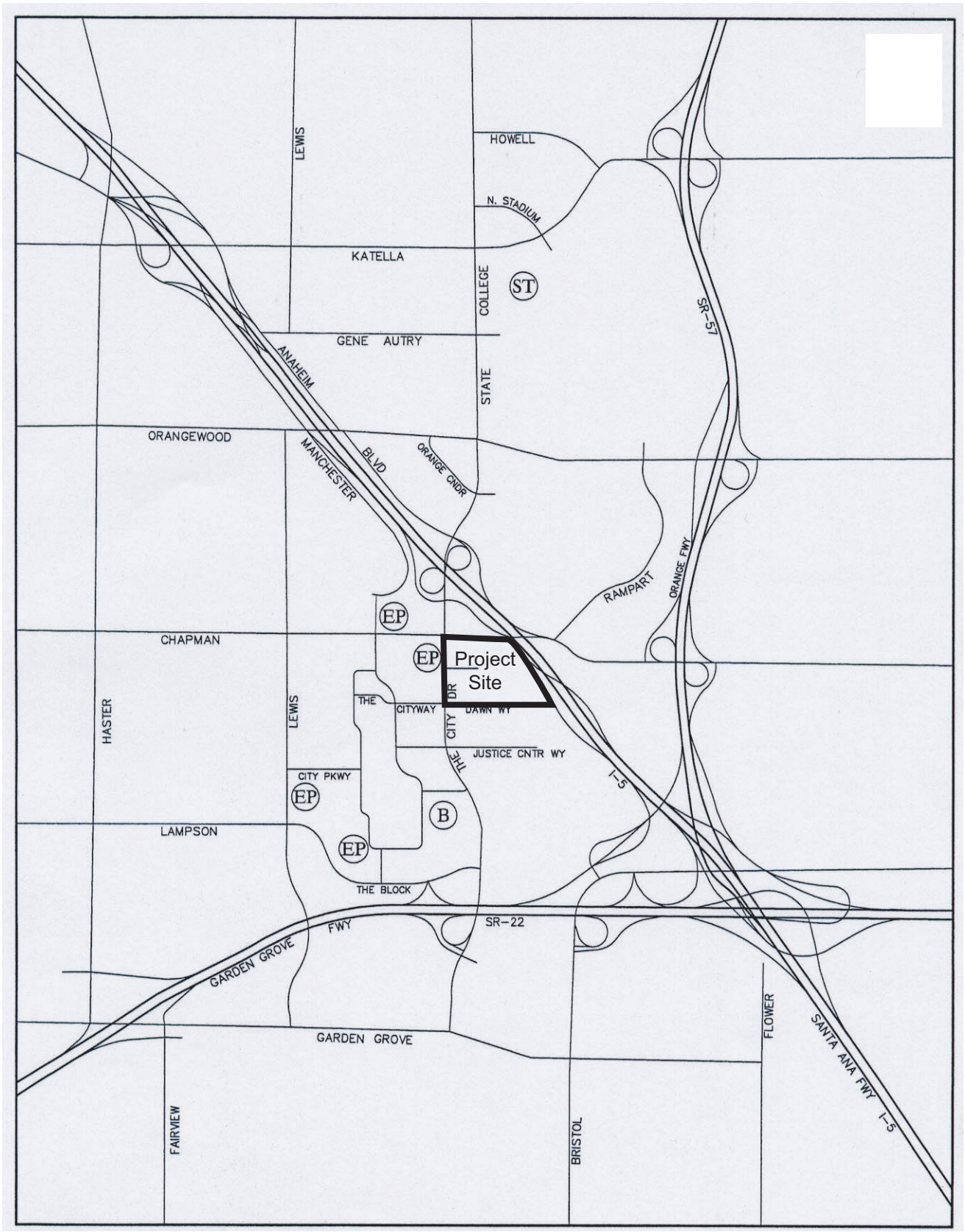
Cumulative Development Assumptions

Two cumulative development timeframes are analyzed in this traffic study: Year 2010 with and without the Phase I UCI Medical Center project and Year 2020 with and without full implementation of the UCI Medical Center LRDP project. These scenarios are based on buildout of the surrounding land uses in the traffic study area for the two time periods with and without site development.

As previously discussed in Section 3.11.1, a subarea traffic model was created to address existing and future traffic conditions in the western portion of the City of Orange. The traffic model area includes the City Center area, the UCI Medical Center, the Uptown Specific Plan area, and portions of the cities of Anaheim and Garden Grove. Table 3.11-6 identifies by land use category, the existing and expected cumulative development growth to occur in the traffic study area. Detailed land use and trip generation data by traffic zone is provided in Appendix F to this EIR.

Phase I Cumulative Development Assumptions

Background traffic conditions include increases in local and thru-traffic volumes, changes in traffic patterns, and development of known projects in the area. The basis for the through trip growth is OCP-96 land use projections. Cumulative land use changes assumed in the traffic model's 2010 land use data base include development of the following projects depicted on Exhibit 3.11-5.



Short-Range Cumulative Project Locations

Exhibit 3.11-5

UCI Medical Center LRDP EIR
University of California, Irvine

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Scale: Not to Scale
Source: Austin-Foust Associates, Inc.

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- Anaheim Sportstown project on the Edison Field property.
- Expansion of The Block at Orange.
- Development of the Equity Partners four office development sites.

Cumulative development assumptions for year 2010 will result in the addition of 34,730 daily trips to the traffic study area. Development assumptions through year 2010 are identified in Appendix F of this EIR.

TABLE 3.11-6
TRAFFIC CUMULATIVE DEVELOPMENT SUMMARY

Land Use Category	Unit	Existing Conditions		Year 2010		Year 2020	
		Amount	ADT	Amount	ADT	Amount	ADT
1. Low Density Residential	DU	1,068	10,221	1,068	10,221	1,018	9,742
2. Medium Density Residential	DU	532	4,134	532	4,134	532	4,134
3. Med-High Density Residential	DU	2,098	14,896	2,098	14,896	2,098	14,896
4. High Density or Apartments	DU	1,140	7,558	1,140	7,558	1,190	7,890
5. Mobile Home	DU	716	3,444	716	3,444	513	2,468
9. General Commercial	TSF	302	13,736	302	13,736	1,026	44,037
10. Restaurant	TSF	105	13,686	105	13,686	105	13,686
11. Office	TSF	4,818	53,046	5,975	65,785	12,818	141,125
12. Medical Office	TSF	100	9,522	100	95,226	208	19,806
13. Industrial	TSF	1,576	10,984	1,576	10,984	1,263	8,804
16. Hotel	Room	2,002	16,477	2,139	17,604	1,935	15,925
19. Hospital	Bed	382	4,278	524	5,869	524	5,869
24. Elementary School	STU	400	580	400	580	400	580
29. County Facility	SG	550	5,500	550	5,500	650	6,500
35. Anaheim Stadium	SG	100	2,000	100	2,000	100	2,000
36. Crystal Cathedral	SG	100	1,000	100	1,000	100	1,000
37. Gotcha Glacier	SG	–	–	1,000	8,330	–	–
38. Sportstown	SG	49	1,549	49	1,549	900	28,458
39. The Block at Orange	SG	811	35,497	1,061	46,440	1,061	46,440
TOTAL			**208,108**		**242,838**		**373,360**

DU: dwelling unit
TSF: thousand square feet of floor area
STU: students
SG: special generator

Sources: 1-29: *Trip Generation*, 6th Edition, Institute of Transportation Engineers, 1997.
35: Anaheim Traffic Analysis Model.
37: *Gotcha Glacier Parking and Trip Generation Summary*, Austin-Foust Associates, Inc., June 2000.
38: *Anaheim Sports Complex Traffic Analysis*, Austin-Foust Associates, Inc., January 1996.
39. Driveway counts, June 1999.

Highway improvements under the 2010 scenario include the following conceptually depicted in Exhibit 3.11-6.

- Completion of the I-5 widening project, including: (a) I-5 northbound off-ramp to Chapman Avenue reconfigured to cross I-5 and intersect the southbound ramp intersection (reduces ADT volumes on Chapman Avenue immediately east of I-5); and (b) I-5 northbound off-ramp to State College Boulevard.

- Phase 1 of The City Drive/SR-22 project including the realignment of Metropolitan Drive and consolidation of the two closely spaced intersections on City Drive to a single intersection at Metropolitan Drive.

Full LRDP Implementation Cumulative Development Assumptions

The Year 2020 analysis is considered full LRDP implementation. It assumes the projected long-range land uses in the study area and year 2020 demographic data for the surrounding area. Cumulative development assumptions for year 2020 will result in the addition of 130,522 daily trips to the traffic study area. Cumulative land use changes assumed in the traffic model's 2020 land use data base include development of the following projects depicted on Exhibit 3.11-7:

- Orange Uptown Area (mixed office/commercial uses)
- Anaheim Stadium Area Master Land Use Plan buildout

Highway improvements under the 2020 scenario include the following conceptually depicted in Exhibit 3.11-8.

- Completion of the SR-22 project, with the direct southbound SR-57 to westbound SR-22 separation, and the direct ramp to Metropolitan Drive/The Block Drive.

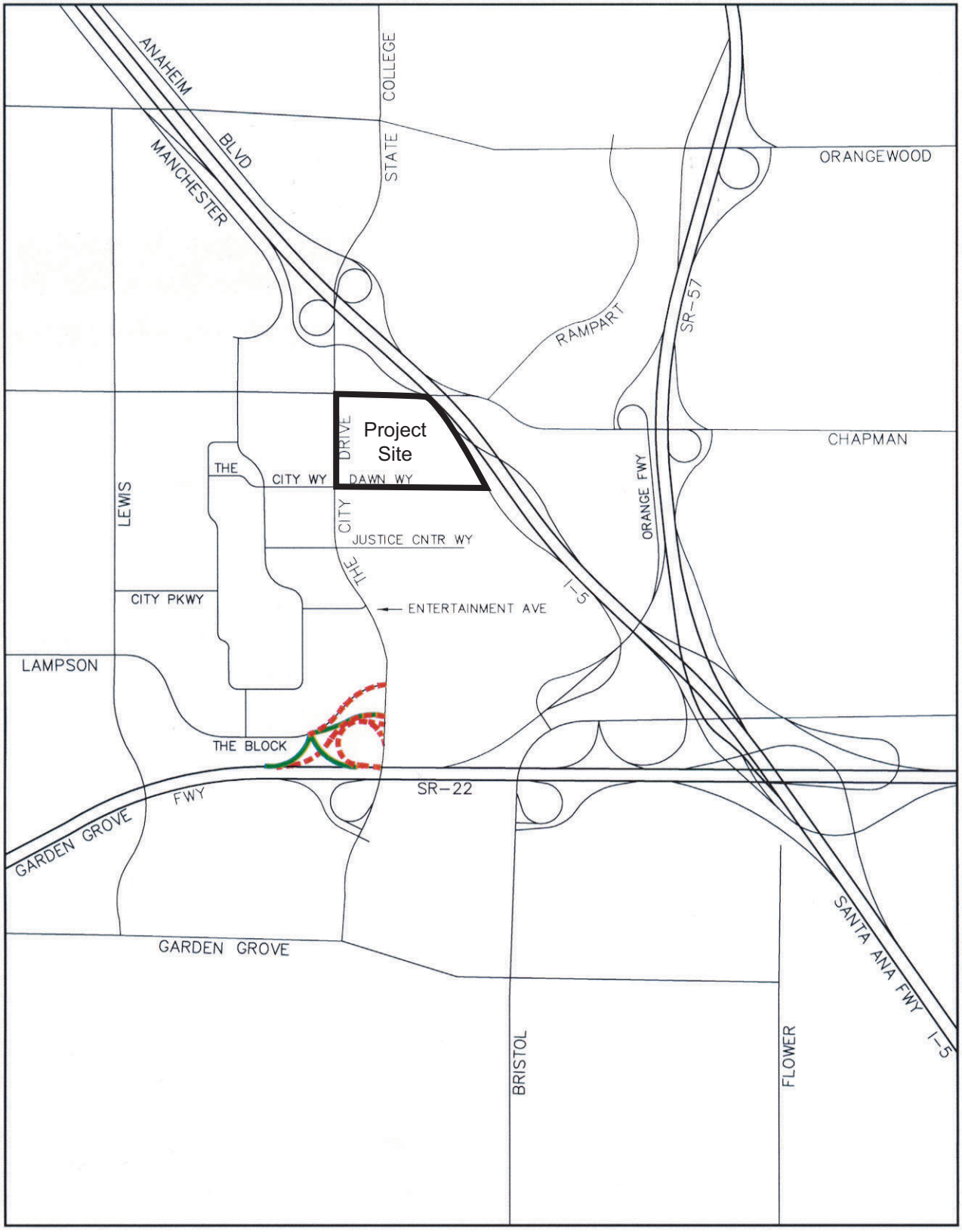
- Local intersection improvements are also planned for this area.

Construction-related Traffic and Parking Impacts

Impact 3.11-1: Trips from construction trucks associated with Phase I and full LRDP implementation could temporarily impact traffic conditions. This is considered a less than significant impact.

The heaviest volumes of construction vehicles are anticipated during the demolition and excavation phases of each project. For Phase I, 14 buildings, one parking structure, and surface parking areas. Demolition activities will occur over an estimated 14- to 18-week period in fall 2003 and 20- to 24-week period in 2007. Excavation activities for Phase I will occur over an estimated 12- to 15-week period. As identified in Section 2, Project Description, Phase I will result in the one-time generation of approximately 36,019 cubic yards of demolition debris and require the excavation of approximately 45,000 cubic yards of soil. Demolition debris and excavated soils will be exported from the Medical Center site. Assuming that the capacity of the haul trucks is 20 cubic yards per truck and the trucks will be filled with up to 18 cubic yards to prevent loss of dirt in transport, approximately 4,501 truck trips (2,251 trucks to/from the site) will be generated, or an average of 23 to 28 truck trips per day.

Construction truck trips are anticipated to access the site from either I-5 using the State College Boulevard interchange or SR-22 using The City Drive interchange. The impact caused by construction haul trucks is temporary. Hauling operations are anticipated to be completed prior to the p.m. peak hour but may overlap with the a.m. peak hour. The additional short-term daily trip volume associated with construction traffic, in combination with the existing daily vehicle trips associated with the UCI Medical Center, will not exceed Phase I trip generation (see Table 3.11-8).



Year 2010 SR-22 Transportation Improvements

Exhibit 3.11-6

UCI Medical Center LRDP EIR
University of California, Irvine

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Scale: Not to Scale
Source: Austin-Foust Associates, Inc.

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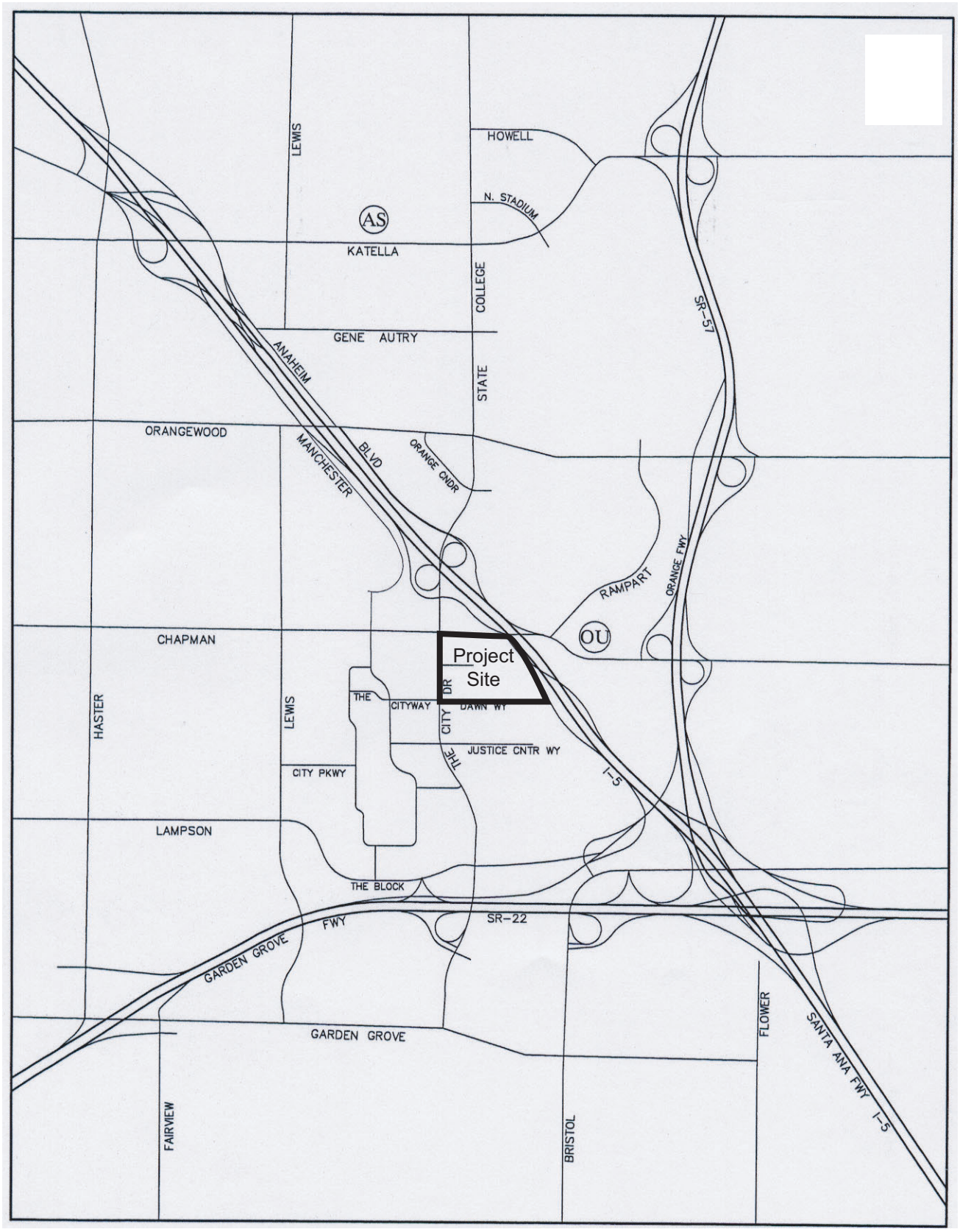

Long-Range Cumulative Project Locations

Exhibit 3.11-7

UCI Medical Center LRDP EIR
University of California, Irvine

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Scale: Not to Scale
Source: Austin-Foust Associates, Inc.

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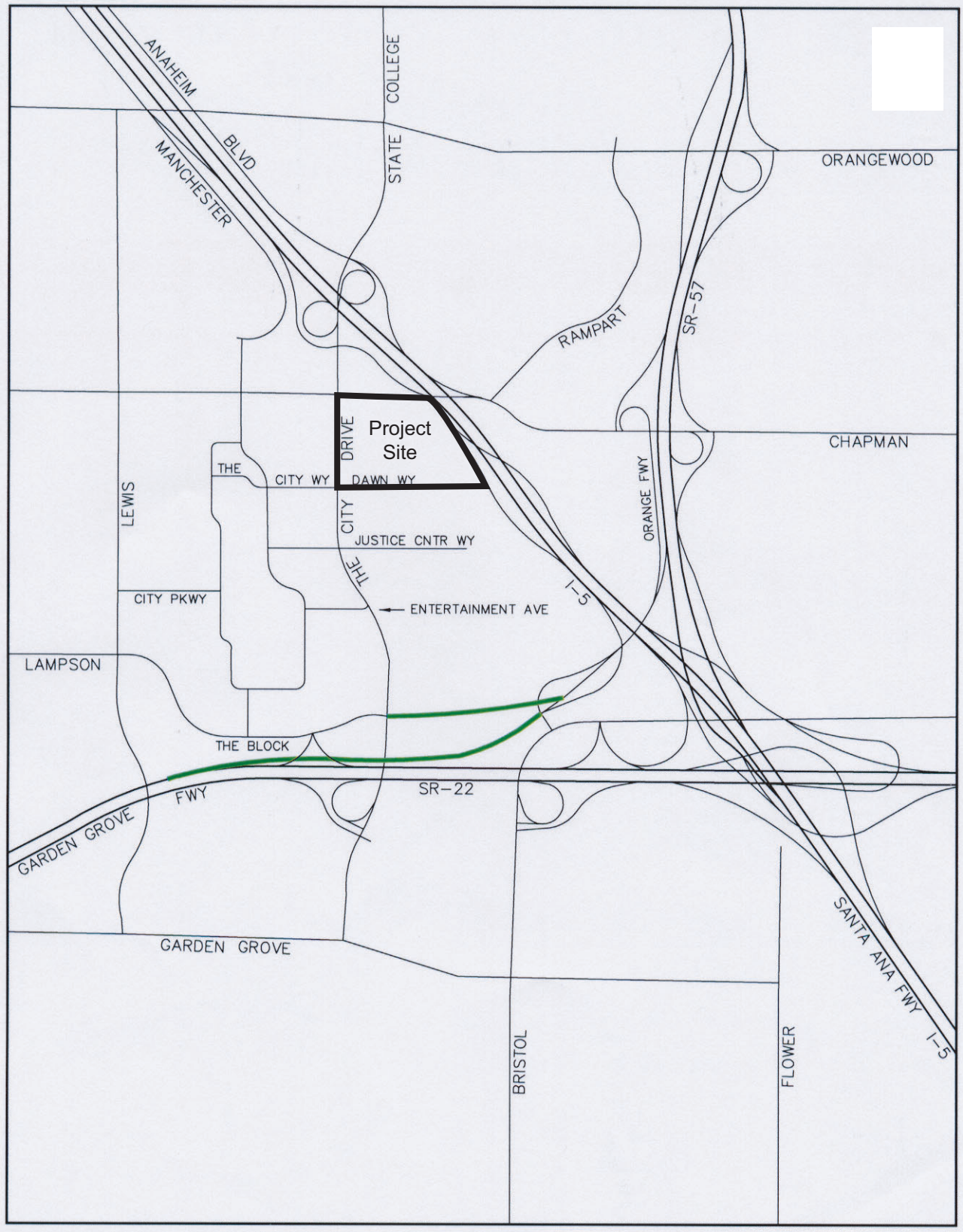

Year 2020 SR-22 Transportation Improvements **Exhibit 3.11-8**

UCI Medical Center LRDP EIR
University of California, Irvine

N
Scale: Not to Scale
Source: Austin-Foust Associates, Inc.

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Therefore, short-term, project-related construction truck traffic impacts are considered to be ***less than significant***.

For full LRDP implementation, 16 buildings and surface parking areas will be demolished. This component of the project will be implemented over a period of several years. Individual development projects could result in demolition and excavation time periods similar to Phase I. Full LRDP implementation will result in the one-time generation of approximately 22,648 cubic yards of demolition debris; quantity of excavation material is expected to be less than associated with the Phase I project and will be determined on a project-by-project basis. Demolition debris and excavated soils will be exported from the Medical Center site. Assuming that the capacity of the haul trucks is 20 cubic yards per truck and the trucks will be filled with up to 18 cubic yards to prevent loss of dirt in transport, approximately 1,258 truck trips (629 trucks to/from the site) will be generated associated with demolition debris removal. It is anticipated that the average daily truck trips will be less than associated with the Phase I project because the construction duration associated with full LRDP implementation will be longer than associated with the Phase I project. Although no significant impacts are anticipated, the number of construction truck trips associated with individual full LRDP implementation projects will need to be determined on a project-by-project basis.

Mitigation Program

Although no significant impacts are anticipated, the following measure is recommended.

Mitigation Measure

3.11-1 During periods of high construction traffic (such as peak demolition and excavation), the UCI Medical Center shall coordinate construction truck traffic with daily traffic patterns in the project vicinity. Such coordination would seek to minimize short-term construction traffic conflicts to the extent feasible.

Short-Range (Year 2010) Traffic Analysis

The short-range analysis is based on the estimated growth in the study area through year 2010. The traffic model used for the proposed project includes traffic study area land use and trip generation data for existing conditions and three future time periods: years 2005, 2010, and 2020.

Short-Range Without Phase I Project Traffic Analysis

Short-Range Without Phase I Project: Intersection Volumes

Table 3.11-7 compares the intersection levels of service for the *Existing Conditions* and *Short-Range Without Phase I Project* scenarios. This table shows that eight intersections will operate at a deficient level of service in 2010 without project-related traffic (numbers refer to intersection numbers in the traffic model). These intersections are as follows:

City of Anaheim

1. State College Boulevard at Katella Avenue–LOS F (p.m. peak)
5. State College Boulevard at Orangewood Avenue–LOS E (p.m. peak)

City of Orange

6. SR-57 southbound ramps at Orangewood–LOS E (p.m. peak)

TABLE 3.11-7
SHORT-RANGE WITHOUT PHASE I PROJECT
INTERSECTION LEVELS OF SERVICE

Intersection	Existing Conditions		Short-Range Without Phase I Project	
	A.M. Peak Hour/LOS	P.M. Peak Hour/LOS	A.M. Peak Hour/LOS	P.M. Peak Hour/LOS
1. State College Boulevard/Katella Avenue	0.60/A	0.72/C	0.71/C	**0.91/E***
2. SR-57 southbound ramps/Katella Avenue	0.48/A	0.56/A	0.53/A	0.69/B
3. SR-57 northbound ramps/Katella Avenue	0.40/A	0.56/A	0.39/A	0.75/C
4. State College Blvd./Gene Autry	0.44/A	0.50/A	0.56/A	0.71/C
5. State College Blvd./Orangewood Avenue	0.49/A	0.76/C	0.57/A	**0.95/E***
6. SR-57 southbound ramps/Orangewood Ave.	0.56/A	0.81/D	0.68/B	**0.92/E***
7. SR-57 northbound ramps/Orangewood Ave.	0.52/A	0.54/A	0.59/A	0.62/B
8. The City Drive/I-5 northbound ramps	0.25/A	0.33/A	0.49/A	0.51/A
9. The City Drive/I-5 southbound ramps	0.39/A	0.36/A	0.49/A	0.41/A
10. Haster Street/Chapman Avenue	0.70/B	0.89/D	0.78/C	**1.03/F***
11. Lewis Street/Chapman Avenue	0.72/C	0.75/C	0.78/C	**0.92/E***
12. Manchester Avenue/Chapman Avenue	0.52/A	0.55/A	0.60/A	0.56/A
13. The City Drive/Chapman Avenue	0.69/B	0.69/B	0.82/D	0.76/C
14. I-5 southbound on-ramps/Chapman Avenue	0.35/A	0.41/A	0.49/A	0.49/A
15. I-5 northbound on-ramps/Chapman Avenue	0.56/A	0.70/B	0.34/A	0.53/A
16. SR-57 southbound ramps/Chapman Avenue	0.53/A	0.67/B	0.59/A	0.74/C
17. SR-57 northbound ramps/Chapman Avenue	0.37/A	0.44/A	0.41/A	0.49/A
18. City Boulevard East/The City Way	0.16/A	0.29/A	0.16/A	0.31/A
19. The City Drive/The City Way	0.66/B	0.58/A	0.73/B	0.68/B
20. Lewis Street/City Parkway West	0.36/A	0.46/A	0.46/A	0.56/A
21. The City Drive/Justice Center Way	0.43/A	0.37/A	0.49/A	0.42/A
22. The City Drive/Entertainment Way	0.30/A	0.38/A	0.33/A	0.39/A
23. Haster Street/Lampson Avenue	0.79/C	0.72/C	0.85/D	0.79/C
24. Lewis St./Lampson Avenue/The Block Drive	0.61/B	0.59/A	0.78/C	0.75/C
25. The City Drive/The Block Drive	0.39/A	0.52/A	0.17/A	0.14/A
26. The City Drive/SR-22 westbound ramps	0.60/A	0.58/A	–	–
27. The City Drive/SR-22 eastbound ramps	0.67/B	0.72/C	0.75/C	0.86/D
28. Haster Street/SR-22 westbound offramp	0.51/A	0.49/A	0.53/A	0.52/A
29. Haster Street/Garden Grove Boulevard	0.72/C	0.85/D	0.76/C	**0.92/E***
30. Fairview Street/Garden Grove Boulevard	0.79/C	0.81/D	0.81/D	0.85/D
31. Lewis Street/Garden Grove Boulevard	0.75/C	**0.93/E***	0.83/D	**1.03/F***

TABLE 3.11-7 (continued)
SHORT-RANGE WITHOUT PHASE I PROJECT
INTERSECTION LEVELS OF SERVICE

Intersection	Existing Conditions		Short-Range Without Phase I Project	
	A.M. Peak Hour/LOS	P.M. Peak Hour/LOS	A.M. Peak Hour/LOS	P.M. Peak Hour/LOS
32. The City Drive/Garden Grove Boulevard	0.71/C	0.83/D	0.86/D	**1.00/E***
33. Fairview Street/SR-22 eastbound offramp	0.62/B	0.70/B	0.73/C	0.77/C
34. Howell Avenue/Katella Avenue	0.52/A	0.71/C	0.56/A	0.84/D
35. Haster Street/Orangewood Avenue	0.60/A	0.79/C	0.67/B	0.89/D
36. Lewis Street/Orangewood Avenue	0.57/A	0.46/A	0.68/B	0.61/B
37. Rampart Street/Orangewood Avenue	0.50/A	0.59/A	0.56/A	0.70/B
38. Rampart Street/Chapman Avenue	0.56/A	0.69/B	0.36/A	0.54/A
39. City Boulevard/The Block Drive	0.31/A	0.45/A	0.50/A	0.74/C
40. Manchester Avenue/Orangewood Avenue	–	–	0.42/A	0.47/A
41. Anaheim Blvd./Orangewood Avenue	–	–	0.38/A	0.55/A
42. I-5 northbound off-ramps/Chapman Avenue	0.79/C	**0.93/E***	–	–
43. The City Drive/Medical Center Drive	0.47/A	0.46/A	0.64/B	0.64/B
44. The City Drive/Orange Cndr	0.29/A	0.34/A	0.40/A	0.47/A
45. SR-22 westbound ramps/The Block Drive	–	–	0.43/A	0.48/A
46. N. Stadium Way/Katella Avenue	0.34/A	0.50/A	0.39/A	0.57/A
47. State College Avenue/Entrance	0.37/A	0.42/A	0.44/A	0.69/B

***** Exceeds Level of Service D.
– Future/prior intersection or interchange

Note: Intersections 26 and 42 are omitted in the future due to the reconfiguration of freeway ramps.

Source: University of California Irvine Medical Center Long Range Development Plan Traffic Analysis, Austin-Foust Associates, Inc., September 2002.

City of Garden Grove

10. Haster Street at Chapman Avenue–LOS F (p.m. peak)
29. Haster Street at Garden Grove Boulevard–LOS E (p.m. peak)

Cities of Orange and Garden Grove

11. Lewis Street at Chapman Avenue–LOS E (p.m. peak)
31. Lewis Street at Garden Grove Boulevard–LOS F (p.m. peak)

Cities of Orange and Santa Ana

32. The City Drive at Garden Grove Boulevard–LOS E (p.m. peak)

One intersection, Lewis Street at Garden Grove Boulevard, currently operates at a deficient level of service (LOS E). The addition of background traffic (without Phase I of the UCI Medical Center

project), traffic conditions at this intersection will worsen to LOS F. As noted, this impact is unrelated to the proposed project.

Short-Range With Phase I Project Traffic Analysis

Impact 3.11-2: Phase I project-related traffic will not significantly impact intersections within the traffic study area.

UCI Medical Center Phase I Trip Generation

Based on the trip generation analysis that was prepared for the existing UCI Medical Center facilities, the Phase I project trip generation was determined and is identified on Table 3.11-8. The intensification of onsite development associated with Phase I represents an increase of 325 daily trips, with 8 additional a.m. peak period trips and 12 additional p.m. peak period trips when compared to traffic volumes generated by the existing Medical Center. Therefore, at the completion of Phase I, onsite land uses will generate 14,125 ADT, with 1,328 trips during the a.m. peak period and 1,042 trips during the p.m. peak period.

TABLE 3.11-8
PHASE I TRIP GENERATION SUMMARY

Land Use	Units	A.M. Peak Hour			P.M. Peak Hour			ADT
		In	Out	Total	In	Out	Total	
EXISTING UCI MEDICAL CENTER								
Estimated Trip Generation by Function								
Inpatient	391 beds	324	65	388	61	238	299	4,278
Ambulatory Care	167.63 TSF	322	64	387	80	312	391	5,658
Academic/Research	264.20 TSF	326	65	391	50	197	247	2,760
Administrative	56.44 TSF	70	14	84	11	41	52	552
Services	47.39 TSF	59	12	70	8	33	41	552
Total		1,100	220	**1,320**	210	820	**1,030**	**13,800**
PHASE I								
Inpatient	445 beds	378	76	454	76	276	347	4,984
Ambulatory Care	167.63 TSF	322	64	386	80	312	392	5,658
Academic/Research	234.18 TSF	288	58	346	44	173	217	2,447
Administrative	49.32 TSF	60	12	72	9	36	45	482
Services	47.58 TSF	58	12	70	8	33	41	554
Total		1,106	222	**1,328**	212	830	**1,042**	**14,125**
Increase Over Existing		6	2	**8**	2	10	**12**	**325**

TSF: thousand square feet of floor area

Source: University of California Irvine Medical Center Long Range Development Plan Traffic Analysis, Austin-Foust Associates, Inc., September 2002.

Short-Range With Phase I Project: Traffic Distribution

Distribution of project-generated trips was obtained from the project traffic model. Approximately 61 percent of Phase I traffic will be oriented toward the freeways with 39 percent remaining on the arterial roadways. Phase I project traffic distribution is depicted on Exhibit 3.11-9. ***No significant impacts*** will result from implementation of Phase I of the proposed project.

Short-Range With Phase I Project: Roadway Segment Volumes

Exhibit 3.11-10 depicts the 2010 ADT volumes in the study area.

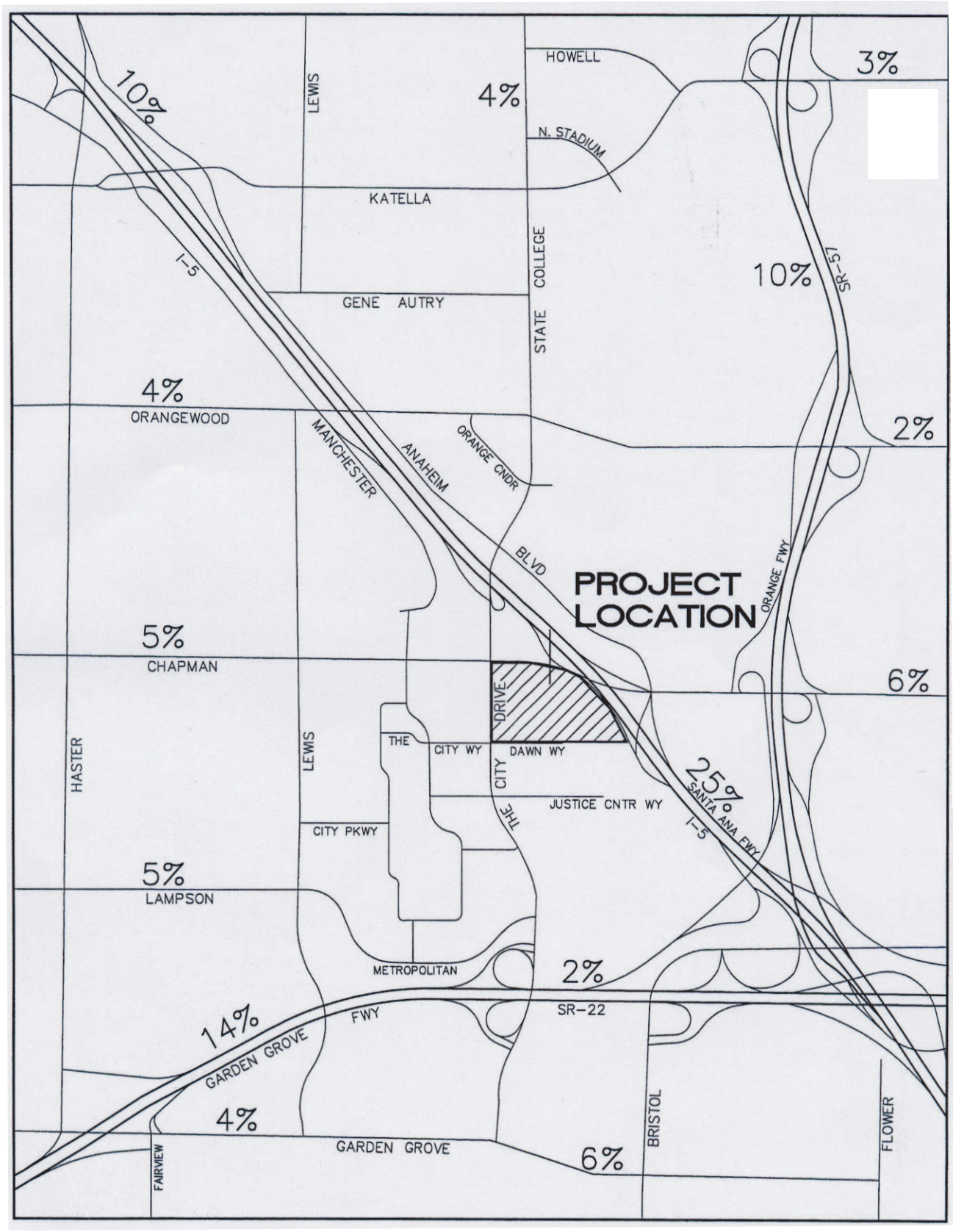
Short-Range With Phase I Project: Intersection Volumes

To determine potential impacts on traffic study area intersections associated with Phase I of the UCI Medical Center LRDP implementation, a.m. and p.m. peak hour intersection capacity utilizations for 2010 were compared with and without the project. The findings are indicated on Table 3.11-9. An intersection is considered to be significantly impacted by the project if the project's traffic contribution causes an increase in Intersection capacity utilization value of greater than 0.01 and this increase causes or worsens to LOS E or greater.

As identified in the table, there are eight intersections that will operate at deficient levels of service (i.e., LOS E or worse) without Phase I of the UCI Medical Center project. With the addition of Phase I traffic, the capacity at these eight intersections will not decline. Therefore, because the identified intersection deficiencies will occur without or with the project and the project does not contribute greater than 0.01 to the Intersection capacity utilization of any of these locations, ***no significant traffic impacts*** will result from implementation of Phase I of the proposed project.

Mitigation Program

Because the Phase I project will not result in significant traffic impacts, no mitigation is required.



Phase I Project Traffic Distribution **Exhibit 3.11-9**

UCI Medical Center LRDP EIR
University of California, Irvine

Scale: Not to Scale
Source: Austin-Foust Associates, Inc.

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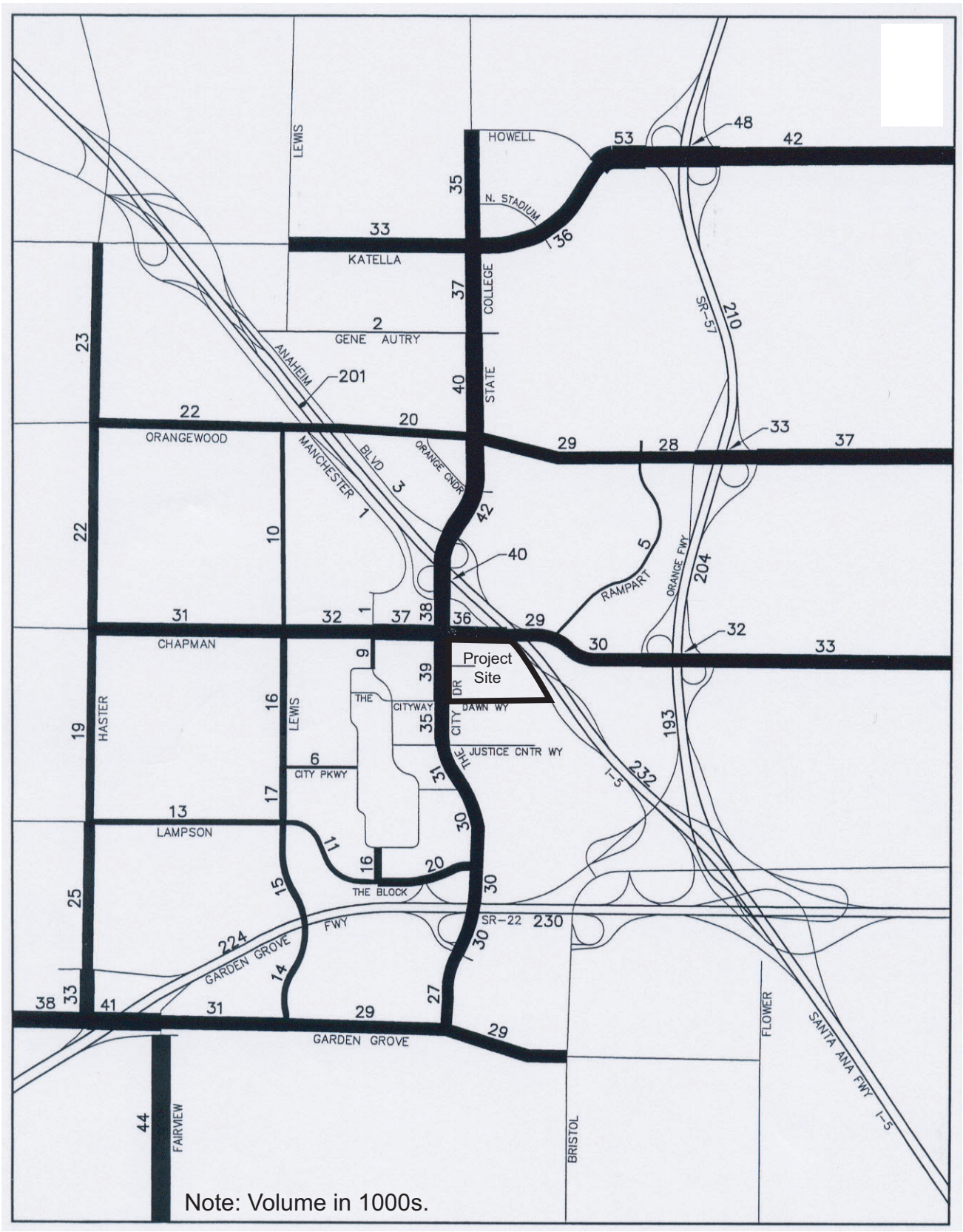

Short-Range + Phase I Project: Average Daily Traffic Volumes **Exhibit 3.11-10**

UCI Medical Center LRDP EIR
University of California, Irvine

Scale: Not to Scale
Source: Austin-Foust Associates, Inc.

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TABLE 3.11-9
SHORT-RANGE (2010) WITHOUT AND WITH PHASE I PROJECT: INTERSECTION LEVELS OF SERVICE

Intersection	Existing Conditions		Short-Range Without Project		Short-Range With Project		Project Impact?
	A.M. Peak Hour/LOS	P.M. Peak Hour/LOS	A.M. Peak Hour/LOS	P.M. Peak Hour/LOS	A.M. Peak Hour/LOS	P.M. Peak Hour/LOS	
1. State College Blvd./Katella Ave.	0.60/A	0.72/C	0.71/C	**0.91/E***	0.71/C	**0.91/E***	No
2. SR-57 southbound ramps/Katella	0.48/A	0.56/A	0.53/A	0.69/A	0.53/A	0.69/B	No
3. SR-57 northbound ramps/Katella	0.40/A	0.56/A	0.39/A	0.75/C	0.39/A	0.75/C	No
4. State College Blvd./Gene Autry	0.44/A	0.50/A	0.56/A	0.71/C	0.56/A	0.71/C	No
5. State College Blvd./Orangewood	0.49/A	0.76/C	0.57/A	**0.95/E***	0.57/A	**0.95/E***	No
6. SR-57 southbound ramps/Orangewood Avenue	0.56/A	0.81/D	0.68/B	**0.92/E***	0.68/B	**0.92/E***	No
7. SR-57 northbound ramps/Orangewood Avenue	0.52/A	0.54/A	0.59/A	0.62/B	0.59/A	0.62/B	No
8. The City Drive/I-5 northbound ramps	0.25/A	0.33/A	0.49/A	0.51/A	0.49/A	0.51/A	No
9. The City Dr./I-5 southbound ramps	0.39/A	0.36/A	0.49/A	0.41/A	0.49/A	0.42/A	No
10. Haster St./Chapman Avenue	0.70/B	0.89/D	0.78/C	**1.03/E***	0.78/C	**1.03/E***	No
11. Lewis St./Chapman Avenue	0.72/C	0.75/C	0.78/C	**0.92/E***	0.78/C	**0.92/E***	No
12. Manchester Ave./Chapman Ave.	0.52/A	0.55/A	0.60/A	0.56/A	0.60/A	0.56/A	No
13. The City Drive/Chapman Avenue	0.69/B	0.69/B	0.82/D	0.76/C	0.80/C	0.74/C	No
14. I-5 southbound on-ramp/Chapman Avenue	0.35/A	0.41/A	0.49/A	0.49/A	0.47/A	0.48/A	No
15. I-5 northbound on-ramp/Chapman Avenue	0.56/A	0.70/B	0.34/A	0.53/A	0.34/A	0.53/A	No
16. SR-57 southbound ramps/Chapman Avenue	0.53/A	0.67/B	0.59/A	0.74/C	0.59/A	0.74/C	No
17. SR-57 northbound ramps/Chapman Avenue	0.37/A	0.44/A	0.41/A	0.49/A	0.41/A	0.49/A	No
18. City Boulevard E./The City Way	0.16/A	0.29/A	0.16/A	0.31/A	0.16/A	0.31/A	No
19. The City Drive/The City Way	0.66/B	0.58/A	0.73/C	0.68/B	0.69/C	0.66/B	No
20. Lewis Street/City Parkway West	0.36/A	0.46/A	0.46/A	0.56/A	0.46/A	0.56/A	No
21. The City Drive/Justice Center Way	0.43/A	0.37/A	0.49/A	0.42/A	0.49/A	0.43/A	No
22. The City Dr./Entertainment Way	0.30/A	0.38/A	0.33/A	0.39/A	0.33/A	0.39/A	No
23. Haster Street/Lampson Avenue	0.79/C	0.72/C	0.85/D	0.79/C	0.85/D	0.79/C	No
24. Lewis St./Lampson/The Block Dr	0.61/B	0.59/A	0.78/C	0.75/C	0.78/C	0.75/C	No
25. The City Drive/The Block Drive	0.39/A	0.52/A	0.17/A	0.14/A	0.17/A	0.14/A	No
26. The City Drive/SR-22 westbound ramps	0.60/A	0.58/A	–	–	–	–	No
27. The City Drive/SR-22 eastbound ramps	0.67/B	0.72/C	0.75/C	0.86/D	0.75/C	0.86/D	No
28. Haster Street/SR-22 westbound off-ramp	0.51/A	0.49/A	0.53/A	0.52/A	0.53/A	0.52/A	No
29. Haster St./Garden Grove Blvd.	0.72/C	0.85/D	0.76/C	**0.92/E***	0.76/C	**0.92/E***	No
30. Fairview St./Garden Grove Blvd.	0.79/C	0.81/D	0.81/D	0.85/D	0.81/D	0.85/D	No

TABLE 3.11-9 (continued)
SHORT-RANGE (2010) WITHOUT AND WITH PHASE I PROJECT:
INTERSECTION LEVELS OF SERVICE

Intersection	Existing Conditions		Short-Range Without Project		Short-Range With Project		Project Impact?
	A.M. Peak Hour/LOS	P.M. Peak Hour/LOS	A.M. Peak Hour/LOS	P.M. Peak Hour/LOS	A.M. Peak Hour/LOS	P.M. Peak Hour/LOS	
31. Lewis St./Garden Grove Blvd.	0.75/C	**0.93/E***	0.83/D	**1.03/F***	0.83/D	**1.03/F***	No
32. The City Dr./Garden Grove Blvd.	0.71/C	0.83/D	0.86/D	**1.00/E***	0.86/D	**1.00/E***	No
33. Fairview Street/SR-22 eastbound off-ramp	0.62/B	0.70/B	0.73/C	0.77/C	0.73/C	0.77/C	No
34. Howell Avenue/Katella Avenue	0.52/A	0.71/C	0.56/A	0.84/D	0.56/A	0.84/D	No
35. Haster St./Orangewood Avenue	0.60/A	0.79/C	0.67/B	0.89/D	0.67/B	0.89/D	No
36. Lewis St./Orangewood Avenue	0.57/A	0.46/A	0.68/B	0.61/B	0.68/B	0.61/B	No
37. Rampart St./Orangewood Ave.	0.50/A	0.59/A	0.56/A	0.70/B	0.56/A	0.70/B	No
38. Rampart St./Chapman Avenue	0.56/A	0.69/B	0.36/A	0.54/A	0.36/A	0.54/A	No
39. City Boulevard/The Block Drive	0.31/A	0.45/A	0.50/A	0.74/C	0.50/A	0.74/C	No
40. Manchester Ave./Orangewood	–	–	0.42/A	0.47/A	0.42/A	0.47/A	No
41. Anaheim Blvd./Orangewood	–	–	0.38/A	0.55/A	0.38/A	0.55/A	No
42. I-5 northbound off-ramp/Chapman Avenue	0.79/C	**0.93/E***	–	–	–	–	No
43. The City Dr./Medical Center Dr.	0.47/A	0.46/A	0.64/B	0.64/B	0.63/B	0.59/A	No
44. The City Drive/Orange Cndr	0.29/A	0.34/A	0.40/A	0.47/A	0.40/A	0.47/A	No
45. SR-22 westbound ramps/The Block Drive	–	–	0.43/A	0.48/A	0.43/A	0.48/A	No
46. N. Stadium Way/Katella Avenue	0.34/A	0.50/A	0.39/A	0.57/A	0.39/A	0.57/A	No
47. State College Avenue/Entrance	0.37/A	0.42/A	0.44/A	0.69/B	0.44/A	0.69/A	No

* Exceeds Level of Service D.
Note: Intersections 26 and 42 have been omitted in the future due to the reconfiguration of freeway ramps.

Source: University of California Irvine Medical Center Long Range Development Plan Traffic Analysis, Austin-Foust Associates, Inc., September 2002.

Short-Range With Phase I Project: Parking

Impact 3.11-3: Phase I project implementation reduce onsite parking, including during construction demolition activities. This is a less than significant impact.

The UCI Medical Center has 1,590 onsite parking spaces with 875 parking spaces available in offsite lots, for a total of 2,465 parking spaces. Onsite parking is provided in two parking structures: the North Parking Structure has 318 spaces and the South Parking Structure has 665 spaces. An additional 607 surface parking spaces are dispersed throughout the site. Based on the development assumptions for Phase I (see Section 2), 2,340 parking spaces are needed for ongoing uses at the Medical Center and Phase I development assumptions. As a part of Phase I, the North Parking Structure and 100 surface parking spaces will be demolished. While 260 replacement surface parking spaces will be constructed onsite, there will be a net loss of 158 onsite parking at the completion of Phase I. In addition, construction workers will require approximately 750 parking spaces. Phase I parking supply and demand assumptions are provided in

Table 3.11-10. The table shows that peak hour parking demand will exceed the availability of onsite parking.

TABLE 3.11-10
PHASE I PARKING DEMAND

Onsite Parking	Number of Spaces
Existing Onsite Supply	**1,590**
Phase I Demolition	**<418>**
Retained (Existing - Demolition)	**1,172**
New Construction:	
Emergency Room Surface Parking	60
Handicapped Surface Parking (adjacent to new Hospital)	50
Eastern Perimeter Surface Parking	150
Total Phase I New Construction	**260**
Parking Total: (Retained + New Construction)	**1,432**
Net Change	**<158>**

Phase I Land Use	Units	Peak Parking Demand (10:00 A.M.)
Inpatient	473 beds	743
Ambulatory Care	167.63 TSF	580
Academic/Research	234.18 TSF	531
Administrative	17.47 TSF	37
Services	47.58TSF	100
Subtotal Phase I Demand		**1,991**
15% Parking Space Buffer		**349**
Total Phase I Demand		**2,340**
Adequate Availability of Onsite Parking?		**No**

TSF: thousand square feet of floor area
Source: Austin-Foust Associates, Inc., September 2002.

Because there will be insufficient onsite parking during the peak parking period at the completion of Phase I, additional faculty and staff parking will be provided at an offsite location(s). These offsite parking areas can also be used for construction worker parking. Table 3.11-11 identifies the parking replacement options. While the Phase I project will not result in a significant increase in trip generation over existing conditions at the Medical Center, the relocation of some of the facility parking to an offsite location(s) will result in the redistribution of traffic. The following analysis addresses potential affects at intersections in the immediate vicinity of the Medical Center associated with the offsite parking location options, in addition to the existing offsite locations leased by the Medical Center.

TABLE 3.11-11
PHASE I REPLACEMENT PARKING LOCATIONS

Site	Address	Parking Spaces
1. Caltrans Lot	Northeast corner of Chapman Avenue and The City Drive, City of Orange	452
2. State College Warehouse	2040 State College Boulevard, City of Anaheim	200
3. Equity Partners	Chapman Avenue/Manchester Avenue, City of Orange	200
4. Edison Field	State College Boulevard, City of Anaheim	418
Source: UCI Medical Center, March 2002.		

Caltrans Lot. The Caltrans lot is located on the northeast corner of The City Drive and Chapman Avenue immediately north of the UCI Medical Center. Use of the Caltrans lot will provide for 454 parking spaces for faculty and staff of the Medical Center. The a.m. and p.m. peak hour Intersection capacity utilizations with and without Phase I were compared, and the findings are provided in Table 3.11-12. An intersection is considered to be significantly impacted by the project if the project's traffic contribution causes an increase in Intersection capacity utilization value of greater than 0.01 and this increase causes or worsens to LOS E or greater. As indicated on the table, use of the Caltrans lot will have ***no significant impacts***.

State College Warehouse Lot/Equity Partners Lot. This option assumes the combined use of offsite parking at the State College Warehouse lot and the Equity Partners lot; the Medical Center currently uses the Equity Partners lot. Combined, use of these lots will provide 400 parking spaces for use by faculty and staff of the Medical Center. This parking option will require the provision of a shuttle service from the State College Warehouse lot; staff and faculty will walk from the Equity Partners lot. The a.m. and p.m. peak hour Intersection capacity utilizations with and without Phase I were compared, and the findings are provided on Table 3.11-12. As indicated on the table, use of the State College Warehouse lot and the Equity Partners lot will have ***no significant impacts***.

Edison Field Lot. The Edison Field lot is located north of I-5 on State College Boulevard in the City of Anaheim. This parking lot will provide 418 parking spaces for use by faculty and staff of the Medical Center. The a.m. and p.m. peak hour Intersection capacity utilizations with and without Phase I were compared, and the findings are provided on Table 3.11-12. As indicated on the table, use of the Edison Field lot will have ***no significant impacts***.

Mitigation Program

No mitigation is required.

TABLE 3.11-12
PHASE I OFFSITE REPLACEMENT PARKING LOCATIONS: INTERSECTION LEVELS OF SERVICE

Intersection	Short-Range Without Project		Short-Range With Project		Project Contribution	
	A.M. Peak Hour/LOS	P.M. Peak Hour/LOS	A.M. Peak Hour/LOS	P.M. Peak Hour/LOS	A.M. Peak Hour/LOS	P.M. Peak Hour/LOS
CALTRANS LOT						
9. The City Dr./I-5 southbound ramps	0.49/A	0.41/A	0.49/A	0.42/A	–	0.01
13. City Drive/Chapman Avenue	0.82/D	0.76/C	0.80/C	0.74/C	<0.02>	<0.02>
14. I-5 southbound on-ramp/Chapman Ave.	0.49/A	0.49/A	0.47/A	0.48/A	<0.02>	<0.01>
19. The City Drive/The City Way	0.73/C	0.68/B	0.69/B	0.66/B	<0.04>	<0.02>
43. The City Dr./Medical Center Dr.	0.64/B	0.64/B	0.63/B	0.59/A	<0.01>	<0.05>
STATE COLLEGE WAREHOUSE LOT/EQUITY PARTNERS LOT						
4. State College Blvd./Gene Autry	0.56/A	0.71/C	0.56/A	0.71/C	–	–
5. State College Blvd./Orangewood	0.57/A	**0.95/E***	0.58/A	**0.95/E***	0.01	**–**
8. The City Drive/I-5 northbound ramps	0.49/A	0.51/A	0.51/A	0.52/A	0.02	0.01
9. The City Dr./I-5 southbound ramps	0.49/A	0.41/A	0.48/A	0.41/A	<0.01>	–
12. Manchester Ave./Chapman Ave.	0.60/A	0.56/A	0.60/A	0.56/A	–	–
13. City Drive/Chapman Avenue	0.82/D	0.76/C	0.80/C	0.75/C	<0.02>	<0.01>
19. The City Drive/The City Way	0.73/C	0.68/B	0.72/C	0.66/B	<0.01>	<0.02>
43. The City Dr./Medical Center Dr.	0.64/B	0.64/B	0.64/B	0.61/B	–	<0.03>
44. The City Drive/Orange Cndr	0.40/A	0.47/A	0.40/A	0.48/A	–	0.01
EDISON FIELD LOT						
4. State College Blvd./Gene Autry	0.56/A	0.71/C	0.56/A	0.75/C	–	0.04
5. State College Blvd./Orangewood	0.57/A	**0.95/E***	0.61/B	**0.96/E***	0.04	0.01
8. The City Drive/I-5 northbound ramps	0.49/A	0.51/A	0.51/A	0.52/A	0.02	0.01
9. The City Dr./I-5 southbound ramps	0.49/A	0.41/A	0.48/A	0.42/A	<0.01>	0.01
13. City Drive/Chapman Avenue	0.82/D	0.76/C	0.79/C	0.74/C	<0.03>	<0.02>
19. The City Drive/The City Way	0.73/C	0.68/B	0.69/B	0.66/B	<0.04>	<0.02>
43. The City Dr./Medical Center Dr.	0.64/B	0.64/B	0.63/B	0.59/A	<0.01>	<0.01>

* Exceeds Level of Service D.

Source: University of California Irvine Medical Center Long Range Development Plan Traffic Analysis, Austin-Foust Associates, Inc., September 2002.

Long-Range Without and With Full LRDP Implementation

The year 2020 analysis assumes buildout of the projected long-range land uses in the study area and year 2020 demographic data for the surrounding area. Major land use changes include the UCI Medical Center LRDP, development of the Orange Uptown area with mixed office/commercial uses and buildout of the Anaheim Stadium Area Master Land Use Plan. Development assumptions through year 2020 are identified in Appendix F of this EIR. The highway network for this time frame assumes completion of the SR-22 project, with the direct southbound SR-57 to westbound SR-22 separation, and the direct ramp to Metropolitan Drive/The Block Drive (Exhibit 3.11-8). Local intersection improvements are also planned for this area.

Long-Range Without Full LRDP Implementation Traffic Analysis

Long-Range Without Full LRDP Implementation: Roadway Segment Volumes

Traffic projections were made for the *Long-Range Without Full LRDP Implementation* traffic scenario to show the future demand on the planned circulation system. The 2020 version of the traffic model was used to determine the average daily traffic (ADT) volumes. This scenario assumes no development at the UCI Medical Center. Projected traffic volumes for roadways located within the study area are depicted in Exhibit 3.11-11.

Long-Range Without Full LRDP Implementation: Intersection Volumes

The a.m. and p.m. peak hour intersection levels of service at traffic study area intersections are provided in Table 3.11-13. As previously noted, the year 2020 analysis assumes buildout of the projected long-range land uses in the study area and year 2020 demographic data for the surrounding area. The table indicates that the intersections listed below will operate at deficient levels of service (i.e., LOS E or F) without project development. These intersections will be deficient without any new development at the UCI Medical Center (numbers refer to intersection numbers in the traffic model). Eight of these intersections will also operate at deficient levels of service (i.e., LOS E or F) in year 2010 without project development (*Short-Range Without Phase I Project*).

City of Anaheim

1. State College Boulevard at Katella Avenue–LOS E (a.m. peak), LOS F (p.m. peak)
3. SR-57 northbound ramps at Katella Avenue–LOS E (p.m. peak)
4. State College Boulevard at Gene Autry Way–LOS F (a.m. and p.m. peaks)
5. State College Boulevard at Orangewood Avenue–LOS E (a.m. peak), LOS F (p.m. peak)
34. Howell Avenue at Katella Avenue–LOS F (p.m. peak)
35. Haster Street at Orangewood Avenue–LOS F (p.m. peak)
36. Lewis Street at Orangewood Avenue–LOS E (a.m. peak)
37. Rampart Street at Orangewood Avenue–LOS F (a.m. and p.m. peaks)
47. State College Avenue at Anaheim Stadium entrance–LOS E (p.m. peak)

City of Orange

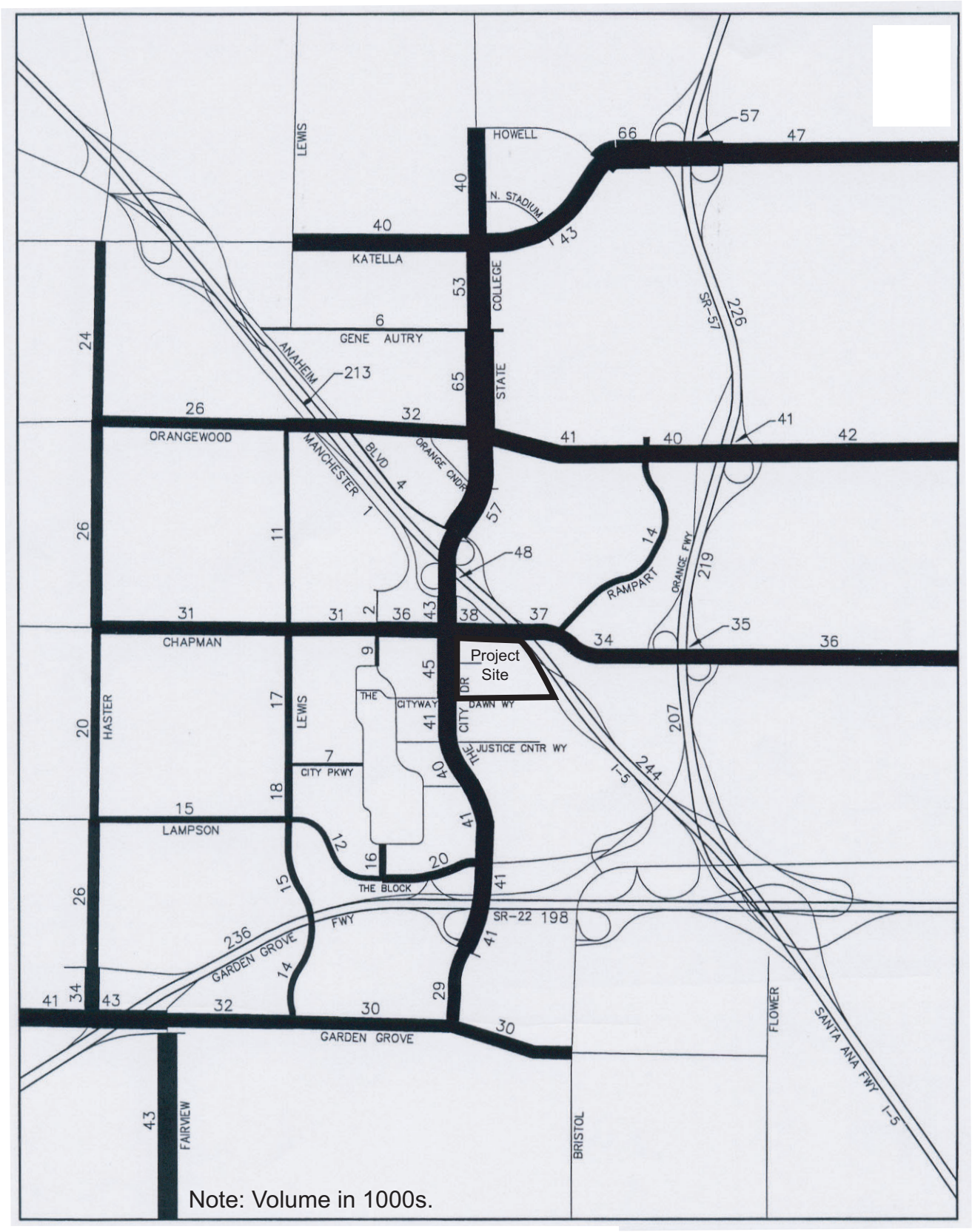
6. SR-57 southbound ramps at Orangewood–LOS F (p.m. peak)
27. The City Drive at SR-22 eastbound ramps–LOS E (p.m. peak)
44. The City Drive at Orange Center–LOS F (p.m. peak)

City of Garden Grove

10. Haster Street at Chapman Avenue–LOS F (p.m. peak)
23. Haster Street at Lampson Avenue–LOS E (a.m. peak)
29. Haster Street at Garden Grove Boulevard–LOS E (p.m. peak)
30. Fairview Street at Garden Grove Boulevard–LOS E (p.m. peak)

Cities of Orange and Garden Grove

11. Lewis Street at Chapman Avenue–LOS E (p.m. peak)
31. Lewis Street at Garden Grove Boulevard–LOS F (p.m. peak)



Long-Range Without Full LRDP Implementation: Average Daily Traffic Volumes **Exhibit 3.11-11**

UCI Medical Center LRDP EIR
University of California, Irvine

Scale: Not to Scale
Source: Austin-Foust Associates, Inc.

Bonterra CONSULTING

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TABLE 3.11-13
LONG-RANGE (YEAR 2020) WITHOUT FULL LRDP IMPLEMENTATION: INTERSECTION LEVELS OF SERVICE

Intersection	Existing Conditions		Short-Range Without Project		Short-Range With Project		Long-Range Without Full LRDP Implementation	
	A.M. Peak Hour/LOS	P.M. Peak Hour/LOS	A.M. Peak Hour/LOS	P.M. Peak Hour/LOS	A.M. Peak Hour/LOS	P.M. Peak Hour/LOS	A.M. Peak Hour/LOS	P.M. Peak Hour/LOS
1. State College Blvd./Katella Avenue	0.60/A	0.72/C	0.71/C	**0.91/E***	0.71/C	**0.91/E***	**0.94/E***	**1.16/F***
2. SR-57 southbound ramps/Katella Ave.	0.48/A	0.56/A	0.53/A	0.69/B	0.53/A	0.69/B	0.84/D	0.80/C
3. SR-57 northbound ramps/Katella Ave.	0.40/A	0.56/A	0.39/A	0.75/C	0.39/A	0.75/C	0.59/A	**0.94/E***
4. State College Blvd./Gene Autry Way	0.44/A	0.50/A	0.56/A	0.71/C	0.56/A	0.71/C	**1.18/F***	**1.31/F***
5. State College Blvd./Orangewood Ave.	0.49/A	0.76/C	0.57/A	**0.95/E***	0.57/A	**0.95/E***	**0.98/E***	**1.27/F***
6. SR-57 southbound ramps/Orangewood	0.56/A	0.81/D	0.68/B	**0.92/E***	0.68/B	**0.92/E***	0.77/C	**1.28/F***
7. SR-57 northbound ramps/Orangewood	0.52/A	0.54/A	0.59/A	0.62/B	0.59/A	0.62/B	0.68/B	0.78/C
8. The City Drive/I-5 northbound ramps	0.25/A	0.33/A	0.49/A	0.51/A	0.49/A	0.51/A	0.81/D	0.60/A
9. The City Dr./I-5 southbound ramps	0.39/A	0.36/A	0.49/A	0.41/A	0.49/A	0.42/A	0.50/A	0.58/A
10. Haster St./Chapman Avenue	0.70/B	0.89/D	0.78C	**1.03/F***	0.78/C	**1.03/F***	0.80/C	**1.12/F***
11. Lewis St./Chapman Avenue	0.72/C	0.75/C	0.78/C	**0.92/E***	0.78/C	**0.92/E***	0.75/C	**0.94/E***
12. Manchester Ave./Chapman Avenue	0.52/A	0.55/A	0.60/A	0.56/A	0.60/A	0.56/A	0.64/B	0.55/A
13. The City Drive/Chapman Avenue	0.69/B	0.69/B	0.82/C	0.76/C	0.80/D	0.74/C	0.71/C	0.89/D
14. I-5 southbound on-ramps/Chapman Ave.	0.35/A	0.41/A	0.49/A	0.49/A	0.47/A	0.48/A	0.53/A	0.65/B
15. I-5 northbound on-ramps/Chapman Ave.	0.56/A	0.70/B	0.34/A	0.53/A	0.34/A	0.53/A	0.39/A	0.71/C
16. SR-57 southbound ramps/Chapman Ave.	0.53/A	0.67/B	0.59/A	0.74/C	0.59/A	0.74/C	0.63/B	0.78/C
17. SR-57 northbound ramps/Chapman Ave.	0.37/A	0.44/A	0.41/A	0.49/A	0.41/A	0.49/A	0.47/A	0.57/A
18. City Boulevard E./The City Way	0.16/A	0.29/A	0.16/A	0.31/A	0.16/A	0.31/A	0.21/A	0.31/A
19. The City Drive/The City Way	0.66/B	0.58/A	0.73/B	0.68/B	0.69/B	0.66/B	0.83/D	0.76/C
20. Lewis Street/City Parkway West	0.36/A	0.46/A	0.46/A	0.56/A	0.46/A	0.56/A	0.48/A	0.61/B
21. The City Drive/Justice Center Way	0.43/A	0.37/A	0.49/A	0.42/A	0.49/A	0.43/A	0.61/B	0.52/A
22. The City Dr./Entertainment Way	0.30/A	0.38/A	0.33/A	0.39/A	0.33/A	0.39/A	0.49/A	0.47/A
23. Haster Street/Lampson Avenue	0.79/C	0.72/C	0.85/D	0.79/C	0.85/D	0.79/C	**0.93/E***	0.85/D
24. Lewis St./Lampson/The Block Drive	0.61/B	0.59/A	0.78/C	0.75/C	0.78/C	0.75/C	0.86/D	0.87/D
25. The City Drive/The Block Drive	0.39/A	0.52/A	0.17/A	0.14/A	0.17/A	0.14/A	0.49/A	0.51/A

TABLE 3.11-13 (continued)
LONG-RANGE (YEAR 2020) WITHOUT FULL LRDP IMPLEMENTATION: INTERSECTION LEVELS OF SERVICE

Intersection	Existing Conditions		Short-Range Without Project		Short-Range With Project		Long-Range Without Full LRDP Implementation	
	A.M. Peak Hour/LOS	P.M. Peak Hour/LOS	A.M. Peak Hour/LOS	P.M. Peak Hour/LOS	A.M. Peak Hour/LOS	P.M. Peak Hour/LOS	A.M. Peak Hour/LOS	P.M. Peak Hour/LOS
26. The City Drive/SR-22 westbound ramps	0.60/A	0.58/A	–	–	–	–	–	–
27. The City Drive/SR-22 eastbound ramps	0.67/B	0.72/C	0.75/C	0.86/D	0.75/C	0.86/D	0.80/C	**1.00/E***
28. Haster Street/SR-22 westbound off-ramps	0.51/A	0.49/A	0.53/A	0.52/A	0.53/A	0.52/A	0.51/A	0.57/A
29. Haster St./Garden Grove Boulevard	0.72/C	0.85/D	0.76/C	**0.92/E***	0.76/C	**0.92/E***	0.77/C	**0.99/E***
30. Fairview St./Garden Grove Boulevard	0.79/C	0.81/D	0.81/D	0.85/D	0.81/D	0.85/D	0.87/D	**0.93/E***
31. Lewis St./Garden Grove Boulevard	0.75/C	**0.93/E***	0.83/D	**1.03/F***	0.83/D	**1.03/F***	0.87/D	**1.08/F***
32. The City Dr./Garden Grove Boulevard	0.71/C	0.83/D	0.86/D	**1.00/E***	0.86/D	**1.00/E***	0.62/B	**1.06/F***
33. Fairview St./SR-22 eastbound off-ramp	0.62/B	0.70/B	0.73/C	0.77/C	0.73/C	0.77/C	0.83/D	0.78/C
34. Howell Avenue/Katella Avenue	0.52/A	0.71/C	0.56/A	0.84/D	0.56/A	0.84/D	0.78/C	**1.22/F***
35. Haster St./Orangewood Avenue	0.60/A	0.79/C	0.67/B	0.89/D	0.67/B	0.89/D	0.81/D	**1.02/F***
36. Lewis St./Orangewood Avenue	0.57/A	0.46/A	0.68/B	0.61/B	0.68/B	0.61/B	**0.94/E***	0.68/B
37. Rampart St./Orangewood Avenue	0.50/A	0.59/A	0.56/A	0.70/B	0.56/A	0.70/B	**1.03/F***	**1.25/F***
38. Rampart St./Chapman Avenue	0.56/A	0.69/B	0.36/A	0.54/A	0.36/A	0.54/A	0.71/C	0.90/D
39. City Boulevard/The Block Drive	0.31/A	0.45/A	0.50/A	0.74/C	0.50/A	0.74/C	0.51/A	0.84/D
40. Manchester Ave./Orangewood Ave.	–	–	0.42/A	0.47/A	0.42/A	0.47/A	0.71/C	0.61/B
41. Anaheim Blvd./Orangewood Ave.	–	–	0.38/A	0.55/A	0.38/A	0.55/A	0.60/A	0.81/D
42. I-5 northbound off-ramps/Chapman Ave.	0.79/C	**0.93/E***	–	–	–	–	–	–
43. The City Dr./Medical Center Drive	0.47/A	0.46/A	0.64/B	0.64/B	0.63/B	0.59/A	0.61/B	0.67/B
44. The City Drive/Orange Cndr.	0.29/A	0.34/A	0.40/A	0.47/A	0.40/A	0.47/A	0.75/C	**1.07/F***
45. SR-22 westbound ramps/The Block	–	–	0.43/A	0.48/A	0.43/A	0.48/A	0.46/A	0.51/A
46. N. Stadium Way/Katella Avenue	0.34/A	0.50/A	0.39/A	0.57/A	0.39/A	0.57/A	0.50/A	0.82/D
47. State College Avenue/Entrance	0.37/A	0.42/A	0.44/A	0.69/B	0.44/A	0.69/B	0.67/B	**0.99/E***

* Exceeds Level of Service D
Note: Intersections 26 and 42 are omitted in future conditions due to the reconfiguration of freeway ramps.

Source: University of California Irvine Medical Center Long Range Development Plan Traffic Analysis, Austin-Foust Associates, Inc., September 2002.

Cities of Orange and Santa Ana

32. The City Drive at Garden Grove Boulevard–LOS F (p.m. peak)

Long-Range With Full LRDP Implementation Traffic Analysis

Impact 3.11-4: Local traffic and circulation patterns will change during the timeframe of full LRDP implementation. This is considered a significant impact.

UCI Medical Center Full LRDP Implementation Trip Generation

Full LRDP implementation will generate 24,694 trips daily, of which 2,253 trips will occur during the a.m. peak hour and 1,822 trips will occur during the p.m. peak hour. Table 3.11-14 identifies the trip generation assumptions for the proposed project. Full LRDP implementation represents an increase in traffic volumes when compared to existing land uses at the Medical Center of 10,894 trips daily with 933 trips during the a.m. peak hour and 792 trips during the p.m. peak hour.

TABLE 3.11-14
PHASE I AND FULL LRDP IMPLEMENTATION
TRIP GENERATION SUMMARY

Land Use	Units	A.M. Peak Hour			P.M. Peak Hour			ADT
		In	Out	Total	In	Out	Total	
EXISTING UCI MEDICAL CENTER								
		1,100	220	1,320	210	820	1,030	13,800
PHASE I								
Inpatient	445 beds	378	76	454	71	276	347	4,984
Ambulatory Care	167.63 TSF	322	64	386	80	312	392	5,658
Academic/Research	234.18 TSF	288	58	346	44	173	217	2,447
Administrative	49.32 TSF	60	12	72	9	36	45	482
Services	47.58 TSF	58	12	70	8	33	41	554
Total		1,106	222	**1,328**	212	830	**1,042**	**14,125**
Increase Over Existing		6	2	**8**	2	10	**12**	**325**
FULL LRDP IMPLEMENTATION								
Inpatient	527 beds	448	90	538	84	327	411	5,902
Ambulatory Care	380.84 TSF	732	146	878	181	708	889	12,854
Academic/Research	405.49 TSF	499	101	600	77	300	377	4,237
Administrative	93.00 TSF	114	23	137	18	68	86	910
Services	67.87 TSF	83	17	100	12	47	59	791
Total		**1,876**	**377**	**2,253**	**372**	**1,450**	**1,822**	**24,694**
Increase Over Existing		**776**	**157**	**933**	**162**	**630**	**792**	**10,894**

TSF: thousand square feet of floor area

Source: University of California Irvine Medical Center Long Range Development Plan Traffic Analysis, Austin-Foust Associates, Inc., September 2002.

UCI Medical Center Full LRDP Implementation Traffic Distribution

Distribution of project-generated trips was obtained from the year 2020 traffic model. Full implementation of the LRDP project's traffic distribution is depicted on Exhibit 3.11-12.

Long-Range With Full LRDP Implementation: Roadway Segment Volumes

This scenario assumes the implementation of the UCI Medical Center LRDP project. Exhibit 3.11-13 depicts roadway volumes with project implementation.

Long-Range With Full LRDP Implementation: Intersection Volumes

The a.m. and p.m. peak hour intersection levels of service associated with the full implementation of the LRDP are presented in Table 3.11-15. The following intersections (numbers refer to intersection numbers in the traffic model) will be ***significantly impacted*** (i.e., LOS E or F with a Intersection capacity utilization increase of greater than 0.01) by project-related traffic at full LRDP implementation:

City of Orange

13. The City Drive at Chapman Avenue–LOS F (p.m. peak)
19. The City Drive at The City Way–LOS F (a.m. peak)
27. The City Drive at SR-22 eastbound ramps–LOS F (p.m. peak)
44. The City Drive at Orange Center–LOS F (p.m. peak)

City of Garden Grove

23. Haster Street at Lampson Avenue–LOS E (a.m. peak)

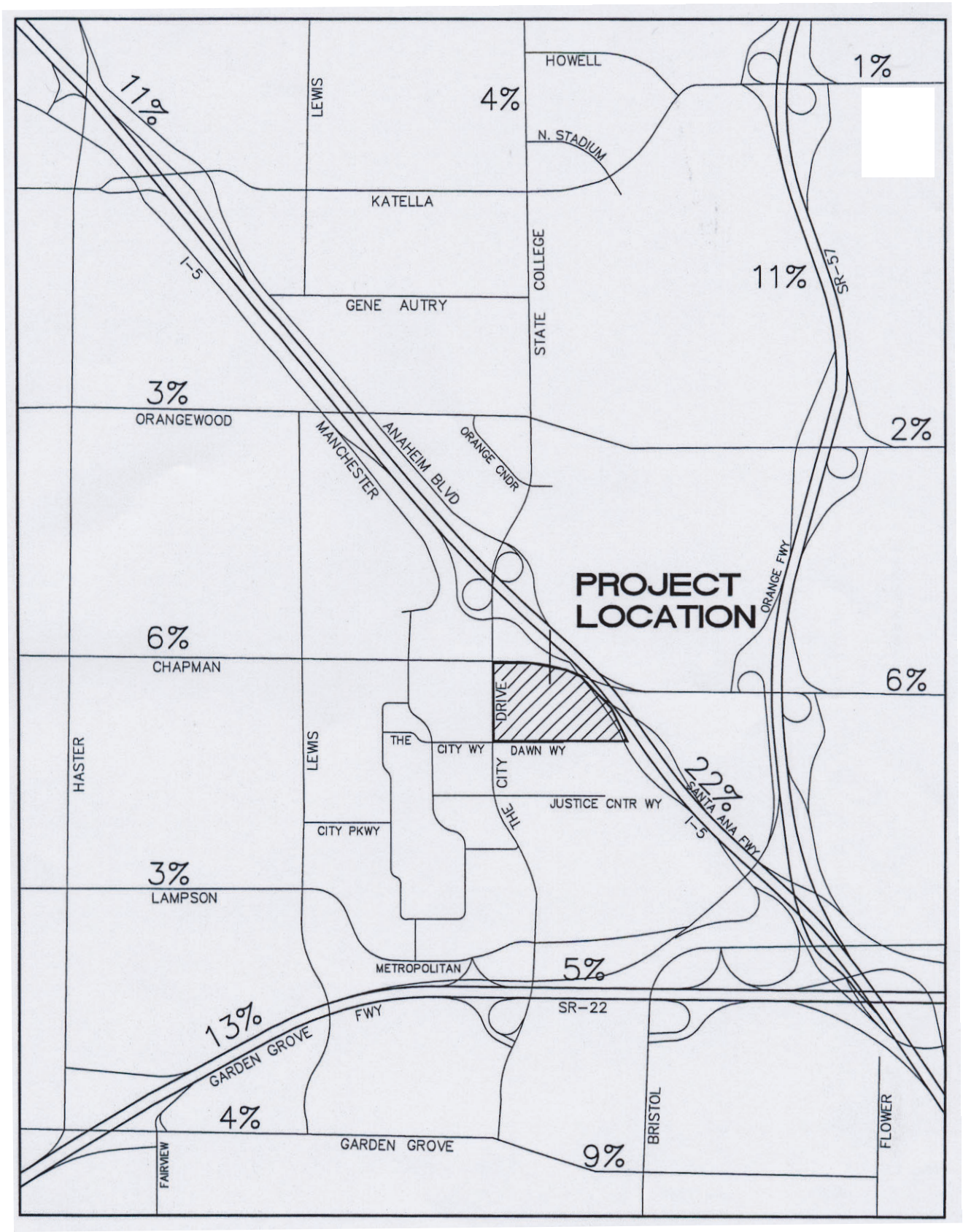
Cities of Orange and Garden Grove

11. Lewis Street at Chapman Avenue–LOS E (p.m. peak)

Cities of Orange and Santa Ana

32. The City Drive at Garden Grove Boulevard–LOS F (p.m. peak)

With the exception of the intersection of The City Drive and Chapman Avenue and the intersection of The City Drive at The City Way, all of the identified intersections will operate at deficient levels of service without full implementation of the LRDP project. However, the project's traffic contribution to all seven intersections is considered a ***significant impact***, in accordance with the thresholds of significance as set forth in this EIR.



Full LRDP Implementation Traffic Distribution **Exhibit 3.11-12**

UCI Medical Center LRDP EIR
University of California, Irvine

N Scale: Not to Scale
Source: Austin-Foust Associates, Inc.

Bonterra CONSULTING

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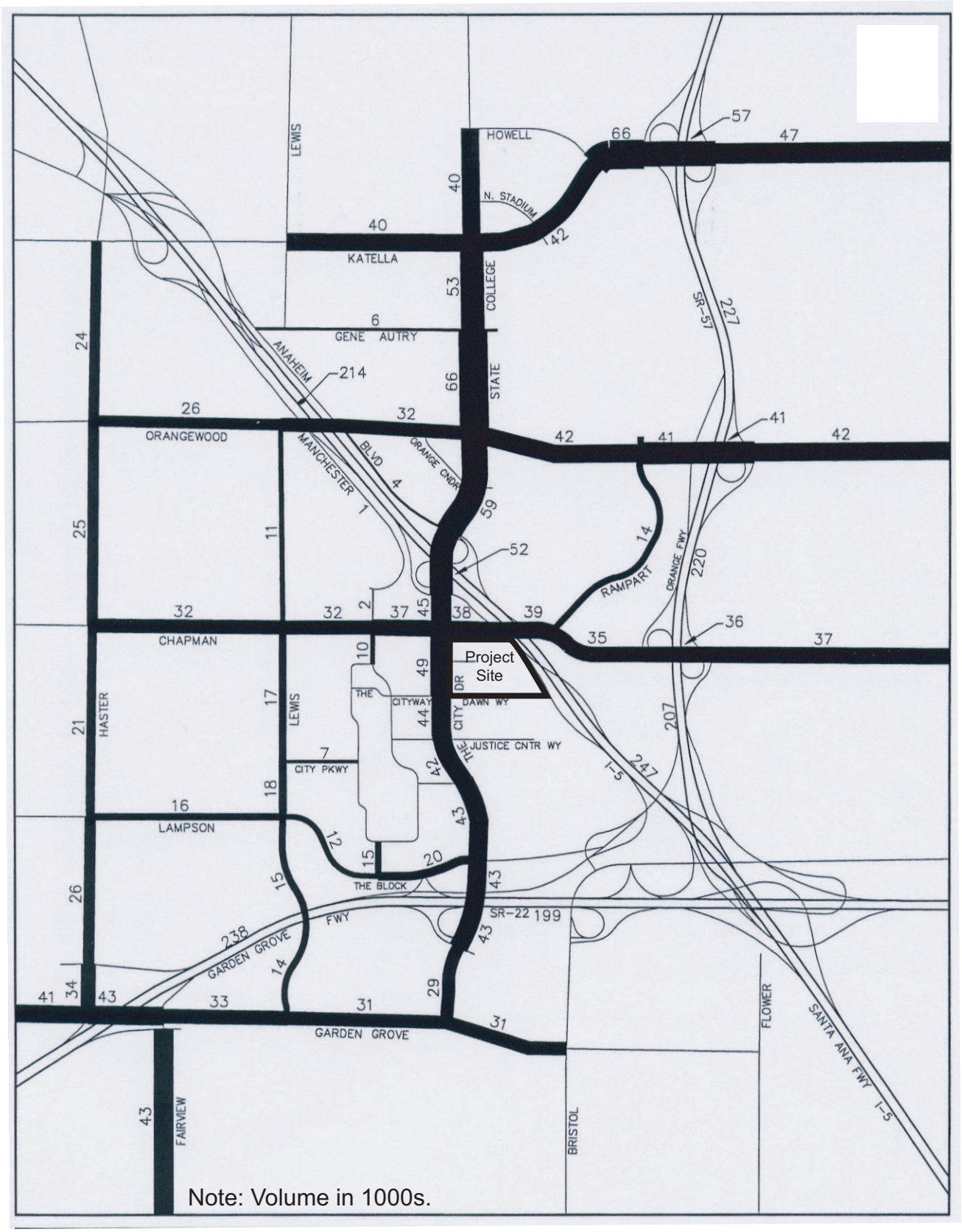

Long Range + Full LRDP Implementation: Average Daily Traffic Volumes **Exhibit 3.11-13**

UCI Medical Center LRDP EIR
University of California, Irvine

Scale: Not to Scale
Source: Austin-Foust Associates, Inc.

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TABLE 3.11-15
LONG-RANGE (YEAR 2020) WITH AND WITHOUT FULL LRDP IMPLEMENTATION
INTERSECTION LEVELS OF SERVICE

Intersection	Existing Conditions		Short-Range Without Project		Short-Range With Project		Long-Range Without Full LRDP Implementation		Long-Range + Full LRDP Implementation		Project Impact?
	A.M. Peak Hour/LOS	P.M. Peak Hour/LOS	A.M. Peak Hour/LOS	P.M. Peak Hour/LOS	A.M. Peak Hour/LOS	P.M. Peak Hour/LOS	A.M. Peak Hour/LOS	P.M. Peak Hour/LOS	A.M. Peak Hour/LOS	P.M. Peak Hour/LOS	
1. State College Blvd./Katella Avenue	0.60/A	0.72/C	0.71/C	**0.91/E***	0.71/C	**0.91/E***	**0.94/E***	**1.16/F***	**0.95/E***	**1.16/F***	No
2. SR-57 southbound ramps/Katella Ave.	0.48/A	0.56/A	0.53/A	0.69/B	0.53/A	0.69/B	0.84/D	0.80/C	0.85/D	0.81/D	No
3. SR-57 northbound ramps/Katella Ave.	0.40/A	0.56/A	0.39/A	0.75/C	0.39/A	0.75/C	0.59/A	**0.94/E***	0.59/A	**0.94/E***	No
4. State College Blvd./Gene Autry Way	0.44/A	0.50/A	0.56A	0.71/C	0.56/A	0.71/C	**1.18/F***	**1.31/F***	**1.19/F***	**1.31/F***	No
5. State College Blvd./Orangewood Ave.	0.49/A	0.76/C	0.57/A	**0.95/E***	0.57/A	**0.95/E***	**0.98/E***	**1.27/F***	**0.99/E***	**1.27/F***	No
6. SR-57 southbound ramps/Orangewood	0.56/A	0.81/D	0.68/B	**0.92/E***	0.68/B	**0.92/E***	0.77/C	**1.28/F***	0.78/C	**1.28/F***	No
7. SR-57 northbound ramps/Orangewood	0.52/A	0.54/A	0.59/A	0.62/B	0.59/A	0.62/B	0.68/B	0.78/C	0.68/B	0.78/C	No
8. The City Drive/I-5 northbound ramps	0.25/A	0.33/A	0.49/A	0.51/A	0.49/A	0.51/A	0.81/D	0.60/A	0.81/D	0.61/B	No
9. The City Drive/I-5 southbound ramps	0.39/A	0.36/A	0.49/A	0.41/A	0.49/A	0.41/A	0.50/A	0.58/A	0.51/A	0.59/A	No
10. Haster St./Chapman Avenue	0.70/B	0.89/D	0.78/C	**1.03/F***	0.78/C	**1.03/F***	0.80/C	**1.12/F***	0.83/D	**1.13/F***	No
11. Lewis St./Chapman Avenue	0.72/C	0.75/C	0.78/C	**0.920/E***	0.78/C	**0.92/E***	0.75/C	**0.94/E***	0.76/C	**0.96/E***	**YES**
12. Manchester Ave./Chapman Avenue	0.52/A	0.55/A	0.60/A	0.56/A	0.60/A	0.56/A	0.64/B	0.55/A	0.66/B	0.56/A	No
13. The City Drive/Chapman Avenue	0.69/B	0.69/B	0.82/D	0.76/C	0.80/C	0.74/C	0.71/C	0.89/D	0.84/D	**1.01/F***	**YES**
14. I-5 southbound on-ramps/Chapman Ave.	0.35/A	0.41/A	0.49/A	0.49/A	0.47/B	0.48/A	0.53/A	0.65/B	0.53/A	0.69/B	No
15. I-5 northbound on-ramps/Chapman Ave.	0.56/A	0.70/B	0.34/A	0.53/A	0.34/A	0.53/A	0.39/A	0.71/C	0.41/A	0.71/C	No
16. SR-57 southbound ramps/Chapman Ave.	0.53/A	0.67/B	0.59/A	0.74/C	0.59/A	0.74/C	0.63/B	0.78/C	0.65/B	0.78/C	No
17. SR-57 northbound ramps/Chapman Ave.	0.37/A	0.44/A	0.41/A	0.49/A	0.41/A	0.49/A	0.47/A	0.57/A	0.47/A	0.58/A	No
18. City Boulevard E./The City Way	0.16/A	0.29/A	0.16/A	0.31/A	0.16/A	0.31/A	0.21/A	0.31/A	0.22/A	0.31/A	No
19. The City Drive/The City Way	0.66/B	0.58/A	0.73/C	0.68/B	0.69/B	0.66/B	0.83/D	0.76/C	**1.04/F***	0.87/D	**YES**
20. Lewis Street/City Parkway West	0.36/A	0.46/A	0.46/A	0.56/A	0.46/A	0.56/A	0.48/A	0.61/B	0.48/A	0.62/B	No
21. The City Drive/Justice Center Way	0.43/A	0.37/A	0.49/A	0.42/A	0.49/A	0.43/A	0.61/B	0.52/A	0.67/B	0.56/A	No
22. The City Dr./Entertainment Way	0.30/A	0.38/A	0.33/A	0.39/A	0.33/A	0.39/A	0.49/A	0.47/A	0.53/A	0.50/A	No
23. Haster Street/Lampson Avenue	0.79/C	0.72/C	0.85/D	0.79/C	0.85/D	0.79/C	**0.93/E***	0.85/D	**0.95/E***	0.86/D	**YES**
24. Lewis St./Lampson/The Block Drive	0.61/B	0.59/A	0.76/C	0.75/C	0.78/C	0.75/C	0.86/D	0.87/D	0.86/D	0.88/D	No
25. The City Drive/The Block Drive	0.39/A	0.52/A	0.17/A	0.14/A	0.17/A	0.14/A	0.49/A	0.51/A	0.53/A	0.54/A	No

TABLE 3.11-15 (continued)
LONG-RANGE (YEAR 2020) WITH AND WITHOUT FULL LRDP IMPLEMENTATION
INTERSECTION LEVELS OF SERVICE

Intersection	Existing Conditions		Short-Range Without Project		Short-Range With Project		Long-Range Without Full LRDP Implementation		Long-Range + Full LRDP Implementation		Project Impact?
	A.M. Peak Hour/LOS	P.M. Peak Hour/LOS	A.M. Peak Hour/LOS	P.M. Peak Hour/LOS	A.M. Peak Hour/LOS	P.M. Peak Hour/LOS	A.M. Peak Hour/LOS	P.M. Peak Hour/LOS	A.M. Peak Hour/LOS	P.M. Peak Hour/LOS	
26. The City Drive/SR-22 westbound ramps	0.60/A	0.58/A	–	–	–	–	–	–	–	--	No
27. The City Drive/SR-22 eastbound ramps	0.67/B	0.72/C	0.75/C	0.86/D	0.75/C	0.86/D	0.80/C	**1.00/E***	0.84/D	**1.03/F***	**YES**
28. Haster Street/SR-22 westbound off-ramps	0.51/A	0.49/A	0.53/A	0.52/A	0.53/A	0.52/A	0.51/A	0.57/A	0.51/A	0.57/A	No
29. Haster St./Garden Grove Boulevard	0.72/C	0.85/D	0.76/C	**0.92/F***	0.76/C	**0.92/E***	0.77/C	**0.99/E***	0.77/C	**0.99/E***	No
30. Fairview St./Garden Grove Boulevard	0.79/C	0.81/D	0.81/D	0.85/D	0.81/D	0.85/D	0.87/D	**0.93/E***	0.87/D	**0.93/E***	No
31. Lewis St./Garden Grove Boulevard	0.75/C	**0.93/E***	0.83/D	**1.03/F***	0.83/D	**1.03/F***	0.87/D	**1.08/F***	0.87/D	**1.08/F***	No
32. The City Dr./Garden Grove Boulevard	0.71/C	0.83/D	0.86/D	**1.00/E***	0.86/D	**1.00/E***	0.62/B	**1.06/F***	0.64/B	**1.08/F***	**YES**
33. Fairview St./SR-22 eastbound off-ramps	0.62/B	0.70/B	0.73/C	0.77/C	0.73/C	0.77/C	0.83/D	0.78/C	0.83/D	0.78/C	No
34. Howell Avenue/Katella Avenue	0.52/A	0.71/C	0.56/A	0.84/D	0.56/A	0.84/D	0.78/C	**1.22/F***	0.78/C	**1.22/F***	No
35. Haster St./Orangewood Avenue	0.60/A	0.79/C	0.67/B	0.89/D	0.67/B	0.89/D	0.81/D	**1.02/F***	0.83/D	**1.02/F***	No
36. Lewis St./Orangewood Avenue	0.57/A	0.46/A	0.68/B	0.61/B	0.68/B	0.61/B	**0.94/E***	0.68/B	**0.94/E***	0.68/B	No
37. Rampart St./Orangewood Avenue	0.50/A	0.59/A	0.56A	0.70/B	0.56/A	0.70/B	**1.03/F***	**1.25/F***	**1.03/F***	**1.25/F***	No
38. Rampart St./Chapman Avenue	0.56/A	0.69/B	0.36/A	0.54/A	0.36/A	0.54/A	0.71/C	0.90/D	0.75/C	0.90/D	No
39. City Boulevard/The Block Drive	0.31/A	0.45/A	0.50/A	0.74/C	0.50/A	0.74/C	0.51/A	0.84/D	0.51/A	0.85/D	No
40. Manchester Ave./Orangewood Avenue	--	--	0.42/A	0.47/A	0.42/A	0.47/A	0.71/C	0.61/B	0.71/C	0.61/B	No
41. Anaheim Blvd./Orangewood Avenue	--	--	0.38/A	0.55/A	0.38/A	0.55/A	0.60/A	0.81/D	0.60/A	0.81/D	No
42. I-5 northbound off-ramp/Chapman Ave.	0.79/C	**0.93/E***	–	–	–	–	–	–	–	–	No
43. The City Dr./Medical Center Drive	0.47/A	0.46/A	0.55/A	0.64/B	0.63/B	0.59/A	0.61/B	0.67/B	0.83/D	0.73/C	No
44. The City Drive/Orange Cndr.	0.29/A	0.34/A	0.39/A	0.47/A	0.40/A	0.47/A	0.75/C	**1.07/F***	0.76/C	**1.09/F***	**YES**
45. SR-22 westbound ramps/The Block Dr.	--	--	0.43/A	0.48/A	0.43/A	0.48/A	0.46/A	0.51/A	0.46/A	0.55/A	No
46. N. Stadium Way/Katella Avenue	0.34/A	0.50/A	0.39/A	0.57/A	0.39/A	0.57/A	0.50/A	0.82/D	0.51/A	0.82/D	No
47. State College Avenue/Entrance	0.37/A	0.42/A	0.44/A	0.69/B	0.44/A	0.69/B	0.67/B	**0.99/E***	0.68/B	**0.99/E***	No

* Exceeds Level of Service D.
Note: Intersections 26 and 42 have been omitted in the future due to the reconfiguration of freeway ramps.
Source: University of California Irvine Medical Center Long Range Development Plan Traffic Analysis, Austin-Foust Associates, Inc., September 2002.

Mitigation Program

Mitigation for long-range traffic conditions are based on the full implementation of the UCI Medical Center LRDP, as well as buildout of land uses in the surrounding area and may change based on the effects of future land development and changes to local and regional transportation patterns. The UCI Medical Center, as one of the projects located within the West Orange Circulation Study Traffic Model study area, will be responsible for the payment of its fair share of transportation improvements for noted intersections in the City of Orange. The Long-Range Mitigation Program is, therefore, based on the City of Orange transportation improvements associated with the West Orange Circulation Study area. The UCI Medical Center, along with all proposed projects in the study area, will be responsible for funding its fair share of costs for transportation costs in the study area.

Throughout this traffic discussion, "fair share" is defined to mean that the University has agreed to negotiate for a contribution to the roadway or intersection improvement pursuant to procedures similar to those described in Government Code Sections 54999 et seq. for contributions to utilities. Fair share is calculated based on the UCI Medical Center's percentage contribution to traffic volumes at impacted intersections using a baseline year of 2002. In addition, in each case a fair-share payment is agreed upon, the University will pay its fair share only if the applicable jurisdiction has established and implemented a mechanism for collecting funds from any other developers and entities contributing to traffic impacts, and the jurisdiction builds the relevant roadway or intersection improvement.

Mitigation Measure

3.11-4 The UCI Medical Center shall implement a fee system or other mechanism to fund its fair share of costs for transportation improvements as identified in Table 3.11-16. The fair share payments will be linked to future (post-Phase I) traffic generating development projects within the LRDP and shall occur only after the City or Orange or other applicable jurisdiction has: (1) determined through reasonable traffic engineering analysis that the intersection or roadway link is operating at an unacceptable Level of Service; (2) established and implemented a mechanism for collecting funds from any other developers and entities contributing to traffic impacts; and (3) constructed the relevant intersection or roadway improvement.

The intersection improvements will result in LOS D or better, as shown in Table 3.11-17. Implementation of the following mitigation measure will reduce the identified impact to a ***less than significant*** level.

TABLE 3.11-16
SUMMARY OF FULL LRDP IMPLEMENTATION IMPROVEMENTS

Location	Improvement	Estimated Cost ($000)	UCI Fair Share: % and Estimated Cost ($000)
10. Haster Street at Chapman Ave.	• Add 2nd eastbound left-turn lane (or 2nd northbound left-turn lane). • Add 3rd eastbound through lane. • Convert westbound right-turn lane to 3rd through/right-turn land, including defacto right-turn lane.	$2,573	35% $900.6
11. Lewis St. at Chapman Ave.	• Convert westbound right-turn lane to 3rd through/right-turn lane.	$61	29% $17.7
13. The City Dr. at Chapman Ave.	• Convert northbound through lane to shared through/right-turn lane. • Convert southbound through lane to shared through/right-turn lane.	$61	58% $35.4
19. The City Drive at The City Way	• Add 2nd southbound left-turn lane.	$81	58% $47
23. Haster St. at Lampson Ave.	• Add northbound right-turn lane.	$34	24% $8.2
29. Haster Street at Garden Grove Blvd.	• Convert one westbound through lane to 2nd westbound left-turn lane.	$203	39% $79.2
30. Fairview at Garden Grove Blvd.	• Convert westbound right-turn lane to 3rd through/right-turn lane.	$237	25% $59.3
31. Lewis Street at Garden Grove Blvd.	• Convert two southbound lanes to shared through/right-turn lane and right-turn lane. • Add westbound right-turn lane.	$13	19% $2.5
32. The City Dr. at Garden Grove Blvd.	• Add 2nd eastbound left-turn lane.	$237	47% $113.4
43. The City Drive at Medical Center Way	• Add 2nd southbound left-turn lane.	$50	100% $50
Total		**$3,550**	**$1.3 million**

Source: Austin-Foust Associates, Inc., September 2002.

TABLE 3.11-17
INTERSECTION LEVELS OF SERVICE AFTER IMPROVEMENTS

Intersection	Long-Range With Project		Long-Range With Project + Mitigation		Long-Range With Project and Offsite Parking		Long-Range With Project and Offsite Parking + Mitigation	
	A.M. Peak Hour/LOS	P.M. Peak Hour/LOS	A.M. Peak Hour/LOS	P.M. Peak Hour/LOS	A.M. Peak Hour/LOS	P.M. Peak Hour/LOS	A.M. Peak Hour/LOS	P.M. Peak Hour/LOS
10. Haster St. at Chapman Avenue	0.83/D	**1.13/F***	0.68/B	0.87/D	–	–	–	–
11. Lewis St. at Chapman Avenue	0.76/C	**0.96/E***	0.76/C	0.84/D	–	–	–	–
13. The City Dr. at Chapman Avenue	0.84/D	**1.01/F***	0.84/D	0.86/D	0.73/C	**1.05/F***	0.73/C	0.87D
19. The City Dr. at The City Way	**1.04/F***	0.87/D	0.82/D	0.87/D	0.83/D	0.81/D	0.68/B	0.81/D
23. Haster St. at Lampson Ave.	**0.95/E***	0.86/D	0.88/D	0.86/D	–	–	–	–
29. Haster St. at Garden Grove Blvd.	0.77/C	**0.99/E***	0.70/B	0.83/D	–	–	–	–
30. Fairview St. at Garden Grove Blvd.	0.87/D	**0.93/E***	0.82/D	0.82//D	–	–	–	–
31. Lewis St. at Garden Grove Blvd.	0.87D	**1.08/F***	0.83/D	0.89/D	–	–	–	–
32. The City Dr. at Garden Grove Blvd.	0.64/B	**1.08/F***	0.47/A	0.89/D	–	–	–	–

Source: University of California Irvine Medical Center Long Range Development Plan Traffic Analysis, Austin-Foust Associates, Inc., September 2002.

Long-Range With Full LRDP Implementation: Parking

Impact 3.11-5: Full LRDP implementation will result in the need for additional UCI Medical Center parking. This is considered a less than significant impact.

As a part of full LRDP implementation, 182 onsite parking spaces will be demolished resulting in the total demolition of 600 parking spaces. An approximate 1,600-space parking structure will be constructed at the Medical Center as a part of full LRDP implementation. An additional 1,150 onsite parking spaces will be provided in a second parking structure (approximate 1,100 spaces) and surface parking spaces (50 spaces). The existing South Parking Structure will be expanded to provide 200 additional spaces (total 865 spaces). Therefore, at completion of full LRDP implementation, the Medical Center will have 4,200 onsite parking spaces. As indicated on Table 3.11-18 and based on the UCI Medical Center LRDP full implementation assumptions (see Section 2, Project Description), 4,010 parking spaces will be required, inclusive of a 15 percent buffer. Table 3.11-8 shows that onsite parking availability will exceed peak hour parking demand. Implementation of the full LRDP project will result in ***no impact*** to parking as long as adequate parking is provided onsite/offsite in anticipation of planned development at the Medical Center.

TABLE 3.11-18
FULL LRDP IMPLEMENTATION PARKING DEMAND

Onsite Parking	**Number of Spaces**
Existing Onsite Supply	**1,590**
Phase I Onsite Parking Total	**1,432**
FULL LRDP IMPLEMENTATION	
Demolition	**<182>**
New Construction:	
New Parking Structure 1	1,600
Parking Structure 2 and/or a combination of surface, subsurface, and structured parking	1,150
South Parking Structure: West Addition	200
Total New Construction	**2,950**
Parking Total: (Retained + New Construction)	**4,200**

Full LRDP Implementation Land Uses	**Units[a]**	**Peak Parking Demand (10:00 A.M.)**
Inpatient	527 beds	827
Ambulatory Care	380.84 TSF	1,318
Academic/Research	405.49 TSF	920
Administrative	93.00 TSF	198
Services	67.87 TSF	143
Subtotal Full LRDP Implementation Demand		**3,406**
15 Percent Parking Space Buffer		**604**
Total Full LRDP Implementation Demand		**4,010**
Adequate Availability of Onsite Parking?		**Yes**

TSF: thousand square feet of floor area
a. Inclusive of Phase I
Source: Austin-Foust Associates, Inc., September 2002.

Mitigation Program

No mitigation is required.

3.12 UTILITIES AND SERVICE SYSTEMS

This section addresses the potential effects on utilities and service systems associated with implementation of the UCI Medical Center LRDP project. This section of the EIR describes the existing and proposed utilities and services, and evaluates changes to the physical environment that may result should there be a need to expand such services. Existing and future demand for services is based on information provided from the respective utility purveyors.

3.12.1 WATER SERVICE

Existing Conditions

The UCI Medical Center is located within the service area of the City of Orange Water Department, but is exempt from Senate Bill 610. The City of Orange Water Department serves the majority of customers in the City of Orange; portions of the city east of Chapman Avenue are served by the Irvine Ranch Water District. The Medical Center's water system is comprised of a public and private system. The City of Orange provides potable water and fire suppression water service for the Medical Center. The University-owned private system provides irrigation water and additional potable water to meet the requirements of the Medical Center. The existing average water demand at the UCI Medical Center is 172,800 gallons per day (gpd).

The primary source of water for customers of the City of Orange Water District is groundwater (75 percent) drawn from 15 municipal wells located within the Santa Ana River Aquifer. Well water goes directly into the city's distribution system; it meets all state regulations without treatment. The Orange County Water District administers the overall management of the groundwater basin that serves the City of Orange and most of Orange County. Water is also imported (23 percent) from the Colorado River and northern California and from the Serrano Water District (2 percent). The Orange County Water District oversees the delivery of the majority of water imported to the City of Orange through facilities owned by the Metropolitan Water District of Southern California (MWD). MWD water is filtered and disinfected with chloramines.

Groundwater

As noted above, the Orange County Water District is responsible for managing the underground water reserves that underlies the northwester half of Orange County. These water reserves supply approximately 500 wells within the district's boundaries. Currently, approximately 270,000 acre-feet of this water is pumped for use each year. The quantity is growing and projections indicate the demand may reach 450,000 acre-feet a year in the next 25 years. Groundwater reserves are maintained by a recharge system that replaces water pumped from wells. The Orange County Water District's facilities have a recharge capacity of approximately 300,000 acre-feet per year. Approximately 2.5 million people depend on this source for more than 75 percent of their water. Groundwater producers (i.e., city water departments and other local agencies) pump water from the groundwater basin and deliver it by pipeline to consumers.

The current average annual base flow of the Santa Ana River is approximately 140,000 acre-feet. Storm flows add an average of 60,000 acre-feet per year, ranging from 10,000 to 500,000 acre-feet. The base flow may increase by 100,000 acre-feet over the next 20 years due to urban development in upstream areas. Increased development and impervious surfaces results in increased storm water runoff, and growth in population and industry causes a proportional increase in wastewater discharges into the river channel.

Imported Water

The MWD is a consortium of 26 cities and water districts that provides drinking water to nearly 17 million people in parts of Los Angeles, Orange, San Diego, Riverside, San Bernardino and Ventura counties. MWD currently delivers an average of 1.7 billion gallons of water per day to a 5,200-square-mile service area. As addressed in MWD's *Report on Metropolitan Water Supplies* (February 11, 2002), water demands on the MWD are calculated as follows: retail demand plus local replenishment demands minus local supplies. In average and wet years, the MWD's system replenishment requirements are included. MWD's *Regional Urban Water Management Plan* (December 2000) includes forecasts of demands. Table 3.12-1 provides a comparison of the projected water demands as set forth in the Regional Urban Water Management Plan and the MWD's member agencies' urban water management plans.

TABLE 3.12-1
METROPOLITAN WATER DISTRICT AND MEMBER AGENCIES
PROJECTED WATER DEMAND
(in million acre-feet)

Water Demand (Average Year)	Year 2005	Year 2010	Year 2015	Year 2020
Metropolitan Water District[a.]	1.90	1.95	2.08	2.30
Member Agencies[b.]	1.68	1.82	1.94	2.09
Difference	0.22 11%	0.13 7%	0.14 7%	0.21 9%

a. Based on the Metropolitan Water District Regional Urban Water Management Plan, December 2000.
b. Based on Metropolitan Water District's review of urban water management plans submitted by member agencies in December 2000.

Sources: *Report on Metropolitan's Water Supply*, prepared by the Metropolitan Water District, February 11, 2002.

MWD's projected demand is 7 to 11 percent higher than the projections for the member agencies. The difference in projected demand indicates that MWD's supplies "...would provide a 'margin of safety' or flexibility to accommodate some delays in local resources development or adjustments in development plans" (source: Metropolitan Water District, *Report on Metropolitan's Water Supplies*, February 11, 2002). The availability of MWD's water supplies is determined by comparing total projected water demand and the expected water supply over the next 20 years. MWD has determined that there are sufficient supplies that can be reasonably relied upon to meet projected demands and that there are additional reserve supplies that could provide a margin of safety to mitigate against uncertainties in demand projections and risks in fully implementing all supply programs under development. With the addition of all water supplies that are under development, MWD will have the capability to meet 100 percent of the water needs of the member agencies, provide a 15 to 20 percent reserve supply, and make available sufficient deliveries for the replenishment of local and regional storage.

Local System

Customers served by the City of Orange water system are individually metered while buildings served by the UCI water system have central meters. Multiple points of connection to the City of Orange Water Department system minimizes the possibility of water supply interruption. City of

Orange facilities located at the Medical Center include an 800,000 gallon reservoir (southeast portion of the site), a pump station (pumping water from the reservoir into the city's water system), a well site (non-operational), and water mains. An additional city well site is planned to be located north of and adjacent to the existing reservoir within the Medical Center. The existing and planned wells serve both the Medical Center and City of Orange customers.

The public system, originally constructed to meet the fire flow requirements of the Medical Center, connects to the offsite water mains at four locations: two at The City Drive and two at the southerly boundary of the Medical Center. The public water lines within the Medical Center are comprised of water lines varying from 8-inch-diameter to 16-inch-diameter mains.

Thresholds of Significance

The following standards of significance are based on Appendix G, Environmental Checklist, of the CEQA Guidelines. For the purposes of this EIR, impacts would be considered significant if:

- The project would require or result in the construction of new water facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

- There are not sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed.

Project Impacts

Impact 3.12-1: The proposed project would increase the demand on local water supplies. Phase I and full LRDP implementation would not result in significant impacts.

The City of Orange Water Department has indicated that full LRDP implementation will result in the anticipated generation of 329,760 gpd, an increase of 155,960 gpd when compared to existing water use at the Medical Center. This increase demand represents an approximate 0.5 percent additional demand on the city water system. This additional demand can be accommodated without any significant impact to the City of Orange's water system. With respect to the City of Orange's offsite water system, the city's offsite water main connections to the Medical Center are at The City Drive (two mains) and at the southern boundary of the Medical Center (two mains). The public water lines within the Medical Center are comprised of water lines varying from 8-inch- to 16-inch-diameter mains. These existing mains can provide adequate service for Phase I and full LRDP implementation. ***No significant impacts*** are associated with Phase I or full LRDP implementation.

Mitigation Program

Standard Conditions and Requirements

- The UCI Medical Center shall pay water fees to the City of Orange Water Department based on the existing agreement between the two parties.

Mitigation Measures

3.12-1(a) The UCI Medical Center shall be responsible for the provision of all onsite water system improvements necessary to serve the UCI Medical Center Phase I and Long Range Development Plan projects. Improvements shall be coordinated with the

City of Orange to ensure that the project will have no net decrease in service to existing and future water customers served by the City of Orange Water Department.

Cumulative Impacts

Impact 3.12-2: The project would incrementally increase the demand on local water supplies. Project implementation would not result in significant impacts.

The cumulative project study area for water supply and service is the service area of the City of Orange Water District; the UCI Medical Center is currently located within the service area of the City of Orange Water District. As previously addressed, the City of Orange Water District obtains groundwater from the groundwater basin serving the city and most of Orange County, and which obtains imported water from the Orange County Water District via facilities owned by MWD. MWD currently delivers an average of 1.7 billion gallons of water per day to a 5,200-square-mile service area. The City of Orange Water District has indicated that groundwater and imported water sources located within approximately one mile of the project site, in conjunction with other water sources that comprise the water system can adequately serve the project and planned cumulative development with its service area. The City of Orange Water District has indicated that it continues to pursue the expansion of groundwater resources and the provision of necessary infrastructure. It is also constructing a new groundwater well in The Block at Orange that is expected to be operational in approximately two years. The proposed UCI Medical Center project, in conjunction with existing, planned, and probable future projects will cumulatively contribute to an increased demand for water services. Because the City of Orange Water District, the Orange County Water District, and MWD have indicated that there are adequate water supplies to serve existing, planned, and probable future development, the project's contribution to increased demand for water is not considered to be significant. ***No significant cumulative impacts*** are anticipated.

Mitigation Program

No additional mitigation is required.

3.12.2 WASTEWATER AND SEWER SERVICE

Existing Conditions

The UCI Medical Center sewer system is a private system, connected to the City of Orange local sewer lines and discharged into the Orange County Sanitation District (OCSD) sewer trunk mains. The OCSD is responsible for the collection, treatment, and disposal of wastewater generated by approximately 2.2 million people within its 47-square-mile service area of central and northwest Orange County. The service area is divided into nine revenue areas; the project site is located in Service Area 2. Service Area 2 is inclusive of the cities of Anaheim, Brea, Fountain Valley, Fullerton, Garden Grove, La Habra, Orange, Placentia, Santa Ana, Villa Park, and Yorba Linda, and represents approximately 30.5 percent of the OCSD service area population.

Wastewater is delivered to OCSD's two treatment facilities through a 650-mile system of sewer trunk lines. These trunk lines are the responsibility of OCSD; the majority of sewer lines (or laterals) that connect to residences and businesses are city-owned and maintained. Laterals feed into the trunk lines. OCSD has 22 gravity-fed pump stations to move wastewater through trunk lines and into the two treatment plants. Table 3.12-2 identifies OCSD's existing flows and system capacity. As identified in the table, capacity exceeds demand by 107 million gallons per day.

TABLE 3.12-2
ORANGE COUNTY SANITATION DISTRICT
AVERAGE DAILY FLOWS AND DESIGN CAPACITY

Average Daily Flow	MGD
Plant 1	90
Plant 2	153
Total Average Daily Flow	**243 mgd**
Design Capacity	**MGD**
Plant 1	174
Plant 2	276
Total Design Capacity	**450 mgd**
Difference	**107 mgd**
MGD: million gallons per day Source: www.csdoc.org	

The Medical Center's system has a total capacity of 1.42 mgd (source: Kennedy/Jenks/Chilton, 1989). The Medical Center's private sewer lines connect to the City of Orange sewer line "S-139," located east of the campus which runs in a primarily north to south direction. There are three sewer pipelines which convey wastewater southerly from the Medical Center to the OCSD sewer line located north of SR-22. These sewer lines pass through and also serve County of Orange facilities located adjacent to and south of the Medical Center. City of Orange records indicate that the County of Orange constructed an 8-inch and a 10-inch vitrified clay pipe sewer line in Manchester Avenue to serve the project site. These lines connect directly into a 39-inch sewer main which is owned and operated by OCSD. This 39-inch vitrified clay pipe is located in Lewis Street in the City of Orange and connects to a 30-inch OCSD vitrified clay pipe in Metropolitan Drive. Sewage flows carried in the OCSD pipeline are transported to treatment plants in the cities of Fountain Valley and Huntington Beach. No OCSD sewer improvements are currently planned within the project area.

The Medical Center has a Class 2 Discharge Permit from the OCSD (Permit No. 2-2-068). The Medical Center reported a discharge of 125,738 gpd (source: Kennedy/Jenks Consultants, *University of California Irvine Medical Center Site Utility Study Update, Phase 2*, 1995).

Thresholds of Significance

The following standards of significance are based on Appendix G, Environmental Checklist, of the CEQA Guidelines. For the purposes of this EIR, impacts would be considered significant if:

- The project would exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board.

- The project would require or result in the construction of new wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

- The project would result in a determination by the wastewater treatment provider which serves or may serve the project that it does not have adequate capacity to serve the project's projected demand in addition to the provider's existing commitments.

Project Impacts

Impact 3.12-3: The proposed project would increase the demand for local wastewater and sewer services. This is considered a less than significant impact.

Table 3.12-3 identifies the existing, Phase I, and full LRDP implementation sewer generation estimates. The table shows that at full implementation of the LRDP project, total sewage discharge will be approximately 358,072 gpd, inclusive of new and remaining site development.

TABLE 3.12-3
SEWAGE DISCHARGE
PHASE I AND FULL LRDP IMPLEMENTATION

Phasing	Water Demand (gpd)	Conversion Rate	Sewage Discharge
Phase I	173,313 gpd[a.]	90%	155,982 gpd
Full LRDP Implementation	158,154 gpd	90%	142,339 gpd
Project Subtotal	331,467 gpd	90%	298,320 gpd
Existing Demand	–	–	125,738 gpd[b.]
Total Demolition	<73,318 gpd>	90%	<65,986 gpd>
Total Site Development			**358,072 gpd**

gpd = gallons per day

a. 115,473 gpd = 173,313 (water demand) - 30,000 (chiller) - 27,840 (irrigation)
b. University of California Irvine Medical Center Site Utility Update, Phase 2, prepared by Kennedy/Jenks Consultants, 1995.

Sources: University of California Irvine Medical Center Site Utility Update, Phase 2, prepared by Kennedy/Jenks Consultants, 1995 (existing water demand).

Based on the 1995 Kennedy/Jenks site utility study, the sewer system has allowable capacity to serve the proposed project. The Medical Center's infrastructure system is capable of supporting the proposed project. Onsite improvements will be necessary to relocate and extend utility services to the building points-of-connection. As individual onsite projects are proposed, the system and pipes will be modeled, and improvements designed and implemented. ***No significant project impacts*** are expected associated with project implementation.

Mitigation Program

Standard Conditions and Requirements

- The UCI Medical Center shall pay sewer fees to the Orange County Sanitation District (OCSD) based on the existing agreement between the two parties.

Mitigation Measures

Although no significant impacts have been identified, the following measure is recommended.

3.12-3(a) New construction should incorporate all practical and mandated water conservation measures. All developments should use ultra-low flow water fixtures to reduce the volume of wastewater generated.

Cumulative Impacts

Impact 3.12-4: The proposed project would cumulatively contribute to demands on the wastewater and sewer services. This is considered a significant impact.

The cumulative sewer service project area for the UCI Medical Center is the service area for the OCSD. The OCSD future sewer system improvement needs are based on the OCSD *30-Year Master Plan of Capital Facilities; Collection, Treatment, and Disposal Facilities Master Plan-1989*, as revised, as well as demographic information collected at the Center for Demographic Research at California State University at Fullerton. This report evaluated operational and financial needs, including an assessment of all types and categories of users; the demands on the system and capacity needs of the system to provide necessary service; the total cost of existing and future system facilities; and methods to fund the system. New development is required to pay connection fees and a Capital Facilities Capacity Charge. A connection fee is a fee equal to the cost necessary to physically connect a property to the OCSD's system. A Capital Facilities Capacity Charge is a one-time charge imposed at the time a property is connected to the OCSD system. The charge pays for OCSD facilities in existence at the time the charge is imposed and/or to pay for new facilities to be constructed in the future that are of benefit to the property being charged.

Existing, planned, and probable future development within the cumulative study area will cumulatively contribute to demands on the wastewater system. Because the proposed UCI Medical Center LRDP project would not have been included in the City of Orange's land use projections for the project site, the proposed project could contribute to significant demands placed on the OCSD's system. The project's contribution to this demand is considered a ***potentially significant impact***.

Mitigation Program

CEQA Guidelines §15130(a)(3) states that "An EIR may determine that a project's contribution to a significant cumulative impact will be rendered less than cumulatively considerable and thus is not significant. A project's contribution is less than cumulatively considerable if the project is required to implement or fund its fair share of a mitigation measure or measures designed to alleviate the cumulative impact." Therefore, the project's contribution to cumulative impacts can be mitigated to a level that is considered ***less than significant*** through the implementation of Mitigation Measure 3.12-3(a).

3.12.3 ELECTRICAL SERVICE

Existing Conditions

The UCI Medical Center is located within the service territory of the Southern California Edison Company (SCE). The Medical Center's existing electrical demand is approximately 6,700 kilowatts (kw). This represents the instantaneous unit of electrical demand (i.e., at any point in time) for the Medical Center.

Thresholds of Significance

For the purposes of this EIR, impacts would be considered significant if:

- Electricity supplies are not available to meet the demand of the project.

- The project would require the construction of new electrical facilities or the expansion of existing facilities which could cause significant environmental effects.

- The project would encourage activities resulting in the wasteful or inefficient use of energy.

Project Impacts

Impact 3.12-5: The proposed project would increase the demand for electrical service. This is considered a less than significant impact.

At the completion of Phase I, the Medical Center's electrical demand will increase to 14,428 kw, an increase of 7,728 kw over existing electrical demand. Upon full LRDP implementation, the Medical Center's electrical demand is projected to be 20,520 kw, an increase of 13,820 kw (306 percent) over existing electrical demand. According to SCE, projected electrical loads generated by the proposed project are within parameters of the projected load growth which SCE plans to meet in the area.

SCE is required to provide service to the project site, and coordination is typical between a project applicant and SCE to avoid any notable service disruptions during extension, relocation, and upgrading of services and facilities. This coordination ensures that the nature, design, and timing of electrical system improvements are adequate to serve the project and in compliance with California energy conservation requirements as specified in California Code of Regulations Title 24. Implementation of the proposed project is expected to result in ***less than significant impact*** on electrical services or facilities.

As a part of Phase I and full LRDP implementation, a central chiller facility will be constructed on the site of existing Building No. 33. The chiller is expected to be constructed as a hybrid plant. Hybrid plants have both electric and gas chillers. The gas chillers operate during high-peak electricity rate hours and the electric chillers operate during off-peak electricity rate hours (evenings and weekends). The central chiller facility has the ability to reduce the electrical and/or natural gas requirements for the UCI Medical Center. The analysis set forth in this EIR provides a worst-case scenario without any energy savings for such a central chiller facility. As such, implementation of the chiller facility will not result in additional electrical requirements beyond that set forth for the proposed project.

The proposed project also involves the installation of electric facilities within the project site to accommodate new building sites. Installation of these facilities (e.g., underground duct banks) during project construction will result in ***less than significant*** project impacts.

Mitigation Program

Standard Conditions and Requirements

Although no significant impacts have been identified, the following measures are recommended to minimize the demands on electrical services:

- Structures on the site shall be required to meet the Energy Building Regulations adopted by the California Energy Commission (Title 24). Meeting these specifications would conserve non-renewable natural resources to levels acceptable to the state.

- The UCI Medical Center shall comply with guidelines provided by Southern California Edison Company with respect to easement restrictions, construction guidelines, and potential amendments to right-of-way in the areas of any existing Southern California Edison Company easements.

Cumulative Impacts

Impact 3.12-6: The proposed project would cumulatively contribute to the need for electrical service. This is considered a less than significant impact.

The cumulative electrical service study area is the service area for SCE. SCE is the second largest investor-owned electric utility company in California. It supplies power to a population of 11 million persons within a 50,000-square-mile service area within central, coastal, and southern California. Existing, planned, and foreseeable future projects within the service area of SCE to contribute to increased demands for electrical service. The state Public Utilities Commission oversees and regulates service providers, including SCE, to ensure that adequate service levels are available to accommodate projected regional growth at fair prices. The proposed project's increase in demand for electricity is ***not be cumulatively considerable*** as SCE has continued to state their ability to provide service to the Medical Center and the surrounding area into the foreseeable future.

Mitigation Program

No mitigation is required.

3.12.4 NATURAL GAS SERVICE

Existing Conditions

The UCI Medical Center has an onsite Steam/Power Plant (Building No. 31). The Steam Plant has three high pressure steam boilers that are gas fired; two of the three boilers are dual-fuel (diesel oil and natural gas) and one is single-fuel (natural gas). The Steam Plant provides steam sterilization in the kitchen and surgical supply, hot water, and space heating. The plant is connected to these operations in a closed system where the condensate is returned for reuse.

There are two natural gas distribution systems at the UCI Medical Center. One distribution system provides interruptible service and the other provides uninterruptible service. The onsite Steam Plant is supplied by an interruptible natural gas system which is isolated from the uninterruptible natural gas system. The majority of natural gas use at the Medical Center is for the heating boilers at the Steam Plant for heating buildings. Steam is also used in some Medical Center buildings for laboratory equipment sterilization. The second distribution system provides uninterruptible service and distributes natural gas to various site demands, including space heating for buildings not served by the central steam system, water heating, and laboratory needs.

Both natural gas distribution systems are supplied by the same gas main and are supplied at the point of connection to The Gas Company's 6 5/8-inch pipeline. The main line is located within The City Drive. The existing natural gas demand for the Medical Center is approximately 10,136 cubic feet per hour (cf/hr). The Gas Company's gas main serving the Medical Center operates at a pressure of approximately 45 pounds per square inch (psi). Its system has the ability to deliver natural gas to the Medical Center site at approximately twice its existing demand. The Medical Center's onsite distribution system is operating at peak capacity to meet existing peak hour demands; it is currently operating at a pressure of between 5 and 15 psi. The Medical Center is authorized by The Gas Company to operate its system at pressures up to 15 psi.

Thresholds of Significance

For the purposes of this EIR, impacts would be considered significant if:

- Natural gas supplies are not available to meet the demand of the project.
- The project would require the construction of new natural gas facilities or the expansion of existing facilities which could cause significant environmental effects.
- Encourage activities resulting in the wasteful or inefficient use of energy.

Project Impacts

Impact 3.12-7: The proposed project would increase the demand for natural gas facilities and services. This is considered a less than significant impact.

Table 3.12-4 identifies the projected natural gas demand generated by the UCI Medical Center Long Range Development project. Some of the pipelines within the onsite distribution system have insufficient capacity to meet the proposed project's peak demands. Further, the gas system does not extend throughout the Medical Center site and will, therefore, be unable to deliver natural gas to some of the areas proposed for development as a part of the LRDP project.

Improvements to the Medical Center's onsite natural gas distribution system will be required to meet increased project demands in peak hourly natural gas service. Onsite improvements are expected to include the construction of additional gas lines, the relocation of some existing gas lines, and increases to the operating pressure of the onsite natural gas distribution system. To increase the pressure, it is anticipated that existing meters will need to be replaced with larger meters. By increasing the operating pressure of the natural gas system, the existing distribution system will be able to meet the demands of the proposed project.

As previously addressed for electrical consumption, a central chiller facility will be constructed as a part of Phase I and full LRDP implementation. As a hybrid plant, the facility will have two variable speed 1,100-ton electric centrifugal chillers with supporting induced draft cooling towers and associated condenser water pumps. This facility has the ability to reduce the energy requirements for the UCI Medical Center. The analysis set forth in this EIR provides a worst-case scenario without any energy savings for such a central chiller facility. As such, implementation of the chiller facility will not result in additional natural gas requirements beyond that set forth for the proposed project.

With respect to offsite infrastructure, The Gas Company has identified that the natural gas demand generated by the project will be within its projected future demand for the area and could be accommodated by existing facilities. As a result, the project will result in ***less than significant impacts***.

Mitigation Program

No mitigation is required.

TABLE 3.12-4
NATURAL GAS DEMAND
PHASE I AND FULL LRDP IMPLEMENTATION

Functional Classification	Units/Area	Natural Gas Demand Factor cf/sf/hr	Total Demand by Classification (cf/hr)
PHASE I			
Administrative	n/a	0.010804	n/a
Lab/Academic/Research	75,000	0.014063	1,055
Inpatient and Outpatient	498,000	0.010604	5,281
Service	8,000	n/a	n/a
Phase I Subtotal	**581,000 sq.ft.**		**6,336 cf/hr**
FULL LRDP IMPLEMENTATION			
Administrative	121,666	0.010804	1,307
Lab/Academic/Research	243,334	0.014063	3,422
Inpatient and Outpatient	595,000	0.010604	6,309
Service	42,477	n/a	n/a
Full LRDP Implementation Subtotal	**1,009,387 sq.ft.**		**11,038 cf/hr**
Total Average Hourly Demand (cf/hr)			**17,373 cf/hr**
Existing Demand	910,365 sq.ft.		10,136 cf/hr
Total Demolition	<523,703 sq.ft.>		<5,618 cf/hr>
Total Site Development	**1,902,049 sq.ft.**		**21,902 cf/hr**

cf/sf/yr = cubic feet per square foot per year
cf/hr = cubic feet per hour
cf/d = cubic feet per day

Sources: UCI Medical Center Site Utility Study, prepared by Kennedy/Jenks/Chilton, 1989; University of California Irvine Medical Center Site Utility Study Update, Phase 2, prepared by Kennedy Jenks Consultants 1995.

Cumulative Impacts

Impact 3.12-8: The proposed project would increase the demand for natural gas facilities and services. This is considered a less than significant impact.

The cumulative natural gas study area for the proposed project is the service area for the Southern California Gas Company. The Southern California Gas Company is the nation's largest natural gas distribution utility, serving 18 million people. Its service area encompasses 23,000 square miles throughout most of central and southern California, from Visalia to the Mexican border. Statewide natural gas demand is expected to grow at an annual average rate of 1.3 percent between years 2002 and 2022. California's existing gas supply is regionally diverse and includes supplies from onshore and offshore California sources, the southwestern United States, the Rocky Mountains, and Canada. Natural gas pipelines from these sources serve California. Additional pipeline capacity and interstate pipeline access allows for long-term supply availability to serve existing, planned, and foreseeable future development. To meet anticipated future demand for natural gas, the Southern California Gas Company has proposed several pipeline projects; some of these pipelines are under constructions, some are in the permitting phase, and others are being

developed to accommodate development in California. These proposed pipeline projects will provide approximately 4,835 MMcf/d (million cubic feet per day) in new delivery capacity to California. Statewide total natural gas supplies and requirements are identified in Table 3.12-5. Implementation of the proposed project will cumulatively contribute to demands on natural gas. However, there is adequate natural gas supplies to accommodate demands. Therefore, ***no significant cumulative impacts*** are anticipated.

TABLE 3.12-5
STATEWIDE TOTAL NATURAL GAS SUPPLY SOURCES AND REQUIREMENTS (MMCF/D)[a.]

Total California Supply Sources	**2002**	**2003**	**2007**	**2015**	**2020**	**2022**
California Sources	660	660	660	660	660	660
Out-of-State	4,068	3,626	4,227	4,850	5,246	5,409
Net Withdrawal (injection)	--	--	--	--	--	--
Utility Total	4,728	4,286	4,887	5,510	5,906	5,409
Pipeline Bypass	769	836	859	922	915	913
Total Supplies	**5,497**	**5,122**	**5,746**	**6,432**	**6,821**	**6,982**
Total California Requirements	**2002**	**2003**	**2007**	**2015**	**2020**	**2022**
Residential	1,284	1,293	1,436	1,450	1,524	1,555
Commercial	493	499	532	563	579	582
Natural Gas Vehicles	17	22	31	48	59	65
Industrial	863	859	824	787	774	769
Electric Generation[b.]	1,549	1,170	1,663	2,060	2,332	2,446
Enhanced Oil Recovery	28	28	28	21	21	21
Wholesale/Resale	384	315	360	450	475	487
Company Use and Unaccounted for Use	87	79	89	99	106	108
Utility Total	4,705	4,265	4,963	5,478	5,870	6,033
Pipeline Bypass	769	836	859	922	915	913
Total Requirements	**5,474**	**5,101**	**5,882**	**6,400**	**6,785**	**6,946**

a. MMCF/D: million cubic feet per day
b. Includes utility and non-utility generation.

Source: 2002 California Gas Report, Executive Summary, prepared by the California Gas Utilities.

Mitigation Program

No mitigation is required.

3.12.5 SOLID WASTE

Existing Conditions

Solid waste practices in California are governed by several agencies and forms of legislation. The California Integrated Waste Management Act of 1989 (AB 939) required all counties to prepare a County Integrated Waste Management Plan. The County of Orange adopted its *County Integrated Waste Management Plan* (CIWMP) in 1996. The CIWP identifies the existing and future solid waste disposal demand based on population projections adopted by the Orange County Board of Supervisors. The CIWMP includes the following components: Source Reduction and Recycling, Household Hazardous Waste, and a countywide Siting Element identifying 15 years of available disposal capacity; and a statement of significant solid waste disposal problems facing the jurisdiction. AB 939 also mandated that all municipalities divert–through source reduction, recycling, and composting–at least 50 percent of its solid waste by the year 2000.

The existing land uses at the UCI Medical Center generate approximately 125 tons per month of non-hazardous solid waste. All uncontaminated solid waste at the existing Medical Center is collected by hand and transferred to trash bins and/or compactors. A commercial waste hauler service picks up the solid waste where it is most likely disposed of at the Frank R. Bowerman Landfill in the City of Irvine which is part of the Orange County landfill system operated by the County of Orange Integrated Waste Management Department (IWMD). All of the Medical Center's non-hazardous waste is transported for disposal within the county landfill system (not to a particular facility) until year 2007. IWMD also accepts additional waste from outside Orange County.

The UCI Medical Center considers all solid waste material generated in the intensive care units, operating rooms, and laboratories to be contaminated solid waste (medical waste). Generators of medical waste are regulated by the County of Orange Health Care Agency, Environmental Health Division. The Medical Center generates approximately 15 tons per month of contaminated solid waste per week. Because the UCI Medical Center generates 200 pounds or more of medical waste in any one month of a 12-month period, the Medical Center is considered by the County Health Care Agency to be a Large Quantity Generator. All Large Quantity Generators are required to register with the County Health Care Agency, Environmental Health Division.

Procedures for the collection and disposal of contaminated waste have been approved by the Orange County Health Department. The Orange County Health Department is the local enforcement agency of the State of California Department of Health Services to ensure the proper handling and disposal of medical wastes. Consistent with the California Medical Waste Management Act, the county requires that all medical waste be separated from other waste materials at the point of origin. Biohazardous waste must be placed in red bags labeled with the words "BIOHAZARDOUS WASTE" or the international biohazard symbol with the word "BIOHAZARD." The red bags must be impervious to water and thick enough to pass a 165-gram dart impact test. Sharp waste, such as needles, must be contained in rigid, puncture, and leak resistant containers. These containers must be labeled with the words "SHARP WASTE" or with the international biohazard symbol with the word "BIOHAZARD." Grinders, compactors, or trash chutes cannot be used for medical waste prior to disposal. Chemotherapy waste, pathology waste, and pharmaceutical waste must be separated from other medical waste. These types of wastes must be incinerated at a permitted medical waste incinerator. Medical waste storage containers and carts used to store closed bags of medical waste must be leak resistant, tightly covered, clean and in good repair, labeled on all sides with the words "BIOHAZARDOUS WASTE" or with the international biohazard symbol and the word "BIOHAZARD." All storage containers are required to be washed and decontaminated after each use.

A final storage area is a location where containers of medical waste are stored for disposal or treatment. The final storage area is required to be secured to prevent access to unauthorized persons, marked with warning signs easily legible from 25 feet away. The signs must state in English, Spanish, and all other appropriate languages "CAUTION-BIOHAZARDOUS WASTE STORAGE AREA-UNAUTHORIZED PERSONS KEEP OUT." Lastly, the final storage area must be protected from animals and natural elements. The Medical Center transports all medical waste offsite via an approved contract disposal service. Radioactive waste is disposed of through the UCI support pickup service.

Thresholds of Significance

The following standards of significance are based on Appendix G, Environmental Checklist, of the CEQA Guidelines. For the purposes of this EIR, impacts would be considered significant if:

- The project would be served by a landfill or landfill system that does not have adequate capacity to serve the project's solid waste disposal needs.

- The project would not comply with applicable federal, state, and local statutes and regulations related to solid waste.

Project Impacts

Impact 3.12-9: The proposed project would result in the generation of solid waste from demolition activities which could affect area landfills.

The proposed project assumes the demolition of 31 buildings/structures. Of the 31 buildings, 15 buildings (inclusive of one parking structure) and surface parking areas will be demolished as a part of Phase I and 16 buildings and surface parking areas as a part of full implementation of the LRDP project. Phase I will result in the one-time generation of approximately 36,019 cubic yards of demolition debris; full LRDP implementation is expected to result in the one-time generation of an additional 22,648 cubic yards of demolition debris. Excavation activities for Phase I associated with site preparation and construction of the basement level of the hospital will require the removal of approximately 45,000 cubic yards of dirt, based on a 20-foot excavation depth. Excavation quantities associated with full LRDP implementation activities will be determined on a project-by-project basis.

Construction- and demolition-generated waste is heavy, inert material. It is problematic for landfills because it does not decompose and, therefore, takes up valuable landfill capacity. Additionally, because construction and demolition waste is heavy when compared to other solid waste materials such as paper and plastic, cities and counties have more difficulty reducing the tonnage of disposed waste. For these reasons, California has targeted construction and demolition waste debris for diversion from the waste stream. Construction debris, such as that which will be generated by demolition activities at the UCI Medical Center, is often transported by demolition contractors to privately owned and operated facilities that specialize in debris recycling and provide for the landfilling of materials that cannot be recycled. The last waste stream composition study conducted in 1990 by the California Integrated Waste Management Board indicated that approximately 57 percent of inert solid waste material is recycled. Assuming a 57 percent diversion rate, approximately 20,531 cubic yards of the 36,019 cubic yards of demolition debris associated with Phase I will be recycled. Therefore, 15,488 cubic yards of demolition debris will be landfilled. Assuming the same diversion rate, approximately 12,909 cubic yards of the 22,648 cubic yards of demolition debris associated with full LRDP implementation will be recycled and 9,739 cubic yards will be landfilled. This EIR does not assume that excavated dirt material will be diverted from

landfilling, although it may be used at landfill sites for daily cover material. The County of Orange IWMD has indicated that there is adequate capacity in its landfill system to serve the project. Therefore, disposal of construction debris is expected to result in a ***less than significant*** impact.

Mitigation Program

Mitigation Measures

Although no significant impacts have been identified, the following measure is recommended.

3.12-9 Prior to the initiation of demolition and construction activities, the UCI Medical Center shall prepare a waste reduction plan. The waste reduction plan shall be included in all construction bid packages. During the term of the demolition and construction, the UCI Medical Center shall establish a goal to recycle or divert 50 percent of construction and demolition wastes and keep records thereof in tonnage or in other measures deemed acceptable to the City of Orange. To the maximum extent feasible, onsite separation of scrap wood and clean green waste shall occur to permit chipping and mulching for soil enhancement or land cover purposes.

Impact 3.12-10: The proposed project would result in the generation of solid waste which could affect area landfills.

The University has estimated that the Phase I project will generate approximately 148 tons per month of non-hazardous solid waste, an increase of 23 tons per month when compared to existing uses at the Medical Center. At full LRDP implementation, project land uses will generate 175 tons per month of solid waste, an increase of 50 tons per month when compared to existing conditions. The County of Orange IWMD has indicated that adequate capacity for the proposed project is available. Therefore, there will be ***no significant project impacts*** resulting from project implementation.

The University has estimated that the Phase I project will result in the generation of 17 tons per month of medical waste, an increase of 2 tons per month when compared to existing conditions at the Medical Center. At full LRDP implementation, the project will generate 21 tons per month of medical waste, an increase of 5 tons per month. As previously addressed, the UCI Medical Center, as a Large Quantity Generator of medical waste, is regulated by the County of Orange Health Care Agency, Environmental Health Division. All Large Quantity Generators are required to register with the County Health Care Agency, Environmental Health Division. Because procedures are currently in place and approved by the Orange County Health Department for the collection and disposal of contaminated waste, ***no significant impacts*** are anticipated.

Cumulative Impacts

Impact 3.12-11: The proposed project would cumulatively contribute to the generation of solid waste which could affect county landfills.

The cumulative solid waste project study area for the UCI Medical Center project is the service area for the County of Orange Integrated Waste Management Department. The County of Orange owns and operates three active landfills. As previously addressed, the Orange County landfill system serves Orange County and currently accepts additional waste from outside Orange County. Existing, planned, and foreseeable future projects will cumulatively contribute to increased demands for solid waste disposal. If cumulative development causes the daily tonnage ceiling of

a particular facility to be exceeded, out-of-county waste being imported to that facility will be reduced by a corresponding amount. IWMD has identified that the county's landfill system has capacity in excess of 30 years, well above the 15-year threshold established by the California Integrated Waste Management Board. As such, ***no significant cumulative impacts*** are anticipated.

Mitigation Program

No mitigation is required.

SECTION 4
ALTERNATIVES TO THE PROPOSED PROJECT

4.1 INTRODUCTION

In accordance with CEQA Guidelines (§15126.6), requires ...

> *An EIR shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives. An EIR need not consider every conceivable alternative to a project. Rather it must consider a reasonable range of potentially feasible alternatives that will foster informed decision making and public participation. An EIR is not required to consider alternatives which are infeasible… There is no ironclad rule governing the nature or scope of the alternatives to be discussed other than the rule of reason…Because an EIR must identify ways to mitigate or avoid the significant effects that a project may have on the environment (Public Resources Code Section 21002.1), the discussion of alternatives shall focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly.*

As noted above, EIRs must identify alternatives to the project or to the location of the project. One alternative required by CEQA is the No Project Alternative. This alternative evaluates impacts to the environment based on the existing conditions and uses of the project site. The following alternatives are addressed in this section of the EIR:

- No Project Alternative: Development Consistent with the 1977 University of California, Irvine Medical Center Redevelopment Master Plan
- No Development Alternative
- In-Kind Replacement Alternative
- SB 1953: Scenario A and Scenario B
- Offsite Location Alternative
- Full LRDP Implementation Offsite Parking Alternative

A description of each of these alternatives and a comparative environmental evaluation to the significant impacts of the proposed project is provided in this section of the EIR. All significant impacts associated with the proposed UCI Medical Center LRDP project can be mitigated to a level less than significant, with the exception of short- and long-term air quality impacts.

The objectives of the proposed UCI Medical Center Long Range Development Plan project are:

- Update the UCI Medical Center Long Range Development Plan to best meet the UCI Medical Center's planning goals and current regulatory requirements;
- Serve as a framework for the physical development of the UCI Medical Center to provide adequate facilities in support of the strategic mission of the Medical Center;

- Establish a physical plan that represents the best possible relationship between the UCI Medical Center's teaching and research goals, patient care needs, site character, and allows for the proper integration with the surrounding community;

- Provide a high-quality physical environment for patients and their families, faculty, students, staff, and visitors;

- Meet the seismic retrofit and replacement needs of the UCI Medical Center required by state law (Senate Bill 1953) and the Office of Statewide Health Planning and Development (OSHPD) at the UCI Medical Center;

- Provide for the efficient staging of seismic retrofit projects and the economic utilization of existing facilities;

- Provide a critical mass of facilities necessary to support the future operational and research space needs of the UCI Medical Center;

- Provide adequate parking for both Phase I and full LRDP implementation.

- Accommodate new construction in order to provide the most flexible space for the highest priority functions;

- Accommodate the increasing need for medical services to the growing population in Orange County.

4.2 NO PROJECT ALTERNATIVE: DEVELOPMENT CONSISTENT WITH THE 1977 UNIVERSITY OF CALIFORNIA, IRVINE MEDICAL CENTER REDEVELOPMENT MASTER PLAN

4.2.1 BACKGROUND

In 1977, the University of California, Irvine prepared the *University of California, Irvine Medical Center Redevelopment Master Plan*. Prior to 1977, the University initiated plans for the upgrading of the Medical Center as a part of the transfer to the facilities from the County of Orange to the University of California, Irvine. The University and its College of Medicine evaluated the Medical Center, identified assets and deficiencies, and established goals and objectives for the Medical Center to achieve in order to become a first class teaching hospital. Out of this effort, the University established a program outlining the initial steps to direct the redevelopment of the Medical Center. Key elements of the *Redevelopment Master Plan* were:

- Distinct land use zones with ambulatory services at the front of the site for convenience and accessibility.

- Creation of a pedestrian spine around a cluster of buildings.

- Improved vehicular circulation with a loop road system.

- Parking outside the loop and near the uses they serve.

- Consolidation of inpatient services to fewer buildings.

- De-intensification of use of the oldest buildings with construction of new, highly flexible building types to house those users requiring the most intensive space.

The *Redevelopment Master Plan* was presented in the form of six Project Planning Guides which were approved by the State of California in November 1975. The *Redevelopment Master Plan* established the framework necessary to achieve immediate goals (implementation of the six Project Planning Guides) and long-range goals (the total renovation of the Medical Center). The *Redevelopment Master Plan* proposed to implement the immediate and long-range goals in six phases, with Phases 1 and 2 representing the immediate goals for the Medical Center. The University prepared an Initial Study/Negative Declaration in January 1977 which addressed the Redevelopment Plan and Phase I projects proposed at that time for the Medical Center (see Exhibit 2-9 in Section 2, Project Description).

The objectives of Phases 1 through 6, as stated in the *Redevelopment Master Plan* were:

Phase 1: Implement the six Planning Program Guides, establish buildings systems, and initiate the process of deintensifying the use of existing buildings. Phase 1 would have allowed for the construction of additions to Building No. 1 and Building No. 9 and a new parking structure. Building Nos. 1,10, 52, and 53 would have been remodeled; Building Nos. 4, 12, 14, 33, and 34 would have been demolished.

With respect to the implementation of Phase 1, modifications were made to Building No. 1 (currently Building No. 1a) and Building No. 9 (currently Building No. 29a); a parking structure was constructed (North Parking Structure); Building Nos. 4 and 34 were demolished.

Phase 2: Accommodate the remainder of inpatient services in new construction, occupy Building 1 with administrative and teaching functions, and establish a land bank at the eastern side of the site. New construction assumed an expansion of Building No. 1a with the relocation of some uses in Building No. 1 to Building No. 1a and the addition of a dental clinic in Building No. 9/9a (Building Nos. 29 and 29a). Upon relocation of uses into Building No. 1a., the following buildings were to be demolished: Building Nos. 10, 25, 27, 30, 35, 37 through 42, and 48 through 52.

With respect to the implementation of Phase 2, Building No. 1 continues to serve as the main hospital at the Medical Center; Building Nos. 35, 37 through 40, 42, and 49 were demolished.

Phases 3 to 6: Establish the building connection system (pedestrian/service "spine") at the geographic center of the site; cluster new construction about the spine; develop peripheral service/access road and parking. Phase 3 was intended to begin the physical linkage of in-patient and out-patient services and establish the east-west pedestrian/service corridor in the southern portion of the site. Phase 3 included the construction of a new service building, expansion of an out-patient clinic, demolition of all service buildings with the exception of the central plant, and the improvement and repair of parking areas, the circulation system, and landscaping.

Few of the concepts set forth for Phases 3 through 6 were implemented. The Medical Center has few pedestrian corridors and there is limited peripheral vehicular access. Most of the service buildings remain.

Phase 4 assumed the construction of an administrative/teaching/research facility, the demolition of Building Nos. 1 and 53, and the repair of parking areas and landscaping. Phase 5

assumed the construction of a new Mental Health Facility, out-patient clinic, and parking structure, and the demolition of Building Nos. 2, 9 (Building No. 29), and 9a (Building No. 29a).

With respect to Phases 4 and 5, no buildings were demolished. New research facilities, such as Building No. 3, the Neuropsychiatric Center, Building No. 23, the Chao Family Comprehensive Center, and Building No. 55, the UCI Health Sciences Laboratories have been constructed since 1991. No parking structures were demolished.

Phase 6 assumed that all existing facilities would be "rehoused" in new flexible structures to create a "terminal setting of buildings." This phase also assumed that the portion of the Medical Center site north of the Mental Health Complex would provide sufficient square footage to provide for long-range medical and surgical expansion needs. The expansion of the central plant and relocation of the vivarium was to have also occurred in Phase 6.

With respect to Phase 6, the existing UCI Medical Center has exceeded the estimated total square footage assumed in the redevelopment plan. The plan assumed a maximum 800,000 square feet; the existing facility has 910,365 square feet. The central plant has not been expanded, and the "terminal setting of buildings" concept has not been implemented.

4.2.2 DESCRIPTION

In accordance with the *Redevelopment Master Plan*, the No Project Alternative assumes the maximum site development of 800,000 gsf, inclusive of retained uses. As such, there would be a net decrease in development of 110,365 gsf at the UCI Medical Center. To implement this alternative, it is assumed that approximately 515,172 gsf of uses, inclusive of 205 hospital beds, and 418 parking spaces would be demolished; 404,807 gsf, inclusive of 205 hospital beds, and 1,293 parking spaces (surface parking and one parking structure) would be constructed. The No Project Alternative assumes completion of the Medical Center improvements by 2008. There would be no increase in hospital beds associated with this alternative.

This alternative also assumes the implementation of the planning concepts associated with the *Redevelopment Master Plan*. These include:

- A building connection system (pedestrian/service "spine") at the geographic center of the site is established with new construction clustered around the spine. Link in-patient and out-patient services.
- A peripheral service/access road and parking system is implemented.
- Construct a parking structure
- Expand the central plant
- Relocate the vivarium

Table 4-1 identifies the proposed demolition and construction activities associated with the No Project Alternative.

TABLE 4-1
NO PROJECT ALTERNATIVE: DEMOLITION AND CONSTRUCTION

Building No.	Building Description	gsf[a.] or Beds
INPATIENT FACILITIES		
Existing Facilities		**374,695 gsf** **391 beds**
Demolition		
1	Main Hospital	<181,500> <205 beds>
2	Resident Services	<1,319>
10	Pathology Laboratory Facilities	<6,303>
52	Service Lab	<3,110>
Demolition		**<192,232 gsf>** **<205 beds>**
Retained (Existing - Demolition)		**182,463 gsf** **186 beds**
New Construction		
–	Hospital	359,807 gsf 200 beds
1a.	Medical Center Tower (no increase in square footage; reconfiguration results in the gain of 5 hospital beds)	<0> 5 beds
New Construction		**359,807 gsf** **205 beds**
Inpatient Total: (Retained and New Construction)		**542,270 gsf** **391 beds**
AMBULATORY CARE FACILITIES		
Existing Facilities		**167,633 gsf**
Demolition		
29	Pavilion III	<36,615>
29a	Pavilion III	<16,416>
30	Pavilion I	<18,525>
50	Occupational Therapy	<4,672>
51	Outpatient Dialysis	<6,172>
54	Physical Therapy	<5,424>
Demolition		**<87,824 gsf>**
Retained (Existing - Demolition)		**79,809 gsf**
New Construction		**0**
Ambulatory Care Total: (Retained and New Construction)		**79,809 gsf**
ACADEMIC/RESEARCH/ADMINISTRATIVE FACILITIES		
Existing Facilities		**320,643 gsf**
Demolition		
2	Academic Offices; Administrative Services	<41,221>
10	Academic Offices; Support Services	<20,181>
11	Department Offices	<3,555>
13	Storage	<852>
20	Administrative Offices	<2,739>

TABLE 4-1 (continued)
NO PROJECT ALTERNATIVE: DEMOLITION AND CONSTRUCTION

Building No.	Building Description	gsf[a.] or Beds
24	Research Lab	<1,900>
24a	Research Lab	<1,000>
25	Academic Offices, Administrative Services, Storage, Medical Records Facility	<24,839>
33	Academic Offices/Resources	<1,771>
41	Research Lab	<3,813>
43	Research Lab	<4,228>
44	Volunteer Services/Department Offices	<5,193>
46	Research Lab	<4,906>
48	Research Lab	<3,851>
52	Research Lab	<1,444>
53	College of Medicine Office Building: academic offices, instructional space	<51,538>
57	Research Lab	<5,114>
58	Academic Offices; Administrative Services	<2,964>
60	Vivarium	<6,613>
Demolition		**<187,722 gsf>**
Retained (Existing - Demolition)		**132,921 gsf**
New Construction		**0**
Academic/Research/Administrative Facilities Total: (Retained and New Construction)		**132, 921 gsf**
SERVICE FACILITIES		
Existing Facilities		**47,394 gsf**
Demolition		
10	Storage	<1,161>
12	Hospital Storage	<1,313>
14	Storage	<1,306>
20	Facilities Services/Facilities Planning; Design and Construction	<7,796>
25	Facilities Services	<11,960>
27	Storage	6,153
31	Steam Plant	<9,383>
32	Primary Electrical Facility	<3,800>
33	Facilities Management/Facilities Services	<4,037>
59	Storage	<350>
76	Storage	<135>
Demolition		**<47,394 gsf>**
Retained (Existing - Demolition)		**0**
New Construction		**45,000 gsf**
Service Facilities Total: (Retained and New Construction)		**45,000 gsf**
PARKING		
Existing Parking Spaces		**1,590 spaces**

TABLE 4-1 (continued)
NO PROJECT ALTERNATIVE: DEMOLITION AND CONSTRUCTION

Building No.	Building Description	gsf[a] or Beds
Demolition		
72	North Parking Structure	<318>
–	Surface Parking (various locations)	<100>
Demolition		**<418 spaces>**
Retained (Existing - Demolition)		**1,172 spaces**
New Construction		
–	New Parking Structure	1,033 spaces
–	Emergency Room Surface Parking	60 spaces
–	Handicapped Surface Parking (adjacent to new Hospital)	50 spaces
–	Eastern Perimeter Surface Parking	150 spaces
New Construction		**1,293 spaces**
Parking Total: (Retained and New Construction)		**2,465 spaces**
EXISTING TOTAL:	**GROSS SQUARE FEET** **HOSPITAL BEDS** **PARKING SPACES**	**910,365 gsf** **391 beds** **1,590 spaces**
DEMOLITION		**<515,172 gsf>** **<205 beds>** **<418 spaces>**
RETAINED		**395,193 gsf** **186 beds** **1,172 spaces**
NEW CONSTRUCTION		**404,807 gsf** **205 beds** **1,293 spaces**
TOTAL		**800,000 gsf** **391 beds** **2,465 spaces**

a. gsf: gross square feet

Consistent with the *Redevelopment Master Plan*, the following buildings would be demolished:

Building No. 2: Resident Services, Academic Offices; Administrative Services
Building No. 10: Academic Offices; Support Services, Storage
Building No. 12: Hospital Storage
Building No. 14: Storage
Building No. 20: Administrative Offices Facilities Services/Facilities Planning; Design and Construction
Building No. 25: Academic Offices, Administrative Services, Storage, Medical Records Facility
Building No. 27: Storage
Building No. 29: Pavilion III
Building No. 29a: Pavilion III
Building No. 30: Pavilion I
Building No. 31: Steam Plant
Building No. 32: Primary Electrical Facility
Building No. 33: Academic Offices/Resources

Building No. 41: Research Lab
Building No. 48: Research Lab
Building No. 50: Occupational Therapy
Building No. 51: Outpatient Dialysis
Building No. 52: Service Lab, Research Lab
Building No. 59: Storage

In addition to the above noted buildings, the following buildings that have been rated "poor" as a part of the Alquist Hospital Seismic Safety Act (Senate Bill [SB] 1953) compliance report. Therefore, the following buildings and structures would also be demolished as a part of this alternative.

Building No. 1: Main Hospital
Building 11: Department Offices
Building No. 13: Storage
Building No. 24: Research Lab
Building No. 24a: Research Lab
Building No. 43: Research Lab
Building No. 44: Volunteer Services/Department Offices
Building No. 46: Research Lab
Building No. 53: College of Medicine Office Building: academic offices, instructional space
Building No. 54: Physical Therapy
Building No. 57: Research Lab
Building No. 58: Academic Offices; Administrative Services
Building No. 60: Vivarium
Building No. 72: North Parking Structure
Building No. 76: Storage

4.2.3 IMPACT EVALUATION

Aesthetics

The No Project Alternative would result in a net reduction in onsite development. New site development would be similar in size and scale as existing development. This alternative assumes that the new parking structure would not be sited contiguous to the Orange County Juvenile Hall. As such, the No Project Alternative would have less significant impacts that the proposed project. Significant impacts associated with both the No Project Alternative and the proposed project can be mitigated to a less than significant level.

Air Quality

Implementation of the No Project Alternative would result in fewer short-term construction and long-term operational air quality emissions when compared to the proposed project. Less site development would result in less PM_{10} and other construction-related air emissions than projected with the proposed project because less subsurface excavation would be required. This alternative would generate less vehicular traffic resulting in a reduction in long-term operational emissions when compared to the proposed project. As with the proposed project, construction emissions of NO_x are expected to remain significant and unavoidable for the peak day and peak quarter. Daily operational emissions associated with the No Project Alternative are considered less than significant. Neither the No Project Alternative or the proposed project would result in the potential for health hazards from campus-related toxic air emissions.

Cultural Resources

All of the pre-1963 buildings and structures at the UCI Medical Center that would be demolished as a part of the proposed project would also be demolished as a part of implementation of the No Project Alternative. Because the loss of these buildings is not considered significant, no impacts would occur. Because construction of the In-Kind Replacement Alternative would generally occur where buildings are currently located, there would be less of an need to disturb new areas, potentially containing subsurface prehistoric archaeological or paleontological resources. Therefore, implementation of the In-Kind Replacement Alternative would be expected to result in fewer potential effects to prehistoric archaeological and paleontological resources when compared to the proposed project. All potential impacts can be mitigated to a level that is considered less than significant.

Geology and Soils

Implementation of the No Project Alternative is expected to require less grading and subsurface excavation than the proposed project. Potential seismic and geotechnical effects associated with this alternative are expected to result in similar impacts as the proposed project. It is expected that all significant impacts would be mitigated to a level that is considered less than significant.

Hazards and Hazardous Materials

The No Project Alternative would result in the use, storage, transportation, and disposal of hazardous materials. Because less onsite development would occur when compared to the proposed project, it is expected that there would be a reduction in the use and generation of hazardous materials. Demolition and construction activities could result in short-term exposure of people to asbestos-containing materials or lead based paint materials, as well as a short-term increase in hazardous waste generated on campus. As with the proposed project, these impacts can be mitigated to a less than significant level.

Hydrology and Water Quality

Implementation of this alternative would result in less surface land disturbance and approximately the same amount of impermeable surfaces when compared to the proposed project. Impacts related to drainage and water quality would be similar. All impacts would be mitigated to a level that is less than significant.

Land Use and Planning

Because the project site would retain the same types buildings, in generally the same locations, implementation of the No Project Alternative would not result in adverse land use impacts. The parking structure proposed as a part of this alternative would not be sited contiguous to the existing Orange County Juvenile Hall. Therefore, compatibility impacts associated with the proposed project would not occur. As with the proposed project, this alternative would be consistent with applicable local plans and policies. No significant impacts are anticipated.

Noise

The No Project Alternative would result in a net decrease in onsite development when compared to the existing UCI Medical Center site and the proposed project. Buildings and structures would be sited to minimize noise long-term noise impacts to onsite and offsite land uses. As with the

proposed project, it is expected that significant noise impacts could be mitigated to a less than significant level.

Population and Housing

There are currently 6,079 employees (2001) associated with the UCI Medical Center, inclusive of Medical Center and College of Medicine staff, faculty, residents, and medical students. Because of the reduction in square footage associated with the No Project Alternative, there could be a reduction in employment associated with this alternative. Under the assumption of no increase in employment or potential decrease in employment, there would be no increase in the demand for housing opportunities. It should be noted that the No Project Alternative assumes no increase in hospital beds. Other hospital facilities would be need to provide a portion of the anticipated demand for increase hospital services in Orange County.

Public Services

Demands for police protection and fire protection services would be similar to services provided for the existing facilities at the UCI Medical Center. Because of the reduction in square footage associated with the No Project Alternative, no impacts are anticipated.

Transportation and Traffic

Uses at the UCI Medical Center currently generate 13,800 average daily trips (ADT), with 1,320 trips in the a.m. peak hour and 1,030 trips in the p.m. peak hour. The No Project Alternative's reduction in square footage would have a commensurate reduction in traffic generation. Therefore, the No Project Alternative would preclude significant traffic impacts associated with the proposed project. It should be noted that traffic impacts associated with the proposed project can be mitigated to a less than significant level.

Utilities and Service Systems

Implementation of the No Project Alternative assumes upgrades to the existing infrastructure to ensure adequate service to the UCI Medical Center. Although there would be a net decrease in square footage associated with the No Project Alternative, some improvements are expected to be needed because of the age of some of the existing infrastructure, as well as to improve energy efficiency. Because this alternative scenario would not result in increase generation of utility service, no significant impacts are anticipated.

4.2.4 CONCLUSIONS

The No Project Alternative is considered ***environmentally superior*** to the proposed project because less development would occur at the UCI Medical Center. However, this alternative would result in a net decrease in square footage at the Medical Center when compared to existing land uses. While some onsite structures would be replaced with modern, seismically reinforced structures, the loss of square footage would affect the Medical Center from serving the existing and future demands of the community and its students and faculty. This would place a strain on other, surrounding hospitals and health care providers, and would result in a significant impact on the availability and quality of health care.

This alternative would not meet the following project objectives:

- Update the UCI Medical Center Long Range Development Plan to best meet the UCI Medical Center's planning goals and current regulatory requirements;
- Serve as a framework for the physical development of the UCI Medical Center to provide adequate facilities in support of the strategic mission of the Medical Center;
- Establish a physical plan that represents the best possible relationship between the UCI Medical Center's teaching and research goals, patient care needs, site character, and allows for the proper integration with the surrounding community;
- Provide a high-quality physical environment for patients and their families, faculty, students, staff, and visitors;
- Provide a critical mass of facilities necessary to support the future operational and research space needs of the UCI Medical Center;
- Accommodate new construction in order to provide the most flexible space for the highest priority functions;
- Accommodate the increasing need for medical services to the growing population in Orange County.

4.3 NO DEVELOPMENT ALTERNATIVE

4.3.1 DESCRIPTION

The No Development Alternative assumes that the UCI Medical Center would remain in its existing condition with no further development or building upgrades. As such, the UCI Medical Center would not be in compliance with SB 1953. In 1999, buildings within the Medical Center property were evaluated as part of the SB 1953 compliance requirements (Lee Burkhart Liu, 1999). The resulting report used Seismic Performance Categories to evaluate the Medical Center buildings for seismic performance (see Table 3.4-2 of Section 3.4). Under the No Development Alternative, the following acute care facilities identified in Table 4-2 would not be retrofitted, replaced, or demolished. Therefore, theses facilities would have to be decommissioned (removed from use as acute care health facilities.).

Under the No Development Alternative, Building Nos. 1 and 1a, the Main Hospital and Medical Center Tower, respectively, could no longer be used as an acute care health facility. A general acute care is defined as "Services provided to patients (on the basis of physicians orders and approved nursing care plans) who are in an acute phase of illness but not to the degree which requires the concentrated and continuous observation and care provided in the intensive care centers" (source: Office of Statewide Health Planning and Planning). Building No. 31, the Steam Plant, provides high-pressure steam to most of the structures at the Medical Center for heating and domestic hot water. The hospital uses steam for sterilization and humidification. Building No. 32, the Primary Electrical Facility supplies normal and emergency power to the entire Medical Center via 5kV service. If Building Nos. 31 and 32 had to be decommissioned, other sources for onsite energy would have to be provided. It is assumed that modifications would either be made to the utility tunnel or the tunnel would also be decommissioned. No replacement buildings or additional buildings/structures would be constructed.

TABLE 4-2
NO DEVELOPMENT ALTERNATIVE

Buildings Non-Compliant With SB 1953				
Building No.	**Building Description**	**SPC Rating**	**NPC Rating**	**Deadline**
1	Main Hospital	SPC 1	NPC 1	2008
1a.	Medical Center Tower	SPC 3	NPC 1	2008; 2030
31	Steam Plant	SPC 1	NPC 1	2008; 2030
32	Primary Electrical Facility	SPC 2	NPC 1	2008; 2030
–	Utility Tunnel	SPC 2	NPC 1	2008

Structural Performance Categories (SPC)

SPC 1: Pre-1973 buildings judged to pose significant risk to life safety.
SPC 2: Pre-1973 buildings that do not pose significant risk to life safety.
SPC 3: Post-1973 steel moment frame building in a seismic zone 4, near a major fault; no retrofits required unless altered or damaged in an earthquake.

Non-Structural Performance Categories (NPC)

NPC 1: Few, if any, systems or equipment are braced.
NPC 2: Emergency power, medical gases, communications, and fire alarm systems are braced.
NPC 3: Equipment and systems are braced in critical care areas, including fire sprinkler branch lines.
NPC 4: NPC 3 requirements, plus building meets non-structural bracing and anchorage requirements of Title 24.
NPC 5: NPC 4 requirements, plus back-up water and sewer services.

Source: Lee, Burkhart, Liu, 1999.

4.3.2 IMPACT EVALUATION

Because no new development would occur at the UCI Medical Center, there would be no change in the visual character of the site. This alternative would preclude any impacts associated with the proposed project.

Air Quality

The No Development Alternative would preclude all short-term construction-related air quality impacts that would be associated with the proposed project. This alternative would result in the same long-term operational emissions as associated with the existing land uses (e.g., if Building Nos. 1 and 1a. could be used for non-acute care uses) or would result in a reduction in emissions (e.g., if the buildings are decommissioned). Significant air quality impacts associated with the proposed project would not occur.

Cultural Resources

None of the pre-1963 buildings and structures at the UCI Medical Center would be demolished as a part of the No Development Alternative. The historic resources assessment conducted for this EIR determined that site does not contain potentially historic resources. There would be no potential impacts to prehistoric archaeological or to paleontological resources.

Geology and Soils

No new grading or excavation would occur as a part of the No Development Alternative. Therefore, any potential impacts associated with subsurface excavation, grading, and erosion would not occur as a part of this alternative. However, the facilities noted in Table 4-2 would be non-compliant with SB 1953 and would either have to be decommissioned or used for non-acute care uses.

Hazards and Hazardous Materials

The No Development Alternative would continue to result in the use, storage, transport, and disposal of hazardous materials. The amount of hazardous waste is expected to be similar to the amounts used and generated at the Medical Center. Because no facilities would be demolished and no new construction would occur, there would be no potential for short-term exposure of people to asbestos-containing materials or lead based paint materials, or a short-term increase in hazardous waste generated on campus.

Hydrology and Water Quality

Because no new development would occur at the UCI Medical Center, there would be no changes in drainage patterns, quantities, or the quality of runoff.

Land Use and Planning

No land use impacts would occur because no new construction or demolition activities would be permitted.

Noise

No short-term construction-related noise would be generated associated with the No Development Alternative. Long-term operational noise levels would be expected to be similar to existing noise levels associated with the existing UCI Medical Center.

Population and Housing

There are currently 6,079 employees (2001) associated with the UCI Medical Center, inclusive of Medical Center and College of Medicine staff, faculty, residents, and medical students. It is expected that employment would be the same or be reduced when compared to existing medical uses if buildings must be decommissioned. Decommissioning the Main Hospital and Medical Center Tower would remove acute care medical services at the campus. Other hospital facilities would be need to take over the existing and the anticipated future demand for increased hospital services in Orange County.

Public Services

Under the No Development Alternative scenario, there would be no new demands for police protection and fire protection services.

Transportation and Traffic

Uses at the UCI Medical Center currently generate 13,800 average daily trips (ADT), with 1,320 trips in the a.m. peak hour and 1,030 trips in the p.m. peak hour. The No Development Alternative would result in no new traffic and could result in a reduction in traffic generation if the Main Hospital

and Medical Center Tower were decommissioned. Therefore, this alternative would preclude significant traffic impacts associated with the proposed project. It should be noted that traffic impacts associated with the proposed project can be mitigated to a less than significant level.

Utilities and Service Systems

Under the No Development Alternative scenario, there would be no new demands for services. No improvements would be made to any onsite infrastructure systems.

4.3.3 CONCLUSIONS

Implementation of the No Development Alternative would result in no additional development on the project site. As a result, this alternative would preclude all significant impacts that would be associated with the proposed project and is therefore considered ***environmentally superior***.

This alternative would require the Main Hospital and Medical Center Tower to either be used for non-acute care uses or be decommissioned. This alternative would have far-reaching implications for healthcare throughout Orange County. Because affected buildings could not be replaced, the Medical Center campus could no longer fulfill basic teaching, research, and patient care functions necessary to function as a County medical facility. This would place a strain on other, surrounding hospitals and health care providers, and would result in a significant impact on the availability and quality of health care. This is considered a ***significant impact***.

This alternative would not meet the following project objectives:

- Update the UCI Medical Center Long Range Development Plan to best meet the UCI Medical Center's planning goals and current regulatory requirements;
- Serve as a framework for the physical development of the UCI Medical Center to provide adequate facilities in support of the strategic mission of the Medical Center;
- Establish a physical plan that represents the best possible relationship between the UCI Medical Center's teaching and research goals, patient care needs, site character, and allows for the proper integration with the surrounding community;
- Provide a high-quality physical environment for patients and their families, faculty, students, staff, and visitors;
- Meet the seismic retrofit and replacement needs of the UCI Medical Center required by state law (SB 1953) and the Office of Statewide Health Planning and Development (OSHPD) at the UCI Medical Center;
- Provide a critical mass of facilities necessary to support the future operational and research space needs of the UCI Medical Center;
- Accommodate new construction in order to provide the most flexible space for the highest priority functions; and
- Accommodate the increasing need for medical services to the growing population in Orange County.

4.4 IN-KIND REPLACEMENT ALTERNATIVE

4.4.1 DESCRIPTION

The In-Kind Replacement Alternative assumes all buildings rated as "fair" or "poor" are replaced by the same-sized buildings, in the same general location, with the same facilities and functions. New development would comply with current building codes, especially those related to seismic standards. No additional square footage, hospital beds, or onsite parking would be provided on the site. Offsite parking would continue to be provided. Table 4-3 identifies the buildings and structures that would be demolished as a part of the In-Kind Replacement Alternative.

TABLE 4-3
IN-KIND REPLACEMENT ALTERNATIVE

Building No.	Building Description	Building Rating	gsf[a] or Beds
INPATIENT FACILITIES			
Existing Facilities			**374,695 gsf** **391 beds**
Demolition			
1	Main Hospital	Poor	<181,500> <205 beds>
2	Resident Services	Poor	<1,319>
10	Pathology Laboratory Facilities	Poor	<6,303>
52	Service Lab	Poor	<3,110>
Demolition			**<192,232 gsf>** **<205 beds>**
Retained (Existing - Demolition)			**182,463 gsf** **186 beds**
New Construction			
–	Hospital	n/a	181,500 gsf 205 beds
–	Laboratories/Inpatient Services	n/a	10,732 gsf
New Construction			**192,232 gsf** **205 beds**
Inpatient Total: (Retained and New Construction)			**374,695 gsf** **391 beds**
AMBULATORY CARE FACILITIES			
Existing Facilities			**167,633 gsf**
Demolition			
29	Pavilion III	Fair	<36,615>
29a	Pavilion III	Fair	<16,416>
30	Pavilion I	Fair	<18,525>
30a	Pavilion II	Fair	<18,972>
50	Occupational Therapy	Poor	<4,672>
51	Outpatient Dialysis	Poor	<6,172>
54	Physical Therapy	Poor	<5,424>
Demolition			**<106,796 gsf>**
Retained (Existing - Demolition)			**60,837 gsf**

TABLE 4-3 (continued)
IN-KIND REPLACEMENT ALTERNATIVE

Building No.	Building Description	Building Rating	gsf[a] or Beds
New Construction			
–	Ambulatory Care facilities	n/a	106,796 gsf
New Construction			**106,796 gsf**
Ambulatory Care Total: (Retained and New Construction)			**167,633 gsf**
ACADEMIC/RESEARCH/ADMINISTRATIVE FACILITIES			
Existing Facilities			**320,643 gsf**
Demolition			
2	Academic Offices; Administrative Services	Poor	<41,221>
10	Academic Offices; Support Services	Poor	<20,181>
11	Department Offices	Poor	<3,555>
13	Storage	Poor	<852>
20	Administrative Offices	Poor	<2,739>
24	Research Lab	Poor	<1,900>
24a	Research Lab	Poor	<1,000>
25	Academic Offices, Administrative Services, Storage, Medical Records Facility	Poor	<24,839>
26	Academic and Administrative Offices	Fair	<6,040>
33	Academic Offices/Resources	Poor	<1,771>
41	Research Lab	Poor	<3,813>
43	Research Lab	Poor	<4,228>
44	Volunteer Services/Department Offices	Poor	<5,193>
46	Research Lab	Poor	<4,906>
48	Research Lab	Fair	<3,851>
52	Research Lab	Poor	<1,444>
53	College of Medicine Office Building: academic offices, instructional space	Fair	<51,538>
57	Research Lab	Poor	<5,114>
58	Academic Offices; Administrative Services	Poor	<2,964>
60	Vivarium	Poor	<6,613>
Demolition			**<193,762 gsf>**
Retained (Existing - Demolition)			**126,881 gsf**
New Construction			
–	Academic/Research/Administrative facilities	n/a	193,762 gsf
New Construction			**193,762 gsf**
Academic/Research/Administrative Facilities Total: (Retained and New Construction)			**320,643 gsf**
SERVICE FACILITIES			
Existing Facilities			**47,394 gsf**
Demolition			
10	Storage	Poor	<1,161>
12	Hospital Storage	Poor	<1,313>
14	Storage	Poor	<1,306>

TABLE 4-3 (continued)
IN-KIND REPLACEMENT ALTERNATIVE

Building No.	Building Description	Building Rating	gsf[a] or Beds
20	Facilities Services and Planning; Design and Construction	Poor	<7,796>
25	Facilities Services	Poor	<11,960>
27	Storage	Poor	<6,153>
31	Steam Plant	Fair	<9,383>
32	Primary Electrical Facility	Fair	<3,800>
33	Facilities Management/Facilities Services	Poor	<4,037>
59	Storage	Poor	<350>
76	Storage	Poor	<135>
Demolition			**<47,394 gsf>**
Retained (Existing - Demolition)			**0**
New Construction			
–	Service facilities	n/a	47,394 gsf
New Construction			**47,394 gsf**
Service Facilities Total: (Retained and New Construction)			**47,394 gsf**
PARKING			
Existing Parking Spaces			**1,590 spaces**
Demolition			
72	North Parking Structure	Poor	<318>
–	Surface Parking (various locations)	n/a	<100>
Demolition			**<418 spaces>**
Retained (Existing - Demolition)			**1,172 spaces**
New Construction			
–	Surface Parking	n/a	418 spaces
New Construction			**418 spaces**
Parking Total: (Retained and New Construction)			**1,590 spaces**
EXISTING TOTAL:	**GROSS SQUARE FEET** **HOSPITAL BEDS** **PARKING SPACES**		**910,365 gsf** **391 beds** **1,590 spaces**
DEMOLITION			**<711,915 gsf>** **<205 beds>** **<418 spaces>**
RETAINED			**198,450 gsf** **186 beds** **1,172 spaces**
NEW CONSTRUCTION			**540,184 gsf** **205 beds** **418 spaces**
TOTAL			**910,365 gsf** **391 beds** **1,590 spaces**

a. gsf: gross square feet

4.4.2 IMPACT EVALUATION

Aesthetics

Because the project site would retain the same types and sizes of buildings, in the same general locations, implementation of the In-Kind Replacement Alternative would not result in any significant changes in the visual character of the Medical Center. This alternative would preclude significant impacts associated with the proposed project related to the siting of a parking structure contiguous to the Orange County Juvenile Hall.

Air Quality

Implementation of this alternative would reduce PM_{10} and other construction-related air emissions when compared to the proposed project because less subsurface excavation would be required. This alternative would generate less vehicular traffic and resultant long-term operational emissions than the proposed project. It is expected that both the proposed project and this alternative would result in significant, unavoidable adverse air quality impacts.

Cultural Resources

All of the pre-1963 buildings and structures at the UCI Medical Center that would be demolished as a part of the proposed project would also be demolished as a part of implementation of the No Project Alternative. Because the loss of these buildings is not considered significant, no impacts would occur. Because construction of the In-Kind Replacement Alternative would generally occur where buildings are currently located, there would be less of an need to disturb new areas, potentially containing subsurface prehistoric archaeological or paleontological resources. Therefore, implementation of the In-Kind Replacement Alternative would be expected to result in fewer potential effects to prehistoric archaeological and paleontological resources when compared to the proposed project. All potential impacts can be mitigated to a level that is considered less than significant.

Geology and Soils

Implementation of the No Project Alternative is expected to require less grading than the proposed project because no new areas would be graded. Although the site would be graded similarly to the proposed project, less subsurface excavation would be required for the permitted land uses. Potential seismic and geotechnical effects associated with this alternative are expected to result in similar impacts as the proposed project. It is expected that all significant impacts would be mitigated to a level that is considered less than significant.

Hazards and Hazardous Materials

The No Project Alternative would result in the use, storage, transportation, and disposal of hazardous materials. Because less onsite development would occur when compared to the proposed project, it is expected that there would be a reduction in the use and generation of hazardous materials. Demolition and construction activities could result in short-term exposure of people to asbestos-containing materials or lead based paint materials, as well as a short-term increase in hazardous waste generated on campus. As with the proposed project, these impacts can be mitigated to a less than significant level.

Hydrology and Water Quality

Implementation of this alternative would result in less surface land disturbance and approximately the same amount of impermeable surfaces when compared to the proposed project. Impacts related to drainage and water quality would be similar. All impacts would be mitigated to a level that is less than significant.

Land Use and Planning

Because the project site would retain the same types and sizes of buildings, in the same general locations, implementation of the In-Kind Replacement Alternative would not result in adverse land use impacts. The intensification of land uses associated with the proposed project would not take place. As with the proposed project, this alternative would be consistent with applicable local plans and policies.

Noise

The In-Kind Replacement Alternative would have similar noise levels as the proposed project. Both short-term construction impacts and long-term operation impacts would be expected to be similar, and would be mitigated to a level that is less than significant.

Population and Housing

The In-Kind Replacement Alternative would not result in the generation of new employment opportunities at the UCI Medical Center. Similarly, this alternative scenario would not result in a need for housing for employees and/or students.

Public Services

Because the In-Kind Replacement Alternative assumes no intensification of land use, no additional demands would be placed on the City of Orange Fire Department or the UCI Medical Center Security Department.

Transportation and Circulation

This alternative would generate the same amount of traffic as the existing conditions. Because the buildings would be replaced at their current locations, and the hospital complex would not accommodate additional beds, services, parking spaces, or square feet; there would be no changes in circulation or traffic levels.

Utilities and Service Systems

Although the In-Kind Replacement Alternative assumes no intensification of land use, implementation of this development scenario would require upgrades of public services and utilities because of the age of some of the existing infrastructure and the need for building code compliance. No additional demands on services or utilities are expected. As such, no significant impacts to public service or utility providers would be associated with this alternative.

4.4.3 CONCLUSIONS

This alternative would result in fewer environmental impacts than the proposed project. The In-Kind Replacement Alternative is considered ***environmentally superior*** to the proposed project

because of the reduction in significant impacts. However, this alternative would not eliminate the significant, unavoidable impacts that are associated with the proposed project. This alternative would not meet the following project objectives to:

- Serve as a framework for the physical development of the UCI Medical Center to provide adequate facilities in support of the strategic mission of the Medical Center;
- Establish a physical plan that represents the best possible relationship between the UCI Medical Center's teaching and research goals, patient care needs, site character, and allows for the proper integration with the surrounding community;
- Provide a high-quality physical environment for patients and their families, faculty, students, staff, and visitors;
- Provide a critical mass of facilities necessary to support the future operational and research space needs of the UCI Medical Center;
- Accommodate the increasing need for medical services to the growing population in Orange County.

4.5 SB 1953: SCENARIO A AND SCENARIO B ALTERNATIVES

4.5.1 DESCRIPTION

Two scenarios were developed to comply with SB 1953 regulations. Both scenarios are alternatives to the Phase I project and do not address full LRDP implementation. Each scenario maintains the "status quo," and does not include any programmatic enhancements (e.g., not increasing the number of beds, procedure rooms, etc.). Both scenarios assume the construction of an onsite parking structure and the continued use of offsite leased parking areas. Both scenarios upgrade and continue the use of Building Nos.1a and 3. The primary difference between the two schemes is that Scenario A upgrades Building No. 1 for reuse and constructs a small new facility, whereas Scenario B includes the demolition of Building No.1 with construction of a larger facility.

Scenario A Alternative

As addressed in Table 4-4, the Scenario A Alternative would provide 382 hospital beds and 580,849 gross square feet (gsf) of Medical Center facilities by renovating Building Nos. 1 (Main Hospital), 1a (Medical Center Tower), and 3 (Neuropsychiatric Center), and constructing a new hospital. The new hospital would be used as a staging facility for the renovation of existing buildings and, after construction, would provide the balance of beds, operating rooms, and other services that would no longer be accommodated in retrofitted Building Nos. 1, 1a, and 3. As a part of Scenario A, there would be 85 new hospital beds plus ancillary services, in addition to 297 beds in Building Nos. 1, 1a, and 3 (382 total beds). This scenario would replicate the existing number of beds for each nursing unit without redistribution. Scenario A would be implemented in eight phases. The eight construction phases would extend the timeframe for full LRDP implementation beyond the year 2008 SB 1953 deadline. This extension would require approval from the Office of Statewide Health Planning and Development (OSHPD).

TABLE 4-4
SCENARIO A ALTERNATIVE

Building No.	Building Description	gsf[a.] or Beds
INPATIENT FACILITIES		
Existing Facilities		**374,695 gsf** **391 beds**
Demolition		
2	Resident Services	<1,319>
10	Pathology Laboratory Facilities	<6,303>
Demolition		**<7,622 gsf>**
Retained (Existing - Demolition)		**367,073 gsf** **391 beds**
New Construction/Renovation		
–	Hospital (new construction)	213,776 gsf 85 beds
1	Main Hospital (renovation)	0 gsf <92 beds>
3	Neuropsychiatric Center (renovation)	0 gsf <2 beds>
New Construction		**213,776 gsf** **<9 beds>**
Inpatient Total: (Retained and New Construction)		**580,849 gsf** **382 beds**
AMBULATORY CARE FACILITIES		
Existing Facilities		**167,633 gsf**
Demolition		**0**
Retained (Existing - Demolition)		**167,633 gsf**
New Construction		**0**
Ambulatory Care Total: (Retained and New Construction)		**167,633 gsf**
ACADEMIC/RESEARCH/ADMINISTRATIVE FACILITIES		
Existing Facilities		**320,643 gsf**
Demolition		
2	Academic Offices; Administrative Services	<41,221>
10	Academic Offices; Support Services	<20,181>
11	Department Offices	<3,555>
13	Storage	<852>
Demolition		**<65,809 gsf>**
Retained (Existing - Demolition)		**254,834 gsf**
New Construction		**0**
Academic/Research/Administrative Facilities Total: (Retained and New Construction)		**254,834 gsf**
SERVICE FACILITIES		
Existing Facilities		**47,394 gsf**
Demolition		
10	Storage	<1,161>

TABLE 4-4 (continued)
SCENARIO A ALTERNATIVE

Building No.	Building Description	gsf[a.] or Beds
12	Hospital Storage	<1,313>
14	Storage	<1,306>
Demolition		**<3,780 gsf>**
Retained (Existing - Demolition)		**43,614 gsf**
New Construction		**0**
Service Facilities Total: (Retained and New Construction)		**43,614 gsf**
PARKING		
Existing Parking Spaces		**1,590 spaces**
Demolition		
72	North Parking Structure	<318>
Demolition		**<318 spaces>**
Retained (Existing - Demolition)		**1,172 spaces**
New Construction		
–	Parking Structure	318 spaces
New Construction		**318 spaces**
Parking Total: (Retained and New Construction)		**1,590 spaces**
EXISTING TOTAL:	**GROSS SQUARE FEET** **HOSPITAL BEDS** **PARKING SPACES**	**910,365 gsf** **391 beds** **1,590 spaces**
DEMOLITION		**<77,211 gsf>** **<94 beds>** **<318 spaces>**
RETAINED		**833,154 gsf** **297 beds** **1,272 spaces**
NEW CONSTRUCTION		**213,849 gsf** **85 beds** **318 spaces**
TOTAL		**1,047,003 gsf** **382 beds** **1,590 spaces**

a. gsf: gross square feet

Scenario B

As addressed in Table 4-5, the Scenario B Alternative would provide 382 hospital beds and 603,395 gsf of Medical Center facilities renovating Building No. 1a, constructing a new hospital, and demolishing Building No. 1. This scenario assumes 205 new hospital beds plus ancillary services, in addition to the 177 beds in Building Nos. 1a and 3 (382 total beds). Unlike Scenario A, Scenario B would redistribute the beds to target specific programs and services, and increase operational efficiency. Scenario B would be implemented in two, rather than eight, phases when compared to Scenario A. It is expected that Scenario B could be completed by the SB 1953 deadline of 2008.

TABLE 4-5
SCENARIO B ALTERNATIVE

Building No.	Building Description	gsf[a.] or Beds
INPATIENT FACILITIES		
Existing Facilities		**374,695 gsf** **391 beds**
Demolition		
1	Main Hospital	<181,500> <205 beds>
2	Resident Services	<1,319>
10	Pathology Laboratory Facilities	<6,303>
Demolition		**<189,122 gsf>** **<205 beds>**
Retained (Existing - Demolition)		**185,573 gsf** **186 beds**
New Construction/Renovation		
–	Hospital (new construction)	361,069 gsf 205 beds
1a	Medical Center Tower (renovation)	0 gsf 10 beds
3	Neuropsychiatric Center (renovation)	0 gsf <19 beds>
New Construction		**182,679 gsf** **196 beds**
Inpatient Total: (Retained and New Construction)		**546,642 gsf** **382 beds**
AMBULATORY CARE FACILITIES		
Existing Facilities		**167,633 gsf**
Demolition		**0**
Retained (Existing - Demolition)		**167,633 gsf**
New Construction		**0**
Ambulatory Care Total: (Retained and New Construction)		**167,633 gsf**
ACADEMIC/RESEARCH/ADMINISTRATIVE FACILITIES		
Existing Facilities		**320,643 gsf**
Demolition		
2	Academic Offices; Administrative Services	<41,221>
10	Academic Offices; Support Services	<20,181>
11	Department Offices	<3,555>
13	Storage	<852>
Demolition		**<65,809 gsf>**
Retained (Existing - Demolition)		**254,834 gsf**
New Construction		**0**
Academic/Research/Administrative Facilities Total: (Retained and New Construction)		**254,834 gsf**
SERVICE FACILITIES		
Existing Facilities		**47,394 gsf**

TABLE 4-5 (continued)
SCENARIO B ALTERNATIVE

Building No.	Building Description	gsf[a.] or Beds
Demolition		
10	Storage	<1,161>
12	Hospital Storage	<1,313>
14	Storage	<1,306>
Demolition		**<3,780 gsf>**
Retained (Existing - Demolition)		**43,614 gsf**
New Construction		**0**
Service Facilities Total: (Retained and New Construction)		**43,614 gsf**
PARKING		
Existing Parking Spaces		**1,590 spaces**
Demolition		
72	North Parking Structure	<318>
Demolition		**<318 spaces>**
Retained (Existing - Demolition)		**1,172 spaces**
New Construction		
–	Parking Structure	318 spaces
New Construction		**318 spaces**
Parking Total: (Retained and New Construction)		**1,590 spaces**
EXISTING TOTAL:	**GROSS SQUARE FEET** **HOSPITAL BEDS** **PARKING SPACES**	**910,365 gsf** **391 beds** **1,590 spaces**
DEMOLITION		**<258,711 gsf>** **<224 beds>** **<318 spaces>**
RETAINED		**651,654 gsf** **167 beds** **1,272 spaces**
NEW CONSTRUCTION		**361,069 gsf** **215 beds** **318 spaces**
TOTAL		**1,012,723 gsf** **382 beds** **1,590 spaces**
a. gsf: gross square feet		

4.5.2 IMPACT EVALUATION

Aesthetics

Scenarios A and B would allow for the construction of a new hospital building. Implementation of the either of these scenarios would not result in any significant changes in the visual character of the Medical Center. As a result, no adverse aesthetic impacts would be expected.

Air Quality

Implementation of Scenario A or B would have a reduction in construction-related air emissions when compared to the Phase I proposed project. Because these alternatives would generate similar traffic volumes to the Phase I project, long-term operational emissions would also be similar to the proposed project. As with the proposed project, air quality impacts are expected to remain significant and unavoidable.

Cultural Resources

Six of the 24 pre-1963 buildings and structures at the UCI Medical Center would be demolished as a part Scenario A or B compared to 12 of 24 buildings associated with Phase I of the proposed project. Because the loss of these buildings is not considered significant, no impacts would occur. Potential impacts to prehistoric archaeological or to paleontological resources can be mitigated to a level that is considered less than significant.

Geology and Soils

Implementation of Scenario A or B would have similar grading requirements as Phase I of the proposed project. Potential seismic and geotechnical effects associated with this alternative are expected to result in similar impacts as the proposed project. It is expected that all significant impacts would be mitigated to a level that is considered less than significant.

Hazards and Hazardous Materials

The amount of development associated with the Scenario A and B Alternatives is similar to the Phase I proposed project. Both scenarios would result in the use, storage, transportation, and disposal of hazardous materials. Because less demolition would occur when compared to the proposed project, it is expected that there would be a reduction in the short-term exposure of people to asbestos-containing materials or lead based paint materials, as well as a short-term hazardous waste generated on campus. As with the proposed project, these impacts can be mitigated to a less than significant level.

Hydrology and Water Quality

Implementation of this alternative would result in less surface land disturbance and approximately the same amount of impermeable surfaces when compared to the proposed project. Impacts related to drainage and water quality would be similar. All impacts would be mitigated to a level that is less than significant.

Land Use and Planning

Implementation of either Scenario A or B would allow for the construction of a new hospital facility, but does not assume further development on the UCI Medical Center site "post-Phase I." Because the project site would retain the same types and sizes of buildings, implementation of this alternative would not result in adverse land use impacts. As with the proposed project, this alternative would be consistent with applicable local plans and policies.

Noise

This alternative would have similar or reduced noise levels as the proposed project. Short-term construction impacts would be expected to be similar, as well as long-term operation impacts

because Scenarios A and B would generate similar levels of traffic as the proposed project. Significant noise impacts would be mitigated to a level that is less than significant.

Population and Housing

There are currently 6,079 employees (2001) associated with the UCI Medical Center, inclusive of Medical Center and College of Medicine staff, faculty, residents, and medical students. Scenarios A and B represent a net decrease in hospital beds when compared to existing uses at the Medical Center. Therefore, no increase in employment at the campus is anticipated associated with Scenarios A and B. Under the assumption of no increase in employment, there would no increase in the demand for housing.

Public Services

Demands placed on the City of Orange Fire Department and the UCI Medical Center Security Department would be similar to the Phase I project. No significant impacts are anticipated.

Transportation and Circulation

This alternative would generate similar traffic levels when compared to the proposed Phase I project. As with the Phase I project, implementation of Scenarios A or B would not result in any significant traffic impacts. Offsite parking would continue to be required.

Utilities and Service Systems

Implementation of Scenario A or B would require upgrades of public services and utilities to accommodate new development and to comply with building codes. Demand for service would be similar to the Phase I project and would result in less than significant impacts.

4.5.3 Conclusions

Scenarios A and B would result in similar environmental impacts when compared to the proposed UCI Medical Center LRDP Phase I project. These scenarios are not considered environmentally superior to the project. Further, no additional development beyond Phase I is assumed as a part of Scenario A or B.

Neither Scenario A or Scenario B meet the following project objectives:

- Update the UCI Medical Center Long Range Development Plan to best meet the UCI Medical Center's planning goals and current regulatory requirements;
- Serve as a framework for the physical development of the UCI Medical Center to provide adequate facilities in support of the strategic mission of the Medical Center;
- Establish a physical plan that represents the best possible relationship between the UCI Medical Center's teaching and research goals, patient care needs, site character, and allows for the proper integration with the surrounding community;
- Provide a high-quality physical environment for patients and their families, faculty, students, staff, and visitors;

- Provide a critical mass of facilities necessary to support the future operational and research space needs of the UCI Medical Center;

- Provide adequate parking for both Phase I and full LRDP implementation.

- Accommodate new construction in order to provide the most flexible space for the highest priority functions;

- Accommodate the increasing need for medical services to the growing population in Orange County.

4.6 OFFSITE LOCATION ALTERNATIVE

CEQA Guidelines §15126.6 requires the analysis of an alternative location(s) to the proposed project site where "...significant effects of the project would be avoided or substantially lessened by putting the project in another location. Only locations that would avoid or substantially lessen any of the significant effects of the project need be considered for inclusion in the EIR."

4.6.1 BACKGROUND

In December 1967, UCI commenced preparation of a study to determine whether there was a need for a University Hospital. The study recommended that a 350-bed teaching hospital be constructed on the main UCI campus in the City of Irvine. Programming and space planning for such a hospital began in August 1968; however, because of a shortage of funds, these efforts ceased until early 1970. At that time, a Project Planning Guide for the new hospital was submitted for approval to the Office of the President of the University of California. Concurrent with this submittal, a state bond issue to provide funds for the construction of a teaching hospital failed. In November 1972, a statewide bond issue for the University of California health sciences passed that was to allocate funds for the construction of a hospital in Irvine. However, federal matching funds were not available for the project resulting in the size of the proposed hospital being reduced to 250 beds. Following the passage of the bond issue, the University conducted additional studies which validated the need for the hospital. In July 1975, the Governor deleted funds from the state budget for a new teaching hospital on the main campus, but included funds for the acquisition of the Orange County Medical Center and for the planning of three new community clinics. In July 1976, the Orange County Medical Center was transferred to the University to become the University of California, Irvine Medical Center. No further proposals were made to site a hospital at the main UCI campus in the City of Irvine.

4.6.2 DESCRIPTION

Under the Offsite Location Alternative, a new Medical Center would be built on the main UCI campus in the City of Irvine. As depicted on Exhibit 4-1, the location where a Medical Center would be sited is bound on the east by Culver Drive, on the south by Bonita Canyon Road, on the west by West Peltason Drive and existing UCI housing, and on the north by Campus Drive. The 73-acre East Campus area of UCI is developed with the 35-acre Anteater Recreation Center complex, existing and planned student and faculty housing, existing ranch buildings, and some low-intensity interim uses. The Medical Center would be located on approximately 30 acres of the East Campus. This alternative assumes that a new Medical Center would be constructed with the same uses and at the same development intensity as that proposed at the existing Medical Center campus in the City of Orange. The new buildings would contain approximately the same square footage, bed space, function, and parking spaces as the proposed project.

It is expected that while the existing Medical Center in the City of Orange could continue to serve as an University teaching hospital and medical facility, it is unlikely that the University would retain ownership of the Orange campus. Medical and research uses at the site could be operated under new ownership, uses on the site could be razed and the site developed with land uses consistent with the City of Orange General Plan (*Public Facilities* designation), land uses requiring an amendment to the General Plan, or the site could be vacated.

4.6.3 IMPACT EVALUATION

Aesthetics

Implementation of this alternative would result in significant changes to the character of the alternative location. Instead of the residential uses currently planned for the site, hospital uses would be constructed. Views from the Turtle Rock residential community of the City of Irvine, located east of the alternative site, would be most affected. Views of natural vegetation and open space would be replaced by structures up to seven stories in height, rather than planned residential uses up to four stories in height. With construction of hospital uses rather than residential uses, changes to the visual character of the site would be substantially different from both existing views and those currently proposed for the site. This would be a significant project and cumulative impact.

Air Quality

Implementation of this alternative would result in both short-term construction emissions and long-term operational emissions from mobile and stationary sources. Earthmoving activities are expected to result in short-term construction-related emissions that would exceed applicable SCAQMD significance thresholds; more grading and excavation would be required to implement the project at this alternative site than at the existing facility. Long-term operational air quality impacts are expected to be similar to the proposed project. As with the proposed project, air quality impacts resulting from implementation of the Offsite Location Alternative are expected to be significant and unavoidable.

Biological Resources

Development of the Offsite Location Alternative is expected to directly impact the valley foothill riparian vegetation communities, coastal sage scrub communities, burrowing owl habitat, and jurisdictional wetlands. Potential impacts to sensitive biological resources would require mitigation. Permits and/or agreements from the U.S. Fish and Wildlife Service, California Department of Fish and Game, U.S. Army Corps of Engineers, and the California Regional Water Quality Control Board could be required. It is expected that potential impacts to biological resources could be mitigated to a less than significant level. The existing UCI Medical Center campus in the City of Orange would not affect any sensitive biological resources.

Cultural Resources

Implementation of the project at this alternative location could impact prehistoric archaeological and paleontological resources. These impacts can be mitigated to a less than significant level. There are no known historic resources on this alternative site.

LRDP Land Use Plan

Exhibit 4-1

UCI Medical Center LRDP EIR

University of California, Irvine

N

Scale: Not to Scale

Source: UCI Office of Campus and Environmental Planning

BonTerra CONSULTING

Geology and Soils

The Offsite Location Alternative site is currently vacant. As such, implementation of the Medical Center at this location would require significantly more grading and subsurface excavation than the proposed project. There would be similar seismic and geotechnical impacts as the proposed project. Erosion control measures to minimize construction erosion run-off and erosion would be required to mitigate seismic, grading, and water quality impacts. Mitigation measures for the proposed project would also be applicable to this alternative and would reduce impacts to less than significant levels.

Hazards and Hazardous Materials

This alternative would assume the same quantities of hazardous waste generation as associated with the proposed UCI Medical Center LRDP project in the City of Orange. However, intensification of development at the existing site would result in an incremental increase in the generation of hazardous materials. Whereas, development of a new Medical Center campus would result in the total generation of these waste materials at this alternative site. The main campus in the City of Irvine is currently permitted to generate, transport, and dispose of hazardous wastes. However, this new Medical Center facility would be subject to new and separate permitting requirements. It is expected that any potential impacts could be mitigated to a level that is considered less than significant.

Hydrology and Water Quality

Development of this alternative site would result in greater hydrology and drainage effects than the proposed project because the site is undeveloped and pervious. Construction of the this alternative could expose soils to erosion and introduce sediments and pollutants from construction vehicles into stormwater runoff, which could affect downstream water quality. However, BMPs and compliance with the provisions of the NPDES construction permit would reduce onsite erosion and, therefore, reduce or eliminate excessive turbidity or sediment deposition at downstream locations to a less than significant level.

Land Use and Planning

Unlike the proposed project, the Offsite Location Alternative would allow for the implementation of land uses not contemplated for this site in the UCI Long Range Development Plan for the main campus. The site is designated in the UCI LRDP for Student Housing. The LRDP for the UCI Campus has designated this area for housing in order to meet its goal to provide housing for 43 percent of UCI students.

A Medical Center facility in this location would be less compatible than existing and planned surrounding uses. Offsite residential uses to the east may perceive of medical center as incompatible with low-density single-family residences.

It is speculative to state what the definitive use for the existing UCI Medical Center campus in the City of Orange would be used for under this alternative development scenario. However, several options can be considered. One, the Medical Center could continue to function as a hospital by the University, but more likely by another entity. Continued use of the site as a medical center facility would be subject to the same seismic retrofit requirements as would be associated with the currently proposed project. Two, the site could be vacated and remain undeveloped. This option is not considered likely because of the value of the property for reuse. Three, the site could be redeveloped and used for an alternative function. The UCI Medical Center site has a City of

Orange General Plan designation of *Public Facilities.* The *Public Facilities* designation "…covers several types of public, quasi-public and institutional land uses, including schools, City and County facilities, hospitals and major utility easements and properties." Major institutional uses (e.g., hospitals, colleges) are noted to have a maximum floor area ratio (FAR) of 2.0. Alternative land uses requiring an amendment to the General Plan could include, but would not be limited to, retail, entertainment, and office. Reuse of the site with alternative land uses would require the demolition of all or a majority of the onsite structures. Redevelopment of the site would be subject to separate CEQA documentation to assess the site-specific impacts associated with the development. Additionally, if the UCI Medical Center were moved to an alternate location, and the current hospital were replaced with another use, the original intent the existing Medical Center (i.e., providing medical services to an underprivileged area) would be obviated. There would be a significant impact to the residents in this portion of Orange County by losing the hospital in which they currently have access.

Noise

Implementation of the this alternative would result in similar short-term construction noise levels as would be associated with the proposed project. Mitigation would reduce impacts to a less than significant level. Long-term, operational noise impacts would include both episodic, single-event disruptions from emergency vehicles and helicopters, as well as from automobile traffic generated by the hospital. These long-term, operational noise impacts are different than the types of noise associated with the planned land use for the area (i.e., student housing). Although not a significant impact, single-event noise sources would be considered an annoyance to nearby residences.

Population and Housing

This Offsite Location Alternative would be expected to generate the same employment opportunities and create the same housing needs as the proposed project, but within a different jurisdictional area. This alternative would displace planned student housing that would be constructed on this site. This is considered a significant impact.

Public Services

Development of a new Medical Center on the main campus would place similar demands on police and fire departments to serve the project site. It is expected that any potential impacts could be mitigated to a level that is considered less than significant.

Transportation and Circulation

In 2020 at full LRDP implementation, the UCI Medical Center in the City of Orange is projected to generate approximately 24,694 average daily trips (ADT), with 2,253 trips during the a.m. peak period and 1,822 trips during the p.m. peak period. Under the Offsite Location Alternative scenario, trips associated with full LRDP implementation would occur at this alternative site. A medical center would be a more intensive use than student housing development. As a result, implementation of the Offsite Location Alternative would result in significant transportation and circulation impacts. These impacts could be partially minimized through the implementation of various mitigation measures to increase the capacity of local streets and intersections. Nonetheless, it is expected that traffic impacts would remain significant and unavoidable. It is also expected that vehicular trips would continue to be generated at the existing UCI Medical Center site in the City of Orange subject to reuse of the 33-acre site.

Utilities and Service Systems

Similar to the proposed project, this Offsite Location Alternative would require improvements and/or extensions of public services and utilities in the site. Impacts to these services and utilities are expected to be mitigated to a level that is considered less than significant.

4.6.4 CONCLUSIONS

The Offsite Location Alternative would meet most of the project objectives. This alternative would not meet the following objectives:

- Establish a physical plan that represents the best possible relationship between the UCI Medical Center's teaching and research goals, patient care needs, site character, and allows for the proper integration with the surrounding community;

- Accommodate the increasing need for medical services to the growing population in Orange County.

In 1972, when UCI was attempting to acquire funding for an on-campus hospital, Governor Jerry Brown felt that the existing Medical Center in the City of Orange (the Orange County Medical Center) was proximate to an underprivileged area, making its location pivotal to public health care. In 1976, the University of California purchased the hospital campus as a teaching hospital for use as the UCI Medical Center. If Scenarios A or B were implemented, the UCI Medical Center would not be able to continue supporting the growing surrounding community at current levels. In essence, the residents in this portion of Orange County would have reduced access to the Medical Center, and there would be a ***significant impact***.

This alternative would result in substantially ***greater significant environmental impacts*** when compared to the proposed project. Nearby off-campus residents have been very involved and voiced concern about many campus development proposals; implementation of the Offsite Location Alternative would most likely be met with substantial opposition.

4.7 FULL LRDP IMPLEMENTATION OFFSITE PARKING ALTERNATIVE

4.7.1 DESCRIPTION

Although the proposed full LRDP implementation project would allow for sufficient onsite parking, the University is considering an offsite parking structure as a part of this EIR as an option to the provision of all full LRDP implementation-related spaces on the Medical Center site. The Offsite Parking Alternative assumes all of the components of the proposed project, except that one of the proposed onsite full LRDP implementation parking structures would be constructed at an offsite location. The Full LRDP Implementation Offsite Parking Alternative (Offsite Parking Alternative) assumes that the Phase I project would be the same. The offsite parking structure would be constructed as a part of full LRDP implementation. No additional onsite square footage on the Medical Center campus is assumed.

As depicted on Exhibit 4-2, this full LRDP implementation parking structure would be sited at the southwest corner of the intersection of Manchester Boulevard/The City Way at Chapman Avenue, immediately west of the "200 Building" on an existing surface parking lot. Providing approximately 1,600 parking spaces, the six-level parking structure would be used by Medical Center faculty and staff.

4.7.2 IMPACT EVALUATION

Aesthetics

Implementation of this alternative would change the character of the site from a surface parking are to a six-level parking structure. Because the parking structure would be constructed adjacent to an existing office building in a developed urban setting, no aesthetic impacts are anticipated.

Air Quality

Implementation of this alternative would result in short-term construction emissions associated with earthmoving and excavation activities. Long-term operational impacts would be the same as with the proposed project.

Cultural and Paleontological Resources

Implementation of the project at this alternative location could impact unknown subsurface prehistoric archaeological and paleontological resources. These impacts can be mitigated to a less than significant level. There are no known historic resources on this alternative offsite parking site.

Geology and Soils

The Offsite Parking Alternative would result in similar seismic and geotechnical impacts as the proposed project, which is only a few blocks east of the UCI Medical Center. Erosion control measures to minimize construction erosion run-off and erosion would be required to mitigate seismic, grading, and water quality impacts. Mitigation measures for the proposed project would also be applicable to this alternative and would reduce impacts to less than significant levels.

Hazards and Hazardous Materials

Construction and use of the parking structure would not generate hazardous materials. Therefore, there would be no hazards or hazardous materials impact resulting from the Offsite Parking Alternative.

Hydrology and Water Quality

Development of this offsite location or an onsite location with a parking structure would have similar water quality and surface runoff effects; both locations are development and predominately impervious. No new impacts not assumed for the proposed project would occur.

Land Use and Planning

A parking structure at this location would be compatible with existing and planned surrounding uses, and could allow for more flexibility of uses at the Medical Center. Placement of one of the parking structures at the offsite location would allow for the southernmost proposed parking structure to be sited further from the existing Orange County Juvenile Hall thereby eliminating significant land use compatibility impacts. No land use or planning impacts would result from construction of the Offsite Parking Alternative.

Offsite Parking Alternative Location

Exhibit 4-2

UCI Medical Center LRDP EIR
University of California, Irvine

N

Scale: 1" = 500'
Source: Lee, Burkhart, Liu

BonTerra CONSULTING

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Noise

Implementation of the Offsite Parking Alternative would result in similar short-term construction noise effects as construction of an onsite parking structure. Compliance with construction operation hours would mitigate potential impacts. Long-term, operational noise impacts from vehicles using the structure would result in adverse but less than significant impacts to local businesses, rather than the Medical Center. The proposed offsite parking structure site is not contiguous to any sensitive receptors.

Population and Housing

This Offsite Parking Alternative would not generate population or employment opportunities, and would not affect local population or housing.

Public Services

Development of an offsite parking structure would place an additional demands on the UCI Security Department to monitor an offsite facility. This impact is expected to be less than significant. No significant impacts to the City of Orange Fire Department would be expected.

Transportation and Circulation

The proposed 1,600-space parking structure would redistribute a portion of the trips generated by the UCI Medical Center to the new location at 200 Chapman Avenue. Because the parking structure would be used by Medical Center staff, rather than patients or visitors, there would be fewer peak hour trips to and from the proposed offsite parking structure than to the onsite structures and lots. Intersection capacity utilization (ICU) values were conducted based on long-range roadway lane configurations at intersections affected by the change in parking structure location; peak hour traffic associated with 1,600 vehicles was redistributed from the Medical Center to this location. Table 4-6 identifies the a.m. and p.m. peak hour ICUs associated with this option.

As indicated in the table, implementation of this parking option would change the levels of service of affected intersections. The intersections of Manchester Boulevard at Chapman Avenue and City Boulevard East at The City Drive would operate at acceptable levels of service during the a.m. and p.m. peak periods whether all parking for the UCI Medical Center were provided onsite or a portion of the parking was provided at the offsite location. The provision of offsite parking would worsen the level of service at the intersection of The City Drive at Chapman Avenue during the p.m. peak period (volume to capacity ratio of 1.05/LOS F compared to 1.01/LOS F) which is considered a significant impact. However, this parking option would improve the level of service during the a.m. peak period at the intersection of The City Drive/City Way (volume to capacity ratio of 0.83 compared to 1.04). This would be a beneficial change. As with the proposed project, significant impacts to this intersection can be mitigated to a level that is considered less than significant.

Utilities and Service Systems

Similar to the proposed project, this Offsite Parking Location would require improvements and/or extensions of public services and utilities in the site. Impacts to these services and utilities are expected to be mitigated to a level that is considered less than significant.

TABLE 4-6
FULL LRDP IMPLEMENTATION OFFSITE REPLACEMENT PARKING OPTION: INTERSECTION LEVELS OF SERVICE

Intersection	Long-Range Full LRDP Implementation With Onsite Parking		Long-Range Full LRDP Implementation With Offsite Parking	
	A.M. Peak Hour/LOS	P.M. Peak Hour/LOS	A.M. Peak Hour/LOS	P.M. Peak Hour/LOS
12. Manchester Blvd./Chapman Ave.	0.66/B	0.56/A	0.79/C	0.65/A
13. The City Drive/Chapman Avenue	0.84/D	**1.01/F***	0.73/C	**1.05/F***
18. City Blvd. East/The City Way	0.22/A	0.31/A	0.38/A	0.44/A
19. The City Drive/The City Way	**1.04/F***	0.87/D	0.83/D	0.81/D
43. The City Drive/Medical Center Dr.	0.83/D	0.73/C	0.61/B	0.66/B

* Exceeds Level of Service D.

Source: University of California Irvine Medical Center Long Range Development Plan Traffic Analysis, Austin-Foust Associates, Inc., September 2002.

4.7.3 CONCLUSIONS

The Offsite Parking Alternative would meet the applicable project objective to "Provide adequate parking for both Phase I and full LRDP implementation." No new significant impacts would occur if the one of the parking structures were to be constructed at an offsite location. The provision of parking offsite would allow for increased flexibility in the siting of buildings associated with full LRDP implementation and/or the provision of more open space/landscaping at the Medical Center campus.

SECTION 5
LONG-TERM IMPLICATIONS OF THE PROPOSED PROJECT

5.1 ANY SIGNIFICANT ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED IF THE PROPOSED PROJECT IS IMPLEMENTED

The environmental impacts of the proposed UCI Medical Center LRDP project are discussed in Sections 3.1 through 3.12 of this EIR. The project will result in potentially significant impacts under the following topical issues: aesthetics, air quality, geology and soils, hazards and hazardous materials, hydrology and water quality, land use and planning, noise, public services, transportation and traffic, and utilities and service systems. Implementation of standard conditions and requirements, and mitigation measures will reduce these impacts to levels considered less than significant, with the exception of air quality.

5.2 SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES WHICH WOULD BE CAUSED BY THE PROPOSED PROJECT SHOULD IT BE IMPLEMENTED

CEQA Guidelines §15126.2 describes the issues for this section as follows:

> "Uses of nonrenewable resources during the initial and continued phases of the project may be irreversible since a large commitment of such resources make removal or non-use thereafter unlikely. Primary impacts and, particularly, secondary impacts (such as a highway improvement which provides access to a previously inaccessible area) generally commit future generations to similar uses. Also, irreversible damage can result from environmental accidents associated with the project. Irretrievable commitments of resources should be evaluated to assure that such current consumption is justified."

The environmental effects related to the implementation of the project are discussed in Sections 3.1 through 3.12 of this EIR. Implementation of the project will require the long-term commitment of natural resources and land. Development of the project will result in the continued commitment of land resources for medical center uses. The financial and material investments which will be required of the University will result in further commitments of the land resources, making it more likely that the same or similar uses will continue in the future.

Environmental changes associated with the proposed development will result in alterations to the physical environment. In order to develop the project, existing buildings will be demolished and will be irrevocably committed to medical facilities. New structures will be built, and additional utilities/improvements to utilities to serve the project will be constructed.

Implementation of the project will require the commitment and reduction of other nonrenewable and slowly renewable resources. Intensification of development at the UCI Medical Center will require physical improvements associated with higher levels of service at the facility. These resources include, but are not limited to: petrochemical construction material; lumber; sand and gravel; asphalt; steel; copper; lead; and other metals, etc. The amount of resources required for construction of the project is not be disproportionate in relationship to other construction projects that occur in Orange County. The materials are considered to be readily available and in sufficient quantity in this region. As such, the incremental increase will be minor and not a significant impact.

Approval and implementation of the project will also result in the loss of other resources. These resources are for the construction, heating, and cooling of buildings; potable and non-potable water for food preparation, drinking, irrigation, etc.; transportation of people and goods to and from the site; as well as lighting and other associated energy needs.

5.3 GROWTH-INDUCING IMPACTS OF THE PROPOSED ACTION

This section of the EIR discusses the ways in which the proposed project could foster economic or population growth, or the construction of additional developments in the surrounding environment, either directly or indirectly (CEQA Guidelines §15126.2(d)). To assess the potential for growth-inducing impacts, the project characteristics that may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively must be evaluated.

A project is considered growth-inducing if it can foster economic or population growth, or construction of additional housing, either directly or indirectly, in the surrounding environment (CEQA Guidelines §15126[d]). Included in this definition are projects that will remove obstacles to population growth. Examples of growth-inducing actions include extension of urban services into a previously unserved area, extending a major roadway into a previously unserved area, and establishing major new employment opportunities. Construction of these types of infrastructure improvements cannot be considered in isolation from the development they trigger. The characteristic of some projects that may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively, would be considered growth-inducing.

The potential growth-inducing effects of a proposed project are evaluated in three ways:

1. Would the project have an effect on undeveloped land that may not be designated on any general plan for urban development, but would nonetheless experience increased growth pressure due to the presence of the project?

2. Would the project have an effect by removing constraints, thereby facilitating the construction of previously approved projects?

3. Would the project influence redevelopment of areas at a higher intensity than currently exists?

Redevelopment of the UCI Medical Center to allow for the intensification of medical uses will not impose significant new burdens on adjacent land uses or induce substantial new unforeseeable development in the area. Continued use of the site as a medical center campus will be considered “in-fill” because the site is surrounded by existing developed areas and the site currently functions as a teaching hospital facility for the University. There are existing utilities serving the project site. The project does not involve the construction of any new public infrastructure facilities which could induce additional growth in the area.

SECTION 6
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SECTION 7
LIST OF EIR PREPARERS AND CONTRIBUTORS, ORGANIZATIONS AND PERSONS CONSULTED

7.1 LIST OF EIR PREPARERS AND CONTRIBUTORS

LEAD AGENCY

The Regents of the University of California

UNIVERSITY OF CALIFORNIA, OFFICE OF THE PRESIDENT

University Counsel	Alan Waltner
Coordinator, Environmental Planning	Charlotte Strem
Senior Planner	Terry Witherspoon

UNIVERSITY OF CALIFORNIA, IRVINE

Director, Office of Campus and Environmental Planning	Richard Demerjian
Assistant Director	Gregory Jue, Ph.D.
Senior Planner	James Lawson

UNIVERSITY OF CALIFORNIA MEDICAL CENTER

Associate Director of Planning, Planning and Development Services	Ned Reynolds
Senior Educational Facility Planner	Louise Beckerman

EIR AUTHORS

BonTerra Consulting
151 Kalmus Drive, Suite E-200
Costa Mesa, California 92626
(714) 444-9199

Project Director	Joan Patronite Kelly, AICP
Project Manager	Dana C. Privitt, AICP
Assistant Project Manager	Karen DiCarlo
Environmental Analyst	Jennifer Marks
Geographic Information Systems	Jennifer Gomez, Amy Eifler
Report Preparation	Cyndi Hove, Kathy Linklater, Susan Canino, Greg Marks

Austin-Foust Associates

Traffic Analysis	Terry Austin, P.E. Cathy Lawrence

Chattel Architecture, Planning & Preservation, Inc.

Architectural Historian	Robert Chattel Francesca Smith

Digital Preview

Visual Simulations	Richard Johnston

JHA Environmental Consultants, LLC

Air Quality Analysis	JoAnne Aplet

Mestre Greve Associates

Noise Analysis	Matthew Jones

RBF Consulting

Utilities and Grading	Thomas C. Carmody, P.E., P.L.S. Recky C. Hiramoto, P.E.

7.2 ORGANIZATIONS AND PERSONS CONSULTED

CITY OF ORANGE

Fire Department	Tom Groseclose
Department of Public Works	Bob Knaak
Police Department	Brad Beyer
Water Department	Romona Takahashi

COUNTY OF ORANGE

Integrated Waste Management Department	Robert Richmond
Orange County Sanitation District	David A. Ludwin

UTILITIES

The Gas Company	Robert S. Warth
Southern California Edison Company	Gary Newcomb

UNIVERSITY OF CALIFORNIA, IRVINE

UCI Medical Center, Police Department	Scott Martin, Director of Security

SECTION 8
GLOSSARY OF ACRONYMS AND TERMS

ACRONYMS

A

AAQS	ambient air quality standards
ACHP	Advisory Council on Historic Preservation
ADT	average daily traffic
af/yr	acre-feet (of water) per year
af/yr	acre-feet per year
A.M.	morning
AQMD	Air Quality Management District
AQMP	Air Quality Management Plan
ARB	Air Resources Board

B

BACT	Best Available Control Technology
BMP	Best Management Practices

C

CAA	Clean Air Act
Caltrans	California Department of Transportation
CalEPA	California Environmental Protection Agency
CARB	California Air Resources Board
CCR	California Code of Regulations
CDHS	California Department of Health Services
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
cfs	cubic feet per second
CMP	Congestion Management Plan/Program
CNEL	Community Noise Equivalency Level
CO	carbon monoxide
CWA	Clean Water Act

D

DAMP	(Orange County) Drainage Area Management Plan
dB	decibel
dBA	decibel, a-weighted
DGM	California Department of Mines and Geology
DOH	Department of Health
DU	dwelling unit
du/ac	dwelling units/acre

E

EIR	Environmental Impact Report
EMFAC7D	Emission Factor Model
EPA	U.S. Environmental Protection Agency

F

FAA	Federal Aviation Administration
FAR	Floor Area Ratio
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
FWPCA	Federal Water Pollution Control Act

G

GIS	Geographic Information System
GPA	General Plan Amendment
gpm	gallons per minute
GMP	Growth Management Plan
gsf	gross square feet

H

HABS	Historic Architectural Building Survey
HAER	Historic Architectural Engineering Record
HAZMAT	hazardous materials
HEICS	Hospital Emergency Incident Command System
HOV	high-occupancy vehicle lane

I

ICU	Intersection Capacity Utilization
IS	Initial Study
IWMB	Integrated Waste Management Board
IWMD	Integrated Waste Management Department

L

Ldn	Day-Night Sound Level
Leq	Equivalent Noise Level
LOS	Level of Service
LRDP	Long Range Development Plan
LRT	light rail transit

M

mcy	million cubic yards
mep	maximum extent practicable
mgd	million gallons per day
MND	Mitigated Negative Declaration
MPAH	Master Plan of Arterial Highways
mph	miles per hour
msl	mean sea level

N

NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
ND	Negative Declaration
NHPA	National Historic Preservation Act
NO_2	nitrogen dioxide
NO_x	oxides of nitrogen (nitric oxide and nitrogen dioxide)
NOA	Notice of Availability (CEQA)
NOC	Notice of Completion (CEQA)
NOD	Notice of Determination (CEQA)
NOP	Notice of Preparation
NPDES	National Pollution Discharge Elimination System
NPS	National Park Service

O

O_3	ozone
OCFA	Orange County Fire Authority
OCFCD	Orange County Flood Control District
OCP	Orange County Projections
OCSD	Orange County Sanitation District
OCTA	Orange County Transportation Authority
OCTAM	Orange County Traffic Analysis Model
OCTD	Orange County Transit District
OHP	Office of Historic Preservation
OPR	Office of Planning and Research, State of California

P

P.M.	evening
PM_{10}	particulate matter less than 10 micrometers in diameter
ppm	parts per million
PRC	Public Resources Code
psi	pounds per square inch

R

ROG	reactive organic gases
RWQCB	Regional Water Quality Control Board

S

SCAB	South Coast Air Basin
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCAQMP	South Coast Air Quality Management Plan
SCE	Southern California Edison
SCGC	Southern California Gas Company
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SOCTAM	South Orange County Traffic Analysis Model
SO_2	sulfur dioxide
SO_x	sulfur oxides
SR	State Route
SRRE	Source Reduction and Recycling Element
SWAT	Storm Water Advisory Team
SWMP	Storm Water Management Plan
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board

T

TCM	transportation control measures
TDM	Transportation Demand Management
TDS	total dissolved solids
TIA	Traffic Impact Analysis
TIP	Transportation Improvement Program
TMDL	Total Maximum Daily Load
TSP	Total Suspended Particulates

U

USACE	U.S. Army Corps of Engineers
USGS	U.S. Geologic Survey
UST	underground storage tank

V

v/c	volume-to-capacity
VMT	vehicle miles traveled
VOC	volatile organic compounds
VPD	vehicles per day
VPH	vehicles per hour

W

WDR	Waste Discharge Requirements

TERMS

A-WEIGHTED DECIBEL SOUND LEVEL (dBA): (See decibel, A-Weighted)

ACOUSTICS: The physical qualities of a room or other enclosures (such as size, shape, amount of noise) that determine the audibility and perception of speech and music.

ADVERSE IMPACT: A term used to describe unfavorable, harmful, or detrimental environmental changes. Adverse impacts may be significant or not significant. (See Significant Impact.)

AIR BASIN: An area designated by the Air Resources Board for air quality planning purposes.

AIR POLLUTANT: A material in the ambient air that produces air pollution.

AIR QUALITY MANAGEMENT PLAN: A document describing how the SCAQMD plans to achieve federal and state air quality standards by year 2010, as required by the federal Clean Air Act Amendments and the California Clean Air Act.

AIR QUALITY MODEL: An algorithmic relationship between pollutant emissions and pollutant concentrations used in the prediction of a project's pollutant impact.

AIR QUALITY STANDARD: The specified average concentration of an air pollutant in ambient air during a specified time period at or above which undesirable effects may be produced.

AIR TOXICS: Any air pollutant for which a national ambient air quality standard (NAAQS) does not exist (i.e., excluding ozone, carbon monoxide, PM_{10}, sulfur dioxide, nitrogen dioxide) that may reasonably be anticipated to cause cancer, developmental effects, reproductive dysfunctions, neurological disorders, heritable gene mutations, or other serious or irreversible chronic or acute health effects in humans.

AMBIENT CONDITIONS: Initial background concentration sensed/measured at a monitoring/ sampling site, as in air quality or noise.

AMBIENT NOISE: The background noise associated with a given environment, usually a composite of sounds from many sources near and far.

AQUIFER: A natural underground formation that is saturated with water, and from which water can be withdrawn.

ARTERIAL ROAD: A vehicular right-of-way whose primary function is to carry through traffic in a continuous route across an urban area while also providing some access to abutting land.

ARTIFACT: A single, portable man-made or man-altered object; usually culturally diagnostic.

ATMOSPHERIC STABILITY: The resistance to or enhancement of vertical air movement related to the vertical temperature profile.

ATTAINMENT AREA: An area considered to have air quality as good as or better than the National Ambient Air Quality Standard as defined in the Clean Air Act. An area may be an attainment area for one pollutant and a non-attainment area for others.

AVERAGE DAILY TRAFFIC (ADT): Generally used to measure the total two-directional traffic volumes passing a given point on a roadway during a 24-hour period.

BACKGROUND CONCENTRATION: Air pollutant concentration due to natural sources and distant unidentified man-made sources.

BACKGROUND NOISE: See Ambient Noise.

BACKGROUND VIEW: View beginning at a distance from the observer and extending as far toward the horizon as the eye can detect the presence of objects. Skylines or ridge lines against other land surfaces are the strongest visual elements of the "background."

BASE FLOOD: A flood having a one percent change of being equaled or exceeded in any given year.

BASIN PLAN: A water quality control plan developed by a Regional Water Quality Control Board (RWQCB) for a specific geographic area. The Basin Plan identifies beneficial uses of waters, the water quality objectives needed to maintain these beneficial uses, and an implementation plan.

BENEFICIAL USES: The resources, services, and qualities of state waters that may be protected against quality degradation. The uses include, but are not limited to, domestic, municipal, agricultural and industrial supply, power generation, recreation, aesthetic enjoyment, navigation, and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves. The specific uses such as “cold freshwater habitat” and “water contact recreation” are defined in Section 2 of the RWQCB’s Basin Plans. Beneficial Uses are defined in California Water Code Section 13050.

BERM: An embankment, usually extended in a linear alignment. Berms can function as visual screens, noise attenuators, and surface water diverters.

BACT (Best Available Control Technology): Under the SCAQMD rules, for example, BACT is defined as the most stringent emissions control which for a given air emission source has been 1) achieved in practice; 2) is identified in a State Implementation Plan; or 3) has been found by the SCAQMD to be technologically achievable and cost-effective.

BMP (Best Management Practice): A BMP is any program, technology, process, siting criteria, operating method, measure, or device which controls, prevents, removes, or reduces pollution.

BUILDOUT: The year in which project construction has been completed.

CALIFORNIA CODE OF REGULATIONS (CCR): The regulations that implement California laws.

CALIFORNIA DEPARTMENT OF TRANSPORTATION (Caltrans): The state government agency responsible for the construction, maintenance, and operation of state and federal highways in California.

CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY (Cal EPA): The state agency that incorporates the State Water Resources Control Board, the Integrated Waste Management Board, and other agencies with environmental responsibilities.

CARBON DIOXIDE (CO_2): A colorless gas that enters the atmosphere as the result of natural and artificial combustion processes. It is also a normal part of the ambient air.

CARBON MONOXIDE (CO): An invisible, odorless, tasteless, and toxic gas. It is primarily generated by motor vehicles, but is found in trace quantities in the natural atmosphere.

CATCH BASIN: A storm drain inlet having a sump below the outlet to capture settled solids.

CHLOROFLUOROCARBONS (CFC): A family of inert, nontoxic, and easily-liquefied chemicals used in refrigeration, air conditioning, packaging, insulation, or as solvents or aerosol propellants. Because CFCs are not destroyed in the lower atmosphere, they drift into the upper atmosphere where the chlorine is released and destroys ozone.

CLEAN FUELS: Blends and/or substitutes for gasoline fuels. These include compressed natural gas, methanol, ethanol, and others.

CODE OF FEDERAL REGULATIONS (CFR): The document that codifies all rules of the executive departments and agencies of the federal government. It is divided into 50 volumes, known as titles. Title 40 of the CFR (referenced as 40 CFR) lists all the environmental regulations.

COMMUNITY NOISE EQUIVALENT LEVEL (CNEL): A noise compatibility level established by California Administrative Code, Title 21, Section 5000. Represents a time-weighted 24-hour average noise level based on the A-weighted decibel. The CNEL scale includes an additional 5 dB adjustment to sounds occurring in the evening (7 p.m. to 10 p.m.) and a 10 dB adjustment to sound occurring in the late evening and early morning between (10 p.m. and 7 a.m.).

COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT (CERCLA): CERCLA, also known as Superfund, was enacted in 1980 to ensure that a source of funds was available to clean up abandoned hazardous waste dumps, compensate victims, address releases of hazardous materials, and establish liability standards for responsible parties. CERCLA also requires the creation of a National Priorities List which sets forth the sites considered to have the highest priority for cleanup under Superfund.

CONTIGUOUS: Lands or legal subdivisions having a common boundary; lands having only a common corner are generally not contiguous.

CONGESTION MANAGEMENT PLAN/PROGRAM (CMP): A state mandated program that requires each county to prepare a plan to relieve congestion and air pollution.

CO-PERMITTEE: A permittee to an NPDES permit that is only responsible for permit conditions relating to the discharges from its area of jurisdiction.

CONSTRUCTION AND DEMOLITION DEBRIS: Used or discarded materials removed from premises during construction or renovation of a structure resulting from construction, remodeling, repair, or demolition operations on any pavement, house, commercial building, or other structure.

CRITERIA POLLUTANT: Air pollutants for which the federal or state government have established ambient air quality standards or criteria for outdoor concentrations in order to protect public health.

CUMULATIVE IMPACT: Cumulative impacts refers to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts. The individual effects may be changes resulting from a single project or a number of separate projects. The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past,

present, and reasonable foreseeable probable future projects. Cumulative impacts can result from individually minor, but collectively significant, projects taking place over a period of time.

DAY-NIGHT AVERAGE SOUND LEVEL (Ldn): The A-weighted average sound level in decibels during a 24-hour period with a 10 dB weighing applied to nighttime sound levels (10 p.m. to 7 a.m.). This exposure method is similar to the CNEL, but deletes the evening time period (7 p.m. to 10 p.m.) as a separate factor.

DECIBEL (dB): A unit for expressing the relative intensity (loudness) of sounds. The decibel is the logarithm of the ratio of the intensity of a given sound to the faintest sound discernible by the human ear.

DECIBEL, A-WEIGHTED (dBA): A-weighting is a frequency correction that correlates overall sound pressure levels with the frequency response of the human ear.

DEMOLITION: The decimating, razing, ruining, tearing down, or wrecking of any facility, structure, pavement, or building, whether in whole or in part, whether interior or exterior.

DENSITY: The gross site area which shall include local roadways, slopes, and open space areas, unless otherwise specified.

DESIGN CAPACITY: The capacity at which a street, water distribution pipe, pump or reservoir, or a wastewater pipe or treatment plant is intended to operate.

DETENTION DEVICE: Facilities designed to collect and temporarily detain the initial volume of storm water runoff for a specified period of time to permit settlement of particulate pollutions.

DEVELOPMENT IMPACT FEES: A fee or tax imposed on developers to pay for the costs to the community of providing services to a new development. It is a means of providing a fund for financing new improvements without resorting to deficit financing.

DEWATERING DEVICE: The removal of groundwater resulting from excavations activities.

DIRECT EFFECTS: Effects which are caused by an action and occur at the same time and place.

DISCRETIONARY PROJECT: A project which requires the exercise of judgment or deliberation when the public agency or body decides to approve or disapprove a particular activity, as distinguished from situations where the public agency or body merely has to determine whether there has been conformity with applicable statutes, ordinances, or regulations.

DISPERSION: The process by which atmospheric pollutants disseminate due to wind and vertical stability.

DRAINAGE AREA: The portion of the earth's surface from which precipitation or other runoff flows to a given location. With respect to a highway, this location may be a culvert, the farthest point of a channel, or an inlet to a roadway drainage system.

DRAINAGE SWALE: A storm drainage conveyance structure designed to intercept, divert, and convey surface runoff (generally sheet flow) to prevent erosion and reduce pollution loading.

DREDGE: To clean, deepen, or widen by the removal of sand or mud, especially from the bottom of a body of water.

EASEMENT: A right given by the owner of land to another party for specific limited use of that land. An easement may be acquired by a government through dedication when the purchase of an entire interest in the property may be too expensive or unnecessary.

EMINENT DOMAIN: The legal right of government to acquire or "take" private property for public use or public purpose upon paying just compensation to the owner.

EMISSION FACTOR: The rate at which pollutants are emitted into the atmosphere by one source or a combination of sources.

ENCROACHMENT: The occupancy of project right-of-way by non-project structures or objects of any kind or character; also, activities of other parties within the operating right-of-way.

ENVIRONMENT: The physical conditions which exist within the area which will be affected by a proposed project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historical or aesthetic significance. The area involved shall be the area in which significant effects would occur either directly or indirectly as a result of the project. The "environment" includes both natural and man-made conditions.

ENVIRONMENTAL IMPACT REPORT: A detailed statement prepared under the California Environmental Quality Act (CEQA) describing and analyzing the significant environmental effects of a project and discussing ways to mitigate or avoid the effects.

ENVIRONMENTAL IMPACT STATEMENT: An environmental impact document prepared pursuant to the National Environmental Policy Act (NEPA). NEPA uses the term EIR in the place of the term EIR which is used in CEQA.

ENVIRONMENTAL PROTECTION AGENCY: The federal agency with primary responsibility for the implementation of federal environmental statutes, including the Clean Water Act, Clean Air Act, Safe Drinking Water Act, and the Resource Conservation and Recovery Act. California is included within EPA Region IX, headquartered in San Francisco.

EQUIVALENT NOISE LEVEL (Leq): A single-number representation of the fluctuating sound level in decibels over a specified period of time. It is a sound-energy average of the fluctuating level.

EROSION: The process by which material is removed from the earth's surface (including weathering, dissolution, abrasion, and transportation), most commonly by wind or water. The process can be intensified by clearing, grading, or excavation of the land surface.

EROSION CONTROL: The stabilization of cut and fill slopes and other areas.

FAULT: A fracture in the earth's crust forming a boundary between rock masses that have shifted. An active fault is a fault that has moved recently and which is likely to again. An inactive fault is a fault which shows no evidence of movement in recent geologic time and no potential for movement in the relatively near future.

FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA): The federal agency under which the National Flood Insurance Program is administered.

FINE PARTICULATE MATTER (PM_{10}): PM_{10} causes a greater health risk than larger-sized particles, since these fine particles can be inhaled more easily and irritate the lungs by themselves and in combination with gases.

FLOOD: A general and temporary condition of partial or complete inundation of normally dry land areas from: 1) overflow of inland or tidal waters; 2) the unusual and rapid accumulation or runoff of surface waters from any source; 3) mudslides (i.e., mudflows) which are proximately caused by flood, as previously described, and are akin to a river of liquid and flowing mud on the surface of normally dry land areas, as when earth is carried by a current of water and deposited along the path of the current; 4) the collapse or subsidence of land along the shore of a lake or other body of water as a result of erosion or undermining caused by waves or currents of water exceeding the cyclical levels which result in flood.

FLOOD INSURANCE RATE MAP (FIRM): Official map of a community on which the administrator has delineated both the special hazard areas and the risk premium zones applicable to the community.

FLOODPLAIN: Any land area susceptible to being inundated by flood waters from any source.

FLOODPLAIN MANAGEMENT: The operation of an overall program of corrective and preventive measures for reducing flood damage, including but not limited to, emergency preparedness plans, flood control works, and floodplain management regulations.

FLOOR AREA RATIO: The gross floor area of a building or project divided by the project lot area upon which it is located.

FOOTPRINT (Building): The outline of the ground area covered by a building.

FREEBOARD: An additional amount of height above the Base Flood Elevation (in the case of flood control) used as a factor of safety (e.g., two feet above the Base Flood) in determining the level at which a structure's lowest floor must be elevated or flood-proofed to be in accordance with state or community floodplain management regulations.

GENERAL PLAN: A compendium of city or county policies regarding long-term development, in the form of maps and accompanying text. A General Plan is a legal document required of each local agency by the State of California Government Code Section 65301 and adopted by a city council or board of supervisors.

GLARE: A light source, either reflected or direct, that is annoying or distracting.

GRADING: Alteration of existing slope and shape of the ground surface.

GROSS SQUARE FEET; GROSS FLOOR AREA: The total building area of all floors within the walls of all structures except elevator and other vertical shafts (including stairwells) and elevator equipment areas. Parking structures shall not be considered building area for the purposes of calculating allowable floor area ratios.

GROUNDWATER: The term usually refers to the "saturated" zone in the ground where all the pore space between the soil particles is occupied by water.

GROUNDWATER RECHARGE: The natural process of infiltration and percolation of rainwater from land areas or streams through permeable soils into water-holding rocks that provide underground storage (i.e., aquifers).

GROWTH MANAGEMENT: The use by a community of a wide range of techniques in combination to determine the amount, type, and rate of development desired by the community and to channel

that growth into designated areas. Growth management policies can be implemented through growth rates, zoning, capital improvement programs, public facilities ordinances, urban limit lines, standards for levels of service, and other programs.

GROWTH MANAGEMENT PLAN (GMP): A plan developed by the Southern California Association of Governments (SCAG) that contains demographic projections (i.e., housing units, employment, and population for its six-county region (i.e., Los Angeles, Orange, Riverside, San Bernardino, Ventura, and Riverside counties)). The plan provides recommendations for local governments to better accommodate the growth projected by occur and reduce environmental impacts.

HAZARDOUS WASTE: A waste or combination of wastes that, because of its quantity, concentration, or physical, chemical, or infectious characteristics, may either cause or significantly contribute to an increase in mortality or an increase in serious irreversible illness, or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed. A hazardous waste possesses at least one of four characteristics–ignitability, corrosivity, reactivity, or toxicity–or appears on special EPA or state lists. Hazardous waste is regulated under the federal Resource Conservation and Recovery Act and the California Health and Safety Code.

HERBICIDES: Chemical compounds that are used to control weeds.

HIGH-OCCUPANCY VEHICLE (HOV): A motor vehicle that is carrying at least a minimum specified number of passengers (normally at least two or more, sometimes three or more). It can be a bus, a taxi with passengers, or a car or van used for carpooling.

HOT SPOT: A localized concentration of an air pollutant associated with restricted dispersion conditions, often occurring in such places as street intersections or close to the source of emissions.

HYDRAULICS: The study and technological application of the behavior of fluids.

HYDROCARBONS (HC): These gases represent unburned and wasted fuel. They come from incomplete combustion of gasoline and from evaporation of petroleum fuels.

IMPACT: The effect, influence, or imprint of an activity or the environment. Impacts include: direct or primary effects which are caused by the project and occur at the same time and place; indirect or secondary effects which are caused by the project and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect or secondary effects may include growth-inducing effects and other effects related to induced changes in the pattern of land use, population density, or growth rate and related effects on air and water and other natural systems, including ecosystems.

IMPERVIOUS SURFACE: Ground surface that cannot be penetrated by water. Includes paved and compacted surfaces, as well as those covered by buildings.

INDIRECT IMPACT: Effects caused by an action that are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems.

INDIRECT SOURCE: Any structure or installation which attracts an activity which creates emissions of pollutants. For example, a major employment center, a shopping center, an airport, or a stadium can all be considered indirect sources.

INFILTRATION: The introduction of underground water, such as groundwater, into wastewater collection systems. Infiltration results in increased wastewater flow levels.

INFILTRATION SYSTEM: An infiltration basin designed to capture runoff volume from the water quality design storm and infiltrate it to the soil.

INFLOW: Surface water, such as rainfall runoff, that enters a wastewater collection system through manhole covers and joints or cracks in pipes. Inflow results in increased wastewater flow levels.

INFRASTRUCTURE: Permanent utility installations, including roads, water supply lines, sewage collection pipes, and power and communications lines.

INITIAL STUDY: Under CEQA, a preliminary analysis prepared by the Lead Agency to determine whether an EIR, a Negative Declaration, or Mitigated Negative Declaration must be prepared, or to identify the significant environmental effects to be analyzed in an EIR.

INSTITUTIONAL USE: A non-profit or quasi-public use or institution such as a church, library, public or private school, hospital, or municipally owned or operated building, structure or land used for public purpose.

INTEGRATED WASTE MANAGEMENT BOARD (IWMD): The state agency within Cal EPA responsible for solid waste management (non-hazardous).

INTERSECTION CAPACITY: The maximum number of vehicles that has a reasonable expectation of passing through an intersection in one direction during a given time period under prevailing roadway and traffic conditions.

INTERSECTION CAPACITY UTILIZATION METHOD (ICU): A method of analyzing intersection level of service by calculating a volume-to-capacity (V/C) ratio for each governing "critical" movement during a traffic signal phase. The V/C ratio for each phase is summed with the others at the intersection to produce an overall V/C ratio for the intersection as a whole. The ICU is usually expressed as a percent. The percent represents that portion of the hour required to provide sufficient capacity to accommodate all intersection traffic if all approaches operate at capacity. The V/C ratio represents the percent of intersection capacity used. For example, a V/C ratio of 0.85 indicates that 85 percent of capacity is being used.

INVERSION LAYER: A condition in the atmosphere through which the temperature increases with altitude, holding cooler surface air down along with its pollutants.

JOBS/HOUSING BALANCE; JOBS/HOUSING RATIO: The jobs/housing ratio divides the number of jobs in an area by the number of employed residents. A ratio of 1.0 typically indicates a balance. A ratio greater than 1.0 indicates a net in-commute; less than 1.0 indicates a net out-commute.

LAND USE: The purpose or activity for which a piece of land or its building is designed, arranged, or intended, or for which it is occupied or maintained.

LAND USE PLAN: An adopted map depicting the approximate location of residential, commercial, public, semi-public, and private uses, open space, and road systems with a statistical summary of areas and densities for these land uses.

LANDFILL: An area of land or an excavation in which wastes are placed for permanent disposal, and that is not a land application unit, surface impoundment, injection well, or waste pile.

LAND USE: The purpose or activity for which a piece of land or its buildings is designed, arranged, or intended, or for which it is occupied or maintained.

LEAD AGENCY: The public agency which has the principal responsibility for carrying out or approving a project. The Lead Agency will decide the type of environmental documentation that will be required for the project and will cause the document to be prepared.

LEVEL OF SERVICE (LOS): LOS is the qualitative measure that incorporates the collective factors of speed, travel time, traffic interruption, freedom to maneuver, safety, driving comfort and convenience, and operating costs provided by a highway facility under a particular volume condition. LOS A indicates best/free flow conditions; LOS C represents a zone of stable flow and is considered average operation; LOS D is often used as the design service level for intersection peak period operations, as the cost of proving higher service levels during peak periods can be prohibitive. LOS E represents maximum physical carrying capacity; and LOS F indicates system failure.

LINE SOURCE: A long, narrow source of air pollutant emissions such as a roadway or runway.

LIQUEFACTION: A geologic phenomenon in which surface and near-surface materials (soils, alluvium, etc.) behave like a liquid during seismic shaking, often causing failure of soils to support structures.

LOT: The area shown by a final map, official map, or parcel map recorded with the County Recorder.

MAXIMUM CREDIBLE EARTHQUAKE: The largest Richter magnitude (M) seismic event that appears to be reasonably capable of occurring under the conditions of the presently known geological framework.

MAXIMUM EXTENT PRACTICABLE (MEP): The extent to which storm water management practices are required to be implemented to reduce storm water pollution. All management practices that are effective at reducing storm water pollution are required to be implemented, except when any of the following conditions are met: 1) other effective management practices would achieve greater or substantially the same pollution control benefits; 2) the management practices would not be technically feasible; 3) the cost of management practice implementation would greatly outweigh pollution control benefits; or, 4) implementation of the management practice would compromise other legal or institutional constraints, expectations, and obligations imposed by federal or state statute or case law.

MITIGATION MEASURE: Action taken to reduce or eliminate environmental impacts. Mitigation includes: avoiding the impact altogether by not taking a certain action or parts of an action; minimizing impacts by limiting the degree or magnitude of the action and its implementation; rectifying the impact by repairing, rehabilitating, or restoring the affected environment; reducing or eliminating the impact over time by preservation and maintenance during the life of the action; and compensating for the impact by replacing or providing substitute resources or environments.

MOBILE SOURCES: A source of air pollution that is related to transportation vehicles, such as automobiles or buses.

MODULAR BUILDING: A building that is usually transported to its site on a steel frame or special trailer because it does not have a permanent chassis like a manufactured (mobile) home.

MINISTERIAL: Describes a governmental decision involving little or no personal judgment by the public official as to the wisdom or manner of carrying out the project. The public official merely applies the law to the facts as presented, but uses no special discretion or judgement in reaching a decision. A ministerial decision involves only the use of fixed standards or objective measurements.

NATURAL GRADE: The grade unaffected by construction techniques such as fill, landscaping, or berming.

NITROGEN OXIDES (NO_X): Chemical compounds containing nitrogen and oxygen; reacts with volatile organic compounds, in the presence of heat and sunlight to form ozone. It is also a major precursor to acid rain.

NITROGEN DIOXIDE (NO_2): A secondary contaminant formed through a reaction between nitric oxide (NO) and atmospheric oxygen, irritates the lungs at high concentrations and contributes to ozone formation.

NOISE: Annoying, harmful, or unwanted sound.

NOISE BARRIER: A wall or other solid structure constructed with the objective of attenuating (i.e., reducing) noise behind the barrier; commonly, a noise wall along a roadway.

NON-POINT SOURCE: Air pollution sources that are not at individual, stationary locations (i.e., mobile source or area source).

NON-POINT SOURCE DISCHARGE: Discharge from a diffuse pollution source (i.e., without a single point of origin or not introduced into a receiving stream from a specific outlet).

NON-STORM WATER DISCHARGE: Any discharge to a storm drain system or receiving water that is not composed entirely of storm water.

NOTICE OF COMPLETION: A brief notice filed with the Office of Planning and Research (OPR) by a Lead Agency as soon as it has completed a draft EIR, and is prepared to send out copies for review.

NOTICE OF DETERMINATION: A brief notice to be filed by a public agency after it approves or determines to carry out a project which is subject to the requirements of CEQA.

NOTICE OF PREPARATION: A brief notice sent by a Lead Agency to notify responsible agencies, trustee agencies, and involved federal agencies that the Lead Agency plans to prepare an EIR for the project. The purpose of the notice is to solicit guidance from those agencies as to the scope and content of the environmental information to be included in the EIR.

NPDES (National Pollutant Discharge Elimination System): NPDES is the national program for administering and regulating discharges to waterways according to the Clean Water Act (CWA).

In California, the State Water Resources Control Board and the nine Regional Water Quality Control Boards are responsible for administering the NPDES storm water program.

OPEN SPACE: Land that has been left in its natural state and has not been developed with primary or accessory structures.

OZONE (O_3): A compound consisting of three oxygen atoms, that is the primary constituent of smog. It is formed through chemical reactions in the atmosphere involving volatile organic compounds, nitrogen oxides, and sunlight. Ozone can irritate the lungs as well as damage trees, crops, and materials. There is a natural layer of ozone in the upper atmosphere which shields the earth from harmful ultraviolet radiation.

PM_{10}: (See Fine Particulate Matter).

PASSENGER TRIPS: Relate to the volume of passenger service provided by public transportation, such as buses, trains, and aircraft.

PEAK HOUR OR PEAK PERIOD: Traffic volumes are not constant throughout the day. Peak hours are the times during which volumes are significantly higher than others. Most areas have two peak hours–morning while people travel to work and late afternoon or evening as they leave work and return home. In some cases as third, though usually smaller, peak occurs during the middle of the day. As development intensifies and traffic volumes increase, the durations of the peaks are extended until eventually the peak hour becomes a peak period which may last for two or three hours. Peak period volumes are important as these are the times of day when the most severe congestion occurs, and intersections must be designed to accommodate these volumes if smooth traffic flow is to be maintained. The a.m. peak period typically occurs between 7 a.m. and 9 a.m., and the p.m. peak period typically occurs between 3 p.m. and 6 p.m.

PERCENT SLOPE: A common way of expressing the steepness of the slope of terrain, which is derived by dividing the change in elevation by the horizontal distance traversed. An increase of 20 feet elevation over a 100-foot distance is a 20 percent slope.

PERCOLATION: Downward movement of groundwater through soil and bedrock.

PERMEABILITY (soil): That quality of the soil that enables it to transmit water or air.

PERSON TRIPS: Indicates the number of people, and are of interest in situations where there may be opportunities to accomplish more one-person trips with less vehicle trips–such as a carpool.

PESTICIDE: Any material used to control pests. Includes insecticides, herbicides, and rodenticides.

PHOTOCHEMICAL SMOG: The atmospheric condition that results when reactive organic gases and nitrogen oxides emitted into the atmosphere react in the presence of sunlight to form other pollutants, such as oxidants.

POINT SOURCE: A pollutant source that is fixed in location and that releases pollutants through a relatively small area, such as a air emissions stack or a pipeline outfall.

PRECURSOR: A chemical compound that leads to the formation of a pollutant. Reactive organic gases and nitrogen oxides are precursors of photochemical oxidants.

PROJECT LOT AREA. The total land area of a project after all required dedications or reservations for public improvements, including, but not limited to, streets, parks, schools, flood control channels, etc.

PUMP STATION: A complete pumping installation, including a storage box, pump or pumps, standby pumps, connecting pipes, electrical equipment, pumphouse, and outlet chamber.

REACTIVE ORGANIC GASES (ROG): Classes of hydrocarbons (olefins, substituted aromatics, and aldehydes) that are likely to react with ozone and nitrogen dioxide in the atmosphere to form photochemical smog.

RECYCLING: The process of collecting, sorting, cleansing, treating, and reconstituting materials that would otherwise become solid waste, and returning them to the economic mainstream in the form of raw material for new, reused, or reconstituted products which meet the quality standards necessary to be used in the marketplace.

RESIDENTIAL LAND USE: Any parcel or area of land devoted to housing and ancillary uses.

RESPONSIBLE AGENCY: A public agency which proposes to carry out or approve a project, for which a Lead Agency is preparing or has prepared an EIR or Negative Declaration. For the purposes of CEQA, the term "Responsible Agency" includes all public agencies other than the Lead Agency which have discretionary approval power over the project.

RICHTER SCALE: A logarithmic scale developed in 1935/36 by Dr. Charles F. Richter and Dr. Beno Gutenberg to measure earthquake magnitude by the amount of energy released, as opposed to earthquake intensity as determined by local effects on people, structures, and earth materials.

RISK ASSESSMENT: The qualitative and quantitative evaluation of the risk posed to human health and/or the environment by the actual or potential presence and/or use of specific pollutants.

SANITARY SEWER: Underground pipes that carry off only domestic or industrial waste, not storm water.

SEDIMENT: Organic or inorganic material that is carried by or is suspended in water and that settles out to form deposits in the storm drain system or receiving waters.

SEDIMENTATION: Process by which material suspended in water is deposited in a body of water.

SENSITIVE RECEPTORS: Refers to sensitive populations, such as children, athletes, elderly, and sick, that are more susceptible to the effects of air pollution than the population at large.

SIGNIFICANT IMPACT: As defined by CEQA, a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance. An economic or social change by itself shall not be considered a significant effect on the environment. A social or economic change related to a physical change may be considered in determining whether the physical change is significant. The lead agency will determine whether a project may have a significant effect on the environment based on substantial evidence in light of the whole record.

SINGLE-FAMILY HOUSING: A conventionally built house consisting of a single dwelling unit occupied by one household.

SLOPE: Any area with a grade of 1:2 (vertical to horizontal) or more.

SOLID WASTE: Any non-hazardous garbage, refuse or sludge, which is primarily solid but may also include portions of liquid, semi-solid or contained gaseous material resulting from residential, industrial, commercial, agricultural, mining operations, and community activities.

SOUTH COAST AIR BASIN (SCAB): A geographic area defined by the San Jacinto Mountains to the east, the San Bernardino Mountains to the north, and the Pacific Ocean to the west and south. The SCAB is under the jurisdiction of the South Coast Air Quality Management District (SCAQMD).

STATE IMPLEMENTATION PLAN (SIP): Documents prepared by states, and submitted to EPA for approval, which identifies actions and programs to be undertaken by the State and its subdivisions to implement their responsibilities under the Clean Air Act.

STATE TRANSPORTATION IMPROVEMENT PLAN (STIP): A capital improvement program of transportation projects funded with revenues from the State Highway Account and other sources.

STATIONARY SOURCE: A source of air pollution that is not mobile, such as a heating plant or an exhaust stack from a laboratory.

STORM DRAIN INLET: A drainage structure that collects surface runoff and conveys it to an underground storm drain system.

STORM WATER: Storm water means storm water runoff, snow melt runoff, and surface runoff and drainage.

STORM WATER DRAINAGE SYSTEM: Streets, gutters, inlets, conduits, natural or artificial drains, channels and watercourses, or other facilities that are owned, operated, maintained, and used for the purpose of collecting, storing, transporting, or disposing of storm water.

SULFUR DIOXIDE (SO_2): A colorless, extremely irritating gas or liquid. Sulfur dioxide enters the atmosphere as a pollutant mainly as a result of burning high sulfur-content fuel oils and coal, and from chemical processes occurring at chemical plants and refineries.

SUMP: In drainage, any low area that does not permit the escape of water by gravity flow.

SURFACE WATER: Water in lakes, streams or rivers, as distinct from subsurface groundwater.

SURFACE WATER RUNOFF: Precipitation, snow melt, or irrigation water in excess of what can infiltrate the soil surface and be stored in small surface depressions.

TEMPORARY CONSTRUCTION SITE BMPS: BMPs that are only temporarily required to address a short-term storm water contamination threat.

THERM: The amount of energy necessary to raise 100,000 pounds of water one degree Fahrenheit.

TOPOGRAPHY: The physical shape of the ground surface.

TRANSPORTATION CONTROL MEASURES (TCMs): Steps taken by a locality to adjust traffic patterns (e.g., bus lanes, right turn on red) or reduce vehicle use (ridesharing, high-occupancy vehicle lanes) to reduce vehicular emissions of air pollutants.

TRIP ASSIGNMENT: The allocation of vehicle trips to available routes between locations in a traffic study area.

TRIP: The trip is the basic measurement used to describe transportation volumes. A trip consists of one unit traveling from one point to another. The unit may be vehicles, persons, or passengers.

TRIP END: The total number of trips entering and leaving a location. Every trip has two ends–an origin and a destination. Conversely, every origin or destination generates two trip ends–one arriving and one leaving. For example, traveling from home to work and back involves two trips–home to work and work to home, and four trip ends–home as the origin and home as the destination. Quantification of trip ends is useful in describing the contribution of specific land uses to traffic volumes.

TRIP GENERATION: The number of vehicle trip ends associated with (i.e., produced by) a particular land use or traffic study site. A trip end is defined as a single vehicle movement. Roundtrips consist of two trip ends.

TRUSTEE AGENCY: A state agency having jurisdiction by law over natural resources affected by a project which are held in trust for the people of the state of California. Trustee agencies include the California Department of Fish and Game, State Lands Commission, and the State Department of Parks and Recreation.

VEHICLE MILES TRAVELED (VMT): A measure of both the volume and extent of motor vehicle operation; the total number of vehicle miles traveled within a specified geographical area (whether the entire country or a smaller area) over a given period of time.

VEHICLES PER DAY (VPD): Similar to ADT (average daily traffic), but more typically applied to trip generation (i.e., the amount of traffic generated by a given amount of land use).

VEHICLES PER HOUR (VPH): Used for roadway volumes (counts or forecasts) and trip generation estimates. Measures the number of vehicles in a one-hour period, typically the a.m. or p.m. peak hour.

VEHICLE TRIP: Vehicle trip describes the number of vehicles traveling from point to point.

VEHICLE TRIP ENDS: A single or one-direction vehicle movement with either the origin or destination inside a traffic study site.

VIEW POINT: A location from which a site is visible.

VIEWSHED: The geographic area from which a site is visible, a collection of viewpoints.

VOLUME-TO-CAPACITY RATIO (V/C): In reference to public services or transportation, ratio of peak hour use to capacity. In transportation, the percentage of capacity used by existing or projected traffic on a segment of an arterial or intersection.

WASTE STREAM: Any and all waste that has been generated and is being processed toward permanent disposition.

WATERSHED: The drainage basin contributing water, organic matter, dissolved nutrients, and sediments to a stream, estuary, or lake.

ZONING: The division of a municipality into districts for the purpose of regulating land use, types of buildings, required yards and setbacks, parking, and other prerequisites to development. Zones generally show on a map and the text of the zoning ordinance specifies requirements for each zoning category.