

UC Irvine Health

Medical Center

PHYSICAL DESIGN FRAMEWORK

NOVEMBER 2014

Medical Center

PHYSICAL DESIGN FRAMEWORK

1

JUNE 2014



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Planning Administration

Leon Roach, Director, Capital Design and Construction Paul Da Veiga, Senior Project Manager David Donovan, Project Delivery Manager Brandon Barbosa, Associate Construction Project Manager

Campus Planning

Richard Demerjian, Director, Environmental Planning and Sustainability

ZGF Architects LLP

Photography Hedrich Blessing ZGF Architects LLP



1 Introduction

The University of California, Irvine Medical Center (UCIMC) has a rich history in Orange County, beginning with the founding of the Pacific Sanitarium and School of Osteopathic Medicine, the original predecessor to today's School of Medicine, in 1896. Guided development of the UCIMC campus began after the University acquired the Orange County Medical Center from the County of Orange in 1976. The 1976 Long Range Redevelopment Master Plan prepared by Pereira and Associates, established fundamental planning concepts for developing an academic medical center to provide an environment for excellent patient care. In 2003, the Regents adopted an updated Long Range Development Plan (LRDP) to guide physical development of the UCIMC campus through 2023. The LRDP was based on the 1976 Redevelopment Plan, as well as other planning and feasibility studies.

In 2013, UCIMC commissioned ZGF Architects LLP to develop a Physical Design Framework (PDF) in conjunction with the 2013 Facility Master Planning Study. This Framework is intended to describe UCIMC's vision for implementing planning concepts set forth in the 2003 LRDP. Specific guidelines provide policy direction for site design and planning, architecture, landscape, circulation, exterior lighting, furnishings, signage, and utility infrastructure. It describes the planning principles and physical design guidelines that should be applied to new campus development, facility renovation, and ongoing management and operation of campus facilities and grounds to ensure consistency with UCIMC's established form and image. The Framework will be utilized at all stages of land planning, project development, and facilities management, including project programming and budgeting, site and land use allocation studies, and project design.

This document is organized into five sections. Section 1 provides the background to the project. Section 2 describes the campus context, including the physical setting of UCIMC, planning history, projected growth, and key design challenges and opportunities. Section 3 summarizes the fundamental values and principles that guide development of the campus. Specific planning, architectural, and landscape guidelines that reflect these core values are provided in Section 4. Finally, Section 5 describes the physical planning process that ensures that the Framework is embodied in all new projects developed at UCIMC.



EXHIBIT 1.2 Portfolio of Planning Documents

The Framework encompasses physical development on the Orange campus, where UCIMC resides. Guidelines for planning and design at the Irvine campus are covered in a separate document.

RELATIONSHIP TO OTHER DOCUMENTS

This Framework takes into account the content from a portfolio of planning documents to guide future physical development at UCIMC and promote proper stewardship of the campus environment. All of these documents share a common goal of ensuring that campus planning and design principles are manifested in the capital projects implemented at the UCIMC and in ongoing management and operations. A table of documents is shown in Exhibit 1.2.

2003 UCIMC LONG RANGE DEVELOPMENT PLAN (LRDP)

The 2003 LRDP provides a framework for future development to achieve UCIMC's academic, research, and patient care goals, while responding to the needs of the community and remaining sensitive to the surrounding environment. This Plan was built on the foundations established in the 1976 Long Range Redevelopment Master Plan. The 2003 LRDP was accompanied by an Environmental Impact Report analyzing the environmental effects of the LRDP and establishing mitigation measures and monitoring.

1976 UCIMC LONG RANGE REDEVELOPMENT MASTER PLAN

The 1976 Long Range Redevelopment Master Plan was developed by Pereira and Associates. This plan served as the operational LRDP until the 2003 LRDP was adopted. Pereira and Associates was also the master planner for the development of the University's main Irvine campus.

2014 CAPITAL FINANCIAL PLAN

The 10-year Capital Financial Plan outlines the specific capital needs of the UCIMC campus and describes the associated financing strategies designed to meet its capital program objectives. The Capital Financial Plan describes the capital program that supports UCIMC's academic and strategic priorities and demonstrates that the campus has a reasonable and responsible plan for executing the program.

2013 UCIMC FACILITY MASTER PLANNING STUDY

The 2013 Facility Master Planning Study is a 10-year road map that will assist UCIMC in making facility expansion decisions on both the Orange and Irvine campuses. The Study takes an orderly approach to realizing UCIMC's strategic goals and accomplishing its mission of advancing the knowledge and practice of medicine, while meeting the ever-changing demands of healthcare delivery in the United States. The Study establishes guiding principles for future development, as well as future model of care concepts. Douglas Hospital is relatively new; therefore, efforts were focused on ambulatory services, along with key representative services. The Study also identifies additional campus improvement opportunities that should be explored in further detail to improve and enhance the patient and staff experience.



1 INTRODUCTION



EXHIBIT 1.4 Aerial View of the Medical Center, 2013

1 INTRODUCTION

Clinical Laboratory Replacement Building

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2 Campus Context

UCIMC is the main campus where patients can access UC Irvine Health, which comprises the clinical, medical education and research enterprises of the University of California, Irvine. UCIMC is a 411-bed acute care hospital providing tertiary and quaternary care, ambulatory and specialty medical clinics, behavioral health, and rehabilitation. It is the primary clinical teaching location for UC Irvine School of Medicine.

This section describes the macro-level parameters affecting the physical development of UCIMC, including the physical setting of the Orange campus, its planning history, projected growth, and key design challenges and opportunities.

PHYSICAL SETTING OF CAMPUS

UCIMC is located in the western portion of the City of Orange, California, about 14 miles from the main UC Irvine campus. It is bordered by the Golden State (I-5) freeway on the east; The City Drive, a major vehicular artery, on the west; Chapman Drive on the north; and Dawn Way on the south. The City's General Plan designates the campus and the area south of it as Public Institution zone, and the remaining area immediately adjacent as Urban Mixed-Use zone. The County Courts and Juvenile Correctional Facility reside immediately south of the campus. The area to the west consists of a large shopping and entertainment center, a high-rise hotel, several office buildings, and a future 300unit residential complex. This area also includes UCIMC's 200 Manchester building, which houses administrative and



EXHIBIT 2.2 Aerial Panoramic View of the Orange Campus, 2013

UCIMC at a Glance FY 2012

CAMPUS •	33 ACRES
•	33 BUILDINGS
•	411 INPATIENT BEDS
•	19 INPATIENT OPERATING
	ROOMS, 4 OUTPATIENT
	OPERATING ROOMS
PATIENTS •	561,021 EMERGENCY ROOM,
(PER YEAR)	HOSPITAL AND PHYSICIAN
	CLINIC VISITS
•	19,243 PATIENT ADMISSIONS
•	13,332 SURGERIES
•	3,600 TRAUMA PATIENTS
•	4,800 EMPLOYEES
•	450 PRIMARY AND
	SPECIALTY CARE PHYSICIANS

UCIMC is the only academic medical center and Level 1 trauma center in Orange County.

some outpatient services, and The City Tower, of which several floors are leased by UCIMC for administrative use. Located further west is the Christ Cathedral, a major landmark facility for the community. North of the site is designated as public institutional use, and includes the Triangle lot across Chapman Drive, which is currently used for parking, and the Orangewood parcel, northeast of the I-5, both of which are owned by UCIMC.

CLIMATE

The Orange campus experiences generally dry conditions with mild winters. Average temperature ranges from a winter low of about 50° to a summer high of about 82°. Average rainfall in the region is about 13 inches. Prevailing winds blow in a northeast direction.

TOPOGRAPHY

The campus is situated on the Santa Ana River flood plain next to the Santa Ana River channel. The site is relatively flat with elevations ranging from 129 to 135 feet above mean sea level. The slope direction is generally from north to south.

SEISMICITY

Southern California is a seismically active region and UCIMC is in proximity of several surface faults that as of 2014 are presently identified as active or potentially active. Regional faults include:

Norwalk	6 miles away		
Whittier	10 miles away		
Newport-Inglewood	11 miles away		
San Jacinto	38 miles away		
San Andreas	41 miles away		

GEOLOGY

The site is underlain by soils in the Metz series, consisting primarily of sandy soils. The Metz series consists of somewhat excessively drained soils typically found on flood plains and alluvial fans. The soil profile is generally one to six feet of fill soils (silty-sands) overlying inter-bedded native and silty sands. According to a 1987 soils report, the groundwater level in this area is at a depth of 80 feet or more below ground surface.







EXHIBIT 2.4 Satellite View of the Medical Center, 1976 EXHIBIT 2.5 Historical Photos of UCIMC EXHIBIT 2.6 UCIMC, 1982

VEGETATION

UCIMC's use of landscape elements has been an important factor in the development of a welcoming, hospitable healthcare setting within an urban environment. The western half of the site has a well-developed mature landscape framework. Distinct landscape palettes have been selected to distinguish entrances, perimeter edges, streets, pedestrian paths, and open spaces and gardens. Throughout the site, a mix of trees, shrubs, ground covers, grasses, and flowers have been arranged in formal and informal designs to emphasize and distinguish these elements of the landscape structure, reinforcing a unique pedestrian oriented atmosphere. A range of scales of plant materials exist with a majority of the taller trees located along The City Drive and Medical Center Drive. The recent addition of Douglas Hospital was complimented by a large grass plaza with a healing garden and water feature that provides an open area on the east side of campus for patients, family, and staff. Recent construction has included careful consideration for outdoor furnishings, lighting, and signs.

PLANNING HISTORY OF CAMPUS

An appreciation of UCIMC's unique planning history is important in understanding its mission, physical development, priorities, and plans for the future. This section highlights key milestones in the establishment of the School of Medicine and UCIMC.

SITE SELECTION

The Orange County Hospital opened on the site of the current UCIMC in 1914, encompassing a 33-acre site in the western section of the City of Orange, California, 14 miles from the UC Irvine campus. In 1968, after acquiring the California College of Medicine, UC Irvine entered into an affiliation with the County to operate the Orange County Medical Center. In 1976, the University purchased the Medical Center from the County, and created UCIMC.

FIRST LONG RANGE DEVELOPMENT PLAN

In 1976, Pereira and Associates prepared a Long Range Redevelopment Master Plan, which served as the guide to future planning until 2003. Exhibit 2.7 shows the planning approach developed in this Master Plan. Key elements of the plan included:

- 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 in fewer buildings; and
- 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 plan proposed 800,000 gross square feet (GSF) to be developed in six phases. This represented a net increase of 283,810 GSF over that which existed at the time of purchase in 1976. In the nearly four decades since these concepts were first advanced, development of the campus and its surrounding community has been generally consistent with the founding plan.



EXHIBIT 2.7 1976 Long Range Redevelopment Master Plan

SUBSEQUENT LONG RANGE DEVELOPMENT PLAN

In 2003, Lee, Burkhart, Liu, Inc, was retained by UCIMC to develop an updated LRDP to guide the physical development on the Orange campus through the year 2023, taking into account changes in growth, demographics, physical developments, and changing healthcare trends. A driving force behind this was the UC Irvine Health Sciences Strategic Plan, developed in February 1999. This plan continues the planning framework established in the founding 1976 Long Range Redevelopment Master Plan while being responsive to changing needs and opportunities. Exhibit 2.8 shows the

framework planning approach developed in the 2003 LRDP. Key characteristics of the 2003 LRDP are described in the following section.



PROJECTED CAMPUS GROWTH

The LRDP contains a framework of planning concepts and land use plan to accommodate an anticipated level of patient and staff growth and physical development. As a long-range planning document, the 2003 LRDP identifies a horizon year of 2023.

According to the United States Census Bureau, the population in Orange County in 2012 was estimated at 3,090,132, with continued growth projected to 2035, per the Department of Transportation. Orange County is the third largest county in California. The four major cities in UCIMC's primary service area are Orange, Anaheim, Garden Grove and Santa Ana. According to Sg2's facility forecast, which was prepared in conjunction with the 2013 Facility Master Planning Study, there will be a 21% increase in outpatient volumes by 2022, based on several impact factors like population, economy, epidemiology, innovation and technology, policy, and systems of CARE. Sg2 also projects very little or no growth in inpatient volumes.

The ongoing implementation of the Affordable Care Act will increase access to care for millions of Americans. Those with pre-existing medical conditions will no longer be turned down for coverage. The change in incentives and payment methods for healthcare providers means there will be a shift toward outpatient and preventative care, which healthcare providers must be equipped to provide on their campuses and in community locations.

The LRDP forecasts the need for approximately 1.9 million square feet of facility space due to projected volumes in Inpatient Care, Ambulatory Care, Academic/ Research functions, and Administrative/Support functions. This expected growth includes factors such as city and county influences, marketplace influences, UCIMC Health Sciences Strategic Plan initiatives, changes in healthcare delivery models, code requirements, and changes in consumer demands.

Many of the existing facilities on campus are seismically and mechanically deficient and are beyond their useful lives. Consequently, the LRDP plans for more than 1.5 million square feet of new construction over the 20 year planning horizon.

DESIGN CHALLENGES AND OPPORTUNITIES

The 2003 LRDP provides a strong vision for the zoning of the Orange campus. 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 sector, south sector, and east sector. As shown in Exhibit 2.9, permissible uses have been identified for each zone with allowable intensities. This general zoning remains as the framework upon which current and future expansion will occur. Exhibit 2.10 illustrates existing land uses as of 2013.

The key planning and design challenges for the UCIMC are to:

- Establish an architectural context for the campus that considers recently constructed buildings, those with significant remaining useful service time, and future construction;
- Effectively use available land and new construction to consolidate existing operations and allow room for future growth; and
- Provide flexibility in the built environment to respond to changing healthcare delivery needs while focusing on a patient-first experience.

Though UCIMC is not unified by a single, controlled architectural style, future development should be designed in a way that is contextually sensitive, promotes flexibility, and creates clear access for its users. With the addition of the new Douglas Hospital and Clinical Laboratory Replacement Building, a consistent design vocabulary has taken shape, derived from color, materials, sensitivity to climate factors, building scale and siting relationships, outdoor public spaces, and landscape themes. This Framework document addresses the opportunities presented by these elements. The need for large parking structures on site to provide convenient access for patients and staff has been addressed in the LRDP.

Landscape guidelines are significant in establishing an identity for the Orange campus, as well as facilitating the health and well-being of its occupants. A hierarchy of vegetation shall be used to delineate major vehicular paths from smaller-scale pedestrian paths. Open space shall be utilized to provide areas of relief from hard surfaces and the stress related to requiring medical care. Principles of sustainability will be considered in the selection of hardscape and landscape.

Exhibit 2.12 describes growth on the Orange campus accommodated in the 2003 LRDP.



EXHIBIT 2.9 2003 LRDP Future Land Use Plan



EXHIBIT 2.10 Existing Land Uses Diagram, 2013







EXHIBIT 2.11 Campus Photos

- 1 Douglas Hospital from Chapman Drive
- 2 Clinical Laboratory Replacement Building from Medical Center Drive
- 3 Healing Garden at Douglas Hospital Entrance

UCIMC Development Accommodated in the 2003 LRDP

FACILITY TYPE		ACTUAL (2003)	ACTUAL (2014)	2003 LRDP (2023 PLANNING HORIZON)	POTENTIAL GROWTH ACCOMMODATED IN THE LRDP
INPATIENT		374,695 GSF	660,290 GSF	955,277 GSF	294,987 GSF
OUTPATIENT		167,633 GSF	196,876 GSF	380,837 GSF	183,961 GSF
ACADEMIC / RESEARCH		264,203 GSF	90,973 GSF	405,073 GSF	314,100 GSF
ADMINISTRATION / SUPPO	ORT	103,833 GSF	250,924 GSF	160,862 GSF	(90,062 GSF)
TOTAL		910,364 GSF	1,199,063 GSF	1,902,049 GSF	702,986 GSF
PARKING SPACES	ON CAMPUS	1,590	1,678 ¹	4,200	3,038
	OFF CAMPUS	875	2,920	0	0 ²

¹ Includes 518 spaces in the Triangle Lot adjacent to campus. 132 spaces dedicated to valet parking.

² Efforts should be made to bring all parking on-site and eliminate the need for off-site parking.

EXHIBIT 2.12 Existing Land Uses, 2013

3 Planning and Design Principles

Development of UCIMC has proceeded in a manner generally consistent with the 2003 LRDP. This stability can be attributed to the enduring set of principles established by UCIMC. These core values – described in the 2003 LRDP and most recently in the 2013 Facility Master Planning Study – embody the aspirations of UCIMC and provide the foundation for the present Framework.

The vision for UCIMC is "to be among the best (top 20) academic health centers in the nation in research, medical education, and excellence in patient care." It is important to provide a campus that provides a collaborative, safe, and welcoming physical environment to support this vision.

2003 LRDP PLANNING CONCEPTS FOR ORANGE CAMPUS

The following are key design elements, outlined in the 2003 LRDP and updated in this section, that will help establish a physical planning framework to guide development and design to create a physical environment representing UCIMC as a leading academic medical center.

1. Campus Unification

The campus currently comprises a disjointed collection of buildings with various architectural expressions that have little relationship to one another. However, the recent development of the Douglas Hospital, the Clinical Laboratory Replacement Building, and the future H.H. Chao Comprehensive Digestive Disease Center expansion project, have helped to develop a cohesive language and density on the campus.

Attention shall be paid to the vehicular, pedestrian, and service circulation paths to enhance accessibility across the campus. In addition, the following planning elements shall be implemented to further unify the campus:

- Consistent architectural language (building forms, mass, and imagery)
- Common palette of materials, colors, and finishes (for buildings, hardscape, etc.)
- Consistent landscape program

2. Design for Health and Healing

Changes in the healthcare industry have dramatically transformed the physical character of medical centers. The Affordable Care Act requires that healthcare become increasingly consumer-oriented with a focus on prevention and wellness and creation of healing environments. Design must be sensitive to the physical condition and psychological state of patients, families, and care providers. Design elements that have been shown to have a positive effect on health and healing include:

- Natural light and views with connection to outdoors
- Comfortable, accessible, well-signed walking paths
- Places for rest and reflection connecting gardens / open spaces
- Colors that universally tend to calm and soothe
- Welcoming and comforting materials and finishes
- Control of sound and noise
- Privacy, independence, and control of one's environment
- Access to wellness and prevention
- Separation of patient care areas from public areas

3. The New Douglas Hospital and Clinical Laboratory Replacement Building

Douglas Hospital blends the healing, teaching, and research missions of UC Irvine Health to provide state-of-the-art care in a patient-focused setting to better serve the community.

The following five guiding principles were adopted to be addressed at all levels of scale throughout the development of the hospital:

- Create a patient-focused healing environment.
- Integrate patient care, teaching, and research.
- Design exceptional specialty care facilities that are second to none.
- Incorporate advanced technology.
- Establish an architectural landmark for Orange County.

4. Design for the Academic Medical Center

The physical environment of the campus can be enhanced to reflect the academic character through the use of the following design elements:

- Campus unification
- Timeless architecture
- Formal building relationships
- Clear building and site order
- Hierarchy of buildings and space
- Scale and proportion
- Open space (See Exhibit 3.4)
- Courts, plazas, gardens, and other landscape elements
- Pedestrian pathways, lighting, and furnishings
- Integration of research and clinical care

5. Timeless Architecture

Design that is intended to be an icon in the community for decades shall not be composed of architectural features that are trendy and easily identified with whatever is currently popular. In its best manifestations, architecture reflects the culture and function of an organization, and embodies deep-seated values and aspirations.

Architecture that stands the test of time tends to appropriately respond to the following:

- Universal proportions and rhythm
- Scaled to its occupants and surroundings
- A sense of time and place, providing identity through context of community and culture
- Permanence and tradition
- Flexible buildings that can adapt to ever-changing advances in technology

6. Landscape Framework

Successful campus planning, especially in an urban environment, is greatly influenced by the treatment of landscape elements. Outlined below are key design principles that shall be used as a basis for decisions regarding future landscape development at UCIMC.

- Promote a healing environment by emphasizing landscape elements.
- Develop more usable open space. (See Exhibit 3.4).
- Use hierarchy and scale to establish order and improve site organization.
- Create a visually unified campus by using a common palette of landscape elements.
- Enhance UCIMC's image and identity.

7. Sustainability

The University of California Sustainable Practices Policy establishes goals in several areas of sustainable practices: green building, clean energy, transportation, climate protection, sustainable operations, waste reduction and recycling, environmentally preferable purchasing, water conservation, and sustainable food service. The policy states that the UC is committed to responsible stewardship of resources and to demonstrating leadership in sustainable business practices. These goals shall be embraced in all new building and renovation projects on the UCIMC campus.

2013 FACILITY MASTER PLANNING STUDY: GUIDING PRINCIPLES

The 2013 Facility Master Planning Study established a broad set of principles to guide UCIMC through the many process changes required to implement goals and objectives. These conceptual principles are intended to supplement the Physical Design Framework, and should be considered and adopted for each new project at UCIMC.

- 1. Create a patient-centered experience.
- 2. Ensure a unique academic medical center model of care that is flexible and adds value to the patient experience.
- 3. Make the right thing to do, the easiest thing to do.
- 4. Build smart: Be a good steward of our resources.
- 5. Enhance the staff experience.
- 6. Utilize technology to improve integrated care delivery and achieve 85% utilization across all services.



EXHIBIT 3.1 UCIMC Physician EXHIBIT 3.2 Guiding Principles Board





EXHIBIT 3.3 Existing Open Space Diagram





FUNDAMENTAL ORGANIZING CONCEPTS

These guiding principles serve to organize the Orange campus. They contribute to the creation of a cohesive campus and bring clarity to UCIMC's identity. These organizing concepts originate from the 1976 Long Range Redevelopment Master Plan and were significantly updated in the 2003 LRDP to respond to developments on the campus.

The LRDP divides the Orange campus into three planning zones: the north sector, south sector, and east sector. The north and south sectors are divided by Medical Center Drive, while the east sector is generally east of Douglas Hospital and the H.H. Chao Comprehensive Digestive Disease Center. Permitted uses and land use intensities are identified for each sector. Aggregate development within the three planning zones will not exceed the allowable intensities and height restrictions described in Figure 16 of the 2003 LRDP. Service uses and parking as described in the 2003 LRDP program will be distributed throughout the three sectors to support these uses.

FUNCTIONAL USE CATEGORIES

- **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 / RESEARCH: Includes all academic functions, such as academic offices, teaching / instruction, research laboratories, classrooms, and libraries.
- **ADMINISTRATIVE**: Includes general administrative uses, medical office, and general office space.
- **SERVICE**: Includes service support uses such as central plant, electrical facilities, linen, materials management, and waste management.
- **PARKING**: Includes on-site surface parking, parking structures, and other infrastructure to support site parking and transportation.



EXHIBIT 3.7 Existing Circulation Diagram, 2013

PERMISSIBLE USES

Identifying permissible uses for each zone provides UCIMC the flexibility to situate facilities in the appropriate location on campus as functional requirements and service delivery models demand.

North Sector

- Inpatient Care
- Ambulatory Care shared inpatient / outpatient operations
- Instruction requiring clinical interface
- Research clinical research
- Administrative requiring clinical interface
- Service requiring inpatient interface
- Parking

South Sector

- Ambulatory Care
- Instruction requiring clinical interface
- Research clinical research only
- Administrative requiring clinical interface
- Service
- Parking

East Sector

- Instruction / Research
- Administrative
- Service
- Parking

CIRCULATION LINKAGES

It is critical to maintain clear means of access and circulation on the campus, while being sensitive to the separation of patient, staff, service, and emergency access. Exhibit 3.7 shows existing circulation paths on the Orange campus. Clear and safe connectivity between all buildings on campus is critical for efficient operations and the patient experience. Clear delineation of pathways can be achieved by landscaping, use of hardscape and softscape, and signage.

- **PEDESTRIAN CIRCULATION**: The integration and connectivity of services spread across campus, from inpatient and outpatient care to laboratories, research, and administrative functions, is critical to providing excellent patient care. Thus, providing safe pathways with clear lines of sight and appropriate wayfinding for staff and patients to travel is imperative. Providing patients the least amount of travel distance from drop-off zones and parking structures is imperative.
- **BICYCLE CIRCULATION**: New buildings shall provide storage or racks for bicycles to encourage alternate means of transportation and commuting.
- VEHICULAR SYSTEM: Primary access onto the site is from The City Drive to Medical Center Drive, which runs east / west and includes a large loop road south of Douglas Hospital. This provides immediate access to all patient care facilities. Dawn Way will continue to be used as a secondary access point for staff and patients accessing parking. Chapman Avenue will continue to be used for limited service vehicle access for materials management functions, as well as emergency vehicle access. Currently, Service Way is used by staff and service trucks, causing congestion and dangerous turns around blind corners. Efforts shall be made to minimize this cross-circulation for safety. Secondary vehicular roads developed to connect parking structures to Medical Center Drive and Dawn Way shall be carefully planned to not interfere with pedestrian circulation.
- PUBLIC TRANSPORTATION: Public bus service to UCIMC is currently provided by the Orange County Transportation Authority (OCTA). A multi-line bus stop is conveniently located on The City Drive, directly north of Dawn Way. A shuttle bus to and from the Irvine campus is available for faculty, staff, and students. A shuttle bus to and from off-site parking is also available for staff, though the long-term intent is to bring the maximum amount of parking onto campus allowed by the 2003 LRDP. A new transportation hub, the Anaheim Regional Transportation Intermodal Center, is currently being constructed at the intersection of the 57 Orange Freeway and Katella Avenue, about 1.8 miles from campus. This new hub will feature linkages to Amtrak, Metrolink, local and international buses, shuttles, and Anaheim Rapid Connection, and will provide much needed mass transit access to the neighborhood.
- **EMERGENCY**: The public access route for emergency department visitors is currently via Medical Center Drive. Ambulances and other emergency vehicles will





access the campus from Chapman Avenue since it has the most direct route to the emergency department. Future development in the northwest corner of campus shall involve the separation of emergency and visitor traffic. Connection from Tower Road to Medical Center Drive will be maintained for fire trucks. The helipad is currently located on grade at the northwest corner of campus, with a dedicated ramp leading to the emergency department.

 VALET / DROP OFF: Convenient drop-off and valet services shall be consolidated at strategic locations and directly accessible to patient care locations. Drop-off zones shall be clearly demarcated and be out of the way of the main traffic.

CAMPUS VISTAS

UCIMC is on a flat site and is highly visible from Interstate 5 along the east and from Chapman Drive along the north. One's visual experience upon entering the campus is of Medical Center Drive, which is lined with trees and landscaping, and the Clinical Laboratory Replacement Building at the far east of campus. Direct lines of sight shall be maintained throughout the patient's journey to provide clear wayfinding and visual cues that lead them safely to their destination.

A NETWORK OF OPEN SPACE

Open space plays a vital role in promoting a healing, welcoming environment, where visitors are often faced with very stressful situations. The moderate and mostly sunny climate allows for year-round use of open walkways, gardens, and patios. The Orange campus is interconnected with walkways lined with trees and vegetation, open green space where events are often held, and the large healing garden / plaza located south of Douglas Hospital. Future development shall consider a balance between buildings and open space and continue the language of species, materials, and colors established on the existing campus.

EXHIBIT 3.7 View of Medical Center Drive EXHIBIT 3.8 Open Space at Building 53

4 Planning and Design Guidelines

As described in the previous chapter, UCIMC is UC Irvine's teaching hospital campus, and is a community intended to promote patient care integrated with research and teaching. It is complemented by academic and some outpatient clinical facilities on the Irvine campus and throughout the region. General parameters for site planning, architecture, landscape, and circulation can be found in this section. The purpose of these guidelines is to provide broad direction for carrying out UCIMC planning and design principles at the Orange campus.

SITE PLANNING GUIDELINES

OBJECTIVES

- Ensure that facility siting, site planning, and other improvements to the campus support UCIMC's goal of providing high-quality, accessible, patient-centered care.
- Enhance the physical character of the campus to reflect that of an academic medical center through the use of cohesive design, courts, open space and pedestrian elements.
- Plan for future development by creating sites for future expansion. This is especially important because open land on the campus is at a premium. This strategy reduces interim relocations and operational fragmentation.
- Strategically locate service facilities and distribution paths so that utility systems are provided in an efficient, yet flexible manner while being screened from public view.
- Carefully consider hierarchy of space to encourage easy navigation throughout the campus.
- Encourage sustainable site development by managing density, preserving open space, and optimizing natural resource conservation and quality.
- Enhance UCIMC's image and identity.
- Provide clarity to the organization of the campus.

DEVELOPMENT STANDARDS

SP-1 Group or combine functional areas with similar uses and functional program requirements.





- **SP-2** Building placement shall accommodate the need for future expansion by providing adequate open space.
- **SP-3** Scale buildings based on location and relationship to pedestrian walkways, courtyards, and adjacent buildings.
- **SP-4** Maintain a pedestrian scale for all new development. Public parking structures shall be sited to not exceed a seven minute walk for patients and families to access clinical care.
- **SP-5** Consolidate drop-off and valet parking services at strategic locations to reduce traffic congestion and be directly accessible to patient care locations.
- **SP-6** Locate staff and patient parking on-site.
- **SP-7** Develop "pedestrian friendly" spaces that can accommodate faculty, resident, and staff interactions, and provide a healing environment for patients and caregivers.
- **SP-8** Design and site new facilities to define space rather than act as objects in the landscape that merely "sit in space."
- **SP-9** Site buildings to minimize the shading of exterior public spaces.
- **SP-10** Create usable outdoor spaces, being mindful of human scale.
- **sp-11** Provide clear and accessible public, staff, service, and emergency access to the site to minimize congestion and unsafe intersections.
- **SP-12** Follow the land use zones established by the 2003 LRDP.
- **sP-13** Provide shelter and seating at shuttle bus locations.
- **SP-14** Bicycle racks shall be provided throughout campus.
- **sP-15** Create clear and consistent wayfinding and signage.
- **SP-16** Wind studies shall be conducted to prevent unpleasant wind tunnels.

EXHIBIT 4.1 Douglas Hospital Drop-off EXHIBIT 4.2 Shuttle Stop and Bike Parking



SUSTAINABILITY GUIDELINES

OBJECTIVES

- To be a responsible steward of resources and demonstrate leadership in sustainable practices.
- To improve the University's effect on the environment and reduce its dependence on non-renewable energy.

DEVELOPMENT STANDARDS

- S-1 All new building projects and large scale renovation projects, other than acute care facilities, shall be designed, constructed, and commissioned to outperform the California Building Code energyefficient standards by at least 20%.
- S-2 All new buildings and large scale renovation projects other than acute care facilities, will achieve a USGBC LEED Building Design and Construction (BD+C) Silver certification at a minimum.
- **5-3** All new projects and large scale renovation projects shall include a combination of energy efficient systems, the incorporation of local renewable energy, green power purchases from the electrical grid, and other energy measures with equivalent demonstrable effect on the environment and reduction in fossil fuel usage.
- S-4 UCIMC shall pursue the goal of reducing Greenhouse Gas (GHG) emissions as established by the Sustainable Practices Policy and the UCI Climate Action Plan.
- **S-5** Waste reduction shall be prioritized in the following order: reduce, reuse, and then recycle. All new projects shall adhere to the UCI Water Action Plan.
- **S-6** Existing trees and other natural features shall be preserved to the greatest extent possible.

EXHIBIT 4.3 Sun-shading Devices, Clinical Laboratory Replacement Building





EXHIBIT 4.4 Patient Room, Douglas Hospital EXHIBIT 4.5 Clinical Laboratory Replacement Building

ARCHITECTURAL GUIDELINES

OBJECTIVES

- Promote a sense of permanence and tradition within an image that also conveys modern, cutting-edge medicine.
- Create a sense of place by providing context of community and culture.
- Develop a unified campus vernacular or theme stressing consistent material, color, and architectural layering.
- Strengthen interdisciplinary collaboration by providing opportunities for intellectual and social interaction.
- Reinforce UCI's commitment and leadership position in green building design.
- Reinforce UCI's commitment to providing world-class, accessible patient care

DEVELOPMENT STANDARDS

General

- A-1 Maximize natural light and views in interior spaces through a connection to the outdoors.
- A-2 Follow modular concepts of space planning and layout and build flexible spaces that can adapt to changing technology.
- A-3 Employ simple geometric forms and express floor levels with consistency of colors, patterns, and windows.
- A-4 Provide scalability and proportions to buildings by expressing the base, middle, and top.
- **A-5** Encourage partially covered walkways as a beneficial climatic response for pedestrians.
- A-6 Employ solar shading and reveals in window fenestration to articulate building scale and to mitigate climatic factors.
- A-7 Relate buildings to adjacent outdoor spaces with elements, such as treillage, canopies, and comfortable seating that encourage social interaction.
- **A-8** Clearly define and ensure accessibility to building entries to provide a gracious welcome and relate to primary public circulation.



EXHIBIT 4.6 Lobby, Clinical Laboratory Replacement Building

- A-9 Express building function and structure through facades, and scale articulation through reveals, mullions, setbacks, and change of plane.
- A-10 Design buildings to be easily serviced and remodeled.
- A-11 Provide building infrastructure that supports evolving technology.
- A-12 Buildings shall be sited according to proper sun orientation.
- A-13 Utilize furniture and modular products in lieu of built-in casework to maximize flexibility and reduce waste.
- A-14 Minimize the effects of reflected sunlight in buildings and public outdoor spaces.
- A-15 Adhere to the limits set forth in the 2003 LRDP for building heights.
- A-16 Maintain patient privacy in acoustical design of spaces, especially at buildings located along busy streets and along Interstate 5.
- A-17 Interior design and materials shall protect indoor environmental quality. Adhesives, sealants, paints, caulking and other materials, flooring, carpeting, and cabinetry shall be non-toxic, low-emitting materials.
- A-18 Employ articulation in building volume by setting wall planes back or forward to create shadows or break up long expanses of building walls.
- A-19 Use low reflective or glare-reducing materials to minimize visual impact on adjacent properties.
- A-20 Plan for future growth through flexible interiors and appropriately sized buildings.

Patient Care Buildings

- A-21 Design main entry floors to be inviting, accessible, and visible to the public.
- A-22 Employ canopies at building entries and drop-off zones to protect pedestrians from the elements.
 Decorative bollards or landscaping shall be used to protect visitors from drop-off vehicles.
- A-23 Utilize retail and public space to activate and bring scale to the ground level.
- A-24 Design buildings with standardized spaces for maximum flexibility and future expansion.
- A-25 Design clinical spaces to be highly adaptable and universal.





EXHIBIT 4.7 Parking Structure, Dawn Way EXHIBIT 4.8 Central Plant

- **A-26** Encourage use of operable windows in office areas to maximize individual environmental control.
- A-27 Locate areas for materials management and deliveries away from the main entry to ensure security and privacy from public view.
- **A-28** Provide spaces that encourage family integration into the patient care continuum.

Research and Administrative Buildings

- A-29 Design building entries to be welcoming for staff yet visibly distinct from patient-care buildings to avoid confusion with wayfinding systems.
- **A-30** Secure access points into the buildings.

Infrastructure Buildings

- A-31 Design central plant buildings primarily for utilitarian function while blending their context through the use of architectural elements and landscaping.
- A-32 Shield mechanical, electrical, and plumbing equipment to protect the public from noise, heat, unsafe conditions, and pollution.
- A-33 Design infrastructure buildings with future expansion in mind to support flexibility and unanticipated growth and needs.
- **A-34** Site mechanical equipment and yards away from public circulation and screen them from public view.
- **A-35** Ensure safety and ease of access for maintenance utilizing informational signage.

Parking

- A-36 Design parking structures as neutral elements in the campus image; however, the same care should be taken with detailing of exterior walls and massing as with other buildings.
- **A-37** Express and clearly locate vertical and horizontal circulation elements and access points.
- A-38 Soften the elevations of parking structures facing primary pedestrian pathways and major public spaces by incorporating occupied building space and/or architectural or landscape screening onto the structure.
- **A-39** Design exterior skins to screen views of cars from adjacent buildings.
- **A-40** Design structures to streamline vehicle entry and exit flows and provide safe pedestrian access.

- **A-41** Provide appropriate landscape and shading at surface parking lots to minimize glare and heat island.
- A-42 Provide connections to patient-care buildings via bridges or covered walkways.
- **A-43** Provide charging stations for electric vehicles wherever feasible for visitors and staff, including preferred parking for hybrid vehicles and carpooling.

SETBACK GUIDELINES

DEVELOPMENT STANDARDS

- SB-1 Buildings shall be set back from major roadways according to Exhibit 4.9 below, and setback areas shall be landscaped to provide a buffer around the campus perimeter.
- **SB-2** Buildings shall be set back a minimum of 15 feet from drop-off zones to facilitate convenience and clarity of access.
- **SB-3** Patient-care buildings shall be set back a minimum of 60 feet from adjacent buildings for privacy and to maximize natural daylight for building occupants. This may be reduced depending on building massing.

- **SB-4** Administrative and research buildings shall be set back a minimum of 40 feet from similar buildings to maximize natural daylight for building occupants. This may be reduced depending on building massing.
- **SB-5** Clinical buildings at the east shall be set back 100 feet from the Interstate 5 to protect from noise, pollution, and visual distractions.
- **SB-6** Occupied buildings at the south, across from the County jail, shall be set back a minimum of 50 feet from the property line for security.
- **SB-7** Larger setbacks than what is prescribed above shall be considered for open, green spaces and stormwater management.



ROADWAY	BUILDING SETBACK
Interstate 5 Freeway	100′
Major Access Roads (The City Drive, Chapman Drive, Dawn Way)	35'
Primary Campus Roads (Medical Center Drive, Loop Road, Tower Road, Pavilion Way)	25'
Secondary Campus Roads (Pavilion Way, Auditorium Way, Service Way, Diagnostic Way)	15′







EXHIBIT 4.10 Healing Garden EXHIBIT 4.11 Private Courtyard EXHIBIT 4.12 Open Courtyard at Research Building

LANDSCAPE GUIDELINES

OBJECTIVES

- To provide a strong landscape framework that establishes the character of the campus site and defines circulation paths.
- To provide rich outdoor spaces to support healing, teaching, research, and clinical care.
- To create a visually unified campus by using a common palette of landscape elements.
- To promote environmental quality through the selection of native and drought tolerant plant species, functional zoning of landscape types, and sustainable landscape management practices.

DEVELOPMENT STANDARDS

- L-1 Use deciduous trees in public spaces to provide summer shade and winter solar penetration.
- **L-2** Use flowering trees and shrubs to accent the green landscape of the campus.
- **L-3** Exercise functional zoning, water conservation, and other sustainable landscape maintenance practices.
- L-4 Provide variation in paving color and texture where appropriate. Warm colors should be used to provide richness and human scale, balanced with the use of lighter colors to reduce heat island effects. Use textured concrete with stone, brick paver, or tile accents on main pedestrian spines and asphalt paths within open space areas.
- **L-5** Utilize vines to enrich large, blank site walls and retaining walls.
- **L-6** Build on existing landscape framework in order to define spaces and circulation patterns; provide scale and shade; and provide atmosphere, interest, and character.
- **L-7** Create a primarily formal streetscape pattern with regularly spaced single or double tree rows on Medical Center Drive.
- **L-8** Screen all parking areas around their perimeters with either plant materials, walls, berms, or a combination thereof.

- L-9 Integrate legible signage into the landscape with materials that match surrounding facades. Sculptures or art can be utilized as landmarks.
- **L-10** Provide sound buffers along Interstate 5 to minimize noise and pollution.
- **L-11** Integrate gardens and courtyards with seating into new development to provide a place of respite for patients and staff.
- **L-12** Utilize water features only in open space areas, where infection control will not be a concern.
- **L-13** Minimize lawn area and increase use of xeriscape and native landscaping.
- L-14 Install rain sensors with all irrigation systems.
- **L-15** Design exterior lighting to meet appropriate levels for security, while minimizing the amount of light pollution through the use of full cut-off lighting.
- **L-16** Design planting areas to minimize water use by considering weather exposure.
- **L-17** Encourage the use of bioswales and biofiltration in new projects.

CIRCULATION GUIDELINES

OBJECTIVES

• To balance the needs of multiple means of circulation by providing clear, safe, and friendly paths.

DEVELOPMENT STANDARDS

Pedestrian Circulation

- **c-1** Establish separate pedestrian, vehicular, and service pathways.
- **c-2** Use non-glare lighting to delineate circulation paths.
- **c-3** Use grade separation, curbs, bollards, pavement changes, planters, and tree rows to separate pedestrian zones from adjacent vehicular zones.
- **c-4** Incorporate amenities such as seating nodes, trash and recycling receptacles, and drinking fountains into pedestrian pathways.
- **c-5** Primary walkways used by patients and visitors shall be sized appropriately for walking in groups and wheelchair passage.

c-6 Avoid uneven surfaces and minimize material changes to provide smooth and accessible transitions for wheelchairs, stretchers, carts, etc.

Vehicular Circulation

- **c-7** Develop a visual identity to express the campus roadway hierarchy (main Medical Center Drive, loop roads, local streets, service drives, and parking access drives).
- **C-8** Design roadway cross-sections based on projected traffic volumes, while maintaining the pedestrian experience along campus roadways.
- C-9 Provide back-of-house service access to all buildings to eliminate cross-flow of visitors and materials management.
- **c-10** Integrate disabled parking spaces into new and existing service areas to facilitate convenience and safe access.

Emergency Circulation

- **c-11** Ambulance access shall remain off Chapman Avenue and be separated from public circulation. Secondary access to Medical Center Drive shall be maintained for fire trucks.
- **c-12** Provide adequate turnaround space for emergency vehicles, to minimize entry and exit off of Medical Center Drive.
- **c-13** Helipad access shall remain on the northwest portion of campus and shall have direct access to the Emergency Department and hospital building.

Service Circulation

- **c-14** Service circulation shall remain on Service Way with access from Chapman Drive and Dawn Way, and be separated from public circulation.
- c-15 Maintain sight distance at all service roads.
- **c-16** Signage shall be clear and consistent, to prevent visitors from inadvertently accessing service roads.



5 Planning and Design Process

Capital improvement projects represent a significant long term demand on hospital reserves. To manage this demand, UCIMC has implemented a Capital Planning Program process for ensuring that projects are aligned with strategic goals, policies, guidelines, and initiatives in the Medical Center Strategic Plan, Capital Financial Plan, Long Range Development Plan, 2013 Facility Master Planning Study, and Physical Design Framework.

CAPITAL PLANNING COMMITTEE

The Capital Planning Committee (CPC) is charged with land use, design, project funding, and regulatory compliance reviews of all project proposals / requests. The CPC manages the UCIMC approval process. Planning Administration manages Preliminary Concept Review and assists Project Sponsors with defining project scope and rough order of magnitude cost estimates. The CPC is comprised of members from Executive Leadership and Planning Administration.

MEDICAL FACILITIES PLANNING COMMITTEE

This group meets on a regular basis to update and advise the Executive Vice Chancellor and Provost on issues pertaining to the capital program, project planning, construction, and land management. The membership consists of the Executive Vice Chancellor and Provost; the Vice Chancellors; an Academic Senate representative; Design & Construction Services, planning and budget staff; and other key administrative leadership.

CAMPUS PHYSICAL AND ENVIRONMENTAL COMMITTEE

The Campus Physical and Environmental Committee reviews items related to development of the campus and UCIMC, including reviewing and recommending changes to the LRDP and the design of buildings, roadways and infrastructure, landscaping, and alterations to existing structures; Community planning activities that may affect University interests; Any project or item that would substantively affect the exterior physical appearance of either the campus or UCIMC.



The committee is chaired by the Chancellor. Other members include the Executive Vice Chancellor and Provost; all Vice Chancellors; the heads of Facilities Management, Design & Construction Services, and Campus & Environmental Planning; the Chair of the Academic Senate; the Chair of the Academic Senate Council on Planning & Budget; the Chair of the University Hills Homeowners' Representative Board; the Director of UCIMC; and student representatives.

DESIGN REVIEW TEAM

The Design Review Team (DRT) reviews and advises on planning and design issues including schematic building designs, landscaping, street furniture and signage, and major building modifications that result in substantive changes to in the appearance of the campus or Medical Center. DRT serves as an advisory group to the Campus Physical and Environmental Committee (CPEC). Membership includes the Vice Chancellor for Administrative & Business Services; heads of Design & Construction Services and Campus & Environmental Planning; and the Chair of Academic Senate Council on Planning & Budget.

SUSTAINABILITY COMMITTEE

The purpose of this committee is to advise the Chancellor and other campus administrators on matters pertaining to sustainability and to promote environmental stewardship, sustainable development, and greenhouse gas emission reductions at UCI, including incorporation of sustainable practices into long-range planning and design. Composition of the committee includes staff from the Office of Information Technology, Campus and Environmental Planning, Capital Planning, Design and Construction Services, Environmental Health and Safety, Facilities Management, Housing, Hospitality and Dining Services, Material and Risk Management, and Parking and Transportation Services, along with faculty and student representatives.

