

ES

**EXECUTIVE
SUMMARY**

ES

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The University of California, Riverside is a highly regarded public university with a strong reputation for research, opportunity, and achievement. As the University enters the next decade, our vision is to build upon our strengths and strategically grow in both size and significance, epitomizing excellence in all that we do: advancing and communicating knowledge through cutting edge research and creative activity; developing and inspiring the leaders for tomorrow's world; transforming communities, both locally and globally; and demonstrating that diversity is both a measure of excellence and a means of achieving it.

PLANNING GOALS

- Continue to build on the current planning theme of “simple buildings in a dramatic landscape” to celebrate the campus’ unique setting at the base of the Box Springs Mountains.
- Articulate campus gateways to strengthen campus identity.
- Frame views towards the heart of campus and the Belltower, and outwards to the Box Springs Mountains through the careful configuration of future buildings in the Core Campus.
- Infill strategically located “opportunity sites” on East Campus to increase density and accommodate future growth.
- Manage university land and research resources on West Campus as strategic assets to sustain UC Riverside’s excellence long into the future.
- Shape buildings, campus open spaces and interstitial environments to promote collaboration and interaction.
- Address common interests of campus and community by creating a safe environment for pedestrians and bicycle riders at the campus perimeter with managed service and vehicular access.
- Foster a sense of campus community by enhancing campus zones and linking them through pedestrian promenades.



UC Riverside class of 2015 graduation

The University has identified achieving the profile of an Association of American Universities (AAU) institution as one benchmark for measuring its success. The ability to achieve the profile of an AAU member requires the campus to accelerate development of its infrastructure in support of research and creative activity and achieve higher levels of success. Modern, attractive, functional, and sustainable facilities play a critical role in recruiting and retaining strong faculty, students, and staff; enhancing research productivity; and improving campus setting. Aesthetics, accessibility, and functionality of the physical setting are the foundation, both literally and symbolically, for campus life. Thus, plans for new and renovated facilities must be consistent with the University's Strategic Plan.

UC Riverside's enrollment is projected to surpass 25,000 students by 2020, with the further possibility of 30,000 students by 2025.

As the University population grows, its physical needs will be accommodated through a mix of new construction and strategic renovation across all facility types. These include academic and research, student life, student-oriented housing improvements as well as enhancements to the campus's public realm. Future growth will enhance and support UC Riverside's teaching, research, and service endeavors, with an unwavering focus on green facilities and sustainable practices.

The Physical Master Plan Study ("Master Plan Study") demonstrates how up to 1.5 million square feet of new academic and support space and at least 3,700 additional student beds can be added within the existing fabric of East Campus. The environmental impact of this level of potential growth will be evaluated in an environmental impact report in support of the next Long Range Development Plan (LRDP) update. Simply growing, however, is not enough. The development opportunities in this study show ways of accommodating this growth while advancing the planning goals and leveraging its land resources in a thoughtful manner.

ES.1

Building on the Path to Preeminence

UC Riverside's Master Plan Study is a tool to guide future decision-making regarding campus development, in support of the Strategic Plan's academic vision and Long Range Development Plan. It defines building development opportunities and their capacity to accommodate anticipated growth, as well as opportunities to improve and better integrate the surrounding framework of circulation and open space.

The LRDP projects future enrollment and square footage growth, and articulates where that growth is to occur by designating land uses. LRDPs are adopted by the Regents. The environmental impacts of LRDPs are evaluated in Environmental Impact Reports.

This Physical Master Plan Study articulates development concepts that will be incorporated into the next update of the LRDP. It is neither a detailed land use plan, nor a commitment to a set of projects. As needs are defined and supporting funding becomes available, specific projects will be developed following the defined framework. It is flexible, not prescriptive. While some of the ideas represent completely fresh thinking about campus growth, many others are logical extensions of previously articulated goals and strategies. The intent is that the University continues on a rational course, adjusting where necessary to carry investments forward in an organized and reasonable fashion.

The Master Plan Study is a campus-level planning study with a very broad set of recommendations. For the physical planning concepts presented herein to take effect, they must first be incorporated into the campus's Long-Range Development Plan and Physical Design Framework. It guides more detailed studies yet to be undertaken for specific areas and systems, such as a Landscape Master Plan, Campus Design Guidelines, and a Bicycle Master Plan Study.

PROCESS AND METHODS

The master planning process was led by two primary teams. The first, the Steering Committee, directed the Planning Team through all phases of the visioning and planning process. The Steering Committee was co-chaired by the Provost and the Vice Chancellor for Planning and Budget. The second, the Project Management Team, managed the visioning and planning process and provided staff assistance; coordinated all communications between the University and the consultant team; vetted observations, findings and recommendations; and were hands-on in crafting the final report. The Project Management Team consisted of key campus stakeholders and subject matter experts.

The planning process was divided into four major phases:

Understanding

- Assess campus site and infrastructure
- Review previous campus and city studies
- Confirm program needs
- Develop Physical Master Plan Study beliefs and principles

Integrating

- Create planning framework scenarios
- Define growth and cost capacity range
- Develop environmental stewardship strategy and priorities
- Engage campus and community

Validating Vision

- Confirm preferred planning framework
- Analyze campus infrastructure systems
- Summarize capital investment cost

Documenting

- Review document (University)
- Publish Physical Master Plan Study Report

In the Understanding phase, the Planning Team gathered information from a variety of sources to develop an understanding of the campus and its needs. Workshops with stakeholders, data collected in previous studies and on-site observation of the campus all provided valuable insight.

The University sought to involve a wide range of constituents in the planning process. Students, faculty, staff and community members participated in a series of on-campus workshops where they were asked to identify areas of the campus that worked well, and those that presented challenges. Five specialized "Working Groups" of subject matter experts gave targeted input on technical campus-based issues, namely Technology, Sustainable Practices, Sustainable Infrastructure, Student Life, and Campus Logistics and Safety. A sixth group, City and Community, provided general input on the University's relationship to the surrounding neighborhoods.

In the Integrating phase, the Planning Team tested development scenarios looking at a range of densities and program distribution. In subsequent workshops, attendees responded to these scenarios. Through several working sessions, the planning scenarios evolved and were eventually merged into a single planning framework that reflected consensus on key aspects of the future campus. The opportunities and recommendations in the Master Plan Study take the information gained through these sessions into consideration and address concerns to the greatest extent possible. The resulting plan thus represents not just the will of University leadership, but a shared vision of many who hold a stake in the institution's continued success.

The Planning Team also examined previous planning documents and utilized quantitative data on enrollment, housing, and space utilization to formulate recommendations. Where specific information was not available or not current, the Planning Team conducted careful assessments. Qualitative evaluations were made of patterns of use throughout the campus. Observations of the existing character and condition of various campus zones were recorded. The Planning Team also performed quantitative analyses of existing building performance. Throughout the Integrating and Validating Vision phases, financial stewardship was central to the planning process. Financial stewardship focuses upon responsible investment to achieve the desired return to the campus. In the selection of proposed development sites, the Planning Team analyzed relative development costs for the various campus districts. The area within and immediately adjacent to Campus Drive (Core Campus) was found to offer the greatest discount given available infrastructure and minimal site development costs. The steeply sloping hillsides south and east of Core Campus carry the highest premium, followed closely by West Campus, due primarily to the significant up-front site utility investments required.



Workshop #1: The Master Plan Study involved an inclusive and collaborative process with many stakeholders.



Workshop #1: Campus analysis interactive activity



Workshop #1: Campus planning activity

ESSENTIAL ELEMENTS

Essential Elements are the major objectives the University desires to achieve directly through the Master Plan. They are the distilled results of the Understanding phase, and have been profoundly influenced by the values, beliefs, and principles articulated through the planning process. These broad goals guided the development of the Master Plan Study’s strategic priorities. Interventions into the physical campus were prioritized based on their ability to achieve one or more of the elements.

IDENTITY

Enhance Sense of Place

- Strengthen a sense of connection to the campus’s natural surroundings.
- Create better-defined and more welcoming open spaces.
- Integrate existing buildings and open spaces with future development.

COMMUNITY

Facilitate Engagement

- Strengthen an environment for living and learning.
- Create vibrant spaces that can be used for more of the day and evening.
- Leverage campus open spaces to accommodate varied programs.

STEWARDSHIP

Exercise Environmental Stewardship

- Recognize that stewardship is both an environmental and fiscal imperative.
- Create value by leveraging existing campus buildings and infrastructure.
- Reduce demand for energy and pursue less carbon-intensive energy sources.

DENSITY

Demonstrate Leadership and Innovation

- Embrace compact development to achieve new capacity for growth.
- Increase connectivity and ease of movement throughout campus.
- Promote synergies among communities, departments, buildings, and open spaces.

ES.2

Planning Strategies to Strengthen the Campus

EXTEND AND REFINE THE OPEN SPACE FRAMEWORK

Open space is composed of paths and places. Paths move people from courtyards to plazas, to malls, and to other spaces. Places encourage people to stay and gather. These outdoor rooms serve many of the same programmatic functions as buildings—academic, social, and environmental. These places are memorable, and form lasting impressions on those who experience the University. Richness in a campus open space network comes from a mix of open space types – formal and informal. Buildings shape path and place, and vice-versa, thus a thoughtful configuration of buildings is critical to the development of a successful open space network.

The Carillon Mall is the signature open space, and the anchor of the open space framework. Secondary and tertiary open spaces connect to it to form a network that extends to the outer edges of the campus. The Master Plan Study strives to strengthen campus open spaces by locating new buildings to form clear edges to open spaces that are special places to relax, work, and/or gather.

The campus landscape can be significantly improved, in some cases, by removing existing buildings that interrupt the open space framework. As an example, Spieth Hall interrupts the intersection of the Carillon Mall and Citrus Walk. Its removal will open a new viewshed to the hills to the south from Core Campus. Recreation Mall is an entirely new open space opportunity, providing pedestrian connectivity from Core Campus to future housing recreation, retail and the Campus Event Center to the north.

Key open space strategic priorities include:

- Connect existing malls and walks.
- Create a network of shaded walkways.
- Increase priority for pedestrian use of open spaces and paths.
- Improve links to the center of campus.
- Orient new building entrances to address the pedestrian environment.
- Create a landscaped buffer zone against the freeway.

ENHANCE THE CAMPUS PERIMETER

The perimeter of the campus is the public face to the world, and often the first impression for those who visit. Creating a strong identity at its interface with the surrounding community communicates institutional pride. Oftentimes, campus property is indistinguishable from non-University land, and first-time visitors have difficulty navigating from perimeter parking lots to destinations in the heart of campus.

Clearly defining campus gateways strengthens campus identity and aids in navigation. Enhancing the primary gateway at the intersection of University Avenue and Canyon Crest Drive—the University Avenue Gateway—will provide a sense of arrival and introduces visitors to the unique visual identity of campus. Two additional secondary entrances will be defined on the northern and southern sides of East Campus—Blaine Street at Canyon Crest Drive to the north and Campus Drive at Canyon Crest Drive to the south.

“Campus nodes” are intersections of particular importance, primarily around the campus perimeter. By prioritizing these areas for investment in upgrades to paving, lighting, and landscaping, the University will achieve stronger return on investment, as the prominence of these intersections magnifies the value of such improvements. Other opportunities for improvement include better managing traffic and service activities, improving landscape and wayfinding at campus edges, and creating a safer environment for pedestrians and bicycle riders.

CONNECT TO UNIQUE FEATURES

Experiences, history, and cultural identity are what make a place memorable.

Careful consideration thereof is necessary to ensure that UC Riverside’s history connects to its future as the campus evolves. Development of the University’s institutional identity begins with respecting its rich history through recognition of the role key buildings and open spaces play in defining a sense of place. Historical significance, a measure that is somewhat subjective and often defined in different ways, is evaluated in this study by the following criteria:

- Age
- Significance to the campus
- Architectural character

- Responsiveness to climate
- Contributions to adjacent open space

Visually strengthening the connection to the Box Springs Mountains to the east and the citrus groves on West Campus is a primary goal of the new planning framework. Proposed development sites are located to preserve and enhance views to these iconic natural features. The theme “simple buildings in a dramatic landscape” guides the new planning framework as it seeks to bring the natural and built environment into balance.

TRANSFORM THE CORE CAMPUS

Where the current Master Plan Study departs most significantly from previous studies is in the decision to consolidate new growth on East Campus and retain existing uses on West Campus for the foreseeable future. Higher-density development with a diverse range of academic and administrative programs in close physical proximity will encourage programmatic synergies and promote sustainable development. Higher population density will increase the effectiveness of public transportation and the likelihood of spontaneous social interaction. Utilizing existing utility infrastructure will save on site development costs.

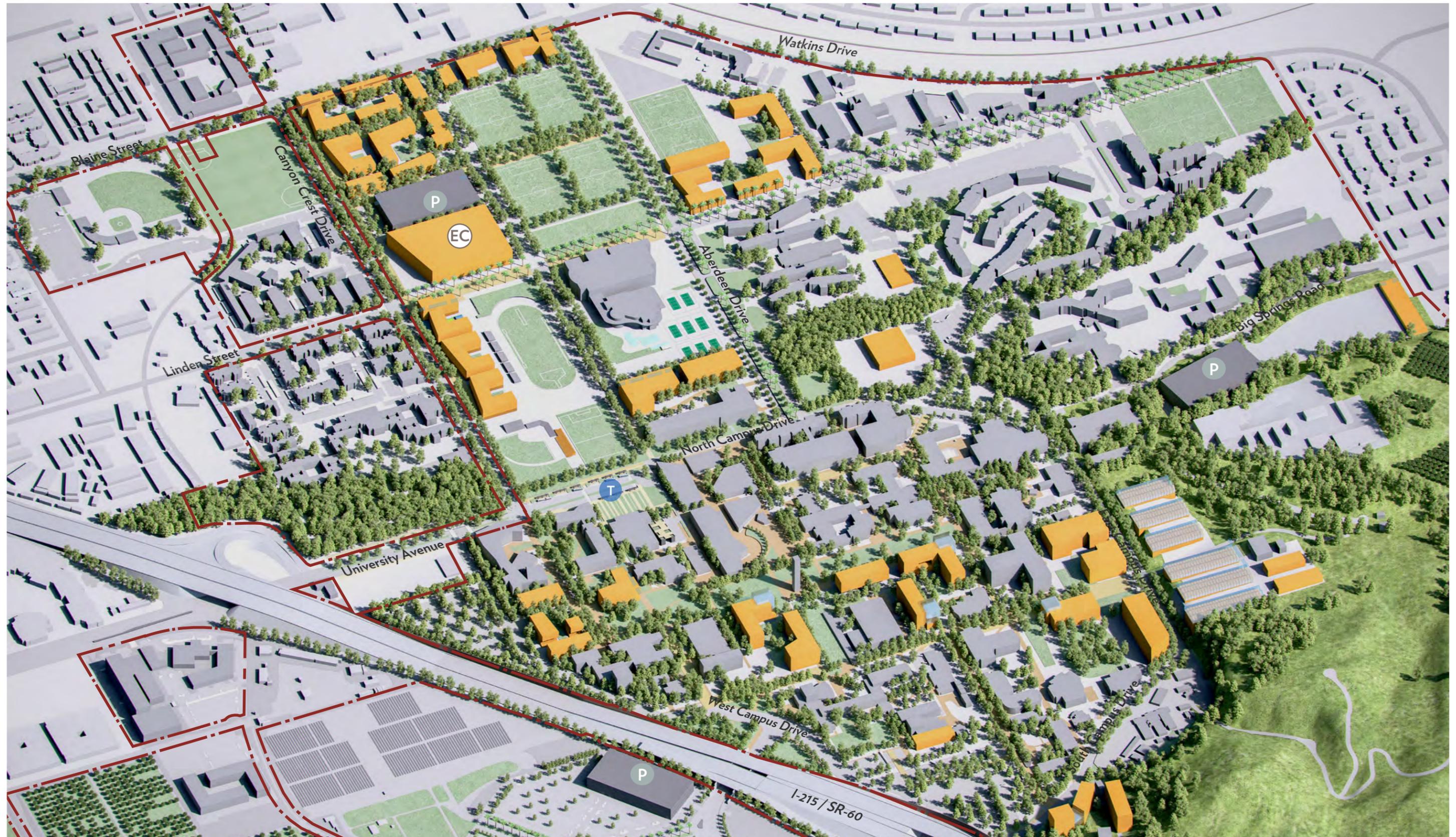
Analysis of the existing campus resulted in identification of high-value development zones—referred to as “Opportunity Sites”—with the greatest potential to accomplish the University’s key planning goals.

An Opportunity Site is a discrete area found to be underserving the campus relative to its potential. Opportunity Sites fall into one or more of the following categories:

- Undeveloped or underdeveloped sites or those only requiring minor demolition
- Sites with high potential to advance the University’s vision for its open space framework
- Buildings which are inefficient or programatically inflexible
- Buildings not contributing to the campus’s desired character

The Physical Master Plan Study illustrative (Fig ES.1) shows how the physical planning principles can be applied to the campus.

Figure ES.1 PHYSICAL MASTER PLAN ILLUSTRATIVE



LEGEND UC Riverside Property Line Future Building Opportunities Parking Structure Mobility Hub Event Center

ES.3 Enhancing the Public Realm

Public Realm Opportunity Sites include broad improvements to campus open space systems and associated infrastructure, focusing on circulation, landscape, stormwater management, identity, and wayfinding. Below are two examples of such sites.

UNIVERSITY AVENUE GATEWAY

The proposed University Avenue Gateway holds tremendous potential to transform the campus. It creates a welcoming experience at the primary entry point to the campus—the intersection of University Avenue and Canyon Crest Drive. At the campus edge, better management of all forms of traffic means a safer environment for students, faculty, staff and visitors. The proposed Mobility Hub will improve access to public transportation, reducing reliance on personal vehicles. Close proximity to student life programs will further enhance safety and extend access to the campus into the late hours. Community is fostered through the inclusion of a flexible public gathering space with improved connectivity to the rest of campus. The site also enjoys potential synergies with the adjacent Multidisciplinary Research Building 1 (currently under development.)

RECREATION MALL

Significant new program areas north of Linden Street will require new connections to the Core Campus to ensure that the campus feels cohesive. Pedestrian and bike improvements to Canyon Crest Drive and Aberdeen Drive are important components of this connectivity, and a new open space – Recreation Mall – will run parallel to these streets, between Blaine Street and the west edge of the Materials Science & Engineering Building. The mall will be designed to be shared with bicycles, having a substantial central paved walkway. Pedestrian amenities such as benches and lighting will be placed along the outer edge. On either side of the central walkway, generous landscaped zones will provide transitions between the walkway and adjacent building entries and generous planting areas for shade trees that provide pedestrian comfort. Stormwater treatment will be provided through linear swales in these zones, treating building runoff as well as runoff from the central walkway.

Figure ES.2 UNIVERSITY AVENUE GATEWAY AND MOBILITY HUB



Figure ES.3 PUBLIC REALM ENHANCEMENT OPPORTUNITIES



PUBLIC REALM ENHANCEMENT OPPORTUNITIES*

P-1. University Avenue Gateway

Create a primary campus gateway experience at the intersection of University Avenue and Canyon Crest Drive. Integrate the proposed Mobility Hub and its associated program elements, as well as upgraded amenities for pedestrians and bicycle riders.

In Section 3.6, this initiative has been expanded to include a detailed development scenario.

P-2. Connection to Existing Student Housing

Reconcile vehicular, service, and pedestrian flow from the residence halls into the heart of campus.

P-3. Canyon Crest Drive Streetscape

Create a safe and pedestrian-friendly mixed-use street.

P-4. Recreation Mall

Link the Core Campus to the North District.

P-5. Aberdeen Axis

Visually extend the Aberdeen Drive axis into the North District as a pedestrian pathway with limited vehicular and service access.

P-6. Citrus Mall

Restore the Citrus Mall axis by reconfiguring the adjacent open spaces and the surface parking around Anderson Hall.

P-7. Canyon Crest—South Streetscape

Define arrival into campus through enhancements to the pedestrian experience, including upgraded landscape, lighting and paving.



* Chapter 4 describes these priorities in more detail.

ES.4 Opportunities for Future Growth

Building Opportunity Sites define priority locations for future buildings, including those with the highest transformative potential. In the Core Campus they are mainly reserved for research and academic functions, while those in the North District are better suited to housing, retail, recreation, and culture.

CORE CAMPUS SOUTH EXTENSION

On the sharply rising hillside just above the southern edge of Core Campus, this area has great potential to enhance institutional identity. The site is highly visible both from the freeway and from the rest of the campus, making it an ideal location for a “landmark” building. Any structure on this site will also have unobstructed views outwards over the campus and surrounding landscape. Development on this site has the added opportunity to shape a southern end to Citrus Walk.

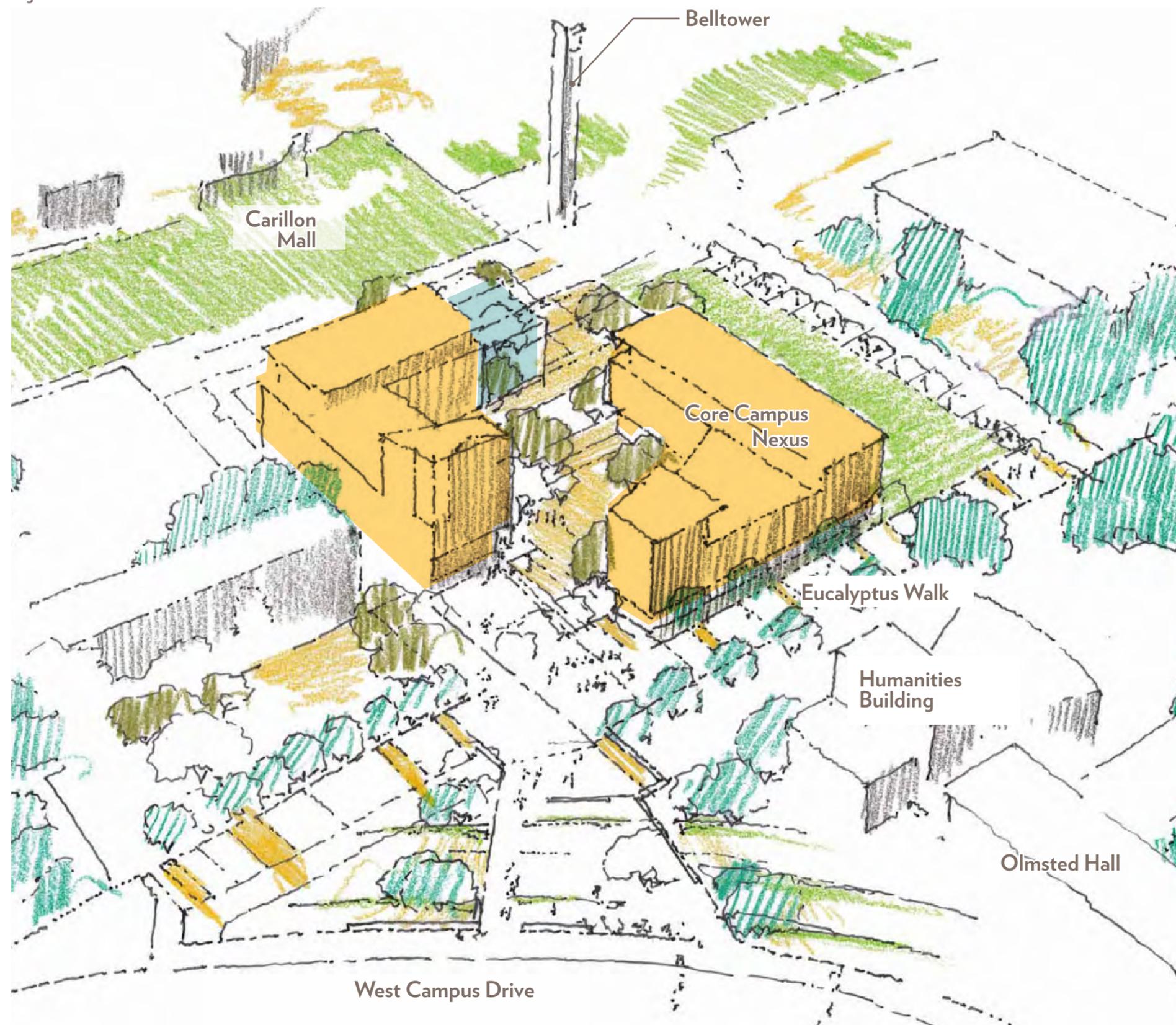
SCIENCE AREA GREENHOUSE

UC Riverside is a national leader in the fields of crop and agricultural systems biology. Modern plant science facilities will be key to maintaining this status in the future. Currently, the University’s supply of greenhouses and support spaces are distributed between two main sites – one along East Campus Drive and the other, on West Campus south of Martin Luther King Blvd. Facilities in both locations are in immediate need of upgrade or replacement. Re-envisioned, the land area to the east of East Campus Drive has the capacity to hold the University’s entire greenhouse program, along with support facilities.

CORE CAMPUS NEXUS

The present location of Watkins Hall, redeveloped, has the potential to dramatically impact the campus’s open space network, having frontage on the Carillon Mall, Library Mall, and Eucalyptus Walk. By leaving the site open on a northeast-southwest axis, the Belltower will become visible from the Canyon Crest-South Gateway, contributing to wayfinding and campus identity.

Figure ES.4 CORE CAMPUS NEXUS AND CANYON CREST DRIVE SOUTH GATEWAY



LEGEND Future Building Opportunities

Figure ES.5 FUTURE BUILDING OPPORTUNITIES



LEGEND

- UC Riverside Property Line
- North District Boundary Line
- ① Building Opportunity Site
- Future Building Opportunities
- P Parking Structure
- T Mobility Hub

FUTURE BUILDING OPPORTUNITIES

CORE CAMPUS

1. Carillon Mall West

Shape the intersection of Arts Mall and the Carillon Mall on the site of Hinderaker Hall.

2. Gateway Link

Modifications on the Athletics and Dance Building site to create a connection between the Mobility Hub and Carillon Mall.

3. Core Campus Nexus

Create new lines of sight into the heart of campus from the perimeter.

4. Eucalyptus Walk Science Area

Transform a “back door” into a “front door” at the perimeter of East Campus.

5. Picnic Hill Science Area

Reframe a popular outdoor gathering space.

6. Core Campus South Extension

Enhance institutional identity on the southern hillside.

7. Citrus Walk Portal

Create a portal to Citrus Walk from Carillon Mall to frame views to the south.

8. Science Area Greenhouses

Consolidating the greenhouse program on a contiguous site adjacent to plant based research.

Sites 9 to 15

Additional sites on East Campus for future buildings

NORTH DISTRICT

Sites A to G

Future student housing, recreation, retail and Campus Events Center

WEST CAMPUS

Sites H

Outpatient Pavillion

Site I

Areas on West Campus to prioritize future development

ES.5 Integrated Planning

Integrated Planning is the linking of vision, priorities, people, and the physical institution in a flexible system of evaluation, decision-making, and action. It shapes and guides the entire organization as it evolves over time and within its community. Within the physical planning realm, the Planning Team examined not just the locations of buildings and open spaces, but also integrated considerations of transportation, utility infrastructure, environmental stewardship, and fiscal responsibility. The resulting study reflects a comprehensive vision for campus growth.

EMPHASIZE MULTIMODAL TRANSPORTATION

The University Avenue Gateway concept integrates a Mobility Hub, a proposed partnership between UC Riverside and the Riverside Transit Agency (RTA) to enable all of its service routes to the campus to converge at a single location. Clearly defined pedestrian and bicycle connectivity, safe and attractive drop-off facilities, and an inviting environment will all contribute to making the University Avenue Gateway the much needed front door the campus presently lacks.

The campus and its immediate surrounding areas are generally conducive to walking, but can be improved upon. University Avenue, Canyon Crest Drive, and Aberdeen Drive can benefit from landscape buffers in between the sidewalk and the roadway. Obsolete service access points should be eliminated to reduce conflicts between service vehicles, pedestrians, and bicycle riders. The proposal to create a connection between the Mobility Hub and Carillon Mall accomplishes several of these objectives in a functional and attractive manner.

A greater emphasis on transit, walking and bicycle use will reduce the demand for parking. However, given campus growth projections, and that that existing parking capacity will be lost to future development, replacement parking and additional capacity need to be planned for. The Master Plan Study proposes structured parking at key locations at the campus perimeter. Additionally, it should be noted that students who live on campus or within a walkable distance are less likely to bring a car to campus. Investments in expanding on-campus student housing and programs to encourage students faculty and staff to live close to the campus will further reduce the need to add parking capacity.

Figure ES.6 PROPOSED UNIVERSITY AVENUE GATEWAY AND MOBILITY HUB



Figure ES.7 PROPOSED ABERDEEN DRIVE ENHANCEMENTS



ENVIRONMENTAL STEWARDSHIP

Environmental stewardship is a key tenet of the Master Plan Study, the two critical areas of focus being carbon neutrality in operations and stormwater management.

UC Riverside's buildings are the single greatest contributor to greenhouse gas emissions by way of energy use. Therefore, reducing demand for energy is the first step towards carbon neutrality in operations. To this end, a representative sample of fourteen campus buildings, selected to represent a range of ages, sizes and uses, were evaluated. The results were evaluated against Energy Use Intensity (EUI) benchmarks for specific building types, and divided into two categories – buildings with poor performance that require major renovation or replacement; and those with good performance requiring only minor retrofits and retro-commissioning.

The Master Plan Study sets target EUIs for new building performance well beyond what is required by the current California Energy Code. The University should strive to meet these targets through the application of appropriate energy efficiency measures that include high performance building envelopes, climate control systems and lighting, as well as passive strategies for shading, daylighting and ventilation.

To achieve carbon neutrality in operations, the University will need to meet its energy needs from alternative sources such as wind and solar. Electricity currently supplied by Riverside Public Utilities (RPU) is primarily coal based and therefore carbon-intensive, though this is in transition. The University envisions strategic partnerships with RPU to further reduce the carbon footprint of purchased electricity. On-site rooftop solar arrays can provide buildings with a portion of their energy demands and create capacity on the campus electrical grid. Rooftop solar hot water heaters are efficient and cost effective, especially on residential projects with large hot water demand. Even with reduced demand and on-site generation, off-site utility-scale wind and/or solar arrays will be required to achieve full carbon-neutrality in building energy use.

It should also be noted that a third of the campus's carbon emissions are a result of burning natural gas. Because gas is a carbon fuel source, neutrality will only be achieved through conversion to sustainably-generated electric power or the purchase of carbon offsets.

Stormwater management on new development sites will strive to mimic the natural, pre-development hydrology patterns to reduce erosion and stormwater pollution. On-site treatment of stormwater is envisioned through vegetated swales and like strategies that slow the flow and promote infiltration recharging ground water reserves. Reduced stormwater flows will prevent existing detention basins from being overwhelmed. New buildings will implement water conservation strategies such as stormwater and greywater reuse, high efficiency fixtures, and water-efficient landscaping. Similar measures will be also be considered when renovating existing buildings.

Rooting future development decisions in environmental stewardship will yield innovative solutions to present-day and future challenges. Design which responds directly to Riverside's unique natural environment will truly connect the campus to its surroundings.

NEAR-TERM PROJECTS

At the time of completion of the Master Plan Study in May 2016, numerous projects were in different stages of development. All of these projects are in alignment with the planning principles and directions outlined in the Study.

The following ongoing renovation projects reinforce the campus's commitment to continue to invest in those buildings and campus locations that best leverage existing campus assets:

- Batchelor Hall Interior Renovation
- Pierce Hall Renovation and Classroom Addition
- Boyce Vivarium Renovation
- School of Medicine Research Building – BSL-3 Laboratory
- School of Medicine Research Building – First Floor Fit out

Planning ahead, as the campus increases its faculty by almost 300, the majority of whom will be focused on research, it will be important to add research space to maintain an appropriate space-to-faculty ratio of 1,032 ASF, which is closer to the UC system wide average of 1,140 ASF. The proposed Multidisciplinary Research Building 1 will serve to meet this space need with the addition of approximately 150,000 GSF.

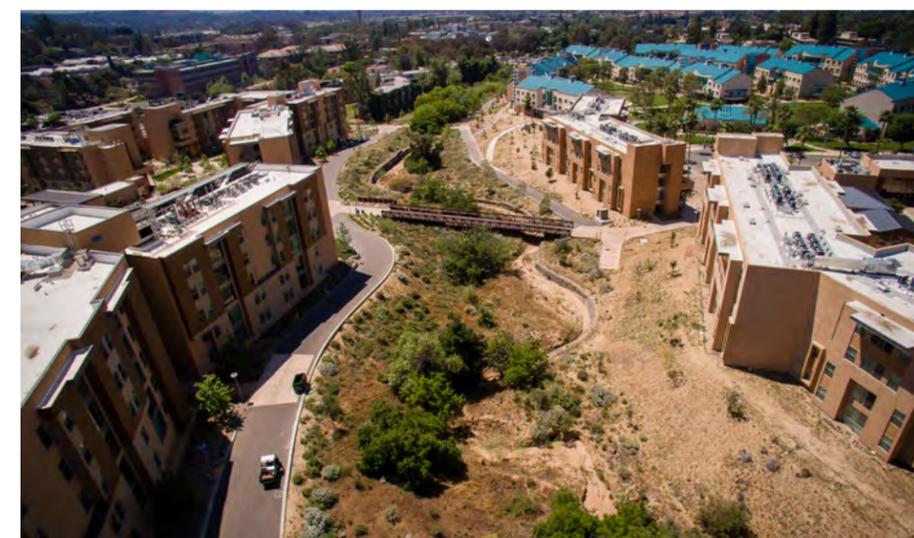
Future renovation projects and new building additions will continue to be guided by the Master Plan Study and based on the Capital Financial Plan.



School of Medicine Building



Solar array on West Campus



Arroyo through Glen Mor

