

## Office of the President

### TO MEMBERS OF THE FINANCE AND CAPITAL STRATEGIES COMMITTEE:

#### ACTION ITEM

*For Meeting of January 25, 2017*

### **APPROVAL OF PRELIMINARY PLANS FUNDING, MULTIDISCIPLINARY RESEARCH BUILDING 2, RIVERSIDE CAMPUS**

#### **EXECUTIVE SUMMARY**

UC Riverside is implementing an ambitious plan to become a national model for high academic achievement, student access, and optimal administrative effectiveness. The strategy builds upon existing campus strengths in teaching and research. A cornerstone of the plan is the construction of several buildings that will improve the quality of learning and research and also address current space deficiencies associated with enrollment growth. The first new building, Multidisciplinary Research Building 1 (MRB1), received budget, external financing, and design approval at the Regents' July 2016 meeting and is currently in construction. The campus is now moving forward with the second building, Multidisciplinary Research Building 2 (MRB2), which will be similar in scope.

The ultimate size of MRB2 will be determined by the program and site requirements. Currently, the proposed facility is expected to provide 72,000 to 84,000 assignable square feet (ASF) in 120,000 to 140,000 gross square feet (GSF) of new construction. MRB2's program will be modelled after the MRB1 program, and further refined through the use of updated comparative cost information that considers market conditions and site-specific requirements.

The MRB2 project will be located on the east side of the campus academic core, adjacent to existing life science research facilities. Programmatically, the building will host multiple scientific disciplines, providing wet and dry research laboratories, core laboratory support facilities, a vivarium, and space for faculty and academic support.

The Regents are being asked to approve preliminary plans funding in the amount of \$7.6 million, to be funded from campus funds. These campus funds are income from the Short-Term Investment Pool. The preliminary plans funding would enable the campus to engage a master architect and clearly define and document the project program and performance criteria, including cost metrics. The campus intends to submit the project for full budget and external financing approval, as well as design approval, following action pursuant to the California Environmental Quality Act, by fall 2017. When the campus requests budget and external financing approval, the action will also include replacing the campus funds used for preliminary

plans with external financing. Following these approvals, it is estimated that construction would commence in 2018 with the goal of achieving occupancy in late spring 2020.

### **RECOMMENDATION**

The President of the University recommends that the Finance and Capital Strategies Committee recommend to the Regents that the 2016-17 Budget for Capital Improvements and the Capital Improvement Program be amended to include the following project:

Riverside: Multidisciplinary Research Building 2 – preliminary plans – \$7.6 million to be funded from campus funds.

### **BACKGROUND**

The Multidisciplinary Research Building 2 (MRB2) project is expected to provide 120,000 to 140,000 gross square feet (GSF), and 72,000 to 84,000 assignable square feet (ASF), consisting of wet and dry research laboratories, core laboratory support facilities, a vivarium, and space for faculty and academic support.

#### ***Project Drivers***

##### Increases in Enrollment Requiring the Need to Hire New Faculty

The Riverside campus has experienced rapid growth in both its undergraduate and graduate student populations. Over the past decade, total campus enrollment increased from 16,826 headcount (HC) students in 2006 to 22,921 HC in 2016, a 36 percent increase. In fall of 2016, UCR has enrolled nearly 1,300 more California-resident freshmen than the previous year, which can be attributed to President Napolitano's initiative to dramatically boost California student enrollment. Additionally, current projections show that by 2020 UCR will have roughly 26,000 students. As the student population continues to grow, access to ladder-rank faculty becomes more difficult and the undergraduate and graduate student experience is diminished. In consideration of the existing challenge and expected further increases in enrollment, particularly in scientific disciplines, UCR must hire additional faculty. However, as illustrated in Table 1, without augmenting the campus's research space, recruitment of faculty will become difficult.

Efforts to hire new faculty to address the needs of an increased student population began in 2013, and to date the campus has expanded faculty ranks from 671 in 2013 to 852 in 2016. The strategy to accommodate additional faculty has involved optimizing space assignments, improving space utilization, renovating existing facilities, and selectively leasing off-campus space. Ability to efficiently use existing space provides a short-term relief to a long-term problem, thus the strategy also relies upon new space provided by MRB1 and MRB2. The proposed MRB2 building is anticipated to support approximately 50 faculty.

Table 1: Projection of Research Space Needs

| Year | Faculty Count | Research ASF Needed* | Research ASF Currently Available | MRB1 | Total Research Space After MRB1 Construction | Space Surplus/Deficit |
|------|---------------|----------------------|----------------------------------|------|----------------------------------------------|-----------------------|
| 2014 | 716           | 895,000              | 770,000                          | --   |                                              | (125,000)             |
| 2015 | 761           | 951,250              | 770,000                          | --   | --                                           | (181,250)             |
| 2016 | 852           | 1,065,000            | 770,000                          | --   | --                                           | (295,000)             |

\*Assumes the average faculty member will need 1,250 Assignable Square Feet (ASF)

### Need for Flexible, Modern Facilities

Expanding research capabilities to support multidisciplinary research and achieve strategic initiatives identified in the campus strategic plan, *UCR 2020: The Path to Preeminence*,<sup>1</sup> requires creating environments that support and promote collaboration. Flexible, open laboratory research space is particularly suited to multidisciplinary research because it allows teams to examine research questions from various subject areas within a single space. A contemporary open laboratory configuration allows multidisciplinary research teams of varying sizes to share the facility and become integrated, thus fostering collaboration within commonly focused scientific “neighborhoods.” In addition, the open laboratory concept fosters the use of shared support space and equipment, thus creating additional efficiencies.

Currently, about 20 percent of research space on campus is housed in an open laboratory setting. Although completion of Multidisciplinary Research Building 1 (MRB1) increases the total amount of open laboratory space available for research, there remains a significant amount of enclosed research laboratory space on campus. Additionally, nearly half of UCR’s research buildings are more than 40 years old. Many cannot be modified to an open configuration and are limited in their ability to support new technologies. Renovating existing research space to enhance efficiency and quality only addresses a portion of the problem. Growing undergraduate and graduate enrollments require hiring additional faculty which necessitates the construction of additional research buildings. Increasing capital investment to provide new open research laboratories expands the campus’s ability to recruit faculty and enhance the undergraduate and graduate student experience.

### Additional Vivarium Space

The campus needs to expand the quantity and quality of vivarium spaces. The campus does not currently have a robust portfolio of vivarium facilities to support a growing research campus. A small amount of vivarium space is located in two aging campus buildings and a temporary trailer. The approximately 10,000 ASF of vivarium space that will be provided in MRB1 will primarily serve faculty housed in MRB1, and was not sized to support subsequent research facilities such as MRB2. With the anticipation that the campus will be hiring new faculty in the

<sup>1</sup> Link: <http://strategicplan.ucr.edu/documents/UCR%202020%20-%20Final.pdf>

growing field of biomedical research, additional vivarium space is needed in order to expand the campus's research capabilities.

### **PROJECT DESCRIPTION**

The proposed building will be comprised of wet and dry research laboratories, core laboratory support facilities, a vivarium, and faculty work space and academic support areas necessary to support collaborative research programs. The building will provide flexibility in its research space, essential for collaborative research.

The proposed facility is expected to provide 72,000 to 84,000 ASF in 120,000 to 140,000 GSF of new construction. The building will incorporate the following types of spaces:

- Wet, dry, and computational laboratories. The wet research laboratories will be designed at Biosafety Level 2 (BSL-2).
- Laboratory support facilities will provide dedicated rooms for activities not suited for an open laboratory environment such as BSL-2 compliant procedures, tissue culture, media preparation, or unique instrumentation. These spaces can also accommodate shared equipment for occasional access or use to support the research needs of multiple research teams.
- A vivarium that will operate in the same manner as the vivarium in MRB1, primarily serving research programs located in MRB2, and supporting other programs distributed across campus.
- Offices, academic space, and conference rooms that will accommodate faculty, professional researchers, graduate students, postdoctoral scholars, and administrative support.

The program mirrors MRB1, which received full Regents' approval in July 2016 and is currently under construction.

Table 2: Program Ranges - Assignable Square Feet

| Description                                   | ASF Range |    |        |
|-----------------------------------------------|-----------|----|--------|
|                                               | Low       |    | High   |
| Laboratories, Laboratory Support              | 35,600    | to | 41,500 |
| Research Offices                              | 13,500    | to | 15,800 |
| Vivarium                                      | 6,600     | to | 7,700  |
| Conference, Collaboration, Scholarly Activity | 16,300    | to | 19,000 |
| Total                                         | 72,000    |    | 84,000 |

During the planning process, the campus will develop facility requirements for flexible research spaces that support multidisciplinary research and faculty recruitment. Further investigations during design will increase understanding of anticipated research activities and the associated support spaces including instrumentation, and other specialized spaces that will be needed. Assignment of specific researchers and programs will be completed prior to occupancy.

***Initial Site Location***

The proposed location for the building is in the campus core, south of the School of Medicine Education building and east of Batchelor Hall. This location is proximate to other research facilities. The site, however, may change based on analysis during the preliminary plans phase of the building's optimal site location.

***Schedule***

The campus intends to submit the project for full budget and external financing approval, as well as design approval, following action pursuant to the California Environmental Quality Act, by fall 2017. When the campus requests budget and external financing approval, the action will also include replacing the campus funds used for preliminary plans with external financing. Following these approvals, it is estimated that construction would commence in 2018 with the goal of achieving occupancy in late spring 2020.

***Approval Request and Future Actions***

The requested preliminary plans funding of \$7.6 million would enable the campus to engage a master architect and clearly define and document the project program and performance criteria, including cost metrics. Funding for preliminary plans would come from campus funds (income from the Short-Term Investment Pool), and deliverables from this effort will be the basis for selecting a design-build team through a best value selection process to execute final design and construction. The delivery strategy is intended to minimize time-to-completion while maximizing value received in terms of program capacity and life-cycle performance of the facility. The approach builds upon the success of the MRB1 bidding process.

**Key to Acronyms**

|       |                                       |
|-------|---------------------------------------|
| ASF   | Assignable Square Feet                |
| BSL-2 | Biosafety Level 2                     |
| GSF   | Gross Square Feet                     |
| MRB1  | Multidisciplinary Research Building 1 |
| MRB2  | Multidisciplinary Research Building 2 |
| UCR   | University of California Riverside    |

**ATTACHMENTS:**

Attachment 1: Preliminary Plans Budget  
Attachment 2: Initial Project Site Map  
Attachment 3: Alternatives Considered  
Attachment 4: Project Delivery Model

### PRELIMINARY PLANS BUDGET

| <b>Cost Category</b>                      | <b>Amount</b>      |
|-------------------------------------------|--------------------|
| Master Architect Fees <sup>1</sup>        | \$400,000          |
| Design-Build Fees <sup>2</sup>            | \$3,000,000        |
| Campus Administration <sup>3</sup>        | \$1,620,000        |
| Surveys, Tests, Plans, and Specifications | \$500,000          |
| Special Items <sup>4</sup>                | \$2,080,000        |
| <b>Total Preliminary Plans Budget</b>     | <b>\$7,600,000</b> |

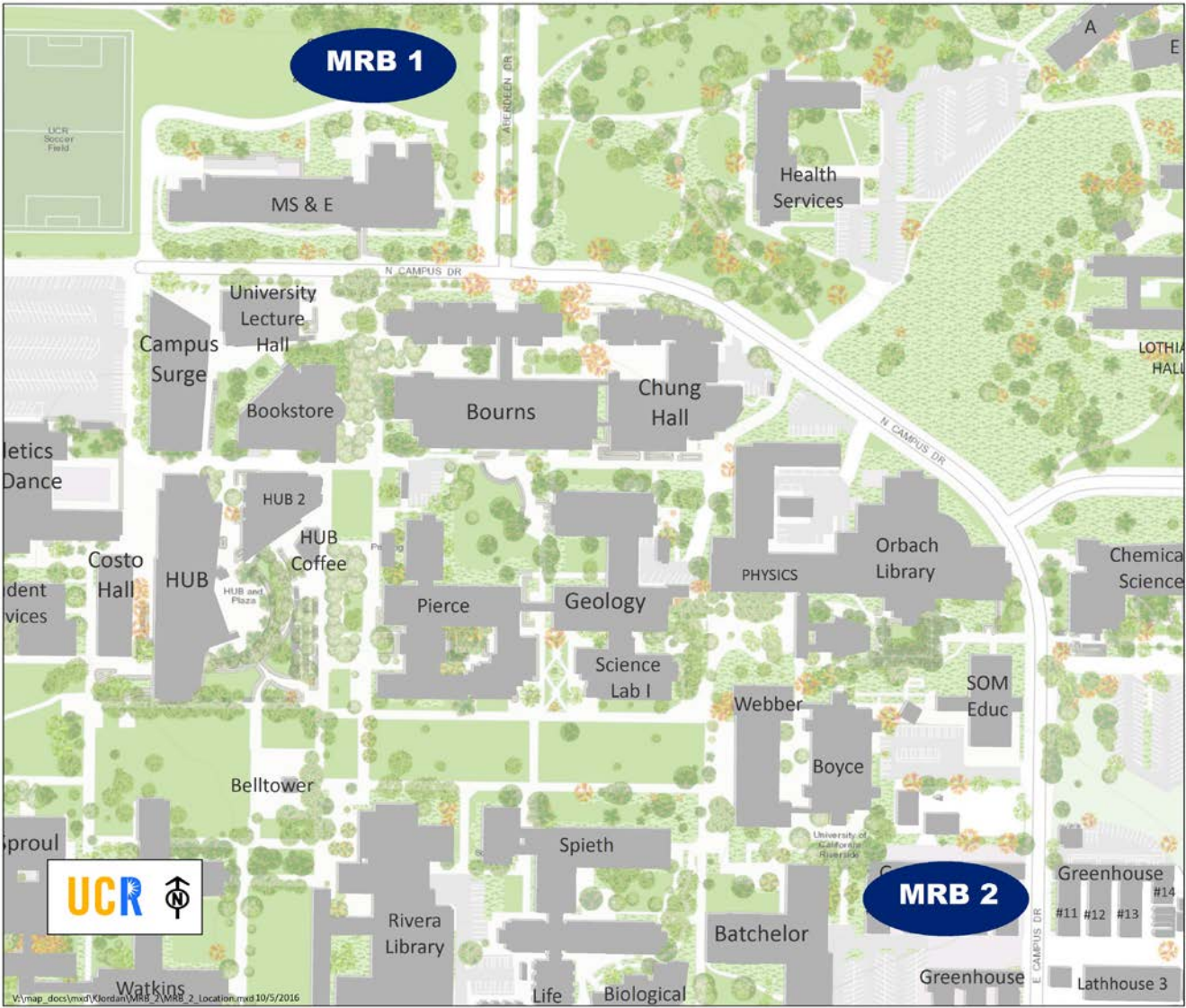
The preliminary plans budget activities involve the following:

- Retain architectural services to establish space program and overall baseline project performance requirements in terms of qualitative and quantitative measures. These criteria will be provided to the subsequently procured Design-Build team.
- Complete a multi-step process to select the Design-Build team to attract and select the most competent teams. Prequalified teams will be invited to submit a preliminary design scheme responding to project performance criteria and concurrently submit a cost proposal. Selection will be completed through a competitive Best-Value process where the value is a function of proposed total cost against design quality, scope optimization, and added value by the Design-Build team.
- Accomplish planning and design activities to generate information required to obtain necessary approvals and adoption of environmental documentation.

**Notes:**

- 1) Architectural design services to establish Performance Criteria for Design/Build Competition.
- 2) Design services provided by Design-Build entity through Design Development.
- 3) Campus project management and contract administration.
- 4) Special Items include environmental review and documentation, specialty consultants and Design-Build competition stipends.

INITIAL PROJECT SITE MAP



## ATTACHMENT 3

### ALTERNATIVES CONSIDERED

The campus-wide strategy to provide sufficient research and support space to accommodate new faculty is comprised of using off-campus lease space, renovating existing facilities, and new construction. These three options were analyzed in detail in the Business Case Analysis. As described earlier in this document, the building program is driven by the need to accommodate new and emerging research programs for new faculty which will improve the ratio of students to faculty and improve student engagement and experience. The three options for providing additional research laboratory space included:

#### Option A – Provide Off-Campus Leased Space

UC Riverside investigated the potential of leasing wet laboratory space within 40 miles of campus and found none. Facilities outside the Riverside area do not provide the environment to support academic and wet laboratory research-based programs and leasing space is not considered a feasible alternative to support new faculty. Lease space strategy is being applied to address dry laboratory space and other administrative functions.

#### Option B – Renovate On-Campus Research Laboratories

The campus is actively advancing the quality of the research environment by renovating individual laboratories and advancing major building system and interior renovation projects. These ongoing renovation projects are in design and/or construction, and address a portion of the need for high-quality wet and dry laboratory space. The option to renovate space, however, does not provide enough space to accommodate a substantial amount of additional faculty.

#### Option C – Construct New Space On Campus

New construction provides new research space within the campus academic core to support faculty hires and promotes collaborative and interdisciplinary work as part of an active academic community. A higher federal indirect cost recovery rate will be available to the campus with this alternative and the campus would retain the asset. Construction of modern research space in a new facility provides long-term flexibility for program use and adaptive reuse.

#### Conclusion

UC Riverside cannot lease modern wet laboratory space within 40 miles of the campus. Current renovation projects provide some relief but do not provide net new research space. New construction (Option C) is viewed as the preferred alternative to meet research laboratory space requirements and to invest in UCR's future.

## **PROJECT DELIVERY MODEL**

UC Riverside evaluated various delivery models to provide high-quality space that meets the research space program demands, achieves environmental performance requirements, effectively manages risk, and addresses campus financial and schedule criteria. A Design-Build delivery approach has been adopted for MRB2 to maximize value received using performance-based design to effectively manage risk in terms of total project budget, and expeditious delivery of the project. UCR's recent experience with the Design-Build process with the MRB1 project strengthens the campus's confidence in this approach. The MRB1 Design-Build competition resulted in considerable additional value for the campus, including an additional 13,600 ASF of shell space from what was requested at the time of bid. The knowledge and experience in Design-Build gained by the campus management team will inform UCR's work in managing the schedule, costs, and risks for MRB2.

### **Public-Private Partnership (P3)**

UC Riverside considered utilizing a public-private partnership (P3) approach to develop the project, although the goals of the MRB2's project do not lend themselves to the delivery model. Primary factors that weighed against the selection of P3 include:

- The pursuit of P3 and the likely duration of the selection, negotiation, and agreement phases of development would almost certainly not deliver the mission-critical facility within an acceptable and predictable time frame.
- MRB2's technical performance requirements and its central campus location present potential complications that are appropriately addressed by direct University management of design and construction.
- There is no identified market in the region for the at-risk participation of a private entity in the development of core academic research facilities. The MRB2 project is a standalone project and not part of a larger mixed-use project where other products with a lower risk profile (i.e. student housing) could offset project risk.