GB4

Office of the President

TO MEMBERS OF THE COMMITTEE ON GROUNDS AND BUILDINGS:

ACTION ITEM

For Meeting of July 19, 2016

APPROVAL OF THE BUDGET, EXTERNAL FINANCING, AND DESIGN FOLLOWING ACTION PURSUANT TO THE CALIFORNIA ENVIRONMENTAL QUALITY ACT, MULTIDISCIPLINARY RESEARCH BUILDING 1, RIVERSIDE CAMPUS

EXECUTIVE SUMMARY

The proposed Multidisciplinary Research Building 1 project is for construction of a new 179,100 gross-square-foot research laboratory building that will host multiple scientific disciplines engaged in collaborative research. The building will provide wet and dry research laboratories, core laboratory support facilities, a vivarium, and faculty and academic support space. This project will help reduce existing space deficits on campus; strengthen both research and teaching capabilities; and aid in recruitment and retention of faculty, support staff, and graduate students.

At the September 2015 meeting, the Regents approved Preliminary Plans funding of $6.89 million. The Regents are being asked to: (1) approve the project budget of $150 million, to be funded with external financing; (2) approve external financing in the amount of $150 million; (3) adopt the Initial Study/Mitigated Negative Declaration and Findings in accordance with the California Environmental Quality Act; and (4) approve the design. This action will reimburse the $6.89 million of campus funds used for Preliminary Plans funding with external financing.

RECOMMENDATION

1. The President of the University recommends that the Committee on Grounds and Buildings recommend to the Regents that:

    A. The 2016-17 Budget for Capital Improvements and the Capital Improvement Program be amended as follows:

        From: Riverside: Multidisciplinary Research Building 1 – preliminary plans – $6.89 million to be funded from campus funds.

To: Riverside: Multidisciplinary Research Building 1 – preliminary plans, working drawings, construction and equipment – $150 million to be funded from external financing.

B. The scope of the Multidisciplinary Research Building 1 shall consist of constructing a five-story, 179,100-gross-square-foot building that would provide approximately: 76,300 assignable square feet (ASF) of research laboratory, laboratory support, and research office space; 10,270 ASF of vivarium space; 25,340 ASF of scholarly activity and building support space; and 13,600 ASF of shell space.

C. Authorize the President of the University to obtain external financing not to exceed $150 million. The President of the University shall require that:

(1) Interest only, based on the amount drawn, shall be paid on the outstanding balance during the construction period.

(2) As long as the debt is outstanding, general revenues from the Riverside campus shall be maintained in amounts sufficient to pay the debt service and to meet the related requirements of the authorized financing.

(3) The general credit of the Regents shall not be pledged.

2. The President of the University recommends that, following review and consideration of the environmental consequences of the proposed Multidisciplinary Research Building 1 project, as required by the California Environmental Quality Act (CEQA), including any written information addressing this item received by the Office of the Secretary and Chief of Staff no less than 24 hours in advance of the beginning of this Regents meeting, testimony or written materials presented to the Regents during the scheduled public comment period, and the item presentation, the Committee on Grounds and Buildings:

A. Adopt the attached Initial Study/Mitigated Negative Declaration for the Multidisciplinary Research Building 1 project in accordance with CEQA.

B. Adopt the CEQA Findings and Mitigation Monitoring and Reporting Program for the Multidisciplinary Research Building 1 project. By adopting the CEQA Findings, the Regents reaffirm the Statement of Overriding Considerations adopted in association with certification of the UC Riverside 2005 Long Range Development Plan Environmental Impact Report from which the Project's Initial Study /Mitigated Negative Declaration tiers.

C. Approve the design of the Multidisciplinary Research Building 1 project for the Riverside campus.

BACKGROUND

The University of California Riverside (UCR) is proposing a new building that will provide research and office space, scholarly and interactive space, research cores, a vivarium, and related support areas. Laboratories will be designed to Biosafety Level 2 to allow for a diverse and sophisticated scope of research. The project is envisioned to be multidisciplinary to foster collaboration among researchers and to promote academic excellence. The building will be flexible and adaptable to accommodate emerging research demands over the next several decades. The need for this new building is supported below.

High Student-to-Faculty Ratios

UCR's teaching and research mission and ability to provide quality instruction are hindered by one of the highest student-to-faculty ratios in the UC system (29:1 based on ladder-rank faculty), thus diminishing the undergraduate and graduate student experience. As both undergraduate and graduate enrollments rise, the student-to-faculty ratio will increase dramatically without additional faculty. The campus' goal of adding 300 faculty by fall 2020, with an emphasis on the physical and natural sciences, requires expanded investment in contemporary research facilities.

New Strategic Science Initiatives

The campus completed a robust faculty-led process that identified areas for strategic investment. This process led to the adoption of research cluster hiring proposals focused on priority areas for interdisciplinary research identified in the strategic plan, "UCR 2020: The Path to Preeminence." Areas of study span all colleges and departments, and involve investigators from colleges and schools across campus such as Bourns College of Engineering; the College of Natural and Agricultural Sciences; the School of Medicine, Public Policy and Business Administration; the Graduate School of Education; and the College of Humanities, Arts and Social Sciences. Examples of research clusters include: biomedical informatics, neurosciences, systems biology, pathophysiology, and aging and life span. While the campus has developed an expanded utilization strategy to renovate existing research facilities, obtain leased space, and increase efficiency of existing space, accommodation of these research initiatives requires additional, flexible research space particularly suited to multidisciplinary research.

Lack of Flexible Research Space

Approximately 80 percent of UCR's research building inventory consists of enclosed laboratories, as opposed to a more contemporary open bay configuration. The enclosed laboratories limit the size of research teams; each laboratory typically accommodates a single research team, and this inherently limits opportunities for cross-disciplinary collaboration. Enclosed laboratories are typically more costly to adapt to the evolving technical demands of contemporary multidisciplinary research than are the open bays proposed in the Multidisciplinary Research Building 1 (MRB1). A contemporary open laboratory configuration enables the integration of multidisciplinary research teams of varying sizes to co-locate, 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.

Funding for preliminary plans for the MRB1 project was approved by the Regents at their September 2015 meeting. Since obtaining preliminary plans funding approval, UCR has produced a Design-Build procurement package that defined and refined the MRB1 space program, functional relationships, laboratory design criteria, and building and site design criteria; obtained comparative construction cost data from two independent cost consultants; initiated a Best Value Design-Build Delivery process; and retained a Design-Build entity to complete preliminary plans. Through this process, the campus is anticipating that the MRB1 would provide substantially more program space than anticipated in the Preliminary Plans item. (See Table below.)

PROJECT DESCRIPTION

Program

The proposed MRB1 project would be for construction of a new 125,510-assignable-square-feet (ASF), 179,100-gross-square-feet (GSF) building that will provide research laboratory and related laboratory support space. Of the research laboratory space, 82 percent will be wet and 18 percent will be dry. The new building will provide flexible and adaptable research space that will accommodate emerging research demands over the next several decades. Programmatically, the building will host multiple scientific disciplines, including some of the campus' most prestigious programs such as bioengineering, biochemistry, chemistry, neuroscience, and biomedical sciences. The building is also anticipated to support up to 56 principal investigators and associated research teams, six more principal investigators than originally projected. Table 1 shows a space breakdown of the proposed building.

Table: Program Summary – Assignable Square Feet

SPACE CATEGORY	Preliminary Plans ASF	Current ASF	Percent Increase
Research Laboratories, Core Laboratory Support Space, and Research Offices	58,500 to 67,500	**76,300**	5% to 21%
Vivarium	9,400 to 10,800	**10,270**	(5%) to 9%
Collaboration, Conference, Building Support	10,100 to 11,700	**25,340**	117% to 151%
Shell Space[1]	n/a	**13,600**	n/a
TOTAL	78,000 to 90,000	**125,510**	39% to 61%

[1] The shell space is an additive alternate and provides approximately 15,210 gsf of shell space, which could provide up to 13,600 ASF.

The space program will incorporate the following types of spaces:

- Three types of research laboratories (low fume hood density, medium fume hood density, and instrument/procedure intensive) to support varying needs of the campus' research endeavor.
- Core laboratory support facilities distributed throughout the building to accommodate shared equipment and/or to address specific research requirements.
- Research support facilities consisting of a vivarium and related shared support spaces.
- Collaborative space for scholarly activity and conference rooms to accommodate faculty, professional researchers, graduate students, postdoctoral scholars, and administrative support.
- Shell space to support future growth.

Project Delivery

A Design-Build delivery approach has been adopted to maximize value received in terms of total project budget, program capacity, facility life-cycle performance, and expeditious delivery of the project. Design-Build teams (bidders) were provided a detailed Request for Proposal, setting forth the Maximum Acceptance Cost for the project, and consisting of the detailed project program, campus design standards, and mitigation measures required in the UCR Long Range Development Plan's (LRDP) Environmental Impact Report (EIR). Submitted proposals were reviewed and scored based on measures such as space program optimization and enhancement, functional and creative design solutions, design excellence, and construction knowledge and ingenuity. The Best-Value selection approach considered technical qualities as well as cost.

As part of the overall delivery process, UCR retained professional resources with vast experience and notable success within the UC system in the application of the Design-Build process to complex facilities. The campus project management group collaborated with these professional experts as an integrated team to ensure that the MRB1 project has the benefit of the best practices of the design and construction industry. The campus project management group will also oversee project implementation.

Location

The 2.1-acre building site is located directly north of the Materials Sciences and Engineering Building at the corner of Aberdeen Drive and North Campus Drive. The proposed use of the site complies with the UCR 2005 LRDP Amendment 2 (2011) "Academic" land use designation. The site effectively serves as a northern extension of the campus' academic and research core. The MRB1 is also close to University Lecture Hall, Bourns Hall, and Winston Chung Hall. Please refer to Attachment 5 to view the project location map.

Building Design

The prominent building location provides opportunities to integrate the new five-story building into the campus environment. The facility would be incorporated into the larger campus open space and circulation system through the creation of a new Arroyo Plaza that connects MRB1 to the adjacent Materials Sciences and Engineering Building to the south, and a future academic building to the west. The project design integrates the building into the campus environment through adjacent open spaces, landscape, and hardscape improvements.

The site elevation is approximately 20 feet below Aberdeen Drive. The design of MRB1 takes advantage of the grade differential and allows for two at-grade entries, one at the lower Arroyo Plaza level, and one at level two, along Aberdeen Drive. A service road at the north side of the building provides service vehicle access and code-mandated fire truck access. The road separates the building from the student recreation facilities. The loading dock and all building equipment (e.g., emergency generators) are accessed via the service road, and are integrated into the overall building form through architectural screening elements. An architecturally significant stair and ramp connects Aberdeen Drive (building level two) to the lower Arroyo Plaza, creating an outdoor gathering place that fosters interactions with those in the surrounding facilities as well as the campus community.

The MRB1 design promotes collaboration across disciplines. The building design enhances required program elements by including environmental influences that improve the day-to-day experience of those working in the facility, such as:

- Interior openness, transparency and connectivity between research and public spaces of the building
- Modular and flexible research space that can be adapted to meet future needs
- Daylight and access to views
- Circulation spaces that facilitate movement and connections among laboratories, office/write-up areas, and common shared spaces
- Interior stairs that are convenient, open and part of the building experience, enhancing connections among research activities on various building levels
- Shared scholarly activity spaces on each laboratory floor with access to public spaces to encourage interaction
- Postdoctoral and graduate student write-up stations located immediately adjacent to and outside the laboratories within an open office environment, having access and visual connection to bench as well as to exterior views
- Informal open team spaces and research meeting rooms located throughout the building to facilitate impromptu meetings and provide alternative places to work

Project Schedule

The campus' proposed schedule anticipates that construction documents and phased construction will commence in summer 2016 with construction completed in fall 2018. The intent is to complete the project in late 2018.

Financial Feasibility

The project budget of $150 million will be funded from external financing. Debt service is projected to be $10.9 million annually, including principal and interest. Debt will be funded from Facilities and Administrative (F&A) cost recovery. Projected to be $18 million during fiscal year 2015-16, the campus has sufficient F&A cost recovery to fund the debt service and the required operations and maintenance of the plant for the building. While the campus is projecting significant future growth in F&A recovery, in part from this new research facility, the additional F&A will be used to fund other high-priority campus needs.

ENVIRONMENTAL IMPACT SUMMARY

Environmental Review Process

In accordance with the State California Environmental Quality Act (CEQA) Guidelines and University of California Procedures for Implementation of CEQA, an Initial Study for the Multidisciplinary Research Building 1 has been prepared (April 2016). The Initial Study is tiered from UCR 2005 LRDP EIR (SCH #2005041164) as supplemented and updated by the UCR 2005 LRDP Amendment 2 EIR (SCH #2010111034).

A Notice of Intent to Adopt a Mitigated Negative Declaration based on a Draft Initial Study/Proposed Mitigated Negative Declaration (IS/MND) was submitted on April 5, 2016 to the Governor's Office of Planning and Research, State Clearinghouse as well as approximately 36 interested agencies, organizations, and individuals for a 30-day review period that concluded on May 4, 2016. The Draft IS/MND was made available on the UCR Architects and Engineers website and at the UCR Capital Asset Strategies office.

Environmental Impacts

The IS/MND found that the MRB1 Project would have less than or no significant impact on the environment in regard to aesthetics, agricultural resources, biological resources, geology and soils, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality, land use and planning, mineral resources, noise, population and housing, public services, recreation, transportation and traffic, utilities and service systems.

The IS/MND found that the MRB1 Project would have a less than significant impact on the environment, with project-level mitigation incorporated in regard to air quality related to violation of, or substantial contribution to, an existing or projected air quality violation, and

cultural resources related to the potential to cause an adverse impact to an archaeological resource.

The IS/MND found that the MRB1 Project would result in potentially significant impacts related to vibration during construction to campus uses. This impact was analyzed in the 2005 LRDP EIR as supplemented by the 2005 LRDP Amendment 2 EIR, and was determined to be a significant and unavoidable impact associated with implementation of the 2005 LRDP as amended, of which the MRB1 Project is a part. There are no mitigation measures that would further reduce these construction-related impacts.

Public Comments

During the comment period, two comment letters were received. One was from the Office of Planning and Research State Clearinghouse confirming that UCR complied with CEQA review requirements; the other from the California Department of Transportation indicating that the agency has no comments, but wants to be informed of any project changes. The comment letters do not raise any new issues that are not adequately analyzed in the Initial Study pursuant to CEQA. Responses to both are included in the Final IS/MND. Therefore, no changes or amendments to the IS/MND were warranted because of public comments.

Findings

Based on the impact assessment in the attached Final Tiered IS/MND, it has been determined that the proposed project, with incorporation of applicable LRDP Planning Strategies (PSs), Programs and Practices (PPs), and Mitigation Measures (MMs), will not result in any new significant direct, indirect, or cumulative environmental impacts that are not examined in the UCR 2005 LRDP EIR as supplemented and updated by the UCR 2005 LRDP Amendment 2 EIR. This project would result in significant and unavoidable short-term noise and vibration impacts during construction, consistent with the findings of the 2005 LRDP EIR. With implementation of mitigation measures, related to air quality and cultural resources would be less than significant. The attached Initial Study discussed the Project's impacts, mitigation measures and conclusions regarding adoption of the Mitigated Negative Declaration in conformance with CEQA.

Key to Acronyms

ASF	Assignable Square Feet
CEQA	California Environmental Quality Act
DB	Design-Build
EIR	Environmental Impact Report
IS/MND	Initial Study/Proposed Mitigated Negative Declaration
LRDP	Long Range Development Plan
F&A	Facilities and Administrative
GSF	Gross Square Feet
MMs	Mitigation Measures
MRB1	Multidisciplinary Research Building 1
PPs	Programs and Practices
PSs	Planning Strategies
UCR	University of California Riverside

ATTACHMENTS:

Attachment 1: Project Budget
Attachment 2: Comparable Project Information
Attachment 3: Summary of Financial Feasibility Analysis
Attachment 4: Policy Compliance
Attachment 5: Project Location
Attachment 6: Project Design Graphics
Attachment 7: CEQA Findings

Attachment 8: Final Mitigated Negative Declaration
(http://pdc.ucr.edu/docs/ceqa/mrb1-final-initial-study-june-2016.pdf)

Attachment 9: 2005 LRDP Amendment 2
(http://lrdp.ucr.edu/Final%20EIR%20Volume%20III.pdf);

2005 LRDP EIR
(http://lrdp.ucr.edu/UCR%20LRDP%20Volume%20I%20Draft%20EIR.pdf)

2005 LRDP Amendment 2 EIR
(http://lrdp.ucr.edu/docs/UCR-2005-LRDP-Amend2-Volume-I-DRAFT-Oct2011.pdf)

ATTACHMENT 1

PROJECT BUDGET
MULTIDISCIPLINARY RESEARCH BUILDING 1
CCCI 6586

Category	**Proposed Budget July 2016**	**% of Total**
Site Clearance	$1,085,000	0.7
Building	103,946,000	71.4
Exterior Utilities	1,223,000	0.8
Site Development	3,510,000	2.4
A/E Fees[(1)]	10,755,000	7.4
Campus Administration[(2)]	4,929,000	3.4
Surveys, Tests, Plans	1,844,000	1.3
Special Items (excl. financing costs)[(3)]	5,220,000	3.6
Financing Costs	7,500,000	5.2
Contingency	5,488,000	3.8
Total P-W-C	$145,500,000	**100%**
Groups 2 & 3 Equipment [(4)]	4,500,000	
Total Project	**$150,000,000**	

Project Statistics:	**July 2016**
GSF	179,100
ASF (excludes shell space) [(5)]	111,910
Efficiency Ratio: ASF/GSF [(5)]	62.5%
Building Cost/GSF	$580
Building Cost/GSF (excludes shell space) [(5)]	$634
Project Cost/GSF	$812
Project Cost/GSF (excludes shell space) [(5)]	$888

Funding Schedule	**July 2016**
Preliminary Plans	$6,892,000
Working Drawings/ Construction	$138,608,000
Equipment	$4,500,000
Total	**$150,000,000**

1) Includes: design fees (professional services), and quality assurance during construction
2) Includes: project management, project inspections, and contracts administration
3) Includes: specialty consultants, independent seismic review, agency and other reviews, environmental documentation and environmental monitoring during construction, labor compliance, LEED expenses, Request For Proposal development, programming expenses, Design-Build stipends, and other project expenses
4) The equipment budget is sufficient to operate the building at completion. The Equipment in this facility will be expanded over time via faculty start-up packages.
5) Shell space is an additive alternate and accounts for 15,210 GSF, 13,600 ASF. Assignable space presented above does not include shell space and is less than the amount presented in Table 1. (Once the shell space is finished, the building efficiency will increase to 70%.)

ATTACHMENT 2

COMPARABLE PROJECT INFORMATION

The campus has determined that a maximum project budget of $150 million is appropriate for MRB1 in the context of the broader capital investment program.

A probable cost of construction analysis was completed by an outside cost estimating firm to identify a reasonable construction cost per GSF for a research building with both wet and dry laboratory and laboratory support space. UCR staff examined reported construction costs for comparable research building projects in the public and private academic sectors. The results of these analyses are presented in the table below, Comparable Building Costs, Public and Private Sector Projects, with this project shown at $634 per GSF. The cost per GSF does not factor in the cost of the 15,210 GSF of shell space. The cost of MRB1 reflects the current economic marketplace at this particular point in time. Please note that these costs are at building-level.

Table: Comparable Building Cost, Public and Private Sector Projects

Campus	Project	Original CCCI	GSF	**Adjusted Building Cost/GSF**	Adjusted Project Cost/GSF
Berkeley	Helios Energy Research Facility	4890	144,000	**$1,146**	$1,757
Berkeley	Biomedical and Health Sciences Building	5380	200,000	**$1,075**	$1,460
Pasadena	Cal Tech Bio-Science Complex T4	6055	160,835	**$970**	$1,210
Berkeley	Li Ka Shing Center	6062	204,650	**$937**	$1,304
San Francisco	Mission Bay Cardiovascular Research Building (17A/B)	5384	236,062	**$923**	$1,247
Stanford	Stem Cell Research Building	5135	209,000	**$918**	$1,150
San Diego	Health Sciences Biomedical Research Facility 2	5853	195,975	**$712**	$944
Riverside	*MRB1*	*6586*	*163,890**	***$634****	*$888**

*Does not include additional shell space, which the campus estimates to be 15,210 GSF.

ATTACHMENT 3

SUMMARY OF FINANCIAL FEASIBILITY

RIVERSIDE CAMPUS	
Project Name	**Multidisciplinary Research Building 1**
Project ID	**950528**
Total Estimated Project Cost	$150,000,000
Anticipated Interest During Construction (included in total estimated project cost)	$7,500,000

PROPOSED SOURCES OF FUNDING	
External Financing – Tax Exempt	$150,000,000
Total	$150,000,000

Fund sources for external financing shall adhere to University policy on repayment for capital projects.

Long-term external financing assumptions are listed below

FINANCING ASSUMPTIONS	
External Financing Amount	$150,000,000
Anticipated Repayment Source	General Revenues of the Riverside Campus
Anticipated Fund Source	Facilities and Administrative (F&A) Cost Recovery
Financial Feasibility Rate	6%
First Year of Payment	FY 2019
Term (e.g. 30 years; indicate if any years interest only)	30 years
Final Maturity	FY 2048
Estimated Average Annual Debt Service	$10,900,000

Below are results of the financial feasibility analysis for the proposed project using the campus' Debt Affordability Model. The model includes projections of the campus' operations and planned financings. A new Debt Affordability Model with revised metrics was implemented August 1, 2015.

Measure	10 Year Projections	Approval Threshold	Requirement
Modified Cash Flow Margin	2.9%, FY 2023	≥ 0.0%	Must Meet
Debt Service to Operations	5.8%, FY 2021	≤ 6.0%	Must Meet 1 of 2
Expendable Resources to Debt	N/A	≥ 1.00x	

Modified Cash Flow Margin, Debt Service to Operations, and Expendable Resources to Debt are campus metrics.

ATTACHMENT 4

POLICY COMPLIANCE

2005 Long Range Development Plan Amendment 2 (2011): The project is consistent with applicable land use designation of *Academic*.

Capital Finance Plan: The project was listed in the UCR *2015-2025 Capital Financial Plan* with a total project budget of $150 million.

Physical Design Framework: The project is consistent with the applicable planning and design guidelines, and campus review process presented in the *Physical Design Framework* accepted by the Regents in November 2009. The building's design, façade, and materials are compatible with the *Physical Design Framework* and UCR's existing academic buildings and natural surroundings.

Seismic Safety Policy: The project will comply with the University of California Seismic Safety Policy and independent seismic peer review.

Sustainable Practice: The project will comply with the University of California Policy on Sustainable Practices and the campus is targeting a LEED™ Platinum rating. Sustainable strategies place an emphasis on building design, water and energy efficiency and include:

- Improve building envelope that provides basic comfort and a higher degree of performance related to the local climatic conditions
- Reduce water and energy consumption through the selection of efficient laboratory equipment, the use of drought tolerant plants, and ability to recycle water
- Incorporate efficient air handling systems
- Utilize campus supplied chilled water
- Recycle 95 percent of construction waste

ATTACHMENT 5

Project Location