

# GB5

**Office of the President**

**TO MEMBERS OF THE COMMITTEE ON GROUNDS AND BUILDINGS:**

## **ACTION ITEM**

*For the Meeting of September 17, 2013*

**APPROVAL OF PRELIMINARY PLANS FUNDING, ENGINEERING VI – PHASE 2,  
LOS ANGELES CAMPUS**

### **EXECUTIVE SUMMARY**

The proposed project would construct a 60,000 assignable square feet (asf) research laboratory facility to accommodate multi-disciplinary information science and computation research programs of the Henry Samueli School of Engineering and Applied Science (HSSEAS). The proposed facility would be built adjacent to the Engineering VI – Phase 1 building currently under construction on Westwood Plaza adjacent to the main entrance to campus.

The building would provide research laboratories and offices for approximately 35 faculty, an incubation laboratory for the translation of the research to commercial use, and a 250-seat technology-enabled Learning Center equipped to serve both traditional and online engineering students. It would allow for the expansion of research activities and help to alleviate deficiencies in the engineering complex resulting from the increase in numbers of faculty and students during the past decade.

The project would: provide HSSEAS with a collaborative environment to foster scientific discoveries; support the development of new technologies, inventions, and educational programs; and create new commercial opportunities for high-growth industries dependent on computation research.

Total project cost, including site improvements, is currently estimated to be approximately \$70 million to be funded from gift funds. There is strong donor interest in the proposed project: \$27 million in pledges and cash have been raised to date. The Regents are being asked to approve preliminary plans funding in the amount of \$3.15 million to be funded by gift funds.

### **RECOMMENDATION**

The President recommends that the Committee on Grounds and Buildings recommend to the Regents that the 2013-2014 Budget for Capital Improvements be amended to include the following project:

Los Angeles: Engineering VI – Phase 2 – Preliminary Plans – \$3.15 million to be funded from gift funds.

## BACKGROUND

A new research laboratory building is needed to provide the Henry Samueli School of Engineering and Applied Science (HSSEAS) with a collaborative environment for multi-disciplinary information science and computation research that cannot be accommodated within existing facilities. The proposed building would allow for the expansion of this research, and help alleviate space deficiencies throughout the engineering complex resulting from the increase in numbers of faculty and students during the past decade.

The proposed location on Westwood Plaza is the former site of the seismically deficient Engineering 1A building that was demolished in 2012. The Engineering VI – Phase 1 project, approved in November 2011, is currently under construction on the north portion of this site. That project will provide 35,000 asf of specialized laboratories for the development of energy systems based on green technology. The \$57.5 million project, scheduled for completion in 2015, has been designed to accommodate a second phase of construction as contemplated by this proposed project.

The HSSEAS is one of the top ten engineering schools in public universities nationwide. Founded in 1945, the School offers Ph.D., M.S., and B.S. degrees and comprehensive research and education in seven disciplines: (1) Bioengineering; (2) Chemical and Biomolecular Engineering; (3) Civil and Environmental Engineering; (4) Computer Science; (5) Electrical Engineering; (6) Materials Science and Engineering; and (7) Mechanical and Aerospace Engineering. An online learning program allows working engineers to earn M.S. degrees in Engineering from remote locations. HSSEAS also offers multi- and inter-disciplinary science and engineering programs that include Information Science and Computation Research.

### *Project Drivers*

HSSEAS has experienced significant growth since the 1990s. The student population of undergraduate and graduate students has increased from 3,000 to over 5,000; full-time equivalent faculty has grown from 112 to 154; and funded research has grown from approximately \$50 million to \$100 million. This growth has been absorbed into the engineering complex without an increase in space for the additional faculty and students. The 450,000 asf complex consists of Boelter Hall (218,000 asf) constructed in phases from 1959-1965, Engineering IV (172,000 asf) built in 1990, and Engineering V (60,000 asf) completed in 2008. Engineering V replaced the 1940s-era Engineering 1A and 1B structures that were seismically deficient, and resulted in a net loss of 15,000 asf. While the new 35,000 asf Engineering VI – Phase 1 building replaces some lost square footage, it was designed to accommodate the needs of a highly specialized research program rather than the growth of faculty and students.

Information science and computation research – a multi-disciplinary program with revenues per assignable square foot among the highest of all disciplines in HSSEAS – has not received a space

or infrastructure upgrade in thirty years. This research is currently conducted in non-contiguous rooms in Boelter Hall that were designed decades ago to support the research of single disciplines. Open workspace with appropriate technology infrastructure is needed to meet contemporary engineering challenges at the intersection of information, nanotechnologies, and biological technologies that involve collaborations with other campus units in health sciences, medicine, and public health. Incubation laboratory space is also needed to ensure that the advancement and commercialization of technology becomes an integral component of engineering research.

A technology-enabled Learning Center is needed to better serve traditional engineering students and online engineering students who take courses simultaneously from the same instructors. The Master of Science Online program – the first such program in the UC system – allows working engineers and computer scientists to earn Master of Science degrees in Engineering from remote locations. The program, entirely self-supporting, has a current enrollment of 300 that is projected to grow to 1,000. Existing instructional space and broadcast facilities are located in Boelter Hall old conference rooms that lack appropriate sight lines, acoustics, and technology infrastructure. A modern Learning Center would improve the educational experience for students, facilitate the growth of the online program, and simplify the logistics of serving both traditional and non-traditional students from a common venue.

### **PROJECT DESCRIPTION**

The proposed project is for construction of a six-level 60,000 asf (approximately 92,000 gross square feet [gsf]) research laboratory facility to accommodate HSSEAS's multi-disciplinary information science and computation research programs. The proposed facility would be built adjacent to the Engineering VI – Phase 1 building currently under construction on Westwood Plaza.

The building would provide dry research labs and faculty offices configured to support computational research involving the development of: (1) new methods to analyze and secure large volumes of digital information (“big data”); (2) new wireless and customized computing applications to improve healthcare delivery; and (3) new computational platforms to improve the delivery of data over the internet. An incubation laboratory would be provided to enable the translation of this research to commercial use. In addition, a Learning Center would enhance the creative interaction of faculty and students, and provide a venue for integrating the results of ongoing research with the academic program.

Program components are described in more detail below:

Computational Laboratories: Open and flexible dry laboratories equipped with computer workstations and enabled by cloud computing technology would be provided to support the collaborative exchange of ideas and problem solving between a broad spectrum of computer scientists and engineers. The spaces would be configured to accommodate changing research needs over time, including the potential to subdivide them for the particular requirements of individual research groups.

Technology Incubation Laboratory: This laboratory facility would be designed to support potential private use activity. It would be occupied by a core of experts with business and technology experience who work closely with industrial partners and government agencies to facilitate the development and commercialization of scientific discoveries. Currently, it is anticipated that the laboratory would be provided as shell space for fit-out under a future tenant improvement project.

Offices: Private offices would be provided for faculty, with shared offices for post-doctoral scholars and dedicated workstations for graduate students. Shared meeting rooms, distributed throughout the building, would include small breakout spaces and conference rooms in a range of sizes. Office space for administrative and technical staff would also be provided.

Interactive Space: Space would be provided to facilitate opportunities for impromptu meetings and collaborations among building occupants. These would include designated breakout areas on each floor, dedicated spaces for quiet study, and pre-function and display space in the building lobby. A variety of seating options would be provided.

Learning Center: A 250-seat technology-enabled classroom would be provided for the dissemination of course material to engineering students through traditional lectures, workshops and symposia, and non-traditional students taking online courses. The facility would be equipped to record and broadcast to remote locations and would be divisible into two separate spaces for simultaneous events. It would also include meeting spaces with teleconferencing capability to facilitate office hours for online students and a reception area.

The scope of work would include site development and connections to campus utilities; attachment of the building to the adjacent Engineering VI – Phase 1 building to the north via pedestrian bridges linking the building corridors on the upper levels; construction of a pedestrian bridge to the Engineering IV building to the south; provision of infrastructure to support the potential for wet laboratories on the top two floors in the future; and landscape and hardscape improvements. Group 2 and 3 furniture and equipment would be procured and installed separately.

### ***Approval Request***

The requested preliminary plans (“P”) funding of \$3.15 million, to be funded from gift funds already raised, would enable the campus to confirm and refine the scope of work and budget, complete schematic design and design development, and allow fundraising to continue, prior to submitting the project for full budget approval from the Regents. The funding would support site surveys, specialty consultants, and California Environmental Quality Act documentation. There is strong donor interest in the project: \$27 million in pledges and cash have been raised to date.

**ATTACHMENTS:**

- Attachment 1: Preliminary Plans Budget
- Attachment 2: Policy Compliance
- Attachment 3: Summary of Alternatives Considered
- Attachment 4: Location Map
- Attachment 5: Delivery Model

**PRELIMINARY PLANS BUDGET**

<b>Category</b>	<b>Amount</b>
Building <sup>(1)</sup>	\$ 110,000
A/E Fees <sup>(2)</sup>	1,530,000
Campus Administration <sup>(3)</sup>	280,000
Surveys, Tests, Plans <sup>(4)</sup>	116,000
Special Items <sup>(5)</sup>	1,114,000
<b>Total Preliminary Plans Budget</b>	<b>\$ 3,150,000</b>

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(1) Construction Manager-at-Risk fees.

(2) Executive architect fees for schematic design and design development.

(3) Campus project manager, planning, engineering and design review, and contracts administration.

(4) Includes soil borings, site surveys, design phase testing.

(5) Includes pre-design study, CEQA documentation, peer reviews, specialty consultants, and agency fees.

**POLICY COMPLIANCE**

**Capital Financial Plan.** The *2012-22 Capital Financial Plan* for the Los Angeles campus accepted by the Regents in November 2012 includes the Engineering VI – Phase 2 project (page 20).

**Environmental Analysis.** Pursuant to the California Environmental Quality Act (CEQA) and the University Procedures for implementation of CEQA, appropriate CEQA review will be completed prior to consideration by the Regents or its delegate of authorization to proceed with the project.

**Sustainable Practices.** This project will comply with the *University of California Policy on Sustainable Practices*. As required by this policy, the project will adopt the principles of energy efficiency and sustainability to the fullest extent possible, consistent with budgetary constraints and regulatory and programmatic requirements, and achieve a minimum USGBC LEED™ Gold – New Construction certified rating. Specific information regarding energy efficiency and sustainability will be provided when the project is presented for design approval.

## SUMMARY OF ALTERNATIVES CONSIDERED

The proposed site is a portion of the parcel formerly occupied by Engineering 1A, a seismically deficient structure demolished in 2012. It is located immediately adjacent to the engineering complex on Westwood Plaza, and faces the traffic turnaround and pedestrian area at the terminus of Westwood Plaza. The site is bounded by the Engineering VI – Phase 1 project to the north, Engineering V to the east, Engineering IV to the south, and Westwood Plaza to the west. It is located directly opposite the site for the Luskin Conference and Guest Center that was approved by the Regents in March 2013. A location map is included in Attachment 4.

### Project Drivers:

- Accommodate growth of faculty and students that have been absorbed into the engineering complex during the past decade without an increase in space.
- Provide dry laboratory space for Information Science and Computation Research with appropriate technology infrastructure that is conducive to the collaborative exchange of ideas and problem solving.
- Provide a technology-enabled Learning Center equipped to serve both traditional engineering students and to support the high demand for courses from the existing Master of Science Online program.
- There is strong donor interest in the program: \$27 million in pledges and cash raised to date, including \$6 million in direct support of the Learning Center.

### Alternatives Considered:

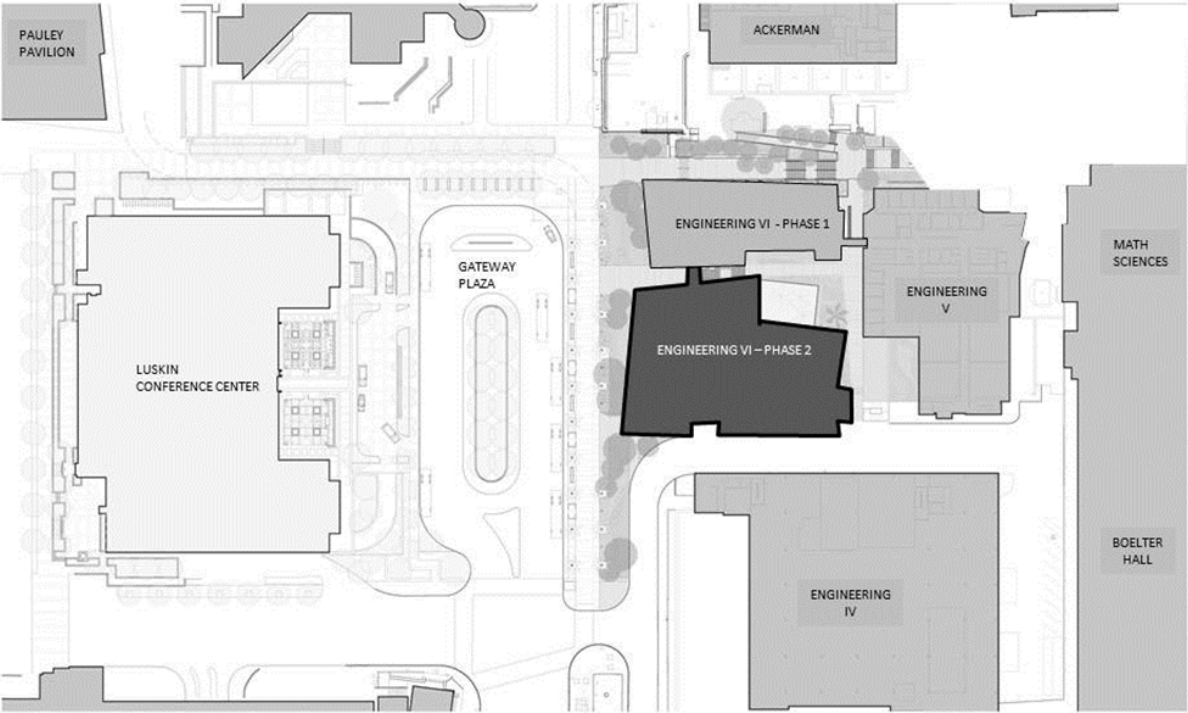
- **Lease/Purchase:** Space with large open areas and the supporting infrastructure for experimental and multidisciplinary research is not available for lease or purchase near campus.
- **Renovation:** Existing facilities in the engineering complex and across the campus are fully utilized and are not configured to provide open and flexible laboratory space. This alternative is undesirable given: it would be disruptive to existing research programs; staging within occupied buildings that are under construction is challenging; and there is no place within the existing complex that can accommodate a Learning Center.
- **New Construction proximate to or in HSSEAS:** New construction immediately adjacent to the existing engineering complex could be configured and sized to accommodate the proposed program. Relocation of highly productive researchers to a new facility would provide space within the existing engineering complex for the planned growth of faculty during the next five years.



### **Opportunity Cost of Not Building the Project:**

- The School has not added new space during the past decade even though there has been a 100 percent increase in funded research, a 30 percent increase in student enrollment, and a 25 percent growth in faculty. Recent new facilities have not provided additional space for the growth of faculty and students: Engineering V only partially replaces square footage lost when Engineering 1 was demolished in phases between 2004 and 2012, and Engineering VI – Phase 1 replaces some square footage lost when Engineering 1A was demolished and supports a highly specialized research program.
- Prospective hires at competing institutions are typically offered guaranteed access to modern research space in their recruitment package. UCLA must have an available inventory of computational laboratory space to remain competitive. Recent engineering facilities have provided primarily new and renovated wet laboratory space.
- Federal and industrial funding agencies require the identification of modern research space as a prerequisite for the grant funding of research centers. Availability of additional inventory of modern laboratory space would support continued growth in this area.
- Absence of a Learning Center would constrain the growth opportunities of the self-supporting Master of Science Online program, currently projected to grow from 300 to 1,000 students.
- Phase 1 is already under construction. Without Phase 2, the site would be underutilized.

LOCATION MAP



**DELIVERY MODEL**

The campus evaluates alternative delivery models for new capital projects. Construction Manager-at-Risk in combination with a Best Value bidder selection methodology has the potential to allow the project to achieve greater control of cost and schedule than with conventional project delivery methods. Recent experience with Best Value methodology, with its prequalification requirements and qualitative evaluation, has resulted in bids from a wider range of experienced contractors who had not previously participated in projects on the UCLA campus, while the Construction Manager-at-Risk contracting method has allowed the campus to receive the benefit of contractor expertise during the design phase of the project. Based on the unique characteristics of this project, the campus will evaluate appropriate delivery models during the preliminary planning phase.