

The Regents of the University of California

COMMITTEE ON GROUNDS AND BUILDINGS

March 13, 2007

The Committee on Grounds and Buildings met on the above date at Covell Commons, Los Angeles campus.

Members present: Regents Hopkinson, Johnson, Kozberg, Ledesma, Ruiz, Schilling, and Schreiner; Advisory members Allen, Brown, and Bugay

In attendance: Acting Secretary Shaw, General Counsel Robinson, Provost Hume, Vice Presidents Hershman and Sakaki, and Recording Secretary Bryan

The meeting convened at 11:00 a.m. with Committee Chair Kozberg presiding.

1. PUBLIC COMMENT

Committee Chair Kozberg conducted a public comment period for the purpose of hearing from those who wished to comment on University-related matters and matters on the Committee's agenda. The following persons addressed the Board concerning the item noted.

Item GB9: Annual Report on Green Building, Clean Energy, and Sustainable Transportation Policy

- A. Ms. Ayumi Nagata, undergraduate at UCLA, representative of student group E3–Ecology, Economy, and Equity, and member of the California Student Sustainability Coalition, congratulated UC for its efforts in the area of sustainable food systems, climate change policy, and purchasing, and encouraged continued commitment to sustainability.
- B. Ms. Diedre Pilotte, undergraduate at UCLA, recognized notable recent accomplishments in sustainability at UC, including UCSB's and UCSD's installation of solar systems, the eight campuses that have joined the California Climate Action Registry, UCB for hosting the California Campus Climate Challenge Summit, the use of LEED standards as a guide for UC renovation projects, and UCLA for opening a fully organic eatery with biodegradable utensils.
- C. Ms. Kasey Topp, undergraduate at UCLA and member of E3, expressed pride in the University and its commitment to sustainability, including purchasing 225 electric or zero-emission vehicles, 32 hybrid vehicles, and converting to ultra-low sulfur biodiesel. She expressed excitement that the

President may sign the American College and University Presidents' Climate Commitment.

- D. Ms. Lorna Apper, undergraduate at UCLA and future Ph.D. student, reported that student groups across the campuses have organized to bolster efforts to make the UC system one of the most sustainable in the world. She thanked the Regents for their work in this area and for keeping this important dialogue open.
- E. Mr. Montgomery Norton, graduate student at UCI and co-chair of the Irvine Student Sustainability Coalition, represented thousands of students that support UC sustainability policies across the campuses. Students look forward to the implementation and integration of these policies into UC operations and planning.
- F. Ms. Candice Carr Kelman, doctoral student at UCI, reported that UCI is working on several sustainability issues such as LEED certification for campus buildings, biodiesel for campus shuttles, and energy-saving projects in laboratories and lighting systems. She stated that UCI needs a unified, comprehensive sustainability policy.
- G. Ms. Maureen Cane, UC alumna, thanked UC staff, faculty, and students who have been involved in promoting UC sustainability projects. She asked President Dynes to pass the proposed additions to the sustainability policy.

2. **APPROVAL OF THE MINUTES OF THE PREVIOUS MEETING**

Upon motion duly made and seconded, the minutes of the meeting of January 16, 2007 were approved.

3. **REMARKS FROM THE CHAIR**

Committee Chair Kozberg noted that the Amendment of the Budget for Capital Improvements and the Capital Improvement Program, UCSD Medical Center East Campus Bed Tower, San Diego Campus, was moved to the May agenda. She stated that UC will make a strong effort to work with the community in southern San Diego County to ensure that excellent and adequate medical care exists. She thanked San Diego's elected leaders for giving time and interest to the issue.

Vice President Hershman echoed the comments by Committee Chair Kozberg, stating that the Budget Office has put forth significant effort to cooperate with the leaders of the community, and welcomed the opportunity to work together for a total vision for San Diego at both the Thornton Hospital and at Hillcrest.

4. **AMENDMENT OF THE BUDGET FOR CAPITAL IMPROVEMENTS AND THE CAPITAL IMPROVEMENT PROGRAM, RIEBER REPAIRS AND REFURBISHMENT, LOS ANGELES CAMPUS**

The President recommended that the 2006-07 Budget for Capital Improvements and the Capital Improvement Program be amended to include the following project:

Los Angeles: Rieber Repairs and Refurbishment – preliminary plans, working drawings, construction and equipment – \$44,224,000 to be funded from the Los Angeles campus’ share of University of California Housing System Net Revenue Fund Reserves.

The Los Angeles campus proposed to repair and refurbish Rieber Hall, a 127,384 asf (199,076 gsf) seven-story undergraduate residential high-rise facility in the northwest quadrant of the campus, built in 1961 and designed to accommodate 836 residents.

Vice Chancellor Olsen recalled that in March 2002, The Regents approved preliminary plan funding for six capital projects associated with the Northwest Campus Undergraduate Student Housing Plan. These projects encompassed building approximately 2,000 new undergraduate bed spaces adjacent to Hedrick and Rieber Halls, renovating the first floors of Hedrick and Rieber as community support space for the new residents, renovating the first floor of Sproul Hall as replacement housing administration space, and constructing a parking structure adjacent to Dykstra Hall. These projects are now complete.

In March 2002, The Regents also discussed future renovations to the existing high-rise residence halls that were not included in the first group of construction projects. Sproul, Hedrick, Rieber, and Dykstra halls, then nearly 40 years old, have been in need of renewal and required code upgrades, modernization of infrastructure, correction of operational deficiencies, and completion of upgrades to their residential floors in order to bring them to contemporary standards. Planning and cost studies completed in late 2004 showed that it would be necessary to prioritize the repairs, in light of significant cost increases experienced in the Los Angeles construction market during the past several years.

Replacement and repair of obsolete and deteriorated heating systems would receive the highest priority, followed by repairs to other building systems. A project to replace the heating system in Hedrick was subsequently approved by the Office of the President in July 2005, at a total project cost of \$5,805,000, funded from housing reserves. This project is now complete at a cost of \$3,900,000. The Sproul Repairs and Refurbishment project, involving replacement of obsolete building systems, windows, and interior finishes was approved by The Regents in December 2005, at a total project cost of \$18,843,000, funded from housing reserves; The Regents subsequently approved

a budget augmentation and re-scoping in September 2006, resulting in a total project cost of \$25,925,000, funded from housing reserves. This project is currently underway.

Since Hedrick and Rieber have the same type of heating systems, as do Sproul and Dykstra, parts from Hedrick and Sproul have been used to keep the heating systems in Rieber and Dykstra operational until funding is available to replace them. With final completion of the new Northwest Campus bed spaces in early 2006, an opportunity exists to take Rieber's residential floors out of service for a year so that replacement of its heating system and other necessary infrastructure repairs could be accomplished at the same time.

Project Description

The proposed project would replace and repair obsolete mechanical, electrical, plumbing, fire alarm, and elevator systems in Rieber Hall with new and upgraded systems that are energy-efficient and easy to maintain. The scope of work would include replacement and upgrades of systems serving residential floors two through seven and occupied portions of the basement representing 98,202 asf (164,973 gsf), including the heating system and heating controls; hot and cold water piping; and building power distribution, emergency power, electrical grounding, lighting, fire sprinkler, fire alarm, and elevator systems.

The work would include refurbishment of interior finishes in student rooms, lounges, laundry rooms, bathrooms, faculty apartments, and corridors; replacement of bathroom fixtures; replacement of the windows and sunscreens on the exterior of the building; accessibility upgrades to some student rooms and bathrooms as required by the Division of State Architect; abatement of hazardous materials; and repairs to building components and finishes affected by the work. Group 2 and 3 Furniture and Equipment would include replacement of older steel-framed student beds with wood-framed beds, and replacement and refurbishment of common area furniture. The scope of work would also include the design of an independent air conditioning system to serve student lounges that would be bid as an additive alternate.

The residential floors would be vacated, and the first floor, recently renovated and served by independent building systems, would remain operational during construction. Students would move out of the building according to the terms of their housing contract at the end of the school year. Returning students in fall 2008 would be assigned to the newly re-opened Sproul Hall. The residential floors of the building would remain unoccupied until the project is completed.

Construction mobilization is scheduled to begin in May 2008, with full construction activities beginning in June 2008 after the students move out of the building. The project is scheduled for completion by September 2009.

Green Building Policy and Clean Energy Standard

This project will comply with the University of California Policy on Green Building Design, Clean Energy Standards, and Sustainable Transportation 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. The project will be designed to achieve a certified rating under the UC equivalent LEED Commercial Interiors (LEED CI) as a Category 2 project in accordance with the draft UC Sustainability Guidelines for Renovation Projects developed in 2006.

CEQA Classification

In accordance with the California Environmental Quality Act of 1970 and the University of California Procedures for Implementation of CEQA, the proposed project is categorically exempt under Article 19, Section 15301, Class 1, Existing Facilities.

Financial Feasibility

The total project cost of \$44,224,000 at California Construction Cost Index (CCCI) 5317 would be funded from UCLA’s portion of the UCHS Net Revenue Fund Reserves. Much of the impact on housing rates for existing beds from this project would be covered by revenue produced by past years’ rate increases that were intended to cover the debt service for projects just completed or near completion. Because these previous projects are completing with lower overall costs for both construction and external financing, the associated revenue from those rate increases are now being applied to cover the cost of the proposed project, as well as future projects. In the first year of operations following completion of this project, the campus rate structure would increase approximately \$110 per bed to support the cost of this project and assist in returning UCHS reserves to their desired levels. The proposed rate increase is included in the table below.

Rate Increase Associated with Proposed Project (as well as Planned Projects)					
<u>Year</u>	<u>Operating Increase</u>	<u>Increase Associated with Approved Projects Not Yet On-Line</u>	<u>Increase Associated with This Project</u>	<u>Increase Associated with Future Projects</u>	<u>Total Rate Increase (%)</u>
2007-08	2.0%		1.0%	0.5%	3.5%
2008-09	2.0%			1.5%	3.5%
2009-10	2.0%			1.5%	3.5%
2010-11	2.0%			1.5%	3.5%
2011-12	2.0%			1.0%	3.0%
Total (%)	10.0%	0.0%	1.0%	6.0%	17.0%

Regent Hopkinson inquired about the cost in comparison with the cost for new housing and associated support facilities. Vice Chancellor Olsen responded that the cost per square footage for this project is likely higher than other recent projects. Final costs may be lower given that the budget is based on the higher of the two estimates obtained from separate firms. Regent Hopkinson opined that \$234/gsf is high for new construction and extremely high for refurbishment. She questioned the validity of rehabilitating facilities such as this. She also suggested that the private sector may be able to do the job for less.

Vice President Hershman observed that recently campuses have bid projects based upon a perception of the current market, leading to a tendency toward high estimates.

Committee Chair Kozberg inquired as to the large cost drivers. Mr. Olsen explained that this particular project involves a high-rise building, which adds to the cost. Market drivers include market conditions, prevailing wage issues, and the requirement that public institutions acquire capital assets through fixed-bid contracts. He stated that until statutory relief is forthcoming on these issues, it will be difficult to take full advantage of private sector opportunities.

Assistant Vice President Bocchicchio stated that outside industries are being used in creative ways to build housing throughout the system. Most projects involve low-rise construction, but high-rise housing construction at UCSD is being done on a design-build basis. The cost of this particular project must be put in the context of UCLA's location, the local industry, and site constraints. While the cost is high, it is not out of line with the parameters and constraints of the project. Overall, UC campuses are eager to use third-party private developers more frequently, particularly in the area of housing. Mr. Hershman pointed out that UCI has had success with third-party builders, and currently UCD is undergoing a project with a third-party builder.

Regent Johnson inquired about the increase of \$110 per bed, and how this increased cost relates to the debt structure. Mr. Olsen responded that the three current housing renovations will be financed with cash from the housing system reserves, while others are debt financed based on the construction of new beds. The campus has assessed the debt capacity structure, ensuring that adequate financial capacity exists to carry out all projects.

Regent Ruiz asked about the useful life of this construction. Mr. Olsen responded that the current facilities were constructed in the 1960s, and the intent is to get a comparable life out of the renovated facility. This project is a long-term investment in the facilities.

Committee Chair Kozberg issued a general comment that remarks by the Regents regarding costs are likely to arise for all projects. She appreciated the effort to

estimate costs more realistically, but the high costs also require that the campuses seek innovation and reform.

Upon motion duly made and seconded, the Committee approved the President’s recommendation and voted to present it to the Board.

5. AMENDMENT OF THE BUDGET FOR CAPITAL IMPROVEMENTS AND THE CAPITAL IMPROVEMENT PROGRAM, UCSF MEDICAL CENTER SB 1953 MOFFITT/LONG 2008, SAN FRANCISCO CAMPUS

The President recommended that the 2006-07 Budget for Capital Improvements and the Capital Improvement Program be amended as follows:

From: San Francisco: UCSF Medical Center SB 1953 Moffitt/Long 2008 Phase 1 – preliminary plans, working drawings, and construction – \$9,996,000, to be funded from State lease revenue bonds (\$8,000,000) and hospital reserves (\$1,996,000).

San Francisco: UCSF Medical Center SB 1953 Moffitt/Long 2008 Phase 2 – preliminary plans, working drawings, and construction – \$19,971,000, to be funded from State lease revenue bonds (\$17,000,000) and Federal FEMA funds (\$2,971,000).

To: San Francisco: UCSF Medical Center SB 1953 Moffitt/Long 2008 – preliminary plans, working drawings, and construction – \$36,723,000, to be funded from State lease revenue bonds (\$25,000,000), Federal FEMA funds (\$6,000,000), and hospital reserves (\$5,723,000).

This amendment to the Capital Improvement Program would consolidate the scope and budgets of two previously approved projects: UCSF Medical Center SB 1953 Moffitt/Long 2008 Phase 1 at a project cost of \$9,996,000 and UCSF Medical Center SB 1953 Moffitt/Long 2008 Phase 2 at a project cost of \$19,971,000, for a total project cost of \$29,967,000. The San Francisco campus seeks Regental approval of a consolidated project with a new total budget of \$36,723,000 that includes an augmentation of \$6,756,000 to the previously approved project budgets. Schedule extensions due to Office of Statewide Health Planning and Development delays in the approval process and required modification of construction phasing, as well as continuing escalation in construction costs, have contributed to higher total overall project costs.

Senate Bill (SB) 1667 (Chapter 71, 2000) appropriated \$600 million in State lease revenue bonds to be issued by the State Public Works Board (SPWB) to provide the University’s teaching hospitals with funding to address seismic deficiencies as required to comply with SB 1953. In November 2000, The Regents allocated \$25 million to the UCSF Medical Center to address its seismic needs. Of these

State funds, \$8 million was allocated to a Phase 1 project and \$17 million for Phase 2. The campus also received a total of \$6 million in federal FEMA funds to help defray construction costs in both Phases 1 and 2. Hospital reserve funding would cover the \$5,723,000 in remaining costs.

This consolidated project would provide both structural and non-structural seismic corrections to the Moffitt and Long Hospitals, which are part of the UCSF Medical Center located at the UCSF Parnassus campus site. The project improvements would allow the acute care hospitals to meet SB 1953 structural and non-structural criteria for 2008. At the November 2000 meeting, the Regents were provided with related summary information on these projects regarding the seismic safety mandates established by the Legislature in 1994 through SB 1953.

Vice President Hershman recalled that the UCSF Medical Center at Parnassus is located near Golden Gate Park on the northern slope of Mount Sutro in San Francisco. The Parnassus hospitals and clinics are located on a three-block site in an area shared with UCSF's health sciences schools. The 15-story, 579 licensed-bed inpatient building complex consists of interconnected Moffitt and Long hospitals which serve both adults and children. The acute care portion of the complex encompasses 662,278 gsf, and only this area is included in the proposed project. Moffitt and Long Hospitals are separated with a seismic joint, but are programmed to function as one building. Moffitt Hospital, however, is physically attached to the adjacent Medical Sciences Building, an academic facility.

Consultant teams performed surveys of the UCSF Medical Center to evaluate the expected seismic performance of nonstructural and structural systems of its hospitals for compliance with SB 1953 seismic requirements for 2008.

To comply with SB 1953 non-structural performance requirements for 2008, non-structural systems in an acute care hospital building must meet or exceed a non-structural performance category (NPC) rating of NPC-3. Several non-bearing interior wall, storage, equipment, and mechanical systems must be anchored or braced to provide safe conditions during an earthquake.

To comply with SB 1953 structural performance requirements for 2008, the structural system of the acute care hospital building must meet or exceed a structural performance category (SPC) rating of SPC-2. Long Hospital was found to satisfy the 2008 requirement with a performance rating of SPC-4. Moffitt Hospital, however, was given a performance rating of SPC-1 and cannot comply with this requirement without correction of its structural system.

The structure of Moffitt Hospital has a higher potential risk of failure during a major earthquake because of its physical attachment to the structure of the Medical Sciences Building (MSB). The building plan of these conjoined facilities is a combination of the cruciform-shape of Moffitt Hospital and the long L-shape of MSB. With differences in lateral stiffness between the structures of the two

buildings and the irregularity of their shape in combination, several floor slabs in the west wing of Moffitt Hospital could overstress in the event of a major earthquake, leading to slab failure and partial collapse.

Project Description

The Phase 1 project, for the Moffitt and Long Hospitals, would include the securing of non-structural systems which would involve communications, emergency power supply, bulk medical gas, fire alarm, and emergency lighting. Other non-structural systems that will be seismically braced include interior walls and partitions, cabinets and racks over 5 feet tall, suspended ceilings and light fixtures, mechanical and electrical equipment over 20 pounds, fire sprinklers, and utility pipes. The construction process requires proper planning of infection and dust control as well as intensive coordination between contractors and hospital staff to phase the work and avoid disrupting patients and staff.

The Phase 2 project would also implement structural changes to Moffitt Hospital so that it can meet 2008 SPC criteria. The project would entail cutting the beams and floor slabs on 15 floors so that Moffitt Hospital can be structurally separated from the MSB, to which it is presently attached. The project also would install seismic separation joints between the two buildings on all fifteen floors. This would allow the two buildings to move independently of each other in the event of a major earthquake, avoiding damage which would probably occur if they were to remain attached.

To simplify the path of the seismic cut, Cole Hall, a large auditorium which spans the Moffitt Hospital and Medical Sciences Building, would be structurally separated from the Medical Sciences Building and remain attached to Moffitt Hospital.

Bids have been received for the final packages. Contract award is pending Regental approval of budget augmentation. The combined Phase 1 and Phase 2 project is 40 percent complete with project completion on schedule for June 2008.

Green Building Standard and Clean Energy Standard

This project will comply with the University of California Policy on Green Building and Clean Energy Standards approved by the Regents at their meeting of July 2003, as well as the Presidential Policy for Green Building Design and Clean Energy Standards dated June 16, 2004. As required by this policy, the project would adopt the principles of energy efficiency and sustainability to the fullest extent possible, consistent with budgetary constraints and regulatory and programmatic requirements.

Environmental Impact Summary

Pursuant to State law and University procedures for implementation of the California Environmental Quality Act, the proposed project is consistent with the San Francisco campus Long Range Development Plan Amendment #2 Final Environmental Impact Report certified by The Regents in March 2005 (State Clearinghouse #92004072067). The potential environmental effects of the current proposal were analyzed in the LRDP FEIR Amendment #2, including seismic upgrades to hospital buildings, and the expansion of inpatient, surgery, and outpatient space.

This project as an existing building is considered Categorically Exempt under class 1 of Section 15301 of the California Environmental Quality Act.

Financial Feasibility

The 2000 State Budget Act provided \$600 million of lease revenue bonds to be issued by the State Public Works Board (SPWB) to provide the Medical Centers of University of California with funding for reconstruction projects required to comply with SB1953. In November 2000, The Regents allocated \$25 million to the UCSF Medical Center for its projects identified in the discussion item. As in previous SPWB funding for other University projects since the mid-1980s, the SPWB would lease a UCSF building from The Regents using the asset transfer mechanism and issue State lease revenue bonds to finance all or a portion of the costs. The UCSF Library building would be used as the asset to finance the seismic upgrading required for compliance with SB 1953. The University would build or renovate the project under an agreement with the SPWB. SPWB retains ownership of the Library building through the earlier of the term of the lease or full repayment of the SPWB bonds used for the project, after which ownership would return to the University.

If the Legislature fails to appropriate sufficient funds to make the rental payments, The Regents is obligated to pay rent from any lawfully available funds. When the obligations are retired, the site and facility leases would terminate and The Regents would regain clear title to the facilities.

For the consolidated UCSF Medical Center SB 1953 Moffitt/Long 2008 Phase 1 and Phase 2 projects, the total project cost is estimated to be \$36,723,000, of which \$25,000,000 is to be funded from State lease revenue funds, \$6,000,000 from federal FEMA funds received, and \$5,723,000 from hospital reserve funds.

Upon motion duly made and seconded, the Committee approved the President's recommendation and voted to present it to the Board.

6. AMENDMENT OF THE BUDGET FOR CAPITAL IMPROVEMENTS AND THE CAPITAL IMPROVEMENT PROGRAM AND APPROVAL OF INTERIM AND EXTERNAL FINANCING, HELIOS ENERGY RESEARCH FACILITY, BERKELEY CAMPUS

The President recommended that:

- A. The 2006-07 and the 2007-08 Budgets for Capital Improvements and the Capital Improvement Program be amended to include the following project:

Berkeley: Helios Energy Research Facility – preliminary plans, working drawings, and construction – \$159.4 million total project cost, to be funded from State lease revenue bonds (\$70 million), external financing (\$74.4 million), and gifts (\$15 million).

- B. The President be authorized to obtain external financing not to exceed \$74.4 million to finance the Helios Energy Research Facility project, subject to the following conditions:

- (1) Interest only, based on the amount drawn down, shall be paid on the outstanding balance during the construction period.
- (2) Repayment of any financing shall be from the facility’s lease income and the Berkeley campus’ share of the University Education Fund.
- (3) The general credit of The Regents shall not be pledged.

- C. The President be authorized to obtain interim financing not to exceed \$15 million prior to awarding a construction contract for any gift funds not received by that time and subject to the following conditions:

- (1) Interest only, based on the amount drawn down, shall be paid on the outstanding balance during the construction period.
- (2) Repayment of any financing shall be from gift funds and, in the event such gift funds are insufficient, from the Berkeley campus’ share of the University Opportunity Fund.
- (3) The general credit of The Regents shall not be pledged.

- D. The Officers of The Regents be authorized to provide certification to the lender for any component of this project for which tax exempt financing is used that interest paid by The Regents is excluded from gross income for purposes of federal income taxation under existing law.

- E. The Officers of The Regents be authorized to execute all documents necessary in connection with the above.

The proposed project would consist of a laboratory and office facility of approximately 88,000 asf devoted to programs focused on developing new biological and materials processes that are optimized for the efficient collection, processing, and storage of energy, with the ultimate goal of manufacturing transportation fuels from sunlight. The goals for these programs include developing the enabling technologies that can ultimately provide significant quantities of fuel to reduce the dependence on fossil fuels, and providing the technical basis for carbon neutral sources of energy to mitigate global climate change.

It was recalled that global energy use has grown to the point where the by-products of man's energy consumption are significantly influencing the atmosphere and climate, with costly and potentially disastrous consequences. Leading scholars forecast that an increasing availability of alternative energy sources will be necessary to maintain and grow California's economic and technological development. Motivated by a strong desire to provide solutions to global energy and environmental problems, concerned scientists and engineers from across a diverse range of disciplines have come together to form the Helios Research Program, a long-term research effort organized by the University of California, Berkeley and the Lawrence Berkeley National Laboratory (LBNL).

The ultimate goal of Helios is to develop the science and technology necessary to use sunlight to create energy sources. Transportation fuels would be the most costly but most valuable form of solar energy. There are several fuels that are potentially practical for widespread use, including hydrocarbons, ethanol, and methanol. Hydrogen is also a possibility, provided a method is developed to store and release its energy in a practical way. In addition to research into biofuels for transportation, research into photovoltaics, the storage of electrical energy, and artificial photosynthesis are other key parts of the program. The goals include developing the enabling technologies that can ultimately provide significant quantities of fuel to reduce the dependence on fossil fuels and provide the technical basis for carbon neutral sources of energy to mitigate global climate change.

BP (formerly British Petroleum) recently selected the Berkeley campus and its partners, LBNL and the University of Illinois, Urbana-Champaign (UIUC), to create and operate the Energy Biosciences Institute (EBI) with a grant of approximately \$50 million per year for ten years, to be managed jointly by the partners including BP. A portion of the space in the Helios Energy Research facility will be dedicated to the EBI for an initial term ending in 2018, including space leased to BP for proprietary research. The EBI will focus primarily on renewable biofuels for transportation and simultaneously pursue bioscience-based research in three other key areas: the conversion of heavy hydrocarbons to clean fuels, improved recovery from existing oil and gas reservoirs, and carbon sequestration.

Helios Research Program

The ambitious goals of the Helios Research Program can be achieved only by advances in basic sciences. The program brings together experts in technical topics as diverse as nano-materials synthesis, advanced solar cell design, electrochemistry, synthetic biology, genome sequencing, and the control of light. The Helios Research Program will directly sponsor research in these areas, with very close cooperation among a range of UC Berkeley energy, science, and technology-related departments (including those in the College of Chemistry, College of Engineering, and College of Letters and Science), as well as the research units at LBNL (such as the Materials Sciences Division, Physical Biosciences Division, and Energy and Environmental Technologies Division).

Support for the Helios Research Program is being developed from many institutions, including collaborations with academic institutions, industry, and foundations, and research seed funding from internal LBNL funds and private donors. That support will provide funding for graduate and postdoctoral fellowships, guest scientists, and visiting scholars. On a larger scale, backing of specific program areas will be through grants and contracts with a range of federal, State, industry, and foundation sponsors. One of the most important features of the project is its broad and integrated outlook on the problem of renewable energy, especially the tight coupling of biological and nanoscience approaches. The Helios Program will provide a mechanism to overcome the barriers among disciplines, including differences in language and scientific approach.

Energy Biosciences Institute (EBI)

Within the Helios Program, the EBI will perform bioscience research aimed at increasing energy production using biofuels and reducing the impact of energy consumption on the environment. Organizationally, the EBI will be divided into two components, with the primary component including open research by UCB and LBNL researchers and staff in the proposed facility. In addition, a small group of BP scientists and engineers will conduct proprietary research and technology development in a segregated area of the facility. This two-part structure will accommodate the collaborative needs of the institute as a whole and the proprietary needs of BP. UIUC researchers and staff will conduct their work in Illinois and will not have space allocated to them in the new facility.

The EBI will assemble teams of scientists who will seek solutions to the production of biofuels that are cost effective and carbon neutral. The EBI will create the next generation of scientists deeply knowledgeable in all areas of bioenergy and will serve as a model for the type of large-scale, academic-industry partnerships that will play an increasingly important role in solving the major global energy problems of the 21st century.

A research facility with multi-disciplinary laboratories designed specifically to obtain improvements in the efficiency of solar-to-electrical energy and solar-to-chemical energy conversion is needed for these programs. The research space needs to be flexible to support accelerated progress of scientific and technology development.

The bioengineering disciplines within the Helios Program, including the EBI, require wet research laboratories and research support space such as molecular and microbial biology laboratories, fermentation laboratories, and greenhouse facilities. Additional research and support space is required for analytical work. The nano-structured materials component requires research laboratory and support space for work with specialized equipment such as scanning probe and electron microscopes. Research activities also include catalysis, electrochemistry, and chemical separations, which require research laboratory space. The EBI project requires that approximately 16 percent of the facility be segregated from the rest of the building occupants in order for proprietary research to be conducted. This space would be for research that is deemed sensitive for competitive business reasons.

Sharing specialized equipment and operational building functions within a single facility is essential to maximize the assignable space available to the various parts of the Helios Program. To minimize duplication of research capabilities, all elements of the Helios Program, including EBI, will benefit by being located adjacent to unique scientific facilities such as the Advanced Light Source, the Molecular Foundry, and the National Center for Electron Microscopy located at LBNL.

Office and administrative support space are required for office-based research activities and management of the overall Helios Program and the EBI. Shared space, such as an auditorium, additional conference and interaction space, and food service, is needed to support all building occupants. Interim space will be provided for the Helios Program and the EBI on a short-term basis in LBNL and campus buildings respectively until the new facility is available.

Project Description

The proposed project would consist of a laboratory and office building of approximately 88,000 asf, comprised of wet research laboratory space, robotic and analytical research laboratory space, research support space, office and administrative support space, and shared conference and building operations space, as follows:

- *Wet research laboratory space* (approximately 25,000 asf) would include molecular and microbial biology, fermentation, and chemical separation laboratories.

- *Analytical research laboratory space* (approximately 18,000 asf) would include areas of low vibration and electrical noise suitable for use of scanning probe microscopes and custom-built electron microscopes, and workspace for robotics, catalysis, and electrochemistry research.
- *Research support space* (approximately 11,000 asf) would include greenhouse facilities, warm and cool rooms, and shared-instrumentation rooms.
- *Office and administrative support space* (approximately 24,000 asf) would include office, workroom, and conference space.
- *Shared conference and operations space* (approximately 10,000 asf) would include a 250-seat auditorium, food service, building reception, material management, and interaction space.

Furniture and movable equipment initially to outfit the facility will be relocated from temporary leased and campus space to the new facility; additional movable equipment will be provided as needed from operating funds.

The proposed project site is a two-acre, University-owned parcel adjacent to the Materials Sciences Research Cluster area of LBNL. The site is at the Hill Area east of the main Berkeley campus, on the southern side of the LBNL. The UC Berkeley main campus chemistry, physics, and biotechnology and bioengineering research facilities at the eastern side of campus would easily be accessible by a short shuttle bus trip or a walk through Strawberry Canyon. Utility service to the building is available from the existing LBNL utility infrastructure. Improvements to an existing road are part of this project to provide primary access to the facility. The facility will be directly accessible without passing through LBNL.

Green Building Design and Clean Energy Standard

This project will comply with the University of California Policy on Green Building Design, Clean Energy Standards, and Sustainable Transportation 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. The facility would be designed to be consistent with the proposed 2006 LBNL Long Range Development Plan and design guidelines. It would be designed and constructed to feature innovative solar energy use, meet the U.S. Green Building Council's LEED Gold level for sustainability, and outperform the required provisions of the California Energy Code by at least 40 percent.

CEQA Classification

This project has been reviewed and initially classified as not Exempt from CEQA or not Categorical Exempt. An Initial Study will be prepared to determine if the

project may have a significant effect on the environment that has not been substantially and adequately analyzed in a certified program Environmental Impact Report. This environmental documentation will be presented for consideration in conjunction with the project design review.

Financial Feasibility

The total project cost of \$159.4 million would be funded with State lease revenue bond funds (\$70 million), external financing (\$74.4 million), and gifts (\$15 million).

As of February 13, 2007, the receipt of gifts was as follows:

Gifts Received	\$	0
Pledges Received		0
Gifts To Be Raised		<u>15,000,000</u>
Total		\$15,000,000

The campus requests approval of interim financing of \$15 million in gift funds, in order to meet Regental policy to have funds on hand for bid advertisement and award. The Berkeley campus anticipates being able to raise the total amount of gift funds. To the extent that gifts are received prior to completion of the project, the amount of interim financing will be reduced and outstanding balances will be repaid. Should the Berkeley campus be unable to raise all the gift funds, the campus would return to The Regents at the end of construction to request the conversion of up to \$15 million of interim financing to external financing. The source of repayment for the interim financing is gifts, and should the gifts be insufficient, repayment would be made from the Berkeley campus’ share of the University Opportunity Fund. In compliance with Regents’ policy, all funds necessary to complete construction will be in hand prior to issuing the project for bid.

Should this external financing be necessary, the annual estimated debt service for \$15,000,000 at 5.75 percent for a term of 30 years is \$1,061,000. In FY 2012, the first year of principal and interest payments on this external financing, if any, would result in 61 percent of the Opportunity Fund’s being pledged for debt service. Combined with other Opportunity Fund supported external financing being presented for approval at this meeting, the pledge on Opportunity Funds will peak at 64 percent in FY 2019; the pledge percentage is projected to decrease thereafter.

The source of repayment for the \$74.4 million of external financing is the lease income from BP and the Berkeley campus’ share of the University Education Fund. The Education Fund is the indirect cost recovery from private contract and grants, similar to the Opportunity Fund, which is the indirect cost recovery on federal contracts and grants. Historically, the Education Fund has been taken into

consideration when campuses have requested a Presidential waiver to the Opportunity Fund pledge limit of 65 percent. Over the past several years, the Education Fund has been discussed as a new stand-alone fund source for financing, and at this time, the President and his staff are in the process of finalizing a policy regarding this fund source which is similar to the Presidential policy in place for the Opportunity Fund, such as the 65 percent pledge limit. This project has been granted an exception by the President to pledge the Education Fund for the interim and external financing in anticipation of the formal announcement expected in the coming month. There are several items being presented at this meeting with a policy exception granted by the President to use Education Funds as the source of repayment.

BP would have a formal lease of space in the facility for proprietary use, which would generate approximately \$1,484,000 of lease income in FY 2011, increasing to approximately \$2,000,000 per year thereafter. This space would be financed using taxable debt due to private business use limitations on tax exempt financing pursuant to the IRS code. Under the IRS code, the federal government is considered a private person; therefore, whether the space to be used by LBNL needs to be financed on a taxable or tax exempt basis remains under discussion with tax counsel and will be determined prior to the time that financing is required. A memorandum of understanding between the University and the Department of Energy has been drafted and is under discussion, which may allow the use by LBNL to be eligible for tax exempt financing.

For financing feasibility purposes, the campus has modeled a combination of taxable and tax exempt financing for the \$74.4 million of external financing:

- Debt of \$8,000,000, financed taxable for seven years at 7 percent to be repaid from the BP lease income and backstopped by the Education Fund, results in an estimated annual debt service of \$1,484,000. Estimated annual lease income of \$1,852,000 results in a debt service coverage of 1.25 times in FY 2012.
- Debt of \$20,300,000, financed on a taxable basis at 7 percent for 30 years to be repaid from the Education Fund, results in a estimated annual debt service of \$1,636,000.
- The remaining \$46,100,000, financed on a tax exempt basis at an interest rate of 5.75 percent for 30 years to be repaid from the Education Fund, results in an estimated annual debt service of \$3,260,000.

From mid-FY 2009 to FY 2018, the campus anticipates receiving indirect cost recovery from additional BP contracts and grants that will augment the Education Fund by approximately \$9 million annually. Projections show that in FY 2012, the first full year of principal and interest payments, 54 percent of the Education Fund would be pledged for debt service, and in FY 2019 when the additional indirect cost recovery from BP grants has ceased, the campus will

reach the 65 percent pledge limit for the Education Fund and the percentage pledged will decrease thereafter.

The proportion of the \$74.4 million in external financing to be repaid from the BP lease income and the Education Fund may change based on the actual lease contract negotiated and tax counsel's determination of taxable versus tax exempt financing for the space occupied and used by LBNL. In the event that the ratio of taxable to tax exempt financing changes, the campus and the Office of the President would ensure that the 65 percent pledge limits for the Opportunity Fund and the Education Fund are not exceeded. If necessary, the campus and LBNL would return to The Regents for approval to pledge additional funds or sources of repayment to support this project.

Vice Chancellors Brostrom and Denton presented the project. Mr. Denton explained that the cost of \$758/gsf seems expensive, but the near-fault condition of the Berkeley campus, due to its proximity to the Hayward fault, requires additional expenses. Buildings must be designed to withstand ground motion, accounting for a five percent increase in building costs. The proposed building is also on a hill, requiring deep piles and piers that add to the cost. Without these unique qualifiers, project costs would be closer to \$700/gsf.

Regent Ruiz inquired about the debt service, specifically whether a line item should be budgeted to reflect income from products produced, given that products will be created in the building that have value and will ultimately be sold on the open market. Mr. Brostrom replied that BP will be paying rent for the space used for proprietary research. Other research conducted will be open, and thus in the public domain. To the extent that patents may emerge out of this research, income from those patents will be captured under the University's policy on royalties and patent income. It would be highly speculative to calibrate debt service coverage based on future patents. Most of the debt service on the project will be covered by indirect cost recovery of approximately \$10 million to \$11 million generated from the \$50 million BP grant. Regent Ruiz commented that, when taking on projects of this magnitude, it would serve the University to point out the expectation that revenue-generating products will be produced. Vice President Hershman noted that a report is provided to The Regents annually on patent income, and that the University is very successful in generating income from patents. This report will be provided to Regent Ruiz to serve as a guideline. Regent Ruiz suggested that a figure be included in the budget for this income, so at minimum a goal would be set for patent income.

Regent Hopkinson expressed her appreciation to all involved in this project, noting the importance of such work to the University.

Regent Johnson also expressed her appreciation, commenting that all the proposed projects from Berkeley will put the University on the cutting edge of technology, especially by achieving a LEED Gold certification. She asked about

the collaboration taking place between the Berkeley projects. Mr. Denton responded that the collaboration between the projects is remarkable, and both the Berkeley campus and LBNL are learning from the process, marking a change in the culture between the two entities. Research collaboration is also taking place and growing.

Mr. Hershman also wanted to express thanks to the Governor and Assembly Speaker Núñez for their efforts regarding this project.

In response to a question from Committee Chair Kozberg, Mr. Brostrom stated that a limited number of faculty members and some students have raised opposition, mainly around industry partnership with the University. There was concern about whether the direction from the industry would jeopardize academic freedom. He reiterated that there will be a separate wing for the BP research, and major efforts will be made to ensure the separation of the proprietary research from the peer research conducted in the rest of the building.

Regent-designate Allen asked about the role of the Academic Senate in oversight over academic freedom and integrity issues. Mr. Brostrom stated that the Academic Senate was involved in the original proposal to BP, and has been kept abreast of the situation throughout. The Academic Senate will continue to be involved because much of the initial money will fund lines to hire faculty to conduct the research.

In response to a question from Committee Chair Kozberg, Mr. Brostrom explained that Opportunity Funds are derived from research from the federal government according to a formula that calculates the commitment from each campus to its debt service on research buildings. Education Funds are the overhead received from industry research.

Upon motion duly made and seconded, the Committee approved the President's recommendation and voted to present it to the Board.

7. **AMENDMENT OF THE BUDGET FOR CAPITAL IMPROVEMENTS AND THE CAPITAL IMPROVEMENT PROGRAM AND APPROVAL OF INTERIM AND EXTERNAL FINANCING, COMPUTATIONAL RESEARCH AND THEORY FACILITY, LAWRENCE BERKELEY NATIONAL LABORATORY AND BERKELEY CAMPUS**

The President recommended that:

- A. The 2006-07 Budget for Capital Improvements and the Capital Improvement Program be amended to include the following project:

Lawrence Berkeley National Laboratory and Berkeley Campus:
 Computational Research and Theory Facility preliminary plans, working

drawings, and construction – \$90,444,000 to be funded from external financing (\$85,000,000), gifts (\$5,000,000), and LBNL operating funds (\$444,000).

- B. The President be authorized to obtain external financing not to exceed \$85 million to finance the Computational Research and Theory Facility project, subject to the following conditions:
 - (1) Interest only, based on the amount drawn down, shall be paid on the outstanding balance during the construction period.
 - (2) Repayment of any financing shall be from Lawrence Berkeley National Laboratory (LBNL) operating funds.
 - (3) The general credit of The Regents shall not be pledged.

- C. The President be authorized to obtain interim financing not to exceed \$5 million prior to awarding a construction contract for gift funds not received by that time and subject to the following conditions:
 - (1) Interest only, based on the amount drawn down, shall be paid on the outstanding balance during the construction period.
 - (2) Repayment of any financing shall be from gift funds and, in the event such gift funds are insufficient, from the Berkeley campus' share of the University Opportunity Fund.
 - (3) The general credit of The Regents shall not be pledged.

- D. The Officers of The Regents be authorized to provide certification to the lender for any component of this project for which tax exempt financing is used that interest paid by The Regents is excluded from gross income for purposes of federal income taxation under existing law.

- E. The Officers of The Regents be authorized to execute all documents necessary in connection with the above.

The Lawrence Berkeley National Laboratory (LBNL) and the Berkeley campus requested approval of the budget interim and external financing for the Computational Research and Theory Facility at a total project cost of \$90,444,000 at California Construction Cost Index 5235, to be funded from external financing (\$85,000,000), gifts (\$5,000,000), and LBNL operating funds (\$444,000). The proposed project would construct a 99,000 asf, high-performance computing and office facility to collocate Berkeley campus computer scientists, mathematicians, computational scientists, physical scientists, and theoreticians with the National Energy Research Scientific Computing (NERSC) Center and LBNL

Computational Research Division scientific staff. This facility would enable the advancement of scientific knowledge, education, and service through high performance computing by providing a highly productive environment for advanced computational research and theory and a computational resource of nationally leading capability.

It was recalled that UC Berkeley has top-ranked academic programs in computer science and applied/computational mathematics, and plans to establish a much stronger presence in the field of computational science and engineering (CSE). LBNL is making major contributions to high performance production computing and computational research and theory. LBNL also needs to move the National Energy Research Scientific Computing (NERSC) Center from a leased facility in Oakland to the LBNL to increase the size of its computer floor area and to collocate computer scientists, mathematicians, computational scientists, and theoreticians with immediate access to the computing systems. To meet these needs, construction of the Computational Research and Theory (CRT) Facility is proposed on University land adjacent to LBNL.

Planning for this facility provides an opportunity for UC Berkeley to establish a successful CSE program, fund additional space in the facility, and provide a stronger presence at LBNL. To this end, the UCB/LBNL Joint CSE Center would create a formal structure that promotes and coordinates CSE activities between the Berkeley campus and LBNL.

Computational simulation has taken its place next to experimentation and theory in the scholarly pursuit of scientific and technical investigations, resulting in a rapid growth in the use of computing resources. The Department of Energy (DOE) predicts a shortfall of available computational resources by as much as a factor of eight in 2008. An upgrade of the NERSC is a key element in DOE's strategy to meet this demand and this upgrade requires additional computer floor space. NERSC's strategic plan is to implement a new system every three years while maintaining user access to the previous system. Therefore, at any given time, space is needed for two full systems.

NERSC is currently housed in a 19,000-square-foot computer room in leased space at LBNL's Oakland Scientific Facility (OSF). The OSF computer floor space will be full and unable to support new systems after December 2007. The power requirement for the high performance computing program is projected to grow from the current electrical demand of 5 MW (megawatts) to as much as 24 MW by the year 2011. The PG&E power system serving the Oakland Scientific Facility cannot serve a load of this magnitude cost-effectively. The PG&E system serving LBNL, and the Laboratory's internal power system, have the capacity to serve an electrical power load of 24 MW.

Project Description

The proposed project site is a 2.25-acre University-owned parcel adjacent to the Blackberry Gate of LBNL. The site is at the west end of the Laboratory, with frontage on Seaborg Road, flanked on three sides by Buildings 70 and 70A to the east, the Building 50 complex to the north, and the Blackberry Gate to the west. A key benefit of this building site is that it is within walking distance or a short shuttle bus trip to Soda Hall, the location of UC Berkeley’s Computer Science Division.

The proposed project would provide a new building of approximately 139,800 gsf (99,000 asf). This includes 33,000 asf of high-performance computing space and 69,000 asf for offices, a visualization laboratory, and conference space that would accommodate approximately 75 UCB academic staff and students and 225 LBNL scientific staff.

A new electrical feeder would be installed from the Grizzly Peak Substation. All other major utilities are available in the immediate area. The facility would include 7 MW of power capacity to serve the initial high performance computing and office loads. A geologic fault investigation was performed in September 2006 in conformance with the Alquist-Priolo Act, and no traces of an active fault were identified on the proposed project site.

Green Building Design and Clean Energy Standard

This project will comply with the University of California Policy on Green Building Design, Clean Energy Standards and Sustainable Transportation 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. With its adjacency to LBNL, the CRT Facility would be constructed within the population and building space constraints of the 1987 LBNL Long Range Development Plan (LRDP). It is included in the proposed 2006 LBNL Long Range Development Plan proposed for review and approval by The Regents in 2007. The building would be designed in accordance with the LRDP Design Guidelines and respect the scale, rhythm, and patterns of the surrounding architectural context through massing, exterior finishes, and other architectural elements. Exterior materials would be chosen to be compatible with the surrounding buildings.

CEQA Classification

This project has been reviewed and initially classified as not Exempt from CEQA or not Categorical Exempt. An Initial Study would be prepared to determine if the project may have a significant effect on the environment that has not been substantially and adequately analyzed in a certified program Environmental

Impact Report. The environmental documentation will be presented for consideration with the project design review.

Financial Feasibility

The total project cost of \$90,444,000 would be funded from external financing (\$85,000,000), gifts (\$5,000,000), and funds available to LBNL (\$444,000).

As of January 10, 2007, the receipt of gifts was as follows:

Gifts Received	\$	0
Pledges Received		0
Gifts To Be Raised		<u>5,000,000</u>
Total	\$	5,000,000

Approval of interim financing of \$5 million is requested in order to meet Regental policy to have funds on hand for bid advertisement and award. The Berkeley campus anticipates being able to raise the total amount of gift funds of \$5 million through the College of Engineering. To the extent gifts are received prior to completion of the project, the amount of interim financing will be reduced and outstanding balances will be repaid. Should the College of Engineering be unable to raise \$5 million of the gift funds, the campus will return to The Regents at the end of construction to request the conversion of up to \$5 million of interim financing to external financing. The source of repayment for the interim financing is the gifts, and should the gifts be insufficient, the Berkeley campus' share of the University Opportunity Fund. In compliance with Regents' policy, all funds necessary to complete construction will be in hand prior to issuing the project for bid.

Should this external financing be necessary, the annual estimated debt service for \$5 million at 5.75 percent for 30 years is \$364,600. In FY 2012, the first year of principal and interest payments on the external financing, if any, 61 percent of the Opportunity Fund would be pledged for debt service. Combined with other Opportunity-Fund-supported external financing being presented for approval at the March 2007 meeting, the campus would reach the 65 percent pledge limit on Opportunity Funds in FY 2019 and this percentage is projected to decrease thereafter.

The Berkeley College of Letters and Science is also attempting to raise an additional \$5 million of the gift funds prior to bid advertisement. If the gifts are raised, LBNL and the campus will reduce the external financing from \$85 million to \$80 million and use the gifts to fund project expenditures. Should the gifts not be raised, the project will either use the full \$85 million of proposed external financing or reduce the office space and scope by such amount.

Pursuant to the IRS code, the federal government is considered a private person and therefore limited in its ability to occupy and pay for tax exempt financed

facilities. For the \$85 million of external financing, the NERSC portion likely will require taxable financing. Whether the office space portion can be financed on a tax exempt basis at all or a portion would require taxable financing is under discussion. This will be determined prior to the time that financing is required. A memorandum of understanding between the University and the DOE has been drafted and is under discussion which may allow the use by LBNL to be eligible for tax exempt financing. For the financing feasibility, it was assumed that all of the external financing would be taxable. Tax counsel's determination will decide the final allocation between taxable and tax exempt financing.

Based on external financing of \$85,000,000 amortized over 30 years at 7 percent interest, debt service would be approximately \$6,850,000 annually. The source of repayment for external financing is LBNL operating funds. LBNL receives revenue from three primary sources: (1) approximately 77 percent from the Department of Energy, (2) 8 percent from National Institute of Health (NIH) contracts and grants; and (3) 15 percent from all other agencies' contracts and grants. In FY 2006, this totaled \$517 million. LBNL uses all of the funds to pay for operating expenses related to lab operations and research expenditures. Revenues are expected to be expended in full each fiscal year. Within the DOE funded revenue under Contract 31, LBNL receives funds to support specific programs, such as NERSC and computational research. In discussions, DOE has been supportive of an increase in funding for these programs as needed to support the financing of this project by increasing the NERSC and CRT program funds commencing in FY 2011 to be the source of repayment for the external financing.

Although federal funds are subject to annual appropriation, the historical funding and projected funding for these programs, as well as the confidence that the University will continue to manage LBNL, provides the University with sufficient comfort to request approval for 30-year financing. If the University is replaced as the Lab manager, the current contract with DOE does not require assumption or repayment of all University debt issued for LBNL; the University and Berkeley campus would seek alternative uses for this building.

Associate Laboratory Director McGraw and Facilities Deputy Director OHearn presented the project. Mr. McGraw explained that eight UC campuses and all three national laboratories use the current NERSC facility. LBNL and UC Berkeley share a mission to educate and train the next generation of computational and computer scientists, and the facility would provide a focal point for this education, providing a competitive advantage for attracting the best students and faculty in the field. The facility will be of immense benefit to both LBNL and the campus as increasingly collaborative activities are pursued.

Regent Ruiz inquired about the power requirements for the facility in relation to the sustainability of the project. He asked if cogeneration opportunities have been considered to capture additional savings. Mr. OHearn explained that power costs are through Western Area Power Authority, providing a 40 percent discount over

PG&E rates. Cost-saving methods are also being considered to cool the building, including 100 percent outside air.

Regent Ledesma inquired about the financial feasibility, the level of gift funds received, and the timeline for gift funds. Mr. O'Hearn replied that interim financing is requested precisely to backstop the gift funds. Mr. Hershman added that the Berkeley campus is committed to working with LBNL to raise gift funds for the project.

Upon motion duly made and seconded, the Committee approved the President's recommendation and voted to present it to the Board.

8. **AMENDMENT OF THE BUDGET FOR CAPITAL IMPROVEMENTS AND THE CAPITAL IMPROVEMENT PROGRAM, APPROVAL OF STANDBY AND EXTERNAL FINANCING, CERTIFICATION OF ADDENDUM TO ENVIRONMENTAL IMPACT REPORT, AND APPROVAL OF DESIGN, BIOMEDICAL AND HEALTH SCIENCES BUILDING, BERKELEY CAMPUS**

The President recommended that:

- A. The 2006-07 and 2008-09 Budgets for Capital Improvements and the Capital Improvement Program be amended as follows:

From: Berkeley: Biomedical and Health Sciences Building – preliminary plans – \$6,500,000, to be funded from gifts.

To: Berkeley: Biomedical and Health Sciences Building – preliminary plans, working drawings, construction, and equipment – \$256,653,000, to be funded from gifts (\$128,900,000), external financing (\$75,053,000), and State funds (\$52,700,000).

- B. The President be authorized to obtain external financing not to exceed \$75,053,000 to finance Step 1 of the Biomedical and Health Science Building project, subject to the following conditions:
 - (1) Interest only, based on the amount drawn down, shall be paid on the outstanding balance during the construction period.
 - (2) Repayment of the debt shall be from the Berkeley campus' share of the University Education Fund and the Berkeley campus' share of the University Opportunity Fund.
 - (3) The general credit of The Regents shall not be pledged.

- C. The President be authorized to obtain standby financing not to exceed \$57 million, prior to awarding a construction contract for any gift funds not received by that time and subject to the following conditions:
- (1) Interest only, based on the amount drawn down, shall be paid on the outstanding balance during the construction period.
 - (2) Repayment of any financing shall be from gift funds and, in the event such gift funds are insufficient, from the Berkeley campus' share of the University Opportunity Fund.
 - (3) The general credit of The Regents shall not be pledged.
- D. The Officers of The Regents be authorized to provide certification to the lender that interest paid by The Regents is excluded from gross income for purposes of federal income taxation under existing law.
- E. The Officers of The Regents be authorized to execute all documents necessary in connection with the above.
- F. Upon review and consideration of the environmental consequences of the proposed project as described in the Addendum to the 2020 Long Range Development Plan Environmental Impact Report (LRDP EIR) The Regents:
- (1) Certify the Addendum to the 2020 LRDP EIR.
 - (2) Adopt the Findings.
 - (3) Approve the design of the Biomedical and Health Sciences Building, Berkeley campus.

[The Addendum to the 2020 Long Range Development Plan Environmental Impact Report was mailed to Regents in advance of the meeting, and copies are on file in the Office of the Secretary.]

The Berkeley campus requested project approval for the Biomedical and Health Sciences Building project at a total cost of \$256,653,000. Approval of external financing and standby financing is requested to support general design of the entire project and completion of design and construction for the first step of the project.

The proposed project would construct a 110,000 asf (200,000 gsf) building designed to facilitate interactive, multidisciplinary research into the molecular mechanisms of human disease. The building would be completed in a series of four discrete steps and would be of a scale to accommodate research laboratories

for up to 35 faculty; meeting, conference, and instructional facilities; an imaging facility; and an expansion of the existing campus animal facility. Step 1 would consist of construction of the building shell and core infrastructure systems, at a total cost of \$140,053,000, to be funded from gifts (\$65,000,000) and external financing (\$75,053,000).

It was recalled that at its November 2006 meeting, The Regents approved the Biomedical and Health Sciences Building project for preparation of preliminary plans. At that time, the campus indicated that it would explore alternative project delivery strategies, including completing the building in phases, and then would return to The Regents with more detailed information upon which to base its request for approval the project and financing, if necessary.

The campus has concluded that the most efficient way to deliver the project is to construct it in a series of discrete steps using various fund sources as they become available, based on studying delivery options including traditional design-bid-build versus construction manager/general contractor and phasing strategies. After considering the alternatives, the campus concluded that constructing the building shell and core infrastructure as an initial step, followed by several interior completion steps, would be cumulatively less expensive than the traditional construction method of full build out in a single contract. The savings are expected to come primarily, but not exclusively, from mitigating the effects of cost escalation and market factors.

In addition to the cost savings, another rationale for this approach is that the requirements for modern research are evolving faster than facilities can be designed and built. The campus has found that in the time it takes to construct a new building, the instrumentation to be used in its laboratories has typically gone through two to three cycles of obsolescence. Moreover, the specific researchers and programs that will occupy a new building cannot be identified with certainty three to five years in advance of project completion. Faculty recruitments and departures make it sensible to design facilities with the flexibility to accommodate a research program that is certain to change, and to defer the final layout of laboratory equipment until the last phase of construction.

With regard to project cost and potential savings, building a shell followed by interior completion in phases is projected to cost less than traditional full design and construction, and it would deliver the project faster, assuming the availability of funding. Savings are expected to come primarily from three areas: 1) by accelerating the start of construction to use available funding, the impacts of escalation are mitigated for a major portion (the core and shell) of the total project; 2) deferral of detailed laboratory layout until later in the construction process will better respond to rapidly changing faculty and research needs; and 3) at the time of interior completion, smaller laboratory build-out increments can attract a larger number of small- to mid-sized subcontractors, thereby increasing bidding competition, lowering contractor risk, and improving the

chances of good bid results. However, the ultimate cost of the project could be affected by the uncertainty of bidding future construction steps in a highly volatile construction market.

From a funding standpoint, a phased completion strategy encourages donor support as it enables the campus to respond to expectations for demonstrable progress in meeting schedules. This strategy allows the campus to proceed with those project phases for which funds are available.

Finally, the availability of academic research shell space puts the campus at a distinct advantage in applying for research grants because outfitting of shell space is considerably faster and less expensive than building new space, or even remodeling existing space. This is an increasingly important factor as the highly integrated research and teaching environment at UC Berkeley is uniquely positioned to excel at bioscience research but often limited by the availability of adequate facilities.

Program

Over the last decade, UC Berkeley has brought together a noted multidisciplinary team of biochemists, geneticists, molecular biologists, neuroscientists, physicists, bioengineers, and computer scientists to understand the mechanisms of disease at the molecular level. Researchers are working together to develop early diagnostic methods, therapeutics, and prevention strategies for a broad range of human disease, including infectious disease, diabetes, cancer, and Alzheimer’s and Parkinson’s disease. Each of the relevant scientific disciplines at UC Berkeley is ranked among the top ten in the United States in a survey by the National Research Council. However, the faculty strongly believe that solutions to today’s most critical health challenges require collaborative teams sharing knowledge, expertise, and resources both within and across disciplines.

The proposed Biomedical and Health Sciences Building would be designed for flexible adaptation to rapidly evolving research programs, to support multidisciplinary teaching and research, to foster new multidisciplinary initiatives, and to advance the understanding of the fundamental molecular mechanisms of human disease. The building would house research programs focusing on five themes: infectious disease, cancer biology, stem cell biology and gene regulation, neuroscience, and computational biology. The themes were selected to build upon the breadth and depth of excellence of UC Berkeley faculty and students and to focus on those rapidly expanding areas of inquiry where researchers believe they can have the greatest impact on human health.

Research at UC Berkeley is fundamental to its mission of education. As a research university, UC Berkeley strives to provide students with a unique experience, one in which critical inquiry, analysis, and discovery are integral to the coursework. The Biomedical and Health Sciences Building will support this

goal both by including new state-of-the-art teaching laboratories and by expanding the opportunity for graduate and undergraduate students to participate actively in leading edge health science research.

Project Site

The project site is in conformance with the UC Berkeley 2020 Long Range Development Plan, adopted by The Regents in January 2005. The Regents approved funding for preliminary plans in November 2006. The demolition of Warren Hall, which would occur as part of the project, was previously analyzed in the Seismic Replacement Building 1 EIR certified by The Regents in September 2000.

The project site is located at the formal west entrance to the campus, just north of the terminus of University Avenue, the city’s primary east-west arterial and a primary public view into campus. The site slopes up from elevation 208-feet at its southwest corner at Oxford Street and the Crescent to 238-feet at its northeast corner.

The project would face the Biomedical Courtyard, the hub of social life for this precinct of the campus to the east and to the south, and would lie behind a foreground of trees framing the Crescent lawn (the westernmost element of the beaux-arts Central Glades and the major west entry to campus). The project design respects the setbacks and height profiles prescribed by the 2020 LRDP at its interface with the Crescent, the Courtyard, and Oxford Street.

Project Description and Design

The overall building space program, as presented in Table 1, is generally consistent with that presented to The Regents previously. The only significant difference is the inclusion of additional instruction related space; the scope of the project has increased from 103,600 asf to 110,000 asf.

Table 1: Space Program Summary: asf

Research Laboratories		65,600
Assigned Research Laboratory Space	24,700	
Assigned Computational Suites	5,500	
Assigned Laboratory Support Space	13,800	
Shared laboratory Support Space	6,300	
Core Laboratory Space	5,500	
Scientific Office and Conference Space	9,800	
Animal Facilities		19,800
Imaging Facilities		6,800

Instructional, Conference, and Meeting Facilities		14,700
Teaching Laboratories	6,300	
Assembly Spaces	5,700	
Teaching Support and Interaction Space	2,700	
Building Support		3,100
Total asf		110,000
Total gsf		200,000

The project would be constructed in a series of four discrete steps described below. Upon full build-out, the building would include the following elements: research laboratories and offices for up to 35 faculty in the Department of Molecular and Cell Biology, the School of Public Health, the Wills Neuroscience Institute, and humanities programs in bioethics and law; laboratory support space, including imaging, animal, and shared biosafety laboratory facilities; three instructional laboratories and support space; a 299-seat auditorium; and an 80-seat classroom.

The 200,000 gsf (110,000 asf) project would be a braced frame steel structure set into the slope of the site: at its west end, facing downtown Berkeley, the project would have five levels above and one level below grade, while at the east end, facing the campus, the project would have four levels above and two levels below grade. The project would have its primary student entrance on the east side of the building at the Courtyard level, as well as a public and secondary student entrance on the south side, one story below, at the level of the Crescent.

The basement level would be at the same level as the adjacent existing animal facility and would house an expansion of the animal facility as well as a new magnetic imaging facility. The first (Crescent) level would house instructional labs and mechanical space, while levels two through five would house research labs, including faculty offices and interaction spaces. The second (Courtyard) level would also include an auditorium to replace the existing auditorium in Warren Hall.

The project would have a clearly articulated base of board-formed concrete, a material widely used in the campus' neoclassical buildings, including neighboring Mulford Hall. The primary façade material above the base would be terra cotta blocks, with a matte surface and integral color: the individual blocks would be roughly 2 feet by 5 feet, similar to those on the campus' neoclassical granite buildings. The façades would be capped with a formed cornice of stainless steel: this same material is selectively used as an accent material elsewhere on the façades, as well as on the screen walls enclosing rooftop equipment.

The project would also employ a glass curtain wall extensively on the north, east, and south façades. The glass walls on the north and east are designed for maximum natural daylight in the research labs. The glass walls on the south façade, used in combination with integral architectural sunshades, would correspond to the interactive spaces on the lab floors and take advantage of views through the trees to the Crescent.

The campus has conducted an independent cost review of the projects as well as peer design and seismic review.

Step 1: Shell and Core (\$140,053,000)

Step 1 would construct a new 110,000 asf building shell on the current site of Warren Hall as the initial step in a multi-phase project to provide modern research, teaching, and support facilities. This step would include the building shell and core utility infrastructure systems designed to support research activities and their associated technologies and would provide the flexibility easily and economically to adapt the interior spaces in response to rapid changes in these fields.

Step 1 would include demolition of the existing Warren Hall (79,000 gsf) and construction of a basic building shell consisting of foundations, structural framing, exterior enclosure, and core building infrastructure systems. Elevators and vertical exiting systems would be completed to provide required emergency egress, but corridors, offices, laboratories, and support spaces would not be built out. The building's mechanical and electrical distribution systems would accommodate the full planned capacity of the completed facility, but risers would be terminated at each floor to allow flexibility for future specific design requirements.

This step would be funded from gift funds and external financing. Construction is projected to begin January 2008, with completion targeted for 2009-10.

Step 2: Science Infrastructure (\$55,700,000)

State funds for Step 2 are scheduled for inclusion in the 2008-09 State Budget request for construction of an initial phase of interior completion. Step 2 would build out space in the basement, second, and fifth floors. Completed space would include vivaria, imaging facilities, biosafety laboratories, faculty research laboratories, three instructional laboratories (one of which will be a biosafety level 2 facility), laboratory support rooms, and other spaces to provide key shared-support functions that would be available to all programs in the building. Construction is projected to begin in July 2009 and be completed in December 2010.

Step 3: Stem Cell Biology and Gene Regulation Center (\$36,300,000)

Step 3 would provide laboratory and office fit-out on the third and fourth floors for research focused on cancer and stem cell biology, development of translational

therapies, and programs on bioethics and the law. Funds will be sought through a proposed grant from the California Institute for Regenerative Medicine or from philanthropic sources. Completion is targeted for 2010-11.

Step 4: Instructional Facilities and Faculty Research (\$24,600,000)

Step 4 would provide interior completion of remaining space on the first and second floors. This would consist of faculty research laboratories, a 299-seat auditorium, an 80-seat lecture hall, associated break out spaces, and other office and meeting spaces. This phase would be funded from gifts, grants, and campus funds for faculty start-up packages. Completion is targeted for 2011-12.

Green Building Policy and Clean Energy Standard

This project will comply with the University of California Policy on Green Building Design, Clean Energy Standards, and Sustainable Transportation 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. The project is expected to achieve LEED Silver equivalency.

Both the architecture and the infrastructure of the building have been designed for optimal performance with respect to energy and water consumption and wastewater production, informed by a multi-agency eco-charrette conducted during schematic design. Architectural features such as green roofs, and windows and sunshades, designed to provide natural daylight with minimal heat gain, not only conserve energy but also serve as visible symbols of the campus' investment in sustainable design. The placement of the research labs on the north and east exposure reduces the solar load on mechanical systems and allows full-height windows to increase natural daylight in the labs. The design of the building infrastructure has been based on the LABS 21 data base and metering of actual use in existing comparable research labs.

Environmental Impact Summary

Pursuant to State law and University procedures for implementation of the California Environmental Quality Act (CEQA), the campus prepared an Initial Study to evaluate the Project in relation to the original analysis done in the 2020 LRDP EIR. The Initial Study finds the Project to be within the scope of and consistent with the 2020 LRDP EIR, certified by The Regents in January 2005. The Initial Study also concludes that there have not been any changes in the Project or circumstances that would cause any new significant environmental effects not considered in the 2020 LRDP EIR or increase the severity of any impact previously found significant in the 2020 LRDP EIR. No new information has been identified that alters any of the conclusions of the 2020 LRDP EIR regarding any significant effects of the Project or feasible mitigation; thus an

Addendum to the 2020 LRDP EIR has been prepared for the Biomedical and Health Sciences Building project.

Seismic Replacement Building 1 (SRB1) EIR. The demolition of Warren Hall, which would occur as part of the Project, was previously analyzed in the SRB1 1 EIR (SCH #99122065) certified in September 2000. The SRB1 EIR prescribed some mitigation measures specific to the demolition of Warren Hall that still apply, except where these have since been superseded by more restrictive practices and mitigation measures prescribed in the 2020 LRDP EIR, in which instances the latter would take precedence.

2020 LRDP EIR. The Project is proposed as partial implementation of the UC Berkeley 2020 LRDP. Adopted by The Regents in January 2005, the 2020 LRDP describes both the scope and nature of development proposed to meet the goals of the University through academic year 2020-2021, including projections of growth in both campus population and campus space during this timeframe.

The 2020 LRDP also prescribes a comprehensive set of principles, policies, and guidelines to inform the location, scale, and design of individual capital projects. These include both Location Guidelines, which establish priorities for the location of campus functions, and the Campus Park Design Guidelines, which establish design standards and guidelines for projects, such as the Biomedical and Health Sciences Building, which are located on the historic Campus Park.

The Project conforms to the 2020 LRDP Location Guidelines, which prioritizes locations on the Campus Park for uses that include instructional spaces; faculty office, research, and conference spaces; student workspaces; and research activities with substantial student engagement and participation. The Project also conforms to the Campus Park Design Guidelines, as augmented by Project-specific guidelines prepared as required by the 2020 LRDP.

The 2020 LRDP Environmental Impact Report (SCH #2003082131), certified by The Regents in January 2005, provides a comprehensive program-level analysis of the 2020 LRDP and its potential impacts on the environment, in accordance with Section 15168 of the CEQA Guidelines. The 2020 LRDP EIR prescribes Continuing Best Practices and Mitigation Measures for all projects implemented under the 2020 LRDP, including this Project.

Because the Project site is located at the interface of the campus and downtown Berkeley, staff representatives from the City of Berkeley were present and actively participated in each of four reviews by the UC Berkeley Design Review Committee. Campus staff also made informational presentations to the City of Berkeley Design Review Committee and the City of Berkeley Planning Commission in July 2006, with an update to the Design Review Committee in February 2007. An Addendum is not circulated for public review (CEQA Guidelines Section 15164); however, the campus published the Addendum on

February 13, 2007, and distributed informational copies to agencies, including members of the Berkeley City Council and student organizations.

To implement the 2020 LRDP EIR traffic mitigation measures, the campus has agreed with the City of Berkeley to do signal warrant checks on study area intersections to the south and east of campus, while the City performs signal warrant checks on intersections to the north and west. Signal warrants are the traffic analyses done to determine if a traffic signal is required at an intersection. The City and campus expect to update these studies biennially to determine when a signal is required.

Findings

The Findings describe the potential impacts, pertinent SRB 1 EIR and 2020 LRDP EIR Mitigation Measures and Continuing Best Practices, and conclusions regarding approval of the Project and certification of the Addendum in conformance with CEQA. The environmental documentation will be presented for consideration with the project design review.

Funding Plan

The total cost of this project is estimated to be \$256,653,000, including allowances for escalation for Steps 2, 3, and 4 through the year 2011. The total budget plan would be funded from a combination of gifts (\$128,900,000), external financing (\$75,053,000), and State funds (\$52,700,000).

The total cost of Step 1 is estimated to be \$140,053,000, to be funded from a combination of gifts (\$65,000,000) and external financing (\$75,053,000). As of January 22, 2007 the status of the gift campaign is as follows:

Gifts In Hand	\$	8,000,000
Gifts Pledged		57,000,000
<u>Gifts to be Raised:</u>		<u>0</u>
Total Gifts	\$	65,000,000

Approval of standby financing for \$57,000,000 in gifts is requested in order to meet Regental policy to have funds on hand at the time of contract award for Step 1. To the extent gifts are received prior to completion of the project, the amount of standby financing will be reduced and outstanding balances will be repaid.

Based on long-term debt of \$75,053,000 amortized over 30 years at 5.75 percent interest, the estimated average annual debt service would be \$5,307,500 for the first step of construction. The campus has pledged its share of the University Education Fund and its share of the University Opportunity Fund as the sources of repayment. The Education Fund is the indirect cost recovery from private contract and grants, similar to the Opportunity Fund, which is the indirect cost

recovery on federal contracts and grants. Historically, the Education Fund has been taken into consideration when campuses have requested a Presidential waiver to the Opportunity Fund pledge limit of 65 percent. Over the past several years, the Education Fund has been discussed as a new stand-alone fund source for financing, and at this time, the President and his staff are in the process of finalizing a policy regarding this fund source which is similar to the Presidential policy in place for the Opportunity Fund, such as the 65 percent pledge limit. This project has been granted an exception by the President to pledge the Education Fund for external financing in anticipation of the formal announcement expected in the coming month. There were several items being presented at this meeting with a policy exception granted by the President to use Education Funds as the source of repayment.

Debt service for this project will be allocated between the Education Fund and the Opportunity Fund as necessary so that the debt service pledged for each source of repayment would remain within the 65 percent pledge limit. In FY 2011-12, the second full year of occupancy and first full year of principal and interest for the project, 58 percent of the campus' total Education Fund allocation would be pledged for debt service, including 100 percent of the debt service for this project. In 2018, additional Education Funds related to the BP contracts for the Helios Energy Research Facility are anticipated to cease, and the campus projects that the debt pledges against the Opportunity Fund will peak at 64 percent and at 65 percent for the Education Fund, with the debt service for this project allocated between both funds. Pledge percentages against these funds are expected to decrease thereafter. The campus is committed to an aggressive fundraising campaign for this project in order to reduce long-term financing required for this project.

In compliance with Regents' policy, all funds necessary to complete construction will be in hand prior to bidding the project.

Future Regental Action

The campus would return to The Regents to report on project progress and to seek approval of financing as necessary for future construction steps.

Vice Chancellor Denton and Principal Planner O'Banion made the presentation and showed slides to illustrate the project.

Regent Hopkinson asked how the building relates to the campus palate of materials and colors. Mr. O'Banion stated that the building does respond to the campus palate despite its being modern. He stated that in the classical core there is a characteristic palate of the neo-classical buildings. Design guidelines within the classical core prescribe architectural concrete or granite as the main body of the building, pitched tile roofs, and punched windows. This building is outside the classical core, allowing more freedom in the design. The design is

sympathetic to the classical core palate in that natural concrete is used for the base, the terra cotta tiles are a warm grey color, the pattern of the tiles is similar to the granite buildings, and punched windows were used. Regent Hopkinson had hoped and thought that a palate existed for every campus, and not just for the core. She was disturbed that such a palate does not exist for Berkeley, commenting that many disharmonious buildings have been built that have not enhanced the Berkeley campus' emotional appeal. Mr. Denton commented that the campus has many unique areas, including the natural areas and other areas where architecture and materials are different. It is not appropriate that classical architecture and materials be interjected into those areas. The vision for the campus has always included multiple, strong elements with a palate. The classical core is the strongest palate, but in other areas the palate is different. In terms of this building, the terra cotta tiles replicate the exterior lines of nearby buildings, as well as having thermal qualities that far exceed granite or concrete. Regent Hopkinson stated that although Berkeley has unique buildings in many areas, this area is not one in which many unique buildings exist. She was uncomfortable moving forward without understanding what design the campus is seeking to achieve in each of the campus zones.

Regent Hopkinson requested that the campus return to the Committee with the goal for that segment of the campus, specifically regarding the south façade and auditorium because they are not compatible with the Berkeley campus. Many buildings on the campus look similar to the proposed building, and she hoped that such a look is not consistent with the desired feel for the Berkeley campus. She commented that campus buildings must set a tone for the campus and be part of a campus plan. UC Berkeley buildings that are outside the campus boundaries are dealt with differently. Regent Hopkinson suggested that the campus come back to the Committee with an outline of how zones will be formed, and with materials and design approaches for each zone. Mr. Denton agreed, and asked what would be the case with transition areas such as the area under discussion.

Regent Johnson commented on the attractiveness of the building. She echoed the need to make the building design congruent with that section of the campus.

In response to Regent Hopkinson's question regarding how the courtyard will be upgraded to make it more habitable and attractive, Mr. O'Banion responded that the courtyard is the top of a parking structure, limiting the ability to plant trees. This building will enhance the courtyard by having its main entrances, including the auditorium, around the courtyard space. More activity will at minimum allow the courtyard to be recognized as a gathering place. Regent Hopkinson hoped that the campus would find resources to make it more attractive. Mr. Denton commented that the edges of the lawn area of the courtyard will be altered, including seating areas that flow to the new road and path. The edges of the lawn will be integrated into the campus.

Regent-designate Allen raised the issue that, given that many buildings similar to this design exist on campus, such buildings might be considered part of today's Berkeley feel.

Committee Chair Kozberg explained that the Committee examined campus context several years ago, and that the issue is a larger one given that a similar discussion with the Berkeley campus occurred previously. The Berkeley campus was found to have multiple vocabularies, but there was an effort to envision a campus context. She added that this building is a significant deviation, and asked what the campus is doing to ensure there is a context and vocabulary that is appropriate for the building since it will serve as a front door to the Berkeley campus. A master plan needs to be in place before single buildings are conceived. The discussion has not taken place between the campus and the Committee regarding campus feel and vocabulary, and it needs to be undertaken. Mr. Denton agreed that such a discussion is necessary.

Faculty Representative Brown stated the value of having a campus distinct from the community.

Mr. O'Banion explained that design guidelines exist for the campus as a whole. These guidelines tend to be less about specific architectural materials and more about form and placement. An extensive process of design review exists at all stages of planning. The only area of campus that has specific, proscriptive design guidelines is the Campus Park, representing approximately half of the campus. The campus has not developed similar guidelines for areas outside the classical core. This building is a gateway to campus, and the design sought to respond to the campus feel as well as to achieve an innovative design that uses green elements and expresses a distinctive and innovative program. The building symbolizes the Berkeley campus' approach to innovative research, and the transparency of the south façade indicates the commitment to collaborative research.

Mr. Denton stated that if the Berkeley campus were to come to the Committee with a design palate for this end of the campus, this building would exemplify that palate. The shape of the building, the materials used, the terra cotta tiles, and the punch window systems are consistent with this area of campus. A conscious effort was made on the south side of the building to omit punch windows in order to open the building to the outside. Mr. Denton stated that he would be pleased to return to the Committee to discuss how this building does work with the campus. The campus' struggle is to achieve and present a design to the Committee that the planners believe is the right design.

Regent Schilling commented about the inefficiency of the process, given that the Regents are asking the campus to go back to the design drawing board. She asked how long the design has existed, how much money has been spent to date, and how much more will be required to meet Committee approval. Mr. O'Banion

replied that the planners are currently in design development, so there is still time to take the Regents' comments into account regarding specific aspects of the building. Mr. Denton observed that most of the design effort is in the interior spaces; it is still possible to alter the skin of the building. He added that much thought was given to the design of the building before it was brought to the Committee. Regent Schilling stressed the importance of including the comments of the Committee earlier in the design process in an effort to reduce costs due to an inefficient design and approval process.

Regent Ledesma agreed that there is value to a campus palate, but she appreciated and agreed with the campus' assessment that the building fits with that particular area of campus.

Mr. O'Banion stated that while the Committee ultimately approves building designs, an extensive campus process also exists on campus; this building has been before that committee four times. It has also gone before the City of Berkeley's design review committee twice, from which favorable comments were received, which is not insignificant.

In response to a question from Regent Ledesma, Mr. O'Banion explained that the campus has involved City of Berkeley and a number of city planning committees in the design process, and that more direct engagement with the City is part of the campus' Long Range Development Plan.

Regent-designate Allen inquired about the extent to which students have been involved in this process. Mr. Denton replied that the Design Review Committee and Campus Planning Committee include two student members each, and this building has come before both committees for input.

Regent Ruiz suggested that a portfolio of each campus be presented to the Committee indicating how the campus would be built out and campus palates. He asked when the Committee could have it, and who will be responsible for bringing it forward. Committee Chair Kozberg responded that many of the campuses have provided this information, and that the effort can be refreshed since it has been at least four or five years since the discussions have taken place. She suggested that one campus could come forward to discuss its plans at each Committee meeting.

Regent Hopkinson moved approval of the President's recommendation with respect to the project budget, the external financing, and the standby financing, and suggested that the design be reevaluated and brought to the Committee within the context of a plan for the campus that includes a proposed context for campus zones, and how that context communicates what is desired for the Berkeley campus. The motion as amended was duly seconded. The Committee approved the recommendation as amended and voted to present it to the Board.

9. **ADOPTION OF MITIGATED NEGATIVE DECLARATION AND APPROVAL OF DESIGN, STRUCTURAL AND MATERIALS ENGINEERING BUILDING, SAN DIEGO CAMPUS**

The President recommended:

- A. Adoption of the Initial Study/Mitigated Negative Declaration.
- B. Adoption of the Mitigation Monitoring Program and Findings.
- C. Approval of the design of the Structural and Materials Engineering Building, San Diego campus.

[The Initial Study/Mitigated Negative Declaration and Mitigation Monitoring Program and Findings were mailed to Regents in advance of the meeting, and copies are on file in the Office of the Secretary.]

It was recalled that in November 2005, The Regents approved the inclusion of the Structural and Materials Engineering Building, San Diego campus in the 2006-07 Budget for Capital Improvements and the Capital Improvement Program. The total project cost of \$82,057,000 at California Construction Cost Index 4632 will be funded from State funds (\$78,057,000) and campus funds (\$4,000,000).

In June 2006, the appointment of Miller/Hull Partnership as executive architect for this project was approved within the Office of the President.

Project Site

The existing site is a surface parking lot located in Sixth College at the southwest corner of the intersection of Voigt Drive and Matthews Lane. The site also contains eight one- and two-story wood frame structures (the former Camp Matthews military buildings 510, 516, 517, 517A, 518, 519, and 520, and Trailer 515, built during the 1970s and early 1980s) that are used for academic purposes but will be demolished for construction. Pepper Canyon and a potential future site for a regional light rail/trolley station are immediately to the south. The High Bay Physics building is located immediately west of the project site, and the Visual Arts building is located immediately southwest. The use of the project site is consistent with the Campus' 2004 Long Range Development Plan.

Project Design

The project will construct a 110,000 asf (183,400 gsf) building that will provide instructional, research laboratory, and office space for the Department of Structural Engineering (50,000 asf), the interdisciplinary Materials Engineering research group (40,000 asf) and instructional, research laboratory and studio space for the Department of Visual Arts (20,000 asf). The four-story building will

contain a laboratory wing with basement and an office wing. In addition, the project includes two pedestrian routes through the site, which would connect to the potential future regional light rail/trolley station that is conceptually planned off-site to the southeast. A landscaped courtyard immediately south of the Structural and Materials Engineering Building will also be constructed as part of the proposed project.

The building structure will use a cast-in-place concrete column and beam structure. Cast-in-place concrete shear walls are used to resist seismic forces and are located in the exterior of the structure. The primary exterior materials are architectural pre-cast concrete panels, cement plaster, aluminum curtain wall and windows, and kynar-coated metal sun-shades.

The UC San Diego Design Review Board has reviewed and approved the design of the Structural and Materials Engineering Building in accordance with University policy. An independent cost estimate and seismic review have been completed. The Office of Facilities Design and Construction will manage the project. Independent testing agencies will be used as necessary. The Associate Vice Chancellor and Campus Architect, Facilities Design and Construction, will perform project oversight.

This project will comply with the University of California Policy on Green Building Design, Clean Energy Standards, and Sustainable Transportation. As required by this policy, the project will adopt the principals of energy efficiency and sustainability to the fullest extent possible, consistent with budgetary constraints and regulatory and programmatic requirements. The sustainability goal for the project is UC equivalent "certified" rating (27 points). Some of the sustainability considerations include displacement ventilation with low supply and high exhaust to minimize the need for mechanical heating and cooling; reclaimed water for irrigation; recycling condensate water for cooling; recycling of construction waste; sun-shade devices, individual airflow, and temperature and lighting controls; Energy Star roof compliance; maximum day lighting; and best practice commissioning procedures.

Environmental Impact Summary

Pursuant to State law and University procedures for implementation of the California Environmental Quality Act (CEQA), a Tiered Initial Study (IS)/Mitigated Negative Declaration (MND) was prepared for the Structural and Materials Engineering Building project. The proposed MND was prepared and circulated to responsible agencies and to the State Clearinghouse for a 30-day public review beginning November 1, 2006 and ending December 1, 2006. The MND is tiered from the 2004 LRDP EIR. Based on the MND, the University concluded that the project would not have a significant effect on the environment because the University would implement mitigation measures that reduce potential project impacts to below a significant level. Three comment letters were

received during the public comment period: San Diego County Archaeological Society, Inc., Native American Heritage Commission, and California Department of Transportation. Responses to all comments are included in the Final IS/MND and are summarized in the Findings.

Based on the analysis in the IS/MND, the project is within the scope of and consistent with the 2004 LRDP, and the impacts of the project were fully analyzed in the LRDP/EIR. With implementation of the LRDP and project-specific mitigation measures, the project will not result in any new impacts or increase any previously identified impacts.

Findings

The Findings discuss the project’s environmental review process, the relation of the project to the 2004 LRDP EIR, the project’s environmental impacts and associated mitigation measures, and conclusions regarding approval of the Tiered IS/MND for this project, in conformance with CEQA.

Vice President Hershman pointed out that the project is funded through State bonds, the State funds are included in the current Bond issue, and The Regents has approved the budget, so funding is available to move ahead with the project.

Associate Vice Chancellor Hellmann explained that the project includes the academic departments of structural engineering, materials engineering, and visual arts, including audio-visual media, scientific visualization, and interactive digital media. There is increasing interaction between the arts and the engineering disciplines, and this facility is designed to enhance that collaboration. He showed slides to illustrate the building.

Regent Schilling inquired about cogeneration or other energy sources for power. Mr. Hellmann stated that the campus has a cogeneration plant that generates 30 MW, but there are plans to expand it as the campus grows. Cogeneration facilities are most efficient when they are operating at near-peak capacity, and the current plant operates at peak operation most of the time.

Regent Hopkinson inquired as to the approval by The Regents of the color palette. Mr. Hellmann stated that the colors themselves have not been approved. She commented that the dark colors are not compatible with the campus, and that the colors are not warm. She expressed concern primarily about the black color, including the painted metal and the stairwell. Mr. Hellmann stated that a standards book for UCSD has been created by a color consultant. Regent Hopkinson observed that the brown, burnished steel is compatible with the book, but the renderings show a darker color. Mr. Hellmann stated that the stairwell is antiqued metal, but the exposed painted steel will be darker, recognizing that this was Regent Hopkinson’s concern. He stated that the feedback was helpful and he will work on this element.

In response to a question from Regent-designate Bugay, Mr. Hellmann stated that a broad plan exists for the relocation of parking spaces throughout the campus. The campus has a transportation parking committee that reviews parking availability. Two parking structures are being completed currently, and an investigation stage is underway of a parking structure in the University Center, Sixth College area, where the building will be located. The timing of these projects should coincide. Mr. Hellmann agreed with Regent-designate Bugay that parking can be tight in this part of campus, and that Regent-designate Bugay's comment regarding reasonable proximity is a good one since adequate parking exists at UCSD but it is not always convenient. UCSD has an active shuttle system.

Regent Schreiner inquired about the difficulties and synergies involved in designing an interdisciplinary building. Mr. Hellmann recalled his initial hesitation at combining engineering and visual arts departments, but the dean of the school of engineering was excited about the opportunity to include visual artists given the level of collaboration that has taken place at UCSD. The visual artists focus on digital and media arts, and computer generated information. As the engineers seek solutions to a problem, collaboration between engineers and visual artists allows the problem to be conceived visually. In terms of building design, initially there was conflict in that the visual artists requested ground floor space and the structural engineers objected to not having similar space. Due to the possibility for collaboration, however, the visual artists chose to be distributed on all floors. In short, interdisciplinary building design is challenging.

Upon motion duly made and seconded, the Committee approved the President's recommendation.

10. REVIEW OF SITE PLANNING AND DESIGN PARAMETERS, HUMANITIES BUILDING, IRVINE CAMPUS

The Irvine campus presented a review of site planning and design parameters for the Humanities Building at the Irvine campus, at a total cost of \$37,790,000, to be funded from a combination of State funds (\$27,790,000) and external financing (\$10,000,000). The project was being presented to The Regents to receive comments on key site and design parameters prior to selection of the design-build team.

It was recalled that, in November 2005, The Regents approved the 2006-07 Budget for Capital Improvements, which included the Humanities Building project. In July 2006, the 2006-07 State Budget Act included funds for preliminary plans (\$1,225,000) and working drawings (\$524,000). In November 2006, The Regents approved a scope increase, a budget augmentation of \$10 million, and approval of external financing in the amount of \$10 million.

The new 44,795 asf (74,919 gsf) Humanities Building would provide 33,335 asf

for the School of Humanities for instructional, research, and office space; 720 asf for classrooms; 540 asf for testing rooms for disability services; 8,400 asf for office and research space to help consolidate humanities-based research programs currently housed in other buildings; and 1,800 asf for a 110-seat auditorium. Space released in other campus buildings as a result of this project would be reassigned to units currently housed in leased space or for other campus priorities.

This project uses the design-build competition delivery method, with the architect selected as part of the successful design-build team. The design-build teams (bidders) are provided with a detailed request for proposal which includes the project program guide, the detailed project program, campus design standards, the mitigation measures required in the EIR which is part of the 1989 LRDP, and the project design parameters, including those principles contained in the campus vision presentation made to The Regents in November 2002.

Vice President Hershman pointed out that funding is available to move ahead with the project since it is funded through State bonds, State funds are included in the current Bond issue, and The Regents has approved the budget.

Vice Chancellor Brase recalled that all UCI buildings are either design-build or third-party, but several variants exist within the design-build model. This project uses a design-build competition, which differs from what is usually presented to The Regents. The campus expects to submit a recommendation at the July Regents meeting.

Associate Vice Chancellor Gladson showed slides to illustrate the project. She stated that the building is a basic humanities building, including research scholarly space, academic offices, and one general assignment classroom. In terms of the design process, as with all UCI projects, the campus begins with a detailed project program guide, followed by the process of prequalifying architects and design-build teams. Typically, preliminary design occurs next, followed by presenting the design for approval to The Regents, followed by bidding by the design-build teams. For this project, the process is changed, because the campus has found that there is a significant time savings, approximately 10 percent in overall project schedule, by using a design-build competition. The next step is the proposal phase, at which point the campus will provide the prequalified design-build teams with the architectural vision plan that was presented to The Regents, the project program, the detailed campus design standards, and the budget. There is a benefit in having the teams design to the maximum allowable contract amount. Once proposals are accepted, a technical, blind evaluation is undertaken based on merit, including compliance with design standards such as context, vocabulary, and materials. Weighted points are assigned to successful alignment with the context and vocabulary of the project, lifecycle costs, sustainability, and other factors. After the assignment of points, the projected costs are divided by the number of points to get the best value or lowest dollar per point. Once the decision has been made, the campus awards the

first stage of the contract, including completion of the design-development drawings and construction drawings.

Ms. Gladson discussed several building context challenges, including strengthening the contextual framework with the surrounding architectural styles, scales, and building materials; completion of the ring mall and radial axis plaza; reinforcing existing campus patterns, such as pedestrian circulation; conforming to the existing campus tripartite architectural style of base, middle, and top aesthetic; and maintaining connection of the building to outdoor spaces. The project is striving to achieve LEED Silver.

Regent-designate Allen inquired about the goals of pursuing LEED Gold versus Silver, and the rationale for that decision-making process. Mr. Brase replied that the campus is seeking to conform to Regental policy which states that all buildings will be LEED Certified equivalent, and that campuses strive for a higher rating. Ms. Gladson explained that it is primarily a cost issue, and that the campus will often bid as an alternate the cost to go from Certified to Silver, and from Silver to Gold.

Mr. Brase explained that UCI submitted to the United States Green Building Council (USGBC) a comprehensive campuswide framework of LEED prototype baseline points, because most sustainability features are not planned building by building but rather are larger issues including campus density, transportation, preservation and management of green space, and storm water management. The campus has been concerned, as have other universities, that the process of LEED award evaluation is very expensive. The process of obtaining baseline points has been long and difficult, but Mr. Brase was hopeful that in the end the campus will establish a baseline that will apply to every project, omitting the need to resubmit aspects of building design for LEED evaluation. The result of the prototype baseline will determine the level of certification on given projects. A higher baseline will assist the campus to meet The Regents' goal of striving for Silver. A recent project at UCI, as part of the process of establishing the baseline, will likely be awarded LEED Gold. The process has been difficult because LEED evaluation is designed for building-specific evaluations, not campuswide sustainability systems, but the thinking at the USGBC has changed in certain respects in ways that are encouraging and will benefit campuses in the use of LEED. Regent-designate Allen was disturbed that the cost of LEED evaluation is prohibitively high. Mr. Brase responded that the concern about the cost of LEED evaluation is paramount because everyone is trying to use funds for sustainability features of the building itself rather than certification. The USGBC is beginning to respond to these concerns. He was hopeful that the process of UCI establishing baseline points would help all universities streamline the LEED evaluation process, making it easier and less expensive.

Regent Hopkinson complimented UCI on its approach, both in terms of developing a master plan and executing buildings in accordance with that plan,

and finding innovative ways of dealing with the costs of construction. The campus has approached these issues in a professional way that is setting an example for the University as a whole.

11. ANNUAL REPORT ON GREEN BUILDING, CLEAN ENERGY, AND SUSTAINABLE TRANSPORTATION POLICY

Assistant Vice President Bocchicchio stated that it has been gratifying for him to report on this topic. The sustainability initiative is an excellent example of collaboration at the University. The result of the effort and collaboration is that the UC system is at the national forefront of the sustainability movement.

It was recalled that, at the December 2002 meeting of the Committee on Grounds and Buildings, The Regents requested that the President undertake a feasibility study for the adoption of a Green Building Policy and Clean Energy Standard for all proposed and to-be-renovated buildings. At the July 2003 meeting, The Regents approved “as University policy for all capital projects, the principles of energy efficiency and sustainability in the planning, financing, design, construction, renewal, maintenance, operation, space management, facilities utilization, and decommissioning of facilities and infrastructure to the fullest extent possible, consistent with budgetary constraints and regulatory and programmatic requirements.” In June 2004, the President formally issued the Policy on Green Building Design and Clean Energy Standards (Policy).

One of the Policy items (II.e.) addressed reducing transportation-related fossil fuel consumption. At the September 2005 meeting of the Committee on Grounds and Buildings, The Regents expanded this policy and authorized the President to adopt guidelines supporting sustainable transportation efforts throughout the University of California. The expanded Policy Guidelines were issued by President Dynes in January 2006.

This report served as the third Annual Report and described the progress achieved toward implementation of the Policy during the calendar year 2006. The following section provides a list of some of the major implementation achievements of the past year.

Green Building Projects

During FY 2005-06, 9 of the 10 projects that received budget and design approval will be in compliance with the Policy. The only project that did not comply was a parking structure which still received 16 of the 26 points required for compliance with the Policy, even though parking structures have fewer opportunities to achieve green buildings points.

Since the passage of the Policy in 2004, 27 projects ranging in cost from \$5 million to over \$100 million and of varied building types have complied with

the Policy. Of these projects, 4 have a goal of Leadership in Energy and Environmental Design (LEED) Silver rating, 8 a goal of LEED Silver equivalent rating, and the remaining projects seek to achieve a LEED Certified equivalent rating. In addition, 5 major renovation projects will comply with the proposed green building guidelines for renovations described below.

Fifty-two projects with budgets approved prior to 2004-05 have incorporated green building features which meet many of the requirements of the Policy.

Beyond these individual projects, the Santa Barbara and Merced campuses are 2 of the 13 organizations from across the country chosen by the United States Green Building Council (USGBC) to pilot its “Portfolio Program.” Other pilot participants include Bank of America, Starbucks, the United States Department of State, and the California Department of General Services. The program is designed to help companies, government agencies, and universities achieve LEED certification quickly on a large number of buildings. In return for committing to certify all buildings under the LEED system, the USGBC provides discounts on certification fees, free consulting services, and other special support. The Santa Barbara and Merced campuses received international visibility when they were announced, along with the other pilot members, to the audience of 13,000 people from around the country and world at the USGBC’s annual conference in November.

Savings by Design Program

All projects implemented under the Policy are required to register with the Savings by Design Program. This energy efficiency program, offered by California’s four investor-owned utility companies, provides design assistance, energy analysis, life-cycle costing, and financial incentives for individual building projects. Financial incentives can be used to offset increased costs associated with constructing more energy efficient buildings. To date, 162 University projects totaling 13.7 million square feet of building space have been registered with the program. By the time these projects are completed, the utility companies will have paid the University over \$5 million in incentive payments, allowing the University to avoid an additional \$5.9 million per year in energy costs.

Sustainable Guidelines for Renovation Projects

A systemwide Renovation Projects Working Group has been formed and has drafted new green building guidelines for renovation projects. Green building principles would be applied to all renovation projects so that design and specifications of renovation components meet or exceed the green building measures campuses have committed to in their “green building baselines.”

In addition, specific requirements would apply to two categories of projects: (1) whole building renovations would have to comply with the Policy’s

requirements for new construction; and (2) projects that involve a partial renovation of buildings with a cost of \$5 million (indexed) or greater would need to comply with a UC equivalent to LEED for Commercial Interiors Certified rating. Where eligible, campuses would be encouraged to register all renovation projects with the Savings by Design program. These renovation guidelines would apply to all projects that receive budget approval after June 2007.

Energy Efficiency in New and Existing Buildings

Campuses have begun to report on progress in achieving energy efficiency compared to the Policy’s baseline year of 1999-2000. For State-maintained space, 2004-05 energy consumption was approximately 3 percent lower than 1999-2000 energy consumption on a unit energy use per square foot basis. Several parameters are being examined for their impact on energy consumption from year to year. The most significant parameter appears to be ratio of complex (utility-intensive) space compared to basic building space in a given year. During the reporting period, this ratio increased, masking some of the improvements in energy efficiency that campuses are making. Taking into account the fact that complex space is more energy intensive than non-complex space, it appears that campuses have reduced their unit energy consumption by 5 percent, indicating that they are well on their way towards meeting the 10 percent reduction required by the Policy.

The original Higher Education Energy Efficiency Partnership between the University, the state’s four investor-owned utilities, and the California State University (CSU) has been completed, after funding over \$6 million worth of energy retrofits and commissioning projects at all University of California campuses during 2004 and 2005. The program met or exceeded all of its energy efficiency goals and is projected to result in an annual systemwide energy cost avoidance of over \$2 million. Of particular note, the monitoring-based commissioning element of the program, which paid for metering and re-commissioning existing buildings, was such a success that the utilities are replicating it for their other customers, demonstrating the value of the University as an innovator in energy efficiency program design.

In addition to funding energy efficiency retrofits, the Partnership program provided extensive training to University staff in project management, facilities, and other related campus units. Due to the success of the original program, a new three-year joint program with CSU and the utilities started in 2006. Through November 2006, \$4.9 million in project funding has been allocated to campuses out of the three-year program total of \$15 million. These projects are anticipated to provide an additional \$2.9 million in avoided annual utility costs to the campuses.

Following a very successful first round, funding for three more years of the “Green Campus” program has also been secured. The nonprofit organization,

Alliance to Save Energy, is managing student energy conservation programs on the Berkeley, Santa Barbara, San Diego, Irvine, Santa Cruz, and Merced campuses. The Green Campus program provides opportunities for students to get directly involved in saving energy on campuses through programs such as light bulb exchanges, residence hall energy competitions, and educating laboratory users to not waste energy by leaving fume hood sashes up when not in use.

Finally, the University and CSU have recently completed a \$3 million program funded by the California Energy Commission to install 13 pilot projects to demonstrate new energy efficiency technologies. Several technologies proved so successful that campuses are making plans to install them on multiple buildings. The California Energy Commission deemed this program a success and has agreed to fund a new round of pilot projects to demonstrate additional new energy efficient technologies.

Onsite Generation and Procurement of Renewable Energy

At the same time that the University has reduced its energy consumption, it also has made progress in “greening” the electricity that it consumes. Earlier this year, legislation (SB 107) passed that advanced the date for the State to increase its renewable energy consumption to 20 percent of total electricity sales from 2017 to 2010. The UC Sustainability Steering Committee reviewed this change in State law and recommended that the University also change its target date for procuring 20 percent renewable energy to 2010. The share of certified renewable energy in UC’s direct access portfolio is now 17 percent, putting the University well on the way toward meeting the 2010 goal.

In April 2006, students at the Santa Cruz campus passed a fee referendum of \$3 per student per quarter, providing funding to purchase renewable energy certificates. This will help the campus exceed the accelerated Policy goals by equating to 100 percent of the campus’ electricity consumption for four years starting in November 2006.

In October 2006, contract documents were completed by the Office of the President that would allow the campuses to contract with outside parties to install, own, and operate solar photovoltaic systems on University property and then sell the system’s electricity output to the campus at rates comparable to those the campus would otherwise pay for electricity. The San Francisco campus first developed this approach for a project located on the new parking structure at its Mission Bay campus. That innovative approach to the parking structure was featured as the cover story in *Parking* magazine’s October 2006 issue. The Irvine campus is now piloting the newly developed UC solar power purchase agreement, which it hopes will provide up to one megawatt of solar power to the campus in 2007. If the Irvine campus pilot is successful, replicating this program on other campuses will accelerate progress toward meeting the 10 megawatts of campus-based renewable energy generation required by the Policy.

Climate Change

In July 2006, the UC Sustainability Steering Committee convened a working group to review and recommend updates to the University’s Clean Energy Policy sections on greenhouse gas emissions (GHG). In order to conform to new State legislation on climate change, as well as to make the Policy consistent with the remainder of the clean energy policy, the working group recommended that the University set the following goals:

- For each campus to join the California Climate Action Registry and begin to track actual (GHG) emissions.
 - To reduce GHG emissions to the year 2000 levels by 2014.
 - To reduce GHG emissions to the year 1990 levels by 2020.
- Finally, by December 2008, to develop an action plan for becoming climate neutral as soon as possible.

By November 2006, seven UC campuses have joined the California Climate Action Registry and have begun to track and register their GHG emissions. Plans for joining in the near future are under way at the other three campuses.

Sustainable Transportation

A systemwide Sustainable Transportation Working Group has been formed to coordinate implementation of the Policy and Policy Guidelines on Sustainable Transportation Practices incorporated into the overall Policy in January 2006. Membership in the Working Group includes students, faculty, and staff involved in transportation, fleet services, and planning. The Working Group’s priorities are to (1) focus on those sustainable transportation measures that reduce the most pollution; (2) identify or create funding to support sustainable transportation programs; (3) make fleets more sustainable; (4) expand bicycle and pedestrian infrastructure on campus; and (5) advocate for regional transit that serves campuses.

The Working Group reaffirmed the importance of providing more housing on or near campuses to reduce trips and travel distances as specified in the Policy. Meetings on the specific topics of car sharing and biodiesel have been held to discuss issues related to implementation. Ms. Sherry Lewis, from UCLA Fleet Services, is representing the University on the State’s Department of General Services Advisory Committee on Fuel Efficient Vehicle Purchasing. A sustainable transportation student intern has been hired, and the University hosted a meeting with students to discuss their ongoing role in Policy implementation at the UC/CSU Sustainability Conference in June.

The conference also provided a venue for awarding best practices in sustainable transportation. An award for University-owned transportation went to the San Diego campus’ neighborhood electric vehicle fleet, and an award for

transportation demand management went to the Santa Cruz campus for its bike shuttle program. An entire track of sessions at the conference addressed sustainable transportation topics.

Campuses have implemented numerous sustainability measures for their fleet operations prior to adoption of the Policy. Most campuses are using electric vehicles for a variety of on-campus trips. Several campuses have invested in compressed natural gas as an alternative fuel, while others are using biodiesel blends or other alternative fuels. The Los Angeles campus has launched a utilization study of fleet and departmentally owned vehicles to determine the right size of the fleet. Policy Guideline IIIa requires annual reporting to The Regents of systemwide fuel consumption data. Consumption figures for calendar year 2005 are unleaded gasoline: 1,784,628 gallons; diesel gasoline: 445,544 gallons (includes biodiesel); and compressed Natural Gas: 108,339 therms.

These figures will serve as the baseline year and allow the University to track progress as it seeks to reduce fuel consumption in future years, as required by the Policy.

Seven of the University's campuses have earned the Environmental Protection Agency's "Best Workplaces for Commuters" designation, based on their transportation demand management programs.

The University is making significant initial progress toward the Policy's important goals, but campuses remain challenged by limited funding.

Staff, Faculty, and Student Participation in Sustainability Activities

To provide coordinated sustainability efforts that include all campus stakeholders, all campuses have established or are in the process of establishing chancellor- or vice chancellor-level advisory committees on sustainability. These committees meet regularly and provide for organized involvement of students, faculty, and staff from all departments in implementing the Policy as well as in pursuing other campus sustainability initiatives.

Among many initiatives undertaken by these committees in 2006, the most impressive may be the development of a Campus Sustainability Plan at the Santa Barbara campus, one of the first such efforts at any university in the country. A consultant led 75 staff, faculty, and students (referred to as "Sustainability Change Agents") through the "Natural Step" process used by corporations such as Nike and Starbucks as a framework for their sustainability initiatives. The 75 Sustainability Change Agents participated in four full-day workshops and were divided into nine groups: Academics and Research, Built Environment, Energy, Water, Food, Land Use/Landscape, Procurement, Transportation, and Waste. These workshops provided participants with a solid understanding of the principles of sustainability and how to implement those principles on a university

campus. The workshops have resulted in each change agent group's developing short-, medium-, and long-term sustainability goals that have been collected into a plan that was approved by the Campus Planning Committee in December 2006.

Other highlights of collaboration between students, staff and faculty include:

- Funding student internships at the Berkeley campus for sustainability projects such as assisting physical plant in performing outreach to individual buildings to help them reduce their energy consumption.
- Passing a student fee referendum at the Santa Cruz campus to purchase 100 percent renewable energy for that campus.
- Passing a student fee referendum at the Santa Barbara campus to create "The Green Initiative Fund" to fund clean energy projects that the campus otherwise would not be able to fund.
- Ongoing work of a Food Systems Working Group at the Santa Cruz campus with student, staff, and faculty involvement that is transforming the dining services on campus to educate students about the food they eat and to increase the sustainability of that food by purchasing as much as possible from local, organic, and socially responsible suppliers. The Santa Cruz campus purchased 18 percent of its produce from a local cooperative meeting those requirements, far exceeding the campus goal of 5 percent.

Partnerships with Government and Nonprofit Organizations

Partnerships with government agencies and nonprofit organizations continue to leverage additional resources to assist the University in implementing the Policy. A grant from the Alameda County Waste Management Authority enabled the Office of the President (OP) to pilot use of the LEED for Existing Buildings (LEED-EB) rating system for its building at 1111 Franklin Street in Oakland. In December 2006, OP submitted an application for LEED-EB certification for the Franklin building. Piloting the rating system within OP contributed significantly to the development of the new draft policy guidelines for sustainable operations and maintenance practices across the University.

The City of San Francisco's Environment Department provided free use of a valuable web-based green building database program it developed, and OP is seeking funding to adapt the program to its information technology security needs. The University continues to work with the USGBC to assist campuses going through the LEED certification process and to comment on green building standards currently under development. The University also actively participates in the California State Green Building Task Force, the California State Energy Policy Advisory Committee, and California State Environmentally Preferable Purchasing Task Force.

Training

The University continues to promote excellence through training, both through individual targeted training workshops and a large annual conference. The fifth annual UC/CSU Sustainability Conference, hosted by UC Santa Barbara in June 2006, attracted over 600 attendees – including 100 students – from the UC and CSU systems and California Community Colleges, which at the time made it the world’s largest higher education sustainability conference. The conference program highlighted and shared best practices in energy efficiency, green buildings, sustainable transportation, and other sustainability topics on UC and CSU campuses. The second annual Higher Education Energy Efficiency Partnership Best Practice Awards were presented to exemplary UC and CSU energy efficient projects at a special ceremony during the conference. This year’s awards program added categories for waste reduction, purchasing, and student programs.

The UC Project Management Institute also continued its ambitious series of trainings sponsored by the Higher Education Energy Efficiency Partnership grant mentioned above. In 2006, some 282 individual staff members attended more than 20 training offerings, with most attending multiple trainings. The training program provided energy efficiency and green building courses for the operation and maintenance of existing buildings as well as for the design, construction, and commissioning of new buildings.

Procurement

The University made positive strides integrating sustainability into its “Strategic Sourcing” initiative in 2006. For example, in addition to demonstrating their company-wide commitment to sustainable practices in manufacturing, product offerings, transportation, delivery, and end-of-life disposal, potential suppliers to the University are now required to offer sustainable products in every category for which they exist. After contract inception, suppliers are reporting sales figures and new sustainable product innovations at each quarterly business review. New and existing contracts incorporate sustainable products and practices for office supplies, digital copiers, printers, fax machines, expedited mail, carpet (Spring 2007), computing equipment, travel, janitorial supplies, hazardous waste, scientific supplies, gases, furniture (Spring 2007), organic food, food, disposables, telecom, and maintenance, repair, and operations.

The UC Sustainability Steering Committee created a Sustainable Purchasing Working Group during 2006 to draft updated policy guideline language in the area of environmentally preferable purchasing. The proposed policy language includes very specific procurement requirements in the areas of sustainable economies, energy and water, recycled content, Green Seal certified products, hazardous electronic waste reduction, packaging, manufacturer take-backs, training, and reporting.

One recent success story is a University effort coordinated with the Lawrence Berkeley National Laboratory to work closely with Fisher Scientific, the University's strategically sourced supplier, to initiate an Energy Star certification for laboratory equipment. While the Environmental Protection Agency's development of such a certification usually takes up to three years, the University's advocacy has resulted in significant progress, and it appears that Energy Star certification of this category of equipment may be completed in as little as one year. This effort exemplifies how the University can leverage its buying power to make positive changes in the marketplace that support the University's Policy and its sustainability values.

The University continues to work closely with students in the California Student Sustainability Coalition and Toxic Free UC, as well as with the California State Environmentally Preferable Purchasing Task Force, to explore new environmentally preferable product offerings, new suppliers focused on sustainability, and best practices to foster continuous improvement in all areas of promoting environmental purchasing and operating practices.

External Recognition for UC

The Regents and the University continue to receive extensive recognition for green building, clean energy, and other sustainability efforts. Newspaper and magazine articles on the growing green building and campus sustainability movements have chronicled the University's leadership in these areas, especially at the new Merced campus. An article on green buildings and sustainability on the Merced campus was included in one of Senator Dianne Feinstein's daily briefings. Nationally, the *New York Times*, *Business Week* magazine, and greenbiz.com have all profiled the University's leadership in sustainability. In addition, the University has received recognition in many other publications. Correspondingly, University staff continue to be invited to give keynote speeches and other presentations on the Policy at other major public universities and at regional and national conferences.

Mr. Bocchicchio stated that in the next year there are plans to continue to expand the Policy, and that expanded policy sections need to be implemented. The President is expected to sign the next edition of the Policy. The next major offensives are efforts toward sustainable food systems, achieving projected LEED certification objectives, additional training, solar projects, and the Santa Barbara conference in June 2007.

Regent-designate Allen commented that this is an exciting effort, making everyone proud to be part of the University of California. He asked about the onerous costs associated with LEED evaluation. Mr. Brase stated that a conscious decision was made for campuses to have the choice of using either the USGBC for LEED rating or using a UC equivalent process. The UC process includes baseline points, so that for every building built under campus standards there is

already compliance with LEED points, simplifying the evaluation process. The Portfolio Program through USGBC is similar in that baseline points will be available through the LEED evaluation process, lowering the cost of evaluation.

Regent-designate Allen asked for more information regarding the “Best Workplaces for Commuting Award,” with the idea that this award be publicized in areas where there are growth conflicts with local communities. Sustainability Specialist St. Clair replied that the Environmental Protection Agency gives the award for organizations that provide many options for employees to get to work through alternative transportation means.

In response to a question from Regent-designate Allen, Mr. Bocchicchio explained that power is purchased from several sources, including municipal services, under a direct-access contract with the Arizona Utilities Company, and through investor-owned utilities such as Pacific Gas and Electric, San Diego Gas and Electric, and Southern California Edison.

In response to a question from Regent-designate Allen, Mr. Bocchicchio stated that with regard to energy consumption and sources, UC has either met or exceeded the requirements set by the State’s Public Utilities Commission. Organizations and governments often view UC as a model to be emulated in this area.

Regent Ledesma gave thanks to the students for their leadership and role in establishing UC’s sustainability efforts. She asked about the next steps to move forward and improve, including dedicating funding sources, conducting leading research, and setting policy that promotes energy efficiency and mitigates climate change. Mr. Bocchicchio observed that one of UC’s largest hurdles is to continue to push the policies forward and ensure their implementation. Funding is the largest hurdle; UC has been successful at receiving grant money, but approximately \$200 million is required to meet the reduction of 10 percent in energy consumption in the next decade. It is also a major effort to collect useful data in order to benchmark the process.

Regent Ledesma asked for an update regarding the opportunity for chancellors and the President to join the American College and University Presidents’ Climate Commitment. Mr. Bocchicchio stated that a final decision would be made that same day.

The Committee went into Closed Session at 2:30 p.m.

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The meeting adjourned at 3:05 p.m.

Attest:

Acting Secretary