

## 4.0 ENVIRONMENTAL SETTING, IMPACTS, AND MITIGATION MEASURES

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### 4.0.1 INTRODUCTION

This section of the tiered Draft Environmental Impact Report (EIR) presents potential environmental impacts of the proposed Solar Energy Research Center (SERC) project. The scope of the analysis and key attributes of the analytical approach are presented below to assist readers in understanding the manner in which the impact analysis has been conducted in this tiered Draft EIR.

### 4.0.2 LEVELS OF SIGNIFICANCE

The EIR uses a variety of terms to describe the levels of significance of adverse impacts identified during the course of the environmental analysis. The following are definitions of terms used in this Draft EIR:

- **Significant and Unavoidable Impact.** Impacts that exceed the defined standards of significance and cannot be eliminated or reduced to a less than significant level through the implementation of feasible mitigation measures.
- **Significant Impact.** Impacts that exceed the defined standards of significance and that can be eliminated or reduced to a less than significant level through the implementation of feasible mitigation measures.
- **Potentially Significant Impact.** Significant impacts that may ultimately be determined to be less than significant; the level of significance may be reduced in the future through implementation of policies or guidelines (that are not required by statute or ordinance), or through further definition of the project detail in the future. Potentially Significant Impacts may also be impacts about which there is not enough information to draw a firm conclusion; however, for the purpose of this Draft EIR, they are considered significant. Such impacts are equivalent to Significant Impacts and require the identification of feasible mitigation measures.
- **Less Than Significant Impact.** Impacts that are adverse but that do not exceed the specified standards of significance.
- **No Impact.** The project would not create an impact.

### 4.0.3 APPROACH TO IMPACT ANALYSIS

- The preparation of this tiered Draft EIR was preceded by an Initial Study (included in **Appendix 1.0**), which determined that the SERC project would not result in significant or potentially significant impacts on certain resource areas. Therefore, this Draft EIR evaluates impacts in nine of the 17 resource areas on the Appendix G CEQA checklist.

- For each of the nine resource areas evaluated in the sections that follow, the EIR describes the existing environmental setting, the potential for the proposed project to significantly affect the existing resources, and recommended mitigation measures that could reduce or avoid potentially significant impacts. Each of the resource sections also clearly identifies those impacts that were determined in the Initial Study to be less than significant, and thus, do not require detailed evaluation in this EIR.
- The environmental setting sections describe the baseline environmental conditions. Much of the environmental setting information is incorporated by reference from the 2006 Long Range Development Plan (LRDP) EIR, from which this EIR is tiered. The setting sections describe the study area for impact analysis.
- For purposes of the analyses in this EIR, the year 2010 is used to establish the baseline or existing conditions. Impacts are evaluated in terms of environmental changes as a result of implementation of the SERC project as compared to existing conditions in 2010. In the case of project-level operational traffic impacts (and traffic-related operational air quality and noise impacts), year 2013 is used as the baseline year because the proposed project is expected to be operational by that year. Evaluation of 2013 conditions with the addition of project traffic presents a more conservative analysis of traffic impacts than under year 2010 conditions as it takes into account traffic generated by other near-term projects that would be constructed by then.
- The proposed project is an element of the growth projected under the 2006 LRDP and was evaluated in the 2006 LRDP EIR. Relevant mitigation measures adopted by The Regents in conjunction with the approval of the 2006 LRDP are included in and a part of the proposed SERC project. The analysis presented in the subsequent sections evaluates environmental impacts that would result from project implementation after the application of the 2006 LRDP mitigation measures.

#### 4.0.4 APPROACH TO CUMULATIVE IMPACT ANALYSIS

##### Long-Term Cumulative Impacts

Long-term cumulative impacts associated with development of LBNL under the LBNL 2006 LRDP through 2025, including the SERC project as then understood, were analyzed in the 2006 LRDP EIR, using the planning documents approach. The 2006 LRDP EIR analysis considered growth at LBNL under the LBNL 2006 LRDP, growth of the UC Berkeley campus under the UC Berkeley 2020 LRDP, and development in the neighboring cities of Berkeley and Oakland under the current city general plans.

Since the certification of the 2006 LRDP EIR, with the exception of one change that is discussed below there have been no changes in circumstances that could affect the results of the cumulative analysis in the 2006 LRDP EIR. In fact the actual pace of development at LBNL's hill site and at the UC Berkeley campus since the LBNL 2006 LRDP and UC Berkeley 2025 LRDP were adopted has been slower than anticipated. Development is projected to continue at a reduced rate. As a result, the cumulative impacts analysis in the 2006 LRDP EIR is proving to be a conservative estimate of the long-term level of impact.

The one change in circumstances since the 2006 LRDP EIR certification relates to the City of Berkeley's adoption of new level of service (LOS) thresholds for traffic analysis after the certification of the 2006 LRDP EIR. To address this change, a supplemental traffic study was completed and published by UC LBNL in the Seismic Phase 2 EIR. The supplemental traffic study applied the City's current LOS thresholds and concluded that one more city intersection would be adversely affected by the traffic growth associated with the LBNL 2006 LRDP through 2025. The Seismic Phase 2 EIR was certified by The Regents in July 2010 and updated the LBNL 2006 LRDP EIR. That EIR and the referenced traffic study are incorporated by reference in this EIR.<sup>1</sup>

The supplemental traffic study included all cumulative development identified in this EIR. The baseline and cumulative conditions have not worsened since the 2010 supplemental traffic study. Therefore, this EIR tiers off the conclusions of 2006 LRDP EIR regarding cumulative traffic impacts, as updated by 2010 supplemental traffic study.

As shown in Section 6.10.3 of the Initial Study (**Appendix 1.0**), the proposed project is consistent with and within the envelope of population and building space included in the 2006 LRDP and evaluated in the 2006 LRDP EIR. Furthermore, the 2006 LRDP EIR included an evaluation of an illustrative development scenario which showed future locations of new buildings on the LBNL hill site consistent with the 2006 LRDP land use diagram. That illustrative development scenario evaluated impacts from the construction of a larger (142,000 square foot) new building at the proposed site of the SERC project. Since the SERC project building space, population, and proposed location, and that associated with the other foreseeable LBNL hill site projects and other near-term cumulative projects described below, were included in the 2006 LRDP EIR cumulative analysis, and as described above, there are no changes in circumstances since the certification of the 2006 LRDP EIR as amended by the 2010 supplemental traffic study, further analysis of the SERC project's contribution to long-term cumulative impacts is not required under PRC Section 21166. This tiered Draft EIR incorporates by reference the 2006 LRDP EIR, as amended, and summarizes the results of the 2006 LRDP EIR cumulative analysis in resource sections that follow.

### **Near-Term Cumulative Impacts**

In the near term, temporary construction-related cumulative impacts may arise if multiple projects are constructed during the same timeframe and in the same general area. More specific and up to date information is now available on the construction proposed for the UC Berkeley campus and LBNL hill

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<sup>1</sup> 2006 LRDP EIR and the SP2 EIR are available for review online at <http://www.lbl.gov/Community/env-rev-docs.html>.

site between 2010 and 2013 (when SERC would be under construction) than was available when the 2006 LRDP EIR was prepared. This EIR therefore augments the cumulative impacts analysis in the 2006 LRDP EIR with a list-based analysis of temporary construction-related cumulative impacts, based on an updated list of projects that are currently proposed, planned, or in environmental review by UC LBNL or UC Berkeley, and are therefore considered reasonably foreseeable under CEQA as of the preparation of this EIR. **Table 4.0-1, Near-Term Cumulative Projects**, lists the projects considered in the near-term cumulative impacts analysis, with their planned construction windows. **Figure 4.0-1, Cumulative Projects**, shows the locations of the LBNL hill site projects. The projects are described briefly below.

**Table 4.0-1  
Near-Term Cumulative Projects**

	2010	2011	2012	2013
Solar Energy Research Center (Proposed project)				
<b>Projects at LBNL</b>				
User Support Building				
Building 25 Demolition				
Old Town Demolition				
CRT Facility				
Seismic Phase 1 Building 50				
Seismic Phase 2				
General Purpose Lab				
Building 55 Demolition				
Building 51 and Bevatron				
Building 71 BELLA				
Building 71 Trailer Demolition				
User Test Bed Facility				
Building 74 Modernization				
Building 85 Seismic Strengthening				
<b>Projects at UC Berkeley</b>				
SCIP East – SAHPC				
SCIP East – Stadium Seismic Upgrade				
SCIP West – Law School Infill				
SCIP West – Utilities/ROW in Piedmont Avenue				
SCIP West – Gayley Road Storm and Sewer				
Campbell Hall Replacement				
Blum Center/Naval Architecture				

	2010	2011	2012	2013
Warren Hall Replacement/Li Ka Shing Center				
Community Health Campus Phase 1				
Tolman Hall Seismic Renovation				
Mulford Hall Seismic Renovation				
Vegetation Management Projects				
Anna Head Housing				
DHS Demolition/Helios				
Berkeley Art Museum/PFA				
Bowles Hall Renovation				

The table above does not include the Next Generation Light Source (NGLS). The NGLS, as envisioned, would be a linear accelerator "light source" capable of producing extraordinarily bright, short, soft x-ray pulses at rates of hundreds of thousands of times per second. Soft x-rays are ideal for studying solar cells, fuel cells, advanced electronics, biological systems, cleaner catalysts, and high-temperature superconductors. If located at the LBNL hill site, the NGLS could be a national user facility available not only to scientists at LBNL and UC Berkeley but to researchers around the nation and the world. While the idea of locating the NGLS at the LBNL hill site is being actively studied by Laboratory management, UC LBNL has not formally proposed this to the U.S. Department of Energy (DOE), nor has it entered into the required DOE "Critical Decision" process for the NGLS. Consequently, the NGLS is not considered a reasonably foreseeable project at LBNL at this time and is not considered further in this cumulative analysis.

#### 4.4.3 Near-Term Cumulative Projects

##### *LBNL Hill Site Projects*

##### **User Support Building**

The three-story, approximately 2,787-square-meter (30,000-gross-square-foot [gsf]) User Support Building will include assembly space, support laboratories, and offices. An existing 1,489-square-meter (16,038-gsf) structure, Building 10, which housed approximately 24 full-time LBNL staff, was demolished to create space for the User Support Building. A California Environmental Quality Act (CEQA) Initial Study/Mitigated Negative Declaration was prepared and circulated in fall 2006 and adopted by The UC Board of Regents (The Regents) in January 2007. Demolition of Building 10 was completed in 2007. Construction of the User Support Building was initiated in June 2008 and is expected to be completed by late 2010.

## Old Town Demolition

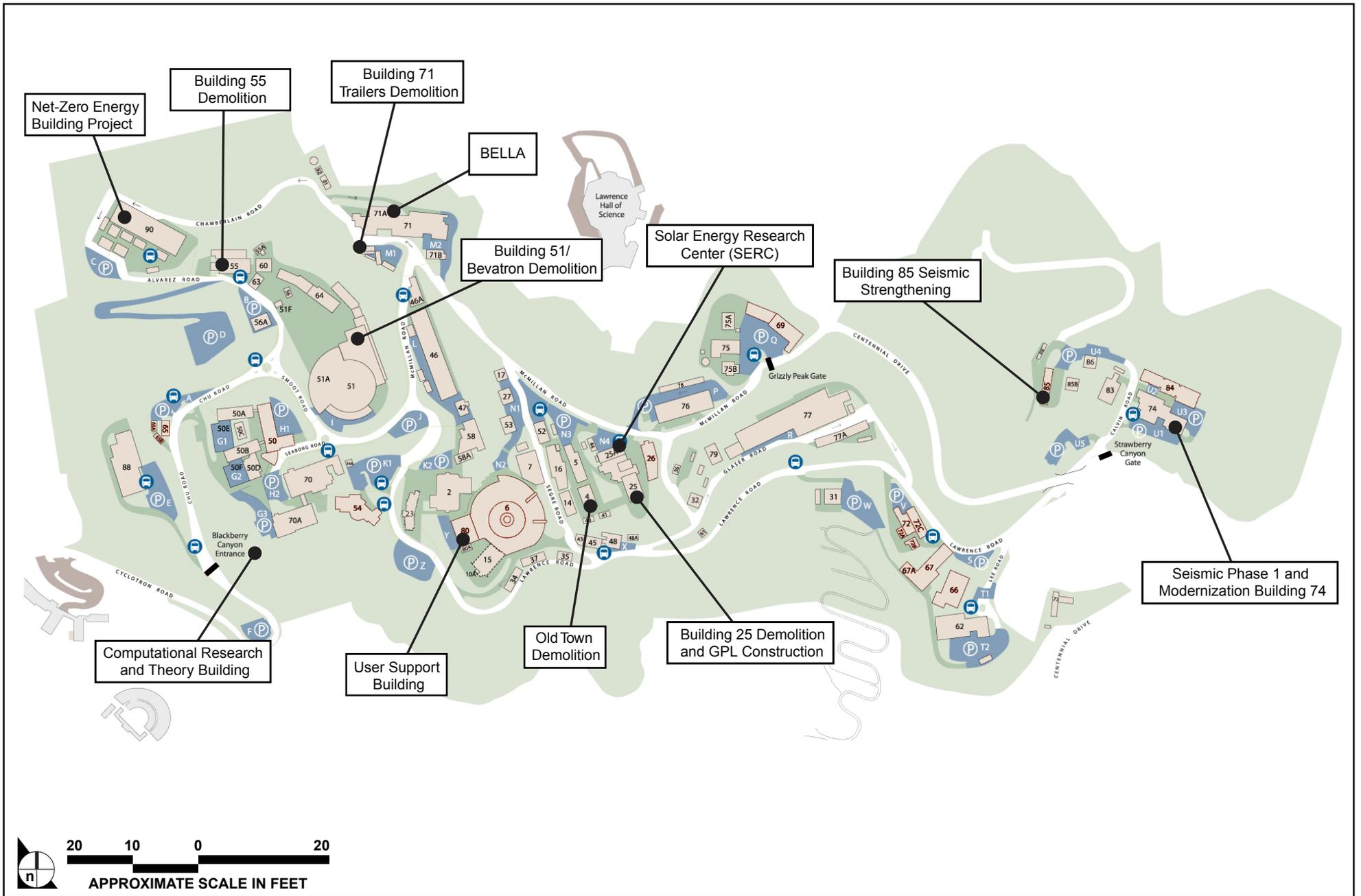
This project covers the demolition, decontamination, and environmental restoration of certain buildings in the “Old Town” area in the center of the LBNL hill site. Depending on funding, as many as 14 buildings (approximately 5,100 square meters [55,000 gsf]) would be demolished, including Buildings 4, 5, 7, 7C, 14, 16, 25A, 40, 41, 44, 44A, 44B, 52, and 52A. In addition, any contaminated soil under these structures would be remediated and groundwater treatment systems would be installed, if necessary, within the approximately 3-acre project area. A categorical exclusion was filed for the project under NEPA in December 2009. Based on an environmental checklist completed in December 2009, this project was determined to be within the scope of the LBNL 2006 LRDP EIR pursuant to *State CEQA Guideline* Section 15168. The project was approved in December 2009. Work is expected to commence in mid-2010 and be completed in mid-2013.

### Seismic Phase 1

Seismic Phase 1 is intended to correct structural deficiencies in LBNL Buildings 50 and 74 in order to improve their performance in a seismic event and upgrade the seismic rating of the buildings from “Poor” to “Good,” in accordance with the UC Seismic Safety Policy. Seismic Phase 1 work for Building 74 was finished in late 2009 and the work for Building 50 is expected to finish in mid-2010. It was determined that the project was categorically exempt under CEQA and categorically excluded under NEPA.

### Seismic Phase 2

Seismic Phase 2 would involve the demolition of 3,995 square meters (43,000 gsf) of space contained in several older buildings rated seismically “Poor” and “Very Poor,” and replacement with a similar amount of space in a single new facility that would be built to higher seismic safety standards. UC LBNL has vacated the most seismically deficient buildings, which has created a need for suitable safe and modern replacement space. The project would demolish Buildings 25/25B, Building 55, and Building 71 trailers C, F, J, K, and P. Buildings 25/25B is located at the center of the LBNL hill site in the Old Town area. Buildings 55 and 71 are located in the northwest portion of the LBNL hill site. The new 3,995-square-meter (43,000-gsf) General Purpose Laboratory would be built on site where Buildings 25/25B are now located. Building 85 would be seismically strengthened. The project would not result in any population growth at the LBNL hill site. The UC Regents certified the Seismic Phase 2 EIR and approved the project in July 2010. In addition, the Department of Energy issued the Final Environmental Assessment/FONSI for this project on August 4, 2010.



SOURCE: Impact Sciences, Inc. – February 2010

FIGURE 4.0-1

Cumulative Projects

### **Building 51 and Bevatron Demolition**

An EIR was certified in July 2007 for the demolition and removal of the Building 51 complex, including the Bevatron (a retired particle accelerator), and the concrete blocks and building shell surrounding it. This EIR was tiered from the 1987 LRDP EIR, as amended. Demolition commenced in August 2008 and is expected to continue through early 2011.

### **Berkeley Lab Laser Accelerator**

The Berkeley Lab Laser Accelerator (BELLA) will be housed almost entirely within Building 71, involving modifications to the internal structure to support a shielded experimental cave and support functions. The cave will house a new laser accelerator system. An additional utility room and stairwell will be built on the roof. The project was determined to be categorically exempt under CEQA. It was covered by a NEPA EA/FONSI (Finding of No Significant Impact) under NEPA that was signed by the DOE in September 2009. Construction is scheduled to take approximately 18 months, ending approximately by 2012.

### **User Test Bed Facility**

The User Test Bed facility project would consist of a series of energy-efficient building “testbeds” in the new and existing buildings to allow researchers to conduct measurements of energy use with various prototype building systems such as windows, lights, heating, ventilation, and air conditioning (HVAC), roofs, and skylights. The project is in a very early stage of development; at this time, it appears that the facility would be built primarily by renovating existing floor space in Building 90 and possibly adding a small building next to Building 90 on what is now a parking lot. The project is assumed to include a 929-square-meter (10,000-gsf) building, but the building may not be built or may be less than 929 square meters (10,000 gsf). The project would add less than 10 new employees to the LBNL hill site. This project has not yet undergone environmental review, and therefore has not been approved at this time. However, the project was awarded funding in December 2009, and construction is considered foreseeable in the near term. Final details of the new facility will be determined by DOE staff in order to meet cost and schedule targets.

### **Building 74 Modernization**

Building 74 modernization work will include a renovation of the entire building, including new mechanical, electrical, and plumbing systems; new interior partitions; new finishes; and new laboratory casework. The interior of the building would also be remodeled. The work is due to be completed in

mid-2012. The project was included in the 2006 LRDP EIR under CEQA and is categorically excluded under NEPA.

### ***UC Berkeley Near-Term Projects on UC Berkeley Campus***

#### **Southeast Campus Integrated Projects**

Southeast Campus Integrated Projects (SCIP) include seismic and program improvements to California Memorial Stadium, including a 14,679-square-meter (158,000-gsf) athletic training center, construction of a parking structure and sports field at the current site of Maxwell Family Field, construction of a 17,280-square-meter (186,000-gsf) building linking the Law and Business schools, landscape improvements for the Southeast Campus along Piedmont Avenue, interior improvements at selected buildings at the School of Law and the Haas Business School, and renovation and restoration of four historic houses on Piedmont Avenue. The Campus has committed in a recent settlement with Panoramic Hill Association that when it proposes the Maxwell Family Field parking structure, the total capacity would not exceed 546 parking spaces.

Construction of the athletic training center, School of Law facilities, and retrofit of the Piedmont Avenue houses is currently underway. Construction of all SCIP projects is expected to end in late 2012 with completion of improvements to California Memorial Stadium.

#### **Various Construction Projects**

The University has planned several projects to correct seismic and other deficiencies, through renovation or replacement, at the UC Berkeley campus. These projects would replace the space that is demolished or add generally small amounts of new space at these existing building sites.

- **Law School Infill:** 4,838-square-meter (52,072-gsf) demolition/construction, 2011 through 2013.
- **Northeast Quadrant Science and Safety Projects:** demolition of 9,290 square meters (100,000 gsf) and construction of 39,948 square meters (430,000 gsf) of laboratory and classroom space, currently under construction.
- **Campbell Hall Replacement:** 5,946-square-meter (64,000-gsf) demolition and 7,618-square-meter (82,000-gsf) construction, 2011 through 2013.
- **Naval Architecture Restoration and Blum Center:** 1,208 square meters (13,000 gsf) construction, completion in fall 2010.

- **Warren Hall Replacement/Li Ka Shing Center:** 7,339-square-meter (79,000-gsf) demolition and 18,581-square-meter (200,000-gsf) construction, completion 2011.
- **Community Health Campus, Phase 1:** 300,000 gsf construction, 2011-2012 (14,865 square meters [160,000 gsf]),
- **Tolman Hall Seismic Renovation:** 22,947-square-meter (247,000-gsf) demolition/construction, 2012 through 2013.
- **Mulford Hall Seismic Renovation:** 8,686-square-meter (93,500-gsf) demolition/construction, 2012 through 2013.

### **Vegetation Management Projects**

The University has applied, through the State of California Governor's Office of Emergency Services, to the Federal Emergency Management Agency (FEMA) for funding under the Pre-Disaster Mitigation (PDM) Program to conduct vegetation management activities in Strawberry Canyon, Claremont Canyon, and Frowning Ridge. The vegetation management activities would involve removal of non-native trees, including approximately 10,000 stems of eucalyptus trees from Strawberry Canyon, approximately 12,000 stems of eucalyptus trees from the Claremont Canyon area, and approximately 24,000 stems of eucalyptus and pine trees from the Frowning Ridge location. Each project would take place over a three-year period. Environmental review of the projects has not been completed. After approval, each project is expected to take place over a three-year period.

### ***University of California Projects in the City of Berkeley***

#### **Anna Head West Student Housing Project**

The student housing project would be constructed on the site of a campus surface parking lot. The project would construct 13,285-square-meter (143,000-gsf) new building space, and would add 424 beds to the campus vicinity. The project would also include spaces for study, computing, and fitness; apartments for a resident director and resident faculty member; and offices for academic advising. Construction would take place from late 2010 to mid-2012.

#### **Helios Energy Research Facility Project**

As part of the approved Helios Energy Research Facility project, the University demolished the approximately 19,500-square-meter (210,000 GSF) of built space at 2151 Berkeley Way (the former California Department of Health Services, or DHS). The project will develop the initial elements of a

site-wide circulation and open space plan, and construct a new laboratory and office building of approximately 10,500-square-meters (112,800 GSF). Construction is expected to be completed in late 2012.

**Other UC Berkeley Projects**

- **Berkeley Art Museum/Pacific Film Archives** 13,192-square-meter (142,000-gsf) renovation/construction, mid-2011 to late 2013.
- **Bowles Hall Renovation:** 6,780-square-meter (73,000-gsf) demolition/construction, 2012–2013.