

# GB1

**Office of the President**

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

## **ACTION ITEM**

*For Meeting of March 19, 2014*

### **APPROVAL OF THE BUDGET AND APPROVAL OF EXTERNAL FINANCING, TOLMAN HALL SEISMIC REPLACEMENT, BERKELEY CAMPUS**

#### **EXECUTIVE SUMMARY**

The proposed project is for construction of a new academic building of up to 230,000 gross square foot (gsf) that would replace the existing Tolman Hall, a 247,000 gsf (138,600 assignable square feet [asf]) reinforced concrete building that has a seismic rating of poor (V<sup>1</sup>) and is the campus' most urgent priority for seismic remediation. The new building would also provide modern instruction and research space that would remedy Tolman Hall's mid-20th century-era spaces and systems that inhibit instruction, research, and student-faculty collaboration.

As a result of the life safety risk Tolman poses, the Berkeley campus is proposing to move forward with this State eligible project in lieu of waiting for a State General Obligation bond measure. The campus is proposing to finance approximately 50 percent of the project budget with debt supported by campus funds, with the 50 percent balance to be financed (subject to approval as described below) with debt supported by State appropriations, using the funding mechanism established under Assembly Bill 94 (AB 94). Once the new building is completed, the existing Tolman Hall would be demolished using campus funds. The cost of the demolition of the existing Tolman Hall is not included in this total project budget. The campus anticipates the demolition would occur in the spring of 2017.

The proposed scope of the replacement building would be similar to the existing Tolman Hall in use and square footage . The Regents would be able to approve a more defined scope when the campus requests approval of design.

The Regents are being asked to: (1) approve a project budget of \$150 million to be funded from external financing; and (2) approve \$75 million in external financing. The remaining \$75 million in external financing is being addressed in a March 2014 Committee on Finance item that requests approval of external financing under funding mechanism AB 94.

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<sup>1</sup> Definition of expected Earthquake Performance Levels for Existing Buildings; UC Seismic Safety Policy, Appendix A

## RECOMMENDATION

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

1. The 2013-2014 Budget for Capital Improvements and the Capital Improvement Program be amended as follows:  
  
Berkeley: Tolman Hall Seismic Replacement – preliminary plans, working drawings, construction and equipment – \$150 million, comprised of external financing serviced by campus funds (\$75 million) and external financing serviced by State appropriations under the AB 94 mechanism (\$75 million).
2. The scope of the replacement building shall be similar in use and total square footage to the existing Tolman Hall. The approval of the scope is contingent on the campus returning to the Regents with a more defined scope for their review and consideration.
3. The President of the University be authorized to obtain external financing in an amount not to exceed \$75 million. The President of the University shall require that:
  - A. Interest only, based on the amount drawn down, shall be paid on the outstanding balance during the construction period.
  - B. As long as the debt is outstanding, the general revenues of the Berkeley campus shall be maintained in amounts sufficient to pay the debt service and to meet the requirements of the authorized financing.
  - C. The general credit of the Regents shall not be pledged.
4. The President of the University be authorized to execute all documents necessary in connection with the above.

## BACKGROUND

### *Project Overview*

Completed in 1962, Tolman Hall is a seismically ‘poor’ (V) reinforced concrete structure. At 138,600 asf, or 247,000 gsf, Tolman Hall is one of the largest academic buildings on the Berkeley campus. The primary occupants are the School of Education and the Department of Psychology, but Tolman Hall also contains two research institutes and the Education-Psychology Library. It also contains 13 general assignment classrooms although – in recognition of the life safety risk – those classrooms have been taken out of general assignment service, and the instructional demand redirected to other spaces on campus.

Budget-based Design and Program

Considering its size and number of campus users, and its structural characteristics, Tolman Hall is the campus's most urgent seismic priority. For this reason, the Berkeley campus is moving forward with the replacement of Tolman Hall under a 'budget-based' model, in which the starting point is not, as in the past, an aspirational 'wish list' of program spaces and features, but rather a project budget based on a realistic assessment of resources.

With the target project budget set at \$150 million, the next step, now underway, is to examine a range of conceptual design options to determine the optimal size and configuration of a building achievable within the target budget, based on a comprehensive set of program, design, and technical performance criteria. While the objective is 230,000 gsf, the size ultimately achievable within the budget depends on both design and market conditions resulting in a project budget of approximately \$652 per gsf.

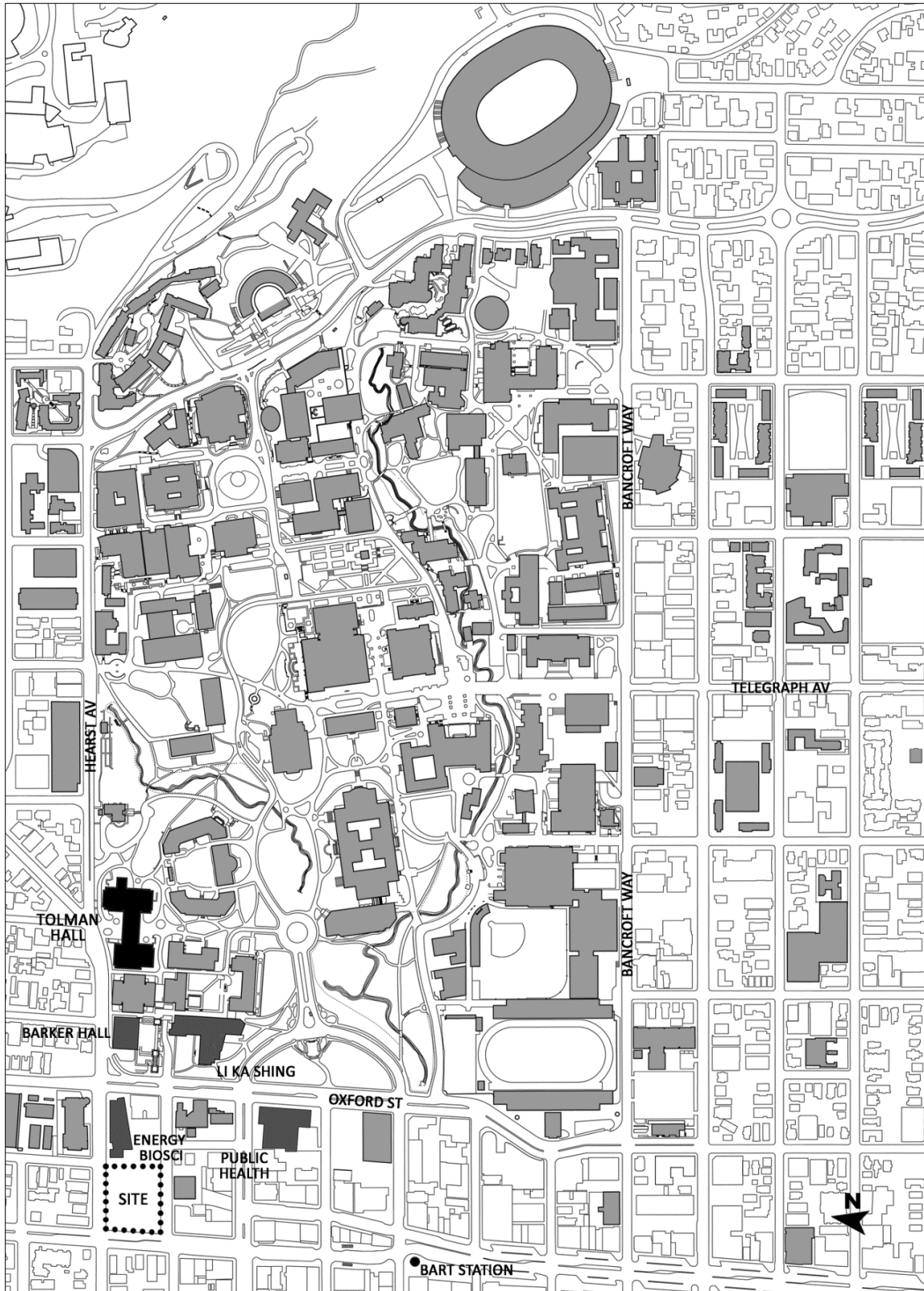
Once a physical concept is selected during the preliminary plan stage, the next step is to determine the optimal way to accommodate the programs within the concept. The new building is planned to house all current occupants of Tolman Hall, but the campus intends to significantly improve space utilization, through workspaces sized to fit today's functions and work styles.

The campus expects to improve the ratio of asf to gsf from the current 56 percent to at least 60 percent which, at 230,000 gsf, would yield at least 138,000 asf, comparable to the 138,600 asf in the existing Tolman Hall. The detailed layouts of workspaces would occur during the preliminary plan stage of design, after the size and configuration of the building have been confirmed to align with the project budget.

Project Location

Because the Berkeley campus is intensively developed, a building of this scale requires a location outside the traditional core campus, in downtown Berkeley. As shown on the Location Map in Figure 1, the proposed replacement site is the University-owned western half of the city block defined by Oxford Street, Hearst Avenue, Shattuck Avenue, and Berkeley Way. Previous studies indicate the site has a capacity of 230,000 – 240,000 gsf.

Figure 1. Location Map (UC Buildings in Gray)



Future expansion of the Berkeley campus is planned to occur on these and other downtown blocks: the *UC Berkeley 2020 LRDP*, adopted in January 2005, anticipated 800,000 net new gsf in downtown Berkeley by 2020. The new Energy Biosciences Building, completed in 2012, is located on the eastern half of the block. The block is directly across Oxford Street from the Li Ka Shing Center, completed in 2011. It is one block north of the School of Public Health, and two blocks north of the new UC Berkeley Art Museum, now under construction.

### Project Schedule

In order to respond to the urgency of the life-safety risk, minimize cost escalation, and enable a full range of delivery options, including design-build, the campus proposes to move forward with the project in April 2014. The delivery method would be finalized only after a detailed review of options based on performance criteria and preliminary design, and would include consideration of design-build and private-partnership models.

### *Existing Conditions*

#### Seismic Deficiencies

Tolman Hall is by far the campus' most urgent priority for seismic remediation, partly because of Tolman Hall's unique structural characteristics – including an open ground floor breezeway under the central section (Figure 2) and perimeter columns and column-beam connections external to the building (Figure 3) – as well as its large size and population.



Figure 2. Open breezeway through central section of building.



Figure 3. Beam connections at eccentric exterior columns prone to collapse.

In summer 1997, UC Berkeley commenced its Seismic Action for Facilities Enhancement and Renewal (SAFER) program. The existing Tolman Hall was rated 'poor' (V) in the event of major seismic activity on the Hayward fault. In fall 2009, UC Berkeley commissioned a more detailed building study, which disclosed multiple and severe seismic deficiencies.<sup>2</sup>

In response, the consultants proposed three alternate retrofit schemes, each achieving roughly the same structural performance. All three schemes would provide roughly equal structural performance, and all would require substantial interior disruption, including considerable architectural and building systems modifications to accommodate the structural improvements. In spring 2011, the Berkeley campus augmented the fall 2009 study with a broader examination of potential alternatives for seismic remediation, including partial retrofits, as described in *Alternatives Analysis*, below.<sup>3</sup>

#### Other Life Safety/Code Deficiencies

The 2009 study evaluated Tolman Hall under the 2007 California Building Code and 2007 California Fire Code. The existing building met most of those general code and life safety requirements, but some deficiencies were found to require correction, including removal or abatement of hazardous materials, modification of stairs, elevators, and rest rooms to meet code access requirements, and provision of fire sprinklers in the entire building, along with rated doors and walls in selected areas. Only the basement now has fire sprinklers.

#### Building Systems Deficiencies

The largely original building systems are at or beyond their useful lives, and provide performance inadequate for current practices: for example, the 2009 study found the electrical service provided only half the capacity typical of modern education buildings. The building systems, and the 50 year old exterior skin, also do not meet modern standards for energy conservation, including the university objective of LEED silver performance.

#### Space Deficiencies

Tolman Hall is comprised almost entirely of hard walled offices along long, grim hallways. The sizes and shapes of these offices reflect how research was conducted in the late 1950s, but they are completely inflexible. Many workspaces in both departments are housed in cramped, windowless, and poorly ventilated rooms, including a former animal facility. Spaces for interaction, both formal and informal, are severely inadequate.

Existing conditions in Tolman not only result in unpleasant workspaces, they also result in the suboptimal use of space, obstruct communication and collaboration both within and across research teams, and impair the ability of the programs to recruit and retain exceptional students and faculty.

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<sup>2</sup> Rutherford & Chekene /Cody Anderson Wasney, *Feasibility Design Report for Tolman Hall*, October 2009, p 9-10

<sup>3</sup> Rutherford & Chekene /Cody Anderson Wasney, *Tolman Hall UC Berkeley: Investigation of Partial Retrofit Alternatives*, August 2011

Moreover, research today is fluid and dynamic: teams grow, shrink, and change over time. In the rigid environment of Tolman Hall, teams must adapt their work styles to fit the space and, inevitably, many spaces wind up underutilized while others are congested, and research teams may be split into two or more separate and isolated rooms, and sometimes separate floors.

***Plan of Financing***

The project budget totaling \$150 million is proposed as external financing, with \$75 million to be serviced by campus funds and \$75 million serviced by State appropriations under the AB 94 mechanism, subject to approval by the State and the Regents as described below. Previously, a portion of the project budget was planned to be financed with \$75 million of century bond funds. The century bond was issued in March, 2012 by the University for a total of \$860 million. The Berkeley campus was allocated \$150 million. However, at the time the century bond sale was completed, the Berkeley campus had not yet identified the balance of funding required for the project and would need to present the project for full budget approval by the Regents. It became clear subsequently that three other Berkeley campus projects, each with significant amounts of external financing, were complete and ready for issuance of long-term debt. Rather than continue to pay interest on the century bonds while issuing new long-term debt for the three completed projects, in May 2013, the Berkeley campus requested that the century bond funds be reallocated to those completed projects. The campus is now proposing another \$75 million in debt backed by campus funds towards this project.

In regards to the \$75 million in debt backed by certain State appropriations under the AB 94 mechanism, two separate items are scheduled for the March 2014 Regents Meeting. The first is a proposal to the Committee of Grounds and Buildings to amend the 2014-15 Budget for State Capital Improvements to include this project in the list of projects requesting approval using the funding mechanism under AB 94. These 2014-15 projects have been submitted for approval by the State, who will notify the University of its determination no earlier than April 1st. A second item is being submitted to the Committee on Finance requesting approval of the associated external financing, to be repaid by certain State appropriations, for projects under the AB 94 funding mechanism.

Approval of this action will allow the campus to proceed with preliminary plans considering this phase is fully funded with the debt backed by campus funds. The project, however, will not be able to proceed past preliminary plans without the three approvals described above (two from the Regents and one from the State).

*Alternatives Analysis*

In spring 2011, the Berkeley campus augmented the fall 2009 study with a broader examination of potential alternatives for seismic remediation.<sup>4</sup> In light of economic constraints, several partial retrofit schemes were explored, to determine whether there were interim measures, at a relatively modest cost, that could result in a meaningful near-term reduction in life-safety risk, pending a longer-term complete solution. Based on the findings of the 2009 and 2011 studies, six alternative strategies were evaluated.

1. Noncapital measures
2. Seismic retrofit only
3. Partial interim retrofit
4. Comprehensive renovation
5. Replacement: same site
6. Replacement: alternate site

The alternatives analysis found replacement on an alternate site to be the optimal solution. Replacement is preferable to retrofit or renovation because:

- It would provide superior levels of seismic safety and building systems performance;
- It would optimize both program functions and space utilization; and
- It would avoid the significant cost and disruption of relocating the occupants to other interim space during construction.

Attachments:

- Attachment 1: Project Budget  
Attachment 2: Financial Feasibility

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<sup>4</sup> Rutherford & Chekene / Cody Anderson Wasney, *Tolman Hall UC Berkeley: Investigation of Partial Retrofit Alternatives*, August 2011



**PROJECT BUDGET  
CCCI 6151**

<b>Category</b>	<b>Amount</b>	<b>% PWC</b>
Site clearance	500,000	0.4
Building	103,500,000	75.9
Exterior utilities	1,000,000	0.7
Site development	4,000,000	2.9
A & E fees	9,550,000	7.0
Campus administration	2,925,000	2.1
Surveys, tests, plans	880,000	0.6
Special items (construction interest)	6,750,000	5.0
Special items (other)	1,880,000	1.4
Contingency	5,375,000	3.9
PWC	136,360,000	100.0
Group 2 & 3 equipment	13,640,000	
<b>Project Cost</b>	<b>150,000,000</b>	

**Project Statistics**

Estimated GSF	230,000
Estimated ASF	138,000
ASF:GSF ratio	60%
Building cost/GSF	\$ 450
Project cost/GSF	\$ 652

**COMPARABLE PROJECTS**

UCOP maintains a data base of cost data for university office and classroom projects through 2007. From this list, 14 reference new construction projects were selected which 1) are over 75,000 gsf and 2) have budgets established within the last ten years: this list was then augmented to include the UCSF Mission Bay Block 25A Academic Building project, now under construction. Building cost/gsf was determined to be the most relevant metric for comparison, since it excludes many variances in site conditions reflected in construction cost.

When the cost data are calibrated to a common CCCI of 6151, the average building cost/gsf for the 15 reference projects is \$437, compared to \$450 for this project. It should be noted the 15 reference projects include no projects from either Berkeley or Los Angeles, and only one from San Francisco, and thus the data may reflect both lower cost labor markets and less stringent seismic requirements. The comparable projects are identified in the table below:

**CCCI: 6151**

<b>CAMPUS</b>	<b>PROJECT</b>	<b>Original Cost Index</b>	<b>Gross Square Feet (GSF)</b>	<b>Adjusted Bldg Cost per GSF</b>	<b>Adjusted Const Cost per GSF</b>
UCD	Education Building	4100	122,022	\$425	\$538
UCD	Graduate School of Management and Conference Center	5604	82,034	\$336	\$462
UCI	Social and Behavioral Sciences Building	4632	116,143	\$494	\$642
UCI	Humanities Building	4890	76,024	\$429	\$584
UCM	Classroom and Office Building	4019	92,601	\$432	\$495
UCM	Social Sciences and Management Building	4890	101,141	\$461	\$567
UCR	CHASS Instruction & Research Facility	4019	111,749	\$400	\$500
UCSB	Education and Social Sciences Building	4632	209,570	\$499	\$628
UCSC	Humanities and Social Sciences Facility	4019	84,253	\$455	\$538
UCSD	Management School Facility - Phase 1	4100	83,333	\$375	\$417
UCSD	Student Academic Services Facility	4100	101,457	\$405	\$510
UCSD	Mayer Hall Addition Only	4632	78,425	\$471	\$604
UCSD	Management School Facility Phase 1	4421	83,333	\$543	\$701
UCSD	Management School Facility Phase 2	4890	79,350	\$517	\$678
UCSF	Mission Bay Block 25A Academic Building	5880	263,478	\$314	\$344
<b>Average Value:</b>				<b>\$437</b>	<b>\$547</b>

**ATTACHMENT 2**

**FINANCIAL FEASIBILITY**

**Berkeley Campus**

Project Name	Tolman Hall Seismic Replacement
Project ID	912629
Total Estimated Project Cost	\$150,000,000

**Proposed Sources of Funding**

External Financing: Campus Funds	\$75,000,000
External Financing: State Appropriations <sup>5</sup>	\$75,000,000*
Total	\$150,000,000

*\*Does not include interest expense and financing costs*

**Financing Assumptions**

Amount Financed	\$150,000,000
Anticipated Repayment Sources	General Revenues of the Berkeley Campus (\$75,000,000) State Appropriations (\$75,000,000) <sup>5</sup>
Financial Feasibility Rate	6% - 30 year amortized
First Full Year of Principal	Year 1 (debt model assumes FY 2018)
Final Maturity	Year 30 (debt model assumes FY 2047)
Estimated Annual Debt Service	\$5,420,000*

*\*Estimated annual debt service does not include \$75,000,000 in project costs that will be repaid by State appropriations under funding mechanism AB 94*

**Campus Financing Benchmarks**

	10 Year Projections Max/Min Values	Approval Threshold
Debt Service to Operations	5.2% (max: FY 2018)*	6.0%
Debt Service Coverage	n/a	1.75x
Expendable Resources to Debt	1.19x*	1.0x

*\*Ratios do not include Bowles Hall Renovation (3<sup>rd</sup> party housing project). When Bowles Hall Renovation is included, Debt Service to Operations (max/year) is 5.3% in 2018 and Expendable Resources to Debt is 1.16x*

*Financing approval requires the campus to meet the debt service to operations benchmark and one of the two other benchmarks for approval.*

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

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<sup>5</sup> Being addressed in the March 2014 Committee on Finance item requesting Approval of External Financing under Funding Mechanism AB 94.