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February 24, 2012

CHAIRMAN OF THE BOARD
CHAIR OF THE COMMITTEE ON GROUNDS AND BUILDINGS
PRESIDENT OF THE UNIVERSITY

ACTION BY CONCURRENCE – AMENDMENT OF THE BUDGET FOR CAPITAL IMPROVEMENTS AND THE CAPITAL IMPROVEMENT PROGRAM, EAST CAMPUS INFRASTRUCTURE IMPROVEMENTS PHASE 2, RIVERSIDE CAMPUS

EXECUTIVE SUMMARY

The East Campus Infrastructure Improvements Phase 2 project would provide heating, cooling development area north of North Campus Drive. In November 2006, the Regents approved a project budget of $11,702,000 to be funded from State funds ($8,893,000) and campus funds ($2,809,000). This item proposes an augmentation of $3,500,000, to be funded from campus sources, to (a) address inadequacies in the preliminary cost estimates, and (b) cost rises in the present bid climate. The initial cost estimates had overlooked some critical supporting items. Additionally, although construction costs had dropped drastically in the 2008 and 2009 period the project was at a standstill at that time due to the State imposed freeze on bond projects; when the project was funded again, cost estimators expected the trend in 2010 to be favorable, but instead found that the lack of a consistent construction economy in the area had reduced the bidding pool.

RECOMMENDATION

The President recommends, subject to concurrence of the Chairman of the Board and the Chairman of the Committee on Grounds and Buildings, to amend the 2011-12 Budget for Capital Improvements and the Capital Improvement Program as follows:

Additions shown by underscoring; deletions shown by strikethrough

Riverside: *East Campus Infrastructure Improvements Phase 2* – preliminary plans, working drawings, and construction – ~~$11,702,000~~ $15,202,000, funded from State funds ($8,893,000) and campus funds (~~$2,809,000~~ $6,309,000).

BACKGROUND

The University of California, Riverside (UCR) academic core is located on the east side of Interstate 215/60. Total amount of space in the East Campus is approximately 6.3 million gross square feet (gsf) that includes both general and residential facilities. For more than a decade, enrollment growth has been particularly significant, increasing from approximately 8,200 students FTE in 1997-98 to approximately 21,000 FTE students in fall 2011. The existing East Campus utility network includes components for building cooling and heating, electricity, potable water, natural gas, and sanitary sewer. Enrollment growth to date has placed increased demand on all aspects of the existing infrastructure network. System improvements are needed to support the current as well as future facilities.

The 2002 East Campus Infrastructure Detailed Project Program identified system deficiencies and improvements that are needed to support the present campus as well as proposed campus growth. An outcome of the effort was the development of an infrastructure improvement strategy consisting of a series of utility projects. The initial State-funded East Campus Infrastructure Improvements Phase 1 project was completed in June 2007. It provided the first utility enhancements, which included partial upgrades and extensions for chilled water, sewer, domestic water, steam and electrical services. The East Campus Infrastructure Phase 2 project continues the effort begun in Phase 1 to address system deficiencies as well as support projected East Campus program growth.

In November 2006, the Regents approved a project budget of $11,702,000 to be funded from State funds ($8,893,000) and campus funds ($2,809,000). The campus has pursued a coordinated effort utilizing both State funds, and campus resources to supplement the State funding, given the importance of the infrastructure upgrades. This project was appropriated in the 2007 State Budget Act as a streamlined project.

In December 2008, the State Pooled Money Investment Board imposed a freeze on projects accessing State funds via loan disbursement. As a result, the project halted work and waited for a general obligation bond sale. When bonds were sold for the project in March 2010, the project was still at the November 2006 budget. The project was separated into two packages and Bid Package One was bid and came in over budget. Subsequently, errors in the preliminary cost estimates were identified; several supporting items had not been considered while other items had been under estimated. Since the project was appropriated as a streamlined project, State funds were not available for cost increases. Therefore, due to the criticality of the project, the campus is seeking an augmentation to the project budget using campus funds.

Project Program and Scope

The scope of the East Campus Infrastructure Improvements Phase 2 project, as defined in the approved Project Planning Guide, would provide upgrades to heating, cooling and electrical service; extension of the utility infrastructure to the development area north of North Campus Drive; installation of a new boiler and chiller; and construction of a new thermal energy storage

tank.

The project, which remains consistent with the original scope, accomplishes the following:

- Increase heating capacity to the East Campus by installing a 50,000-pound-per-hour boiler to increase steam capacity while addressing South Coast Air Quality Management District (SCAQMD) requirements.
- Enhance chilled water capacity by installing a new 2,000-ton chiller and a new 2,000,000 gallon thermal energy storage (TES) tank.
- Improve existing 12 kV electrical services to support short- and long-term building growth and provide reliable and increased capacity.
- Extend utility distribution service to the currently undeveloped area north of North Campus Drive, including potable and domestic water, steam, chilled water, sanitary sewer, and 12 kV electrical systems.

Without this project, the ability to furnish utility services to the campus would be compromised. The installation of the boiler as proposed above, is part of the overall plan to comply with the South Coast Air Quality Management District (SCAQMD) requirements. The boiler also increases overall steam capacity to address current and future needs and would improve energy efficiency and environmental performance, providing the campus with reliable code-compliant heating capacity.

The new chiller and new TES tank proposed by this project would help address the campus's increasing cooling requirements. As the campus expands, operation of the existing chillers during peak hours is more frequent in order to meet demands. To provide air conditioning, the campus relies on chilled water supplied from chillers at the Central Plant, a Satellite Chiller Plant and two existing TES tanks. The chillers and TES tanks function in tandem to address the campus chilled water needs, conserve energy, and minimize annual utility expenses. Chilled water is generated at night and stored in the TES tank for use during the daytime. By limiting the use of the electric chillers to off-peak hours, the campus and the City of Riverside Public Utilities Department negotiated an electrical utility rate beneficial to both parties. The new chiller would provide increased capacity to charge the existing and new TES tanks. This would enable the campus to maintain the favorable electric rates from the local utility, retain the desired economy of operation, and provide backup service for exceptionally high demand periods.

As detailed in the approved PPG, without the East Campus Infrastructure Improvements Phase 2 project, the ability to meet the steam and chilled water requirements of the campus would be jeopardized.

Funding Chronology and Need for Augmentation

Funding for the project was provided in the 2007 State Budget Act. A streamlined funding process was utilized, wherein the State provided funding (preliminary plans, working drawings, and construction) at project inception. Under this appropriation methodology, a change in scope requiring additional State funding is not allowable. A summary of the project chronology leading to the current budget augmentation request follows:

- The Pooled Money Investment Board (PMIB) suspended projects in December 2008 and subsequently unsuspended the project in March 17, 2010. Project funding remained static, despite the funding delay.

- After funding became available in March 2010, the campus split the project, with Bid Package One to install chillers, pumps, piping and a cooling tower at the Satellite Chiller Plant, and the Bid Package Two to install the new boiler, TES tank, address electrical upgrades, and complete the utility expansions north of North Campus Drive.

- A preliminary cost estimate dated May 2010 supported the Working Drawings of Bid Package One and the State approval to bid was received in June 2010.

- Adoption of the Mitigated Negative Declaration and CEQA Findings occurred in November 2010.

- Bids for Bid Package One were received February 10, 2011.

- Bid Package One came in over budget by 30 percent. Variability between bids received in the two primary categories, Mechanical and Electrical, was small, providing evidence that the preliminary estimate was deficient. The campus did not award a contract. The results for Bid Package One triggered a re-examination of the cost estimate for both packages

- A re-evaluation of the preliminary cost estimate for both packages revealed inadequately defined costs in the earlier estimate. In Bid Package One, mechanical and electrical items such as the installation of the chiller and chilled water piping, as well as electrical motor controls, cabling and installation, were underestimated. A number of required items had been omitted from Bid Package Two, including the basic site work for the TES tank, the steel support structure, and the Continuous Emissions Monitoring System (CEMS) for the boiler. In addition, the cooling tower and the Selective Catalytic Reduction (SCR) system and Economizer supporting the boiler system were significantly underestimated.

- The combination of events associated with project delays and the deficiencies in the preliminary cost estimates contribute to the present funding situation and augmentation

request.

Details of Cost Overage

The summary of the cost increase is as follows:

Direct	
Bid Package One Overage	$ 645,740
Bid Package Two Projected Overage	$ 2,316,260
(Subtotal)	$ 2,962,000
Indirect	
External Fees (preconstruction services and associated costs)	$ 185,000
Campus Administration and other indirect costs	$ 146,000
Contingencies	$ 207,000
(Subtotal)	$ 538,000
Total Direct and Indirect increase	$ 3,500,000

Considered Alternatives and Deductions

An alternative to implementing the project would be to incorporate stand-alone heating and cooling systems in individual facilities, rather than improving the current chilled water and steam utility distribution networks. Use of stand-alone systems in core campus environments has been demonstrated to be neither efficient nor cost-effective over the useful life of the associated buildings. As the East Campus expands, a centralized system becomes more beneficial since it can easily facilitate growth by permitting development at a lower cost, while enhancing energy conservation efforts.

The campus undertook a concerted effort to evaluate the project components and determine what cost-effective project modifications could be proposed. The goal was to examine alternatives that could reduce costs but would not compromise functionality for the existing project. The following elements were deducted from Bid Package Two:

1. Reduction in the length of site utilities, excluding connections to areas designated for future projects. The utility extensions required for those projects will be included in the specific project budgets.
2. Revised specifications to substitute less expensive materials (e.g., steel to PVC pipe).
3. Reversion of the design of the TES tank to 2.0 million gallons, consistent with the size specified in the approved PPG.
4. A change the diffuser configuration and alteration of the shape of the roof of the TES tank. The latter uses a dome design which raises the profile by 11 feet and saves on excavation and structural costs.

Given the benefits to current utility services, future campus development, and overall operational

cost savings represented by the proposed project, the campus proposes augmenting the project with $3,500,000 in campus funds in order to proceed.

Schedule

The campus would anticipate the start of construction in July 2012 and completion in July 2013.

Previous Action

- November 2006: Approval of Budget ($11,702,000)

Sustainable Practices Policy

The project has adopted the principles of energy efficiency and sustainability to the fullest extent possible, consistent with budgetary constraints and regulatory and programmatic requirements.

Approval:

3/8/12

Mark G. Yudof Date
President of the University

Concurrence:

3/15/12

Sherry L. Lansing Date
Chairman of the Board

Hadi Makarechian Date
Chair of the Committee on Grounds and Buildings

ATTACHMENTS:
Attachment 1: Project Budget

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Chairman of the Board

3/13/12

Hadi Makarechian Date
Chair of the Committee on Grounds and Buildings

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ATTACHMENT 1

PROJECT BUDGET
EAST CAMPUS INFRASTRUCTURE IMPROVEMENTS PHASE 2
CAPITAL IMPROVEMENT BUDGET
RIVERSIDE CAMPUS
CCCI 4890

Cost Category	Approved Budget June 2006	Augment Request	Proposed Budget Jan 2012	% of Total
Site Clearance	$0	$0	$0	0.0%
Building [a]	0	0	0	0.0%
Exterior Utilities	9,711,000	2,962,000	12,673,000	83.4%
Site Development	0	0	0	0.0%
A/E Fees [b]	777,000	185,000	962,000	6.3%
Campus Administration [c]	340,000	102,000	442,000	2.9%
Surveys, Tests, Plans	146,000	44,000	190,000	1.3%
Special Items	48,000	0	48,000	0.3%
Contingency	680,000	207,000	887,000	5.8%
Total	$11,702,000	$3,500,000	$15,202,000	1.00%
Group 2 & 3 Equipment	0	0	0	
Project Cost	**$11,702,000**	**$3,500,000**	**$15,202,000**	

Statistics

Gross Square Feet (GSF)	N/A
Assignable Square Feet (ASF)	N/A
Ratio asf/gsf%	N/A
Building cost/gsf	N/A

(a) Special items include V/E constructability