

Contact: Sheila Doyle

**REGISTER OF IOWA STATE UNIVERSITY**  
**CAPITAL IMPROVEMENT BUSINESS TRANSACTIONS**

**Actions Requested:** Consider approval of the following actions for the **Horticulture Greenhouse Replacement – 2006** project, a major capital project as defined by Board policy.

1. Acknowledge receipt of the University's final submission of information to address the Board's capital project evaluation criteria (see Attachment A);
2. Accept the Board Office recommendation that the project meets the necessary criteria for Board consideration; and
3. Approve the schematic design and project description and budget (\$6 million), with the understanding that this approval will constitute final Board approval and authorization to proceed with construction.

**Executive Summary:** The **Horticulture Greenhouse Replacement – 2006** project would construct new greenhouse facilities at the Horticulture Building to replace the existing structures, which are used extensively by the Department of Horticulture for teaching, research, and outreach activities. The existing greenhouses were constructed in 1913 and are obsolete, inefficient, and lack environmental controls; these deficiencies severely limit the Department's teaching and research efforts. The new greenhouses would accommodate current and future horticulture technologies for improved instruction, and would include year-round environmental controls to expand the Department's research activities.

The \$6 million project budget would be funded by private funds (\$5.9 million) and the Agriculture Experiment Station (\$100,000).

**Details of Project:**

<u>Project Summary</u>			
	<u>Amount</u>	<u>Date</u>	<u>Board Action</u>
Permission to Proceed		June 2006	Approved
Initial Review and Consideration of Capital Capital Project Evaluation Criteria Program Statement		June 2006	Received Report
		March 2007	Not Required
Schematic Design		May 2007	Requested
Project Description and Total Budget	\$ 6,000,000	May 2007	Requested

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The schematic drawings for the project are included as Attachments B, C and D.

The project would demolish the existing greenhouse facilities located immediately south of the Horticulture Building and construct the new greenhouses at the same location. The greenhouses would feature standard, metal gable construction and tempered glass with shading for light control and energy conservation, and computerized environmental and lighting controls. The southernmost greenhouse, which would house the teaching plant collection, would be open to the public.

Depending upon the availability of funds, the University anticipates commencing the demolition work in the summer of 2008 and completion of the project by late summer 2009.

The square footages in the schematic design are generally consistent with the approved building program, as outlined below.

Detailed Building Program

	<u>Program</u>	<u>Schematic</u>	
Instructional Greenhouse	6,500	6,500	
Research Greenhouse	4,000	4,000	
Plant Collection Greenhouse	2,000	2,000	
Propagation Greenhouse	<u>500</u>	<u>250</u>	
Total Net Assignable Space	13,000	12,750	nsf
Anticipated Gross Square Feet	15,800	15,548	gsf

Anticipated Net-to-Gross Ratio = 82 percent

Project Budget

Construction	\$ 4,744,550
Professional Fees	913,750
Movable Equipment	91,850
Relocation	19,240
Contingencies	<u>230,610</u>
TOTAL	<u>\$ 6,000,000</u>
Source of Funds:	
Private Giving	\$ 5,900,000
Agriculture Experiment Station	<u>100,000</u>
TOTAL	<u>\$ 6,000,000</u>

Horticulture Greenhouse Replacement – 2006  
Evaluation Criteria

Since the project meets the Board's definition of a major capital project, the University has provided the following information in response to the Board's evaluation criteria.

Institutional Mission/Strategic Plan: The roots of horticulture extend back to the years before Iowa became a state. The early immigrants who came from eastern states were eager to grow fruits, vegetables, trees and nursery crops. When the Iowa Agricultural College and Farm opened for students in 1869, horticulture classes were among the subjects offered. Farmers and horticultural producers have benefited from the teaching, research and outreach activities of the horticulture program for nearly 150 years.

The mission of the Department of Horticulture at Iowa State University is to create and sustain programs in research, undergraduate and graduate instruction, and extension that promote enthusiasm and excitement for the discovery, enhancement, production and creative utilization of plants for the betterment of Iowans and all humankind. These goals are supportive of the institutional mission to Create, Share and Apply knowledge to make Iowa and the world a better place.

Iowa State University was founded on the ideals that higher education should be accessible to all and that the university should teach theoretical and practical subjects. The Department of Horticulture was a pioneer in meeting these ideals and continues to do so at the present time.

Other Alternatives Explored: In Spring 2005, an engineering/architectural firm was retained to assist the department in an initial evaluation of the condition of the existing facilities and to define the potential for renovation or replacement of approximately 27,000 GSF of greenhouse facilities used by the department. Almost immediately it was determined that the 1913 greenhouses and a small addition in 1980 were inadequate in meeting the needs of the department and that renovation would not be a practical solution.

The original greenhouse complex built in 1913 remains virtually unchanged since that time. All of the iron rafters, trusses, and posts are still in place. None of the original steam lines, water lines, and mechanical vents have been replaced, and maintenance has consisted of repairs only. These greenhouses have been obsolete for teaching and research for many years due to a lack of environmental controls, automatic watering systems, shading and supplement lighting systems, and computer based environmental management systems.

The study also included an analysis of the space needs of the department. Utilization information was evaluated for the department's teaching, research and extension programs. The existing greenhouse facilities are well used, but the department would make even greater use of the space if environmental conditions didn't limit its usefulness during the summer months. In some cases, regardless of the season, the facilities cannot be used for growing crops for research or teaching. In addition, the space is unsuitable for some research activities because it is not bio-secure.

The study concludes that new construction is the only viable alternative to meet the department's teaching, research and extension program needs.

Impact on Other Facilities and Square Footage: The project will demolish the existing greenhouses and replace them with approximately 12,750 net square feet (15,548 gross square feet) of new greenhouses.

Financial Resources for Construction Project: Total project cost is \$6 Million with \$100,000 from Agriculture Experiment Station and \$5.9 Million to be funded from private funds.

Financial Resources for Operations and Maintenance: Estimated increases to the operating and maintenance costs of the additional space are:

Custodial and routine maintenance	\$15,342
Utilities	73,754
Repair and replacement	90,000
Other (Grounds/Mail/EHS/DPS)	<u>9,370</u>
Total	\$188,466

The increase in operating and maintenance costs will be funded by the general fund.

External Forces: Horticulture is a plant-based discipline; nearly every class taught by the department uses greenhouse space for producing, treating, and studying plants. For many years, the department has not been able to teach greenhouse operation and management, and greenhouse crop production courses properly because the facilities are so out-of-date. The department is unable to prepare students for what they need to know when they enter the professional arena; greenhouses have not kept up with the technology.

The Horticulture producers of the State of Iowa could be better served through research and outreach programs that are supported with modern and appropriately supported greenhouse facilities.





