University of Illinois

BUDGET REQUEST FOR OPERATING AND CAPITAL FUNDS

Fiscal Year 1985

PREPARED FOR PRESENTATION TO THE
BOARD OF TRUSTEES
SEPTEMBER 15, 1983

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PREFACE

In the spring of 1983, the State of Illinois confronted one of the most serious fiscal crises in its history. In the final hours of the legislative session, the leaders and members of the General Assembly and the Governor found a solution to avoid what euphemistically had been called "doomsday".

For quality education in Illinois, "doomsday" would have dealt a serious blow, a blow from which a decade and more would have been required to recover. Illinois would have telegraphed a message of defeat to its people and to the nation. And the future of the State as a major industrial, agricultural, high technology state; as a national center of commerce and industry; and as an intellectually strong state, served by one of the nation's top public universities, would have been in doubt.

In the final hours, Illinois took the first move to step away from the "doomsday" precipice. A temporary increase in the Illinois State income tax was enacted along with a permanent increase in the State sales tax revenue and other adjustments.

The leaders of the General Assembly also joined with the Governor to halt the decade-long slide in the priority assigned to funding Illinois higher education. This too was critical.

Although these were only first steps and must be sustained next year if they are to have long term significance for the health of the State, the Spring of '83 may have represented a turning point. The year that lies ahead brings with it the question: were these commitments to fiscal stability and to quality education transitory or real? Leadership again will be tested. And those who are determined that the quality of the University of Illinois will not be compromised will be tested as well.

The University of Illinois received remarkable support from alumni and friends and from all those concerned with the future of the University. Strong encouragement came, too, from our students and from their parents, who told us in clear, unmistakable terms that maintaining the quality of the University was paramount, even if tuition increases were required to help do so.

The net result is that the University of Illinois should regain its forward momentum in the current academic year. After experiencing a year in which salary increases were delayed, and when finally granted in April still were by far the lowest in the Big Ten, the University will be able to provide improved salaries to its faculty and staff members at the beginning of the academic year and attack issues of market competition, equity and unusual merit.

The first year of a program to revitalize engineering education will be implemented, as will the first year of a multi-year effort to modernize outdated equipment in our teaching and research laboratories. The first step in attacking overcrowded conditions in business administration and commerce will be launched. Stipends for graduate fellows will receive attention. Improvements will be made in Law, Pharmacy, Medicine, Agriculture, Veterinary Medicine, Dentistry, Mathematics, Computer Science, Nursing and other areas. And we will begin a modest but critically important program to improve laboratories and strengthen the libraries.

In short, after a series of damaging setbacks that received national attention and threatened to precipitate a catastrophic exodus of top faculty and staff members, the University of Illinois is now on the road to recovery. That recovery, however, must be sustained. The FY 1985 budget request is designed to achieve the following objectives:

- Continue the drive to make faculty and staff salaries more competitive by achieving a level of at least third in the Big Ten; and to improve overall faculty and staff compensation from its current ranking toward the bottom of Big Ten standings.
- Continue to deal with competitive market forces, equity issues and special merit in the fight to attract and retain top people.
- Sustain Year II in the commitment to revitalize engineering education and renew equipment holdings.
- Step up the attack on problems of overcrowding in commerce and business administration and develop new programs in these fields.

- Sustain efforts to achieve improvements in areas such as Law, Medicine, Veterinary Medicine, Agriculture, a number of areas in the Liberal Arts and Sciences, and in other key areas.
- Improve conditions in teaching and research laboratories and make substantial improvements in library resources.
- Improve access to our programs for members of minority groups.
- And provide through the capital budget the specialized physical facilities required to conduct top quality academic programs.

During the past year, the University of Illinois received an overwhelming vote of confidence from the people of Illinois, including our alumni, friends, citizens of Illinois, the General Assembly, the Governor and others. This restoration of confidence, if it is sustained, can pave the way for the University of Illinois to be the preeminent public university in the United States and give the State of Illinois the competitive edge it deserves and requires.

Illinois passed safely through the "test of the crossroads" last year. An even greater challenge will face leaders in Illinois this year. Fiscal stability must be continued and the priority accorded support for higher education must be sustained if the future of Illinois is to remain secure. The fundamental determination of the State of Illinois to educate its young people at standards of quality historically associated with Illinois, and create the new knowledge on which a wise society and a healthy economy can be constructed will once again be tested.

That determination was reaffirmed in FY 1984; it must be sustained in FY 1985, and it is from that premise that these recommendations are set forth.

Stanley O. Ikenberry
President

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PART I

INTRODUCTION TO THE OPERATING AND CAPITAL BUDGET REQUEST

FISCAL YEAR 1985

FY 1985 OPERATING BUDGET REQUEST

Outcome of the FY 1984 Budget Process

Rarely has any annual budget process produced so intense, complex, and uncertain an environment as that which unfolded during the past year. The Illinois economy, burdened by recession, could not provide sufficient resources under existing tax rates to support minimally necessary human services for the State. Even as preliminary FY 1984 revenue forecasts were being constructed, it was necessary to trim FY 1983 State spending by nearly $200 million at midyear, and eventually to borrow another $90 million later in the year, simply to balance the FY 1983 budget.

While the need for more revenue to secure an acceptable level of social and human services was undeniable, some feared that tax increase measures which would immediately produce new revenue also might have potentially negative implications for longer term economic growth. Resolving the funding dilemma which these conflicting elements represented became a major public policy concern, producing weeks of political debate over widely disparate potential alternatives for FY 1984. That debate, in turn, brought the development of the FY 1984 budget virtually to a halt during almost the entire legislative session, and the final budget was not approved until several days after the normal June 30 adjournment date.

The budget process for the University, of course, mirrored that for the State as a whole. A year ago, the Board of Trustees adopted an FY 1984 operating budget request of $61.6 million in incremental funds, recognizing that that total was, in effect, a two-year request, since the FY 1983 budget was so constrained that some $8 million in budget reductions were required, just to begin the year with a balanced budget. Barely three months later, the Board met in special session to cut another $7.1 million in General Revenue Funds (GRF) from the budget, as the State's economy remained mired in recession and Illinois faced a fiscal crisis. At the same time, the Board took the further step of raising tuition to offset some of the impact of the GRF reduction.

Uncertainty over FY 1984 options widened as the University was confronted with alternatives which ranged from a reduction of $28.5 million in GRF, coupled with massive tuition increases (the "Doomsday Alternative") to

a tax-increase based proposal which would have increased the University's GRF appropriation by $30 million, and IBHE recommendations which would have required a $40 million increase in GRF. Table 1 summarizes these alternatives.

In the final analysis the General Assembly and the Governor agreed that additional revenue was required immediately to alleviate the effects of reductions imposed in FY 1983 and to maintain a basic level of social and human services in FY 1984. At the same time they focused new resources on the State's economic development. Each of these decisions proved significant for the University of Illinois, which was recognized as both an essential State educational resource, and an important component in the quest to revitalize the Illinois economy. Equally important, the FY 1984 budget for the State produced a modest but significant upturn in the proportion of the General Revenue Funds budget devoted to all of higher education. That fraction had fallen steadily over the past decade, from 14.0% in FY 1973 to 12.3% in FY 1983 (prior to the mid-year recision). As shown in Figure 1, higher education received 12.5% of GRF appropriations for FY 1984.

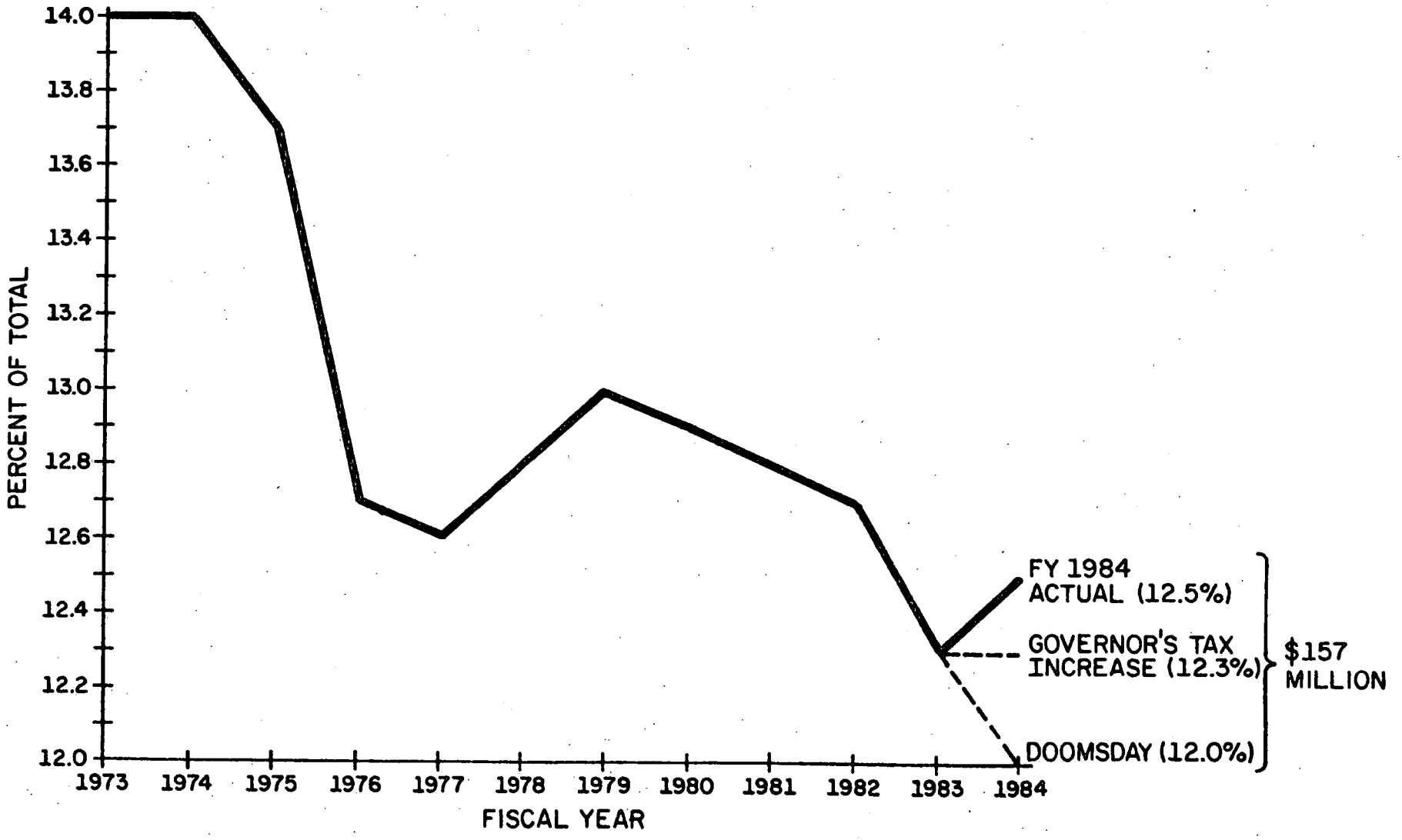
After enacting a tax increase program to provide an immediate boost to FY 1984 revenues (although of a smaller magnitude and for a shorter duration than the program proposed earlier by the Governor) the General Assembly passed and the Governor approved an appropriation for the University of Illinois which explicitly recognized the overall importance of the University to the State. Augmented by additional tuition income, the University's FY 1984 budget will permit a major and long-needed attack on several areas of critical concern:

• Overall salary increases for faculty and staff should more than keep pace with those at other institutions and in the marketplace. A base program of 5% will be supplemented by special programmatic adjustments to meet the most pressing merit, market, and equity concerns. Limited additional salary increase funds are also available in the special engineering program.

Table 1
Alternative FY 1984 Operating Budget Outcomes
(Dollars in Thousands)

	FY 1983 Base	FY 1984 IBHE Recommendations	Δ	"Doomsday	Δ	Actual FY 1984 Appropriation	Δ
Total	$389,861.1	$433,556.1	$43,695.0	$387,919.5	-$ 1,941.6	$434,288.9	$44,427.8
General Revenue Fund	327,873.5	367,896.1	40,022.6	299,382.5	- 28,491.0	355,496.0	27,622.5
Income Fund	55,089.6	57,627.0	2,537.4	80,504.0	25,414.4	70,742.3	15,652.7
Ag. Premium Fund	5,908.8	6,959.7	1,050.9	6,959.7	1,050.9	6,959.7	1,050.9
Fire Prevention Fund	790.2	843.3	53.1	843.3	53.1	860.9	70.9
Real Estate Research	199.0	230.0	31.0	230.0	31.0	230.0	31.0

FIGURE 1
GENERAL REVENUE FUND APPROPRIATIONS FOR HIGHER EDUCATION AS A PERCENTAGE OF TOTAL GRF FY 1973–FY 1984



• A major effort will be possible to begin to replace outmoded and obsolete equipment. $1.7 million will be available for this purpose.

• Significant program improvements can begin in the Univeristy's Colleges of Engineering. $4 million is available to help make salaries more competitive, to add critically needed new staff and equipment, and to begin remodeling of outmoded facilities.

• Program improvements in several other areas will be possible, including business and commerce, law, veterinary medicine, mathematics, pharmacy, medicine, agriculture, graduate fellowships, and others.

Overall, the University's incremental funds for FY 1984 total $44.4 million (including $1 million appropriated in separate legislation for the operation of the research and technology facility in Chicago). This represents an 11.4 percent increase over FY 1983 appropriations. Both the size of the increment and its proportion of the prior year's appropriation represent the strongest budget growth for the University since the biennial budget process was ended at the beginning of the 1970's.

The proportion of new FY 1984 funds which can be directed to improvements in academic programs--bolstered in large part by tuition income--is by far the largest amount available in the past decade. In fact, the FY 1984 amount is slightly larger than that available in the preceeding eight years combined, exclusive of the health professions. Figure 2 describes graphically the comparison of FY 1984 incremental funds with those received over the past decade.

Development of the FY 1985 Incremental Operating Budget Request

Without question, increases in the FY 1984 budget have been solid, and have permitted the University to address key areas of concern in substantial ways. The University can take pride in the recognition of its quality and the understanding of its importance to a strong Illinois which underlie the FY 1984 budget actions.

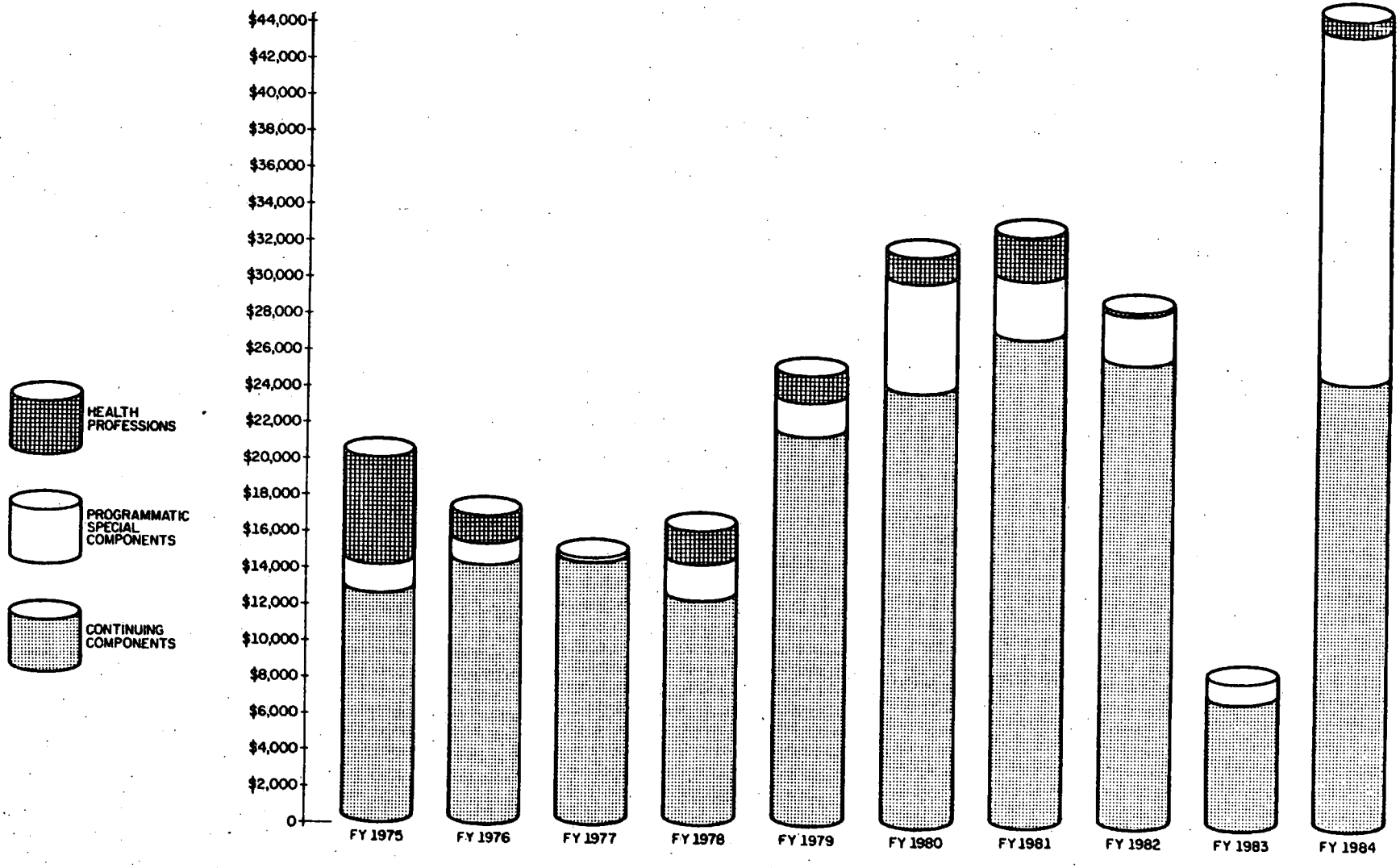
A longer range view of both the University's budget needs and the capacity of the State to meet those needs must be maintained, however if progress is to continue. Economic revitalization is clearly a necessary

FIGURE 2

FY 1975-84 STATE INCREMENTAL FUNDS RECEIVED BY THE UNIVERSITY OF ILLINOIS

(GENERAL REVENUE, INCOME AND SPECIAL FUNDS EXCLUDING RETIREMENT, IBA AND CAPITAL GRF)
(DOLLARS IN THOUSANDS)

COMPONENT	FY 1975	FY 1976	FY 1977	FY 1978	FY 1979	FY 1980	FY 1981	FY 1982	FY 1983	FY 1984
PREVIOUS YEAR'S BASE	$198,381.5	$218,424.5	$235,375.1	$250,019.4	$265,925.8	$290,681.4	$321,158.3	$353,550.3	$381,884.9	$389,861.2
NET INCREMENT	20,043.1	16,950.7	14,644.3	16,140.0	24,755.6	31,279.3	32,391.9	28,334.6	7,976.3	44,427.8
NET INCREMENT AS A PERCENT OF PREVIOUS YEAR'S BASE	10.1%	7.8%	6.2%	6.5%	9.3%	10.8%	10.1%	8.0%	2.1%	11.4%
CONTINUING COMPONENTS	12,680.0	14,230.7	14,488.0	12,347.1	21,422.9	23,803.4	26,840.1	25,461.0	6,913.0	24,579.1
PERCENT OF TOTAL INCREMENT	63.3%	84.0%	98.9%	76.5%	86.5%	76.1%	82.9%	90.4%	86.7%	55.3%
PROG. & SPEC. COMPONENTS	1,586.1	1,220.0	156.3	2,001.4	1,859.7	6,008.4	3,242.0	2,733.2	1,138.3	18,998.7
PERCENT OF TOTAL INCREMENT	7.9%	7.2%	1.1%	12.4%	7.5%	19.2%	10.0%	9.6%	14.3%	42.8%
HEALTH PROFESSIONS	5,777.0	1,500.0		1,791.5	1,473.0	1,467.5	2,309.8	140.4	-75.0	850.0
PERCENT OF TOTAL INCREMENT	28.8%	8.8%		11.1%	6.0%	4.7%	7.1%	0.5%	-1.0%	1.9%



element for Illinois to maintain one of the nation's most diverse economies. The link between economic success in what has come to be called the postindustrial society and improvements in higher education has been directly made in the State's FY 1984 budget allocations, and it will be increasingly important in the immediate future.

At the same time, the effects of more than a decade of fiscal constraint on the budget of the University of Illinois cannot be overcome in a single year. To be sure, FY 1984 represents a good beginning for the recovery process, but the University continues to face major unmet needs in areas of fundamental importance:

• It is imperative that faculty and staff salaries become more closely competitive with those front-rank institutions with which the University's overall quality is already matched. The competition among institutions for top quality faculty and staff continues to intensify, as virtually every state attempts to develop new industries and to improve and diversify its economic base. As a top quality university, Illinois is especially vulnerable to the loss of key individuals, both to other institutions and to industry. While compensation is by no means the sole factor affecting retention of top personnel, it is an important one; and if the University expects to retain its well-documented quality, it must provide competitive compensation.

• Cost increases for goods and services must match inflation, and must provide for some restoration of lost purchasing power experienced over the past decade and a half. Cost increases for highly specialized items such as library acquisitions and utilities must match the inflation-driven price escalations which continue to plague these areas.

• Base funding levels for instructional equipment must be supplemented until they are adequate to meet the needs of programs in which state-of-the-art advances occur as frequently as every two to three years.

• Expanded and improved academic programs must be achieved to enable the University to enhance its academic quality and to continue its part in the rejuvenation of the Illinois economy.

Major Themes for the FY 1985 Request

Two major themes form the backdrop for the FY 1985 operating budget request: (1) the restoration of lost or declining quality by addressing certain resource deficiencies that have developed over the past decade; and (2) the accelerated development or broadening of programs and activities that impact on the economic and social well-being of Illinois. The emphasis on quality, on economic revitalization, and on the general well-being of the State are not new themes for the University of Illinois. They are highlighted at this time, however, because the State is attempting to rebound from a very difficult fiscal situation and the University of Illinois can play a crucial role in that recovery.

The FY 1985 Operating Budget Request

The FY 1985 operating budget request for incremental funds shown in Table 2 and the specific academic programs identified in Table 3 were developed consistent with the themes of restoration of quality and of contributing to the revitalization of the Illinois economy. The request includes the following highlights:

- Salary increases of 9%, based on two criteria. Inflation estimates for FY 1985 approximate 5%, and represent the early "best guess" of the amount which most institutions will give for salary increases. Additionally, approximately 4% is required as a "catch up" component to move the Unversity of Illinois to third place in average salaries among Big Ten institutions.

- Cost increases of 8% for general goods and services. Again, this component has two elements: a 5% increase to match inflation projections, plus an additional 3% to begin to restore purchasing power lost in recent years. (In FY 1983, no funds were available for price increases.)

- $2,000,000 as part of a continuing multi-year effort to replace obsolete instructional equipment.

- Cost increases of 15% for library acquisitions, plus an additional $900,000 to help restore library collections which have been hard hit by unusually high inflation rates in the past.

Table 2
FY 1985 Incremental Operating Budget Request
(Dollars in Thousands)

I.	Continuing Components	
	A. Salary/Compensation Improvement	$ 27,680.7
	1. Annualization	(3,827.6)
	2. FY 1985 increase (9%)	(23,853.0)
	B. Price Increases	6,418.2
	1. General Increase (8%)	(4,418.2)
	2. Equipment Recovery	(2,000.0)
	C. Library Price Increases	1,748.7
	1. Acquisition Price Increase (15%)	(848.7)
	2. Restoration of Collection Quality	(900.0)
	D. Utilities Price Increases (15%)	5,547.0
	E. O & M Support	1,901.2
	1. New Areas	(901.2)
	2. Restoration of Standards	(1,000.0)
	F. Worker's Compensation	140.0
	Subtotal, Continuing Components	$ 43,435.8
	% of FY 1984 Base*	(10.00%)
II.	Programmatic Components	
	A. Expand/Improved Academic Programs	7,425.0
	B. Special Engineering Program	6,000.0
	Subtotal, Programmatic Components	$ 13,425.0
	% of FY 1984 Base	(3.10%)
III.	Special Services/Funding Components	
	A. County Board Matching	290.0
	B. Cooperative Extension Program	400.0
	C. Veterinary Diagnostic Clinic	300.0
	D. Division of Services for Crippled Children	661.4
	E. Fire Service Institute	43.0
	F. Real Estate Reserch Center	25.0
	Subtotal, Special Services/Funding	$ 1,719.4
IV.	Total FY 1985 Request	$ 58,580.2
	% of FY 1984 Base	(13.49%)

*FY 1984 Base = $434,288.9 excluding Retirement.

TABLE 3
FY 1985 Expanded and Improved Programs
(Dollars in Thousands)

	Chicago	Urbana-Champaign	Central Administration	Total
I. SCIENCE, TECHNOLOGY AND ECONOMIC DEVELOPMENT				
A. Interdisciplinary Research in Biotechnology	$ 676.0	$ 450.0		$1,126.0
B. Undergraduate Instructional Laboratories	100.0			100.0
C. Physics - Microprocesses in Semi-Conductor Devices	100.0			100.0
D. Center for Urban Economic Development	50.0			50.0
E. Enhancing the Development of High-Growth Industries		200.0		200.0
F. Value-Added Agricultural Exports		150.0		150.0
G. Accommodating Enrollment Shifts in Critical Areas	525.0	500.0		1,025.0
H. Library Support for Scientific, Technological and Industrial Development	110.0			110.0
I. Developmental Focus on Mathematics and Computer Science Education in Illinois High Schools	120.0	215.0		335.0
J. Office for Advanced Engineering Studies			$400.0	400.0
K. Principal's Scholars		80.0		80.0
L. Joint Industry - University Sponsorship of Research and Development			500.0	500.0
Subtotal	$1,681.0	$1,595.0	$900.0	$4,176.0
II. MEETING CHANGING HEALTH CARE NEEDS				
A. College of Veterinary Medicine		400.0		400.0
B. Health Care for the Aged	520.0			520.0
C. College of Medicine at Urbana-Champaign	250.0			250.0
D. College of Nursing at Urbana-Champaign	200.0			200.0
E. Rural Medicine	250.0			250.0
F. Academic Support for Minority Students in the Health Professions	125.0	160.0		285.0
Subtotal	$1,345.0	$ 560.0		$1,905.0
III. IMPROVING ACCESS TO PROGRAMS AND SUPPORT SERVICES				
A. Graduate Student Support	$ 316.0	$ 300.0		$ 616.0
B. College of Law		200.0		200.0
C. School of Architecture	75.0			75.0
D. Language Learning Laboratory		84.0		84.0
E. Public Administration		179.0		179.0
F. Fiscal Management in Government		190.0		190.0
Subtotal	$ 391.0	$ 953.0		$1,344.0
TOTAL EXPANDED/IMPROVED PROGRAMS	$3,417.0	$3,108.0	$900.0	$7,425.0*

*The programmatic total excludes the separate request for engineering program support ($6,000,000) and $700,000 in program-related research and service activities in the Special Services/Funding component.

• Utility cost increases averaging 15%, to match anticipated price increases for fuel oil, natural gas, and electricity.

• Additional operations and maintenance funding totalling $1.9 million. Approximately $900,000 is required to open new facilities or to fully fund the operation of facilities partially opened earlier. An additional $1.0 million is sought to help restore appropriate levels of operations and maintenance support which have been impossible to attain in the last decade due to inadequate base funding.

• A second phase of special funding for the Colleges of Engineering totalling $6.0 million to supplement salaries, to provide additional faculty and staff, and to continue the replacement of outmoded instructional and research equipment and the renovation of facilities.

• Expanded and improved academic programs totalling $7.425 million. The majority of these programs focus upon efforts in science, technology and economic development, areas of immediate critical importance to the economic revitalization of the State. Programs related to health care and to improved access to University services are also included in the budget request.

• A total of $1.7 million in special services/funding components is also included in the request, with the bulk of the funds devoted to expanded research and service activities in the Cooperative Extension Service, and recovery of prior service levels in the Division of Services for Crippled Children.

In total, the FY 1985 incremental operating budget request reaches $58.6 million--a 13.5% increase over the current year's operating base. Nearly three-fourths (74.2%) of the request is devoted to the so-called continuing components, while almost one quarter (22.9%) is devoted to expanded or improved academic programs.

The University's total operating budget from appropriated funds for FY 1984 is $434,288,900, excluding Retirement. If the FY 1985 incremental request were appropriated as presented here, the FY 1985 operating budget would reach $492,869,100.

The Enrollment Picture

Much has been written about the potential for significant declines in college and university enrollments, due to population decreases in the traditional college-age group of 18-21 year olds. There is virtually no question that when viewing the State as a whole, enrollments in higher education will decline in the late 1980's and the 1990's. The University of Illinois, however, continues to be in a position in which demand for programs at both the Chicago and Urbana-Champaign campuses remains strong, and appears likely to do so for the forseeable future.

Enrollment levels are of major concern to the University, however, from the perspective of insuring adequate resources to deliver the quality of instruction which students, their parents, and the people of Illinois deserve and have come to expect. Demand for admission to several programs in Chicago and Urbana-Champaign has been unusually great; engineering and commerce and business administration are two prime examples, with enrollment levels in the sciences and mathematics also showing extremely strong demand. Applications for entrance to the professional schools of law, medicine, and veterinary medicine continue at historically high rates.

For a number of years, the University has sought to add faculty and staff members in response to shifting enrollment patterns and ever-growing demand. Modest amounts of funds will be available in FY 1984 to add new personnel, but they do not begin to approach the overall problem. The only response available to the University has been to reduce enrollment levels in the highest demand areas, to insure that those who are admitted receive a first-quality education. Entering class enrollments in engineering at Chicago and Urbana-Champaign have been reduced by 10%. Commerce and business administration may become the next area to require reductions if incremental funds are not made immediately available. Enrollments in medicine and veterinary medicine have also been reduced, since funding declines in State support have been compounded by significant losses in Federal capitation funds.

Table 4 provides a review of overall enrollment patterns and projections. Note that in Chicago, the University Center projects the stabilization of headcount enrollment at approximately the 20,000 level. Should

Table 4
FALL TERM ON-CAMPUS HEADCOUNT ENROLLMENT
UNIVERSITY OF ILLINOIS

	Actual			Projected				
	FY 1981	FY 1982	FY 1983	FY 1984	FY 1985	FY 1986	FY 1987	FY 1988
	HDCT	HDCT	HDCT	HDCT	HDCT	HDCT	HDCT	HDCT
Chicago University Center								
Lower Division	9,564	9,027	9,071	8,514	8,400	8,350	8,350	8,350
Upper Division	7,975	7,966	8,245	7,686	7,700	7,650	7,650	7,650
Total Undergrad	17,539	16,993	17,316	16,200	16,100	16,000	16,000	16,000
GI	2,593	2,736	2,712	2,824	2,900	3,000	3,000	3,000
GII	869	871	975	976	1,000	1,000	1,000	1,000
Total Grad	3,462	3,607	3,687	3,800	3,900	4,000	4,000	4,000
Total - University Center	21,001	20,600	21,003	20,000	20,000	20,000	20,000	20,000
Health Sciences Center								
Lower Division	296	243	217	245	245	245	245	245
Upper Division	1,315	1,271	1,177	1,158	1,152	1,146	1,146	1,146
Total Undergraduate	1,611	1,514	1,394	1,403	1,397	1,391	1,391	1,391
Medicine	1,388	1,374	1,355	1,341	1,332	1,324	1,324	1,324
Dentistry	615	607	576	563	544	544	544	544
Dental Post Graduates	48	49	51	49	49	49	49	49
Pharm.D.	10	13	13	15	15	15	15	15
Total Professional	2,061	2,043	1,997	1,968	1,940	1,932	1,932	1,932
GI	520	593	615	628	644	650	656	670
GII	236	242	253	248	255	262	268	264
Total Graduate	756	835	368	866	899	912	924	934
Residents and Interns	483	483	551	550	550	550	550	550
Total (Excludes residents and Interns)	4,428	4,392	4,259	4,237	4,236	4,235	4,247	4,257
Total - Health Sci. Ctr.	4,911	4,875	4,811	4,787	4,786	4,785	4,797	4,807
Urbana-Champaign								
Lower Division	13,182	12,900	12,851	12,500	12,500	12,500	12,500	12,500
Upper Division	13,296	13,400	13,456	13,130	12,800	12,800	12,800	12,800
Total Undergraduate	26,478	26,300	26,307	25,630	25,300	25,300	25,300	25,300
Law	615	622	633	630	621	621	621	621
Veterinary Medicine	356	350	343	330	320	330	340	350
Total Professional	971	972	976	960	951	951	961	971
GI	3,497	3,497	3,414	3,450	3,400	3,400	3,400	3,400
GII	3,846	4,086	4,217	4,150	4,050	4,050	4,050	4,050
Total Graduate	7,343	7,583	7,631	7,600	7,450	7,450	7,450	7,450
Total - Urbana-Champaign	34,792	35,152	34,914	34,190	33,701	33,701	33,711	33,721
GRAND TOTAL University of Illinois (Excludes residents and interns)	60,221	60,144	60,176	58,427	57,937	57,936	57,958	57,978
GRAND TOTAL - University of Illinois	60,704	60,627	60,727	58,977	58,487	58,486	58,508	58,528

adequate funding for engineering and business administration not be available, this "steady state" enrollment level may be reduced by 300-400 students. Note also that as has been the case for the past several years, the mix of students at the University Center continues to shift from undergraduate to graduate, with undergraduate levels expected to stabilize at 16,000 and graduate enrollment at 4,000.

As noted earlier, enrollments in many of the health professions have been reduced due to funding losses, and it is not surprising to note the overall drop in total enrollment levels at the Chicago Health Sciences Center. Enrollment targets in medicine have been reduced to a level which will attain 331 students per class (a total of 1,324 by FY 1986). Dentistry enrollments also have been reduced from 165 to 136 for the entering class (a total of 544 year by FY 1985). Undergraduate enrollments are also projected to decline slightly, while graduate enrollments are expected to continue a moderate growth pattern. Again, these enrollment declines do not result from decreases in demand for health professions programs, but rather from the reduced Health Sciences Center funding support and the corresponding need to reduce service levels.

At Urbana-Champaign demand for all programs continues to be extremely strong. For some time the campus has had the objective of achieving an undergraduate enrollment of 25,000 and a graduate enrollment of 7,350 by a gradual reduction in existing enrollment levels. Within this general objective, specific enrollment cuts in engineering and veterinary medicine have been required due to serious funding problems. Demand for enrollment at Urbana is sufficiently high that reaching the target enrollments has been difficult, and will likely take five years or more to achieve.

Based upon preliminary FY 1984 enrollment data, it appears that the Urbana-Champaign campus will experience a small reduction in the total enrollment projected for FY 1984, beginning the progress towards its eventual goal of 32,350 total enrollment.

FY 1985 CAPITAL BUDGET REQUEST

The FY 1985 Capital Budget Request is comprised of several components: Regular Capital Improvements, Energy Conservation/Fuel Conversion, and Food for Century III. The Regular Capital Improvements component consists of those projects necessary to support the University's ongoing programmatic activities. The Energy Conservation/Fuel Conversion component is a group of projects designed to control accelerating utilities expenditures. Projects included in the Food for Century III component comprise the second year of a multi-year program designed to complete the "critical mass" of facilities needed to enhance the University's food production research capabilities.

Regular Capital Request

The University's Regular Capital Budget Request for FY 1985 is $40,807,500. This request contains projects designed to: (1) remodel and renovate facilities to accommodate changing academic programs, (2) maintain the structural integrity of existing facilities, (3) upgrade building systems, and (4) construct new buildings designed to address pressing University needs. A summary of the FY 1985 capital projects in priority order is presented in Table 5.

The FY 1985 Capital Budget Request focuses on major and minor remodeling projects and the construction of new facilities. Examples of major remodeling projects at Chicago campus include: installing a ventilation and air conditioning system in the Pharmacy Building; improving library space at the University Center Library; relocating the Office of Admissions and Records; remodeling the sixth and seventh floors of the Hospital Addition for the College of Medicine; upgrading the electrical service for the University administrative computer system at the Roosevelt Road Building; and the renovation of Chemistry Department space at the Science and Engineering Laboratory. At the Urbana-Champaign campus the remodeling projects are: development of a microelectronics research laboratory at the Water Resources Building; the third phase of a multi-year program to renovate the interior of the English Building; remodeling Noyes Lab for the School of

TABLE 5
UNIVERSITY OF ILLINOIS
FY 1985 CAPITAL REQUEST
PRIORITY LIST
(Dollars in Thousands)

Priority Number	Campus	Project	Budget Category	Cost	Cumulative Cost		
					University	Chicago	Urbana-Champaign
1	C	Pharmacy Bldg. Air Conditioning	REMD	$5,079.0	$ 5,079.0	$ 5,079.0	
2	UC	Microelectronics Center	REMD	3,500.0	8,579.0		$ 3,500.0
3	C	Library Improvements	PLAN	349.9	8,928.9	5,428.9	
4	C	Relocate Office of Admissions & Records	REMD	1,176.0	10,104.9	6,604.9	
5	UC	Digital Computer Lab Addition	PLAN	1,081.0	11,185.9		4,581.0
6	C	Roosevelt Rd. Bldg. Electrical Upgrade	REMD	547.0	11,732.9	7,151.9	
7	C	Hospital Addition	REMD	2,152.0	13,884.9	9,303.9	
8	UC	Animal Science Lab Chilled Water Line	UTIL	275.0	14,159.9		4,856.0
9	UC	Animal Sci. Lab Chilled Water Conversion	REMD	79.6	14,239.5		4,935.6
10	UC	English Building	REMD	2,867.0	17,106.5		7,802.6
11	C	Engineering Research Lab	PLAN	1,215.7	18,322.2	10,519.6	
12	UC	Commerce Building	PLAN	1,104.4	19,426.6		8,907.0
13	UC	SR^3 - I	REMD	2,916.2	22,342.8		11,823.2
14	UC	SR^3 - I Equipment	EQUP	559.7	22,902.5		12,382.9
15	C	SR^3 - I	REMD	2,517.0	25,419.5	13,036.6	
16	UC	Pennsylvania Ave. Street Improvements	SITE	250.0	25,669.5		12,632.9
17	UC	Pilot Training Facility	BLDG	1,444.9	27,114.4		14,077.8
18	UC	Pilot Training Facility	UTIL	67.0	27,181.4		14,144.8
19	UC	Television/Radio Building	PLAN	440.0	27,621.4		14,584.8
20	C	SR^3 - II	REMD	2,506.4	30,127.8	15,543.0	
21	UC	SR^3 - II	REMD	2,719.4	32,847.2		17,304.2
22	UC	SR^3 - II Equipment	EQUP	164.6	33,011.8		17,468.8
23	UC	Huff Gym Remodeling	PLAN	165.0	33,176.8		17,633.8
24	UC	Noyes Lab	REMD	598.0	33,774.8		18,231.8
25	UC	Natural Areas Research Land	LAND	64.2	33,839.0		18,296.0
26	UC	Police Station	BLDG	1,838.6	35,677.6		20,134.6
27	UC	Police Station	UTIL	375.3	36,052.9		20,509.9
28	C	SR^3 - III	REMD	2,023.4	38,076.3	17,566.4	
29	UC	SR^3 - III	REMD	2,044.5	40,120.8		22,554.4
30	UC	SR^3 - III Equipment	EQUP	152.7	40,273.5		22,707.1
31	C	Chemistry Department Remodeling	PLAN	209.0	40,482.5	17,775.4	
32	UC	Davenport Hall Remodeling	PLAN	175.0	40,657.5		22,882.1
33	UC	Outdoor Inst/Rec Facilities	SITE	150.0	40,807.5		23,032.1

Chemical Sciences; planning the remodeling of several floors of Huff Gym; and preparing a master plan for renovating portions of Davenport Hall for units of the College of Liberal Arts and Sciences.

As in past years, the University is requesting Space Realignment, Renewal, and Replacement (SR^3) projects for FY 1985. An important tenet of the SR^3 concept is that for a campus as a whole, minor remodeling work will be required on an annual basis to preserve the functional and structural integrity of campus buildings. Specific projects vary from year to year, but some remodeling and renovation must be accomplished each year. Since no State funds were appropriated for FY 1983 or FY 1984 SR^3 projects, the need for this type of remodeling at each campus is critical in FY 1985.

Although the University has emphasized remodeling projects for FY 1985, there are cases when it is not possible to meet physical facilities needs without new construction. The University has included several building projects in the FY 1985 request after all rehabilitation and renovation options had been found inadequate. The new building projects are: planning the construction of an addition at the Digital Computer Lab at the Urbana-Champaign campus to meet increasing demands in computer-oriented instruction and research; preparation of planning documents for an Engineering Research Lab at the Chicago campus; planning a new Commerce Building for the Urbana-Champaign campus; construction of a Pilot Training Facility to replace irreparable structures; designing a single facility for the broadcasting activities associated with the University; and the construction of a Police Station to replace inadequate facilities at the Urbana-Champaign campus.

Energy Conservation and Fuel Conversion

The University's Energy Conservation/Fuel Conversion group received initial support from the State in FY 1981. Funds have been appropriated for the conversion of Abbott Power Plant to burn Illinois coal for a number of smaller conservation projects. Once completed, these projects will benefit the University and the State by helping to control the rising cost of energy.

The FY 1985 request consists of energy conservtion projects and two fuel conversion projects. All energy conservation and fuel conversion projects have a payback period conservatively estimated at less than five years. Table 6 presents a summary of the FY 1985 energy conservation projects in priority order. Table 7 shows the two fuel conversion projects requested for FY 1985.

Food for Century III

Food for Century III was launched in 1976 with the primary objective of developing new techniques to increase agricultural production. To that end the University proposed an active construction program which would provide modern and sophisticated laboratory, greenhouse, animal holding, classroom, and office space, as well as sufficient acreage, for researchers from the Colleges of Agriculture and Veterinary Medicine. Some major projects included in the program, such as the Veterinary Medicine Basic Sciences Building and the Agricultural Engineering Sciences Building, are occupied or nearing completion now.

Despite significant State support of the program in the past, additional projects will be needed if the University is to achieve a "critical mass" of facilities required to conduct state-of-the-art agricultural research. Table 8 presents a three-year program for Food for Century III which will provide this level of facilities. Two major projects are needed: Plant Sciences Greenhouses and Headhouse and the Animal and Dairy Science Facility. Planning of the greenhouses will begin in FY 1984 with construction requested for FY 1985; the Animal and Dairy Science Facility is proposed for planning in FY 1985. The remaining projects in the request, although relatively minor in scope, will provide essential laboratory and farm areas required for agricultural experiments.

Following is a summary of the total FY 1985 Capital Budget Request.

	Chicago	Urbana-Champaign	Total University
Regular Capital	$17,775.4	$23,032.1	$40,807.5
Energy Conservation/ Fuel Conversion	14,772.6	20,790.4	35,513.0
Food for Century III		13,371.3	13,371.3
Total	$32,498.0	$57,193.8	$89,691.8

TABLE 6
FY 1985 ENERGY CONSERVATION REQUEST
PROJECT PRIORITY LIST
ALL UNIVERSITY
(Dollars in Thousands)

Priority	Campus	Project	Payback (Years)	Project Cost	Cumulative Total
1	UC	Loop Chilled Water Systems - MRL, CSL & Loomis Lab	1.00	$ 356.6	$ 356.6
2	UC	Connect Commerce West to Library Chilled Water Center	1.06	411.0	767.6
3	UC	Reclaim Condensor Heat - Meat Science Lab	1.19	293.0	1,060.6
4	UC	Chiller Drive Conversion - Vet. Med. Basic Sciences Building	1.24	2,936.9	3,997.5
5	UC	Trap Utility Steam Main into Low Pressure Steam Main	1.25	178.3	4,175.8
6	C	Window Insulation - Drug & Horticultural Experiment Station	1.38	32.2	4,208.0
7	UC	Winter Cooling Improvements - University Press	1.39	170.6	4,378.6
8	UC	Variable Air Volume Controls - 23 Buildings	1.40	1,318.1	5,696.7
9	C	Building Equipment Automation - CMET & College of Pharmacy	1.48	301.4	5,998.1
10	C	Lighting Controls - College of Dentistry	1.51	199.6	6,197.7
11	C	Modify Fan Control Systems - Physical Education Building	1.61	181.7	6,379.4
12	UC	Non-Essential Load Limiting by Remote Control	1.62	1,426.6	7,806.0
13	C	Supplementary Cooling System - College of Pharmacy	1.75	84.0	7,890.0
14	UC	Abbott Power Plant Efficiency Improvements	1.79	465.2	8,355.2
15	UC	Loop Chilled Water Systems - DCL & CEB	1.79	713.3	9,068.5
16	C	Night Setback Controls - Administrative Services Bldg. & CMWT	1.90	186.6	9,255.1
17	UC	Loop Chilled Water Systems - Student/Staff A.C. Ctr. & Morrill Hall	1.90	868.4	10,123.5
18	UC	Reduction of Air Volume - Roger Adams Lab	2.22	542.8	10,666.3
19	UC	Reheat Systems Zone Control - 12 Buildings	2.38	387.7	11,054.0
20	UC	Radiation Zone Control I - 27 Buildings	2.38	369.1	11,423.1
21	UC	Ventilation System Retrofit - Morrill Hall	2.41	537.0	11,960.1
22	UC	Domestic Hot Water Retrofit - 5 Buildings	2.49	53.9	12,014.0
23	C	Insulation Upgrades - High Temp. Hot Water Distribution System	2.58	90.0	12,104.0
24	C	Modify Fan System - College of Nursing	2.64	235.3	12,339.3
25	UC	Steam Metering Improvements - 47 Buildings	2.67	728.8	13,068.1
26	UC	Radiation Zone Control II - 27 Buildings	2.71	721.8	13,789.9
27	UC	Conversion to Central Fan System - Armory	2.75	93.8	13,883.7
28	UC	Install Air Curtains Above Entryways - 3 Buildings	2.75	47.1	13,930.8
29	UC	Energy Use Efficiency Improvement - Morrill Hall	2.80	217.1	14,147.9
30	UC	Summer-Winter Ventilation Rate - 3 Buildings	2.80	40.9	14,188.8
31	UC	Conversion from Cast Iron to Fin Tube Radiation - Animal Sciences	2.81	333.4	14,522.2
32	UC	Radiation Zone Control - 6 Buildings	2.91	93.0	14,615.2
33	C	Lighting Controls - Administrative Office Building	3.02	53.5	14,668.7
34	UC	Resource Recovery Plant	3.07	2,108.0	16,776.7
35	C	Conversion to Variable Air Volume Systems - Admin. Office Bldg.	3.12	218.5	16,995.2
36	C	Lighting Controls - Physical Education Building	3.20	69.2	17,064.4
37	UC	Domestic Hot Water Control - 6 Buildings	3.22	55.1	17,119.5
38	UC	Temperature Control Remd. & Replacement - 7 Buildings	3.26	1,013.7	18,133.2
39	UC	Animal Room Ventilation - 2 Buildings	3.28	279.2	18,412.4
40	UC	Reheat Systems Zone Control - 10 Buildings	3.37	284.2	18,696.6

TABLE 6
FY 1985 ENERGY CONSERVATION REQUEST
(Continued)

Priority	Campus	Project	Payback (Years)	Project Cost	Cumulative Total
41	C	Fuel Burners & Burner Controls - Utilities Building	3.47	$ 672.5	$19,369.1
42	UC	Pipe Insulation - Electrical Engineering Building	3.55	34.0	19,403.1
43	UC	Steam Absorption Machine Control - 4 Buildings	3.65	154.6	19,557.7
44	UC	Domestic Hot Water Control - 4 Buildings	3.66	24.9	19,582.6
45	UC	Conversion to Zoned Ventilation - Arts & Design Building	3.71	223.4	19,806.0
46	C	Ventilation Reduction - Education & Communication Building	3.74	262.5	20,068.5
47	UC	HVAC Retrofit - 2 Buildings	3.78	495.3	20,563.8
48	UC	Increased Insulation on High Pressure Steam Mains	3.85	666.8	21,230.6
49	C	Renovate Heating Controls - 1919 W. Taylor Street Unit	4.06	176.1	21,406.7
50	C	Auxiliary Chiller Unit - Peoria School of Medicine	4.52	71.2	21,477.9
51	UC	Reheat Systems Zone Control - 4 Buildings	4.63	146.5	21,624.4
52	C	High Efficiency Boiler & Control Modifications	4.80	1,800.0	23,424.4

TABLE 7
FY 1985 FUEL CONVERSION REQUEST PROJECT LIST
ALL UNIVERSITY
(Dollars in Thousands)

Priority	Campus	Project	Payback (Years)	Project Cost
1	Chicago	Convert Boilers to Coal Burning	1.77	$10,088.3
2	Urbana-Champaign	Connect Vet. Med. Complex to Campus Steam System	4.91	2,000.3

Table 8
FY 1985
FOOD FOR CENTURY III PROGRAM
(Dollars in Thousands)

FY 1985 Priority	Project Name	Total Cost	FY 1984 Appropriations	Requested FY 1985	Requested FY 1986 & Beyond
	Agricultural Engineering Research Laboratory				
	Remodeling	$ 394.5	$ 394.5		
	Equipment	10.0	10.0		
	(Project Subtotal)	(404.5)	(404.5)		
1.	Plant Sciences Greenhouses and Headhouse				
	Planning	650.0	650.0		
	Building	8,866.1		$ 8,866.1	
	Utilities	600.0		600.0	
	Equipment	400.0			$ 400.0
	(Project Subtotal)	(10,516.1)	(650.0)	(9,466.1)	(400.0)
2.	Animal Dairy Science Facility				
	Planning	1,180.0		1,180.0	
	Remodeling	8,017.9			8,017.9
	Building	8,017.9			8,017.9
	Utilities	250.0			250.0
	Equipment	550.0			550.0
	(Project Subtotal)	(18,015.8)		$ 1,180.0	(16,835.8)
3.	Veterinary Medicine Animal Room Facilities				
	Remodeling	2,400.0	1,200.0	1,200.0	
	Equipment	300.0		150.0	150.0
	(Project Subtotal)	(2,700.0)	(1,200.0)	(1,350.0)	(150.0)
4.	Veterinary Medicine Research Farm Building				
	Remodeling	163.5		163.5	
	Building	611.7		611.7	
	Equipment	50.0			50.0
	(Project Subtotal)	825.2		(775.2)	(50.0)
5.	Agriculture-Veterinary Medicine Land at Urbana	600.0		600.0	
	(Land Subtotal)	(600.0)		(600.0)	
6.	Swine Research Center				
	Building	911.6			911.6
	Equipment	50.0			50.0
	(Project Subtotal)	(961.6)			(961.6)
7.	Southern Illinois Research Facility				
	Building	900.0			(900.0)
	Equipment	50.0			50.0
	(Project Subtotal)	(950.0)			(950.0)
	TOTAL COST	$34,973.2	$2,254.5	$13,371.3	$19,347.4

PART II

FISCAL YEAR 1985 OPERATING BUDGET REQUEST

INTRODUCTION

Table 9 presents an historical summary of the Board of Trustees Operating Budget Requests from FY 1975 through FY 1984. As discussed in Part 1, and as can be seen in Table 9, the current year's new revenues represent a substantial improvement over past years in the total amount of new funds received by the University, and the largest percentage growth in the past decade. On the other hand, the University's request for FY 1984 was significantly larger than any in the past decade, reflecting what was in essence a two-year budget, since the FY 1983 increment was substantially below the amount needed to meet unavoidable cost increases. Seen in a two-year context, the FY 1983 and FY 1984 increments represent a two-year compounded annual increase of 6.5%--much more modest growth than the FY 1984 figures alone would suggest.

Following the format of recent budget request documents, the FY 1985 Operating Budget Request is presented in three major sections: Continuing Components--those activities necessary to maintain the University's current level of operation, Programmatic Components--those new, expanded, and improved efforts which will enable the University better to respond to the demands for its services; and Special Services/Special Funding Components--those activities carried out at the University by direct legislative mandate, often with specifically dedicated funds to support them, but which are outside the traditional instructional, research, and service areas. Table 10 displays the full incremental request, while Table 11 identifies individual programs included in the request.

In addition to these major sections, two appendices are included. Appendix I presents FY 1985 Retirement funding needs. Appendix II includes technical data for the calculation of incremental needs for continuing components.

TABLE 9
University of Illinois
History of the Operating Budget Action FY 1975 - 1984
(Dollars in Thousands)

	(1) Previous Year's Base[1]	(2) University Request	(3) IBHE Rec.	(4) Allocation of Gov. Budget	(5) Legislative Action	(6) Governor's Action	(7) Final	(7 ÷ 1) % Final of Previous Base	(7 ÷ 2) % Final Of System Request
FY 1975	$198,381.5	$22,800.2	$16,743.0	--	$27,523.0	$20,043.0	$20,043.1	10.1%	87.9%
FY 1976	218,424.5	32,343.5	23,899.4	--	29,375.8	16,950.7	16,950.7	7.8	52.4
FY 1977	235,375.5	26,780.3	21,233.3	$10,064.5	15,950.7	10,172.5	14,644.3	6.2	54.7
FY 1978	250,019.4	31,036.0	23,305.4	16,551.6	17,423.0	15,906.3	15,906.3	6.4	51.3
FY 1979	265,925.8	34,106.6	26,415.5	24,568.1	24,799.6	24,755.6	24,755.6	9.3	72.6
FY 1980	290,681.4	37,473.3	28,320.4	27,550.8	31,279.3	31,279.3	32,188.6[2]	11.1[2]	85.9
FY 1981	321,158.3[3]	41,086.4[4]	33,830.6	32,391.9	34,688.3	32,391.9	32,391.9	10.1	78.8
FY 1982	353,550.3	47,995.7	41,307.8	28,164.6[5]	28,164.6	28,164.6	28,334.6[6]	8.0	59.0
FY 1983	381,884.9	48,733.5	34,627.5	3,935.7	9,622.5[7]	7,976.2[7]	7,976.2[7]	2.1	16.4
FY 1984	389,861.2	61,587.8	43,695.0	-1,941.6	43,427.8	43,427.8	44,427.8[8]	11.4	72.1

[1]Excludes Retirement and IBA

[2]Includes non-recurring funds of $401.00 for flood damages and $508.3 for Division of Services for Crippled Children override; percentage without these funds is 10.8.

[3]Excludes non-recurring funds of $401.0 flood damage, $508.3 DSCC override. FY 1981 funding no longer includes an appropriation of $802.4 for Refunds.

[4]BOT printed request of $40,445.4 plus DSCC price and salary increases of $641.0.

[5]Represents amount in Governor's Revised Budget. Governor's original recommendation was $28,563.3.

[6] Includes an additional $170.0 appropriated to the University from Real Estate Research and Education Fund in HB 774.

[7] Excludes $1.0 million for lease/purchase of Chicago Medical School facility.

[8]Includes $1.0 million for operation of Chicago research and technology facility.

Table 10
FY 1985 Incremental Operating Budget Request
(Dollars in Thousands)

I.	Continuing Components	
	A. Salary/Compensation Improvement	$ 27,680.7
	1. Annualization	(3,827.6)
	2. FY 1985 increase (9%)	(23,853.0)
	B. Price Increases	6,418.2
	1. General Increase (8%)	(4,418.2)
	2. Equipment Recovery	(2,000.0)
	C. Library Price Increases	1,748.7
	1. Acquisition Price Increase (15%)	(848.7)
	2. Restoration of Collection Quality	(900.0)
	D. Utilities Price Increases (15%)	5,547.0
	E. O & M Support	1,901.2
	1. New Areas	(901.2)
	2. Restoration of Standards	(1,000.0)
	F. Worker's Compensation	140.0
	Subtotal, Continuing Components	$ 43,435.8
	% of FY 1984 Base*	(10.00%)
II.	Programmatic Components	
	A. Expand/Improved Academic Programs	7,425.0
	B. Special Engineering Program	6,000.0
	Subtotal, Programmatic Components	$ 13,425.0
	% of FY 1984 Base	(3.10%)
III.	Special Services/Funding Components	
	A. County Board Matching	290.0
	B. Cooperative Extension Program	400.0
	C. Veterinary Diagnostic Clinic	300.0
	D. Division of Services for Crippled Children	661.4
	E. Fire Service Institute	43.0
	F. Real Estate Reserch Center	25.0
	Subtotal, Special Services/Funding	$ 1,719.4
IV.	Total FY 1985 Request	$ 58,580.2
	% of FY 1984 Base	(13.49%)

*FY 1984 Base = $434,288.9 excluding Retirement.

TABLE 11
FY 1985 Expanded and Improved Programs
(Dollars in Thousands)

	Chicago	Urbana-Champaign	Central Administration	Total
I. SCIENCE, TECHNOLOGY AND ECONOMIC DEVELOPMENT				
A. Interdisciplinary Research in Biotechnology	$ 676.0	$ 450.0		$1,126.0
B. Undergraduate Instructional Laboratories	100.0			100.0
C. Physics - Microprocesses in Semi-Conductor Devices	100.0			100.0
D. Center for Urban Economic Development	50.0			50.0
E. Enhancing the Development of High-Growth Industries		200.0		200.0
F. Value-Added Agricultural Exports		150.0		150.0
G. Accommodating Enrollment Shifts in Critical Areas	525.0	500.0		1,025.0
H. Library Support for Scientific, Technological and Industrial Development	110.0			110.0
I. Developmental Focus on Mathematics and Computer Science Education in Illinois High Schools	120.0	215.0		335.0
J. Office for Advanced Engineering Studies			$400.0	400.0
K. Principal's Scholars		80.0		80.0
L. Joint Industry - University Sponsorship of Research and Development			500.0	500.0
Subtotal	$1,681.0	$1,595.0	$900.0	$4,176.0
II. MEETING CHANGING HEALTH CARE NEEDS				
A. College of Veterinary Medicine		400.0		400.0
B. Health Care for the Aged	520.0			520.0
C. College of Medicine at Urbana-Champaign	250.0			250.0
D. College of Nursing at Urbana-Champaign	200.0			200.0
E. Rural Medicine	250.0			250.0
F. Academic Support for Minority Students in the Health Professions	125.0	160.0		285.0
Subtotal	$1,345.0	$ 560.0		$1,905.0
III. IMPROVING ACCESS TO PROGRAMS AND SUPPORT SERVICES				
A. Graduate Student Support	$ 316.0	$ 300.0		$ 616.0
B. College of Law		200.0		200.0
C. School of Architecture	75.0			75.0
D. Language Learning Laboratory		84.0		84.0
E. Public Administration		179.0		179.0
F. Fiscal Management in Government		190.0		190.0
Subtotal	$ 391.0	$ 953.0		$1,344.0
TOTAL EXPANDED/IMPROVED PROGRAMS	$3,417.0	$3,108.0	$900.0	$7,425.0*

*The programmatic total excludes the separate request for engineering program support ($6,000,000) and $700,000 in program-related research and service activities in the Special Services/Funding component.

CONTINUING COMPONENTS

SALARY AND COMPENSATION INCREASES ($27,680,600)

The quality of programs offered by a university cannot help but be affected by the level of financial support for research and teaching facilities, libraries, support staff and faculty. While no single element of this mix alone can sustain high quality academic programs, there is no doubt that faculty and staff represent the keystone of the enterprise. Competitive salary and fringe benefit levels are essential to retain highly productive employees and to recruit new talent. An erosion in the competitive level of salaries and fringe benefits is marked by an increasing number of employees who accept more attractive offers at other institutions or in the private sector; by an inability to attract the best-qualified candidates for vacant positions; and by an overall decline in productivity and staff morale. These trends, if continued over a number of years, have damaging long-term effects and can render a return to competitiveness extremely difficult. An academic institution generally attains excellence slowly, over a period of decades, but can lose that stature in just a few years. Once lost, academic excellence requires a similarly extended interval to recover.

The nature of the academic and public sector market place is such that it is relatively easy for individual faculty and staff to determine whether or not their compensation is "competitive." While the University does not evaluate the adequacy of its compensation program on an individual by individual basis, it does perform numerous salary and compensation studies annually to determine its overall competitive standing among appropriate peer groups. Cash salary and compensation paid to academic employees are assessed through comparisons with Big Ten and other peer institutions, while nonacademic salary comparisons are made with equivalent employee groups outside the University.

Faculty Compensation

Compensation is defined as cash salary plus employer contributions to fringe benefits. In 1978, the University compared faculty salaries and compensation levels then in effect at all Big Ten institutions. This study showed that, although the University ranked in the upper third of the Big Ten in national assessments of academic quality, it ranked ninth in compensation.

The University's objective for the past five years has been to achieve at least a third place standing within the Big Ten in average faculty salaries and compensation to insure that those levels more adequately reflect the quality of the University. From FY 1979 through FY 1982 the gap between University of Illinois average compensation and third place in the Big Ten remained relatively constant at approximately 5%. However, in FY 1983, the gap increased to 8.6% since the University's salary increase was the lowest among public institutions in the Big Ten.

Comparability of compensation levels is somewhat complicated by the fact that eight of the Big Ten institutions include Social Security in their fringe benefits packages in addition to other retirement plans, whereas the University of Illinois participates only in the State Universities Retirement System (SURS). Also, the percent of gross salary contributed by the University toward retirement has been subject to different interpretations, depending upon assumptions regarding interest rates and long term salary projections. Thus, it may be preferable to focus attention on that portion of compensation--cash salaries--which can be more clearly defined.

Faculty Salaries

University of Illinois average cash salaries for full-time faculty ranked fifth among the Big Ten for FY 1983. Although this ranking is the same as that in FY 1982, the actual distance to third place increased from 2.8% in FY 1982 to 6.6% in FY 1983. This represents a sharp increase in the gap to third place which, from FY 1979 through FY 1982 ranged from approximately 1% to 3%.

Due to severe economic constraints in the State of Illinois in FY 1983, the University received incremental funds for salary increases of approximately 1.5%. Those funds were appropriated on the assumption that a 3% increase could be funded beginning at mid-year. Although the University's budget was similarly constrained--a reduction of $8 million was required--it was clear that efforts to bolster the incremental allocation for salary increases were absolutely essential. When combined with internal reallocations and staff reductions, the FY 1983 salary increase appropriation allowed a total average salary rate increase for full-time faculty of 4.9% over FY 1982 (Table 12). This compares with a 7.0% average increase for the

TABLE 12
PERCENT INCREASES IN AVERAGE SALARIES
BIG TEN INSTITUTIONS
FY 1982 TO FY 1983

Institution	FY 1982 Weighted Average Salary	FY 1983 Weighted Average Salary	% Difference
Illinois	$30,171	$31,640	+4.9%
I	27,171	28,542	+5.0%
C	30,210	32,861	+8.8%
F	31,451	33,867	+7.7%
H	28,524	30,279	+6.2%
A	29,220	30,987	+6.0%
X	32,542	33,809	+3.9%
E	31,021	33,733	+8.7%
B	29,027	31,340	+8.0%
J	28,228	30,591	+8.4%
MEAN	29,757	31,765	+6.7%
MEAN LESS ILLINOIS	29,710	31,779	+7.0%

Data represents total institutions' full-time faculty, excluding clinical departments, whose primary responsibilities are teaching, research or public service. All salaries are reported on a nine-month basis. Each institution's salaries have been weighted to the University of Illinois distribution of faculty by rank and by term of appointment.

Source: University of Minnesota Comparison of Average Salaries and Fringe Benefits.

other Big Ten institutions. Further, the 4.9% increase for Illinois is overstated in terms of actual cash received, since the increase was delayed until the third quarter of the fiscal year, as a result of a mid-year reduction in General Revenue support required to meet the State's growing financial crisis. Actual cash increases for FY 1983 thus amounted to an average 1.2%. If the Big Ten ranking study were computed using actual cash increases, the University's ranking would drop to seventh place.

The University's FY 1984 appropriation provides funding for overall salary increases averaging approximately 5%. In addition, special programmatic adjustments to address those market, merit, and equity concerns which have reached critical proportions will be made. The University's Engineering programs also received a special appropriation for FY 1984, reflecting the State's recognition of the central role played by the University in supporting research and development in high technology areas.

Although final data are not yet available, preliminary estimates indicate that the University faculty salary increases for FY 1984 will exceed the average salary increase for the other Big Ten institutions. If these estimates prove accurate, the University should move up in ranking to fourth place, and the gap to third place should narrow to between 3 and 4%.

Salary increases tied to FY 1985 inflation projections of approximately 5% are the best current estimates available for Big Ten institutions. Because salary policies for FY 1984 have not yet been finalized at several Big Ten institutions and because the FY 1985 inflation projection may change, it is difficult to establish a specific FY 1985 increase required to achieve a faculty salary level more commensurate with the quality of the University. However, an FY 1985 increment of 9% is estimated to be the minimum required to achieve a third place ranking among Big Ten institutions.

Nonacademic Salary Comparisons

For nonacademic staff, annual salary comparisons are normally made with employers outside the University who are most directly competitive for the services of support staff. In some cases, comparisons are made with local employers; in other cases, broader comparisons are made if the market for particular employee skills is statewide or greater. The composite survey of the market, which compares the salary range midpoints for University of Illinois Step Plan grades and market midpoints for comparable employment levels using September data, is incomplete at this time. However, conservative estimates based on preliminary market data indicate that the average percent change of the market has experienced at least a 6% increase over the past year.

The data in the table below compare selected University of Illinois grade midpoints with estimated market midpoints:

Grade/ Location	UI FY 1983 Midpoint*	Projected Market As of 9/1/83	UI FY 1984 Midpoint*	% Behind Market
5 Chicago	$9,882	$11,374	$10,425	9.1%
5 Urbana	9,129	10,892	$ 9,631	13.1%
14 (both)	14,673	17,437	$15,480	12.6%
19 (both)	18,975	22,870	$20,019	14.2%
33 (both)	39,242	48,071	$41,400	16.1%

*The University of Illinois data do not represent actual average salaries of employees within pay grades. Actual salaries are substantially lower.

In addition to market comparisons among competing employers, salary comparisons between nonacademic employees and State of Illinois Code Departments are reviewed annually to gain a general impression of relative equity among University of Illinois employees and their counterparts in State government. Based upon data compiled by the Illinois Board of Regents and the Board of Higher Education, the following comparison can be made:

Salary Deficiencies Between University of Illinois Nonacademic Employees and State of Illinois Code Department Employees, FY 1979 - FY 1983

	FY 1979	FY 1980	FY 1981	FY 1982	FY 1983
University Center	- 4.47%	- 4.93%	- 5.09%	- 7.52%	-12.02%
Health Sciences Center	- 2.94%	- 4.63%	- 2.69%	- 2.83%	- 5.62%
Urbana-Champaign	-15.71%	-18.76%	-20.41%	-20.44%	-24.24%

These comparisons make no attempt to adjust salaries for regional differences in cost of living, nor for regional differences in market competition. Thus, they are most useful to gauge changes over time, rather than absolute differences. However, regardless of which measure is employed, it is clear that the University's nonacademic salary levels significantly lag those of other comparable employers.

For FY 1984, overall salary increases for nonacademic employees on the Step Plan will provide 5.5% in "market movement" increases in addition to step increases for those employees eligible to receive them (approximately 80% of those on Step Plan). These increases will help, in part, to offset the severe impact of FY 1983 actions which eliminated all step increases for the year.

PRICE INCREASES
($13,713,900)

Each year the University requests funds to cover the increased costs of goods and services required for the operation of ongoing University programs. For the past several years, the University has pursued a policy of requesting differential price increases for certain goods and services which have been subject to unusual inflationary pressures, most notably in the categories of utilities expenditures and library acquisitions. In addition, the University has sought to restore its equipment base which has been ravaged by the same inflationary spiral and by rapid technological change.

The State has varied its support of general and differential price increases over the years. Differential utilities increases have been provided since FY 1975. Differential price increases for library acquisitions were provided during the period of FY 1978 through FY 1980, but not in subsequent years. The equipment base was partially restored by relatively small incremental State appropriations in FY 1980 and FY 1981, and the FY 1984 budget provides $1.7 million to permit partial recovery from past losses and slow the continual decline in purchasing power. Even that substantial amount, however, represents less than 20% of the total deficiency.

For FY 1985, the University has renewed its request for a differential price increase for utilities and library materials; a general price increase for all other goods and services; and replacement funds to help restore the equipment and library collection bases to appropriate levels. Indicators of inflationary trends such as the Consumer Price Index (CPI), plus analyses of past experiences, have been used to project minimum FY 1985 requirements.

General Price Increases' - ($4,418,200)

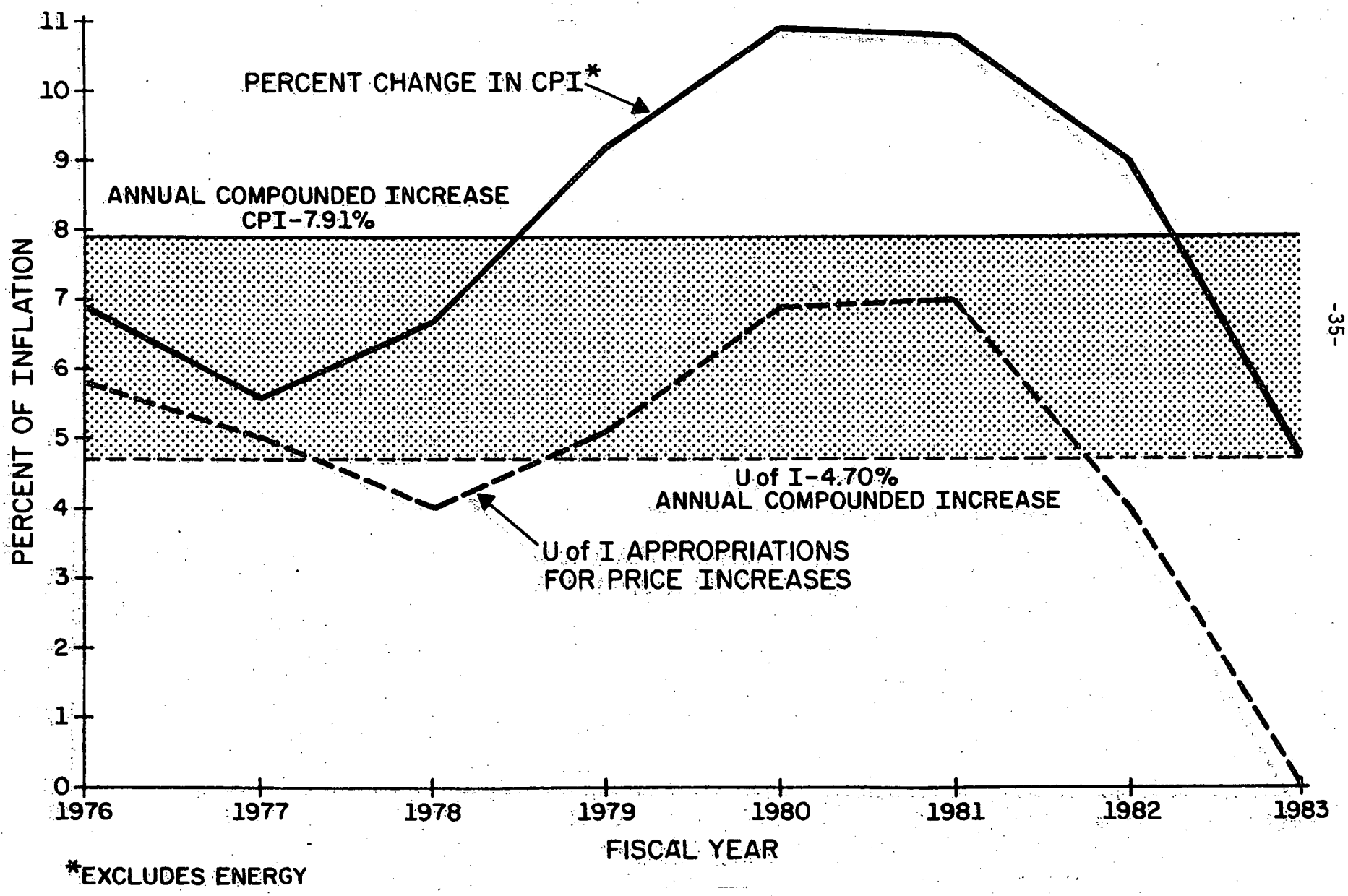
Table 13 compares the percent change in the CPI with the percent change in the University's appropriations for general price increases during the period FY 1976 - FY 1983. While the inflation rate has moderated, general price increase funds provided to the University have lagged inflation by almost one-half (83.9% for the CPI vs. 44.4% for University appropriations). Figure 3 provides a graphic display of this trend. For the first time in many years, in FY 1984 the University received price increase funding which

TABLE 13
IMPACT OF INFLATION
GENERAL EXPENSE ITEMS

Fiscal Year	% Change in CPI Less Energy	vs	U of I Price Increases (Includes General Items and Library)
FY 1976	6.9%		5.8%
FY 1977	5.6%		5.0%
FY 1978	6.7%		4.0%
FY 1979	9.2%		5.1%
FY 1980	10.9%		6.9%
FY 1981	10.8%		7.0%
FY 1982	9.0%		4.0%
FY 1983	4.7%		0.0%
Compounded FY1976-FY1983	84.4%		44.4%

FIGURE 3

IMPACT OF INFLATION



*EXCLUDES ENERGY

will approximate the estimated annual rate of inflation. Chase Econometrics has projected a FY 1984 CPI rate of 3.9%. The University's FY 1984 appropriation will accommodate a 4% price increase.

Chase projections for the CPI in FY 1985 are approximately 4.9%. The University's primary objective for FY 1985 is to prevent further erosion of the funding base, and to provide some recovery from past losses of purchasing power. The FY 1985 request of 8% for general price increases will meet the projected CPI increase and will help to offset, in part, the effects of persistent underfunding of cost increases over the past decade.

Equipment Recovery - ($2,000,000)

For several years the University has been seriously concerned with its inability to provide up-to-date instructional equipment. A large portion of the existing equipment base has become obsolete because of normal deterioration and rapid technological change.

The problem of obsolete equipment affects programs in many fields, but nowhere is it more damaging than in those disciplines and programs heavily dependent on "state-of-the-art" technology for instructional activities. Students whose educational programs have included instruction and training on obsolete equipment are simply less prepared than they should be, regardless of the quality of other aspects of their programs. In addition, as the inability to replace obsolete equipment grows, it has a direct effect upon the recruitment and retention of faculty members for whom up-to-date equipment is an integral part of their teaching. It should be noted that this problem is not unique to the University of Illinois, but is common to major research universities, particularly as Federal funds for equipment purchases have failed to keep pace with inflation.

In the last decade technological advances in equipment design have made possible hitherto impossible scientific experiments. For example, most scientific equipment is now controlled by or linked directly to computers, allowing experimental results to be identified and measured with a precision and speed previously not possible. Advances in equipment technology have been rapid and have had two important ramifications. First, the useful life of the most advanced equipment has shortened, and second, in some cases, the cost of needed equipment has increased.

Incremental State appropriations in FY 1980, FY 1981 and FY 1984 have helped to ease the University's basic equipment replacement problem. However, the cumulative deficiency continues to grow and poses an ever greater threat to program quality and faculty development. It is estimated that incremental deficiency allocations will be required for the period of FY 1985 to FY 1989 to bring the University equipment base to an appropriate level.

In view of the especially severe impact of obsolete equipment upon the sciences and other disciplines heavily dependent on rapid technological advances, a total of $2 million is sought for FY 1985 to address this critical need. It should be noted that this amount is independent of the specific equipment needs discussed in the special request for revitalization of engineering programs.

The total FY 1985 request is distributed among the campuses as follows:

Chicago	$1,000,000
Urbana-Champaign	1,000,000
TOTAL	$2,000,000

Utilities Price Increases - ($5,547,000)

The direct utilities budget at the University of Illinois has increased dramatically over the last ten years. Between FY 1973 and FY 1982, utilities costs rose 457%. The amount spent on utilities in FY 1973 was $5,953,200, 3.2% of the total State funded budget. By FY 1982, the utilities proportion of the total State funded budget had increased to 7.7% at a total cost of $27,212,300. Although the University implemented energy conservation measures to help stabilize consumption, the escalating costs of fossil fuels necessitated additional funding for utilities.

Fuel price adjustments over the past few years have been severe. For example, the Urbana-Champaign campus experienced a 53% increase in the unit price of natural gas and a 60% increase in the unit price of electricity between FY 1980 and FY 1983. During the same time period, the unit price of natural gas increased 48% and the electricity rate rose 57% at the Health Sciences Center. Similar price trends were experienced at the University Center physical plant.

In an effort to moderate rising utility costs, the campuses have altered their mix of boiler fuels to increase the utilization of lower-priced energy sources. For example, the current cost of No. 6 fuel oil per million British Thermal Units (MMBTU) is approximately 20% lower than the price of natural gas. Accordingly, the Chicago-University Center altered the FY 1979 fuel mix of 96% natural gas and 4% fuel oil to the ratio of 14% natural gas/86% fuel oil in FY 1983. Similar efforts have been employed at the Health Sciences Center and at Urbana-Champaign.

Although substantial cost avoidance has been achieved through fuel source changes and the implementation of energy conservation measures, escalating utilities costs remain a serious problem for the Unversity. Recent delays in the reconversion of the Abbott Power Plant to coal have pushed back the estimated tie-in and testing of the first coal fired boiler to July, 1985. As a result, the Urbana campus will remain dependent on natural gas throughout FY 1985. Because federal deregulation of the natural gas industry is expected to cause the price of the fuel to increase rapidly, the continued dependence on natural gas at Urbana could be extremely costly for the University. Further cost problems are anticipated when the alternative to burn lower cost fuel oil at Chicago diminishes. Industrial fuel switching from natural to low sulfur residual fuels is tightening world oil supplies, causing prices to increase. In addition, fuel oil prices are expected to escalate as the economy recovers.

Since fuel price adjustments are susceptible to local and regional variation, national and state economic indices, as well as direct consultations with the respective utility companies have been used to project future energy costs. In light of the expected price increases, the University's historical utilities cost trends and the continued dependence on natural gas at Urbana, the estimated need for FY 1985 is 15% above projected FY 1984 utility requirements.

Library Price Increases - ($848,700)

The University libraries provide essential support to academic programs and research activities on the campuses. In addition to its value as a campus resource, the Urbana-Champaign Library is a major research and reference center for the entire State through the State of Illinois Library Circulation System. In order to adequately serve campus as well as State-wide needs, the library collections must contain diverse and current materials. Adequate funding for acquisitions is essential if the University libraries are to maintain the present quality of their collections.

Appropriations for library materials have increased an average of approximately 5% annually since FY 1969. During the same period, the prices of American hardcover books have increased an average of 13% each year. While this disparity is harmful in itself, even greater damage has been caused by rapid increase in periodical pricing to the point at which the periodical budget has forced reductions in other acquisition budgets. Annual increases for American periodical subscriptions overall have averaged approximately 13% since 1977. However, technical periodical increases were as high as 19% during the same time period (Engineering, 19%; Chemistry and Physics, 17%; Zoology, 16%).

Periodicals are an absolute essential to teaching and research in all areas, and especially in technical curricula. Even with cutbacks in other areas of the acquisitions budget, the University collection has been severely threatened in the past few years by cut-backs in periodical acquisitions. Major deficiencies now exist in such varied areas as Engineering, Music, Commerce, and Latin American Studies. In addition, foreign library material has a major role in research, requiring the library to purchase heavily in foreign markets where the instability of the publishing industry makes documents difficult to obtain and hence, more expensive. In light of the financial stress placed on library acquisitions and so that the collection will not be irreparably damaged, a 15% increase above the FY 1984 base is required.

Library Acquisitions: Restoration of Quality - ($900,000)

Recent analysis of the Library's collection has revealed some disturbing trends. Since 1971, when costs for acquisitions began to escalate dramatically, the Library has been unable to maintain its earlier pattern of

growth. New appropriations have not kept pace with inflation, and the University has been unable to meet the shortage form its dwindling development funds.

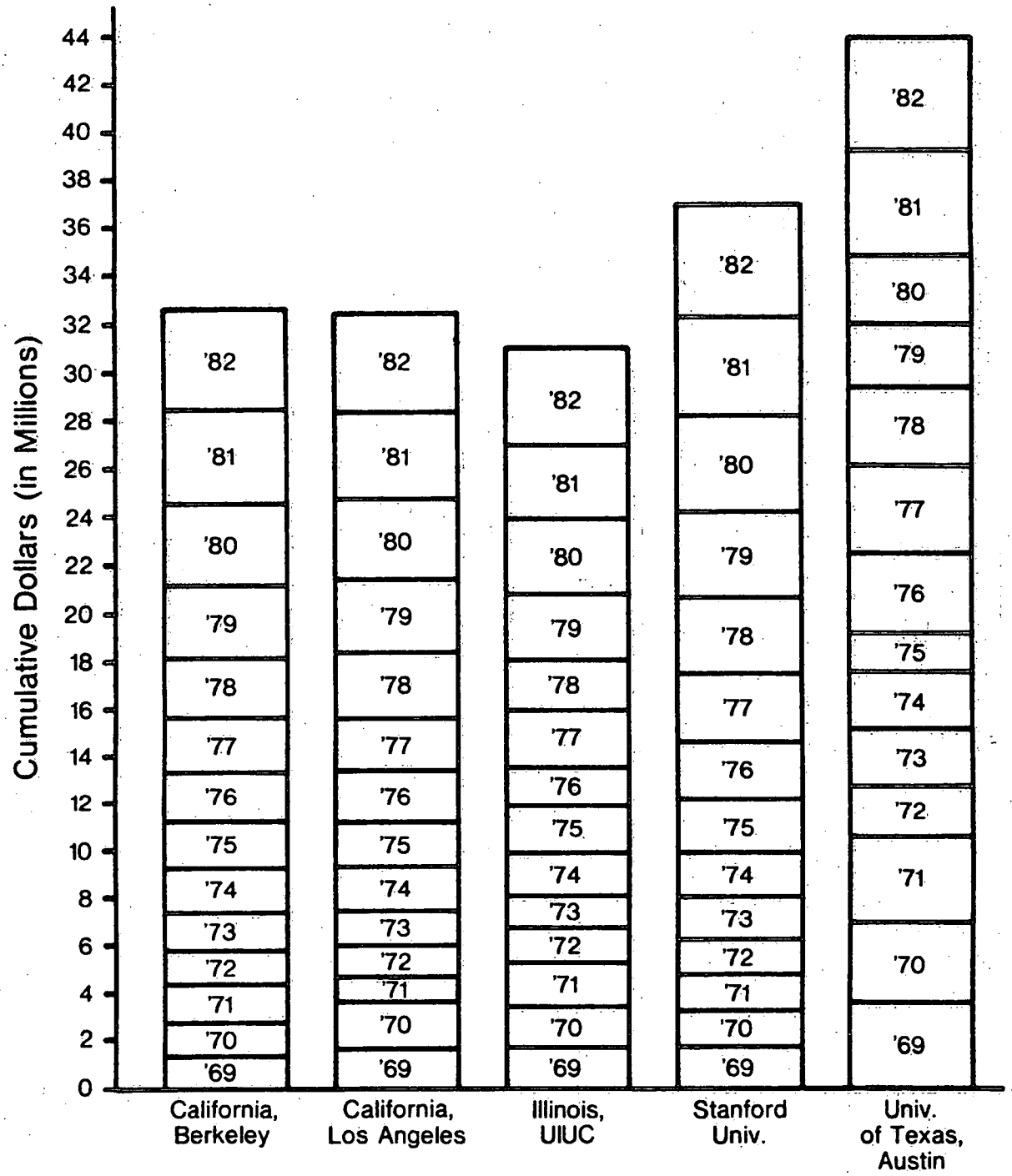
Although the Library of the University of Illinois at Urbana-Champaign has the largest collection of books of any public university library in the nation, this status has been jeopardized by an inadequate funding base. Monograph acquisitions have been drastically curtailed as a result of rapid price increases in the periodical budget. For example, the Engineering Library was forced to reduce the present monograph budget by 65% in order to absorb the periodical budget deficit. The Biology monograph fund has been similarly affected. As Figure 4 illustrates, in the last few years, the University of Texas, Stanford University, the University of California at Los Angeles, and the University of California at Berkeley have been able to devote significantly more funds to library acquisitions than the University of Illinois. Not only will these institutions surpass the University in library holdings if this trend continues, but, more importantly, they will surpass the University in the ability to meet teaching and research needs, thereby jeopardizing the University's ability to recruit and retain faculty.

The library also serves as a statewide resource for other college and university libraries and for the people of Illinois. Every citizen, through the public library and the regional public library systems, has direct access to the collections of the University of Illinois. Last year, approximately one hundred thousand items were charged out of the UIUC Library through the statewide network. While the State Library attempts to subsidize the labor costs involved in the process, the materials themselves are provided through the regular UIUC budget for library acquisitions.

Libraries of both public and private institutions are users of and are dependent on the collections of the University of Illinois. Thus, when collection quality and utility diminishes at the University of Illinois, it has a direct impact upon a large number of other institutions. As other libraries throughout the state build a dependence on the University of Illinois libraries, it is imperative that UI resources be adequate to meet their needs. Few other states possess a major research library committed to a program of statewide service. The expanded clientele put an additional strain on the collection and increase the need for acquisitions funds.

FIGURE 4

Library Material Expenditures



The University Library has taken steps to streamline its acquisition procedures and has appointed a manager of collections to insure that the acquisitions budget is both focused and effective. The libraries of the State have begun to analyze the purchasing and borrowing habits of their clients in order to initiate a program of cooperative collection development. With all of these procedures in place, the Library now requires appropriate funds to maintain and to build its collections in support of research and instruction.

The FY 1985 request for $900,000 to assist in the restoration of collection quality will be apportioned among the University libraries as follows:

UIC-University Center	$238,200
UIC-Health Sciences Center	114,800
Urbana-Champaign	547,000
Total	$900,000

OPERATION AND MAINTENANCE OF NEW AREAS ($901,200)

Funds are requested for operation and maintenance costs associated with the addition of new or significantly remodeled State supported space on the campuses. The needs for these funds vary according to the operating requirements of each facility. The total FY 1985 request of $901,200 is outlined in Table 14. The individual components of the request are described below.

Lions Eye Research Institute - The Lions of Illinois contributed $5 million to the University for the construction of an eye research institute at the Chicago campus. The facility includes several laboratories and a clinic designed specifically for ophthalmologic research. Important areas of eye research currently conducted by the Department of Ophthalmology include: diabetic mellitus, diabetic retinopathy, and sickle cell retinopathy. Given that clinical eye research is a central component of training residents in the speciality of ophthalmology, this facility will serve direct instruction, as well as advanced eye research. The facility is scheduled for occupation in December 1984. $179,400 is required to operate and maintain this building during FY 1985.

Auditorium - In FY 1983 the University received a private donation for the major renovation of the Auditorium and construction of an approximately 9,000 gross square foot backstage addition. Interior remodeling will include installation of an air conditioning and ventilation system, significant upgrading of audience and stage lighting, reupholstering seating, and carpeting. The backstage addition will support the maximum utilization of the stage for instructional and theatrical events. It is expected that the remodeling activities will enhance the Auditorium's use as an instructional area for large lectures and exams, while continuing to serve the campus as an entertainment center. $146,400 is requested for the operation and maintenance of the Auditorium during the final six months of FY 1985. The remaining six months funding will be requested in FY 1986.

TABLE 14
FY 1985 REQUEST FOR OPERATION AND MAINTENANCE
SUPPORT FOR NEW AREAS

Building	Gross Square Feet	Total Unit Cost ($/GSF)	Date of Occupancy	No. of Months Funding	Annual Cost	FY 1985 Amount
Lions Eye Research Institute	45,000	$6.83	December 1, 1984	7	$ 307,500	$ 179,400
Auditorium	52,500	5.58	January 1, 1985	6	292,700	146,400
Library Sixth Stack Addition	76,750	6.05	December 1, 1983	5	464,800	193,700
2020 West Ogden	150,000	10.18	October 1, 1983	3	1,526,800	381,700
Total						$ 901,200

Library Sixth Stack Addition - $193,700 is needed to operate and maintain the Library Sixth Stack Addition for a five month period in FY 1985. The 76,750 gross square foot structure will house approximately 1.5 million volumes in compact storage and nearly 150 closed reading carrels. A significant portion of the request is required to maintain the mechanical system of the compact shelving stacks.

2020 West Ogden Avenue - Funds were appropriated in FY 1984 to purchase the former Chicago Medical School Building at 2020 West Ogden Avenue. The facility will serve as a central location for high technology enterprises in the Medical Center District. As a past educational facility for medical students, the building is outfitted with numerous instructional and research laboratories. It its anticipated that this space can be effectively utilized by research and development units of the tennant organizations. The expense of operating and maintaining a research oriented building will be similar to that associated with maintaining other sophisticated research facilities in Chicago. Funds were appropriated in FY 1984 for nine months of operation. The FY 1985 request of $381,700 will be used for the final three months of the initial year of operation.

Adler Center - For FY 1984 the University received partial funding to operate the former Adler Mental Health Center. The Center reverted to the University when the State of Illinois discontinued its use as a mental health facility. Appropriations have now been made to remodel the facility for use by the State Water Survey. It is anticipated that the Center will be prepared for occupancy by July 1, 1985. In order to support this facility when it becomes fully operational, the University will request the remaining O & M support funds for FY 1986. The University will continue to operate and maintain the Center on a partially funded basis throughout FY 1985.

RESTORATION OF OPERATION AND MAINTENANCE STANDARDS ($1,000,000)

In the past decade a combination of factors--spiraling inflation, insufficient funding, physical plant staff reductions, addition of facilities, and mandatory increases in prevailing salary rates--have resulted in a large accumulation of deferred maintenance projects. Consequently, projects which in the past were minor in scope and cost, now require immediate attention and will be more expensive to complete.

The methodology used to evaluate the adequacy of the University's O & M funding level entails a comparison of current expenditure levels to those levels deemed adequate in the past (FY 1971). Actual O & M expenditures for FY 1982 were approximately $69 million. When prevailing inflation rates are applied to the FY 1971 base and an adjustment is made for productivity efficiencies, the total O & M deficiency (minus utilities) for FY 1982 was $8.7 million. When this deficiency is inflated to FY 1985 dollars, the resulting gap is $9.9 million. Table 15 demonstrates the calculation of the FY 1985 deficiency.

While annual budget requests often include O & M funds to support newly constructed and remodeled State supported space, these funding needs are independent of the accumulated general deficiency described here. The general O & M deficiency is primarily attributable to insufficient incremental funding of base level activities performed by the O & M divisions. Due to this shortfall the physical plants have curtailed janitorial services, postponed roof repair activities, deferred the repair of exterior concrete stairways and sidewalks, delayed tuckpointing projects, and temporarily suspended standard maintenance of mechanical systems in some buildings. Adherence to this program of deferred maintenance will result in high future costs for repair and renovation.

Responsible management of the University's enormous capital investment in instructional, research, and public service facilities demands that immediate attention be given to the O & M funding problem. As a first step towards closing this funding gap, the University is requesting approximately $1,000,000 for general operations and maintenance activities. The allocation of this amount to the campuses will be made in accordance with the relative deficiencies shown on Table 15 as follows: Chicago--$470,000; Urbana-Champaign--$530,000.

TABLE 15
FY 1985 PROJECTED
OPERATIONS AND MAINTENANCE DEFICIENCY
(EXCLUDING UTILITIES)

	Chicago	Urbana-Champaign	Total
1. FY 1982 Deficiency	$4,034,610	$4,631,289	$8,665,899
2. Add: Impact of Inflation on Deficiency (FY 1982 - 1983) 4.3%	173,488	199,145	372,633
3. Subtract: FY 1983 Incremental Dollars	0	0	0
4. FY 1983 Projected Base Deficiency (1 + 2 + 3)	$4,208,098	$4,830,434	$9,038,532
5. Add: Impact of Inflation on Deficiency (FY 1983 - 1984) 3.9%	164,116	188,387	352,503
6. FY 1984 Deficiency	$4,372,214	$5,018,821	$9,391,035
7. Add: Impact of Inflation on Deficiency (FY 1984 - 1985) 4.9%	214,238	245,922	460,160
8. FY 1985 Deficiency	$4,586,452	$5,264,743	$9,851,195
% Distribution by Campus	46.6%	53.4%	100.0%

WORKER'S COMPENSATION
($140,000)

Expenditures for Worker's Compensation began a period of significant cost increase in 1976 with legislation which liberalized benefits available under Worker's Compensation. Since then, rising medical costs have contributed to increasingly larger claims.

The University of Illinois receives a direct appropriation from which Worker's Compensation claims are paid, unlike all other universities and State agencies which handle claims through the Illinois Department of Central Management Services.

Although support for Worker's Compensation has increased significantly in recent years, these allocations have not kept pace with expenditure claims, as shown in the table below. In FY 1983 alone, claims exceeded the appropriation by $300,000.

	Budget	Expenditure Claims	% Change in Expenditure Claims
FY 1975	$ 145.0	$ 145.0	
FY 1976	180.0	214.7	48.1%
FY 1977	288.0	296.0	37.9%
FY 1978	360.0	490.0	65.5%
FY 1979	440.0	570.0	16.3%
FY 1980	590.0 ($840.0)	840.0	47.3%
FY 1981	1,003.5	934.5	11.3%
FY 1982	1,105.1	1,220.0	30.6%
FY 1983	1,186.9	1,486.9	21.9%
FY 1984	1,493.1		

Based upon actuarial advice, the general method for determining annual increments has been to increase the Worker's Compensation appropriation at the same rate as the personal services appropriation. For FY 1984, that increase was approximately 9.14 percent. The FY 1985 amount required is, therefore, $140,000.

PROGRAMMATIC REQUESTS

PROGRAMMATIC REQUESTS

The FY 1985 budget request for expanded and improved programs is outlined in Table 16. The majority of the programmatic budget requests contribute to the revitalization of the Illinois economy and are contained in the subsection entitled Science, Technology, and Economic Development. The programs listed under the theme of Meeting Changing Health Care Needs contribute both to the improvement of the social well-being of the citizens of Illinois and to the overall economic development of the State. Improving Access to Programs and Support Services, the third major theme, contains a diverse set of programs aimed at enhancing educational quality so that the students and the State may be better served.

The programs included in Science, Technology, and Economic Development comprise approximately 75% of the requests from the campuses; with Health Care added, the two categories make up nearly 90% of the entire programmatic request, including Special Engineering programs. The commitment to improving the economic and physical well-being of citizens is clear.

The programs themselves are varied, responding to diverse needs in science, engineering, biotechnology, commerce, agriculture, education, and health care. For example, program requests address Urban Economic Development, specifically in the Chicago metropolitan area, and Economic Development in Southern Illinois. Microprocesses in Semi-Conductor Devices contributes both basic and applied research for the semi-conductor industry, an industry that could help shift the Illinois economy from the traditional heavy industry to high technology industry. Value-Added Agricultural Exports would employ high technology to strengthen and broaden the international market for Illinois' agricultural products. For the second consecutive year, the various programs in the College of Engineering are highlighted. These programs are vital to the economic revitalization of the state. Their quality is threatened by antiquated space, outmoded equipment, overcrowded classrooms, and deficient salaries--all of which are addressed in this budget request.

The health care and health service needs of Illinois are changing, in part in response to rapid advances in technology. Such developments as the Bioanalytic Laboratory in Toxicology promise to be of great value in

TABLE 16
FY 1985 Expanded and Improved Programs
(Dollars in Thousands)

	Chicago	Urbana-Champaign	Central Administration	Total
I. SCIENCE, TECHNOLOGY AND ECONOMIC DEVELOPMENT				
A. Interdisciplinary Research in Biotechnology	$ 676.0	$ 450.0		$1,126.0
B. Undergraduate Instructional Laboratories	100.0			100.0
C. Physics - Microprocesses in Semi-Conductor Devices	100.0			100.0
D. Center for Urban Economic Development	50.0			50.0
E. Enhancing the Development of High-Growth Industries		200.0		200.0
F. Value-Added Agricultural Exports		150.0		150.0
G. Accommodating Enrollment Shifts in Critical Areas	525.0	500.0		1,025.0
H. Library Support for Scientific, Technological and Industrial Development	110.0			110.0
I. Developmental Focus on Mathematics and Computer Science Education in Illinois High Schools	120.0	215.0		335.0
J. Office for Advanced Engineering Studies			$400.0	400.0
K. Principal's Scholars		80.0		80.0
L. Joint Industry - University Sponsorship of Research and Development			500.0	500.0
Subtotal	$1,681.0	$1,595.0	$900.0	$4,176.0
II. MEETING CHANGING HEALTH CARE NEEDS				
A. College of Veterinary Medicine		400.0		400.0
B. Health Care for the Aged	520.0			520.0
C. College of Medicine at Urbana-Champaign	250.0			250.0
D. College of Nursing at Urbana-Champaign	200.0			200.0
E. Rural Medicine	250.0			250.0
F. Academic Support for Minority Students in the Health Professions	125.0	160.0		285.0
Subtotal	$1,345.0	$ 560.0		$1,905.0
III. IMPROVING ACCESS TO PROGRAMS AND SUPPORT SERVICES				
A. Graduate Student Support	$ 316.0	$ 300.0		$ 616.0
B. College of Law		200.0		200.0
C. School of Architecture	75.0			75.0
D. Language Learning Laboratory		84.0		84.0
E. Public Administration		179.0		179.0
F. Fiscal Management in Government		190.0		190.0
Subtotal	$ 391.0	$ 953.0		$1,344.0
TOTAL EXPANDED/IMPROVED PROGRAMS	$3,417.0	$3,108.0	$900.0	$7,425.0*

*The programmatic total excludes the separate request for engineering program support ($6,000,000) and $700,000 in program-related research and service activities in the Special Services/Funding component.

diagnostic medicine and could, in time, both improve the health care of Illinois citizens and help contain ever-rising health care costs. The development of an interdisciplinary geriatrics program is essential if the needs of the aging population of Illinois are to be met. The continued regionalization of health sciences education is dependent on establishing and maintaining strong programs in medicine, nursing, and other health care fields in regional sites.

In Illinois, the health care needs of livestock are vital too. An extensive five-year plan, "Program for Sustained Excellence", has been developed by the College of Veterinary Medicine. Within this plan, both graduate education and applied food animal and basic research programs are to be expanded. The Veterinary Diagnostic Medicine Laboratory is to broaden its service to the State in the identification, control, and prevention of infectious and non-infectious diseases, toxicities, and other conditions affecting or threatening the livestock industries in Illinois.

At the same time the University of Illinois begins new initiatives and broadens existing programs to respond to the development needs of the State, other critical concerns on each campus must also be addressed. The number, nature, and excellence of campus programs in the fundamental disciplines are the strong foundation on which all other efforts are based; the quality of these highly central activities must be maintained and enhanced.

The quality of a university library is directly related to the productivity of a university faculty. The University of Illinois Library is a valuable treasure and a major force that draws scholars from around the world to the University. Acquisition funds continue to plunge in purchasing power despite the addition of substantial increments over the past few years. Long-run serials are being stopped; many special collections have ceased growing; and multiple copies of high-use publications have been eliminated, thus shifting the real costs to faculty and student time. These trends, too, must be altered.

The University of Illinois fellowship programs are designed to attract exceptional students and provide them with an opportunity to concentrate on academic achievement. For several years, decreasing Federal support of fellowship programs has reduced the number of fellowships available. Even more serious is the fact that State support of graduate fellowships has

remained fixed amidst growing inflation. It is crucial that the University be able to attract and retain the very best graduate students through a strong financial aid program.

For many years, the University has provided academic support programs for minority students. The Principal's Scholars Program has encouraged minority high school students in college preparatory programs to enroll in sufficient mathematics and science courses while in high school to qualify for admission into any academic curriculum when they enter college. Academic support programs for minority students interested in health and medical science programs have existed in Chicago for some time; extending the program to Urbana-Champaign responds to the special need to increase the number of minority students who are adequately prepared to enter and succeed in the College of Medicine programs.

The above, very brief summary is not exhaustive; many other initiatives are contained in the listing which follows. It is apparent that the University of Illinois, with proper support for its programs, can play a leadership role in the revitalization of the economic and social environments of the State. This budget request is dedicated toward those ends.

SCIENCE, TECHNOLOGY AND ECONOMIC DEVELOPMENT

INTERDISCIPLINARY RESEARCH IN BIOTECHNOLOGY ($1,126,000)

The University of Illinois is ideally suited to mount an outstanding program in biotechnology. The productive vitality of scientific research at Urbana-Champaign, and the tremendous potential for growth of high technology industry in the Chicago area, provide developmental cores for establishing a formal University program in the burgeoning field of biotechnology. The focal points of current activities at Urbana-Champaign are the Colleges of Agriculture and Veterinary Medicine and the Schools of Chemical Sciences and Life Sciences within the College of Liberal Arts and Sciences. Various research efforts on the Chicago campus include faculty in the Department of Biological Sciences at the University Center and the Colleges of Medicine and Pharmacy at the Health Sciences Center. Successful applications of biotechnology, which includes studies of genetic materials at the subcellular level, will depend on close cooperation between scientists concerned with the basic research and technologists interested in applications to plant and animal sciences and medicine.

Chicago Programs ($676,000)

The Chicago campus segment of this major University proposal to nurture the development of high technology industry in Illinois consists of three principal elements: (1) the Laboratory for Cell, Molecular and Developmental Biology at the University Center ($200,000), (2) the Clinical Pharmacology program at the Health Sciences Center ($400,000), and (3) the Bioanalytic Laboratory in Toxicology in the College of Medicine at Rockford ($76,000).

Laboratory for Cell, Molecular and Developmental Biology (CMDB)--Profound changes are occurring in the industrial, agricultural, pharmaceutical and social applications of biological knowledge. In order to stay abreast of the new developments in highly specialized areas such as plasmid technology and recombinant DNA research, the maximum level of interaction must be maintained between faculty and students from a broad cross-section of disciplines in the biological sciences. The proposal to establish the CMDB represents the most effective way to coordinate the research and teaching efforts of faculty in biochemistry, microbiology, physiology, ecology, entomology, the plant sciences, vertebrate biology,

mammalian tissue culture, and evolutionary and population genetics. Faculty participation in the CMDB will eventually include members of other departments, such as Chemistry, and members of the College of Medicine at the Health Sciences Center.

Although the CMDB is proposed as a research unit, it will have both a research and a teaching role. The recruitment of graduate students, particularly at the doctoral level, depends heavily on maintaining a productive research environment which can attract and hold faculty of the highest quality. The training of outstanding Ph.D. students is a traditional hallmark of academic institutions of top quality. The presence of first-rate faculty and first-rate graduate students will serve to attract additional external funding support for both research and training of doctoral and post-doctoral students.

The most urgent need is to establish prominence in molecular and developmental biology in order to attract the appropriate scientific and industrial interests which will rely on the proximity of a rich academic resource base and will employ the graduates of such programs. Therefore, highest priority will be placed on recruitment of two senior scientists, one in eukaryotic molecular biology and the other in the area of eukaryotic developmental biology. The FY 1985 request for $200,000 includes funds for the CMDB director, 2 FTE faculty, 3 FTE nonacademic support and general operating expenses. This proposal represents the first year of a four-year plan to fully staff and equip the CMDB.

Clinical Pharmacology--The fact that Illinois has the second largest concentration of pharmaceutical companies in the country offers exciting possibilities for collaborative research and development among investigators from industry and the University who can develop joint research projects in the fields of pharmacology and pharmaceutics.

To establish a stronger research program in clinical pharmacology, the College of Medicine requests $200,000 in FY 1985 to develop an upper level course in clinical pharmacology and to devise elective courses in advanced therapeutics. Continuous developments in pharmacology require physicians to become increasingly knowledgeable about drugs and drug therapeutics. As a result, new courses and clerkships are needed so that practitioners, regardless of their eventual specialty, have the opportunity to experience thorough training in pharmacology. To enhance the development of these

activities and to staff the program adequately, 3 FTE faculty and additional support personnel will be required in FY 1985. The faculty recruited for this purpose will serve as members of interdisciplinary teams from the Colleges of Pharmacy, Dentistry, Nursing, and the School of Public Health, devoted to studying problems associated with the use and abuse of drugs.

The College of Pharmacy also requires $200,000 in FY 1985 to staff adequately the Clinical Pharmacokinetics Laboratory, a highly specialized facility devoted to the study of drug distribution and action in the human body. The laboratory will serve to attract the support and participation of the pharmaceutical industry in Illinois because the science of pharmacokinetics is central to drug research and development.

Approximately one-half of the amount requested for the College of Pharmacy will support two assistant directors: one to develop the clinical applications of the Laboratory, the other to extend basic research capabilities in the areas of drug therapy and biochemical interactions. In addition, three technicians and a half-time post doctoral student will be recruited to extend the Laboratory's utility to faculty and students. A skilled bioinstrumentation engineer is required to keep the equipment functioning at peak capacity. The new staff and increased activity will also require additional secretarial support. The new personnel requested for FY 1985 will complement the efforts of staff currently assigned to the Laboratory and to the faculty involved in instruction, research and patient care.

Bioanalytic Laboratory in Toxicology--The College of Medicine proposes to establish a bioanalytic laboratory to provide research experience for students interested in rural medicine and industrial pharmacology and to serve as a resource for the State's chemical, biomedical and agricultural industries. The development of the proposed laboratory will build on the toxicological testing program in the College of Medicine at Rockford, the sophisticated, nationally accredited animal care facilities available at the University's Chicago campus, and the Department of Pharmacology in Chicago.

The need for this program is two-fold. Understanding of the interrelations between agricultural developments and health care in rural communities can be fostered for students who are associated with centers where practical, pertinent experiments are being conducted. Also, students considering industrial pharmacology careers can benefit from the contractual work done in a laboratory.

In addition, industries themselves are greatly in need of such a resource. Substantial growth has occurred in the number of regulations covering the manufacture and use of chemicals and pharmaceutical products in acknowledgement of the fact that regulation of potentially hazardous products is less costly than the process of counteracting environmental and health problems after the products have been marketed. Both of the industries mentioned--chemical and agricultural--have need for the testing support which the College of Medicine can provide.

To provide the testing service to the public, the College needs $76,000 to employ a director and support staff in FY 1985. The director must be an experienced laboratory administrator familiar with good laboratory practices mandated by Federal Regulatory agencies for testing toxic products.

Urbana-Champaign Program ($450,000)

The interdisciplinary biotechnology research program at Urbana-Champaign is designed to accomplish several goals:

1. to begin new research and teaching initiatives in biotechnology;
2. to provide the faculty and support personnel needed to expand research activities;
3. to develop a campus-wide program of research seminars, shared resources, and curriculum enhancement;
4. to provide a state-funded base for acquisition of substantial external support for research;
5. to provide state support for a new Biotechnology Center that will form the nucleus of a proposed industrial affiliates program in biotechnology.

Many elements of the biotechnology program are already in place and are operating. The focal points of current activities are the Colleges of Agriculture and Veterinary Medicine and the Schools of Chemical Sciences and Life Sciences. Much of the basic work in molecular genetics occurs in the Departments of Microbiology, Botany, Entomology, and Genetics and Development. Several faculty in the Department of Biochemistry are involved with research concerning the chemical nature and properties of genetic materials. In the College of Agriculture, research is in progress on gene transfers technology that will make it possible to introduce the most effective genes into various crop plants. Current efforts by faculty in the College of Veterinary Medicine promise to lead to new vaccines and diagnostic techniques for animal disease control.

The activities described above illustrate that research activities in biotechnology extend across the campus and that the basis for a strong, campus-wide program in biotechnology is already in place. As a means of planning for additional activities in this area, the following steps have been taken:

1. A campus-wide committee on Biotechnology Initiatives, with membership from all the colleges and schools already mentioned, has been appointed by the Vice Chancellor for Research. Among its activities has been the preparation of a comprehensive inventory of faculty and staff resources devoted to biotechnology research in plant and animal sciences.

2. Faculty groups in the Colleges of Agriculture and Veterinary Medicine have established interdepartmental seminar programs and have identified areas in which additional research expertise is needed.

3. Joint efforts are underway between the Department of Agronomy in the College of Agriculture and the School of Life Sciences in the College of Liberal Arts and Sciences to strengthen programs in biotechnology applied to plant sciences. The intensive involvement of United States Department of Agriculture scientists with adjunct University appointments is particularly noteworthy.

4. A campus-wide effort is underway to establish a Biotechnology Center funded in large measure from external sources. Center members will form the core of an industrial affiliates program, designed to attract the participation of many companies that have an interest in biotechnology and its applications.

Although biotechnology research at UIUC is vigorous and developing rapidly, key personnel are required in several areas to promote the continued progress of individual program elements. The following items are representative of current programmatic deficiencies:

- Centralized Laboratory Services -- Centralized laboratories in hybridoma technology, to produce monoclonal antibodies for disease diagnosis, are essential. A resource laboratory in the area of genetic engineering is also needed.
- Additional Faculty -- Among research areas that require new faculty expertise are:
  (1) DNA mechanisms;
  (2) immunogenetics;
  (3) molecular biology in the area of food and animal sciences;
  (4) applications-oriented bioengineering research on yeasts and fungi.

New resources are needed to mount a research program that will attract substantial external support over a period of several years, culminating in the establishment of a major research center of international importance. State funds will be requested for a five-year period from FY 1985 to FY 1989. The budget for FY 1985 includes funds for a director of the Genetic Engineering Laboratory, for additional academic and nonacademic personnel and other general program expenses.

The FY 1985 State-funded budget for the Urbana-Champaign portion of the biotechnology program is outlined below.

Academic Staff	
1.00 FTE Director, Genetic Engineering Laboratory	$ 60,000
2.00 FTE Professors	120,000
3.00 FTE Postdoctoral Research Associates	60,000
2.00 FTE Graduate Research Assistants	24,000
Nonacademic Staff	
3.00 FTE Laboratory Technicians	45,000
3.00 FTE Medical Technologists	48,000
1.00 FTE Secretary	11,000
Expense	
Commodities	40,000
Contractual Services	27,000
Travel	5,000
Telecommunications	10,000
TOTAL	$ 450,000

UNDERGRADUATE INSTRUCTIONAL LABORATORIES
($100,000)

The undergraduate instructional laboratories at the University Center were constructed and equipped in the years 1965 to 1970. Age and intensive use have taken a heavy toll on these facilities. Obsolescence of many common undergraduate instructional items, such as balances, microscopes, and oscilloscopes, further reduces the value of training received in these laboratories.

The most debilitating factor, however, is price escalation for supplies, maintenance and repair. Inflation has averaged 25% annually for the most common supplies used in undergraduate laboratories as illustrated in Table 17. By comparison, general price increases in State funds have averaged less than 5% per year since FY 1976. Table 18 provides an analysis of costs for laboratory supplies for the science departments. Although the campus has supplemented the base expense budgets of the science departments with redirected funds, expenditures have not kept pace with the actual price escalation. A vigorous program of repair, replacement and upgrading is needed to restore the quality of education in these laboratories.

The campus has proposed to arrest the deterioration of the laboratories through a three-year program to significantly increase funds for operation of the 44 undergraduate science laboratories which comprise a total of 1,431 student stations. The FY 1985 request provides the second increment of a three-year program to refurbish undergraduate instructional laboratories in the Biological Sciences, Chemistry, Geological Sciences and Physics. The requested amount is intended to bring funding in line with actual price increases by FY 1986, assuming the costs of laboratory supplies increase at an average annual rate of 8.5% over the three-year period.

TABLE 17
BASIC LABORATORY
SUPPLIES

BIOLOGICAL STORES

Item	Quantity	1979	1980	1981	1982
Tryptone	1 lb.	$ 7.96	$ 14.06	$ 14.96	$ 15.33
Yeast Extract	1 lb.	16.52	18.36	21.20	23.09
Ethanol 100%	Gallon	3.19	3.66	4.02	4.02
Alcohol Absolute 200%	Pint	.73	1.47	1.55	1.88
Agar Bacto	1 lb.	21.70	27.26	31.75	33.18
Acetic Acid	5 lb.	4.88	6.63	7.93	8.34
Sulfuric Acid	9 lb.	3.90	4.45	5.63	6.67
Methanol	Gallon	4.65	5.50	7.69	4.68
Petri Dish	100x15	21.86	23.25	33.00	36.00
Parafilm Large	20"x50'	3.81	4.50	15.50	15.50
Parafilm Small	4"x125'	3.00	5.06	5.23	5.23
Foil Aluminum Large	18"x25"	1.30	2.15	3.33	5.27
Vial Scintillation	20ml.	38.63	42.00	53.12	53.12
Tubes Culture, pkg/250	13x100	4.47	6.65	8.10	8.12
Paper Towels	Package	.70	.84	.90	.90
Slides Micro	Box of 72	1.88	2.05	2.50	2.65
Totals		$139.18	$167.89	$216.41	$223.98

CHEMICAL STORES

Glassware

Round Bottom Flask 24/40,50 ml	$ 6.42	$ 8.20	$ 9.10	$ 10.15
Round Bottom Flask 24/40,250 ml	6.48	8.60	9.50	10.30
Round Bottom Flask 24/40, 1000 ml	8.15	10.80	12.10	13.42
Friedrich Condenser 24/40	41.00	52.20	64.00	71.00
Bantamware Flask RB 14/20 10 ml	5.20	7.00	7.80	8.10
Bantamware Condenser 14/20	16.20	22.90	25.15	27.00
Buret, 25 ml	11.42	13.20	17.80	24.26
Weighing Bottle, 25x40 mm	2.80	3.28	4.50	4.80
Vials, 1 dram case	52.00	60.00	86.00	95.04
Beaker, 100 ml each	.60	.75	1.20	1.28
Funnel, 250 ml separatory 24/40	29.40	42.70	47.00	48.17
Adapter 14/20 - 24/40	7.20	10.70	12.10	12.80
Erlenmeyer Flask, 250 ml	.76	1.01	1.35	1.41

Chemicals

Chloroform ACS liter	7.05	8.55	12.05	18.00
Ether ACS Anhydrous, 1 lb.	6.90	8.20	17.50	20.00
Acetone ACS, pint	2.80	4.05	6.50	7.05
Hydrochloric Acid, 6 lb.	6.18	7.55	11.45	12.60
Acetonitrile RE, liter	9.20	10.30	13.90	14.75
Benzene RE, liter	5.90	8.20	10.65	15.70
Totals	$225.66	$288.19	$369.65	$415.83
COMBINED TOTALS	$364.84	$456.08	$586.06	$639.81
CUMULATIVE INCREASE INDEX	BASE	1.25	1.61	1.75

TABLE 18

UNDERGRADUATE INSTRUCTIONAL LABORATORIES*
ANALYSIS OF COSTS

	FY 1979 (Base Year)	FY 1980	FY 1981	FY 1982	FY 1983	FY 1984
Increases in State Funds for General Prices						
Annual % Increase	Base	6.9%	7.0%	4.0%	0.0%	3.0%
Cumulative Index	1.00	1.069	1.144	1.19	1.19	1.23
Budgeted Expenses for the Science Departments Escalated by the Annual Increases in State Funds (in thousands)	$487.3	$521.4	$555.5	$579.9	$579.9	$597.3
Actual Price Escalation Index Based on Costs for Laboratory Supplies	1.00	1.25	1.61	1.75	1.86 (estimated)	2.00 (estimated)
Base Budget Escalated by Actual Rate of Price Increases for Laboratory Supplies	$487.3	$609.1	$784.5	$852.8	$974.6	$1,047.7
Actual Expenditures (Base Budget + Redirected Resources)	$514.4	$541.4	$582.5	$605.1	$643.1 (estimated)	$688.1 (estimated)

*Science Departments include Biology, Chemistry, Geology and Physics.

DEPARTMENT OF PHYSICS - MICROPROCESSES
IN SEMI-CONDUCTOR DEVICES
($100,000)

Over the past five years, the Physics Department of the University of Illinois at Chicago (UIC) has directed a major effort to establish a facility for the study of the physics of microprocesses at semi-conductor interfaces. The project receives sustained and growing support from agencies of the Federal government, including the Defense Advanced Research Projects Agency (DARPA), the Navy and the Air Force.

The research effort at the Chicago campus will focus on the future generation of devices constructed entirely in Ultra High Vacuum (U.H.V.). Each step in the processing of the devices is computer driven and implemented by robots. The program at UIC will generate a basic understanding of the microscopic interactions taking place at device interfaces in order to develop a theoretical model for the important II-VI semiconductors used in advanced infrared imaging devices. A similar effort aimed at III-V semiconductors applicable to high speed computer technology is ongoing at California Institute of Technology, also under the sponsorship of DARPA. The device characterization component of the UIC effort is a unique contribution to the national research program. Moreover, studies at UIC in Ultra High Vacuum growth are aimed at establishing the feasibility of industrial production of these devices.

The present endeavors in this area constitute a logical base for an expanded program of national magnitude aimed at providing standards for the semi-conductor industry. The maintenance and expansion of these research efforts will contribute significantly to a more attractive environment in support of plans to revitalize Illinois technology and industry. The project can be expected to continue to attract funds from external sources, including Federal research grants. A corollary benefit, and one of high priority to the University, will be the excellent opportunities for training graduate students and for providing a supportive atmosphere for faculty research in other areas.

These research efforts will require financial support beyond the present limits of the Physics Department budget. The FY 1985 request represents the first phase of a multi-year effort to provide adequate funding to support this research program. Funds requested for FY 1985 will be

used to support technical and administrative personnel and to provide a more adequate expense base. Specifically, the funds will permit the Department to employ four additional FTE in the areas of electronics and computer programming. Long term needs will be concentrated in the areas of laboratory remodeling and equipment requirements.

CENTER FOR URBAN ECONOMIC DEVELOPMENT
($50,000)

The most compelling feature of the "urban mission" of the University of Illinois at Chicago is its responsibility to coordinate the University's research, technological and information services with the industrial, economic and educational needs of the community. The Center for Urban Economic Development (CUED) is one of the most successful units at UIC in extending the University's resources to the metropolitan community.

The primary purpose of the Center is to coordinate and direct the activities on the campus which address the varied and complex economic development needs of Chicago. The Center supports efforts to promote the retention and expansion of Chicago's existing industrial and commercial base through applied research, direct technical assistance and educational programs. Assistance to community organizations and private firms is provided for activities that range from feasibility studies to actual industrial or commercial development.

During 1982, the Center worked with a variety of groups on economic development projects. Clients included the North River Commission, the Industrial Council of the Northwest, the Minority Economic Development Systems, the City of Maywood and the Spanish Coalition for Jobs. The staff participated in or conducted conferences for the Governor's Task Force on Enterprise Zones, the National Association for Management and Technical Assistance Centers, and the Metropolitan Housing and Planning Council. The research agenda for CUED includes the following subject areas:

- Community Economic Development Organizations
- Economic Development Strategies
- Industrial Redevelopment
- Impact of technological Transformation in the Manufacturing Sector
- Evaluating the Effectiveness of Technical Assistance
- Dislocation of Storefront Businesses in the Chicago Loop

The Center also undertakes applied research on industrial and manufacturing employment opportunities; impact assessments of the effects of proposed developments on local economies; and research into energy conservation techniques for industrial/commercial properties. The research and policy analysis performed by the Center has contributed significantly to knowledge and practice of urban economic development.

Funding for Center activities has been provided in part by the U. S. Economic Development Administration, and more recently, from various Chicago-based foundations. A major drive to obtain additional external support from local agencies and private industrial councils is underway. The Center has developed a strong base and a sound reputation from which to pursue this goal.

The FY 1985 State budget request would provide support for core operations of the Center. The funds will be applied toward the salaries of the Director and the full-time staff, and toward basic operating expenses of the unit.

ENTREPRENEURSHIP: ENHANCING THE DEVELOPMENT OF HIGH-GROWTH INDUSTRIES ($200,000)

Since World War II, business education in the United States has focused on research and education for management careers in large corporations. However, major structural changes are taking place in the economy with the emergence and growth of new industries and enterprises. Recent statistics suggest that 80% or more of new jobs are created by smaller firms in emerging industries. The long-term health of the Illinois economy depends on the creation of new firms and industries as well as on the improvement of existing business enterprises which will form the commercial base of the State in the next decade.

A program in entrepreneurship could enhance the basic understanding of business formation and management processes in the following manner:

1. Provide formal training for those students who want to form and to manage companies in emerging industries or to head venture teams in existing companies.
2. Perform research in such areas as the new venture creation process, entrepreneurship, governmental impacts on new ventures, entrepreneur capital and capitalization, teaching of entrepreneurial skills, and entrepreneurial climate creation in larger organizations.
3. Conduct workshops and educational programs to translate knowledge and practice to entrepreneurs.
4. Develop a research-oriented data base. The design of the data base will reflect the direction of research efforts for the next four to six years.

The proposed program will address the need for well-trained entrepreneurs in Illinois to successfully form and manage high-potential, high-growth firms whether large or small. A major underlying assumption is that entrepreneurs seem to have a set of behavioral traits and personality patterns that differ from the general population. These tendencies can be enhanced by the proper training in the management of growing enterprises. Therefore, the program will address the needs of practicing and potential entrepreneurs in the State through the identification and training of

entrepreneurs and through research into the structural, legal and economic factors affecting entrepreneurial activity and economic development in Illinois.

Expected results of the program include:

1. students trained in entrepreneurship;
2. dissemination of research results to entrepreneurs, public policy decision makers, major organizations and the financial community;
3. successful application of research findings;
4. long-term improvements in the economic climate of the State of Illinois.

For the program to have maximum impact, close cooperation is necessary from organizations such as the Illinois Department of Commerce and Community Affairs (DCCA) and practicing entrepreneurs. The DCCA has expressed a serious interest in the proposal. Efforts will be made to initiate the program on a limited basis in FY 1984 with DCCA assistance.

The proposed State-funded budget for FY 1985 is outlined below.

Academic Staff	
1.00 FTE Professor/Program Director	$ 50,000
1.00 FTE Professor (summer appointment)	11,000
1.00 FTE Associate Professor	40,000
1.50 FTE Research Assistants	18,000
1.00 FTE Academic Professional (Data Acquisition & Conference Coordinator)	25,000
Nonacademic Staff	
.50 FTE Secretarial Staff	6,500
Expense	
Telecommunications	1,800
Travel	6,000
Commodities	16,700
Contractual Services	20,000
Equipment	
Microcomputer Hardware	5,000
TOTAL	$200,000

VALUE-ADDED AGRICULTURAL EXPORTS: HIGH TECHNOLOGY AND INTERNATIONAL TRADE ($150,000)

Illinois has long been recognized as one of the major suppliers of grain for the world. With increased emphasis on high technology in the Illinois economy, the issue of exporting raw products versus processed commodities becomes extremely important. While the benefits stemming from agricultural exports have been great, a greater potential exists for the export of value-added processed products rather than raw bulk materials.

For example, a recent USDA study estimated that $1.0 million worth of corn could generate $44.0 million in total sales if the product was exported as dressed poultry. The equivalent conversion of corn to poultry was also estimated to generate 1,153 more jobs and $9.3 million in additional income. These data clearly indicate the potential importance to the Illinois economy of developing export markets for value-added products.

The current trade policies of importing and exporting countries represent a limitation to expanding exports of value-added products. Research is needed to develop new marketing arrangements that will enable Illinois agriculture to surmount the present obstacles that prevent increased exports of value-added products.

Many small firms processing agricultural products have neither the expertise nor the necessary volume to enable them to exploit new markets in the international sphere. These small firms need assistance in developing new markets, in identifying market potentials, and in working with international agencies in overcoming trade barriers.

The Department of Agricultural Economics, building on existing strengths, will develop a research program (1) to identify countries with potential demand for various processed products; (2) to assess the foreign and domestic impacts of an economic shift from raw exports to processed goods; (3) to identify and to evaluate new marketing techniques, contractual arrangements, and potential buyers for processed products developed from Illinois' basic agriculture; (4) to examine international trade flows as well as trade restrictions and regulations in a search for new marketing channels and techniques to enhance Illinois exports.

Information developed by the reseachers in the Department will be disseminated by the Illinois Cooperative Extension Service. The extension component will have two major audiences. The primary group will include agricultural firms and public agencies involved in exports. The program will help them identify overseas markets and will assist in the analysis of regulatory mechanisms. The secondary audience will include producers who require educational programs on the role of international trade in agricultural markets. The goal will be to increase agricultural income in the State and provide new opportunities for related service industries, such as transportation, that may be involved in the export of new products.

The proposed budget for this program is outlined as follows:

Academic Staff	
3.00 FTE Assistant Professors	$ 90,000
1.00 FTE Research Associate	16,000
2.00 FTE Research Assistants	16,000
Nonacademic Staff	
1.50 FTE Secretarial Staff	15,000
Expense	
Commodities	4,000
Travel	9,000
TOTAL	$150,000

ACCOMMODATING ENROLLMENT SHIFTS IN CRITICAL AREAS ($1,025,000)

Several instructional programs at the Chicago and Urbana-Champaign campuses of the University are confronted with budgetary problems directly related to enrollment growth at both the undergraduate and graduate levels. The major objective of this request is to provide additional resources to Agriculture, Commerce, Engineering and Mathematics at Urbana-Champaign and to Business Administration, Mathematics and the Academic Computer Center at Chicago to enable them to respond to continuing enrollment pressures.

Chicago Programs ($525,000)

With the proliferation of employment opportunities for graduates in areas requiring technical and professional training, the University must be able to provide adequate support to the academic disciplines involved. The State needs knowledgeable people who can creatively address the problems of declining productivity, loss of industry and shifting resource demands throughout the next decade. The University of Illinois at Chicago places strong emphasis on providing technological education and resources to its students and faculty in all fields. Continued underfunding of these programs threatens to jeapordize the gains of the past few years. To provide sufficient resources for progressive support of fundamental academic programs on the Chicago campus, the FY 1985 budget request includes the following elements:

1. campus-wide computer support for instructional programs;
2. enrollment support for the College of Business Administration;
3. strengthened recruitment and retention of faculty in the Department of Mathematics, Statistics and Computer Science.

Computer Support for Instructional Programs ($200,000) -- The Academic Computer Center has developed a long-range plan to serve the needs of both the computer specialist and the novice computer user. The focus of the plan is to increase the availability of terminals and access lines throughout the campus and to provide support staff and workshops for users at all levels. This request is the first part of a three-year proposal to expand Computer Center operations.

The request for additional operating funds addresses some of the immediate accessibility problems of the Computer Center. The total hours of

time-shared computer use during a typical week has more than doubled in the period between 1980 and 1983. During the peak periods of the day, students often wait in line for more than an hour to use a terminal. Demand will be further increased when the College of Liberal Arts and Sciences implements its plan to require each student to complete a non-credit computer literacy course.

The FY 1985 funding request is designed to improve terminal access for students and to bring the level of funding for computer services at the University Center to $100 per student. The Computer Center plans to use $125,000 of the requested amount to purchase approximately 90 new terminals and 10 to 15 microcomputers. The Center also requires $25,000 to maintain and support the new hardware with network cable, disk space and computer parts. The remaining $50,000 will be used to support full-time staff and graduate students who provide supervision and consultation for users.

College of Business Administration ($150,000) -- New resources are required to support additional graduate enrollment in the College of Business Administration. The College faces a strong demand for graduate and undergraduate programs in the evening hours, but their efforts have been limited due to budgetary constraints. The College is proposing an effective response to the high demand for undergraduate evening programs with the implementation of the B.S. in Business Administration (BSBA) as of Fall, 1984. With adequate State funding, the program is expected to enroll up to 400 students.

The College has developed a FY 1985 program request of $150,000 in incremental State funds to support the implementation of the BSBA evening program. The request consists of $110,000 for the College of Business Administration, including $75,000 to provide 2.5 FTE faculty, and an additional $35,000 for the College of Liberal Arts and Sciences to provide necessary instruction for business students in such LAS courses as English, communications, mathematics and philosophy.

The College of Business Administration found a similar need for a Master of Science in Accounting program to serve Chicago area students. The program was initiated in Fall, 1982 and will serve 135 students in both day and evening sessions by its fifth year of operation.

The program currently operates on a very limited basis. New resources are required to support anticipated levels of graduate enrollment demand.

New faculty and support services are essential to the full development of the Master's program in Accounting. The FY 1985 request for $40,000 would provide 1.0 additional FTE in accounting and the necessary support services to continue the program.

Mathematics and Computer Science ($175,000) -- This proposal comprises the second part of a four-year program to strengthen mathematics and the sciences by recruiting new faculty and by restoring teaching loads to reasonable levels.

The excellence of the Mathematics program at the University of Illinois at Chicago was recently demonstrated in a survey of graduate programs conducted by the Conference Board of Associated Research Councils. In the overall reputation of its graduate faculty, the Department ranked above such long-established departments as Carnegie-Mellon, Ohio State, Penn State, Duke and Virginia. Last year the Department placed 24th nationally in research support from the National Science Foundation. The Department ranked among the top ten in N.S.F. support in Algebra and Number Theory.

The demand for training in the high technology areas has had a major impact on the Department. Enrollment at the undergraduate level has more than doubled between 1978 and 1982, while the graduate program has increased from 106 to 204 headcount majors.

The University must provide additional funding for Mathematics and Computer Science in order to protect the achievements of the past few years. Additional faculty are needed to assure that academic excellence and dedicated teaching continue. The new funds will allow Department faculty to continue to expand upon important research, while meeting the needs of the growing number of students who seek degrees in this area.

Urbana-Champaign Programs ($500,000)

Since FY 1971 there have been significant shifts in student enrollment demand toward engineering, accounting, business administration, finance, economics, computer science and agriculture programs. Instructional units (semester credit hours) generated in the colleges which provide primary coursework in these concentrations have increased markedly:

	Instructional Units		
	Fall 1970	Fall 1982	Percentage Increase
College of Agriculture	18,295	24,392	33.3%
College of Commerce & Bus. Administration	35,853	60,624	69.1%
College of Engineering	61,169	88,350	44.4%

During this same period the total instructional units for the entire campus increased less than 2%. Although the Urbana-Champaign campus has not experienced large total enrollment increases, the current pressures have been created primarily by movements of students from less costly to more costly curricula.

The goal that UIUC has been working to achieve for these high-demand units is to provide sufficient faculty and accompanying support to reduce the high teaching loads (as measured by instructional units per FTE academic staff) to levels which approximate average teaching loads for the past twenty years. The purpose of the request is to continue a multi-year program of adding funds to the budgets of high-demand units to insure reasonable teaching loads for faculty members. Controls are being maintained to hold student enrollments at current levels. However, even if no further growth occurs in the high-demand areas, the University must still provide sufficient funds to meet the needs created by the students currently enrolled.

In FY 1984, the total deficit for the College of Agriculture, the College of Commerce and Business Administration, and the Department of Mathematics was estimated to be approximately $2.9 million. Assuming an FY 1984 allocation of $300,000, the total requirement will be reduced to $2.6 million or approximately $500,000 per year for the next five years. The FY 1985 program budget request of $500,000 is distributed among the three academic units as follows:

College of Agriculture ($152,550) -- Funds will be used to hire 3.5 FTE faculty, 1.7 FTE graduate assistants and 2.2 nonacademic support staff for a total personnel amount of $147,020. In addition, $5,530 will be used to finance general expenses and wages.

College of Commerce and Business Administration ($285,700) -- A total of $272,400 will be used to employ an additional 6.0 FTE faculty, 3.5 FTE graduate assistants and 1.5 nonacademic support staff. The remaining $13,300 will be used for expenses and wages.

Department of Mathematics ($61,750) -- Funds totaling $60,980 will permit the addition of 1.9 FTE faculty, 0.9 FTE graduate assistants and 0.1 FTE nonacademic support staff. The remaining $770 will pay for expenses and wages.

LIBRARY SUPPORT FOR SCIENTIFIC, TECHNOLOGICAL AND INDUSTRIAL DEVELOPMENT ($110,000)

Recent developments in information technology, particularly in the area of scientific database development, have resulted in the establishment of major scientific service centers in Michigan and Ohio. Both of these facilities are based in academic institutions. Changes in the configuration of scientific and technical library services in the Chicago area have created an opportunity for such a service at the University of Illinois at Chicago. Building on the strengths of the University Libraries in the fields of science and technology, such a service would provide access to the vast array of scientific and technical collections and information services which exist but are currently unavailable from a centralized source within the Chicago area.

The functions and activities of the Technical Information Services for Science and Industry (TISSI) will be based upon a collaborative effort between the UIC Library and the local industrial community. A cost-recovery, fee-based scientific information facility for business, industry, and off-campus research personnel would constitute the operating base. State funds requested for FY 1985 will defray a portion of the start-up costs for the service. In addition, the requested funds will support the costs of providing the service and its resources to University faculty, staff and students, and to other state and local government agency employees.

Summary of services to be provided by TISSI

1. Manual and computerized information reference services to be offered on a subscription or individual basis.
2. Specialized, technical bibliographies compiled and reproduced for clients.
3. Technical information, both textual and numeric, retrieved and reproduced for clients.
4. Specialized consultation services provided to clients on organization and staffing of their own in-house information centers.
5. On-site use of Library collections and services with assistance from trained technical service staff.

Summary of project resource requirements for FY 1985

1. Initial space for the project will be located in the Science Library. As the project expands, additional space will be obtained through reallocation and remodeling.
2. Selective purchases will be made to complement existing print collections within the University Center Library. Emphasis will be placed on scientific standards, spectral data, industrial product catelogues, census information and patent information sources.
3. Additional personnel requirements include an information specialist and clerical support. The information specialist will be responsible for developing brochures and contracts, for identifying databases and for explaining service options to clients.

The FY 1985 request for $110,000 includes $30,000 for personnel, $50,000 for collection development and $30,000 for equipment and expenses. Full funding of the proposal will require an additional budget increment of $60,000 in FY 1986.

DEVELOPMENTAL FOCUS ON MATHEMATICS AND COMPUTER SCIENCE EDUCATION IN ILLINOIS HIGH SCHOOLS ($335,000)

Recent studies have indicated that the United States lags other industrialized nations in mathematics and computer science instructional programs. At the same time, a sound foundation in mathematics and computer science is vital to the economic revitalization of the State of Illinois with its renewed emphasis on high technology industry. To address these problems, the University proposes to implement special instructional programs in FY 1985 to improve the quality of mathematics instruction at the high school level and to provide academic enrichment for talented high school students. The proposed program for each campus contains elements which focus on the need to update teacher skills and to enhance the mathematical experiences of students.

Chicago Program -- ($120,000)

The Department of Mathematics, Statistics and Computer Science at Chicago proposes to develop an intensive program in computer science for high school teachers and students. The program will emphasize the improvement of problem-solving and computer programming skills and the application of general mathematical concepts.

The proposed two-week summer sessions for high school students will involve instruction in the LOGO computer language. The basic constructs of the language are simple and straightforward, but may be combined in more sophisticated ways to create complex commands. Mastery of LOGO assists in the development of skills in other areas which require analytical thinking such as expository writing, mathematics, and the natural and social sciences.

The program for teachers is a four quarter-hour credit graduate course which meets for a total of 40 hours over a four week period. Participants are trained in the teaching of problem-solving techniques and in the use of LOGO computer language for instruction. A portion of each course involves participation in the two-week student program whereby participants assist instructors in the microcomputer lab.

The Department also plans to use the microcomputer laboratory as a resource for Chicago area teachers throughout the year. Activities will include workshops for educators, a newsletter, and a software exchange for teachers, using software developed during lab workshops. Developments in microcomputer technology offer an opportunity to foster new teaching techniques and should lead to improvements in high school curricula and in teacher training.

The new intensive summer program would serve approximately 300 high school students and 30 teachers. The cost for a director for the program and for instructors is $55,000. The remaining $65,000 is needed to equip the microcomputer laboratory. The funds would purchase 20 microcomputers, 3 printers, a graphics tablet and software supplies.

Urbana-Champaign Program -- ($215,000)

The Department of Mathematics at Urbana-Champaign, in collaboration with mathematics specialists from the College of Education, proposes to implement special instructional programs in FY 1985 directed toward the following objectives:

1. to improve the quality of mathematics instruction at the high school level through a series of workshops and short courses for high school counselors and mathematics teachers, and

2. to provide challenging and stimulating educational opportunities for mathematically gifted high school students through special summer camp programs offered on the UIUC campus.

The short courses will focus on content and instruction of the advanced placement computer science curriculum in PASCAL, teaching of advanced placement calculus in the high school, and enrichment and problem solving in the high school program, including integration of computing techniques.

Funds will be required to install basic educational technology (e.g., video recorders and micro-Plato units and, eventually, electronic blackboards) in each of the University's five regional offices as a means of maintaining contact between teachers "in the field" and the University faculty. The technology could also be made available for other continuing educational enterprises in other school subjects.

The mathematics camps for gifted high school students will enrich the mathematical experience of the participants rather than accelerate their

progress through standard high school content. The students will be invited to participate in these camps on the basis of demonstrated ability and interest in mathematics. Full or partial camp scholarships will be provided to all participants, dependent on the availability of funds.

The FY 1985 State-supported budget for the Urbana-Champaign program is distributed as follows:

Academic Staff	
2.00 FTE Assistant Professors	$ 56,000
2.00 FTE Teaching Assistants	22,000
Wages	3,000
Expenses	
Commodities	6,000
Contractual Services	7,900
Food and Lodging for Workshop Participants	20,100
105 Student Scholarships for Summer Camps	50,000
Equipment	
Equipment for 5 regional centers	50,000
TOTAL	$ 215,000

All travel costs related to workshops and short courses for teachers will be paid by the participating high schools.

OFFICE FOR ADVANCED ENGINEERING STUDIES ($400,000)

The ability to attract and retain industry has a direct impact upon the economy of the State of Illinois. Universities and colleges can play a vital role by providing 1) a supply of qualified engineering and technology graduates, 2) a means by which practicing engineers can continually update their skills, and 3) an opportunity for industries to obtain technological advice and consultation, or to conduct research related to their specific needs.

To aid in the accomplishment of these goals, the Office for Advanced Engineering Studies (OAES) will offer four major programmatic components: 1) continuing professional education in engineering and related fields; 2) access to consultants with the expertise required by local businesses and industry; 3) collaborative efforts with industry, to solve industrial problems through research; and 4) technical assistance opportunities which are designed to update and/or upgrade the skills of community college faculty and the technical programs at those institutions. The OAES will have its headquarters in the Colleges of Engineering at Chicago and Urbana, but will operate through satellite facilities in communities with demonstrated needs in engineering education and research. The first such satellite office has been established in Rockford.

The continuing professional education component provides graduate level credit courses to practicing engineers in the area, principally through the use of the electronic blackboard, an electronic media delivery system. A teaching classroom already exists on the Urbana-Champaign campus and soon will be available on the Chicago campus. These teaching classrooms will be tied to "public site" receiving classrooms in Rockford and at the other satellite facilities. For graduate engineers, continuous updating of knowledge and skills in more limited areas is also important. To meet this critical need, OAES will offer non-credit programs addressing specific, identifiable needs of area engineers.

Easy access to engineering consultants requires the emplacement of a terminal connected to the statewide faculty resources system (FRATS) under development at the University of Illinois. The system will contain detailed data on the expertise of individual members of the faculty in the Colleges of Engineering at Chicago and Urbana. Access to the system will facilitate the location of faculty consultants needed to assist with immediate problems faced by local industry.

The third component of OAES concerns the development of research related to the needs of Illinois industry. The University of Illinois and business and industry in the Rockford area are working cooperatively to identify research programs necessary to improve and enhance the competitive position of Illinois industries. The availability of such research efforts may lead to the introduction of new industry into the State, a positive factor in bringing new life to a hard-hit economy. Similar cooperative efforts will be developed at each site.

The knowledge base of faculty who teach in technology programs at the community college level can become quickly outdated in fast-moving technical fields. The results of out-of-date instruction can be deleterious, not only for the student, but for the employer as well. Summer institutes will be offered for community college instructors, taught by faculty of the University of Illinois. These institutes will focus upon content jointly determined by faculty of the University and the participating community colleges.

In the FY 1984 budget, $250,000 has been allocated to the OAES pilot project in Rockford. Additional sites may be established in Decatur, the Quad Cities, Schaumburg, and Peoria. Each location will require 1) a professional staff person to serve as the liaison between business/industry and the University, 2) appropriate clerical support, and 3) general office and travel expenses.

PRINCIPAL'S SCHOLARS PROGRAM
($80,000)

Historically, most minority students have not enrolled in sufficient science and mathematics courses to prepare them for college admission to professional programs that require such an academic background. As a result, the post-secondary choices of these students have been limited. Seven years ago the Principal's Scholars Program (PSP) was initiated at UIUC, with the cooperation of the Ada S. McKinley Educational Services Agency, to address this problem.

The Principal's Scholars Program is now operating in eighteen high schools in Chicago, three in Decatur, three in Urbana-Champaign, and two in East St. Louis. More than 2,000 students and their families are actively participating in the Program.

The Principal's Scholars Program is essentially a recognition program for minority students in college preparatory programs. To be successful in any school, the program must have the full endorsement of the principal, who is expected to take administrative control of the Program. If the proper relationship is developed, the high school principal becomes central in providing support for the program.

The principals and staff members of the various schools select students to participate in the Program. They attempt to identify these students as early as possible (eighth or ninth grade), so that they can enroll in the proper courses. Students are selected on the basis of such factors as grades, aptitude tests and parental interest. Usually, the Program is limited to 200 students per high school with 50 students coming from each class of freshmen, sophomores, juniors and seniors. Other students who are not selected can elect to become candidates for the Program, and they are allowed to participate in all of the spcial events sponsored by the Program.

University personnel coordinate monthly motivational programs for the students, conduct teacher and counselor enrichment workshops, and provide evaluation and course improvement assistance. They also help provide students with special extra-curricular experiences: science fairs, speech contests, writing contests, mathematics contests, industrial visits, career counseling, visits to the campus, and an academic summer program at UIUC.

The success of the Program is evidenced by the subsequent academic achievements of the students. When the Principal's Scholars Program was initiated, the average composite ACT score of the participants was 14. The average score has now increased to more than 22. A high percentage of PSP students have gone on to college. Many of the students are progressing in engineering, science, business, and agriculture programs.

Personnel from the Chancellor's Office, the Office of the Vice Chancellor for Academic Affairs, the Office of Admissions and Records and numerous colleges--Agriculture, Applied Life Studies, Commerce and Business Administration, Engineering, and Liberal Arts and Sciences--volunteer their time and effort in assisting with various aspects of the Program. They are joined by a number of representatives from businesses, firms, and organizations throughout the State that contribute funds to the Program.

State funds are requested 1) to provide permanent funding for current full-time staff, 2) to hire two additional academic professionals and a graduate assistant, 3) to expand and establish fully the summer academic program at UIUC, and 4) to introduce the program in other high schools throughout the State. The University has been approached by several inner-city Chicago schools which are seeking participation in the program. Expansion to schools in Danville, Peoria, Springfield, Rockford and the Quad Cities is also possible.

The program's goals cannot be met without additional funding and permanent staff. At the same time, however, the program will continue to seek a major portion of its financial and volunteer support from sources outside the University.

The proposed State-funded budget for FY 1985 is outlined below:

Academic Staff	
3.00 FTE Academic Professionals	$ 57,000
.50 FTE Graduate Assistant	6,000
Nonacademic Staff	
1.00 FTE Secretary	10,000
EXPENSES	
Commodities	4,000
Travel	3,000
TOTAL	$ 80,000

JOINT INDUSTRY - UNIVERSITY SPONSORSHIP OF RESEARCH AND DEVELOPMENT ($500,000)

The State of Illinois must regain its competitive edge in business and industry if the State's economy is to rebound fully during the remainder of the 1980's. Research and development projects jointly devised by University faculty and Illinois businesses and industries can aid in this process. Projects under this proposal would aim at the development of new concepts applicable to the development of products or business practices several years in the future. That is, priority would not be given to pure research or to the immediate development of a new product or process. The former is generally not the province of funding by business and industry and the latter is usually not undertaken by universities. As a result, there exists a pronounced gap in the funding of what might be termed "mid-range" research and development activities -- those projects whose incubation time is too long to attract commercial funding, but which are aimed ultimately at enhancing industrial or commercial development and are thus not purely research.

It is proposed that the University receive $500,000 in State funds in FY 1985, to be matched by a like amount from Illinois businesses and industries. Faculty members would work with Illinois firms to develop research grant proposals. One-half of the funds requested in each proposal would come from the firm itself; the other half would come from the State allotment for this purpose. Grant proposals would be competitive and awards would be made on the basis of the quality and originality of the research, adequacy of the facilities in which the work would be done, potential for economic development in the State, and reasonableness of the budget.

In order to distinguish this grant program from the usual contract work done under business or industrial sponsorship, any patentable or copyrightable results would be the sole property of the University, though licensing arrangements with sponsors could be negotiated.

MEETING CHANGING HEALTH CARE NEEDS

VETERINARY MEDICINE
($400,000)

The College of Veterinary Medicine has been expanding and improving its programs over the past half decade through the acquisition of new facilities, faculty and other operational support. Goals to expand and enhance the programs of the College were established in 1977 and have been updated and reemphasized each year. Progress toward these goals has been made but a major imbalance exists between the acquisition of new and improved facilities and the availability of operating funds to expand the professional veterinary education programs.

The College has increased the number of workshops, seminars, and other opportunities for continuing education for the citizens of the State in recent years. The College is the primary, and in many instances, the only agency in Illinois with the practical potential to address problems relating to specific infectious and noninfectious diseases and conditions of food animals, companion animals, and wildlife. The College is also in a unique position to exchange information at the national level with other veterinary colleges in order to alleviate animal disease problems for Illinois livestock as rapidly as possible. Such exchanges demand a coordinated interaction involving animal disease diagnostic and research programs.

The College provides many benefits to various organizations and to the citizens of Illinois. The College maintains one of three animal disease diagnostic laboratories in Illinois. The other two laboratories provide only diagnostic service. The College's program combines public service with research and graduate education in the development of new and improved diagnostic techniques for a wide variety of disease prevention studies. UIUC has the only Diagnostic Laboratory in the State in which every senior pathologist is Board Certified by the American College of Verterinary Pathologists.

Other primary service obligations of the College involve the care of animals in the Veterinary Medicine Teaching Hospital. The College serves as the primary referral hospital in Illinois for general practitioners. The hospital is equipped for in-depth clinical work up and evaluations that

cannot be routinely performed in local practices. The College also provides continuing professional education for many veterinarians throughout the State.

The College is expanding its efforts in biotechnology by utilizing hybridoma-monoclonal antibody, genetic engineering and other biochemical techniques in its animal disease research programs. Significant new programs utilizing bioengineering procedures are being added to the College's research efforts to study pseudorabies in swine and hemotropic diseases in cattle and humans. Comparative medical research applicable to humans and to domestic animals continues to be a significant aspect of the College's research efforts. Predictive toxicology and studies involving the digestive, respiratory, and reproductive systems, as well as the immunology of disease resistance, will receive major emphasis.

Diseases still result in significant losses in the food animal industries. The recognized development of a world food crisis and increased energy costs are playing major roles in the demand for expanded agricultural productivity in Illinois and the nation. Almost all national food animal commodity groups have identified a need for research on food animal diseases as their top funding priority. Conservative estimates indicate that if infectious and non-infectious disease problems could be eliminated, an approximate 20% gain in the production of food animals would result. With an economic problem of that magnitude, the elimination of even a single disease in swine, cattle or other livestock would provide multimillion dollar savings for Illinois livestock producers. Approximately 90% of the College's research programs have either direct or indirect application to the elimination of animal diseases. A full understanding of many of those disease processes, however, requires a basic understanding of physiological and pathological processes, protective mechanisms of the host animals, and biochemical and molecular understanding of the infectious agents.

The College requires funds in FY 1985 to continue expansion of research programs in food animal diseases and of educational programs dealing with integrated food animal production systems. Academic staff are needed to complement existing strengths in those areas of specialization. Additional support is also necessary to enhance educational programs in locations around the State where major livestock operations are situated. The study

of management, housing, nutrition and disease prevention as interdependent components in the profitable production of food animals is essential to the proper training of veterinary students.

The proposed freshman class size of 90 to 104 professional students is consistent with the demands for admission by Illinois residents and the projected professional and veterinary manpower needs. Major emphasis will be placed on specialty training at UIUC. A recent report on veterinary specialty needs from the National Research Council indicated a need to expand the training of veterinarians in a variety of biomedical disciplines and clinical specialties. High demand persists for individuals with postdoctoral training in specialties such as toxicology, pathology, microbiology, epidemiology, laboratory animal medicine and clinical medicine.

The need for individuals with postdoctoral training is addressed by the College's efforts to expand its graduate training and research programs. However, the shortages in some areas are dramatic and will continue for a number of years. The need, for example, for veterinary toxicologists is acute, with approximately 1,000 openings currently available in industrial, governmental, and academic programs. The College's toxicology program, which is one of the strongest in the country, currently has eight DVM postgraduate trainees.

The FY 1985 request represents an initial step in the College's multi-year plan to support the programmatic improvements needed to address these Statewide and national concerns.

The funds requested for FY 1985 are budgeted in the following manner:

Academic Staff	
2.00 FTE Assistant Professors	$ 80,000
2.00 FTE Academic Professionals	48,000
8.00 FTE Teaching Associates	128,000
Nonacademic Staff	
6.00 FTE Technical Support Positions	111,000
Expenses	
Commodities	28,000
Contractual Services	5,000
TOTAL	$400,000

HEALTH CARE FOR THE AGED
($520,000)

Health care needs of the aged are best investigated by interdisciplinary research teams able to understand the complex physical, physiological and social disabilities of the aged. Colleges of the Health Sciences Center have been collaborating to develop a curriculum in clinical geriatrics and to develop research proposals for the study of various aspects of the process of aging.

For example, the Colleges of Medicine and Nursing have together developed affiliation agreements with the Barr Pavilion, a nursing home facility owned and operated by the Illinois Masonic Hospital, one of the six metropolitan Chicago community hospitals affiliated with the College of Medicine. Under the agreement, the College of Nursing has developed, in cooperation with Masonic Hospital, a clinical training program in gerontology for nursing students and faculty. Faculty of the College hold positions in the Barr Pavilion, and they are able to teach and supervise nursing students as they care for the patients in the facility. Similarly, the College of Medicine is now working with the Illinois Masonic Hospital to develop a clinical component in gerontology for undergraduate medical students. Presently, a faculty member of the College assists the Barr Pavilion two mornings a week in designing a clinical geriatrics curriculum for medical students. The Colleges of Medicine and Nursing also are discussing plans to establish a clinical program in gerontology with a "for profit" nursing home group.

The specific plans for several colleges to expand participation in the interdisciplinary program are described below.

College of Medicine - $200,000

Funds are requested to support the development of research and clinical activities in gerontology and to design the undergraduate and graduate curricula to include the study of the problems of aging.

Although faculty of the College of Medicine have been engaged in the development of clinical affiliations and specific research proposals focusing on health care problems of the aged, new faculty are needed to

develop the study of geriatrics as an integral part of the undergraduate medical curriculum. The College's Committee on Instruction recently adopted geriatric medicine as an instructional objective. The College plans to recruit and employ 1.0 FTE faculty in the basic sciences who has specialized in the study of the biology of aging. This faculty member will develop the biology of aging as a major component in the basic science curriculum. Two other faculty are required to develop the clinical components of the geriatrics curriculum, one with specialized training and experience in geriatric medicine and the other in the field of clinical pharmacology. The additional faculty will be expected to play lead roles in the geriatrics instructional programs, to be actively engaged in research on the special health care problems of the elderly, and to participate in clinical practice with elderly patients.

College of Nursing - $150,000

Funds are requested to develop research and educational programs on the care of the elderly and to support a clinical training program in gerontology for nursing students and faculty. The College of Nursing will need to hire two full-time clinical faculty, two graduate teaching assistants and support staff for this purpose. In addition, the College will seek to hire a nationally known and respected professor of senior rank to do further curriculum design and to develop the research possibilities associated with these new initiatives in gerontology.

College of Associated Health Professions - $70,000

A program to provide nutritional and therapeutic services to the aged provides a nucleus around which faculty can perform research and conduct teaching into better care of the aged. Students will receive clinical experiences in nursing homes, day hospitals and private homes of the elderly. Funds are requested to strengthen and expand these programs.

The Occupational Therapy curriculum has included components on the theory, assessment and treatment techniques for the elderly. To strengthen the curriculum, the College requires funds to add 1.0 FTE faculty with special training and interest in gerontology.

The Department of Nutrition and Medical Dietetics has expanded its curriculum to include didactic study of the special nutritional needs of the

elderly, however, insufficient funds are available to develop clinical experiences for students. The Department needs an additional faculty member with the appropriate expertise to develop this component of the clinical curriculum.

College of Dentistry - $100,000

To improve the responsiveness of practicing dentists to the special dental problems of the elderly, the College plans to mandate the study of geriatric dentistry for all fourth year dental students. To accomplish the planned curriculum change, the College must hire additional faculty who have special interest and training in geriatric dentistry. The additional faculty would plan the curriculum, train existing faculty and develop fully the existing patient care programs.

COLLEGE OF MEDICINE AT URBANA-CHAMPAIGN
($250,000)

Since 1978 the Urbana-Champaign program has contributed between 12 and 30 students per year to the graduating class of the College of Medicine. At the same time, clinical education at Urbana-Champaign has permitted the development of the nationally recognized Medical Scholars Program. This unique effort links medical education to the exceptional academic resources of the Urbana-Champaign campus by allowing academically superior medical students to enroll in fields such as law, economics, accounting, business administration, history, physics, and electrical engineering.

Students who wish to enroll in the Medical Scholars Program must apply and be accepted by both the College of Medicine and the college in which the second field of study is located. Students accepted and enrolled in the Medical Scholars Program generally require from six to eight years to complete the degree requirements for both fields of study. After the first two years of medical education, each student develops individualized plans of study in cooperation with the faculty of the two colleges.

Because the national mandate regarding medical education has changed and because Federal and State support for expanding medical education programs has been discontinued, the College does not have adequate financial resources to support programs at the four geographical locations (Chicago, Peoria, Rockford and Urbana-Champaign). The least developed of the four sites, Urbana-Champaign, holds great promise as a result of the success achieved by the Medical Scholars Program, but full program potential cannot be accomplished unless adequate funding is obtained. The lack of adequate funding support was an observation of an accreditation team from the Liaison Committee on Medical Education which visited all locations of the College in April, 1983. The accreditation team observed that the College of Medicine at Urbana-Champaign should recruit a core complement of full-time faculty to provide coordination and direction for the clinical training program.

In response to accreditation recommendations, the College of Medicine at Urbana-Champaign requests State funds in FY 1985 to recruit additional full-time academic faculty in conjunction with Carle Foundation Hospital and Mercy Hospital, the major teaching affiliates in Urbana. These core faculty

will coordinate the further development of the clinical program by establishing a Department of Clinical Sciences with divisions of internal medicine, surgery, pediatrics, psychiatry, and obstetrics/gynecology. The Department will provide academic leadership for the practicing physicians who teach in the program and will organize the curriculum for major instructional sites at Carle Foundation Hospital, Mercy Hospital and the Danville Veterans Administration Medical Center.

COLLEGE OF NURSING AT URBANA-CHAMPAIGN
($200,000)

Throughout its history, the College of Nursing has strived to be responsive to the needs of the State of Illinois for nurses and to the needs of professional nurses for further education which would assist them to meet new and changing career roles. In recent years, as the number of nurses prepared for leadership roles has become a nation-wide concern in the optimum delivery of health care, faculty of the College of Nursing have recognized the need to develop a system of nursing education that would be more responsive to nursing professionals and institutions within the State.

In 1982 a new masters program in adult health nursing was approved for the College of Nursing by the Illinois Board of Higher Education. The program was planned and started at Urbana-Champaign with a three-year Federal grant. The final year of Federal grant support will be FY 1984; therefore, new State funds will be required to provide continuous support for the program in FY 1985 and beyond.

An extensive review of nurse staffing needs in Illinois revealed that the Urbana-Champaign area has the greatest unmet need for nurses with graduate level training. The health care institutions in the area have indicated strong support for the development of the masters program due to the shortage of nurses with sufficient training to move into supervisory and administrative positions.

The masters program is designed to prepare nurses for careers in hospitals, nursing homes, clinics and individual homes. Students who complete the program will be exposed to clinical experiences in a variety of health care settings in the Urbana-Champaign area, an area with a rich, diverse base of health care environments.

As with any new program, development plans for the masters program are being adjusted to reflect actual operating experiences. The original plan envisioned predominant attendance by part-time students. Experience to date has shown a higher than anticipated student preference to enroll full-time. Accordingly, the College has revised enrollment estimates and faculty recruitment plans. Another required adjustment has been the need to revise salary estimates. The competition for scarce nursing faculty with doctoral

preparation has increased estimated faculty costs by approximately $5,000 per FTE.

Plans now call for an eventual enrollment of 30 students, or approximately 20 full-time-equivalents. New State funds will be required to provide continuous support for the program in FY 1985 and beyond. FY 1985 resource requirements of $200,000 will support 4.0 to 5.0 FTE faculty and 1.0 FTE graduate assistants.

RURAL MEDICINE
($250,000)

The establishment of regional clinical schools of medicine within the University of Illinois College of Medicine was in part predicated on the need to reach the underserved rural population of Illinois. While the College has been partially successful in this effort, many of the more rural parts of Illinois remain underserved. For example, while there has been a 35% increase in the number of physicians in Health Service Area (HSA) 1, virtually all of the increase has occurred in the population cluster of Winnebago County.

Several elements set rural practitioners apart from their urban counterparts: the rural physician must know the occupational and environmental roots of agricultural health problems; they must keep abreast of emerging agricultural technologies and related health problems; and they must be interested in the total patient and become involved in community life. The University of Illinois College of Medicine at Rockford proposes to initiate an intensive teaching program for fourth year medical students and family practice and internal medicine residents which focuses on these special aspects of rural medicine. In addition, the faculty hired to teach in this program will conduct epidemiological, toxicological, and sociological studies that are relevant to the rural area in and around HSA 1.

It is expected that the new faculty would develop working relationships with faculty in the School of Public Health in Chicago, and faculty in the College of Veterinary Medicine in Urbana. With these faculty resources, the College plans to develop a profile on the rural health problems common to the Rockford agricultural area. The profile will become an integral part of the rural medicine component of the medical education curriculum.

In the first year, $180,000 will be required for faculty and technical support staff. The new faculty will include a veterinary pathologist, an epidemiologist and a community physician. An additional $70,000 will be required for expense and equipment. The program itself will be accommodated in existing facilities.

ACADEMIC SUPPORT FOR MINORITY STUDENTS IN THE HEALTH PROFESSIONS ($285,000)

The goal of this program is to provide academic enrichment and motivational support to minority students (Blacks, Hispanics and American Indians) who plan to enroll in pre-professional health science programs at the University of Illinois at Urbana-Champaign (UIUC) and then apply for admission to the University of Illinois at Chicago-Health Sciences Center (UIC-HSC).

The program will build on a number of existing programs in place at UIC-HSC and at UIUC that have been developed to support minority students. The underlying assumption is that if the number of successful students in the premedical and other health-related programs at UIUC can be increased, then minority enrollment at the Health Sciences Center will also increase, helping to meet the mandate to train minority physicians and other health-related personnel for the State.

The project will consist of four components: (1) a high school component that will provide a six-week summer academic enrichment program for participants on the UIUC campus, (2) a premedicine program for minority students enrolled at UIUC, (3) strengthening outreach services to the Chicago community, and (4) enhancing recruitment programs of the Colleges of Medicine at Chicago, Urbana, Rockford and Peoria.

The Chicago Program -- ($125,000)

The College of Medicine at the Health Sciences Center is requesting funds to strengthen University/community outreach through special workshops aimed at increasing the awareness of minority high school students about careers in the health professions. In addition, counselors would be made available to assist students in identifying the educational preparation required to enter health professions programs in general and, more specifically, to gain admittance to the preprofessional program at Urbana-Champaign.

The second part of the Chicago program proposal is to add Urban Health Program coordinators to the Colleges of Medicine at Urbana, Rockford, and Peoria to assist the College in developing a larger minority applicant pool for the regional programs.

The FY 1985 budget request to support these activities is outlined below.

Strengthening University-Community Outreach:	$ 60,000
Establishing Forming Linkages among the Colleges of Medicine at Chicago, Urbana, Rockford and Peoria:	45,000
Provide Faculty Support for Summer Program for Undergraduate Pre-Professional and College of Medicine Students:	20,000
Total	$125,000

Urbana-Champaign Program -- ($160,000)

Minority high school students attending the six-week summer program at UIUC will participate in an intensive academic enrichment program emphasizing communication skills, library skills, mathematics and science. Students will be introduced to the premedical and other health-related curricula, will learn more about the various career opportunities in the medical sciences and will be informed of the academic support services available to UIUC students.

Once minority students are actually enrolled in preprofessional allied health and medical science programs at UIUC, special efforts will be made to aid their success in academic endeavors through academic advising and counseling services. Among the various services and activities to be provided for preprofessional students are individualized diagnostic assessment of the students' academic needs; tutorial support for English, mathematics and science courses; preparation for the MCAT examination; and the development of a direct pipeline to the thirty Summer Academic Advancement Programs that have been established across the country for minority students in the health sciences.

Resource requirements of the six-week summer program for high school students include the funding of counselors and instructors and the provision of room and board and other support costs for the 100 student participants. The FY 1985 budget for the premedicine component of the Urbana-Champaign program includes funds for a program director, academic and nonacademic support personnel and general expenses.

IMPROVING ACCESS TO PROGRAMS AND SUPPORT SERVICES

GRADUATE STUDENT SUPPORT
($616,000)

The University of Illinois fellowship programs are designed to attract exceptional students and to provide them with an opportunity to concentrate their efforts on education. The quality of a graduate institution is in many respects determined by the quality of its students. With a strong fellowship program, the University can attract and retain top quality graduate students, thereby helping to create a stimulating intellectual environment benefiting both faculty and students. The FY 1985 budget request includes funds to permit academic departments at both campuses to remain competitive with peer institutions through a strong financial aid program.

Chicago Programs ($316,000)

The University provides a variety of financial aid packages to graduate students, including teaching and research assistantships, and tuition and fee waivers. However, these forms of financial support are relatively limited. Teaching and research assistantships are available only in certain fields of study and in limited numbers. Tuition and fee waivers generally do not provide sufficient support for most students. As Federal support for graduate students continues to decline, the University must seek other fiscal sources in order to recruit the best graduate students.

Stipends for graduate fellowships at the Health Sciences Center have not been increased in three years. The current stipend of $5,040 per year is smaller than the stipend paid by comparable health education institutions in Chicago and is below the level of stipends paid to graduate students in other non-health disciplines. Students often must seek part-time employment to support themselves. As a minimum goal in FY 1985, the Health Sciences Center requests incremental funds to increase the basic fellowship stipend from $5,040 to $7,500 per year and to increase the total number of fellowships by five additional appointments.

In FY 1983 the Graduate College awarded 15 competitive fellowships to graduate students who showed promise as scholars in the basic sciences. In FY 1984 the College proposed to raise the basic stipend from $5,040 to $6,500 by reducing the number of fellowships to 12. The FY 1985 total required to raise the 12 fellowships to $7,500 each is $12,000. The

additional eight fellowships in FY 1985 will cost $60,000. This number will restore the lost fellowships and will enable the Graduate College to support additional graduate students in new areas of study.

The Health Sciences Center also seeks to increase teaching assistants' support to $7,500 per student. The estimated FY 1985 need of $104,000 will supplement existing reallocated resources.

New funds of $40,000 are requested to enhance the level of special support available to graduate students who show significant promise as future scholars in the basic medical sciences.

At the University Center, graduate programs have grown dramatically in size and prestige over the past ten years but support for fellowships has not kept pace. New funds in FY 1984 allowed the Graduate College to raise the average stipend to a little over $5,000. By comparison, external stipends to graduate students from the National Science Foundation ranged from $6,000 to $7,000 in FY 1983. The FY 1985 request of $100,000 for the University Center includes funding to provide approximately 12 additional fellowships and to increase fellowship stipends to a more competitive rate.

Urbana-Champaign Programs ($300,000)

Financial aid funds have been instrumental in the Graduate College's successful efforts to promote diversity in the graduate student body and to provide opportunities for graduate education to underrepresented racial and ethnic minority groups. Both the size and number of the fellowship stipends, however, have limited the Graduate College's achievements in this area. Although graduate enrollments of some racial minorities have stabilized or even increased, black graduate student enrollment has decreased since 1974. While sociological factors external to the University have contributed to this decline, it is also partly attributable to the inability of the Graduate College to offer qualified minority students an attractive financial aid package.

The competitive position of the University fellowship programs has declined seriously in the past fifteen years. Since the development of the post-Sputnik Federal fellowship programs (most of which have subsequently disappeared), UIUC fellowship programs have been financed in part by State funds and in part by Federal cost-of-education allowances. While the former have increased from $400,000 in the mid-sixties to $746,000 at present,

cost-of-education allowances in the same period have decreased from $1,400,000 to $138,000.

To stabilize the base for graduate student financial aid programs, funds are requested in FY 1985 to free the minority fellowships from dependence on moribund cost-of-education funds and to increase departmental allocations by an average of 23%. An additional amount will be requested in FY 1986 to firmly reestablish a competitive position for the fellowship program.

COLLEGE OF LAW
($200,000)

The three principal goals of the College of Law are:

1. to maintain and to strengthen the excellence of its program through the recruitment of faculty members of the highest quality and to achieve student/faculty ratios comparable with those in existence at peer law colleges in the nation;
2. to be responsive to the rapid developments in the law through the introduction of additional courses in areas of national concern; and
3. to introduce additional interdisciplinary work into the law curriculum and to respond to the needs of other academic units on campus that seek to introduce law components into their instructional and research programs.

The trend in legal education has been toward smaller class sizes in problem-oriented courses such as estate planning, business planning and closely supervised instruction in trial advocacy and in clinical education, legal ethics, and labor negotiations. The requested funds will allow the College to reduce its class sizes and to move toward its goal of achieving a more competitive and educationally sound student/faculty ratio.

Even though the student body has been kept small by the application of very high admissions standards, the College still does not have sufficient faculty to meet the academic needs of that enrollment. With a total of 29 FTE faculty positions, the student/faculty ratio at the College of Law is 22.4/1, well above the faculty student ratios at most other law schools of comparable size and quality. Northwestern has 33 faculty for 570 students, a ratio of 17.2/1; Stanford has 37 faculty for 508 students, a ratio of 13.7/1; Iowa has 34 faculty for 633 students, a ratio of 18.6/1; and Duke has 26 faculty for 541 students, a ratio of 20.8/1.

An excellent law school must also be able to offer instruction in emerging specializations. Such fields as legal management of resources and energy, deferred compensation, corporate finance and securities law, labor law and negotiation, real estate financing, and taxation of international transactions are current examples of new areas of concentration. The College must also be able to respond to requests from fellow faculty members across the campus who require assistance in establishing joint degrees such

as the J.D./M.B.A., J.D./M.S. in Urban and Regional Planning, the J.D./M.Ed. in Education, the J.D./Ph.D. in Education, the J.D./A.M. in Labor and Industrial Relations, the J.D./M.A.S. (Master of Accounting Science), the J.D./M.A. in Public Administration, and the J.D./M.D. The College should also be able to release faculty time for teaching of law-related courses in other academic units. In addition, new interdisciplinary courses are needed within the College in such areas as economics, medicine, drugs, psychiatry and legal history. The present staffing level of the College does not permit the faculty to address these needs because of the basic demands to maintain the core curriculum.

Unfortunately, between FY 1980 and FY 1984, fourteen outstanding faculty members left the College. Although they have now been partially replaced, the College continues to face extreme pressures in the retention of its excellent faculty and in the recruitment of beginning teachers of the highest quality. Salary levels which are no longer competitive have contributed to the exodus experienced in the College of Law, but heavy teaching loads and inability to include more courses in the curriculum and to adopt new approaches in law instruction have probably been even more important factors.

The College of Law has been seriously underfunded in its operating budget for the last decade. The College ranks last in the Big Ten and thirty-seventh nationally in total funds expended per FTE student. These deficiencies threaten its position among the nation's leading law schools. An urgent need exists for adequate funding for secretarial and technical services, facilities for increased in-house production of teaching materials and for the video-taping of student performances in trial advocacy and negotiation courses. Expense funds will also be required to support the requirements of the new personnel that will be hired.

If the goals of the College of Law are to be met, an incremental amount of $387,500 will have to be added to its budget over the next two years. The FY 1985 portion of this request, $200,000, will be used to employ 4.0 FTE assistant professors, 2.0 FTE graduate assistants, 2.0 FTE nonacademic support staff and associated general expenses.

SCHOOL OF ARCHITECTURE
($75,000)

The Master's program in Architecture at the University Center began in Fall 1976, but spatial and budgetary constraints limited the number of program options that were offered until Fall 1981. Realignment of space and internal reallocation of funds enabled the School to offer all three basic program options that year. Enrollment pressures are expected to continue, particularly as the quality of the program and the staff gains greater recognition. Graduates of the Architecture program are working with some of the most prestigious architectural firms in Chicago.

Current funds allow the School of Architecture to serve a maximum of 100 graduate students in its two-year program. For Fall 1983, 158 first-year students have applied to the program, but only 68 have been admitted. The School has denied admission to some highly qualified applicants due to limitations of faculty size, physical space, and support resources.

The table below illustrates the overall decline in State funds per FTE student and the increase in the student/faculty ratio since the inception of the Master's program.

School of Architecture
Summary Data

	Fall 1976	Fall 1979	Fall 1982
Budget Expenditure per FTE Student	$2,205	$1,870	$2,091
Student/Faculty Ratio	10.42	13.10	14.53

Expenditures per FTE student have increased somewhat since FY 1980 (Fall 1979); however, the current average remains below the FY 1977 level. Given the intensive nature of the Architecture program and the personal attention required for each student's projects, the increase in the student/faculty ratio is also a serious problem.

The FY 1985 request would provide funding for an additional 3.0 FTE faculty. An eventual enrollment increase of 20 to 25 students in the graduate program is anticipated--with total enrollments stabilizing at that level--as the three Architecture program options become fully operational.

LANGUAGE LEARNING LABORATORY
($84,000)

The Language Learning Laboratory (LLL) at UIUC has the dual mission of providing both instructional and research support for the departments within the School of Humanities. In recent years it has become evident that much of the audio and video equipment at LLL has become obsolete and that the life of the existing PLATO terminals is limited. In addition, the LLL has been able to acquire only four microcomputers to accommodate the proliferation of microcomputing techniques applicable to language instruction. As a result, faculty in the School of Humanities cannot be provided with the equipment needed to compete effectively on a national basis for research and development grants and to maintain their position of national prominence in the area of computer-based language instruction. Graduates from the School of Humanities require expertise in the use of microcomputers to support new methods of language instruction in the nation's schools and in language research. If the Language Learning Laboratory is unable to upgrade its technology, it will become less effective as a research and instructional support unit.

In its support role, LLL serves more than 10,000 students and faculty each semester in a wide variety of language courses as well as in courses provided by the Division of English as a Second Language, the Department of Linguistics, the Rhetoric Division, and the Department of Speech Communications. Most of the equipment used to deliver this instructional support dates to--or predates--the opening of the Foreign Languages Building in 1974. Since that time no funds have been made available to modernize outdated equipment.

The Language Learning Laboratory's 80-terminal PLATO IV site delivers 100,000 hours of computer-based instruction each year; however, the Plato IV configuration is approaching obsolescence, and LLL will be compelled to shift to PLATO cluster systems or comparable technology. The fifty-five random-access audio units attached to the PLATO IV terminals are completely outdated and must also be replaced. The general deterioration of equipment is occurring at a time of increasing enrollment in the language departments and, hence, increasing demand for LLL services.

Rapid growth has occurred in the development of microcomputing techniques applicable to language instruction, linguistics, and humanities scholarship. Growing interest in foreign language courses for specialized needs, such as business, engineering and agriculture, has increased the demand for a wide variety of audio-visual materials from foreign countries that are profession-specific. Students and faculty must have ample access to microcomputers if they are to remain at the forefront of their chosen fields.

The demand for microcomputer resources is expected to continue to grow for the foreseeable future. A sizable microcomputer laboratory large enough to accommodate a full section of students (25-30 individuals), is required to meet these needs. In addition, such a facility would allow LLL to sponsor special courses and workshops on computer-based language instruction for primary and secondary school teachers, a development urged by the Illinois State Board of Education.

The proliferation of microcomputers throughout the country has created intense demand for language teaching software. Because of its national prominence in the area of PLATO-based language instruction, LLL is well-suited to take the lead in this area. Efforts are underway to construct a major research program centered on materials development, particularly microvideo materials, and on instructional techniques and strategies. External funds are available to support program development activities but funds have not been provided to purchase essential equipment. Nonrecurring state funds will be available for the purchase of a limited number of microcomputers in FY 1984, but more equipment will be needed in FY 1985.

Additional personnel will be needed to provide the augmented services resulting from new equipment acquisitions. The microcomputer laboratory will require a manager responsible for software maintenance and technical consulting. Student monitors will be needed to secure the room and to advise users. The development of foreign video materials and of video-computer interactive materials will require a video assistant. Additional academic staff support and clerical staff will be needed to handle the projected demands and new developments.

The estimated FY 1985 state-funded budget for this project is outlined below.

	FY 1985
Academic Staff	
.33 FTE Project Coordinator/Research Associate	$ 6,000
2.33 FTE Graduate Assistants (microcomputer site management and monitoring)	28,000
Expense	
Contractual Maintenance Costs for Microcomputers	8,000
Networking for Microcomputers	20,000
Materials Related to Microcomputers	5,000
Equipment	
Microcomputers	17,000
TOTAL	$84,000

PUBLIC ADMINISTRATION
($179,000)

The State of Illinois and the nation have a growing need for competent, well-trained professionals in top administrative positions. The University of Illinois at Urbana-Champaign has a concrete, long-term interest in ensuring that the graduates of its training programs assume positions of leadership in public sector administration. If the University is to meet the challenge of providing such leadership, its teaching capacity must be expanded to permit the training of more students, to place students in appropriate internships and, ultimately, into professional positions. The Department of Political Sciences proposes to meet these needs by enhancing the Master of Arts in Public Administration (MAPA) program.

The MAPA program's visibility on and off campus has grown in recent years. A ranking of graduate programs in public administration and public policy listed Illinois in third place in terms of scholarly productivity. The program has made great strides in developing new curricula to meet the changing needs of students in the field of public sector management, such as the joint JD/MAPA program and the new MBA/MAPA degree program.

Future development, however, is constrained by limitations of staff size. Funding is requested in FY 1985 for a permanent program director and three new faculty members to fill critical positions in the following areas:

1. Public sector management (with emphasis on state and local government)

   Research and teaching interests: structure of state and local public sector management, stressing the legal, fiscal, and bureaucratic interaction of levels of government within the U.S. Federal system. Specific topics include aspects of overhead systems (legislation, rule-making, budgeting, personnel), intergovernmental relations, direct service delivery systems in the Federal context, organizational structure, fiscal and management control, productivity programs, quality control, public sector marketing, community involvement, and management of physical and economic development.

2. Operations analysis in public sector management

Research and teaching interests: application of social science-derived analytic methods to policy analysis and public sector decision-making. Methods will include cost-benefit analysis, discounting, simulation, and mathematical modeling with emphasis on their practical application to real-world problems in public sector management. Specific topics would include the design and interpretation of studies to provide empirical evidence for policy-making and policy evaluation.

3. Information systems in public sector management

Research and teaching interests: management information systems, which are playing an increasingly important role in public sector planning and policy determination. Particular attention will be paid to the basic characteristics of computer systems for storing and retrieving data, information system projects, the economics of information technology, and the organizational and behavioral effects of computer-based systems as agents of change and support for decisions.

The FY 1985 budget request to support the MAPA program is outlined below.

Academic Staff	
1.00 FTE Director	$ 42,000
3.00 FTE Assistant Professors	75,000
2.00 FTE Graduate Assistants	20,000
Nonacademic Staff	
2.00 FTE Secretaries	20,000
Wages	
Student Help	2,000
Expense	
Commodities	9,000
Telecommunications	2,000
Contractual Services	4,800
Travel	3,000
Equipment	1,200
TOTAL	$ 179,000

FISCAL MANAGEMENT IN GOVERNMENT
($190,000)

The Department of Accountancy at UIUC proposes a specialization in its Master of Accounting Science Program that would serve two complementary purposes:

1. to provide interested students with an expanded set of special courses in public-sector fiscal management, and
2. to provide technical, public-sector accounting courses to registrants in other graduate programs (e.g., Education, Leisure Studies, Library Science, Political Science, Public Administration, Social Work, and Urban and Regional Planning).

The courses developed for this program would expand the Department's capabilities to pursue related research and to offer continuing education programs for government employees who would benefit from training in fiscal management and accountability. The need for public-sector managers who are skilled in accounting and control will not be met in the foreseeable future unless adequate programs are developed to educate potential employees and to expand the financial accounting skills of current employees.

Existing courses and faculty within the Department of Accountancy can provide the nucleus for a program in fiscal management in government. Other course work would be offered by the Department of Business Administration, the Department of Economics, the Department of Political Science, and the Department of Urban and Regional Planning. With the addition of three critical specialists, the program can become fully functional. Funding is requested in FY 1985 to hire academic staff with expertise in public-sector accounting, governmental accounting theory, governmental planning and budgeting, and revenue raising and control.

The proposed FY 1985 budget for this program is apportioned as follows:

Academic Staff	
1.00 FTE Professor	$ 60,000
1.00 FTE Associate Professor	45,000
1.00 FTE Assistant Professor	36,000
1.25 FTE Research Assistants	15,000
Nonacademic Staff	
2.00 FTE Secretarial Staff	20,000
Expenses	14,000
TOTAL	$190,000

SPECIAL ENGINEERING PROGRAM
($6,000,000)

Introduction

The economic well-being of Illinois is dependent upon the State's ability to attract and retain high technology industry. The underlying objective to insure achievement of this goal is to provide industry with an adequate source of qualified engineering graduates. While Illinois has enjoyed an outstanding reputation for engineering education in its public universities, the twin crises of faculty shortages and outdated laboratories threaten the State's capacity to respond to the accelerated growth of high technology.

This mounting crisis is prevalent in engineering colleges all across the United States. Inadequate funding for faculty salaries and laboratory equipment has resulted in under-staffed and poorly-equipped schools. The American Council on Education has announced that more than 1,600 faculty positions in engineering--about 10% of all such positions at American universities--remain unfilled and could not be filled even if all of the doctoral students who graduated in 1981 had taken academic positions. According to the American Association of Engineering Societies, the rapid growth in undergraduate enrollment demand--an increase of 58% for the period of 1975-1980--has prompted many universities to limit their engineering enrollments and to question the quality of their programs because of faculty shortages.

Advancements in fields such as computer-aided design and computer-aided manufacturing, micro-electronics, robotics and other high technology areas have left many U.S. engineering schools behind the times in relation to current professional practice. A report by the Ad Hoc Working Group on Scientific Instrumentation of the National Research Council has stated that the result of equipment deficiencies and laboratory obsolescence is a well-documented and growing trend for experimental researchers to leave university laboratories for employment in industrial laboratories. This trend is usually attributed to the fact that higher salaries are paid in industry than in the universities. While this phenomenon does contribute to faculty shortages, strong private-sector employment incentives also arise

from the fact that industrial laboratories are often better equipped and that industry allocates a high proportion of its research budget to new instrumentation.

President Reagan's science advisor, George A. Keyworth II, met with more than 50 government, higher-education and industry leaders in New York in April 1982 to develop a plan to combat these problems. The recommendations of the participants called on universities to improve salaries for faculty members, to increase stipends for engineering graduate students, to develop programs in which graduate students can gain experience in industrial research, to increase spending on instructional and research equipment, to increase the numbers of faculty, and to increase research and instructional quality. Universities were asked to find creative ways for interested faculty and Ph.D. candidates to conduct research on subjects that might attract industrial involvement and expand collaborative, program-focused research with industry. The meeting participants also recommended that State and Federal governments increase their support of graduate students and research. States, especially, were seen as the key to providing the resources needed to create stimulating and competitive educational and research environments at the universities.

Some states, most notably in the Sun Belt region, have already taken steps to address the problems in their engineering schools. For example, the University of California system has instituted a differential salary scale for engineering professors. Florida's State Senate recommended a $5.8 million lump-sum appropriation to enhance state university engineering. North Carolina extended $24 million to five state universities for a micro-electronics center as a part of its efforts to upgrade engineering programs. It is apparent from these examples that the University of Illinois not only faces continued competition from peer institutions and from the private sector, but also must compete with institutions in states which are trying to build reputations for their engineering schools in order to attract high technology industry as well.

Enhancement of Engineering Programs at the University of Illinois

The College of Engineering at Urbana-Champaign is ranked among the top four engineering schools in the United States. The College has a key contribution to make in the State's efforts to strengthen its industrial base. Yet, in spite of its preeminence in the field, the UIUC College of Engineering is beset with serious problems which have accumulated over the past decade.

1. The instructional load of the College has increased by approximately 45% since Fall 1970, and the College is now severely understaffed.
2. Faculty and graduate assistants salaries are not competitive with those offered at peer institutions.
3. The College has been unable to purchase the modern equipment needed to remain abreast of technological changes that have taken place in industry.
4. Many of the facilities of the College have become outdated and inappropriate for modern research and instruction.

The College of Engineering at Chicago is also at a critical point in its development. The Engineering programs at the University Center are beginning to receive national recognition and the faculty has demonstrated its ability to attract substantial amounts of research funding. However, the College is experiencing the same problems of faculty shortages, increased student demand, and outdated laboratories as the Urbana-Champaign programs.

To address these problems, the University has developed a multi-year plan to support the systematic revitalization of engineering programs at the Chicago and Urbana-Champaign campuses. The principal objectives of this proposal are: (1) to enhance engineering faculty and graduate assistant salary levels to retain current faculty, and to aid in attracting top quality faculty and graduate students; (2) to add faculty to reduce student/faculty ratios so that enrollment levels may be maintained; (3) to replace outdated equipment; and (4) to modernize facilities. The key elements of the second phase request for FY 1985 are described below.

Salary and Staff Enhancement

The competition for excellent faculty has intensified in recent years due to the decline in the number of doctoral graduates electing academic careers and as a result of the attractive salaries offered to existing faculty by industry and by peer institutions. Salary enhancements are crucial if the University is to recruit new faculty and retain current professors with established records in research.

New funds are also needed to attract well-qualified graduate assistants. Current stipend levels average less than 30% of the average annual starting salary rates offered by industry. Several peer institutions have already begun to offer half-time stipends of $10,000 or more per year. To remain competitive in acquiring qualified graduate students, the colleges must increase the assistantship base.

As more and more Illinois students have sought admission to the engineering curriculum, enrollments have grown to the point where in FY 1981 the University ranked first nationwide with a total of approximately 2,000 engineering degrees conferred. The continued pressures to maintain high enrollment levels have resulted in increased faculty workloads. Using data from the Faculty Credit Hour Study, student/faculty ratios for the HEGIS discipline of Engineering at the Chicago and Urbana-Champaign campuses combined showed an increase of 25% from 1974 to FY 1981 for all student levels combined.

UNIVERSITY OF ILLINOIS
COLLEGES OF ENGINEERING
FACULTY/STUDENT RATIOS FY 1974-FY 1981

	Lower Division	Upper Division	Grad I	Grad II	Total
FY 1974	17.5	10.9	12.7	9.5	11.7
FY 1981	23.9	15.6	12.3	10.0	14.6
% Change	37%	43%	(3%)	5%	25%

To restore the student/faculty ratio to appropriate levels, additional faculty are required, along with a corresponding increase in technical and other support personnel. In total, some $6 million will be required to

restore appropriate staff levels for each college, with $1.25 million made available in FY 1984.

The FY 1984 allocation to the Special Engineering programs for salary enhancement and for increases in faculty and staff levels has begun to offset the basic funding shortages in this area. However, it was acknowledged in FY 1984 that the existing shortage of qualified doctoral graduates and technicians would not permit the recruitment of sufficient new faculty and staff in a single year. Additions will be implemented over a three-year period from FY 1984 to FY 1986. Studies now underway to compare University of Illinois engineering salaries with that of peer institutions suggest that a salary supplement will again be required in FY 1985 to insure that University of Illinois salaries become competitive with those at peer institutions.

Equipment Replacement

A key element of engineering education is student exposure to observation and measurement in the laboratory setting. The quality of the laboratory experience is directly related to the adequacy of the research equipment and instrumentation that is available. Over the past several years, the University has been unable to keep pace with the rising costs of increasingly sophisticated technical equipment. High priority must be given to laboratory modernization if the University is to sustain relevant instruction and research based on current technology. Up-to-date equipment would also make the engineering programs more attractive to highly qualified faculty and top graduate students.

The Association of Independent Engineering Colleges indicated in a 1978 study that the annual replacement cost of instructional engineering equipment averaged $1,500 per baccalaureate degree granted--a figure that corresponds to $3,000 per degree by FY 1984. The study was based on an average lifetime of approximately 6.5 years for instructional equipment. Using a similar obsolescence approach based on the more conservative estimate of an 8-year average lifetime for engineering equipment, the University equipment replacement needs were calculated at $1,250 per baccalaureate degree to provide adequate instructional equipment for

engineering students in FY 1984. With approximately 2,000 B.A. degrees conferred each year, the total annual equipment replacement need was estimated at $2,500,000 in FY 1984. Applying an anticipated price increase factor of 8%, the FY 1985 need becomes $2,700,000.

Prior to FY 1984, the equipment base for the Colleges of Engineering approximated $500,000. In FY 1984, an additional $500,000 was allotted to the Colleges for equipment replacement as a part of the Special Engineering Program allocation. To fund the remaining unmet need ($1,700,000), the requested increments are $900,000 in FY 1985 and $800,000 in FY 1986.

Facilities Remodeling

The Colleges of Engineering need modern and efficient space to support the high technology efforts of the University and the State. To attract new faculty in such emerging disciplines as computer-aided engineering, polymer and composite materials processing, robotics, and solar energy, adequate instructional and research laboratories specifically designed for these activities are needed. In addition, the realignment of several academic units on the Urbana-Champaign campus into improved and contiguous space would enhance departmental efficiency and professional interaction. The requested funds will permit the Colleges of Engineering to accommodate both the existing faculty and the additional personnel needed to maintain current enrollments and to increase research output.

The funds for this component of the request were derived using the method developed in the University's Space Realignment, Renewal and Replacement formula. The calculated remodeling needs for both campuses totaled approximately $1.5 million in FY 1984. Using the standard inflation rate of 9% per year for capital improvements, the FY 1985 projected need totals approximately $1.64 million. Since the FY 1984 budget allocation for Special Engineering includes $750,000 for remodeling, the Colleges require an additional $900,000 in FY 1985 to meet recurring remodeling needs. Campus shares of the remodeling request ($200,000 at Chicago and $700,000 at Urbana-Champaign) reflect the amounts generated by each campus under the SR^3 formula, less the Engineering remodeling allocation for each campus in FY 1984.

Total FY 1985 Program Requirement

The specific elements of the special engineering program and the distribution of the $6.0 million FY 1985 budget request are summarized below.

SPECIAL ENGINEERING PROGRAM
(Dollars in Thousands)

	Salary and Staff Enhancement	Equipment Replacement	Facilities Remodeling	Total
Chicago	$ 800.0	$300.0	$200.0	$1,300.0
Urbana-Champaign	3,400.0	600.0	700.0	4,700.0
Total	$4,200.0	$900.0	$900.0	$6,000.0

SPECIAL SERVICES/SPECIAL FUNDING COMPONENTS

SPECIAL SERVICES/FUNDING COMPONENTS

Budget requests for essential services provided by the University of Illinois are summarized in this section. These services are outside the University's core function of instruction. As such, the resource requirements of these services should not compete for educational funding. The FY 1985 request for funds to support these activities total $1,719,400. The specific programs requested in this section are outlined in Table 19.

Included in the special services request are County Board Matching Funds (UIUC), Cooperative Extension Service (UIUC), Fire Service Institute (CA), Real Estate Research (UIUC), and the Division of Services for Crippled Children (UIC-HSC). The Cooperative Extension Service request consists of four distinct programs -- Soil and Water Conservation, Economic Development in Southern Illinois, Veterinary Medicine Diagnostic Laboratory, and Farming in the Computer Age -- which, nonetheless, share the same commitment to improving the State's economy and quality of life.

TABLE 19
FY 1985 SPECIAL SERVICES/FUNDING REQUESTS
(Dollars in Thousands)

A.	County Board Matching Funds		$ 290.0
B.	Cooperative Extension Programs		700.0
	Soil and Water Conservation	($150.0)	
	Economic Development in Southern Illinois	(100.0)	
	Veterinary Medicine Diagnostic Laboratory	(300.0)	
	Farming in the Computer Age	(150.0)	
c.	Division of Services to Crippled Children		661.4
D.	Fire Service Institute		43.0
E.	Real Estate Research		25.0
	Total		$1,719.4

COUNTY BOARD MATCHING FUNDS
($290,000)

Under the County Cooperative Extension Law, which was amended by the General Assembly in 1979, the State, through the University of Illinois, is required to provide appropriations from the Agricultural Premium Fund (APF) to match allocations from county sources in support of county extension work. The state money supplements county funds, and the law provides for a matching rate of 50/50.

County or multi-county Extension Councils, which were established according to guidelines approved by the University of Illinois Board of Trustees, submit budgets to the appropriate county governing board. Counties then forward proposed county or multi-county budgets to the Director of the University of Illinois Cooperative Extension Service for review and approval. Local funds are paid to the University of Illinois to be held in county trust funds and are used along with the APF matching funds in a manner consistent with the approved budgets. Trust funds are used to pay local costs, such as rent, utilities, some salaries, program materials, local travel, etc., of the more than 100 county extension offices.

Incremental funds for FY 1985 are requested in the amount of $290,000 to comply with the current 50% matching requirement of the amended State Law. The requested increase will permit the matching of anticipated revenues to be received from the counties. It is important to note that the University can only request a match of the funds actually received up to the limit appropriated by the State. Should local allocations to the trust accounts not reach the anticipated levels, the University may receive no more than an amount sufficient to match what is actually received in local allocations.

AGRICULTURAL PREMIUM FUND
COUNTY BOARD MATCHING

Year	County Sources	APF State Match	Change in APF Allocations	Total Budget[1]
1978-79	$2,351,400 (75%)	$ 783,800 (25%)		$ 3,135,200
1979-80	2,539,500 (70%)	1,088,300 (30%)	$304,500	3,627,800
1980-81	2,546,700 (65%)	1,371,300 (35%)	283,000	3,918,000
1981-82	2,550,000 (60%)	1,700,000 (40%)	328,700	4,250,000
1982-83	2,600,000 (55%)	2,127,300 (45%)	427,300	4,727,300
1983-84	2,800,000 (50%)	2,800,000 (50%)	672,700	5,600,000
1984-85	3,090,000 (50%)	3,090,000 (50%)	290,000	6,180,000

[1]Numbers reflect agreed upon budgets for counties and budgeted APF County Board Match funds. Amounts actually received from the counties were more than budgeted in some years. The APF County Board Match figures, on the other hand, represent the maximum recived in any year.

SOIL AND WATER CONSERVATION
($150,000)

This program, proposed by the Urbana-Champaign College of Agriculture, would initiate additional education and research activities in the area of water quality and soil erosion control. In 1979 a statewide committee recommended to Governor James Thompson that an Illinois Water Quality Management Plan be initiated that would involve the UIUC and State and Federal governmental agencies.

The Illinois Water Quality Management Plan designates the University of Illinois at Urbana-Champaign as the agency responsible for conducting the education and research programs needed to implement the Plan in concert with the code departments of State government. A total of $150,000 in Agricultural Premium Funds is requested for FY 1985 to implement the first phase of the University's program of education and research.

The importance of the education and research program to the people of Illinois is illustrated by Illinois Environmental Protection Agency estimates that an average of 181.4 million tons of soil is eroded by water each year in the State. Of this amount, 158 million tons are lost from agricultural land because of sheet or rill erosion.

The College of Agriculture's Agricultural Experiment Station would mount a substantially expanded research program if sufficient additional funds were made available. The research program would address the problems of erosion, pest management (weeds, insects, and plant diseases), and water quality. Sophisticated research methods involving personnel from numerous UIUC departments and the Illinois State Natural History Survey would be employed to insure favorable economic, environmental, and sociological consequences. Phase I of the research program will focus on the following specific objectives:

1. determining cultural management practices for optimum sustained crop production/crop protection systems for land where excessive erosion now occurs;

2. determining the economic impact of higher costs of fertilizers and pest control chemicals on alternative production systems;

3. evaluating the effectiveness of applying alternative soil conservation practices on water quality; and

4. evaluating long-term effects of reduced tillage systems on diseases, insects, weeds, and soil losses and the need for pestcides.

A total of $150,000 is being requested to implement this expanded program in FY 1985. Additional increments will be required over the FY 1986-FY 1989 period, consistent with the State Water Quality Management Plan. The proposed budget for FY 1985 is outlined below:

Academic Staff	
Cooperative Extension	
1.00 FTE State Specialist-Water Resources	$ 29,000
1,00 FTE State Specialist-Resource Econoist	30,000
Soil Erosion Research	
1.50 FTE Academic Professionals	33,000
.50 FTE Assistant	7,000
Nonacademic Staff	
1.50 FTE Clerical	16,200
Expense	
Travel	10,000
Commodities	6,800
Telecommunications	1,000
Contractual Services	3,000
Wages	4,000
Equipment	10,000[1]
TOTAL	$ 150,000

[1]Nonrecurring amount

ECONOMIC DEVELOPMENT IN SOUTHERN ILLINOIS
($100,000)

The 34 countries in southern Illinois tend to be economically disadvantaged in comparison to the rest of the State. However, the recent reversal of the long trend in population outmigration, the growing importance of the coal industry, and the potential for recreation and tourism point to opportunities for future growth and development. The challenge in southern Illinois is to find ways to deal with the persistent social and economic problems related to low incomes while dealing with the growth opportunities that are potentially available to residents, businesses, and local government.

Experience has proven that the most effective way to meet this challenge is to expand the number of area advisers in the Illinois Cooperative Extension Service (CES). An enlarged professional staff assigned by the University to focus full attention on this area of the State has great potential to achieve significant and quantifiable improvements.

The Illinois Cooperative Extension Service currently has a professional staff of 345 county advisers, 130 campus-based faculty and administrative positions, and 23 area adviser positions (plus 32 positions dedicated to assistance with the several farm business management associations). The staff conduct educational programming of a problem-solving nature in four program areas--Resource Development, Agriculture and Natural Resources, Home Economics and Family Development, and 4-H and Youth Development.

The area adviser component of the delivery system brings a needed level of specialization to the field staff, given the complexity of today's society and its problems. Area advisers maintain offices in the regions they serve and provide assistance in their areas of expertise to county staff and to the public. They provide CES with the capability to concentrate on problems that are specific to the various regions of the State.

The Illinois Cooperative Extension Service is prepared to mount a substantially expanded problem-solving educational program in southern Illinois if sufficient additional funds are made available. No other public agency is staffed to meet this need. The expanded educational program of

CES will address the problems of economic development, small business management, business and industrial development, improvement in services of local governments, and tourism development. County extension advisers and extension specialists will cooperate and assist the new staff in accomplishing the intended goals. Expanded efforts will be made to cooperate with other agencies and universities in the area so as to avoid duplication and to attain the benefits of cooperative effort.

An increment of $100,000 is being requested in both FY 1985 and FY 1986 to complete the staffing for this expanded program. General expense items and nonacademic support costs will be covered through reallocations from extant resources within the Illinois Cooperative Extension Service. The proposed staff additions will be housed in regional offices located in Effingham, Benton, and Edwardsville. The details of the proposed FY 1985 budget for this program are outlined as follows:

Academic Staff (Area Advisers)

1.00 FTE Business and Industrial Development	$ 25,000
1.00 FTE Resource Development/Local Government	25,000
1.00 FTE Tourism Industry Development	25,000
1.00 FTE Business Management	25,000
TOTAL	$ 100,000

VETERINARY MEDICINE DIAGNOSTIC LABORATORY
($300,000)

The Veterinary Medicine Diagnostic Laboratory, located within the College of Veterinary Medicine, provides diagnostic services for the identification, control, and prevention of diseases, toxicities and other conditions affecting the livestock industries of Illinois. The noninstructional activities of this operation are funded through user fees and an annual contract with the Illinois Department of Agriculture. Both the cost of this service and the number of clients served have increased substantially in recent years. During the same period, however, funds received through the State contract have increased only slightly and the service is now subsidized with educational funds of the College of Veterinary Medicine.

The Diagnostic Laboratory handles approximately one-third of the diagnostic case load in the State. With the assistance of Cooperative Extension personnel, the Laboratory has become the only facility in the State which is capable of conducting field investigations of specific diseases. This feature can be crucial in limiting disease losses from specific outbreaks. Farmers and livestock owners can receive immediate assistance to eliminate a disease problem as quickly as possible.

The Diagnostic Laboratory Committee of the State's Veterinary Medicine Association and a special committee appointed by the Illinois Department of Agriculture have both recommended improved levels of support for the College of Veterinary Medicine Diagnostic Laboratory. While the Illinois Department of Agriculture is unable to provide additional funds, it is not opposed to the University's efforts to obtain funds directly from the State. Increased funding will not only allow the Diagnostic Laboratory to restore its level of service but will also allow it to more adequately utilize its new facilities in the Veterinary Medicine Basic Sciences Building.

A proposal has been made to establish a standing advisory committee for the Diagnostic Laboratory consisting of representatives from the major livestock industries and the veterinary profession. The advisory committee would assist the Director and the staff in long-range planning for diagnostic services. The provision of funding at the proposed level would permit the continued expansion, development and coordination of diagnostic services.

The proposed budget for FY 1985 is shown below.

	FY 1985
Academic Staff	
1.00 FTE Virologist	$ 29,000
1.00 FTE Chemist	25,000
1.00 FTE Immunologist	22,500
1.00 FTE Bacteriologist	20,000
1.00 FTE Mycologist	20,000
1.00 FTE Pathologist	43,000
1.00 FTE Case Coordinator	35,000
Nonacademic Staff	
2.00 FTE Medical Laboratory Assistant	19,000
1.00 FTE Secretary	9,500
3.00 FTE Laboratory Technicians	39,000
2.00 FTE Laboratory Assistants	18,000
1.00 FTE Computer Programmer	20,000
TOTAL	$300,000

FARMING IN THE COMPUTER AGE
($150,000)

Computer technology could play a significant role in improving American agriculture by handling masses of data beneficial to farmers for decision-making purposes. At the present time, approximately one percent of American farmers have access to computers. Current estimates indicate that eight percent of all farmers will be using computers in five years. Surveys have shown that more than 20% of the farmers with large commercial-sized farms have computers. Projections reveal that 75% of such farm operations will be utilizing microcomputers within ten years.

The Illinois Cooperative Extension Service (CES) proposes to bring the advantages of computer-assisted instruction and computer problem-solving software to Illinois farmers and homemakers. CES presently has approximately 35 microcomputers that were purchased with reallocated funds. Additional units will be purchased in 1984 with the intended goal of placing microcomputers in all Extension offices.

The University of Illinois Cooperative Extension Service is charged with the responsibility to provide problem-solving educational assistance in agriculture and home economics to the people of Illinois. The University of Illinois at Urbana-Champaign is the only institution in the State with the expertise to undertake this work and to serve the agricultural community statewide. The results of this program wil be many and varied:

1. Improved efficiency in the internal management of the roughly 120 different planning units that comprise the Cooperative Extension Service.

2. The capability to continue to deliver relevant and needed educational services to clientele served by the Cooperative Extension Service. (CES reaches approximately 700,000 people each year with direct instructional contact. As computer software becomes distributed and available throughout the system, many clients will receive direct benefit from the public investment in automation.)

3. The application of results from automated decision-making models, and the dissemination of resultant information in news releases and other mass media outlets, to produce widespread benefits for the general population.

4. The specific capability to provide needed problem-solving assistance to the agricultural community.

The proposed FY 1985 budget for this program will fund 6.0 FTE academic professionals with programming expertise.

DIVISION OF SERVICES FOR CRIPPLED CHILDREN ($661,400)

The Division of Services for Crippled Children (DSCC) provides hospital services and medical braces and appliances to meet the medical needs of children in Illinois who cannot otherwise afford to secure them. As with other major University operations which require specialized services or equipment, DSCC has encountered recent inflation rates well above those of the Consumer Price Index. The following table demonstrates the impact of inflation in recent years, based upon Chase Econometrics April, 1982 data:

Inflation Rates - Medical Services

	Medical Services Component of CPI	CPI	Personal Consumption Expenditure Index	Univ. of Ill. Price Increase
FY 1979	9.1	9.4	8.0	5.0
FY 1980	10.8	13.3	9.8	6.0
FY 1981	10.3	11.5	9.5	7.0
FY 1982	11.9	8.7	7.2	4.0
FY 1983 est.	10.9	4.3	5.0	-0-
FY 1984 est.	9.4	3.9	4.4	3.0
FY 1985 est.	8.3	5.6	5.5	8.0*

*request

Because no incremental price increase funding was available for FY 1983, the Division was required to reduce its overall level of services and to review its operations to see how it might use its remaining resources most effectively. Unfortunately this had to be done at the very time when national and State economic circumstances produced increases in demand for DSCC services. The programmatic review led to a decision to focus efforts upon helping the chronic and multiple physically handicapped child whose need is for long term highly specialized medical management. This decision has enabled the Division to contain costs without jeopardizing the quality of services and care. In addition, the Division has emphasized the use of outpatient services and utilized other sources of funds as much as possible. Finally, roughly $100,000 was reallocated from administrative to medical care costs.

With only a 3% incremental price increase funding against anticipated cost increases of 9.4%, FY 1984 services can be maintained at approximately 95% of the FY 1983 level. For FY 1985, the Division seeks to return services to the FY 1983 level. To do so will require making up for inflationary costs for both inpatient and outpatient medical services; an increase of 15.2% in the FY 1984 base will be required. A total of $1,210,400 will be required, of which $635,700 is included in the general Price Increase of 8.0% and $100,000 will be available by reallocating funds now supporting administrative activities. An additional increment of $574,700 is therefore required as a special supplement.

DSCC also provides medical braces and appliances for its clients who require them. There is wide variation in the costs for individual items, from $40 for a pair of corrective shoes to more than $2,500 for a wheelchair custom made to meet the needs of a handicapped child. In recent years, the average cots for these implements have risen at rates steeper than those encountered for general medical services, as shown in the following table:

Fiscal Year	Number of Units	Average Cost	% Increase
1979	3,075	$145	
1980	4,256	159	9.7
1981	4,470	175	10.1
1982	4,347	197	12.6
1983 est.	4,817	220	11.7

Based on these data and the projected inflation information cited earlier, DSCC staff estimate that costs for medical appliances will increase by 11% for FY 1984 and 12.5% for FY 1985, raising the average cost of $275. An increase of this magnitude would raise the FY 1984 base amount of $647,900 for braces and appliances to an FY 1985 need for $778,000--an increment of $138,000. Of this amount, $51,300 would be provided by the General Price Increase, leaving a need of $86,700 to be met by a supplemental increase.

Together, the $574,700 required for medical services plus the $86,700 required for medical appliances total $661,400 in supplemental funding required to return FY 1985 service levels to the level achieved in FY 1983.

FIRE SERVICE INSTITUTE
($43,000)

Beginning in FY 1981 the University of Illinois received a direct appropriation from the Fire Prevention Fund for the operation of the Illinois Fire Service Institute. The monies received from the Fire Prevention Fund are used for three major purposes:

1. To continue the ongoing programs of the Fire Service Institute, formerly operated through contractual arrangements with the State Fire Marshall.

2. To provide adequate teaching nad training facilities for the Institute.

3. To permit program growth and improvement.

As detailed in past budget requests, the need for adequate instructional and training facilities is acute. Current facilities are inadequate, office and classroom space is scattered across the Urbana-Champaign campus, and only one training facility, the Fire Tower, exists on the primary instruction site. Thus, after the operating needs of the current instructional programs have been met, the majority of new funds must be used to construct an adequate training facility. A modest amount of new funds have been used for program growth and improvement, with major program development activities to follow, once sufficient facilities exist.

Based upon current revenue projections, growth of approximately 6% is projected for the Fire Prevention Fund for FY 1985, raising the total in the Fund to $7.5 million. The University of Illinois share of this amount (1/8) would be approximately $940,000. The FY 1984 appropriation is expected to be $888,900; resulting in a total increment of $52,100 available for FY 1984.

Of this amount, approximately $9,000 would be required to fund growth in Retirement funding, leaving $43,000 available for salary and price increases. In view of the continuing top-priority need to secure adequte instructional and training facilities, it is expected that any funds not required for base salary and price increaes will be added to the approximately $320,000 currently available for facilities acquisition.

OFFICE OF REAL ESTATE RESEARCH
($25,000)

The Office of Real Estate Research (ORER) has three primary functions:

1. It undertakes and fosters research on problems related to real estate in the State of Illinois.
2. It communicates the results of applied research to the consumers and producers of real estate services through publications and professional education activities.
3. It promotes the ongoing development of real estate education at the University of Illinois at Urbana-Champaign.

The ORER was created in the spring of 1980 as a project in the Bureau of Economic and Business Research which is, in turn, within the College of Commerce and Business Administration at the University of Illinois at Urbana-Champaign. For its first fifteen months of operation, the ORER was funded by grants from the Illinois Real Estate Eductional Foundation (REEF), an arm of the Illinois Association of Realtors. Beginning in FY 1982 its operations have been financed by a special fund in the State Treasury, the Real Estate Research and Education Fund. Monies in this fund come from licensing fees paid by the real estate industry and from interest from the Real Estate Recovery Fund, and not from general tax revenues. The Real Estate Research and Education Fund was established during the 1981 session of the General Assembly under legislation sponsored by the Illinois Association of Realtors.

The sum of $170,000 was appropriated for FY 1982; $199,000 was provided for FY 1983, and $230,000 is available for FY 1984. Of that amount, approximately half ($110,000) is devoted to the operation of the Office itself (staff and supplies), and half ($120,000) is earmarked for research grants awards to fund research projects carried out by faculty members at institutions throughout the State.

Current revenue projections indicate that an additional $25,000 will be available for appropriation in FY 1984. Of this amount, approximately $10,000 will be required to fund salary and price increases for support of the Office itself. The remaining $15,000 will be made available for additional research grant awards.

APPENDIX I

RETIREMENT

Beginning in FY 1979 a significant improvement in the financing of the State Universities Retirement System (SURS) was achieved when the appropriation level was increased from the "Net Payout" amount to the "Gross Payout" amount. In essence this improvement meant that instead of providing an appropriation which, when combined with an amount contributed by retirees themselves, was sufficient to meet the pension costs of SURS retirees (the so-called "Net Payout" level), the State appropriation was sufficient to cover the entire pension costs for retirees, thereby permitting a modest amount to be set aside to cover the future pension costs of those still employed. In FY 1980, a further improvement in SURS funding was achieved, when the appropriation level exceeded the "Gross Payout" requirement, making a somewhat larger amount available to cover future pension costs. In FY 1981, the "Gross Payout" level was again achieved. These funding improvements, combined with significant improvements in interest earnings on SURS investments, enabled the SURS ratio of assets to liabilities to grow from 46% in FY 1975 to 54% in FY 1981.

This progress in Retirement funding was abruptly halted in FY 1982 when the SURS appropriation was cut below the Net Payout amount, to a level which represented only 62% of the Gross Payout requirements--a reduction of $27.3 million. The initial SURS appropriation for FY 1983 was again held significantly below the Gross Payout amount, and was set at a level of 62.5% of Gross Payout. Midyear budget reductions required by the State's funding crisis eventually reduced the SURS increment to 51% of Gross Payout.

Although all concerned with SURS funding adequacy agree that returning, at a minimum, to the Gross Payout level is an important objective, the FY 1984 appropriation represents only modest improvements over FY 1983. SURS--as well as all public retirement systems in the State--was held to an appropriation of 60% of the Gross Payout requirement for FY 1984. In addition, modest supplemental appropriations were made to begin to recover some of the ground lost in the last year, with the end result that the total appropriation to SURS for FY 1984 reached 65% of Gross Payout.

While SURS interest earnings in recent years have been higher than customary, and have been adequate to cover the costs of pension requirements for those already retired, continued funding of SURS at so low a level simply cannot be tolerated. Funding for SURS must be returned to the level achieved in FY 1980 and 1981 as quickly as possible, and a plan to restore that level should be developed and implemented early in the FY 1985 budget process.

Following the long-standing policy of the University of Illinois Board of Trustees, the University's formal budget request for SURS funding for FY 1985 is placed at the statutory level (full funding). Actuarial estimates from the Retirement System to identify the precise cost of the full-funding were not available at the time this document went to press, but the incremental amount is likely to approximate $60 million.

Bases and Calculations for
FY 1985 Continuing Components Increases
(Dollars in Thousands)

I. Salary/Compensation Improvement
   A. FY 1983 Personal Services Base: $302,870.0
   B. FY 1983 Annualization 4,040.6
   C. FY 1984 Personal Services Base: 330,951.6
   D. Calculation for FY 1985 Increment
      1. Annualization of FY 1984 Increases
         a. (FY 1983 Base + Annualization) x .95 x .075 x 2/12 =
            $306,910.6 x .95 x .075 x 2/12 = $3,644.6
         b. Add Special Engineering Annualization 183.0
         c. Total Annualization = $3,827.6

      2. FY 1985 Increase
         (FY 1984 Base + Annualization) x .95 x .09 x 10/12 =
         ($330,951.6 + $3,827.6) x .95 x .09 x 11/12 = $23,853.0

      3. Total Request (1 + 2) $27,680.6

II. General Price Increase
   A. FY 1984 Base: $55,227.8
   B. FY 1985 Percentage Increase: 8%
   C. Calculation: $55,227.8 x .08 = $4,418.2
   D. Note: The General Price Increase Base includes the following objects of expenditure: Contractual Services; Travel; Commodities; Operation of Auto Equipment; Awards and Grants; Equipment; Hospital and Medical Services and Appliances; CES Expense; and one-half of the funds for the operation and maintenance of the Chicago Research and Technology Facility. Funds for utilities and for library acquisitions are excluded.

III. Utilities Price Increase
   A. FY 1984 Base: $36,979.7
   B. FY 1985 Percentage Increase: 15%
   C. Calculation: $36,979.7 x .15 = $5,547.0
   D. Note: The FY 1984 base includes one-half of the funds for the operation and maintenance of the Chicago Research and Technolgy facility.

IV. Library Price Increases
   A. FY 1984 Base: $5,657.9
   B. FY 1985 Percentage Increase: 15%
   C. Calculation: $5,657.9 x .15 = $848.7

PART III

FISCAL YEAR 1985 CAPITAL BUDGET REQUEST

UNIVERSITY OF ILLINOIS CAPITAL BUDGET REQUEST
FY 1985

Introduction

The University's FY 1985 Capital Budget Request is comprised of three major segments: (1) Regular, (2) Energy Conservation/Fuel Conversion, and (3) Food for Century III. The Regular segment of the request includes remodeling, renovation and construction projects necessary to support the University's ongoing programmatic activities. The Energy Conservation/Fuel Conversion segment represents a special effort initiated in FY 1981 to help control spiraling energy costs through retrofit improvements to the building and mechanical systems. The third segment of the request consists of those projects considered essential to the continued progress of the Food for Century III Program. The total request for the three major budget segments in FY 1985 is $89,691,800.

This section of the document presents a description of the Regular segment of the FY 1985 Capital Budget Request. The Energy Conservation/Fuel Conversion segment is presented in a separate section immediately following the Regular request material, and a third section describes the University's FY 1985 Food for Century III Program.

Each project in the request has been reviewed by the campus and University administration and integrated into a set of University capital budget priorities for Regular Capital, Energy Conservation/Fuel Conversion, and Food for Century III. The priority list is an assessment of the relative need for each project as compared to other capital projects. In addition, the priority list reflects a level of funding which meets the University's highest priority needs and is realistic and defensible when compared to other pressing State needs.

Emphasis of the Preliminary FY 1985 Regular Capital Budget Request

Table 1 presents a summary of the proposed projects for FY 1985 in priority order. The first priority project entails the installation of an air conditioning and ventilation system in the Pharmacy Building at the Chicago campus. Currently, the building suffers from extreme fluctuations in temperatures, with temperatures often reaching 90° or higher, and the

introduction of noxious and toxic fumes exhausted from laboratories into other areas of the building. In addition to the installation of chillers, chilled water risers, and necessary piping, the existing ventilation system will be upgraded by installing additional air handling and distribution equipment.

Remodeling the Water Resources Building for use as a modern electronics research facility is the University's second priority project. The State Water Survey, which presently occupies the building, will move to the former Herman M. Adler Mental Health Center following its renovation. The Water Resources Building will then be remodeled for researchers from the Department of Electrical Engineering. Research at this facility will focus on such areas as electron beam lithography for use in large scale integrated circuitry and semiconductor materials experimentation at the submicron level. Funds have been appropriated for planning of remodeling in FY 1984 and construction funds are requested for FY 1985 to complete the project.

The majority of projects included in the FY 1985 Capital Budget Request, as in recent years, continues to be major remodeling projects. These projects seek to renovate existing campus buildings to address programmatic and structural needs. Major remodeling projects at the Chicago campus include: planning the remodeling of the University Center Library; relocating the Office of Admissions and Records which currently occupies library space; upgrading electrical service to the Roosevelt Road Building; remodeling the sixth and seventh floors of the Hospital Addition for the College of Medicine; and a significant remodeling of Chemistry Department space in the Science and Engineering Laboratory. At the Urbana-Champaign campus the major remodeling projects are: the third phase of the multi-phased remodeling of the English Building; providing chilled water cooling to the Animal Sciences Lab; planning the remodeling of Huff Gymnasium for the College of Applied Life Studies; conducting structural renovations in Noyes Lab which is used by the School of Chemical Sciences; and the development of a master plan for Davenport Hall remodeling. In addition to renovating buildings, the University has requested two projects for the Urbana-Champaign campus that will improve the campus environs. First, the campus will use matching Federal Funds to resurface Pennsylvania Avenue from Sixth Street to Burnsides Laboratory; and, second, the improvement of the

Huff Gym Fields for instructional and recreational use. A request to purchase environmental research land is included in the FY 1985 request, also.

In accordance with recent budgeting practice, the University will request three Space Realignment, Renewal and Replacement packages from each campus for FY 1985. These projects are necessary to preserve the structural integrity of the University's facilities and to meet program related space realignment requirements.

Despite the emphasis on remodeling projects, not all of the University needs can be addressed by existing facilities. Some situations require the construction of new buildings. The FY 1985 Capital Budget Request includes several building projects which have been proposed only after it was determined that all reasonable remodeling and realignment options were unfeasible. The projects include: planning the construction of an addition to the Digital Computer Lab; development of plans for building an Engineering Research Lab adjacent to the Science and Engineering Laboratory at the Chicago campus; construction of a replacement facility for the pilot training program; planning the construction of a Television/Radio Building at the Urbana-Champaign campus; and replacement of inadequate campus police facilities in Urbana-Champaign.

Table 2 presents a breakdown of the FY 1985 capital projects by budget category and campus. The generation of SR^3 amounts for each campus is presented in Table 3 and a list of SR^3 projects appears in Table 4. Table 5 presents the cost per square foot of each building and major remodeling projects requested for FY 1985. Table 6 shows the future implications of the FY 1985 request.

Status of Ongoing Projects

Table 7 provides a summary of actions on capital budget requests from FY 1980 to FY 1984. The University's capital appropriation (new projects) for FY 1984, excluding Food for Century III, totals $1,010,000.

The projects included in the FY 1984 regular capital appropriation are as follows:

Campus	Project	Budget Category	Appropriation
Chicago	Roof Replacement Peoria School of Medicine	REMD	$ 202,900
Chicago	Hazardous Waste Incinerator	BLDG	457,100
Urbana-Champaign	Microelectronics Center	PLAN	350,000
	Total		$1,010,000

As of September 1, 1983, the Governor has "frozen" $1,843,500 of FY 1982 appropriations. The release of these funds depends on the level of interest rates on long term government bonds and the State's fiscal situation. Table 8 shows the funding status of each FY 1982 and FY 1983 project. Table 9 shows the construction status of all building and major remodeling projects that are currently underway.

Descriptions of the various capital projects are categorized according to the themes described in the programmatic request: Science, Technology, and Economic Development; Meeting Changing Health Care Needs; and Improving Access to Programs and Support Services. Preceding each category's project descriptions is a table summarizing the projects included in the category.

TABLE 1
UNIVERSITY OF ILLINOIS
FY 1985 CAPITAL REQUEST
PRIORITY LIST
(Dollars in Thousands)

Priority Number	Campus	Project	Budget Category	Cost	Cumulative Cost		
					University	Chicago	Urbana-Champaign
1	C	Pharmacy Bldg. Air Conditioning	REMD	$5,079.0	$ 5,079.0	$ 5,079.0	
2	UC	Microelectronics Center	REMD	3,500.0	8,579.0		$ 3,500.0
3	C	Library Improvements	PLAN	349.9	8,928.9	5,428.9	
4	C	Relocate Office of Admissions & Records	REMD	1,176.0	10,104.9	6,604.9	
5	UC	Digital Computer Lab Addition	PLAN	1,081.0	11,185.9		4,581.0
6	C	Roosevelt Rd. Bldg. Electrical Upgrade	REMD	547.0	11,732.9	7,151.9	
7	C	Hospital Addition	REMD	2,152.0	13,884.9	9,303.9	
8	UC	Animal Science Lab Chilled Water Line	UTIL	275.0	14,159.9		4,856.0
9	UC	Animal Sci. Lab Chilled Water Conversion	REMD	79.6	14,239.5		4,935.6
10	UC	English Building	REMD	2,867.0	17,106.5		7,802.6
11	C	Engineering Research Lab	PLAN	1,215.7	18,322.2	10,519.6	
12	UC	Commerce Building	PLAN	1,104.4	19,426.6		8,907.0
13	UC	SR^3 - I	REMD	2,916.2	22,342.8		11,823.2
14	UC	SR^3 - I Equipment	EQUP	559.7	22,902.5		12,382.9
15	C	SR^3 - I	REMD	2,517.0	25,419.5	13,036.6	
16	UC	Pennsylvania Ave. Street Improvements	SITE	250.0	25,669.5		12,632.9
17	UC	Pilot Training Facility	BLDG	1,444.9	27,114.4		14,077.8
18	UC	Pilot Training Facility	UTIL	67.0	27,181.4		14,144.8
19	UC	Television/Radio Building	PLAN	440.0	27,621.4		14,584.8
20	C	SR^3 - II	REMD	2,506.4	30,127.8	15,543.0	
21	UC	SR^3 - II	REMD	2,719.4	32,847.2		17,304.2
22	UC	SR^3 - II Equipment	EQUP	164.6	33,011.8		17,468.8
23	UC	Huff Gym Remodeling	PLAN	165.0	33,176.8		17,633.8
24	UC	Noyes Lab	REMD	598.0	33,774.8		18,231.8
25	UC	Natural Areas Research Land	LAND	64.2	33,839.0		18,296.0
26	UC	Police Station	BLDG	1,838.6	35,677.6		20,134.6
27	UC	Police Station	UTIL	375.3	36,052.9		20,509.9
28	C	SR^3 - III	REMD	2,023.4	38,076.3	17,566.4	
29	UC	SR^3 - III	REMD	2,044.5	40,120.8		22,554.4
30	UC	SR^3 - III Equipment	EQUP	152.7	40,273.5		22,707.1
31	C	Chemistry Department Remodeling	PLAN	209.0	40,482.5	17,775.4	
32	UC	Davenport Hall Remodeling	PLAN	175.0	40,657.5		22,882.1
33	UC	Outdoor Inst/Rec Facilities	SITE	150.0	40,807.5		23,032.1

TABLE 2
SUMMARY OF THE FY 1985 CAPITAL BUDGET REQUEST
BY CAMPUS AND CATEGORY
(Dollars in Thousands)

	Category	Chicago	Urbana-Champaign	Total
1.	Buildings, Additions, and/or Structures	--	$ 3,283.5	$ 3,283.5
2.	Land	--	64.2	64.2
3.	Equipment	--	--	-0-
3a.	SR^3 Equipment	--	877.0	877.0
4.	Utilities	--	717.3	717.3
5.	Remodeling	$ 8,954.0	7,044.6	15,998.6
5a.	Space Realignment, Renewal and Replacement	7,046.8	7,680.1	14,726.9
6.	Site Improvements	--	400.0	400.0
7.	Planning	1,774.6	2,965.4	4,740.0
	TOTAL	$17,775.4	$23,032.1	$40,807.5

TABLE 3
GENERATION OF FY 1985 SR^3 REQUEST
BY CAMPUS

		Chicago	Urbana-Champaign
1.	Estimated Replacement Cost of Facilities, January 1983 (Total Unadjusted Replacement Cost, Table 8.6B, Residential excluded)	$711,329,311	$1,087,360,771
2.	Estimated Replacement Cost of Facilities, January 1985 (Step 1 escalated 9% per year from January 1983 to January 1985)	839,368,611	$1,283,085,710
3.	Gross Area (Total GSF, Table 8.6B, Residential excluded)	7,129,123	11,197,964
4.	Average Cost per GSF (Step 2 ÷ Step 3 = $/GSF)	$117.74	$114.58
5.	Annual Space Rehabilitation and Remodeling Generation [$/GSF (Step 4) x .667 (2/3 to be remodeled) x .01 (one time/100 years)]	$.7853	$.7642
6.	Area of Campus Maintained by Physical Plant with State Funds, Fall 1984 (GSF)	6,939,811	9,290,275
7.	Funds Generated by Campus (Step 5 x Step 6)	$ 5,449,834	$ 7,099,628
8.	Total Funds Including Architect/Engineer Fees and Contingency (Multiply Step 7 by 1.195)	$ 6,512,552 (43.4%)	$ 8,484,055 (56.6%)

$14,996,607
(100.0%)

TABLE 4
FY 1985 SR^3 PROJECTS BY CAMPUS
(Dollars In Thousands)

URBANA-CHAMPAIGN

	REMD	EQUP
SR^3 - I		
Commerce Office - Remodeling	$ 107.7	$ 22.0
Newmark Lab - Remodeling	740.1	159.5
Roger Adams Lab - Remodeling	192.8	
Accessibility Improvements	146.6	
Animal Room Improvements	126.8	52.0
Sprinkler Systems	418.2	
University High School Improvements	289.3	
Classroom Renovation	166.9	31.0
Roof Replacements	524.2	
Teleproduction Facility Remodeling	203.6	295.2
Total	$2,916.2	$559.7
SR^3 - II		
Astronomy Building Remodeling	$ 251.9	$ 25.0
Loomis Laboratory Remodeling	92.5	
Visual Arts Laboratory Remodeling	261.7	128.6
Radiology Laboratory Remodeling	585.8	
Elevator Replacement - Lincoln Hall	184.7	
Stair Enclosures - Gregory Hall	446.0	
Administration Building Security Improvements	122.9	
Safety Showers Installations	74.3	
Noyes Laboratory - Fume Hood Improvements	253.0	
David Kinley Hall - Room 114 - Remodeling	314.6	11.0
Cooling Towers Remodeling	132.0	
Total	$2,719.4	$164.6
SR^3 - III		
Davenport Hall - Biophysics - Remodeling	$ 675.0	$125.4
Huff Gym Basement Remodeling	329.8	27.3
Institute of Aviation Remodeling	53.4	
Fume Hood Improvements	412.8	
Library Stacks Smoke Detection	312.5	
Armory Improvements	181.0	
Steam Distribution Remodeling	80.0	
Total	$2,044.5	$152.7
Urbana-Champaign - SR^3 Total	$8,557.1	

CHICAGO

	REMD
SR^3 - I	
Air Condition 1919 W. Taylor St.	$ 978.8
Handicapped Accessibility - Phase II & Partial Phase III	342.4
Fume Hood Corrections - SES	257.3
Remodel Room 200 - College of Pharmacy	477.4
Code Corrections - Phase I - Peoria Street Bldg.	461.1
Total	$2,517.0
SR^3 - II	
Distribution of Elec. Power, Floors 2, 3 & 4, 1919 W. Taylor St., CAHP	$ 268.2
Remodel Rooms 560-566A CMET	243.0
Exterior Masonry Repairs-Phase III-ECB & Peoria St. Bldg.	377.2
Upgrade Electrical Power, BRL	102.5
Remodel Rooms 234 & 236 CMWT	102.5
Remodel Room 404 - COP	223.5
Pedestrian Safety	232.2
Exterior Masonry Repairs - Phase IV - Services Bldg & Peoria Street Bldg.	450.5
Air Condition 6th & 7th Floors - South Tower of Neuropsychiatric Bldg.	258.3
Remodel Locker Rm. for Conf. Space-College of Nursing	248.5
Total	$2,506.4
SR^3 - III	
Campus Emergency Power Distribution Network	$1,200.0
Handicapped Accessibility - Phase III	444.6
Campus Security Access - Phase II	200.0
Remodel Theater Lobby & Air Condition Theater Equipment Room - ECB	178.8
Total	$2,023.4
Chicago - SR^3 Total	$7,046.8

TABLE 5
COST PER SQUARE FOOT OF NEW BUILDING AND MAJOR REMODELING PROJECTS BY CAMPUS

Category/Project (By Campus)	Project Cost	Gross Square Feet	Assignable Square Feet	Efficiency ASF/GSF	$/GSF	$/ASF
Chicago-University Center						
Major Remodeling (FY 1985 Request)						
Relocate OAR	$1,176,000	29,604	16,855	.57	$39.72	$69.77
Chicago-Health Sciences Center						
Major Remodeling (FY 1985 Request)						
Hospital Addition Remodeling	$2,152,000		15,037*			$143.11
Urbana-Champaign Campus						
New Buildings						
Pilot Training Facility	$1,444,900	10,200	8,500	.83	$141.66	$169.99
Police Station	1,838,600	11,485	6,575	.57	160.09	279.63
Major Remodeling (FY 1985 Request)						
Microelectronics Center	$3,500,000		26,107			$134.06
English Building Renovation	2,867,000		17,990*			159.37

*Figure reflects only the area of building to be remodeled with FY 1985 Request.

TABLE 6
FUTURE IMPLICATIONS OF PROJECTS
IN FY 1985 REQUEST
(Dollars in Thousands)

Priority Number	Campus	Project	Budget Category[1]	FY 1985 Request	Additional Costs: FY 1986 Costs	Additional Costs: Costs for FY 1987 and Beyond
1	C	Pharmacy Bldg. Air Conditioning	REMD	$5,079.0	--	--
2	UC	Microelectronics Center	REMD	3,500.0	--	--
3	C	Library Improvements	PLAN	349.9	$ 5,331.8	--
4	C	Relocate Office of Admissions & Records	REMD	1,176.0	--	--
5	UC	Digital Computer Lab Addition	PLAN	1,081.0	17,379.3	$ 1,650.0
6	C	Roosevelt Rd. Bldg. Electrical Upgrade	REMD	547.0	--	1,000.0
7	C	Hospital Addition	REMD	2,152.0	2,000.0	6,000.0
8	UC	Animal Science Lab Chilled Water Line	UTIL	275.0	--	--
9	UC	Animal Sci. Lab Chilled Water Conversion	REMD	79.6	--	--
10	UC	English Building	REMD	2,867.0	--	3,717.0
11	C	Engineering Research Lab	PLAN	1,215.7	21,000.0	10,000.0
12	UC	Commerce Building	PLAN	1,104.4	17,975.5	1,000.0
13	UC	SR^3 - I	REMD	2,916.2	--	--
14	UC	SR^3 - I Equipment	EQUP	559.7	--	--
15	C	SR^3 - I	REMD	2,517.0	--	--
16	UC	Pennsylvania Ave. Street Improvements	SITE	250.0	--	--
17	UC	Pilot Training Facility	BLDG	1,444.9	140.0	--
18	UC	Pilot Training Facility	UTIL	67.0	--	--
19	UC	Television/Radio Building	PLAN	440.0	7,147.3	450.0
20	C	SR^3 - II	REMD	2,506.4	--	--
21	UC	SR^3 - II	REMD	2,719.4	--	--
22	UC	SR^3 - II Equipment	EQUP	164.6	--	--
23	UC	Huff Gym Remodeling	PLAN	165.0	2,069.0	--
24	UC	Noyes Lab	REMD	598.0	--	1,980.0
25	UC	Natural Areas Research Land	LAND	64.2	--	--
26	UC	Police Station	BLDG	1,838.6	85.0	--
27	UC	Police Station	UTIL	375.3	--	--
28	C	SR^3 - III	REMD	2,023.4	--	--
29	UC	SR^3 - III	REMD	2,044.5	--	--
30	UC	SR^3 - III Equipment	EQUP	152.7	--	--
31	C	Chemistry Department Remodeling	PLAN	209.0	1,774.0	1,671.0
32	UC	Davenport Hall Remodeling	PLAN	175.0	2,158.0	4,316.0
33	UC	Outdoor Inst/Rec Facilities	SITE	150.0	--	--
		Total		$40,807.5	$77,059.9	$31,784.0

[1]Represents FY 1985 budget category. Future projects will likely fall under different categories.

TABLE 7
HISTORY OF RECENT CAPITAL BUDGET REQUESTS

	FY 1980	FY 1981	FY 1982	FY 1983	FY 1984
Campus Requests					
Chicago-University Center	$ 4,439,095	$ 6,518,400	$ 3,917,200	$ 3,528,200	$ 4,150,600
Chicago-Health Sciences Center	12,889,300	15,017,600	6,022,000	3,801,800	6,996,300
Urbana-Champaign	15,795,600	20,782,400	19,236,400	7,821,100	9,884,600
Total	($33,123,995)	($42,318,400)	($29,175,600)	($15,151,100)	($21,031,500)
IBHE Recommendations					
Chicago-University Center	$ 1,810,400	$ 3,271,300	$ 2,505,400	$ 2,589,100	$ 2,822,300
Chicago-Health Sciences Center	4,489,800	4,103,200	1,781,000	655,800	1,467,000
Urbana-Champaign	9,144,500	11,446,900	12,776,900	5,715,200	5,634,500
Total	($15,444,700)	($18,821,400)	($17,063,300)	($ 8,960,100)	($ 9,923,800)
Appropriation[1]					
Chicago-University Center	$ 1,710,400	$ -0-	$ 781,800	-0-	$ -0-
Chicago-Health Sciences Center	1,336,600	225,000	1,291,000	-0-	660,000
Urbana-Champaign	2,252,700	919,000	9,718,500	-0-	350,000
Total	($ 5,299,700)	($ 1,144,000)	($11,791,300)	-0-	($ 1,010,000)
Appropriations for Special Projects					
Food Production Research	4,329,000	4,045,000	1,000,000	750,000	2,254,500
Energy Conservation		8,745,800	2,085,700	15,000,000	-0-
Total	($ 4,329,000)	($12,790,800)	($ 3,085,700)	($15,750,000)	($ 2,254,500)
Total University of Illinois					
Appropriation	$ 9,628,700	$13,934,800	$14,877,000	$15,750,000	$ 3,264,500

[1]Excludes Food Production Research and Energy Conservation.

TABLE 8
STATUS OF CAPITAL APPROPRIATIONS
As of September 1, 1983

FY 1982 Appropriations	Amount Appropriated	Release of Funds: U of I Requested	Release of Funds: Governor Released	Release of Funds: Governor's Freeze
Chicago-University Center				
Remodeling: ($781,800)				
1) Exterior & interior masonry repairs-Phase III	$ 253,200	08-24-81	$ 253,200/08-26-83	
2) Electrical upgrade of 12KV underground system	46,900	08-24-81	46,900/02-07-83	
3) Lighting modifications	113,000	08-24-81		$ 113,000
4) Stairway & upper walkway repairs	368,700	08-24-81	368,700/08-26-83	
Energy Conservation: ($993,200)				
1) Modifications including replacement of temperature control devices, improvements to the domestic hot water systems, installation of heating system zone controls & heat reclaim systems.	993,200	08-24-81	993,200/11-20-81	
Subtotal	$ 1,775,000		$ 1,662,000	$ 113,000
Chicago-Health Sciences Center				
Remodeling: ($1,291,000)				
1) Improvements to main vertical utility distribution & waste removal systems & upgrading & modifying the heating, ventilating & cooling systems in the Hospital Addition.	1,291,000	08-24-81	1,291,000/01-07-82	1,160,000
Energy Conservation: ($522,000)				
1) Improvements to the temperature control devices in three buildings and the air handling equipment in two buildings (Chicago).	414,000	08-24-81	414,000/12-08-81	
2) Installation of an automated environmental control system (Peoria).	108,000	08-24-81	108,000/11-20-81	
Subtotal	$ 1,813,000		$ 1,813,000	$1,160,000
Urbana-Champaign				
Building: ($9,577,000)				
1) Library Sixth Stack Addition	9,577,000	08-24-81	9,577,000/12-09-81	
Utilities: ($141,500)				
1) Library Sixth Stack Addition	141,500	08-24-81	141,500/12-09-81	
Remodeling: ($266,000)				
1) Conversion from Oil to Gas - Willard Airport	266,000	08-24-81		266,000
Energy Conservation: ($304,500)				
1) Installation of a heat recovery system in the Large Animal Clinic & modification of the ventilation systems in Large Animal Clinic and Gregory Hall.	304,500	08-24-81		304,500
Subtotal	$10,289,000		$ 9,718,500	$ 570,500
Food Production & Research				
Equipment: ($1,000,000)				
1) Veterinary Medicine Basic Sciences Building	1,000,000	11-09-81	1,000,000/02-24-82	
Subtotal	$ 1,000,000		$ 1,000,000	
FY 1982 TOTAL	$14,877,000		$14,193,500	$ 1,843,500

TABLE 8
STATUS OF CAPITAL APPROPRIATIONS
As of September 1, 1983
(Continued)

FY 1983 Appropriations*	Amount Appropriated	Release of Funds		
		U of I Requested	Governor Released	Governor's Freeze
Food Production & Research				
Equipment: ($750,000)				
1) Agricultural Engineering Science Building	$ 750,000	06-11-82	$ 750,000/10-20-82	
FY 1983 TOTAL	$ 750,000		$ 750,000	

*Excludes an FY 1983 appropriation of $15 million to the Department of Energy and Natural Resources and the Capital Development Board for installation of anti-pollution control devices at the Urbana-Champaign Abbott Power Plant.

TABLE 9
STATUS OF BUILDING AND MAJOR REMODELING PROJECTS
(As of July 22, 1983)

Project	Year Authorized	Estimated Cost	Estimated Completion	Status
Chicago-Health Sciences Center				
Hospital Addition Remodeling	1982	$ 1,291,000	N/A	Planning/design authorized 2/82 Construction funds frozen
Urbana-Champaign				
Library Sixth Stack	1981	8,258,500	11/83	75% complete
Abbott Power Plant	1981	21,900,000	N/A	Revised project being reactivated
Food for Century III				
Agricultural Engineering Sciences Bldg.	1979	11,252,900	10/83	96% complete

SCIENCE, TECHNOLOGY AND ECONOMIC DEVELOPMENT

SCIENCE, TECHNOLOGY AND ECONOMIC DEVELOPMENT
(Dollars in Thousands)

Project	Budget Category	Cost
CHICAGO		
Hospital Addition Remodeling	REMD	$ 2,152.0
Engineering Research Lab	PLAN	1,215.7
Space Realignment, Renewal and Replacement	REMD	928.8
Chemistry Department Remodeling	PLAN	209.0
Total		$ 4,505.5
URBANA-CHAMPAIGN		
Microelectronics Center	REMD	$ 3,500.0
Digital Computer Laboratory Addition	PLAN	1,081.0
Animal Sciences Lab Chilled Water Line	REMD/UTIL	354.6
Commerce Building	PLAN	1,104.4
Space Realignment, Renewal and Replacement	REMD/EQUP	4,918.9
Television and Radio Building	PLAN	440.0
Noyes Laboratory	REMD	598.0
Natural Areas Research Land	LAND	64.2
Total		$12,061.1
Grand Total		$16,566.6
ADDENDUM		
2020 West Ogden Avenue	REMD	

SCIENCE, TECHNOLOGY AND ECONOMIC DEVELOPMENT
CHICAGO CAMPUS

Hospital Addition Remodeling - ($2,152,000)

With the occupancy of the Replacement Hospital, approximately 85,000 ASF of space has been vacated in the Hospital Addition. About 40,000 square feet of this space has been reassigned to the Hospital for such uses as clinical laboratories, medical records library, and patient account file storage. The remainder of the space has been assigned to the Abraham Lincoln School of Medicine for use by the clinical departments, primarily as faculty offices and laboratories.

The scope of remodeling requested in FY 1985 consists of remodeling the 6th and 7th floors for the departments of Surgery and Medicine respectively. The remodeling will provide office, laboratory and seminar facilities. In addition, the building utility and laboratory services, to be installed with FY 1982 funds, will be extended to the remodeled areas. The remodeling of these two floors is the first phase of space remodeling which will eventually provide for consolidation of three major clinical departments of the college:

--Medicine
--Surgery
--Pediatrics

A total of ten floors will ultimately be involved in the remodeling and consolidation plan.

Engineering Research Lab Planning - ($1,215,700)

The College of Engineering at the University of Illinois at Chicago expects to be an important actor in the revitalization of the economic health of the Chicago metropolitan area and the entire State. As a major source of instruction and research, the College is in a position to make effective contributions through the productivity of its graduates and the experimental research of a strong and vigorous faculty. Essential to the proper fulfillment of this mission is the establishment of sufficient research laboratory space to conduct engineering investigations.

A recent space study shows that the College suffers a severe research laboratory space deficiency. To address this deficiency the construction of an Engineering Research Laboratory, adjoining the Science and Engineering Laboratory, is proposed. The facility will be approximately 65,000 ASF in size and laboratory research space will comprise 50,000 ASF, or over 75%, of the building. The remaining space will be devoted to offices, seminar-classrooms, and auxiliary space required to support sophisticated scientific research.

A majority of the individual laboratory areas will range from 500 to 1,000 ASF. The labs will have lower noise levels than standard instructional laboratories and contiguous office and seminar space to establish an environment conducive to conducting research. Approximately 50% of the laboratory space will be designed to be easily modified for research in a variety of engineering disciplines. The remainder of the laboratory space will be specifically constructed for experimentation in the fields of bioengineering, chemical engineering, civil engineering, electrical engineering, mechanical engineering, computer-aided design activities, and robotics.

The FY 1985 request calls for funding the planning of the facility. Requests in subsequent years will propose construction of the facility, extension of utility serices to the site, and purchase of the attendant movable equipment.

SPACE REALIGNMENT, RENEWAL AND REPLACEMENT (SR^3) - (REMODELING - $928,800)

Advancement in instructional and research programs in science and technology is achieved at a rapid pace. In order to maintain laboratories and instructional areas at state-of-the-art levels, the University has developed several minor remodeling projects designed to renew research and economic development facilities. Brief descriptions of each SR^3 project in the Science, Technology, and Economic Development category follow below:

Fume Hood Corrections - SES Building - ($257,300)

This project concerns the corrections of exhaust air inadequacies for fume hoods in the Science and Engineering South Building. The exhaust air provided for many of the fume hoods located in the Science and Engineering South Building is below the recommended safety standard of the University's Office of Environmental Health and Safety. This standard is that the face velocity of air at the fume hood opening shall be one hundred (100) feet per minute with the fume hood sash fully open.

To correct the exhaust air inadequacies for the fume hoods the following is required:

1. Replace 66 motors and respective V-Belt drives and make the necessary electrical modifications.
2. Replace three complete exhaust fans with new fans including necessary sheet metal and electrical modifications.

Remodel Rooms 560-566A CMET, Anatomy - ($243,000)

This area was formerly occupied by the College of Dentistry and was not renovated or refurbished for some time prior to, or following, occupancy by the Department of Anatomy in 1978. The space is inadequately arranged, exterior walls leak, plaster and paint are peeling, windows do not close properly, walls and floors need repair, and necessary utilities and lab furniture are lacking.

The following changes are proposed:

1. Repair and replastering of all exterior walls where necessary.
2. Install metal stud and gypsum board partitions in certain rooms to maximize laboratory space.
3. Furnish and install new fixed laboratory equipment in Rooms 560, 561, 565, 565A, 566 and 566A.
4. Furnish and install gas, air vacuum and water service.
5. Provide branch circuiting and electrical outlets.
6. Patch areas damaged by new construction.
7. Paint all rooms.
8. Connect central air conditioning to all rooms.

This renovated area, in direct proximity to the Anatomy Department Office, will facilitate centralization and respond to the department's growing requirements for additional laboratory space.

Upgrade Electrical Power, BRL Operating Rooms - ($102,500)

Animal holding and surgery facilities for the entire Health Sciences Center are consolidated in the Biologic Resources Laboratory. The upgrading of the electrical services in operating rooms of this laboratory building involves several of the ten original surgical suites and the support areas. This area (3500 ASF) is currently being used for limited experimental surgery, animal manipulation and physiological monitoring. With the increasing use of sophisticated electrical equipment for experimental monitoring, this area cannot effectively meet the needs of the funded research projects requiring this type of support.

The present electrical system in this area does not meet building codes for receptacles; has substandard wiring; and has cross-connected circuits between rooms. These deficiencies prevent the use of many monitoring systems and create tremendous problems in terms of overloading the circuits. This area represents a potentially significant hazard to those working in the rooms.

Remodel Rooms 234 & 236 CMWT, Physiology - ($102,500)

Rooms 234 and 236 are located in the Department of Physiology and Biophysics in the College of Medicine West Tower building. Room 234, an area of approximately 176 ASF, is currently used as a faculty office. Remodeling plans include installation of air conditioning, new vinyl floor and a suspended ceiling. Painting the walls will complete remodeling of this room.

Room 236, adjacent to room 234, is a research laboratory of approximately 272 ASF. Remodeling will consist of installation of air conditioning, vinyl floor and suspended ceiling. A conventional four foot fume hood is to be purchased and installed with the necessary duct work. New fixed metal laboratory equipment with formica counter tops will be installed, replacing existing wooden laboratory benches. Utilities (air, gas, vacuum) will be relocated.

Remodel Room 404, Pharmacy Building - ($223,500)

Room 404 is an instructional laboratory consisting of about 3,300 ASF and comprising approximately one-half of the north bay of the fourth floor of the Pharmacy Building. The east section of this room will be partitioned to provide two faculty office-laboratory suites, with the balance of the room retained as instructional laboratory. Existing lighting, ceiling, electrical services, laboratory benches and utility services and flooring will require alteration or replacement to accommodate the new arrangement.

The original design of the Pharmacy Building provided for students taught in large groups in large laboratories; however, in recent years emphasis has been placed on smaller teaching groups and training clinical pharmacists. Curricular revisions have rendered large laboratories such as Room 404 inefficient. In addition to meeting programmatic needs for realigned instructional space, the project will also reduce the current overcrowding of graduate students and provide needed office and research space.

Chemistry Department Remodeling - ($209,000)

The Chemistry Department suffers from an acute shortage of research space and inadequate instructional laboratories for advanced undergraduate and graduate chemical students. A review of the existing utilization patterns of the Department in Science and Engineering South shows that the space functions at maximum efficiency. With limited opportunities for addressing the Chemistry Department space problems in Science and Engineering South, alternatives were sought in the Science and Engineering Laboratories.

The FY 1985 request proposes planning the remodeling of second and third floor areas of the Science and Engineering Laboratories for Chemistry Department use. The remodeling will result in the creation of 12 laboratory units, three instrument rooms, and faculty and student offices on the second floor. Third floor remodeling will establish instructional laboratories for upper level coursework in analytical, organic, and physical chemistry.

URBANA-CHAMPAIGN CAMPUS

Microelectronics Center - ($3,500,000)

With the availability of the Herman M. Adler Clinic facility, the University has been granted an important opportunity to acquire additional facilities in a way that will benefit the development of high technology programs. The University has proposed a plan that would move the State Water Survey personnel, presently occupying the Water Resources Building at the corner of Sixth Street and Springfield Avenue in Champaign, to the Adler Clinic. The vacated space in the Water Resources Building would then be assigned to the Department of Electrical Engineering. Planning funds ($350,000) were appropriated in FY 1984 to plan the renovation of the building for the establishment of the Microelectronics Research Center.

The major element of the Center is the establishment of an electron beam lithography facility for the preparation of very large scale integrated circuitry and for research in sub-micron structures in semiconductor materials. The ability to fabricate such circuitry is important to the development of research efforts in solid state physical electronics and in the design and construction of advanced computer systems and very high speed integrated circuitry. As the trend continues toward faster computing speeds and to higher frequency applications of semiconductor devices, research into the physics of increasingly smaller semiconductor structures will become more important.

The square footage available in the Water Resources Building is 26,017 ASF. In many respects the building will serve very well for the purposes of modern electronics research; however, considerable renovation is required to bring it up to the sophisticated standards required for this type of activity. Most notably, modern electronics materials research requires working with highly toxic and corrosive chemicals, used for semiconductor crystal growth and other purposes. As a result, the fume hoods employed in that research must be fabricated of corrosion-resistant materials. Although hoods and exhaust systems are in place in the building, many must be replaced with more resistant materials to meet the needs of Electrical Engineering.

Semiconductor research, particularly the fabrication activities, must be conducted in an extremely clean and reasonably temperature/humidity-controlled environment. The ventilation system in the building will need to be extensively remodeled to provide the desired air quality.

A considerable amount of internal space reorganization is needed to make good use of the available square footage. Several internal walls have to be moved, and some office space converted into wet laboratory space. Fortunately, the building is quite well designed, and appropriate plumbing facilities are present in most areas.

The University intends to seek approximately $3,000,000 from private industrial sponsors and Federal agencies to acquire state-of-the-art electron beam lithography and other research equipment for the Microelectronics Center.

Digital Computer Laboratory Addition - ($1,081,000)

The Department of Computer Science has experienced a significant increase in enrollment in recent years. Enrollments in Computer Science have grown from 672 FTE in Fall 1975 to 1,067 FTE in Fall 1982. To meet the teaching demand imposed by the increase in students, the Department has relied heavily on teaching assistants and has increased the section sizes of its courses. In order to satisfy the various accrediting agencies, the Department must now hire additional permanent faculty to restore the student/staff ratio to a more satisfactory level and to reduce the section sizes of its courses.

In addition to its instructional mission, the Department of Computer Science continues to maintain the preeminence of its research reputation in the fields of computer architecture, information systems, software development, and automata theory. As a result of its direct research activities, the Department has garnered substantial funding for research programs from Federal and other sources.

The Digital Computer Laboratory houses both the Department of Computer Science and the Office of Computing Services. The office responds to the growing demand from students and scholars in various departments for computer supported instruction and research. Included in its activities are conducting computer workshops and consulting and troubleshooting for specific research projects utilizing the campus computer system.

The increasing demand for formal coursework from the Department, expanded research activities, and the developing need for computer support in the academic community at-large have combined to produce space needs that exceed the capacity of the Digital Computer laboratory. This project proposes constructing an addition of approximately 60,000 ASF to meet existing and future needs. The addition is programmed to contain the following types and amounts of space:

Room Type and USOE Code	ASF in Proposed Addition
Classroom (110)	3,000
Class Laboratory (210, 215)	17,500
Non-Class Laboratory (250, 255)	17,600
Office (310, 315, 350)	18,000
Lounge (650)	1,500
Storage (730)	2,000
TOTAL	59,600

It is projected that the Department of Computer Science will have the following enrollments when this project is completed and fully occupied:

Department Name	FTE					Headcount		
	F-S	J-S	Beg. Grad.	Adv. Grad.	Total	Beg. Grad.	Adv. Grad.	Total
Computer Sci.	395	438	127	107	1,067	200	125	325
Total	395	438	127	107	1,067	200	125	325

The total planning cost, including the initial steps in construction document development, is estimated to be $1,081,000. It is anticipated that funds for constructing this addition will be included in the FY 1986 Capital Budget Request.

Animal Science Lab Chilled Water Line - (Utilities - $275,000/Remodeling - $79,600)

The existing reciprocating freon compressors and condensors which provide chilled water to air condition the Animal Science Laboratory have reached the end of their productive lives. Continued repairs will prove ineffective in restoring the usefulness of the system. An analysis of various air conditioning options shows that the most efficient system in both short and long term is to extend the eight inch chilled water line

supplied by the Library Air Conditioning Center near Nevada Street to the Animal Sciences Laboratory. In addition to supplying cooling capacity to the Animal Sciences Laboratory, the new water line will have enough capacity to allow Bevier Hall to be air conditioned from that source at some time in the future. The project will require approximately 1,000 lineal feet of ductile iron chilled water supply and return. The remodeling associated with this project will provide the necessary modifications inside the Animal Sciences Lab to cool the building. Modifications will include the installation of new pumps, valves, and piping.

Commerce Building Planning - ($1,104,400)

With significant shifts in student enrollment toward the College of Commerce in the past several years, the College has relied heavily on teaching assistants. In order to satisfy various accrediting agencies the College must now hire additional permanent faculty to restore the student/faculty ratio to a more appropriate level. In order to house new faculty members and to address the lack of sufficient private offices for existing staff, construction of a Commerce Building is proposed. The new structure will be comprised of offices, the Commerce Library stack and study area, and classrooms.

This project is programmed to contain the following types and amounts of space:

Room Type and USOE Code	ASF in Proposed Building
Classroom (110)	9,000
Office (310, 315, 350)	29,300
Non-Class Laboratory (250, 255)	3,500
Storage (730)	700
Lounge (650)	500
Stack (420)	15,000
Reading (410)	15,000
Service and Office (310, 315, 350, 440)	2,000
Office (Information Retrieval) (310, 315, 350)	2,000
TOTAL	77,000

It is anticipated that the College of Commerce will have the following projected enrollments when this project is completed and fully occupied:

Department Name	FTE F-S	J-S	Grad.	Grad.	Total	Headcount Grad.	Grad.	Total
Commerce Admin.	--	--	--	--	--	--	--	--
Accountancy	227	565	54	34	880	76	70	146
Economics	762	599	46	88	1,495	26	92	118
Finance	71	403	23	30	527	23	28	51
Business Admin.	52	695	263	122	1,132	214	164	378
TOTALS	1,112	2,262	386	274	4,034	339	354	693

Upon completion of this project, approximately 33,100 ASF in David Kinley Hall (20,634 ASF vacated by the College of Commerce and 12,500 ASF of classroom space) will be used to consolidate the activities of the departments of Urban and Regional Planning and Landscape Architecture in one location along with the City Planning and Landscape Architecture Library. Also, the vacated space in David Kinley Hall will be used to provide new quarters for the Dean of the College of Fine and Applied Arts and a new location for the Graduate School of Library and Information Science's Library and its publication unit presently located in the Armory. Besides the space vacated in David Kinley Hall, the College of Commerce will vacate 5,180 ASF in the Armory which will be reassigned to solve the space requirements of other units. The library space provided by this project will free up 9,583 ASF in the Main Library to provide general relief to the University Library's overall space shortage.

The total planning cost document development is estimated to be $1,104,400. It is expected that funds for constructing this building will be included in the FY 1986 Capital Budget Request.

SPACE REALIGNMENT, RENEWAL AND REPLACEMENT(SR^3) - (REMODELING - $4,197,800/EQUIPMENT - $721,100)

The expeditious accumulation of research knowledge and the swift development of advanced research techniques require the remodeling of research laboratories and instructional areas devoted to scientific, technical and economic development curricula. The following SR^3 projects for Science, Technology and Economic Development address the renovation problems at the Urbana-Champaign campus which need immediate attention.

College of Commerce Remodeling - (Remodeling - $107,700/Equipment - $22,000)

The College of Commerce and Business Administration has experienced a 9.5% annual growth rate in undergraduate majors since the Fall of 1970. Similar growth has been experienced in transfer students and the graduate student population. The expansion from a 3,000 student population to more than 5,000 in less than a decade has severely impacted available office and classroom space. Additional classroom space has been allocated to the College, but new office space is not available.

The request is designed to alleviate this problem by expanding the number of offices within the current space available to the College. By completely remodeling 1,600 ASF at the south end of David Kinley Hall, additional modern private offices can be created. Work includes the removal of some walls, cast iron radiators, linoleum and old light fixtures. New walls will be constructed, T-bar suspended ceilings installed with recessed fluorescent fixtures, and new floor covering and air conditioning will be installed. The major portion of the equipment to be purchased will be office equipment such as desks, chairs, file cabinets and bookcases. This movable equipment will allow teaching staff members to use the remodeled space in an effective manner.

Newmark Laboratory Remodeling - (Remodeling - $740,100/Equipment - $159,500)

The remodeling planned for the Department of Civil Engineering in the Newmark Laboratory will modernize the existing space and provide facilities for the Highway Materials Group, presently located in Talbot Laboratory. The proposed changes will permit the consolidation of the administrative functions, staff, and activities of the Department. The Highway Materials Group will no longer be isolated from colleagues and the relocation will allow the group immediate access to support facilities such as shops, instrumentation, and test laboratories.

The UIUC Department of Civil Engineering is one of the most distinguished departments at UIUC. That distinction derives, in part, from the pioneering work of its faculty in the areas of structures and materials and from the capacity of the Department to move rapidly into vital areas of research and instruction. This project will permit the consolidation of

efforts in advanced environmental control technology, risk assessment and management, and transportation systems with an emphasis of rural and urban roadway and highway systems and railroads. The remodeling requested will involve wall changes, relocation and reorganization of activities, utilities modifications, traffic pattern revisions, storage area improvements, and the installation of fume hoods. Equipment will be purchased to modernize the teaching and research laboratories. Office furniture will comprise the balance of the equipment needs.

Upon the completion of this remodeling project, the Department of Civil Engineering will vacate its space in Talbot Laboratory (10,000 ASF). This space will be reassigned to solve some of the facility requirements for other College of Engineering units such as Computer Science, Electrical Engineering, and the Materials Engineering Research Laboratory.

Roger Adams Laboratory Remodeling - ($192,800)

This request involves remodeling 1,200 NASF on the Mezzanine "C" level of Roger Adams Laboratory to develop an office area for Chemical Engineering staff and graduate students. Chemical Engineering has experienced a significant growth in enrollment since 1971, primarily due to demand generated by energy/pollution problems faced by industry. Unfortunately, space allocated to the Department has not kept pace with its expansion. This project serves the dual purpose of providing additional space for Chemical Engineering, and completing a portion of a multi-phased program designed to upgrade space in Roger Adams Laboratory.

The area on Mezzanine "C" projected for remodeling is presently "open" with no permanent walls. This request involves constructing two concrete block walls; installing new lighting; painting the rooms; and adding central air conditioning.

Animal Room Improvements - (Remodeling - $126,800/Equipment - $52,000)

The project involves upgrading the existing animal holding facilities in the Electrical Engineering Annex to a level required by Federal regulations. Federal grant agencies have threatened to withhold research funds if the facilities are not improved. This is the third of a five-phased program to bring existing facilities into compliance with the U. S.

Department of Health and Human Services standards and regulations governing the humane handling, care, and treatment of laboratory animals.

The work to be done in the Electrical Engineering Annex involves remodeling 853 ASF on the first floor. The project includes modification of the ventilation system, dropping ceilings, installing sinks, partition changes, and installing a cage washer and a bottle filler. These improvements will allow the Department of Electrical Engineering to do a better job of caring for the animals and will save animal caretaker time. The major portion of the equipment to be purchased will be stainless steel cat and rodent cages and cabinets. The caging equipment is needed to meet Federal guidelines for the housing of laboratory animals. The Urbana-Champaign campus anticipates that after project completion, the facility will serve the animal holding needs for the Department of Electrical Engineering for a number of years.

Classroom Renovation - (Remodeling - $166,900/Equipment - $31,000)

This project is the first year of a multi-year program to upgrade and modernize a number of the older classrooms on campus. Forty-five percent of the classrooms are over 50 years old and several have not been substantially altered in many years. This phase will remodel nine rooms in Engineering Hall which are centrally located and heavily used. These rooms in Engineering Hall are over 80 years old. The goal of this project is to modernize the classroom space to support current methods of instruction. The work proposed will improve classroom audio visual capability by adding variable lighting controls and blackout shades, replacing pitted chalkboards, installing suspended ceilings, adding more effective heating and generally modernizing their appearance. Also, three small rooms are to be remodeled into two larger rooms to accommodate larger class sizes. To properly equip the rooms, approximately 300 new movable arm chairs will be purchased to replace old fixed chairs.

Teleproduction Facility Remodeling - (Remodeling - $203,600/Equipment - $295,200)

The current demand for high technology educational programs by business, industry, and government in Illinois and across the nation will likely continue to increase in the near future. The Office of Continuing Education

and Public Service has successfully operated an electronic blackboard remote teaching system continuously since 1974. In the past five years, more than 100 engineers in Peoria, Rockford, Quincy, and the Quad Cities have received masters degree level instruction through this remote teaching system. The single currently equipped classroom has a maximum capacity of only 25 students. We are unable to schedule many requested classes for off-campus industry via the electronic blackboard or taping because the on-campus enrollment exceeds 25 and dictates the use of a larger classroom.

This project provides for the remodeling of Rooms 406 and 408 Engineering Hall to provide teleproduction classroom facilities. Adjacent 72 and 32 seat capacity classrooms, joined by a central control area, will be constructed. Work includes: the removal of some walls and construction of new walls; installation of tables attached to the floor with electronic cable attachments for microphone pick-up; installation of electronic blackboards and rear-projection television monitors; installation of adequate heating, air conditioning and humidity controls; and provision of acoustical ceilings and lighting fixtures to provide various light levels required for normal use or for television production. The major equipment items involve specialized classroom seating, electronic blackboard, and video production equipment necessary to telecast courses over the state-wide network.

Astronomy Building Remodeling - (Remodeling - $251,900/Equipment - $25,000)

This project involves the conversion of a large 3,291 ASF open area on the second floor of the Astronomy Building into private offices for the Office of Computer Services and laboratories for Astronautical research (darkroom, library and star chart room, microphotometer room, etc.) for the Department of Astronomy. The Center for Advanced Computation, for which the building was originally built with Federal funds in 1971, suffered a severe cutback in its Federal funding in 1978. In order to provide better utilization of the space in that building and to fulfill a long-recognized need, the Urbana-Champaign campus moved the Astronomy Department to the Advanced Computation Building and moved the remaining units of the Center for Advanced Computation to the Observatory space which was vacated by Astronomy.

Although the total available space in the Astronomy Building is adequate for Astronomy's needs, several portions of this space (the second floor and the roof) currently are not usable. This means that, until the proposed remodeling is accomplished, both the research and teaching efforts of the Department cannot be optimally performed. For example, those observers who require darkroom facilities and instructors who conduct night sky observing sessions will have to shuttle back and forth between the old Observatory Building and the Astronomy Building. Also, a teaching lab in Noyes Lab will now have to be retained until adequate replacement facilities can be provided through this project.

The work to be done involves replacing the existing elevated floor (steel panels supported by jacks) with a permanent floor, constructing partitions with doors, installing three windows in the exterior wall, relocating darkroom equipment from the Observatory to the new rooms in this project, and constructing a platform on the roof for a telescope viewing laboratory. The major part of the equipment will be telescopes which will be used in Astronomy's instructional program for night sky observing sessions. Office furniture and research equipment items make up the balance of the equipment needs.

Loomis Laboratory Remodeling - ($92,500)

This request involves the installation of an emergency power source to operate a limited number of pieces of research apparatus, operate building sump pumps, and to provide lighting for stairways and interior hallways of Loomis Laboratory of Physics Building.

The hazards and expenses related to the lack of an emergency power source could be minimized by an emergency generator. As currently planned this generator could be operated by an engine fueled by either natural gas or by propane gas stored on site and equipped with an automatic cut-over device to start the engine and supply power. The new system would provide backup power to: 1) selected research apparatus, especially vacuum pumps, on a limited emergency basis in order to keep from losing an experiment that has been underway for a substantial period of time; 2) sump pumps in the basement as a protection against the flooding of mechanical equipment and instructional aids; 3) fume hoods designed for the emission of toxic materials from Loomis Laboratory; and 4) lights placed in strategic positions in the building to aid in emergency exits.

Radiology Laboratory - Remodeling - ($585,800)

The decentralized radiology laboratory locations at the Veterinary Medicine Teaching Clinics create an inefficient use of staff. It is proposed to consolidate the radiology laboratory in the Small Animal Clinic to provide a more efficient facility. This can be done by expanding the present small animal radiology suite into the ambulatory garage (Room 198 and the bulk storage room--Room 186). By remodeling these rooms and the existing small animal radiology suite, an efficient facility can be developed. This new arrangement would encourage full utilization of small animal services with additional diagnostic information and documentation of disease while easing the burden of the anesthesia staff which must currently transport small animals to and from the Large Animal Clinic for special radiographic procedures.

Installation of Safety Showers - ($74,300)

This is a safety oriented request involving the installation of safety showers in 29 locations in Burrill Hall and three locations in Morrill Hall. Due to the activities which are conducted in these facilities, safety showers must be installed to bring the facility into compliance with OSHA safety regulations. Additionally, the Urbana-Champaign campus Office of Environmental Health and Safety identified these areas as vulnerable because of dangerous chemicals used in the laboratories. This request is part of an overall program to correct safety deficiencies in the Urbana-Champaign campus permanent buildings.

Noyes Laboratory - Fume Hood Improvements - ($253,000)

This project involves the renovation of fume hoods in Noyes Laboratory as part of an overall program to improve fume hoods throughout the campus. Improvements would be made to 35 fume hoods located in Rooms 157, 260, 350A, 350B, 355, 357, 450 and 450A Noyes Laboratory. Duct work must be replaced or repaired and the hoods and fan housings must be made leak proof. Existing leaks in the hoods and ducts allow toxic materials to escape and enter into offices and laboratories located on floors above these rooms. In addition, fans on most of the hoods must be relocated above the roof to meet current code requirements.

David Kinley Hall--Room 114 - (Remodeling - $314,600/Equipment - $11,000)

This project consists of the complete renovation of a 2,537 ASF lecture room in David Kinley Hall. This project is one in a series of efforts to upgrade the 50-60 year old lecture halls. These facilities are totally outdated in ventilation, heating, lighting, seating and are inadequate for any audio-visual service. Presently this room has a limited use due to the marginal services provided.

The remodeling of this room would consist of installing an air conditioning/heating system, a new ceiling and lights, new floor tile and seats, plus necessary installations and remodeling required to provide audio-visual capabilities needed for certain lectures. The air conditioning/heating system modification is essential to provide temperature controls and ventilation when the audio-visual services are in use. These services require that all doors and windows be closed with black-out shades to prevent light from entering the room during a film showing. The equipment request consists of a motion picture projector, slide projectors, an overhead projector, a lectern and stand, and a screen.

Davenport Hall Remodeling--Biophysics - (Remodeling - $675,000/Equipment - $125,400)

This request involves remodeling space in Davenport Hall for the Biophysics Division of the Department of Physiology, presently located in Noyes Laboratory. This remodeling project would provide space at an excellent location to help alleviate the crowded conditions in the School of Life Sciences and would create the core of space needed to develop a Center of Biophysics Research for graduate education. Additionally, the space on the floor directly above this project is occupied by a group of scientists from Life Sciences and the College of Agriculture who have a common interest in the study of photosynthesis. The physical location of these two groups will be beneficial to both groups of scientists.

Approximately 3,000 ASF would be remodeled into wet laboratory and office space. The work would involve a new floor, partitions, air conditioning, plumbing, lighting and ceiling improvements. The equipment includes the purchase of centrifuges, an autoclave, incubators,

refrigerator/freezers, and various office equipment. This work is planned in conjunction with the major remodeling in Davenport Hall. After the Biophysics Division is relocated, the vacated space in Noyes Laboratory will be used to meet additional space requirements for the Department of Chemistry.

Fume Hood Improvements - ($412,800)

This project involves the renovation of fume hoods in Turner Hall and the Animal Sciences Laboratory, as part of an overall program to improve fume hoods throughout the campus. Improvements would be made to all fume hoods located in 25 rooms of Turner Hall. The fume hoods installed in Turner Hall Phase I construction do not meet safety standards. The exhaust outlets need to be increased in height and changes made to increase fan velocity to prevent toxic fumes from reentering through fresh air inlets. In most cases larger fan motors will have to be installed.

The improvements in the Animal Science Laboratory Building involve fume hoods located in 25 rooms. Fan motors must be relocated from the rooms to the penthouse with concurrent installation of extended discharge ducting. The resultant increased face velocity to the fume hoods will compound negative air pressure problems in the building. This situation must then be corrected by increasing the make-up air quantity to the building.

Television and Radio Building - ($440,000)

The television and radio stations provide a valuable public service to the people of the State of Illinois, reaching more people each week than all of the rest of the University's units combined, at a cost of less than a half-cent per listener-hour. This is the only connection to the University for many people in Illinois.

Despite the value of these services, the Division of Broadcasting occupies many buildings on campus which were not designed for use as broadcasting facilities (aside from the New Studio Addition built in 1970). Thus, this project addresses two critical needs: 1) providing space of adequate quality and quantity, and 2) centralizing the television and radio operations of the Division of Broadcasting for more efficient administration

and more economical operation. Additionally, because the Division would be vacating a wing of Gregory Hall on the central campus, which houses the radio broadcasting operation, there would be a substantial gain of prime space which could be economically reconverted to classrooms and offices.

The existing space occupied by the television station, a former bakery and a former rooming house, is badly deteriorated and requires continuing maintenance. One exterior wall of the bakery building was recently rebuilt to prevent water leakage on expensive equipment. The roof is under constant repair, but has deteriorated to the point that the repairs will last only temporarily. The dust level in the bakery building is unacceptably high, but cannot be reduced because the dust consists of crumbling plaster, paint dust, and insulation fibers. This dust penetrates expensive videotape machines and causes enormous damage and expense on a continuing basis: videotape operation costs are approximately five times the industry average despite extensive air filtration and dust containment measures undertaken by the division. Even existing office space at the Television Building is inadequate.

This project is programmed to contain the following types and amounts of space:

Room Type and USOE Code	ASF in Proposed Building
Instructional Lab (210, 215)	600
Office (310, 315, 350)	10,000
Audiovisual, Radio TV (530, 535)	13,500
Storage (730)	400
TOTAL	24,500

Upon completion of this project, 10,638 ASF of space will be razed. The buildings to be razed are as follows: Television Building, excluding the "New Studio Addition" constructed in 1970 (7,812 ASF), 1110 West Main, Urbana (2,002 ASF), and the TV Annex (former portable classroom, 824 ASF). Additionally, upon the project's completion, 9,180 ASF in the following buildings will be vacated for reassignment to other units: Gregory Hall (4,757 ASF), 59 East Armory, Champaign (896 ASF), and the Studio Addition (3,527 ASF).

The total planning cost of the proposed building is estimated to be $440,000. It is anticipated that a request for funds for constructing this project will be included in the FY 1986 Capital Budget Request.

Noyes Laboratory - ($598,000)

This project involves renovating the plumbing system and the remodeling of the west entrance to Noyes Laboratory. Currently, the School of Chemical Sciences is constantly repairing drains and water lines in Noyes Laboratory due to deterioration over the 68 (Phase II) to 82 (Phase I) year life of the building. Also, there have been so many plumbing modifications over the years that it is very difficult to keep the system in working order.

The west entrance to Noyes Laboratory has two very large doors which allow a tremendous amount of cold air to enter the building in the winter and makes the first floor corridor uncomfortably cold. The entrance has been used extensively for 80 years and needs to be upgraded and modernized to help eliminate the current conditions and improve the appearance of the building.

These plumbing and entrance replacements are two of several building system components that require improvement. The building requires extensive replacements and improvements to the electrical, heating, and temperature control systems; window replacements; an elevator replacement and fume hood improvements. These items are all part of the needed improvements which will be requested in future years to make the building more functional.

Natural Areas Research Land - ($64,200)

This request is to purchase a 130 acre tract of land is currently used extensively by the Department of Botany; Ecology, Ethology, and Evolution; Entomology; Forestry; and by the Illinois Natural History Survey for staff and graduate student research. The area consitutes the primary field research facilities for the ecology group at the Urbana-Champaign campus. It also is the only tract of land available for ecological research in which manipulative studies can be accomplished. All other ecological research areas are designed as "natural areas". As such, they cannot be used for manipulative studies. The ability to manipulate habitats and populations is essential to testing hypotheses concerning ecological phenomena.

ADDENDUM

2020 West Ogden Avenue

In FY 1984 the General Assembly authorized and the Governor approved $11.1 million for the University to purchase the facilities located at 2020 West Ogden Avenue, Chicago. The building was formerly used by the Chicago Medical School for instruction and research. The ten-story structure, constructed in 1961, borders on the northwest side of the Chicago Health Sciences Center.

This facility will be the locus of a high technology development in the Medical Center District. The University is actively seeking research and development enterprises as tenants for the building. It is expected that the majority of firms occupying the structure will concentrate on medical, pharmaceutical, and biological research.

The 2020 West Ogden Avenue facility presently contains wet laboratory and support space, but the laboratories are inadequate for service as state-of-the-art bio-technical research areas. To attract emerging research firms as tenants, it will be necessary to upgrade the building's laboratories by improving utilities and ventilation systems, including fume hoods, and remodeling the laboratory areas by appropriately rearranging interior walls and partitions.

Although precise cost estimates will be determined by the nature of the specific activities undertaken by the tenants, it is believed that total remodeling costs will range from $2-4 million. Requests for remodeling funds may be submitted for consideration by the General Assembly, once a clearer picture of the total need emerges.

MEETING CHANGING HEALTH CARE NEEDS

MEETING CHANGING HEALTH CARE NEEDS
(Dollars in Thousands)

Project	Budget Category	Cost
CHICAGO		
Pharmacy Building Air Conditioning	REMD	$ 5,079.0
Space Realignment, Renewal, and Replacement	REMD	1,982.7
Total		$ 7,061.7

MEETING CHANGING HEALTH CARE NEEDS
CHICAGO CAMPUS

Pharmacy Building Air Conditioning - ($5,079,000)

The problem, inadequate ventilation and the lack of air conditioning, dates back to the original construction of the Pharmacy Building. The building design and appropriation request were based on the development of an enclosed "T" shaped building, with the air conditioning capacity to be located in the back of the building. However, the appropriation was sufficient only to construct the front part of the building, thus creating a building with fixed windows and no air conditioning. When the three small additions were constructed, they were air conditioned. Unfortunately, these areas encompass only a small part of the facility and include very few instructional or faculty areas. To further exacerbate the problem, the existing ventilation system is inadequate. Those two factors unite to create an unhealthy, unsafe and counterproductive environment.

The American Council on Pharmaceutical Education, in its 1974 accreditation report, cited the problem in its evaluation of the College's physical facilities. "Unfortunately, the building is inadequately ventilated and sealed without provision for air conditioning which leads to discomfort and inefficiency."

The combination of lack of air conditioning and inadequate ventilation manifests itself in several ways: extreme heat (temperatures often reach 90° and higher) in both the winter and summer; extreme fluctuation in temperature; the introduction of noxious and toxic fumes exhausted from several laboratories into other areas; and the introduction of large amounts of black soot into some areas. The extreme heat and toxic fumes create hazards to the building's occupants. Due to these aggregate problems, much time, money, and patience have been exhausted in trying to correct or at least make the situation tolerable.

This project involves the upgrading of the air conditioning and ventilation system by the installation of additional ventilating systems, including air handling systems, air distribution systems, chilled water piping and pumps, automatic temperature controls and related electrical

services. Additional chilled water capacity to support the new ventilating system is to be obtained from a chilled water generating plant external to the College of Pharmacy Building.

SPACE REALIGNMENT, RENEWAL AND REPLACEMENT (SR^3) - REMODELING - ($1,982,700)

Changing attitudes regarding responsibility for individual health care and the development of revolutionary medical procedures are modifying the health care system. The FY 1985 request includes several SR^3 projects which improve the mechanical building systems of facilities housing health care instruction units and clinics. SR^3 projects included under the Meeting Changing Health Care Needs theme are:

Air Condition 1919 W. Taylor Street - ($978,800)

The 1919 West Taylor Street Building, formerly the Public Health Hospital and Clinics, was transferred to the University in June 1975*. The facility houses the Sickle Cell Program, the Division of Services for Crippled Children, the Family Practice Program and three curricula of the School of Associated Health Professions: Occupational Therapy, Physical Therapy and Bio-Communication Arts. The building is presently ventilated by 100% outside air supplied through the corridors and has no central air conditioning system. The individual rooms have no ventilation units or provision for ventilation ducts.

This project provides for the purchase and installation of a central air conditioning system and the necessary related components, and will provide chilled water to floors 1, 2, 3, and 4. The components included are:

- 300 ton chiller
- Cooling tower
- Condensate pumps & piping
- Chilled water pumps
- Chilled water risers
- Chilled water valves
- Electrical connections
- Controls

Future phases to complete the system will provide lateral distribution for the floors.

*This H-shaped, eight story building, constructed in the early 1950's, has approximately 109,000 ASF.

Remodel Room 200 - College of Pharmacy - ($477,400)

Room 200 is a large lab, 6,600 ASF, located in the north bay on the second floor of the Pharmacy Building. The original design provided large laboratory space for students taught in large groups with an emphasis on training dispensing pharmacists. This remodeling project will provide modern, updated laboratory space for teaching smaller groups of students an training clinical pharmacists.

The renovated area will create model working pharmacies which will duplicate conditions in the working world for undergraduate students. The program requires the removal of existing equipment and a complete remodeling of the area. The project will efficiently modernize available space and assist in maintaining program quality in the College of Pharmacy.

Distribution of Electrical Power, Floors 2, 3 & 4, 1919 W. Taylor St., CAHP - ($268,200)

Upgrading and modernization of electrical services in the 1919 W. Taylor Street Unit began with the allocation of funds in FY 1979 and FY 1980. Completion of this funded work will provide adequate electrical service to the building for future needs and will distribute power vertically to the first four floors.

This project provides for the lateral distribution of electrical power on floors 2, 3 and 4 to accommodate the needs of the Biocommunications Arts, Occupational Therapy, Physical Therapy, and graduate programs of the College of Associated Health Professions. Absence of sufficient electrical service prevents these programs from implementing fundamental instructional, research and administrative activities.

Air Condition 6th and 7th Floors - South Tower of Neuropsychiatric Building - ($258,300)

This project consists of air conditioning inadequately ventilated space on the 6th and 7th floors of the South Tower of the Neuropsychiatric Building. This area, approximately 7,000 ASF, comprised a significant proportion of the academic and research space for the Department of Psychiatry. This request is continuation of an air conditioning project already begun.

IMPROVING ACCESS TO PROGRAMS AND SUPPORT SERVICES

IMPROVING ACCESS TO PROGRAM AND SUPPORT SERVICES
(Dollars in Thousands)

	Budget Category	Cost
CHICAGO		
Library Improvements	PLAN	$ 349.9
Relocate Office of Admissions and Records	REMD	1,176.0
Roosevelt Road Building Electrical Upgrade	REMD	547.0
Space Realignment, Renewal and Replacement	REMD	4,135.3
Total		$ 6,208.2
URBANA-CHAMPAIGN		
English Building	REMD	$ 2,867.0
Space Realignment, Renewal and Replacement	REMD/EQUP	3,638.2
Pennsylvania Avenue Street Improvements	SITE	250.0
Pilot Training Facility	BLDG/UTIL	1,511.9
Huff Gym Remodeling	PLAN	165.0
Police Station	BLDG/UTIL	2,213.9
Davenport Hall Remodeling	PLAN	175.0
Outdoor Instructional/Recreational Facilities	SITE	150.0
Total		$10,971.0
Grand Total		$17,179.2

IMPROVING ACCESS TO PROGRAM AND SUPPORT SERVICES
CHICAGO CAMPUS

Library Improvements - ($349,900)

This project will provide the architectural and engineering design specifications for renovating the Library. The program for remodeling the Library can be separated, for the purpose of explanation, into three parts:

1. Found space, i.e., the recovery of space by a) filling in the remaining wells on the fourth floor; b) enclosing the balconies on the second, third and fourth floors; c) designing Library space in the north and south ends of the basement in space originally designed for mechanical equipment; and d) remodeling space presently occupied by the Office of Admissions and Records but designed originally as Library space.
2. First floor remodeling.
3. Second floor remodeling.

With the completion of this remodeling program, the campus will have recovered all available space in the UIC-UC Library building.

Found Space -- Space found by enclosing the balconies on the second, third and fourth floors will represent a gain of approximately 3,300 ASF per floor, or a total gain of 10,000 ASF. The space found by filling in the wells on the fourth floor will represent a gain of 2,400 ASF. Space on this floor will be used for patron seating and increasing the stack efficiency by freeing an equivalent amount of space elsewhere in the building for additional bookstacks.

The areas to be remodeled in the basement will be used for the storage of manuscript and archival materials now stored in various locations inside and outside the Library. If space permits, the Staff Lounge will be relocated on the first floor and the basement space previously used as a lounge will be converted to materials storage. Compact shelving installations will be planned for these areas. Existing shelves will be used for expansion on other floors of the building.

Approximately 13,000 ASF will be recovered from OAR space on the first floor. The use of the space is described in the first floor remodeling.

The total found and remodeled space is about 31,850 ASF.

First Floor-Remodeling -- The first floor will become the location for the most heavily used and basic public services--reserve books, current journals and newspapers, the circulation desk, and seats for studying one's own material between classes as well as for using library books and other media. Commuting students and faculty will be able to rapidly locate and use these vital services. These areas also will be designed to remain open while the rest of the building is closed. In other peripheral, but strategically located spaces, the appropriate technical service units will be grouped around the loading dock. The administrative offices and the personnel office will be located at the Morgan Street door.

Second Floor-Remodeling -- The second floor of the Library is as important as the heavily used first floor. The second floor entrance will be closed and the front stairs leading to the first floor removed. Round tables and informal seating will be provided so as to create an attractive area for users.

The original reference counter will be removed, thereby allowing the reorganization of the reference and bibliographic collections on second floor north with accessibility for the reference librarians on duty at the information desks, the bibliographers in the Collections Development offices, and the staff members of the Cataloging Department. Offices for the reference librarians will also be provided in three locations surrounding the card catalog, the reference and bibliographic collections, and the information desks.

Relocate Office of Admissions & Records - ($1,176,000)

The Office of Admissions and Records must vacate space occupied in the Library Building, designed originally as library space, to allow the Library to expand and complete its remodeling program. The new location for the Office of Admissions and Records will be Jefferson and Henry Halls, 929 and 935 West Harrison Street. Departments presently using the proposed space will be relocated to the facility known as the Peoria Street Building.

As proposed, the remodeling in Jefferson and Henry Halls includes approximately 16,000 ASF of existing floor space and approximately 1,000 ASF of floor space in the basement. Remodeling will consist of construction of an atrium connecting both halls, as well as a walkway between the third floors of each building. The existing walkway connecting the second floors of the buildings will be covered by the atrium, also. An elevator will be located in the atrium to provide accessibility to handicapped persons and serve the staff of the Office of Admissions and Records.

The Office of Admissions and Records presently occupies 15,275 ASF in the Library. The combination of the need to move the Office of Admissions and Records from the Library, the need to keep it centrally located, and the availability of the Jefferson and Henry Halls space make this 16,000 ASF remodeling project an excellent alternative for relocation.

Electrical Upgrade - Roosevelt Road Building - ($547,000)

The University of Illinois computer system is centralized in the Roosevelt Road Building. This administrative computer system provides the computer capability for the campuses of the University of Illinois; consequently, any power failure for an extended period would seriously disable University operations. While a standby power system would be the ultimate answer, it is believed that a double source of electrical power supply will be sufficient to ensure suitable continuity of electrical service. At the present time there are two 12,000 volt power distribution lines from two separate high voltage cables coming to the Roosevelt Road Building; however, a bottle neck exists, since there is only one transformer to reduce the voltage to 480 volts. This project will provide a second transformer and complete switch gear that will allow switching from the high voltage cables to the second transformer in the event that the existing transformer fails.

SPACE REALIGNMENT, RENEWAL AND REPLACEMENT (SR^3) - (REMODELING - $4,135,300)

The University of Illinois has made an enormous capital investment in instructional, research, and public service facilities. To maximize the use

of these facilities, it is necessary to implement a number of minor remodeling projects designed to upgrade building structural integrity and advance the programmatic utilization of each facility. SR^3 projects categorized under the Improving Access to Program and Support Services are:

Handicapped Accessibility - Phase II & Partial Phase III - ($342,400)

The provisions of Section 504 of the Federal Rehabilitation Act of 1973 require that the educational programs of universities receiving Federal support be accessible to the handicapped. This project is the second phase of a multi-phase program to increase the accessibility of all facilities at the Chicago-University Center. Examples of the work to be done include modifying sidewalk grades, construction of ramp entryways to various buildings, and modifying doorways to eliminate accessibility barriers. Work will be conducted at 14 locations at the University Center.

Code Corrections - Peoria Street Building - ($461,100)

The Peoria Street Building consists of two separate but adjoining buildings. The buildings contain both administrative and public service operations as well as several academic units.

This project calls for the replacement of the wood stair in the southwest corner of the south building with a stair of non-combustible construction. The stairs are a necessary second exit from this building and must be replaced in its entirety (basement to sixth floor). In its present deteriorated condition the stairs are a safety hazard and must be replaced to comply with code.

In addition to the above, the following conditions in both the north and the south buildings must be revised to comply with code:

--Extend landings & enclosure of south central stairs at eight landings.

--Install new firedoors, frames and related hardware.

--Provide two door enclosures at north central stairs, six landings.

--Provide four door building separation vestibules between north and south buildings--five floors.

--Revise exits from building as required.

--Provide fresh air intakes to air handling units from roof.

Exterior Masonry Repairs - Phase III - ECB and Peoria Street Building - ($377,200)

This project includes repairs to the walls of the Education and Communications Building and the Peoria Street Building. The work includes grinding out mortar joints on exterior brick work, removal of weathered caulking, removal of bricks and stone where necessary, replacing flashing, replacing weeps, installing expansion joints where necessary, modifying shelf angles, tuckpointing where indicated, and recaulking and reinstalling the exterior masonry removed during the project.

This phase is a continuation of work begun in Phase II for the Education and Communications Building and begins repairs to the Peoria Street Building. Future phases will complete the work begun in this phase.

Pedestrian Safety - ($232,200)

To prepare for future construction of a pedestrian mall at UIC-UC, traffic flow will be interrupted on Morgan Street with the Installation of a curb across the Morgan Street right of way as an extension of the south Harrison Street curb. Street drainage at this point will be altered as a result of this curbing, and the intersection of Harrison and Morgan will become a "T" type of interchange. Approximately 300 feet south of the Harrison Street curbing, additional curbing will be constructed, creating a gentle curve that will cause traffic to flow from Vernon Park Place (eastbound and westbound) into Morgan Street (northbound and southbound). The first phase essentially isolates the area.

Future phases will provide a pedestrian mall in the area between Harrison Street and Vernon Park Place in the vacated Morgan Street right of way. Plans for the mall include provision for one limited access service drive for University Hall and one for the Behavioral Sciences Building. In addition, a network of pedestrian walks will be constructed. These areas, together with the rest of the mall, will be provided with an underground drainage system. Planter areas will be provided throughout the mall and proper subsoil and topsoil will be provided to fill these planter areas to grade. The trees, shrubs, and grass for the planters will be financed separately, but the work will be coordinated with this phase of the mall development. All necessary dismantling work, such as paving, curbing, subsurface drainage, etc., will be included in these future phases.

There is approximately 20,000 square feet of abandoned right of way that is to be redeveloped in this mall project. In addition to the right of way area, there is approximately 5,000 square feet of building access to the Behavioral Sciences Building and 10,000 square feet of building access to University Hall to be considered in the mall project.

Exterior Masonry Repairs - Phase IV - Services Bldg. and Peoria Street Building - ($450,500)

This project initiates repairs to the walls of the Services Building and continues repairs to the Peoria Street Building begun in Phase III. The project will require the grinding out of mortar joints on exterior brick work, removal of weathered caulking, removal of bricks and stone where necessary, replacing flashing, replacing weeps, installing expansion joints where necessary, modifying shelf angles, tuckpointing where indicated, and recaulking and reinstalling the exterior masonry removed during the project.

Remodel Locker Room for Conference Space - College of Nursing - ($248,500)

The College of Nursing space (approximately 4,800 ASF) was initially planned as a locker room which is no longer needed. The project includes the removal of existing concrete block pedestals, purchase and installation of movable partitions; installation of new doors and carpeting; revisions to the existing ceiling, ventilation, lighting, and power distribution; and installation of air conditioning.

At the present time the space is utilized for equipment storage. After renovation it will provide space for clinical nursing conferences for undergraduate students and study and seminar space for graduate students. At the present time there is no space available for conferences in clinical settings. This remodeling will provide an appropriate graduate student work environment.

Campus Emergency Power Distribution Network - ($1,200,000)

This project provides for installation of a 1500 KW diesel-driven generator, controls, substation, and connecting cabling to provide autonomous emergency power to seven Chicago-Health Sciences Center main block buildings. These buildings are:

General Hospital	Hospital Addition
Illinois Surgical Institute	Biological Resources Laboratory
Campus Health Service	Neuropsychiatric Institute
Old Aeromedical Laboratory	

The emergency equipment currently available, two emergency generators located at the Hospital Addition and the General Hospital, is either inoperative or inadequate as an alternate power source.

The proposed unit will be placed at the Central Emergency Generator facility located at the Steam Plant to eliminate isolating generators and to simplify testing and maintenance.

Handicapped Accessibility - Phase III - Provide ANSI Doors - ($444,600)

The entrance doors to most of the existing campus buildings were constructed with a 2 feet 6 inch module. These doors are grouped in pairs, and there is an inner and outer pair in each vestibule to each building. The existing doors have been provided with a mullion between the doors so that the buildings may be electronically secured. This security is necessary and vital to the campus operation. However, the installation of these mullions has created entrances that are not acceptable to the provisions of Article 504 of the Federal Rehabilitation Act of 1973. It is necessary to retrofit all of the entrances in order to comply with this law and with the newly developed ANSI standards.

This project provides two pair of accessible doors at the main entrances of all of the older Center buildings. One pair of doors replaces the outer pair and one pair replaces the inner pair at the typical main, vestibule entrance to each building. The new doors will be constructed in three of the standard 2 feet 6 inch modules of the existing glass curtain wall. This project completes work begun in Phase II and Partial Phase III.

Campus Security Access - Phase II - ($200,000)

The Series 1 Controlled Access Systems at the Chicago campus are computer-based magnetic stripped card controlled building access systems. At the Health Sciences Center the system controls access to twenty (20) buildings. At the University Center the system controls access to five (5) buildings. This system also remotely locks and unlocks each building at a preset time and keeps a record of each after-hour entry per building.

The purpose of this project is to complete the installation of the controlled access system at both the University and Health Sciences Centers.

Specifically, the scope of the project is as follows:

1. Install necessary cabling from the computer located in the Service Building to each building.
2. Install necessary badge reader and interface at the "after-hour entry" door at each building.
3. Make the necessary connections at the building and computer.

The project involves the installation of forty (40) card readers in twenty-six (26) buildings.

Although the Series 1 Controlled Access System is an integral part of the campus security system, it is not an alarm system. The existing campus-wide security alarm system will be converted to a computer-based system in the near future.

Remodel Theater Lobby and Air Condition Theater Equipment Room - ECB - ($178,800)

This project will provide for the installation of a complete ventilating and air conditioning system in Room 2180 of the Education and Communications Building. The room was designated in Phase I as a storage area for lighting dimmer theater equipment. However, because this room has abnormally high temperatures and inadequate ventilation, the replacement dimmers frequently break down. The lighting dimmers are located at the ceiling level of the three story theater, Room L-280, and are at approximately the same level and physically mounted in the upper catwalk adjacent to the lights they control. Continuous use of the lighting increases the temperature to a level that the dimmers cannot tolerate, causing most of the dimmers to break down. Consequently, the replacement dimmers were moved to Room 2180, a separate room adjacent to, but separate from, the theater.

This project, representing the second phase, proposes to install an HVAC system (ductwork, fan, insulation and thermostatic controls) that will maintain the required temperature level in Room 2180, thereby preventing any future breakdowns of the replacement dimmers. This will be the first step in counteracting the overheating and subsequent dimmer failure caused by the close proximity to the theater lighting.

Also, this project proposes to move the theater box office from its present location, Room L-282 in the basement. This location is remote from the public entrance to the theater and accessibility to the basement area compromises the security of the entire building. Therefore, this project proposes to construct a new box office in the main theater lobby, L-280A, next to the public entrance. This main theater lobby is directly accessible from Harrison Street and is a natural location for the box office.

The following items will also be installed in the main lobby as a part of this project:

1. A new display case to match the existing one located on the west wall of the lobby.
2. New graphics identifying the theater as well as the new box office.
3. New fixed public seating to accommodate those waiting to enter the theater. This seating will be of vandal-proof molded fiberglass.

URBANA-CHAMPAIGN CAMPUS

English Building Renovation - ($2,867,000)

This request represents the third phase of a multi-phased project to completely renovate the English Building. The total renovation program is estimated to cost approximately $8,500,000 and is scheduled to be completed in two more phases. After the total remodeling project is completed, the English Building will be for all practical purposes new inside the exterior walls. The remodeling is estimated to cost 40-50% less than construction of a new facility of the same size. The total remodeling program involves a new heating and air conditioning system for the building, construction of a new fire rated stair, enclosing two existing stairs, installation of an elevator, additional rest rooms and new plumbing installations, new structural flooring in the west half of the building as well as the typical partitioning, lighting and ceiling improvements.

The English Building was originally constructed as a Women's Building some 75 years ago with two subsequent additions in 1913 and 1923 to provide a facility to house the home economics and the women's physical education

program. The nature of the original programs required large rooms which have proven to be awkward to the English Department because the department requires a large number of offices to house faculty and teaching assistants. The gymnasium and locker rooms previously used by physical education are inappropriate for any other use without extensive remodeling. The proposed remodeling will give the Department of English adequate classroom and office space to conduct its program in space designed to meet current needs.

The phase currently requested involves renovation of the northwest section of the building as well as the west center portion of the building on the first, second and third floors. The remodeling will involve the installation of an elevator and the construction of new structural floors in the areas to be remodeled. The scope of the remodeling in this phase will be substantial because everything will be new within the outside walls. The remodeling is justified because the English Building is a permanent building and will provide good service for years to come after remodeling. The remodeling basically will provide office space, and instructional areas and involves remodeling 22,500 ASF. There will be an equipment request in FY 1986 to support this Phase III request.

SPACE REALIGNMENT, RENEWAL AND REPLACEMENT (SR^3) - (REMODELING - $3,482,300/EQUIPMENT - $155,900)

The replacement cost of Urbana-Champaign campus facilities exceeds $1 billion. To protect this investment, the University requests funding of a minor remodeling program which will upgrade building systems and renovate space to meet shifting programmatic needs. SR^3 projects categorized under Improving Access to Program and Support Services are:

Accessibility Improvements - ($146,600)

This project includes the conversion of old restroom facilities in ten (10) permanent buildings for accessibility by handicapped students, faculty, employees and/or guests of the Urbana-Champaign campus. Work would include the widening of water closet shelters, installation of grab bars, reswinging of doors, lowering of mirrors and towel dispensers, and in some cases the removal of urinals or other stools to provide access space

required. Upon completion of the restroom portion of the project, eighteen (18) restrooms will be converted in buildings that presently have restrooms which are not accessible. These ten buildings have 159 classrooms and 69 instructional laboratories plus offices, gymnasiums, pools, etc.

The second portion of the project involves the installation of a paraplegic ramp at the Institute of Labor and Industrial Relations Building. The existing ramp, located at the rear entrance, does not meet current code requirements for paraplegic access (slope of 1:5.2). New code requirements recommend a maximum slope of 1:12 in new construction. This request is a portion of an overall accessibility improvement program at the Urbana-Champaign campus to make permanent buildings readily accessible to the handicapped. There will be similar requests in future years for this type of improvement.

Sprinkler Systems - ($418,200)

This request involves sprinkler protection for the Natural History Building, Arcade Building and Coble Hall. The Natural History Building contains many of the instructional laboratories for the School of Life Sciences and houses the Department of Geology. This building is located on the Quadrangle and fits into the Urbana-Champaign campus long range safety plan to eliminate safety deficiencies in permanent buildings.

The Natural History Building portion of the project consists of planning and installing an overhead sprinkler system for the south portion (55,000 ASF) of the building. The system is necessary to comply with the building code for multi-story buildings and to provide consistent, high quality fire protection for both the building and the lives of its occupants. The north portion (36,000 ASF) of the Natural History Building is already supplied with sprinkler equipment. Therefore, this project will be an extension of the existing north section. The installation will involve plumbing work and minor construction and repair work to run the required piping into each room.

The Arcade Building has the same type of construction as the Natural History Building and does not meet current codes. This request involves extending the sprinkler system to protect the 7,500 ASF on the second floor

(Mathematics Department) and the storage area on the third floor. The Arcade Building is located on Wright Street near Green Street and is considered a permanent campus building.

Coble Hall is located across the street from the Administration Building and provides office space for the Graduate College, Business Affairs, and the faculty of the Department of Mathematics. This portion of the project includes the planning and installation of an overhead sprinkler system for the second and third floors (7,800 ASF). The system is necessary to comply with the approprate building code for multi-story buildings and to provide consistent, high quality fire protection for both the building and the lives of its occupants. The basement and first floor (8,954 ASF) of Coble Hall had a sprinkler system installed when major remodeling was completed in the late 1960's.

University High School Improvements - ($289,300)

This request is a part of an overall program to meet Federal and State laws requiring that all programs be accessible to paraplegic and other handicapped persons. University High School has four floors containing 26,129 ASF and 41,730 GSF. It is a permanent, University of Illinois building, which must conform with standards set by Section 504 of the Rehabilitation Act of 1973.

This project involves the installation of an elevator in University High School, modification of restrooms, as well as the construction of a ramp at the south entrance to the building.

As a result of a recent inspection and recommendation by an architect with the Illinois Office of Education, this project has been expanded to include improvements required by the Illinois Life Safety Codes for secondary schools. Items added as a result of the above inspection are as follows: sealing of transoms; closing of air circulation vents; installation of smoke and/or heat detectors; and installation of a fire horn and emergency battery operated lighting system. An inside stair rail must also be installed from the top floor to the first floor at both ends of the building.

Roof Replacements - ($524,200)

This project will provide for the replacement of all or a part of the roofs on the following three buildings:

Law Building was constructed in 1955 utilizing a 4 ply tar and gravel roof over 5/8 inch fiberglass insulation. This roof has surpassed its 20 year life expectancy by nine years, and leaks have developed in numerous areas, especially over the Law Library. The insulation on most of the roof area (43,000 square feet) has become saturated due to the leaks, and the membrane is badly deteriorated in all areas. This project will entail removal of all existing materials down to the deck, and installation of new insulation and roof membrane on all roof levels on this building.

Bevier Hall was constructed in 1956 with large areas of tar and gravel roofing over 2 inch rigid insulation on a concrete deck. This roof has surpassed its 20 year life expectancy by many years, and numerous leaks have developed, saturating most of the insulation. This project will replace only those areas where leakage has become a chronic problem (levels A, C, D-2, 25,000 square feet of 38,500 square feet overall) by complete removal of existing materials, and installation of new insulation and roof membrane.

Civil Engineering Building (Phase II) was constructed in 1965, and the roofing (tar and gravel, 1 1/2 inch fiberglass insulation) has deteriorated prematurely, allowing serious leakage in numerous areas. Due to the serious nature of the leakage, three levels (7,000 square feet of 57,000 square feet overall) are in the process of replacement with R&R funds; however, serious problems still exist. This project includes replacement of three more levels (10,000 square feet) with new insulation and roof membrane, and will control the serious leakage problems on the fourth floor. Completion of this project will result in new roofing on 30% of the building; however, this replacement program will need to continue due to the severe deterioration of this roof.

This request is part of an overall program developed to reroof many of the Urbana-Champaign campus buildings requiring new roofs. There will be similar requests in future years to reroof major buildings.

Visual Arts Laboratory Remodeling - (Remodeling - $261,700/Equipment - $128,600)

This project will complete Phase II of the remodeling for the Visual Arts Laboratory. It will provide cinematography facilities, a studio for photography/cinematography, and facilities to introduce photography to freshman art students. Currently, it is impossible to meet the student demand for the courses in this area of study, and the facilities are taxed to the limit by students enrolled in the courses.

Included in the project are construction of new walls, installation of additional power requirement, additional shelving, and revisions to heating and air conditioning. The first phase of this program involving a cost of $162,200 was funded as a part of the FY 1976 Capital Budget and included needed expansion for photographic laboratories. This second phase (6,117 ASF) is to fund the required remodeling for a Cinematography Shooting Studio and several small darkrooms for students and faculty in the Fine Arts Building. Major heating and ventilation changes need to be completed for optimal use of space created by remodeling in Phase I and II. The major part of the equipment will be cinematography cameras and related equipment. This segment of the request is very important because instruction in cinematography includes an evaluation of the students' use of the equipment available.

Elevator Replacement - ($184,700)

The Lincoln Hall elevator was originally installed in 1930 and employs the single automatic type control with manual controls on the door. The elevator has no leveling devices and is difficult for paraplegics to use. A modern elevator car will be installed with selective-collective controls, automatic leveling system and power door controls for ease of operation by paraplegics. This improvement will allow handicapped individuals easy access to all five floors and the 33 classrooms in the building, including 14 classrooms on the second and third floors. This request is part of an overall program to replace obsolete elevators which are inadequate and difficult to maintain.

Gregory Hall Stair Enclosures - ($446,000)

Gregory Hall, a 65,952 ASF and 109,393 GSF building, presently has two dead end corridors with no fire-rated exits. With 33 classrooms, plus heavily used instructional laboratories and offices, this building is one of the most heavily utilized facilities on the campus. As a result, safe exits in the event of a fire are desperately needed.

The project includes the construction of hollow steel and wired glass stair enclosures with magnetic door holders and smoke detectors on each floor. Also included is the installation of illuminated exit signs, panic hardware on exterior doors and the replacement of existing windows in the stairwells with metal and wireglass. A new ground level exit will be constructed for the west stairwell so occupants have immediate access to the outside of the building. This request is part of an overall safety related program to provide adequate means of egress in permanent buildings that do not have enclosed stairways.

Administration Building Security Improvements - ($122,900)

This project involves remodeling an area of approximately 1,850 ASF on the first floor of the Administration Building to improve the security aspects of the Cashiering Operations. The need for additional security improvements for the staff and the money for which they are responsible became especially apparent following a robbery at the Cashiering Operations in January 1982.

The project involves removing an existing inadequate vault and constructing a new concrete block, six-sided, fire-rated safe in a new, more secure location; modifying the cashiering windows; installing partial-height partitions; installing a TV monitor and alarm system; and installing a night depository.

Cooling Towers Remodeling at Abbott Power Plant - ($132,000)

Continued deterioration of the cooling towers could affect the plant's ability to generate electricity. This loss, in turn, would cause electrical power rates to increase rapidly, since it would no longer be possible to meet contractual commitments to the Illinois Power Company. This project includes the replacement and restoration of the following:

- decking on two towers
- casing on one tower
- fill on one tower
- fan stacks on two towers

This request is a part of a phased program to renovate the cooling towers.

Huff Gym Basement - (Remodeling - $329,800/Equipment - $27,300)

This project involves remodeling 7,700 ASF on the west side of the Huff Gym Basement to accommodate new offices for the Department of Leisure Studies and new locker room space for women. This remodeling will make all the activity areas available to women and increase the women's locker space.

The construction of the office space will permit the Department to be centrally located in Huff Gym and to vacate space in the Children's Research Center. The remodeling will involve new partitioning, heating-ventilation, electrical, flooring, and ceiling changes and improvements. Included in this project is a new towel distribution room, a conversion for a women's restroom, and a coed corridor connecting all the activity areas. The major portion of the equipment request involves purchasing office furniture and audio-visual equipment.

Institute of Aviation Remodeling - ($53,400)

The Aviation Maintenance Training Program has an enrollment of approximately 175 students. Thirteen instructors teach twenty-five courses in four Quonset buildings (#3, 4, 7 and 8) at the airport. The need for additional demonstration and laboratory areas is apparent when the nature of the curriculum is considered. Aircraft assemblies and mock-ups of assemblies must be used to teach system operation and maintenance. Typical assemblies are aircraft engines, helicopter assemblies, hydraulic systems, etc. The physical size and the number of these instructional aids fill the space in the four Quonsets and overflow into Quonset #2.

This request is for the remodeling of Quonset #2 to provide space for permanent installation of various mock-ups and assemblies. Remodeling would include the installation of a heating system, lights and adequate insulation to provide a live demonstration area. This remodeling would eliminate the requirement for exchange or transfer of equipment between Quonset #2 and other Quonset buildings. The equipment is expensive, burdensome to move and difficult to maintain under present conditions.

Library Stacks Smoke Detection - ($312,500)

This project includes the installation of a smoke detection system in the bookstack area of the Main Library. The bookstacks comprise some five acres of floor space distributed over ten levels. Currently, over 8.5 million catalogued and uncatalogued items, housed in the stacks, are vulnerable to the hazards of fire. The work would include the installation of smoke detectors, necessary wiring, and control panels.

An additional safety problem exists in the basement of the Main Library which should be corrected when the smoke detection system is installed in the stacks. A single elevator and stairway in the north west section of the basement impedes traffic flow. Room 66, a large lecture room, and a photo lab lack convenient access because of congestion in the area. A corridor should be constructed to connect the northwest section of the Main Library to the tunnel entering the Undergraduate Library, which is located east of the Main Library. Because the basement area is adjacent to the bookstacks, the cost of constructing the corridor includes the installation of a sprinkler system in the area. The absence of a usable basement corridor connection has safety implications since egress is limited, especially in the case of an emergency.

Armory Improvements - ($181,000)

This project will provide security for the offices on the upper floors of the Armory, making it virtually impossible for vandals to do damage during times when the Armory Floor (75,000 ASF) is in use, but other parts of the bulding have low occupancy. A turnstile will be installed, locks and hinges will be upgraded, and panic hardware will be replaced as a part of this project.

In addition, permanent bleachers of the fold-away variety will be installed, leaving the existing bleachers, which are costly to set up, to be used for backup when major events call for more spectator seating. The installation of fold-away bleachers will allow more flexibility on the Armory Floor, since they can be extended or pushed back depending on the activity. These two improvements will combine to improve the security and overall safety of the Armory.

Steam Distribution Remodeling - ($80,000)

This project includes the replacement of some steam tunnel dewatering pumps which have been in use for thirty years. Parts can no longer be purchased and are very costly to manufacture. Work will include ventilation improvements in the tunnel to allow workmen to occupy the tunnel space for longer periods of time when repairs are necessary.

Also included as a part of this project is planning for the future replacement of 1,200 feet of 8 inch steam line which has deteriorated to the point where it has been taken out of service, thus, restricting the capacity of the steam tunnel system. Funds for the actual replacement will be requested in FY 1986. This is part of a phased program to upgrade the steam distribution system at the Urbana campus.

Pennsylvania Avenue Street Improvement - ($250,000)

The $250,000 requested for FY 1985 involves paving, widening, curbing, lighting and drainage for approximately 1,375 feet of Pennsylvania Avenue from Sixth Street to Burnsides Laboratory. The Urbana-Champaign campus will be allocated Federal Aid Urban (FAU) funds to provide one-half the cost of this project because the street is considered eligible for those funds based on analysis by the Champaign-Urbana Urbanized Area Transportation Study (CUUATS). The Illinois Department of Transportation (IDOT) classified Pennsylvania Avenue as a part of the designated FAU system. The campus has completed the planning and design portion of the project which is a condition of a request being eligible for funding. The portion of Pennsylvania Avenue to be paved is presently a surface treated cinder base road with very high maintenance costs. Pennsylvania Avenue is a University-owned street between Fourth Street and Lincoln Avenue (approximately 4,000 feet). The continuing planning and prioritizing process by CUUATS has made this University road eligible for funds now. It is imperative that the University's matching share be made available so that the FAU funding is not lost.

Pennsylvania Avenue begins at Fourth Street (the east side of Memorial Stadium) and extends eastward to Route 130 on the southeastern edge of Urbana. The street is on the southern perimeter of the academic campus providing a most important access route to, from and across the south campus.

Pilot Training Facility - (Building - $1,444,900/Utilities - $67,000)

The building area now occupied by Pilot Training for its academic program in Aviation was constructed in 1945. This structure is a lean-to building attached to Hangar #1. The hangar was originally erected in Grady, Arkansas, during World War II. It was dismantled and shipped to the University of Illinois-Willard Airport and re-erected. While the building has been upgraded (on a temporary basis) and remodeled to furnish minimum facilities, it is rapidly deteriorating and requires replacement. The walls are poorly insulated, the heating is poor, the air conditioning is minimal, and, until recently when an emergency temporary coating was applied, the roof leaked.

Deterioration due to aging and weather damage has occurred to the point where current educational functions were seriously jeopardized. Instructor personnel were not being protected from leaking structures, and expensive electronic flight simulators ($300,000) were being damaged from moisture and furnace residues. Instructor and student lives are endangered by the potential for severe electrical shock which could occur from the operation of electrical equipment in an area where water collects on the floor. The resurfacing of the roof has corrected the situation for now, but the leakage problems are expected to recur within several years from now when the protective covering deteriorates. The present space is also extremely energy wasteful and must be corrected to conserve energy and utilities funds.

In order to clear the site for this project, the existing Pilot Training Facility (3,760 GSF) must be razed. The structure planned to replace the current facility will be of low-cost construction (concrete block or pre-engineered metal structure with concrete foundation and concrete floor) and will provide the following types and amounts of space:

Room Type and USOE Code	ASF in Proposed Building
Instructional Lab (210, 215, 220, 230)	4,175
Office (310, 315)	4,085
Locker Rooms (690)	240
TOTAL	8,500

While some utility connections are located on, or near, the facility site, some connections, primarily electrical service, storm, and sanitary, must be extended to the site. A request of $67,000 is required to fund to the necessary utility extension work.

A request of $140,000 for movable equipment to outfit the facility will be made in the FY 1986 request.

Huff Gym Remodeling - ($165,000)

This project requests planning to remodel Huff Gym in order to better utilize space within the building. The project will improve the accessibility and circulation patterns in the building with the installation of an elevator and the development of corridors in the basement and the second floor. Remodeling on the second floor will convert unused seating space near the swimming pool into a classroom and an east-west corridor. The purpose of the request is to convert underutilized space in Huff Gym into a more appropriate academic environment designed to meet the programmatic needs of the College of Applied Life Studies. The total cost to accomplish this remodeling is estimated to be approximately $2,000,000.

Police Station - (Building - $1,838,600/Utilities - $375,300)

The building which Campus Security is currently using for its headquarters is an Army barracks type building constructed in 1945. The building is expensive to maintain and is grossly inadequate for police operation, both in the quality and the configuration of the space. The effectiveness of the campus security force is greatly hampered by the lack of adequate space. In order to help alleviate the crowded space conditions, Campus Security was assigned space in the nearby Engineering Research Laboratory. The space is primarily basement space which frequently floods, experiences extreme temperature fluctuations, and is poorly arranged.

This request proposes construction of a new facility which will replace the inadequate facilities currently used by Campus Security, make way for the imminent razing of the old structure, and will eliminate the present efficiency and coordination problems caused by dispersed and inadequate quarters.

The Police Station is programmed to contain the following types and amounts of space:

Room Type and USOE Code	ASF in Proposed Building
Office (310, 315, 350)	3,905
Lounge (650, 655)	1,030
Locker Rooms (690)	1,050
Storage (730)	280
Other Supporting Facilities (590)	310
TOTAL	6,575

Upon completion of this project, the Physical Plant Service Building Annex (2,027 ASF) will be vacated by Campus Security, and this 38 year-old building will be razed. Additionally, Campus Security will vacate its presently assigned space in the Engineering Research Laboratory (2,551 ASF), and that space will be reassigned for a more appropriate use.

In addition to the construction of the facility, this request includes funds to extend standard utilities services to the site. Also, it will be essential to connect the proposed building with the Campus Central Control System which monitors security and building alarms for a majority of the significant campus buildings.

An equipment request will be made for FY 1986 to complete the project.

Davenport Hall Remodeling - ($175,000)

Most of Davenport Hall is over 75 years old and some areas have had no major remodeling completed in all those years. A multi-phased remodeling project for this building will allow for considerable realignment and relocation of academic units within the College of Liberal Arts and Sciences in an effort to provide more efficient and effective use of space. In addition, the proposed remodeling/realignment program will allow two former apartment buildings to be vacated and razed to clear the site for construction of the Life Sciences Teaching Laboratory.

This request calls for the dvelopment of a feasibility study and master plan for the total remodeling program. The purpose of this preliminary planning is to design the remodeling to the extent necessary to assure that all of the building system and safety items are improved along with the remodeling for the academic programs. The planning will include a study of how the project might be phased. The general intent of this multi-phased

project is to develop the outmoded wet laboratory areas into dry laboratory, office, and classroom space and to establish well-defined traffic patterns. This project will involve partition changes, lighting, air conditioning, an elevator, safety improvements (such as stair enclosure and sprinkler system), and mechanical system improvements.

The specific work to be requested in the first phase will be determined by the preliminary planning described above. This request should plan the first phase of the remodeling request as well as complete the feasibility study. The entire project is expected to be completed in three phases and the total cost is estimated to be approximately $6,500,000.

Outdoor Instr./Recreation Facilities - ($150,000)

The Huff Gym Fields are used for physical education classes until late afternoon, when they are then used for recreation. Currently, the fields are void of grass in the heavily used areas because of extensive use. The fields are damaged most during periods of wet weather when the grass is killed by heavy foot traffic. The project proposes to drain the fields using sub-surface drainage and crown the playing area to promote surface drainage. The soil consistency will be improved by mixing sand with the soil to reduce the compaction problem. Finally, a hardy type of grass will be sown to provide a playing area that can better withstand constant use. This improvement will upgrade a playfield area in a critical location for the Department of Physical Education.

PART IV

FISCAL YEAR 1985 ENERGY CONSERVATION/FUEL CONVERSION REQUEST

ENERGY CONSERVATION/FUEL CONVERSION REQUEST
FY 1985

The University's concern with energy conservation dates back to the early 1970's when it initiated changes in the operation and maintenance of its energy systems to help control escalating energy costs. Through these operational measures, significant energy costs were avoided. At the end of the last decade it became clear that since virtually all significant operational energy conservation measures had been implemented, the University must devise new ways of curbing the precipitous growth in its utilities budget. The solution to this problem was the development of an Energy Conservation/Fuel Conversion capital improvements program which had the potential to far exceed the operational savings already achieved. Projects in this program are aimed toward improving the energy efficiency of building and mechanical systems and utilizing more economical fuel sources in energy production systems.

In FY 1981 the University began requesting funding for the Energy Conservation/Fuel Conversion program and it received enthusiastic support from the Illinois Board of Higher Education, the Bureau of the Budget, the General Assembly, and the Governor. An appropriation of $8.8 million was awarded for projects in its initial year. In FY 1982 approximately $2.1 million was appropriated to the University for additional energy system improvements. In FY 1983, the General Assembly approved a $15 million appropriation for installation of a pollution control system at the Urbana-Champaign Abbott Power Plant. These funds supplemented a $6.9 million appropriation awarded in FY 1981 for the reconversion of 3 boilers from oil/natural gas to coal firing.

Although the University received significant funding from the State in FY 1981 and FY 1982, no State appropriations were made available for energy conservation requests in FY 1983 or FY 1984. However, the University has actively pursued other resources to support this effort.

In FY 1982 the University acquired funding from the U. S. Department of Energy (USDOE) amounting to $1.4 million for projects at the Chicago campus. In FY 1983 an additional $.5 million of Federal grants were received for projects at both the Chicago and Urbana-Champaign campuses. In FY 1984 the

University expects to receive $2.5 million in Federal grant awards from the USDOE for projects at both campuses. However, acceptance of the FY 1984 grant awards is contingent upon receiving State funds to match the federal share.

Although the University has received considerable funding support since the program's inception, continued support is necessary for the University to realize significant future energy savings. During FY 1984, energy costs are projected to increase approximately 15% and are expected to increase another 15% during FY 1985. Consequently, implementation of additional energy conservation and fuel conversion projects is required to support the University in its endeavor to respond to these precipitous increases in energy costs.

To support this continued effort in controlling energy costs, the University is requesting $23.4 million of funding in FY 1985 for 52 energy conservation capital improvement projects. Table 1 lists these projects in priority order based on a "simple payback" calculation.* Tables 2 and 3 display in priority order the individual campus requests and list the estimated savings for each project.

Two fuel conversion projects totaling $12.1 million are included in the program for FY 1985. The project at Urbana-Champaign will extend the campus steam line from Abbott Power Plant to the Veterinary Medicine Complex. Steam is produced for the complex by an independent natural gas-fired boiler system. Savings will result from connection to the campus steam system after the three boilers at Abbott Power Plant are reconverted to burn coal. The project at the Chicago-Health Sciences Center Steam Plant will convert two boilers to coal burning, and thereby provide the Center with the option of using a less expensive fuel. The construction costs for both projects would be recovered in less than 5 years. Table 4 provides a summary of the fuel conversion projects. Following Table 4 are detailed descriptions of the energy conservation projects at each campus and projects included in the fuel conversion request.

*Calculated according to the Illinois Board of Higher Education/Capital Development Board instructions.

TABLE 1
FY 1985 ENERGY CONSERVATION REQUEST
PROJECT PRIORITY LIST
ALL UNIVERSITY
(Dollars in Thousands)

Priority	Campus	Project	Payback (Years)	Project Cost	Cumulative Total
1	UC	Loop Chilled Water Systems - MRL, CSL & Loomis Lab	1.00	$ 356.6	$ 356.6
2	UC	Connect Commerce West to Library Chilled Water Center	1.06	411.0	767.6
3	UC	Reclaim Condensor Heat - Meat Science Lab	1.19	293.0	1,060.6
4	UC	Chiller Drive Conversion - Vet. Med. Basic Sciences Building	1.24	2,936.9	3,997.5
5	UC	Trap Utility Steam Main into Low Pressure Steam Main	1.25	178.3	4,175.8
6	C	Window Insulation - Drug & Horticultural Experiment Station	1.38	32.2	4,208.0
7	UC	Winter Cooling Improvements - University Press	1.39	170.6	4,378.6
8	UC	Variable Air Volume Controls - 23 Buildings	1.40	1,318.1	5,696.7
9	C	Building Equipment Automation - CMET & College of Pharmacy	1.48	301.4	5,998.1
10	C	Lighting Controls - College of Dentistry	1.51	199.6	6,197.7
11	C	Modify Fan Control Systems - Physical Education Building	1.61	181.7	6,379.4
12	UC	Non-Essential Load Limiting by Remote Control	1.62	1,426.6	7,806.0
13	C	Supplementary Cooling System - College of Pharmacy	1.75	84.0	7,890.0
14	UC	Abbott Power Plant Efficiency Improvements	1.79	465.2	8,355.2
15	UC	Loop Chilled Water Systems - DCL & CEB	1.79	713.3	9,068.5
16	C	Night Setback Controls - Administrative Services Bldg. & CMWT	1.90	186.6	9,255.1
17	UC	Loop Chilled Water Systems - Student/Staff A.C. Ctr. & Morrill Hall	1.90	868.4	10,123.5
18	UC	Reduction of Air Volume - Roger Adams Lab	2.22	542.8	10,666.3
19	UC	Reheat Systems Zone Control - 12 Buildings	2.38	387.7	11,054.0
20	UC	Radiation Zone Control I - 27 Buildings	2.38	369.1	11,423.1
21	UC	Ventilation System Retrofit - Morrill Hall	2.41	537.0	11,960.1
22	UC	Domestic Hot Water Retrofit - 5 Buildings	2.49	53.9	12,014.0
23	C	Insulation Upgrades - High Temp. Hot Water Distribution System	2.58	90.0	12,104.0
24	C	Modify Fan System - College of Nursing	2.64	235.3	12,339.3
25	UC	Steam Metering Improvements - 47 Buildings	2.67	728.8	13,068.1
26	UC	Radiation Zone Control II - 27 Buildings	2.71	721.8	13,789.9
27	UC	Conversion to Central Fan System - Armory	2.75	93.8	13,883.7
28	UC	Install Air Curtains Above Entryways - 3 Buildings	2.75	47.1	13,930.8
29	UC	Energy Use Efficiency Improvement - Morrill Hall	2.80	217.1	14,147.9
30	UC	Summer-Winter Ventilation Rate - 3 Buildings	2.80	40.9	14,188.8
31	UC	Conversion from Cast Iron to Fin Tube Radiation - Animal Sciences	2.81	333.4	14,522.2
32	UC	Radiation Zone Control - 6 Buildings	2.91	93.0	14,615.2
33	C	Lighting Controls - Administrative Office Building	3.02	53.5	14,668.7
34	UC	Resource Recovery Plant	3.07	2,108.0	16,776.7
35	C	Conversion to Variable Air Volume Systems - Admin. Office Bldg.	3.12	218.5	16,995.2
36	C	Lighting Controls - Physical Education Building	3.20	69.2	17,064.4
37	UC	Domestic Hot Water Control - 6 Buildings	3.22	55.1	17,119.5
38	UC	Temperature Control Remd. & Replacement - 7 Buildings	3.26	1,013.7	18,133.2
39	UC	Animal Room Ventilation - 2 Buildings	3.28	279.2	18,412.4
40	UC	Reheat Systems Zone Control - 10 Buildings	3.37	284.2	18,696.6

TABLE 1
FY 1985 ENERGY CONSERVATION REQUEST
(Continued)

Priority	Campus	Project	Payback (Years)	Project Cost	Cumulative Total
41	C	Fuel Burners & Burner Controls - Utilities Building	3.47	$ 672.5	$19,369.1
42	UC	Pipe Insulation - Electrical Engineering Building	3.55	34.0	19,403.1
43	UC	Steam Absorption Machine Control - 4 Buildings	3.65	154.6	19,557.7
44	UC	Domestic Hot Water Control - 4 Buildings	3.66	24.9	19,582.6
45	UC	Conversion to Zoned Ventilation - Arts & Design Building	3.71	223.4	19,806.0
46	C	Ventilation Reduction - Education & Communication Building	3.74	262.5	20,068.5
47	UC	HVAC Retrofit - 2 Buildings	3.78	495.3	20,563.8
48	UC	Increased Insulation on High Pressure Steam Mains	3.85	666.8	21,230.6
49	C	Renovate Heating Controls - 1919 W. Taylor Street Unit	4.06	176.1	21,406.7
50	C	Auxiliary Chiller Unit - Peoria School of Medicine	4.52	71.2	21,477.9
51	UC	Reheat Systems Zone Control - 4 Buildings	4.63	146.5	21,624.4
52	C	High Efficiency Boiler & Control Modifications	4.80	1,800.0	23,424.4

TABLE 2
FY 1985 ENERGY CONSERVATION REQUEST
PROJECT PRIORITY LIST
UNIVERSITY OF ILLINOIS AT CHICAGO
(Dollars in Thousands)

Campus Priority	University Priority	Project	Payback (Years)	Project Cost	Cumulative Total	BTUs Saved/Yr. (In Millions)
1	6	Window Insulation - Drug & Horticultural Experiment Station	1.38	32.2	$ 32.2	4,192
2	9	Building Equipment Automation - CMET & College of Pharmacy	1.48	301.4	333.6	13,795
3	10	Lighting Controls - College of Dentistry	1.51	199.6	533.2	7,288
4	11	Modify Fan Control Systems - Physical Education Building	1.61	181.7	714.9	11,376
5	13	Supplementary Cooling System - College of Pharmacy	1.75	84.0	798.9	2,646
6	16	Night Setback Controls - Administrative Services Bldg. & CMWT	1.90	186.6	985.5	12,050
7	23	Insulation Upgrades - High Temp. Hot Water Distribution System	2.58	90.0	1,075.5	3,849
8	24	Modify Fan System - College of Nursing	2.64	235.3	1,310.8	10,381
9	33	Lighting Controls - Administrative Office Building	3.02	53.5	1,364.3	975
10	35	Conversion to Variable Air Volume Systems - Admin. Office Bldg.	3.12	218.5	1,582.8	5,305
11	36	Lighting Controls - Physical Education Building	3.20	69.2	1,652.0	1,183
12	41	Fuel Burners & Burner Controls - Utilities Building	3.47	672.5	2,324.5	46,778
13	46	Ventilation Reduction - Education & Communication Building	3.74	262.5	2,587.0	6,756
14	49	Renovate Heating Controls - 1919 W. Taylor Street Unit	4.06	176.1	2,763.1	5,311
15	50	Auxiliary Chiller Unit - Peoria School of Medicine	4.52	71.2	2,834.3	604
16	52	High Efficiency Boiler & Control Modifications	4.80	1,800.0	4,634.3	67,500

TABLE 3
FY 1985 ENERGY CONSERVATION REQUEST
PROJECT PRIORITY LIST
UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN
(Dollars In Thousands)

Campus Priority	University Priority	Project	Payback (Years)	Project Cost	Cumulative Total	BTUs Saved/Yr. (In Millions)
1	1	Loop Chilled Water Systems - MRL, CSL & Loomis Lab	1.00	$ 356.6	$ 356.6	41,630
2	2	Connect Commerce West to Library Chilled Water Center	1.06	411.0	767.6	44,920
3	3	Reclaim Condensor Heat - Meat Science Lab	1.19	293.0	1,060.6	23,400
4	4	Chiller Drive Conversion - Vet. Med. Basic Sciences Building	1.24	2,936.9	3,997.5	224,690
5	5	Trap Utility Steam Main Into Low Pressure Steam Main	1.25	178.3	4,175.8	16,540
6	7	Winter Cooling Improvements - University Press	1.39	170.6	4,346.4	14,300
7	8	Variable Air Volume Controls - 23 Buildings	1.40	1,318.1	5,664.5	89,290
8	12	Non-Essential Load Limiting by Remote Control	1.62	1,426.6	7,091.1	83,570
9	14	Abbott Power Plant Efficiency Improvements	1.79	465.2	7,556.3	45,440
10	15	Loop Chilled Water Systems - DCL & CEB	1.79	713.3	8,269.6	46,260
11	17	Loop Chilled Water Systems - Student/Staff A.C. Ctr. & Morrill Hall	1.90	868.4	9,138.0	53,190
12	18	Reduction of Air Volume - Roger Adams Lab	2.22	542.8	9,680.8	27,050
13	19	Reheat Systems Zone Control - 12 Buildings	2.38	387.7	10,068.5	18,949
14	20	Radiation Zone Control I - 27 Buildings	2.38	369.1	10,437.6	17,986
15	21	Ventilation System Retrofit - Morrill Hall	2.41	537.0	10,974.6	24,860
16	22	Domestic Hot Water Retrofit - 5 Buildings	2.49	53.9	11,028.5	2,516
17	25	Steam Metering Improvements - 47 Buildings	2.67	728.8	11,757.3	31,690
18	26	Radiation Zone Control II - 27 Buildings	2.71	721.8	12,479.1	30,980
19	27	Conversion to Central Fan System - Armory	2.75	93.8	12,572.9	3,962
20	28	Install Air Curtains Above Entryways - 3 Buildings	2.75	47.1	12,620.0	1,987
21	29	Energy Use Efficiency Improvement - Morrill Hall	2.80	217.1	12,837.1	8,998
22	30	Summer-Winter Ventilation Rate - 3 Buildings	2.80	40.9	12,878.0	1,695
23	31	Conversion from Cast Iron to Fin Tube Radiation - Animal Sciences	2.81	333.4	13,211.4	13,785
24	32	Radiation Zone Control - 6 Buildings	2.91	93.0	13,304.4	3,711
25	34	Resource Recovery Plant	3.07	2,108.0	15,412.4	119,842
26	37	Domestic Hot Water Control - 6 Buildings	3.22	55.1	15,467.5	1,990
27	38	Temperature Control Remd. & Replacement - 7 Buildings	3.26	1,013.7	16,481.2	54,200
28	39	Animal Room Ventilation - 2 Buildings	3.28	279.2	16,760.4	9,890
29	40	Reheat Systems Zone Control - 10 Buildings	3.37	284.2	17,044.6	9,806
30	42	Pipe Insulation - Electrical Engineering Building	3.55	34.0	17,078.6	1,111
31	43	Steam Absorption Machine Control - 4 Buildings	3.65	154.6	17,233.2	4,924
32	44	Domestic Hot Water Control - 4 Buildings	3.66	24.9	17,258.1	790
33	45	Conversion to Zoned Ventilation - Arts & Design Building	3.71	223.4	17,481.5	6,998
34	47	HVAC Retrofit - 2 Buildings	3.78	495.3	17,976.8	15,210
35	48	Increased Insulation on High Pressure Steam Mains	3.85	666.8	18,643.6	20,140
36	51	Reheat Systems Zone Control - 4 Buildings	4.63	146.5	18,790.1	3,673

TABLE 4
FY 1985 FUEL CONVERSION REQUEST PROJECT LIST
ALL UNIVERSITY
(Dollars in Thousands)

Priority	Campus	Project	Payback (Years)	Project Cost
1	Chicago	Convert Boilers to Coal Burning	1.77	$10,088.3
2	Urbana-Champaign	Connect Vet. Med. Complex to Campus Steam System	4.91	2,000.3

ENERGY CONSERVATION
CHICAGO CAMPUS

Window Insulation - Drug and Horticultural Experiment Station - ($32,200)

The greenhouse structure consists of a glass enclosed area approximating 10,000 GSF. The building is heated by three gas boilers producing low pressure steam. The steam is used to heat the closed loop hot water system. The building is cooled by three water chillers. The building mechanical systems also serve a steam still which is used for producing quality water for plant maintenance.

This project proposes the installation of a double-thick transparent window insulation on the entire greenhouse window area. This insulation shall provide a finished total 'U' valve of under .37 BTU/sq.ft./°F. Installation of this window insulation will considerably reduce energy loss through conduction and infiltration.

Building Equipment Automation - College of Medicine - East Tower and College of Pharmacy - ($301,400)

The College of Medicine-East Tower consists of classroom, office, lecture hall and laboratory space. The building opens at 8:00 AM and closes at 5:00 PM with the exception of the laboratories which are used for clinical testing and remain open 24 hours a day. The building is provided with 24-hour HVAC services. The College of Pharmacy building contains lecture rooms, student locker areas, auditorium, office, laboratory and classroom space.

This project consists of installing equipment necessary to monitor and control energy usage in these two buildings and connecting this equipment to the Building Equipment Automation computer at Chicago-University Center. Included in this automation system are software modules which will accomplish the following energy conservation measures:

--Monitor all systems for off normal operations

--Monitor operating conditions of all systems and reschedule set points to optimize energy use

--Limit peak electrical demand via a loadshedding schedule

--Set up duty cycling schedules for the daily, weekly and seasonal variations in HVAC operations

--Automate the night set back and morning warm-up schedule by economizer control

--Automate the lighting schedule to minimize lighting levels during non-operating hours

Presently, this system is installed in all University Center buildings and 14 Health Sciences Center buildings. The system has proven to be an effective method of saving energy and manpower costs.

Lighting Controls - College of Dentistry - ($199,600)

The College of Dentistry building contains a variety of classrooms, laboratories, offices, dental training facilities and necessary supporting functions. The building is open year-round.

The primary lighting systems in this building are recessed fluorescent. All laboratories have supplemental task lights for detail dental work. Approximately 65% of the lighting circuits serve areas that receive significant levels of natural light.

This project proposes installation of Enetron Automatic Light Dimming Systems on 448 lighting circuits. This system works in two modes; the first employs light sensing fiber optics allowing the system to control a lighting circuit to provide only enough illumination to maintain the area served. The fiber optics sense the amount of available natural light entering from windows, and if inadequate, the system will provide enough light from the fixtures to meet requirements. A test of a similar system, conducted in this building during the winter of 1981-82, revealed a measured 56.9% decrease in circuit wattage. In the second mode, the Enetron automatically shuts down lighting circuits in areas not used during hours the building is closed.

Modify Fan Control Systems - Physical Education Building - ($181,700)

These modifications are proposed to eliminate the unnecessary heating and cooling of ventilation air. The large gym and pool areas are ventilated by a dedicated system and will be replaced with new room occupancy controls. These systems will also be modified to variable volume systems to reduce ventilation. Major duct branches will be retrofitted with variable volume boxes. In large areas with high ceilings, destratifying ceiling jet fans will be added at every 4,000 square feet.

Also, the project proposes, for exterior office areas, modifications to the existing reheat systems to ensure air volume is at a minimum before reheat controls open. For interior offices, all reheat coils will be removed and variable volume boxes will be installed.

Supplementary Cooling System - First Floor Pharmacy Building - ($84,000)

This project calls for the installation of separate package cooling systems to enable critical building laboratories to operate on a 24-hour basis. Currently, to accommodate the critical laboratories on a 24-hour basis, the center must operate a 100 ton chiller in mild weather and a 200 ton chiller on weekends and evenings during summer.

This project proposes that a 25 ton roof-top condensor/compressor unit be purchased and installed to enable cooling of critical areas alone; thus, permitting the campus to shut down the larger chiller units during the "off" hours of the day. Variable volume boxes and high efficiency air filters would also be added to all critical laboratory areas served by this cooling system.

Night Set Back Controls - Administrative Services and College of Medicine-West - ($186,600)

This building's heating and domestic hot water is supplied by steam from the central steam plant. The high pressure steam is sent through pressure reducing valves at the building.

This project includes installation of new steam control valves on all main steam radiator supply lines. The new valves will control room temperatures during the day and set back temperatures to 45°F at night. Also, an electronic time controller will be installed and several risers will be retrofitted because of differences in exposures and glass area. Daytime

thermostats will be added to rooms that are representative of the heat load to all rooms on that riser. Night set back thermostats will also be installed in these same rooms. A zone control panel will also be installed to display temperature levels and the operation mode of the system.

Insulation Upgrades - High Temperature Hot Water Distribution System - ($90,000)

High Temperature Hot Water is generated at the Utilities Building and distributed to the campus by means of a walk-through tunnel system. The total system length is approximately one mile. The existing piping system has significant heat loss which is exhausted to the outside.

This request proposes to add 2.5-inch of pre-molded fiberglass insulation to 3,300 lineal feet of 10-inch diameter supply piping. In addition, selected building fan systems will be modified to recover heat exhausted from the distribution tunnel.

Modify Fan System - College of Nursing - ($235,300)

Currently, fan systems serving the basement and first floor receive and circulate only outside air. The proposed modifications will allow recirculated air to be used.

The project will modify the supply ductwork to convert it to a variable volume system. Also, a recirculation fan, dampers and controllers, and new ductwork in the first floor southwest classrooms will be installed.

Lighting Controls - Administrative Office Building - ($53,500)

The primary lighting systems in the building are fluorescent with some incandescent. Lobby light is provided by "high hat" floods.

This project calls for installation of Enetron Automatic Light Dimming Systems on 101 lighting circuits, not including emergency circuits. The system has light sensing fiber optics to control a lighting circuit according to the required amount of illumination for a specified area. These fiber optics sense the amount of available natural light and then operate the fixture lighting to maintain the desired illumination level. Approximately 50% of the lighting circuits serve areas that receive significant levels of natural light. This system will also shut down lighting circuits in areas not in use during hours when the building is closed.

Conversion to Variable Air Volume Systems - Administrative Office Building - ($218,500)

This project will modify the building fan systems to minimize energy consumption. One fan system will be modified for two-speed operation. The present operating speed will be maintained for summer use. A second speed, reducing the volume output of the fan by 50%, will be used during the heating season. In addition, start and stop control point will be added to the campus automation system. This will enable starting and stopping the fan systems as necessary.

Three other fan systems will be retrofitted with volume control dampers and industrial grade static pressure controllers. Hot water reheat coils and mechanical constant volume boxes will be removed and 146 new variable volume boxes will be installed in the building. Operation of each fan will be controlled by the campus automation system.

All fans will also be retrofitted with new reheat and mixed air controllers including discriminator controls to prevent heating override. Vortex air blenders will be provided in the fresh air intakes of each fan for air mixing and the individual preheat steam coils will be removed.

Lighting Controls - Physical Education Building - ($69,200)

The primary lighting systems in the building are fluorescent with mercury vapor type lighting in the gymnasiums. The corridors and vestibules are lit by incandescent fixtures. This project calls for the installation of Enetron Automatic Light Dimming Systems on 150 lighting circuits in the Physical Education building, not including emergency circuits.

The Enetron system works in two modes. The first employs light sensing fiber optics allowing the system to control a lighting circuit to provide only enough illumination to maintain the area served at a set amount of footcandles. The fiber optics sense the available light; if it is not adequate to maintain the desired illumination level, the system provides enought light from the fixtures to do so. A test of a similar system, conducted at the Health Sciences Center during the winter of 1981-1982, revealed a measured 56.9% decrease in circuit wattage. It is estimated the wattage savings in the Physical Education Building will be slightly less. The second mode of operation for the Enetron is to automatically shut down circuits in areas not in use during those hours the building is closed.

Fuel Burners and Burner Controls - Utilities Building - ($672,500)

In the Utilities Building, there are four High Temperature Hot Water (HTHW) generators. Each generator has a 75,000,000/BTU/hr. capacity and can utilize either natural gas or residual fuel oil (#6) as its primary fuel.

This project calls for the installation of a single high efficiency, low excess air, combination oil/gas burner and tubular air heater in each of two high temperature hot water generators located in the Utilities Building. These burners are to replace the existing inefficient multiple mechanically atomized burners. This installation will require a new wind box, forced draft fan, burner assembly, and associated controls including oxygen trim controls.

The low excess air burner utilizes high pressure air which is forced through orifices of the burner assembly to atomize fuel oil so that more complete combustion is attained. With more complete combustion attained, less excess air is required, thus providing higher efficiency and cleaner burning of the fuel oil. The air heater will provide additional efficiency by reducing the exit gas temperature through the stack and by utilizing this waste heat to pre-heat the combustion air for the HTHW generators.

Ventilation Reduction - Education and Communication Building - ($262,500)

The building contains five constant volume type air handling systems with reheat capabilities. It is proposed that all air handlers be modified to operate on a varying volume basis. This new system will reduce the outside winter supply air volume to 50% of the present output. Also, the duct reheat coils will be removed from interior and exterior areas on the first through fourth floors. The reheat box controls for the basement area will be adjusted to operate reheat valves after air volume has reached a minimum setting. The main fans will be retrofitted with suitable volume control devices and industrial grade controllers will be used to control the volume devices.

Renovate Heating Controls - 1919 W. Taylor Street Unit - ($176,100)

The present building heating system consists of single and multiple convectors located on the exterior wall in each room which are controlled by local balancing valves. The circulation of water through the convectors is done on a gross basis with no means of exposure control or floor control. In addition, the balancing valves have become corroded over the life of the building and restrict the flow of water. The constricted valves make it impossible to provide adequate heating to certain areas of the building.

This project will rehabilitate the existing hot water distribution system by providing new and more efficient convertors, zone control of the hot water by building exposure, new insulation and reflective back plates, and a complete system cleaning and rebalancing.

Auxiliary Chiller Unit - Peoria School of Medicine - ($71,200)

There are six air supply units with a total capacity of 91,108 cfm that provide ventilation air. The overall level of ventilation is about 0.8 cfm per square feet except for two small areas--the animal room and the TV studio. One 322 ton chiller located outside the building provides all of the cooling capacity. Therefore, even small scale cooling needs encountered on weekends and in the evenings require operation of this high capacity machine.

This project proposes to install a small additional chilled water machine with a 35-ton rating. This machine will be run for the smaller weekend and evening loads. It is estimated that a resultant savings of 1.2 kilowatt/ton/hour will be achieved from the use of the smaller machine.

High Efficiency Boiler and Boiler Control Modifications - Steam Plant - ($1,800,000)

The Health Sciences Center Steam Plant presently has six boiler units. Boilers No. 1 through 5 are between 25 and 30 years old. Except for some minor exterior differences, all five boilers are similar in design and are rated for 90,000 lbs/hr each at 150 psig and 400°F using oil or gas. The No. 6 unit was installed in 1971 and fires gas and heavy oil exclusively. It is rated for 150,000 lbs/hr steam. These older units, which originally burned coal and were converted to gas/oil firing in the late 1960's, have lower output efficiencies than presently available.

This project provides for the installation of a new high efficiency baseload boiler and retrofit of the existing boiler/burner controls. The new boiler shall have an output of 150,000 lbs/hr at 190 psig and 460°F. The efficiency of the new unit shall be 84% on natural gas and 85% on residual fuel oil.

New boiler/burner controls shall be installed on units No. 3 and No. 6. The controls are being installed to increase the efficiency of these units. The existing units No. 1 and No. 2, originally installed in 1951, will not be retrofitted with the new controls. These units shall remain intact and act as back-up to the existing plant equipment.

ENERGY CONSERVATION
URBANA-CHAMPAIGN CAMPUS

Loop Chilled Water Systems - MRL, CSL & Loomis Lab - ($356,600)

The Materials Research Lab, Coordinated Science Lab and Loomis Lab each have independent twin steam absorption chillers for air conditioning. This project proposes to loop these systems in parallel to optimize the absorption machine loading for efficient steam usage. The work includes installation of underground and building piping and pumps to parallel the six machines.

Connect Commerce West Building to Library Air Conditioning Center - ($411,000)

This project provides for installation of underground and building pumps and piping to parallel the steam absorption chillers located in the College of Commerce and Business Administration West Building and the Library Air Conditioning Center. The connection of the two systems would realign and increase the loading of the Library system and increase the efficiency for both operations.

Reclaim Condensor Heat - Meat Sciences Lab - ($293,000)

This project includes the installation of equipment to recover heat generated from the refrigeration air-cooled condensors at the Meat Sciences Laboratory. The recovered heat will then be used to heat domestic hot water for laboratory purposes. The project requires installation of heat exchangers, piping and controls.

Chiller Drive Conversion - Veterinary Medicine Basic Sciences Building - ($2,936,900)

This building now has an electrically driven centrifugal freon compressor to chill water. The project proposes changing the operating mode of the system from electricity to steam. Work involves replacing the electrical drive with a steam turbine and changing chilled water and steam piping. The steam rate of the existing system will be reduced from 20 psig to 14 psig.

Trap Utility Steam Main into Low Pressure Steam Main - ($178,300)

Presently, the steam traps on the main 8 inch utility steam main (150 psi) dumps this excess steam into the condensate line that returns to Abbott Power Plant. This system elevates temperatures in the return line and wastes energy.

This project proposes to reroute the steam traps, at 95 locations in the main steam tunnel system, to transfer the excess steam into the 12 inch low-pressure steam main (40 psi). The excess steam can then be utilized and temperatures in the condensate return line will be restored to normal.

Winter Cooling Improvements - University Press - ($170,600)

The University Press Building requires cooling during the wintertime to offset process heat released in the production areas. This project provides for installation of direct steam humidifiers, controls and outside air intake units to provide 100% outside air for winter cooling.

Variable Air Volume Controls - 23 Buildings - ($1,318,100)

This project includes installing fan speed controls on the supply and return fans of 194 ventilation fan systems in twenty-four buildings. The vans are presently single-speed and set for the largest volume of air required.

Also, the work includes connecting the fan systems to the micro-processor in each building. These revisions will provide for day-night, summer-winter, and electrical peak demand limiting by fan speed control from the Monitor and Control System on campus. The work will be performed in the following buildings:

Administration Building
Armory
Art & Design Building
Astronomy
Bevier Hall
Burrill Hall
Children's Research Ctr.
Commerce West
Coordinated Science Lab
Digital Computer Lab
Education Building
Electrical Engineering Bldg.
Foreign Languages Bldg.
Krannert Center
Law Building
Loomis Lab
Materials Research Lab
Morrill Hall
Music Building
Roger Adams Lab
Turner Hall
Undergraduate Library
Vet. Med. Clinic

Non-Essential Load Limiting by Remote Control - ($1,426,600)

This project provides for installation of remote control equipment for 3,800 window air conditioners, 150 electric water heaters, 360 refrigerated water coolers and 120 toilet exhaust fans. Remote control of this equipment would allow shutdown at night, weekends, holidays and peak electrical demand

times, thereby saving electrical consumption and demand changes. The control system would be either "carrier wire" switches or "RF actuated power relays." The proposed system would be implemented campus wide and is designed to control the energy using devices which cannot be operated by the campus central supervisory control system.

Abbott Power Plant Efficiency Improvements - ($465,200)

Currently, the operator receives little or no feedback concerning the operating efficiency of the Abbott cogeneration power plant. This project provides for the installation of a computer based monitoring system and software to accomplish system efficiency and optimization based on real time measured parameters. Some of the parameters monitored will be steam and electric demand, fuel price, efficiency and characteristics of plant equipment, i.e., boilers, turbines, pumps and desuperheaters. Optimized operation of the power plant will increase efficiency approximately 2-3%.

Loop Chilled Water Systems Between DCL and CEB - ($713,300)

Presently, Digital Computer Lab (DCL) and Civil Engineering Building (CEB) have separate steam absorption chillers. CEB requires operation of its boilers to operate its steam absorption chillers. This project proposes to parallel the two chiller systems to avoid use of the CEB boilers and absorbers. Looping of the two systems will, however, provide DCL with backup support from CEB in the case of campus steam failure.

The work includes installation of building and underground piping and pumps to parallel the five steam absorption machines.

Loop Chilled Water Systems - Student-Staff Air Conditioning Center and Morrill Hall - ($868,400)

This project provides for the installation of building and underground piping and pumps to parallel the five steam absorption machines located at the Student Staff Air Conditioning Center and Morrill Hall. Looping the chilled water systems together will result in more efficient loading for the Morrill Hall operation. The project energy cost avoidance is calculated based on the increased load efficiency at Morrill Hall only.

Reduction of Air Volume - Roger Adams Lab - ($542,800)

Roger Adams Lab currently has three 100 h.p. and one 40 h.p. single speed fans supplied by 100% outside air. Also, the building has 225 single-speed 3/4 h.p. fume hood exhaust fans.

This project provides for the installation of variable air volume controls on the four supply air fans and changing the 225 single-speed exhaust fans to two speed. Also, wiring and software changes will be made to the existing microprocessor to track the supply fan speeds to the number of fume hood exhaust fans on low speed.

Reheat Systems Zone Control - 12 Buildings - ($387,700)

This project is to reduce the steam used by the reheat systems located in the ventilation systems of twelve buildings. The project includes the installation of valves and controls to isolate the systems by zones and to shut off the converters and pumps at a time determined by outside air temperature.

The work will be performed in the following buildings:

Burnsides Research Lab	Natural Resource Studies Annex
Civil Engineering Building	Rehabilitation Center
Veterinary Medicine Complex	Medical Sciences Building
Foreign Languages Building	Law Building
Children's Research Center	Animal Science Laboratory
Materials Research Lab	Smith Memorial Hall

Radiation Zone Control - 27 Buildings - ($369,100)

This project will reduce the uncontrollable heat input during the heating season and includes installation of the following control devices in the heating systems of twenty-seven buildings:

--Zone thermostats
--Zone valves
--Time clocks
--Insulation
--Outside air sensing controllers
--Steam traps
--Condensate return piping
--Control tubing

The work will be performed in the following buildings:

Civil Engineering Bldg.	Davenport Hall
Education Building	Electrical Eng. Research Lab
Inst. of Labor & Ind. Rel.	Engineering Research Lab
Morrill Hall	Huff Gymnasium
Physical Plant Svc. Bldg.	Kenney Gymnasium
Veterinary Med. Complex	Speech and Hearing Clinic
Water Resources Building	Engineering Hall
Medical Sciences Building	Coble Hall
Law Building	University High School Gym
Gregory Hall	Col. of Vet. Med. and Annex
Coordinated Science Lab	Wood Shop and Foundry
Library	Natural Resources Studies Annex
Library 7th Addition	Smith Memorial Hall
Turner Hall	

Ventilation System Retrofit - Morrill Hall - ($537,000)

This project includes the installation of heat reclamation equipment, which will allow the recovery of heat from air exhausted during the winter, and provide for pre-cooling of entering air during the summer months. In addition, fan speed controls will be installed and coupled with dual speed motors on fume hood exhaust fans wherever possible.

Domestic Hot Water Retrofit - 5 Buildings - ($53,900)

This project includes removal of existing heat enchangers and hot water holding tanks. Then instantaneous hot water heaters will be installed along with a system flow pump, time clock and controls. The new controls will shut off domestic hot water systems during the unoccupied time period for each building and thereby reduce steam usage.

The work will be performed in the following buildings:

Gregory Hall	Bevier Hall
Loomis Lab	Animal Science
Veterinary Medicine	

Steam Metering Improvements - 47 Buildings - ($728,800)

This project provides for remote continuous reading of meters which monitor usage of electricity, steam flow and condensate. The computer based

Monitor and Control System (MACS), presently operating in 47 major research and instructional facilities, would be connected to the existing meters.

The work includes installation of a few new meters, hardware and computer program changes. The new system will provide continuous monitoring of energy flows and identify abnormal or excessive usage for quick reaction. It will also provide information to occupants concerning energy use rates and will verify conservation efforts and maintain historical records.

Radiation Zone Control - 27 Buildings - ($721,800)

This project includes the installation of zone controls, thermostats and timers. The purpose of the installation is to reduce the uncontrollable heat input to the buildings during the heating season.

The work will be performed in the following buildings:

Children's Research Center
Burnsides Research Lab
Commerce West
Psychology Laboratory
Rehabilitation Center
Foreign Languages Building
Animal Science Laboratory
Altgeld Hall
Ag. Engineering Research
Ceramics
Fire Station
Lincoln Hall
Mumford Hall
Natural History
Natural Resources and Garage
Noyes Laboratory
Personnel Services Building
Physics Research
Stock Pavilion
Talbot Lab
Transportation
Arcade
Electrical Engineering Annex
David Kinley Hall
Harker Hall
English Building
Dairy Manufactures Building

Conversion to Central Fan System - Armory - ($93,800)

This project provides for the removal of motors, fans, and filters from 56 fan coil units, increasing the size of the duct leading to each fan coil unit, and the installation of a bypass valve on each fan coil unit heating coil. Also included is the changing of the thermostat from a heating/cooling season control device to only heating thermostat, installation of larger exhaust fans, and the installation of heating and cooling coils in large supply fans on the mezzanine.

Install Air Curtains Above Entryways - Three Buildings - ($47,100)

This project will provide for the installation of five air curtains over the entrances to prevent cold drafts of outside air from entering the buildings (and resulting structural heat loss) as follows:

Library - north and south main entrance
Institute of Labor and Industrial Relations - south entrance
Armory - northeast and southwest entrance

Energy Use Efficiency Improvement - Morrill Hall - ($217,100)

This request is for three interrelated projects designed to improve the utilization efficiency of process steam, non-potable hot water, and chilled water in Morrill Hall.

The process steam retrofit will allow for the delivery of steam according to individual laboratory needs. Presently, medium pressure (60 psig) steam is supplied to all of the labs on a continuous basis regardless of individual lab steam requirements. This project requires the installation of isolating valves on the individual branches of the process steam lines.

The non-potable hot water retrofit will recover heat from the steam absorption machine's condensate. Under the current system, the excess steam energy is returned to the power plant. This retrofit project involves installation of a water to water heat exchanger which will recover the steam energy and then heat water for the non-potable hot water system requirements.

Looping Morrill Hall's two steam absorption water chillers will allow a more efficient operation in a combined capacity. As separate chilled water circulating systems, they operate most efficiently under full load conditions. But in mildly warm weather, each system operates inefficiently at partial load requirements. The interconnection of these two chilled water systems will permit one absorption machine to shut down while the other absorption unit is operating under full load conditions. Operation of the system in this mode will result in significant energy savings.

Summer-Winter Ventilation Rate - Three Buildings - ($40,900)

This project will provide the capability to operate fifty fan systems at lower ventilation rates during the heating season. Savings will result from a reduction of outside air which requires heating prior to delivery to the building space.

The work will be performed as follows:

Psychology Building	18 fan systems
Law Building	16 fan systems
Music Building	16 fan systems

Conversion from Cast Iron to Fin Tube Radiation - Animal Science - ($333,400)

This project will provide for conversion of cast iron radiation to fin tube radiation with cover. The conversion will reduce the amount of steam used by the radiation system by approximately 40 percent.

Radiation Zone Control - Six Buildings - ($93,000)

This project includes the installation of two zone valves, two zone thermostats and two controllers, and referred to outside temperatures on the steam-supplied radiation. This will reduce the amount of steam used by the radiation systems. In the Arts and Design Building, the work includes the same as above plus a normally closed valve on the steam to water heat exchanger.

Art & Design
Materials Research Laboratory
Aero Lab A & Brake Shoe Laboratory
Digital Computer Lab
Harding Band Bldg.
Chemistry Annex

Resource Recovery Plant - ($2,108,000)

This project provides for the installation of a solid waste incinerator/steam generation facility at the Abbott Power Plant.

In the near future, three of Abbott Power Plant's six gas/oil-fired boilers will be reconverted to coal-burning. The reconverted boilers will then be capable of supplying approximately 75% of the University's yearly steam requirements. The purchase of natural gas will continue to be necessary to supplement the coal-fired boilers, but the price of natural gas is projected to escalate at an average annual rate of approximately 17.5% through 1990. An alternative to the purchase of natural gas is the burning of solid waste.

The University disposes of approximately 53,000 cubic yards of burnable waste per year which is high in cellulose (BTU content of at least 6,100 BTU per pound). Usage of this available energy resource would offer significant savings for steam generation at Abbott Power Plant. Savings would also result because the University's landfill space requirements would be reduced.

Work involves the construction of the solid waste incinerator/steam generation unit to be located at Abbott Power Plant. The burnable waste will be transported to the plant from the solid waste compaction/transfer station located on the south side of the campus.

Domestic Hot Water Control - 6 Buildings - ($55,100)

This project includes the controls to shut off the domestic hot water systems during the unoccupied time period for each building, thus reducing the amount of steam utilized. Work involves the installation of one time clock, one control valve and controller, and one P. E. switch on each of the domestic water systems.

The work will be performed in the following buildings:

Institute of Labor and Industrial Relations
Children's Research Center
Administration Building
Harding Band Building
Astronomy Building
Turner Hall

Temperature Control Remodeling and Replacement - 7 Buildings - ($1,013,700)

This project will replace the existing controls in seven buildings for 141 fan systems and 2,700 room thermostats. The controls presently operating in these buildings have, through deterioration over the years, become inefficient and obsolete. New sensors and signaling type controls will be installed to improve the ability to control space temperatures in these buildings.

The work will be performed in the following buildings:

Library
Gregory Hall Phase II
Smith Memorial Hall
Noyes Laboratory
Chemistry Annex
Bevier Hall
College of Veterinary Medicine

Animal Room Ventilation - Two Buildings - ($279,200)

The use of 100% outside air in ventilating animal room spaces in these buildings require large energy expenditures to maintain indoor conditions. This project will provide for the installation of thermal energy recovery devices which can reclaim up to seventy percent of the energy required for each fan system.

The work will be performed in the following buildings:

Psychology Laboratory
College of Veterinary Medicine and Annex

Reheat Systems Zone Control - 10 Buildings - ($284,200)

This project is to reduce the steam used by the reheat system associated with the ventilation system of several buildings. Included is the

installation of a time clock, zone valves, a normally closed steam valve on the steam to water heat exchangers and a controller to operate the systems according to outside temperatures.

The work will be performed in the following buildings:

Harding Band Building	Psychology Lab
Commerce West	Altgeld Hall
Coordinated Science Lab	Astronomy Building
Electrical Engineering Bldg	Electrical Engineering Annex
Library 7th Addition	Art & Design

Pipe Insulation - Electrical Engineering Building - ($34,000)

This project includes the insulation of hot surfaces throughout the building, such as steam and condensate lines from the building entrance to zone valves, hot surfaces on converters and steam absorption machines, and exposed piping throughout the building to prevent heat from escaping through an uncontrolled source in the Electrical Engineering Building.

Steam Absorption Machine Control - 4 Buildings - ($154,600)

This project includes the installation of air operated automatic steam control valves, the removal of solution control valves, and the installation of microprocessing control units. These modifications will reduce the amount of steam used to air condition the buildings.

The work will be performed on absorption machines in the following buildings:

Burnsides Laboratory	Rehabilitation Center
Library 7th Addition	Psychology Building

Domestic Hot Water Control - 4 Buildings - ($24,900)

This project includes the controls to shut off the domestic hot water systems during the unoccupied time period for each building as follows. Work involves the installation of one time clock, one control valve and controller, and one P. E. switch on each of the domestic water systems.

The work will be performed in the following buildings:

Foreign Languages Building	Natural Resource Studies Annex
Medical Sciences Building	Burnsides Research Laboratory

Conversion to Zoned Ventilation - Arts & Design Building - ($223,400)

This project provides for the removal of the existing mixing boxes and room thermostats and the installation of heating and cooling coils in each of the hot and cold ducts. Also included are controls for separating each floor in the building into north and south zones and the installation of a duct between the main duct and the room service duct for each supply.

HVAC Retrofit - 2 Buildings - ($495,300)

This project provides for the replacement of the dual duct ventilation systems in Loomis Laboratory of Physics and the Materials Research Laboratory with a variable air volume (VAV) system. Included in the project are thirty fan systems and 430 variable volume units, one in each room of both buildings. This modification will use less energy to produce the room temperatures desired because the systems will not heat and cool simultaneously.

Increased Insulation on High Pressure Steam Mains - ($666,800)

The current condition of the 8 inch utility steam main (150 psig) permits significant heat losses. To correct the problem, this project provides for installation of additional 1 1/2 inch fiberglass "wrap on" type insulation to the 28,600 feet of steam piping.

Reheat Systems Zone Control - 4 Buildings - ($146,500)

This project is to reduce the steam used by heating systems located in the ventilation systems of four buildings. It involves the installation of 750 reheat coils in 53 ventilation systems.

The work will be performed in the following buildings:

Library
Morrill Hall
Digital Computer Laboratory
Education Building

FUEL CONVERSION

Convert Boilers to Coal Burning - Chicago-Health Sciences Center Steam Plant - ($10,088,300)

This project proposes reconversion of Boilers No. 4 and 5 from oil and gas burning to coal burning. The steam plant has 5 boilers which are capable of being reconverted to coal firing. However, the condition and location of No. 4 and 5 make these the most suitable candidates for reconversion. Upon completion these two boilers will have an average continuous capacity of 75,000 lbs. of steam per hour and will generate approximately 80% of the annual steam requirements. The three remaining boilers will operate to meet the remaining steam requirements and cover peak load demands.

Partial reconversion to coal will minimize requirements to purchase more expensive natural gas and fuel oil. Also, the system will have a fall back fuel source in the event of future shortages in supply of these same two fuel sources. Due to existing environmental regulations, the coal conversion project must include pollution control equipment. The total project cost of $10.1 million includes installation of a flue gas "scrubber" system.

Connection of Veterinary Medicine Complex to Urbana-Champaign Campus Steam Distribution System - ($2,000,300)

This project proposes to extend the campus steam tunnel system to the isolated boiler plant located at the Veterinary Medicine Complex. The complex is presently served with steam by an independent natural gas boiler system. The complex has a peak steam demand of 60,000 lbs. of steam per hour. The project will avoid energy costs after work is completed to reconvert 3 boilers at Abbott Power Plant to coal burning. The complex will then be supplied with less costly coal-produced steam instead of more expensive natural gas-produced steam.

The work includes extending both the steam and condensate return lines, approximately 3000 feet, from the tunnel system to the complex.

PART V

FISCAL YEAR 1985 FOOD FOR CENTURY III REQUEST

FOOD FOR CENTURY III
FOOD-PRODUCTION RESEARCH PROGRAM

Illinois is one of the foremost states in the nation in the business of food production. From Cairo to Galena, Illinois' farmers marketed over $10 billion worth of agricultural commodities in 1982--a record $5.50 billion in cash receipts from crops and $2.40 billion from livestock. Figure 1 illustrates the cash receipts from Illinois' agricultural commodities as generated by various regions of the state in 1981.

Illinois farmers ranked second nationally in total cash receipts for corn, producing 18.2 percent of the nation's crop, and first nationally for soybeans, producing 16.1 percent of its beans. They also ranked second nationally in hog production and ninth for total sales of all livestock.

Illinois' agricultural output has a significant impact throughout the world. In 1982, over a third of all cash receipts for Illinois agricultural commodities came from world markets. In total, receipts from Illinois agricultural export shares represented over $3.31 billion, ranking Illinois first among all states in total agricultural exports. Illinois also ranked first in both feed grains and soybeans, providing 17.8 percent and 17.6 percent of the nation's total export shares in those two categories.

In a very real way what Illinois farmers produce each year has a direct impact on Illinois' economy and on the social and humanitarian goal of reducing hunger in the world. The goal of reducing world hunger, established by both the 1974 and 1976 World Food Conferences and the 1977 World Food and Nutrition Study, requires the combined efforts of food-production researchers everywhere.

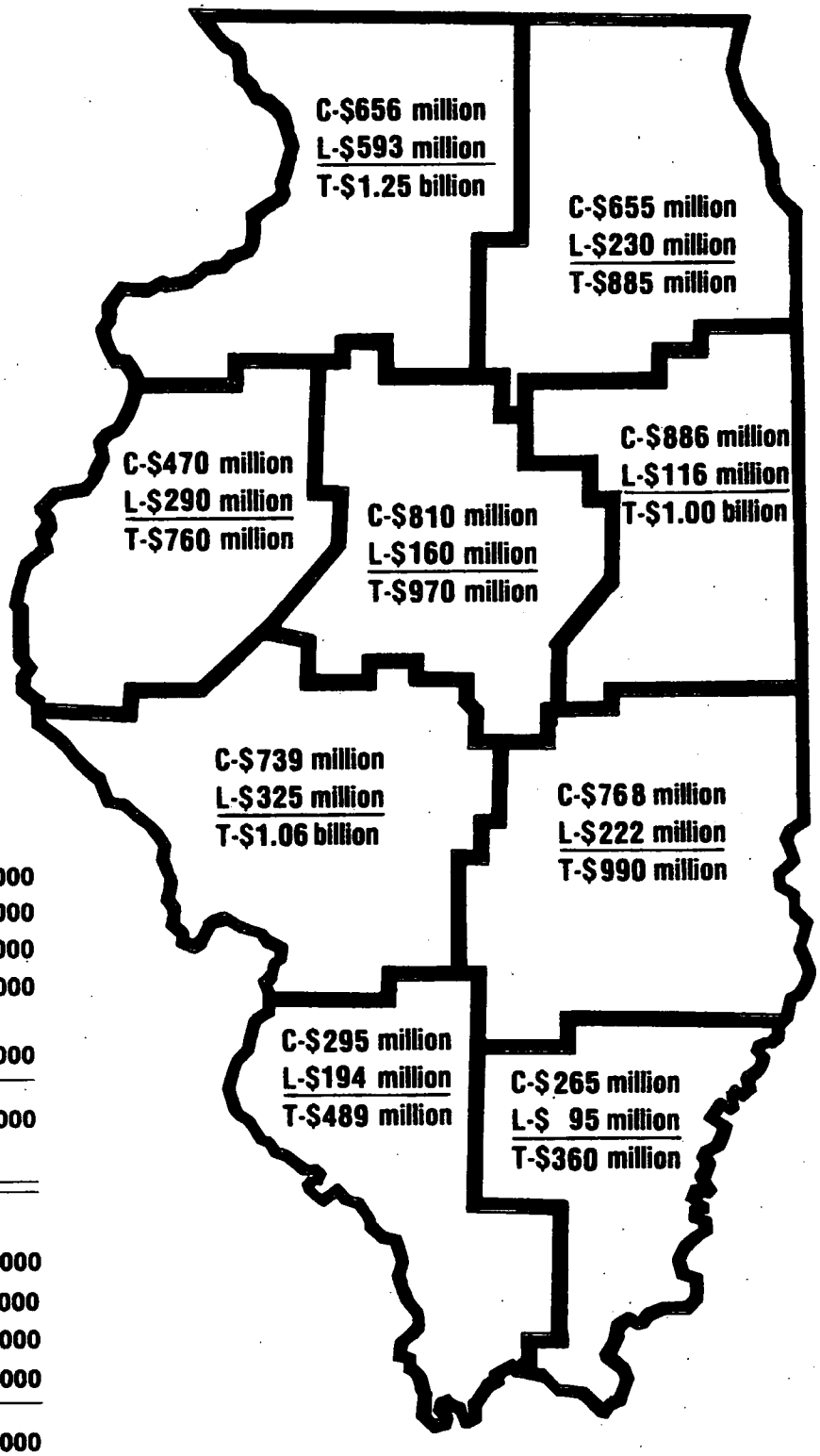
A three-fold approach is needed to deal with the world-food issue: Population must be controlled; food production must be increased; and a more effective food distribution system must evolve. Throughout the nation and the world, there is recognition that increasing food production calls for expanded investments in agricultural research programs. Those programs, experts agree, and the resulting extension education programs have proved highly successful in the development of the U.S. agricultural industry today.

Cash Receipts From Illinois Agricultural Commodities

(Calendar Year 1981, By Region)

FIGURE 1

C-Crops (cash receipts, all crops)
L-Livestock (cash receipts, all livestock and livestock products)
T-Total (cash receipts, all agricultural commodities)



Cash Receipts From Illinois Agricultural Commodities (1981)

Cattle and Calves	$ 640,334,000
Hogs	1,143,806,000
Eggs	62,600,000
Dairy Products	354,982,000
All Other Livestock & Livestock Products	23,171,000
Total, Livestock & Livestock Products	$2,224,893,000
Corn	$2,589,593,000
Soybeans	2,282,450,000
Wheat	327,800,000
All Other Crops	220,145,000
Total, All Crops	$5,419,988,000
Total Cash Receipts, Crops and Livestock	$7,644,881,000

Source: Illinois Cooperative Crop Reporting Service

Food for Century III: Current and Projected Research Needs

The need for agricultural research in the State of Illinois has never been greater than it is now, nor have these problems been more urgent or complex:

-- Severe losses in food-animal production systems caused by complex infectious and contagious diseases;

-- Increased erosion related to the intensified production of row crops, often on marginal land;

-- Financing farm operations in an age of high credit demands;

-- The loss of prime farm land to urban sprawl;

-- The conversion of marginal lands to crop and livestock production;

-- Environmental problems stemming from the increased use of chemical fertilizers, herbicides, and pesticides;

-- Declining supplies of energy and natural resources;

-- The need for new management practices, operational methods, and equipment related to the rapidly increasing size of individual farms and livestock operations.

All of these problems and many more require attention now. Solutions are within the grasp of the modern researcher who has adequate facilities, equipment, and ready access to his fellow researchers in related fields. It is such an environment that the University must create for its researchers in the Colleges of Agriculture and Veterinary Medicine. Food for Century III is the mechanism that will make it happen.

With the strong support of all in Illinois who have a stake in improving agricultural productivity, the initial thrust of the Food for Century III program is well under way. A milestone has been reached with the occupancy of the Veterinary Medicine Basic Sciences Building in the Spring Semester of 1983 and the near completion of the Agricultural Engineering Sciences Building. A second thrust has begun which will focus on research facilities for plant sciences, animal and dairy sciences, and veterinary medicine, and will complete a "critical mass" of facilities needed to support an active and vital agricultural research program designed to increase food production in Illinois. The projects required to reach the "critical mass" of facilities are identified on Table 1.

Table 1
FY 1985
FOOD FOR CENTURY III PROGRAM
(Dollars in Thousands)

FY 1985 Priority	Project Name	Total Cost	FY 1984 Appropriations	Requested FY 1985	Requested FY 1986 & Beyond
	Agricultural Engineering Research Laboratory				
	Remodeling	$ 394.5	$ 394.5		
	Equipment	10.0	10.0		
	(Project Subtotal)	(404.5)	(404.5)		
1.	Plant Sciences Greenhouses and Headhouse				
	Planning	650.0	650.0		
	Building	8,866.1		$ 8,866.1	
	Utilities	600.0		600.0	
	Equipment	400.0			$ 400.0
	(Project Subtotal)	(10,516.1)	(650.0)	(9,466.1)	(400.0)
2.	Animal Dairy Science Facility				
	Planning	1,180.0		1,180.0	
	Remodeling	8,017.9			8,017.9
	Building	8,017.9			8,017.9
	Utilities	250.0			250.0
	Equipment	550.0			550.0
	(Project Subtotal)	(18,015.8)		$ 1,180.0	(16,835.8)
3.	Veterinary Medicine Animal Room Facilities				
	Remodeling	2,400.0	1,200.0	1,200.0	
	Equipment	300.0		150.0	150.0
	(Project Subtotal)	(2,700.0)	(1,200.0)	(1,350.0)	(150.0)
4.	Veterinary Medicine Research Farm Building				
	Remodeling	163.5		163.5	
	Building	611.7		611.7	
	Equipment	50.0			50.0
	(Project Subtotal)	825.2		(775.2)	(50.0)
5.	Agriculture-Veterinary Medicine Land at Urbana	600.0		600.0	
	(Land Subtotal)	(600.0)		(600.0)	
6.	Swine Research Center				
	Building	911.6			911.6
	Equipment	50.0			50.0
	(Project Subtotal)	(961.6)			(961.6)
7.	Southern Illinois Research Facility				
	Building	900.0			(900.0)
	Equipment	50.0			50.0
	(Project Subtotal)	(950.0)			(950.0)
	TOTAL COST	$34,973.2	$2,254.5	$13,371.3	$19,347.4

Agricultural Research Pays Dividents

In November 1979, Science magazine reported annual rates of return on agricultural research expenditures to be "on the order of 50 percent." In the winter 1981 issue of National Forum, the Phi Kappa Phi journal, Nobel laureate Theodore W. Schultz, University of Chicago, is quoted as saying, "The future food supply depends in large measure on the achievements of agricultural research."

Given the importance of investing in agricultural research, it is both appropriate and logical that the University of Illinois, in concert with the citizens of this key agricultural state, has developed its food research program--called Food for Century III--to meet the growing challenge of greater food production and improved human nutrition which ultimately will contribute to an improved quality of human life. At the same time, the program can lay the groundwork for future advances in production which are tied so directly to the Illinois economy. In addition, development of a food research program is consistent with Illinois State Statutes which assign responsibility for state-wide agricultural research and extension education programs to the University of Illinois.

The problems in meeting increased food production challenges are complex. Available production technology, existing natural resources, concerns for environmental quality, energy costs and supplies, population control, and the entire food processing and distribution system are interrelated factors. Those factors, coupled with national agricultural policies, all bear heavily on future developments.

The accelerating worldwide demand for food production--a four percent annual increase in some developing countries--also underlines the socio-economic necessity for expanded food and agricultural research during the remainder of this century.

Food for Century III: Progress to Date

In 1976, the University of Illinois proposed a food production research facilities modernization program aimed at strengthening the overall research and educational capabilities of the Colleges of Veterinary

Medicine and Agriculture--Food for Century III. In proposing this positive action, the University recognized the well-established link between scientific research, technological innovation, and increased agricultural productivity.

Illinois citizens and state government officials have responded positively to both the Food for Century III program and its underlying concept. The proposal has been favorably reviewed by the Illinois Board of Higher Education, the Bureau of the Budget, and the Capital Development Board. Governor Thompson and the Illinois General Assembly have strongly endorsed and generously supported Food for Century III, appropriating more than $41.6 million through FY 1983 to initiate this effort to continue Illinois' prominence in agricultural production.

For FY 1984 the Illinois General Assembly and the Governor showed their continued support for the Food for Century III program by appropriating $2,254,500 for three capital projects. The funding of these projects initiates the second phase of Food for Century III, concentrating on the development of advanced research facilities.

Adequate funding support for basic and applied agricultural research is essential to the future growth and productivity of our food-production system. Through realization of its capital development program for food-production research, the University of Illinois fully expects to build upon its rich heritage of service to the agricultural enterprise in Illinois, the nation, and society as a whole.

FOOD FOR CENTURY III PROJECTS FOR FY 1985

Each project in the FY 1985 request is described briefly on the following pages along with an explanation of the instructional and research activities each project will support.

Plant Sciences Greenhouses and Headhouse - (Building - $8,866,100/Utilities $600,000)

The modern greenhouse is much more than a plant-holding facility; it is the plant scientist's laboratory. Modern greenhouse facilities, with separate environmentally controlled areas, allow sophisticated research that ranges from genetic engineering to volatile disease control to progress side by side. In the College of Agriculture, greenhouses are used for research, graduate education, undergraduate instruction, and extension activities.

The present greenhouses, built in the early 1900's and proposed for replacement, are antiquated, energy inefficient, lacking in sophisticated controls, and structurally deteriorating. The proposed greenhouses and headhouse would be a complex located adjacent to the existing Turner Hall greenhouses, allowing for greater operating efficiency and improved interchange among the user departments and programs. The completed structures will be energy efficient and include sophisticated computerized control systems necessary to carry out whole-plant research and allow experimentation with adequate plant populations. The modern greenhouse offers the opportunity to do plant science research every day of the year at a cost considerably less than the cost of plant research using growth chambers.

Plant science research carried out in greenhouses is both fundamental and applied in nature. Continued studies that extend the fundamental knowledge of genetics, physiology, and biochemistry at the cellular level to whole-plant systems are necessary. Greenhouses offer opportunities to study the whole plant under optimally controlled environmental conditions of light quality, quantity and duration, temperature, humidity, and other atmospheric components. It is also possible to control the rhizosphere (root

environment) and nutrition needs of plants. These conditions cannot be met studied, or controlled in our present facility. Facilities are needed for studies on energy utilization and conservation, intensive environmental research, rapid propagation from tissue culture, optimization of cropping systems, plant genetic engineering and breeding, whole plant physiology, and pesticide physiology if we are to adequately understand the basics of cell and plant growth so necessary to optimize crop yields.

Genetic engineering, for example, is really at the beginning of a revolution of understanding about how genes in higher organisms act. Although it is still impossible to assess the impact genetic engineering will have on agriculture, interest is high. A recent survey shows that 11 of 31 companies involved in genetic engineering are located in the Midwest.

Until recently, researchers could study only plants that can hybridize naturally--species that are closely related. Researchers now have found ways to "transfer" beneficial genes with DNA from more distantly related species. The work in this area will, in part, focus on making use of wild relatives of cultivated plants. Such an approach already helps researchers incorporate resistance to diseases and insects into high-yielding cultivars.

Dreams of building a better plant are becoming reality. The media have recently reported about scientists inserting soybean genes into a sunflower. Illinois work with Tripsacum, a native grass distantly related to maize, is in its early stages. And other researchers have set sight on developing corn that has the ability to biologically fix atmospheric nitrogen, as soybeans and other legumes can.

Most of the plant science departments at the University of Illinois now conduct research that involves protoplast and tissue culture. New plant-growth facilities are needed to enable researchers to continue and expand these and other efforts.

A research team composed of plant pathologists and agricultural entomologists has finally found the cause of brittleroot, a disease that has periodically devastated the Illinois horseradish crop since the 1930s.

Such progress awaited discovery of a new kind of disease-causing agent, a Spiroplasma. This is a major advance toward discovering control measures for the disease, which is, of course, the payoff for Illinois farmers and growers.

A corn virus (maize dwarf mosaic) has been adequately controlled by breeding resistant genes into fieldcorn for the past decade. But recently, sweetcorn, which has little genetic resistance, has been seriously affected. A program is underway to incorporate such resistance into sweetcorn varieties.

Similarly, sources of genetic resistance are being sought to incorporate into numerous field, vegetable, ornamental, and forest crops. Work is underway to find microorganisms that can serve as biological agents to control soybean cyst nematodes. Intensive efforts are also underway against soybean mosaic virus, Poplar rust, corn leaf blights, tomato viruses, and others.

Modern greenhouse facilities will also be used to study and develop systems for controlled environment food production. At the present time, most of the midwestern and northeastern states rely on a relatively few western and southern states for their supply of directly consumed food. Illinois, for example, imports most of the vegetables and fruits consumed as well as the flowers and landscape plants that improve the quality of our living environment. As food transportation costs continue to climb, the State's competitive advantage for local food production improves. Illinois has the population and resources to be self-sufficient in food production and even to be a regional exporter of high-income horticultural crops.

Controlled environment agricultural food production is not new. However, much research still is needed to understand and develop cropping systems to optimize production for yields many times that of field production on an annual basis.

To develop the architectural and engineering specifications for these facilities $650,000 was appropriated by the State for FY 1984. This request is for the remaining funds necessary to construct the greenhouse complex.

Animal and Dairy Science Facility ($1,180,000)

The Animal Agriculture Program in the College of Agriculture has been scattered about in a half dozen campus buildings for many years. The long-range plan has been to consolidate the facilities for that program on the south campus within easy reach of related facilities existing on the research farm space south of campus. The purpose of the consolidation is to facilitate interdisciplinary and multidisciplinary research efforts. The remodeling of the Meat Science Laboratory (within 100 yards of the proposed Animal and Dairy Science Facility) represented the initial step in the consolidation process. The completion of this project will represent the final step in that process.

The project will involve remodeling the existing Veterinary Medicine Building (vacated in December 1982) to provide offices and instructional and research laboratories for the two departments that will occupy the space. The Veterinary Medicine Building will not accommodate both units in their entirety; therefore, a new addition is being proposed. The addition will include the most sophisticated research space in the complex and will also include laboratory animal space that will enable researchers to implement or expand the following research programs:

--In microbiology, a team is developing a system of predicting the performance of ruminants based on diet composition -- a task made difficult because feedstuffs are first subjected to rumen fermentation.

--Another team is developing methods for predicting the adverse effects of various mycotoxins, nitrosamines, nitrites, and other agents. Their work may help clarify the structural features leading to toxicity and carcinogenicity.

--One group is studying the use of grass clippings as a new feed ingredient to contribute to the efficiency of animal agriculture -- particularly poultry.

--Still another group is studying ways to improve the bioavailability of several B-vitamins, lysine, and the sulfur-containing amino acids.

--A group of dairy scientists are developing a method using electrical conductivity to monitor cows infected with mastitis.

--Another team is developing procedures for increasing the number of female gametes from desirable cows and transplanting them in less desirable cows.

In addition, work in rumen physiology, animal waste management, and other areas of microbiology and management are underway. Most of the work benefits from an interdisciplinary approach will be made workable by the consolidation of facilities.

Planning for the project is proposed for FY 1985 at a cost of $1,180,000. Remodeling of the existing facility, construction of the addition, and necessary utilities work are scheduled to begin in the following year. An equipment request will also be needed to complete the project appropriations.

Veterinary Medicine Animal Room Facilities - (Remodeling - $1,101,600/ Equipment - $150,000)

Construction of the new Basic Sciences Building for the College of Veterinary Medicine brought on line the first major project in the University's Food for Century III program. The College's first 30 years were spent developing teaching and service programs to help meet the nation's critical shortage of veterinarians. Completion of the Basic Sciences Facility will permit the College to expand its programs directed toward basic veterinary research. The Basic Sciences Building will provide modern laboratory space will be provided for researchers in the College's pathobiology and biosciences departments; however, construction of animal room facilities will still be required.

When campus planners started working on Food for Century III, the University of Illinois' veterinary research facilities ranked near the bottom of American veterinary facilities. Laboratory space in the new Basic Sciences Building and renovation of the College's research farm will move the College into a competitive position with the nation's other colleges of

veterinary medicine. The proposed animal room facilities in the new Basic Sciences Building and the ruminant research facility on the Veterinary Medicine Research Farm will provide the College with laboratory and animal facilities equal to any in the nation.

In recent years, colleges of veterinary medicine have gained research support nationally through federal disease research programs. With the support of livestock commodity groups, this emphasis on animal disease research by the USDA will continue in coming years. There is no valid reason to continue to accept a 20-percent death loss in pigs and sheep from birth to weaning or less than a 90-percent calf crop. The 1980 Boyne Mountain Animal Agriculture Conference cited the immediate need for expanded efforts in animal disease research so that animal agriculture will be in a position to effectively serve human nutritional needs in the twenty-first century.

Several members of the College's pathobiology department are involved with research on blood diseases occurring in the tropical regions of the world. Much of the future growth in world livestock production is likely to occur in the tropical and subtropical belts of the world if the major diseases affecting livestock there can be brought under control. University of Illinois researchers, supported by funds from the Rockefeller Foundation, USAID, and large, multinational corporations -- and working in several Latin American nations -- are developing vaccines for these blood diseases. Although generally limited to warmer climates, one of the diseases the group has worked with -- anaplasmosis -- is indigenous to many U.S. livestock areas.

Foreign animal diseases in a modern environment are a constant threat to the livestock industry of this country. Although the work of these veterinary researchers is having its most immediate impact on world livestock numbers, the information gained and the vaccines developed also provide a line of defense for Illinois livestock producers.

Current facilities in the College severely limit infectious disease research, but the new laboratories under construction and the proposed

animal rooms will improve infectious disease research capabilities. Members of the pathobiology department, as well as a number of recently recruited researchers, are developing projects or conducting immunological and virological studies on long-term or latent infectious diseases of food animals including pseudorabies (PRV), TGE, and eperythrozoonosis (EPE) in swine; leukosis in poultry; cancer eye and pink eye in cattle; and leptospirosis in all species. Already veterinary researchers have developed a diagnostic test for EPE, vacterins or vaccines for leptospirosis and TGE, and an effective test that is being used in the State Diagnostic Laboratories for the diagnosis of PRV.

The area to be finished in the Basic Sciences Building will not only provide animal facilities to enhance disease, parasitic and metabolic studies, but it will also provide gnotobiotic or germ-free facilities for swine researchers. Already these researchers have provided clear information that swine dysentery is caused by several infectious agents working in concert and not by a single causative agent. Work on an effective vaccine for the costly disease has been turned over to commercial firms. Other important diseases of livestock must also be studied using germ-free techniques.

During the last five years, members of the College's biosciences department have established one of the foremost animal toxicology programs in the nation. As an offshoot of their research, these staff members established the nation's first animal Toxicology Hotline Service and expect to receive a large federal grant in the near future to dovetail these activities with a feed specimen bank. The director of the service estimates they were involved in poisoning cases affecting $40 million worth of animal loss in 1980. Cases in subsequent years have far exceeded the 1980 case load. Many of the cases handled by the toxicology group are feed-related and involve the accidental misuse or misapplication of agricultural chemicals. The toxicology group is another segment of the veterinary faculty that benefits from completion of the Basic Sciences Building, for it provides modern laboratory space, storage space for a feed specimen banking

program, and a modern analytical chemistry facility in the new diagnostic laboratory for their use.

An appropriation of $1,200,000 was made for the first phase remodeling of unfinished space in the Veterinary Medicine Basic Sciences Building into a sophisticated animal disease research laboratory area. The FY 1985 request proposes to complete remodeling of approximately 6,000 ASF. A total equipment request of $300,000 will be made in two phases to support the remodeling.

Veterinary Medicine Research Farm Buildings - (Remodeling - $163,500/ Building - $611,700)

The funds requested for veterinary medicine research farm buildings would complete the South Race Street research facility. When the Colleges of Agriculture and Veterinary Medicine initiated the Food for Century III program, the Veterinary Medicine Research Farm typified the College of Veterinary Medicine's research facilities. Many small buildings that had existed on the farm before it became a research facility were gerrymandered into makeshift animal holding facilities, research laboratories, and isolation facilities. Few, if any, of the facilities could meet national standards for laboratory animal or research facilities.

When the Food for Century III program was getting underway, a veterinary pharmacologist was conducting research on drug effectiveness and sulfa residues in swine that gained national attention. The work not only examined the basic actions of the drugs, but also led to some practical research that offered farmers ways to avoid residue problems in their operations. That research involving hundreds of thousands of dollars of federal research money was conducted in inadequate facilities on the farm. Researchers on the veterinary farm now have swine facilities, as a result of Food for Century III, comparable to those used in modern swine finishing operations. Those facilities are being used for larger scale drug, metabolic, and reproductive studies than were ever possible in the College before. Results of the drug residue studies enabled the FDA, USDA, and the swine industry to eliminate sources of drug residues in the U.S. red meat

supply. In addition to the swine farrowing and finishing units already in operation, a swine gestation building, more laboratory and animal holding space, and a small ruminant facility are nearing completion. College researchers will have a modern set of swine confinement facilities in which to conduct research that should be meaningful to the modern producer.

Paralleling the expansion of swine research facilities at the College of Veterinary Medicine has been an expansion in research support and projects among College researchers. Between 1975 and 1981, research support at the College grew from $1.36 million to $2.13 million. Seventy-one research projects were underway in 1976. Five years later, the number was 180 and 85 percent of the College's research effort was either on food animals or on projects that cut across all species lines and, in some cases, even impacted on the improvement of human health.

Scheduled as a part of the FY 1985 project is a ruminant disease research facility. Researchers in the College's biosciences and clinical departments are attempting to improve cattle, sheep, and goat reproductive efficiency with their studies. Now they are severely hampered by woefully inadequate facilities that endanger both researchers and animals and are unprotected from the weather. When the cattle facilities are complete, reproductive studies should blossom just as the drug studies in the swine facilities did. Reproductive studies in the College have investigated the physiology of farrowing in swine, the function of the ovaries with an eye towards improving fertility, the body mechanisms that regulate normal birth and the estrous cycle in cattle. Veterinary researchers are examining the effect of photoperiod on the estrous cycle in sheep. The ability to control these physiologic mechanisms would enable producers to selectively breed sheep year round rather than relying on seasonal breeding.

Researchers in the College have also contributed to an understanding of the effect of stress on reproductive performance of cattle and sheep in confinement. However, without the planned ruminant facilities, it is nearly impossible to complete the studies. Unless animals can be studied in duplicate situations that are environmentally comfortable for

the animals, it is impossible to manipulate stress factors satisfactorily. Animals that must be captured in the farm pastures for each experiment cannot be monitored satisfactorily and do not make suitable models for this type of research.

The College's reproductive researchers are currently seeking funding for physiology studies of the post-calving cow. Facilities that will protect and confine the cows while sophisticated metabolic sampling is conducted are unavailable. Upon completion of the ruminant research facility, researchers would be able to work with statistically significant numbers of animals instead of completing work on a piecemeal basis.

The new ruminant facility would also enhance the College's active equine reproductive research program and would be used for cattle research on respiratory, metabolic, and parasitic diseases.

While a number of the small farm buildings are scheduled to be razed, others would be remodeled with a portion of the project funds. This work would upgrade substandard space by adding insulation, heating, and even water to some buildings. Animal facilities would be improved and lockers and lavatories provided. Other funds would be used to construct a storage building and a machine shop to service the research facilities. Currently, farm equipment is exposed to the weather year round and deteriorates rapidly. The storage area would protect machinery, trucks, hay straw, feed, and other supplies, while the machine shop would be used to maintain or construct research and farm equipment.

Agriculture-Veterinary Medicine Land at Urbana - ($600,000)

In FY 1978, the University requested $1,000,000 to purchase a tract of just more than 200 acres of suitable land adjacent to the present research farms for meeting its short-range agricultural needs. When the funds were reduced to $400,000, a smaller acreage at an alternate location had to be purchased. The College of Agriculture is presently utilizing all of its available land for research needs in the Urbana-Champaign area. The problem has been compounded by the fact that the College of Veterinary Medicine moved its facilities to the sourh farms, and now occupies a number of acres previously used for agricultural research.