# University of Illinois

## BUDGET REQUEST FOR OPERATING AND CAPITAL FUNDS

## Fiscal Year 1989

PREPARED FOR PRESENTATION TO THE
BOARD OF TRUSTEES
SEPTEMBER 10, 1987

# University of Illinois

# BUDGET REQUEST FOR OPERATING AND CAPITAL FUNDS

## Fiscal Year 1989

PREPARED FOR PRESENTATION TO THE
BOARD OF TRUSTEES
SEPTEMBER 10, 1987

# TABLE OF CONTENTS

---

V. FY 1989 CAPITAL BUDGET REQUEST

# INTRODUCTION TO THE FISCAL YEAR 1989 BUDGET REQUEST

# GENERAL PERSPECTIVES FOR THE DEVELOPMENT OF THE FY 1989 OPERATING BUDGET REQUEST

For the second time in the past four years the concluding days of the Spring, 1987 session of the General Assembly saw Illinois public policy-makers confronting a budget dilemma of major proportions: to make any advance in State-supported social services or educational initiatives, new revenue-generating measures--tax increases--were necessary. Four years earlier, such measures were implemented, albeit on a temporary basis. New initiatives, particularly in higher education, were underwritten. At stake in 1987 were advances in every social and human service Illinois provides its citizens, from the full range of child and family services, public assistance, mental health and corrections services, to educational reforms and improvements in elementary/secondary and higher education which are the foundation upon which Illinois' potential for success in the 21st century inevitably rests.

In sharp contrast to the outcome four years earlier, the 1987 General Assembly session brought no new revenue measures. Most FY 1988 budgets were held at FY 1987 levels by the legislature, eliminating any prospect for expansion or enhancement of programs, stalling the drive for improved economic competitiveness, halting the progress in educational reform, and risking the chance that advances just initiated could not be sustained.

That risk was dramatically increased when, faced with the need to use what little new revenue was available to meet FY 1987 borrowing commitments and other unavoidable or statutory funding requirements, the Governor reduced the overall level of FY 1988 General Revenue and Agricultural Premium Fund appropriations by $363 million--nearly 4%--below the level passed by the General Assembly.

For the University of Illinois, the Governor's reductions meant a loss of $18 million below the "level budget" approved by the General Assembly and $17 million below FY 1987 appropriations. In addition to this direct loss of revenue, the University began FY 1988 with $6 million in unavoidable budget needs, stretching the budget shortfall to $23 million.

Had the General Assembly adopted relatively modest tax increases and the Governor's Budget for higher education been adopted, the University of

Illinois would have received a net increment of $37.5 million. When contrasted with the $23 million budget shortfall with which the University ultimately was confronted, the total budget loss resulting from the lack of tax increase action reached $60 million--more than 11% of the University's total FY 1987 operating budget.

The impact of this $60 million budget loss is outlined graphically in Figure 1. Its effects touch every segment of University operations, every staff member in every program, and every student. When the General Assembly opted for a "level budget" decision for FY 1988, the University of Illinois:

- Lost $23.7 million in salary increase funds. In a year in which salary increases at other Big Ten institutions are expected to average about 6.5%, this loss means that UI faculty compensation will drop to last in the Big Ten; the salary gap to third place will triple, from 2.4% for FY 1987 to a projected 7.6% in FY 1988; and Illinois will fall from a competitive position among the top tier of institutions into a cluster of second tier institutions.

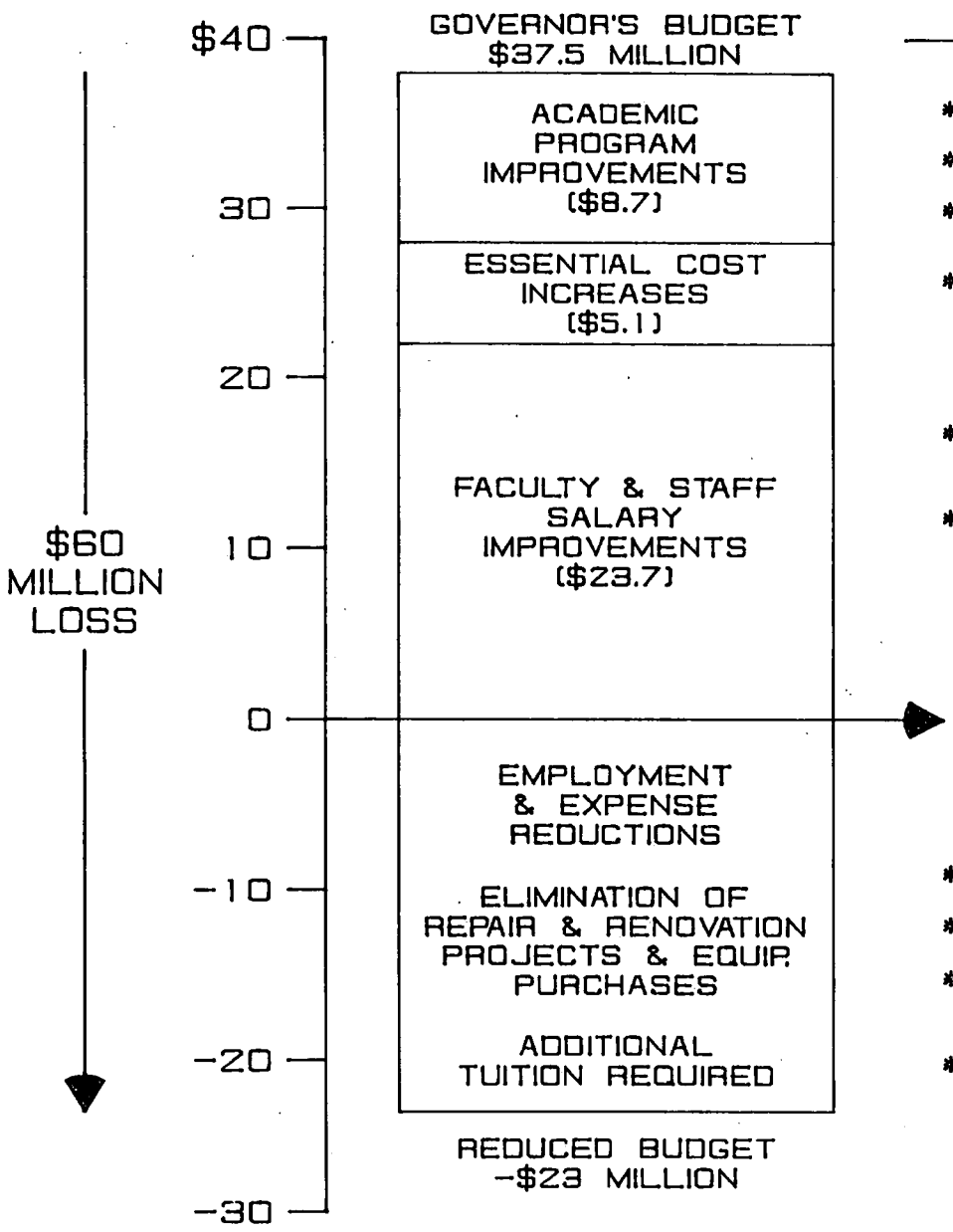
- Lost $5.1 million in essential cost increase funds. For the third time in the past six years, no general price increase funds will be available, exacerbating a decade-and-a-half of losses to inflation. No area of University operations is more seriously jeopardized by the absence of price increase funding than the acquisitions budget of the University Libraries. Confronted by double-digit inflation rates in several key areas of acquisition needs and by monetary changes which have made foreign materials significantly more expensive, library acquisition budgets have suffered severe losses for several consecutive years.

- Lost $8.7 million in program improvement funds. More than any other factor, this loss caused the most serious damage to the momentum of program improvements achieved over the past four years. The economic development initiatives which have helped attract tens of millions of dollars in grant and contract activities in science and engineering will be stalled; improvements in undergraduate education will be halted without sufficient funding to keep them in place; Illinois' competitive advantage in science and technology fields will diminish, as other states continue to invest in these key areas.

Having already absorbed these losses of incremental funds when the General Assembly opted for a "level budget" approach to FY 1988 funding, the further reductions imposed by the Governor's vetoes took the University below its FY 1987 base of support. To accommodate these further reductions, several more painfully damaging actions were required:

FIGURE 1

# UNIVERSITY OF ILLINOIS FY 1988 BUDGET CUT IMPACT




## IMPACT OF LOSS

- SCIENCE/ENGINEERING PROGRESS HALTED
- UNDERGRADUATE EDUCATION DAMAGED
- ECONOMIC DEVELOPMENT STALLED
- FEWER LIBRARY BOOKS, LABORATORY EQUIPMENT AND SUPPLIES AVAILABLE
- FACULTY COMPENSATION DROPS TO LAST IN BIG TEN
- STAFF SALARIES FALL 15-20% BEHIND OTHER STATE AGENCIES

LAST YEAR'S LEVEL OF STATE SUPPORT

## GOVERNOR'S ADDITIONAL CUTS

- LOSS OF FACULTY TO COMPETITORS GROWS
- STAFF LAYOFFS
- FACILITIES AND INSTRUCTIONAL EQUIPMENT DETERIORATE
- STUDENTS FACE ADDITIONAL TUITION INCREASE

- Department and unit budgets throughout the University were cut below actual levels of FY 1987 expenditures. These cuts will, over the course of the year, result in fewer staff positions within the University. In some cases, vacant positions will be eliminated; in others, layoffs of staff will be required. Expense budgets will also be reduced.

- All University-wide resources for remodeling and equipment replacement were eliminated. These funds have provided a critical augmentation to new and expanded program support received over the past few years. Their loss will diminish the University's ability to respond to state-of-the-art changes in research and instructional programs, as well as to deferred maintenance requirements. If they are not replaced, the University's ability to compete for the best new faculty and to retain key faculty and staff already at the University will erode.

- Subject to formal approval by the Board of Trustees, additional tuition increases will be required to offset a portion of the budget shortfalls. Failure to achieve additional tuition revenue would require ever deeper and more damaging program cuts.

While the impact of each of those revenue losses and budget reductions can be assessed individually, perhaps the most damaging impact occurs when they are viewed in a broader context. Has Illinois lost the will to complete the program of educational reform and improvement it has just begun? Is Illinois unwilling to continue its investment in developing the economic diversity and the underlying core of social and human services and well-trained and educated workforce which are necessary for this State to remain competitive in the 21st century?

The revenue decisions made for FY 1988 eliminated nearly one-half billion dollars from the funding levels initially recommended for elementary/secondary and higher education. If that loss cannot be restored quickly, the long term impact of the cuts will be felt in Illinois schools and colleges for years into the future, and their effects will plague Illinois' competitiveness for the balance of this century. If restoration of the budget cuts cannot begin immediately, the impact of the cuts will go beyond the loss of dollars. In the highly competitive task of attracting and retraining top-quality faculty and staff, Illinois will lose the advantage which earlier program advances had provided. The credibility of Illinois' commitment to top quality education will suffer. Once lost, that credibility will take years to recover, even as funding improves.

Restoring Resources

The task of rebuilding the resource base from which Illinois education at all levels can operate must begin at once. Even as he announced his budget reductions, the Governor indicated a willingness to keep close watch on the State's revenue picture, and he explicitly pledged his "support for additional funding for both elementary and secondary, and higher education, should improvement in our financial condition warrant . . . ." That pledge is an encouraging first step toward restoring at least a portion of the lost fiscal capacity to carry on with the educational reform and improvement programs so vital to Illinois' future.

From the perspective of the University's FY 1989 Budget Request, two distinct steps toward recovery are necessary. First, some immediate action--during FY 1988--is necessary to stem the damage being done each week and month by the inability to move forward with the broad based set of program improvements which were started through earlier commitments. Such action will be important not only for the additional revenue it will provide, but for the message it will send that Illinois leaders recognize they cannot allow educational reform and enhancement to flounder, half-finished. That message will aid in the recovery of programmatic momentum, just as additional funds will aid in the recovery of fiscal stability.

Second, in addition to the normal requirements for incremental resources which each year's budget request documents, supplementary steps must be taken in FY 1989 to begin to recover ground lost in FY 1988. Salary and compensation competitiveness must be regained. Equipment and renovation resources must be rebuilt. Program momentum must resume.

Clearly these special needs will require special resource allocations. Whether those resources come from a generally improved economy or from new revenue-producing measures enacted by Illinois public policymakers, the need for them has been amply demonstrated. Needs exist in many other social and human service areas, and they are needs which Illinois citizens expect to be met. None, however, carry greater potential for influencing Illinois future more widely or profoundly than do the needs for educational advances at all levels.

FY 1989 Operating Budget Structure and Emphases

As just noted, the process of recovering from the budget actions of FY 1988 must follow two separate routes. Restoration of the FY 1988 cuts must begin immediately. For the University of Illinois, full restoration of the General Revenue and Agricultural Premium Fund reductions will require $17,978,200.

Beyond the issue of budget restoration, the structure of the FY 1989 Operating Budget Request is quite similar to the Preliminary Request reviewed by the Board of Trustees in July. All continuing components request levels have been modified, however, primarily to reflect the need to recover a loss of competitive position (as in faculty and staff salaries), or losses to inflation (as in general price increases and library price increases). Other modifications have been made in the utilities and operations and maintenance elements. Finally, the programmatic components have increased, to reflect the loss of funding for which earlier State commitments had been made (e.g., the National Center for Supercomputing Applications).

Virtually every element of the University's operating budget has been affected by the FY 1988 reductions, adding to the importance of addressing multiple areas of need in FY 1989. The University has long stressed, however, that attracting and retaining top-quality faculty and staff must be the central goal of every annual budget request. Providing a competitive compensation program for faculty and staff is well-established as the paramount priority in reaching that goal. The failure of the FY 1988 budget to provide funds for salary increases will seriously erode the University's competitive position within the Big Ten and among other peer institutions. Salary comparisons for nonacademic employees show a similar loss of competitive standing. It will be extremely important to begin to recover from this loss of salary competitiveness at once, and there will be no higher priority in the FY 1989 request.

While the competitive strength of salary levels remains an obvious concern, attention must continue to focus upon the other benefits which make up a total compensation package for faculty and staff. The University's current benefits program ranks demonstrably below those of most peer institutions. Combined with the loss of salary standing, FY 1988 total compensation comparisons show the University of Illinois last among Big Ten

institutions. That situation must be overcome, and the FY 1989 Budget Request includes a renewed effort to improve the benefits program for all faculty and staff.

Other areas of continuing need which must be addressed in FY 1989 are those which provide cost increase funds to offset the impact of inflation. While the double-digit experiences of a few years ago have abated in most areas, cost increase funds have remained woefully inadequate for more than a decade. The FY 1989 request seeks first to match inflation projections for cost increase areas, and then to recover a portion of the ground lost in FY 1988. Special emphasis is again targeted to library acquisition needs, which have been beset by rapid price escalations and loss of purchasing power in several areas.

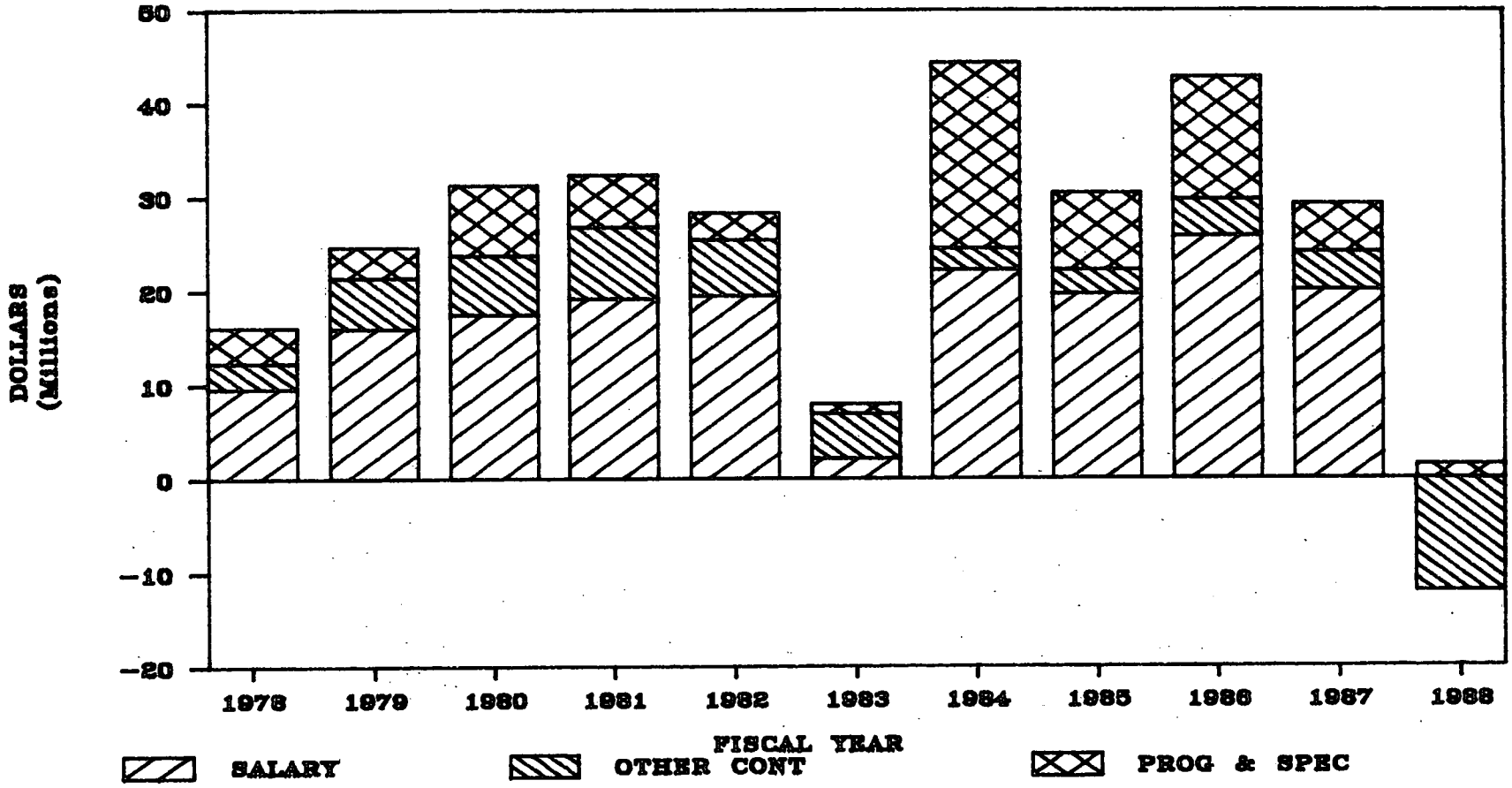
Recent successes in receiving capital appropriations from the State and from other sources have supported several new building projects, the most prominent of which, the Beckman Institute, will be coming on-line early in FY 1989. It will be critically important to secure adequate funding to operate and maintain this unique and highly sophisticated new facility, as well as to cover other needs for operations and maintenance support.

Between FY 1984 and FY 1987 the University received a total of $46.2 million in support for expanded and improved academic programs, as illustrated in Figure 2. These programmatic advances have been the mainstay of the University's contributions to the State's economic development, and they have paid rich dividends in the form of greatly increased Federal and private support in such areas as supercomputing, microelectronics, biotechnology, and others. Other program initiatives have enabled the University to begin to improve undergraduate education, to respond to shifting student demand, and to expand minority enrollments and improve retention. These themes recur in the FY 1989 request, with several vital budget needs to be met:

- The program theme of scientific and technological advances must continue to play an important role. Engineering, the sciences, and technology remain areas of special strength at both University of Illinois campuses, and they are the areas of UI strength most directly associated with the State's economic advancement.

FIGURE 2
FY 1978 - FY 1988 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 1978 | FY 1979 | FY 1980 | FY 1981 | FY 1982 | FY 1983 | FY 1984 | FY 1985 | FY 1986 | FY 1987 | FY 1988 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| PREVIOUS YEAR'S BASE | $250,019.4 | $265,925.8 | $290,681.4 | $321,158.3 | $353,550.3 | $381,884.9 | $389,861.2 | $434,289.0 | $464,718.2 | $507,575.5 | $536,867.7 |
| NET INCREMENT | 16,140.0 | 24,755.6 | 31,279.3 | 32,391.9 | 28,334.6 | 7,976.3 | 44,427.8 | 30,429.3 | 42,857.3 | 29,292.1 | (10,528.0) |
| NET INCREMENT AS A % OF PRIOR YEAR'S BASE | 6.5% | 9.3% | 10.8% | 10.1% | 8.0% | 2.1% | 11.4% | 7.0% | 9.2% | 5.8% | -2.0% |
| SALARY INCREASE | 9,587.0 | 15,984.6 | 17,505.3 | 19,208.5 | 19,511.2 | 2,125.9 | 22,263.4 | 19,660.2 | 25,853.3 | 20,103.9 | 0.0 |
| % OF TOTAL INCREMENT | 59.4% | 64.6% | 56.0% | 59.3% | 68.9% | 26.7% | 50.1% | 64.6% | 60.3% | 68.6% | 0.0% |
| OTHER CONT. COMPONENTS | 2,760.1 | 5,438.3 | 6,298.1 | 7,631.6 | 5,949.8 | 4,787.1 | 2,315.7 | 2,588.5 | 3,929.0 | 4,057.3 | (11,992.3) |
| % OF TOTAL INCREMENT | 17.1% | 22.0% | 20.1% | 23.6% | 21.0% | 60.0% | 5.2% | 8.5% | 9.2% | 13.9% | 113.9% |
| PROGRAMS/SPEC. COMPONENTS | 3,792.9 | 3,332.7 | 7,475.9 | 5,551.8 | 2,873.6 | 1,063.3 | 19,848.7 | 8,180.6 | 13,075.0 | 5,130.9 | 1,464.3 |
| % OF TOTAL INCREMENT | 23.5% | 13.5% | 23.9% | 17.1% | 10.1% | 13.3% | 44.7% | 26.9% | 30.5% | 17.5% | -13.9% |



- Requirements to expand efforts in science and technology, engineering, and economic development are matched with an equally pressing need to continue strengthening instructional activity. The long-term vitality of Illinois' economic, social, and political systems depends on the presence of an educated population of persons who can think clearly, reason soundly, communicate effectively, and recognize and appreciate the diversity of their own cultures and history as well as those of others. Continued enhancement of instructional programs in the basic disciplines, along with efforts to help with the improvement of elementary and secondary education, must be provided.

- Equally important, Illinois must recognize continuing changes in the very nature of its population. Illinois must be prepared to deal with an aging populace in which fundamental changes will likely occur in many aspects of day-to-day life. The State must extend current efforts to ensure that all of its citizens become and remain effective, productive members of society. Special efforts are needed to make certain that minority members of society receive the educational opportunities which have eluded them in the past.

- New developments in biotechnology are having a rapid and pervasive impact on virtually all program areas in the life sciences, in the health professions, in agriculture, and in many others. This impact produces a dramatic need to reshape instructional programs to accommodate an explosion of knowledge. It produces a parallel need to find new mixes of interdisciplinary activity to carry on the search for new knowledge, as well as to develop the results of those new research thrusts in ways which can bolster economic growth.

- Providing adequate equipment support for both new and existing academic programs remains an especially important area of attention. The rapid technological obsolescence of much of the University's sophisticated instructional and research equipment is compounded by the equipment intensive nature of many expanded academic programs, by the flood of requests from every discipline for access to computers of all types, and by the University's long-standing equipment replacement deficiency which has made it impossible to replace all existing obsolete equipment, let alone to upgrade to new technologies. The intense competition for top-quality new faculty members frequently includes the requirement to upgrade laboratory or computer workstation equipment when a new faculty member is hired.

- Despite making significant strides in several highly visible programmatic areas in recent years, there remains a strong need to bolster the academic and institutional support areas which undergird basic instructional, research, and public service programs. Library support needs to be strengthened, to help both campuses keep pace with dramatically rising costs, as well as with the ever-accelerating pace at which new knowledge is created. (The

dizzying rate of new discoveries in the field of conductivity over the past six months is but the most highly publicized example.) Other support areas require equally pressing attention to help assure that University students and employees have a safe, secure, and productive environment in which to work and live.

The FY 1989 request also includes a section covering programs which receive support from specialized sources of funds (such as the Agriculture Premium Fund, the Fire Prevention Fund, etc.), or which the University operates by special mandate, such as the Division of Services for Crippled Children. The Ag Premium Fund was reduced by the Governor's veto action, and the programs funded from this source carry the same need for budget restoration as do other University activities.

The FY 1989 request includes a special addendum which addresses the unique funding needs of the University of Illinois Hospital (UIH). As has been well documented during the past year, UIH has suffered extreme budget constraints as State and national health care financing mechanisms have undergone radical changes, and as the number of medically indigent patients served by UIH has grown. Despite severe budget reductions, program cut-backs, and staff layoffs, UIH remains in fiscal distress. Serving the medically indigent population is a matter of public policy concern which is outside the higher education budget arena, and the University is attempting to confront that issue with other State agencies. On the other hand, UIH plays a vital role as a clinical setting for the education of thousands of health professions students, and a portion of the Hospital's financial needs must be addressed through the University's budget request.

FY 1989 Operating Budget Request

Table 1 outlines each element of the FY 1989 Operating Budget Request, which has been constructed around the themes and major areas of revenue requirements just discussed. Table 2 presents a summary of the major themes for expanded/improved academic program support. As discussed in greater detail in the body of this document, the FY 1989 request includes the following highlights:

- Compensation Increases totalling 11.5%, which include a salary component of 9.5%, intended to match inflation for FY 1989 as well as close a portion of the salary gap between the University and the

TABLE 1
FY 1989 OPERATING BUDGET REQUEST
(Dollars in Thousands)

| | | |
|---|---|---|
| Restoration of FY 1988 Base Reduction | | $17,978.2 |
| I. Continuing Components | | |
| A. Compensation Improvement | | $45,802.2 |
| 1. FY 1989 Increment (9.5%) | ( 37,382.3) | |
| 2. Fringe Benefits Improvements (2%) | ( 7,869.9) | |
| 3. Medicare Costs | ( 550.0) | |
| B. General Price Increases (7.5%) | | 5,151.7 |
| C. Utilities Price Increases (7.1%) | | 2,420.0 |
| D. Library Price Increases (20.0%) | | 1,404.6 |
| E. O & M New Areas | | 5,361.1 |
| Subtotal, Continuing Components | | $60,139.6 |
| % of FY 1988 Base* | | (11.33%) |
| II. Programmatic Components | | |
| A. Chicago | | 9,000.0 |
| B. Urbana-Champaign | | 12,770.0 |
| C. Central Administration | | 1,000.0 |
| Subtotal, Programmatic Components | | $22,770.0 |
| % of FY 1988 Base | | (4.29%) |
| III. Special Services Funding | | |
| A. County Board Matching | | $ 450.0 |
| B. Fire Services Institute | | 80.6 |
| C. Division of Services to Crippled Children | | 250.0 |
| Subtotal, Special Service Funding | | $ 780.6 |
| IV. Subtotal, Sections I - III | | $83,690.2 |
| % of FY 1988 Base | | (15.77%) |
| V. Special Addendum, University of Illinois Hospital | | 5,000.0 |
| VI. Grand Total, Sections I - V | | $88,690.2 |
| % of FY 1988 Base | | (16.71%) |

*FY 1988 Base = $530,639.7

TABLE 2
FY 1989 PROGRAM BUDGET REQUEST
(Dollars in Thousands)

| | | Chicago | Urbana-Champaign | Central Administration | Total University |
|---|---|---|---|---|---|
| I. | Promoting Instructional Excellence | $4,400.0 | $ 3,200.0 | | $ 7,600.0 |
| II. | Scientific and Technological Advances | 1,900.0 | 5,870.0 | $1,000.0 | 8,770.0 |
| III. | Minority Access | 400.0 | 500.0 | | 900.0 |
| IV. | Engineering Revitalization | 800.0 | 1,000.0 | | 1,800.0 |
| V. | Library Improvements | 500.0 | 700.0 | | 1,200.0 |
| VI. | Academic and Institutional Support Services | 1,000.0 | 1,500.0 | | 2,500.0 |
| | TOTAL | $9,000.0 | $12,770.0 | $1,000.0 | $22,770.0 |

third-place institution within the Big Ten, and an additional 2% to improve the current fringe benefits package for University employees. Additional incremental funds are included to cover the employer's share of Medicare costs for new employees.

- General Cost Increases of 7.5%. These include approximately 5% to match FY 1989 inflation projections and 2.5% to recover a portion of the purchasing power lost in the current year.

- Utilities Cost Increases of 7.1%, required to meet projected fuel and consumption increases for FY 1989.

- Library Cost Increases of 20%. Again these include approximately 13% necessary to match estimated inflationary increases, plus 7% to regain a portion of the purchasing power lost in FY 1988.

- Operations and Maintenance support for new areas requiring a total of $5.4 million. By far the largest single element within this request is the funding for ten months of operation of the Beckman Institute for Advanced Science and Technology.

- Academic Program Improvements totalling $20.2 million, organized around five major themes: promoting instructional excellence; scientific and technological advances; minority access; engineering revitalization; and library improvements. In addition, another $2.5 million is sought for a series of academic and institutional support initiatives.

- Special Services/Funding needs for the Cooperative Extension Service, the Fire Services Institute, and the Division of Services for Crippled Children. Together, these total approximately $800,000.

- A special request of $5 million to help the University of Illinois Hospital recover a measure of fiscal stability while continuing to serve as a clinical setting for health professions education and research, and continuing to serve a portion of the State's medically indigent population.

In total, these individual elements require $88,690,200 in incremental funding for FY 1989--a 16.71% increase over the FY 1988 operating budget base of $530,639,700. While this increase is somewhat larger than in the recent past, it should be remembered that the FY 1989 request is, in effect, a two-year request, since FY 1988 has seen a reduction in support below FY 1987 levels.

The Enrollment Picture

Overall, University of Illinois enrollments are expected to decline slightly (by about 1,000 headcount students) from the current total of approximately 60,000, as outlined in Table 3. At Chicago, declines in the size of the high school graduating classes in the City of Chicago present some cause for concern about the size of the undergraduate student body at UIC. A recent loss of undergraduates at the lower division level (freshmen/sophomore) is expected to stabilize at current levels. On the other hand, that campus continues to attract a sizeable portion of its enrollment from a somewhat older age-group than the traditional 18-21 year old population, providing a broader range of potential students. Graduate enrollment at UIC has grown steadily for several years, and is currently projected to be stabilized at current levels.

Enrollment for most programs at the Health Sciences Center has long been limited primarily by the funding available, rather than by a lack of well-qualified applicants for admission. Health professions enrollments are therefore expected to remain steady at current levels. The Health Sciences data in Table 3 show a technical change in accounting for pharmacy students who now pursue the Doctor of Pharmacy degree, but who had previously been classified as undergraduates.

Demand for admission to programs at the Urbana-Champaign campus continues to be very high--so high that more students than anticipated have elected to attend UIUC in the past two years, raising undergraduate enrollments by nearly 1,000 students above projections. The undergraduate enrollment will be reduced to more appropriate levels over the next two years. Graduate enrollments at UIUC have also increased slightly over the past three years and are expected to stabilize at current levels for the future.

TABLE 3
FALL TERM ON-CAMPUS HEADCOUNT ENROLLMENT
UNIVERSITY OF ILLINOIS

| | Actual | | | Projected | | | | |
|---|---|---|---|---|---|---|---|---|
| | FY 1985 | FY 1986 | FY 1987 | FY 1988 | FY 1989 | FY 1990 | FY 1991 | FY 1992 |
| **Chicago (Excl. Health Sciences Ctr.)** | | | | | | | | |
| Lower Division | 7,762 | 7,932 | 7,211 | 7,230 | 7,230 | 7,230 | 7,230 | 7,230 |
| Upper Division | 8,459 | 8,232 | 8,244 | 8,240 | 8,240 | 8,240 | 8,240 | 8,240 |
| Total Undergraduate | 16,221 | 16,164 | 15,455 | 15,470 | 15,470 | 15,470 | 15,470 | 15,470 |
| GI | 2,735 | 2,833 | 3,056 | 3,050 | 3,050 | 3,050 | 3,050 | 3,050 |
| GII | 1,126 | 1,185 | 1,274 | 1,280 | 1,280 | 1,280 | 1,280 | 1,280 |
| Total Graduate | 3,861 | 4,018 | 4,330 | 4,330 | 4,330 | 4,330 | 4,330 | 4,330 |
| TOTAL - Chicago (Excl. HSC) | 20,082 | 20,182 | 19,785 | 19,800 | 19,800 | 19,800 | 19,800 | 19,800 |
| **Health Sciences Center** | | | | | | | | |
| Lower Division | 138 | 104 | 97 | 95 | 95 | 95 | 95 | 95 |
| Upper Division* | 920 | 761 | 575 | 575 | 575 | 575 | 575 | 575 |
| Total Undergraduate | 1,058 | 865 | 672 | 670 | 670 | 670 | 670 | 670 |
| Medicine | 1,317 | 1,304 | 1314 | 1310 | 1310 | 1310 | 1310 | 1310 |
| Dentistry | 507 | 489 | 486 | 485 | 485 | 485 | 485 | 485 |
| Dental Post Graduates | 42 | 45 | 39 | 40 | 40 | 40 | 40 | 40 |
| Pharm.D. | | | | | | | | |
| Undergraduate Professional | 129 | 244 | 342 | 460 | 460 | 460 | 460 | 460 |
| Post-Graduate | 25 | 18 | 89 | 95 | 95 | 95 | 95 | 95 |
| Total Professional | 2,020 | 2,100 | 2,270 | 2,390 | 2,390 | 2,390 | 2,390 | 2,390 |
| GI* | 629 | 629 | 689 | 690 | 690 | 690 | 690 | 690 |
| GII | 278 | 268 | 290 | 290 | 290 | 290 | 290 | 290 |
| Total Graduate | 907 | 897 | 979 | 980 | 980 | 980 | 980 | 980 |
| Total (Excl. residents & interns) | 3,985 | 3,862 | 3,921 | 4,040 | 4,040 | 4,040 | 4,040 | 4,040 |
| Residents and Interns | 621 | 723 | 741 | 740 | 740 | 740 | 740 | 740 |
| TOTAL - Health Sciences Center | 4,606 | 4,585 | 4,662 | 4,780 | 4,780 | 4,780 | 4,780 | 4,780 |
| **Urbana-Champaign** | | | | | | | | |
| Lower Division | 12,632 | 13,527 | 13,482 | 12,900 | 12,500 | 12,400 | 12,400 | 12,400 |
| Upper Division | 13,480 | 13,705 | 13,717 | 13,900 | 13,700 | 13,600 | 13,600 | 13,600 |
| Total Undergraduate | 26,112 | 27,232 | 27,199 | 26,800 | 26,200 | 26,000 | 26,000 | 26,000 |
| Law | 630 | 626 | 629 | 629 | 626 | 626 | 626 | 626 |
| Veterinary Medicine | 312 | 300 | 316 | 316 | 314 | 314 | 314 | 314 |
| Total Professional | 942 | 926 | 945 | 945 | 940 | 940 | 940 | 940 |
| GI | 3,374 | 3,582 | 3,876 | 3,900 | 3,850 | 3,850 | 3,850 | 3,850 |
| GII | 4,332 | 4,257 | 4,310 | 4,350 | 4,350 | 4,350 | 4,350 | 4,350 |
| Total Graduate | 7,706 | 7,839 | 8,186 | 8,250 | 8,200 | 8,200 | 8,200 | 8,200 |
| TOTAL - Urbana-Champaign | 34,760 | 35,997 | 36,330 | 35,995 | 35,340 | 35,140 | 35,140 | 35,140 |
| GRAND TOTAL - University of Illinois (Excludes residents and interns) | 58,827 | 60,041 | 60,036 | 59,835 | 59,180 | 58,980 | 58,980 | 58,980 |
| GRAND TOTAL - University of Illinois | 59,448 | 60,764 | 60,777 | 60,575 | 59,920 | 59,720 | 59,720 | 59,720 |

*Excludes regional nursing students.

## GENERAL BACKGROUND FOR THE DEVELOPMENT OF THE FY 1989 CAPITAL BUDGET REQUEST

The need to address critical facilities deficiencies has grown during the past several years to the point that it is now near the very top of the University's overall budget priorities. Even in the face of the very serious operating budget problems in the current year, facilities needs require immediate and continuing attention. Growth in academic programs--particularly in engineering and the sciences--along with significant growth in research activity at both campuses has produced a substantial amount of program-related expansion over the past four years. In addition, well more than a decade of underfunding of renovation, repair, and remodeling activities has brought the level of accumulated facility deficiency, for the University as a whole, to $600 million. Loss of operating budget resources which have been available in the past to help address this deficiency will only compound the difficulty for FY 1988.

The nature and scope of the University's facilities problems stem principally from two separate but related areas: on the one hand, the structural integrity of existing facilities, including the campus-wide utilities systems which support them, must be assured. On the other hand, the capacity and configuration of academic facilities must be adequate to support a changing mix of academic programs as well as constantly changing emphases within existing programs. New knowledge and technology is evolving at an accelerating pace, particularly in laboratory sciences and engineering. To remain current with instructional and research activities, let alone to work at the forefront of knowledge development, requires frequent modification or upgrading of facilities and of support systems. The use of sophisticated equipment for teaching and research, often requiring specialized environmental controls, also demands space renovation. And those programs which are not faced with rapid changes in the state-of-the-art technologies are confronted with the inevitable need for refurbishing aging facilities. The cumulative effects of more than a decade of operating and maintenance budget deficiencies have produced a significant backlog of deferred maintenance projects.

Activity is under way at both campuses to not only satisfy the immediate critical needs for additional or upgraded space but to generate a plan

that will solve the longer term needs for remodeled or additional facilities. The Building Condition Audit, now completed for both campuses, provides an invaluable tool that helps determine which facilities can be renovated and which need to be replaced. Furthermore, when space realignment is required to meet changing academic program needs, the Audit also helps to determine what structural deficiencies should be corrected at the same time.

The Urbana-Champaign campus has begun a major long-term capital master planning and land use study which will serve the campus into the next century. Preliminary work for a similar effort is under way for the Chicago campus as well.

While these building condition and planning efforts are critical bases from which to begin effective upgrading of the facilities supporting the University's academic programs, the most encouraging signs that progress is being made revolve around a substantial increase in facilities funding from State, Federal, and private sources. The State of Illinois has provided more than $150 million over the past three years to help the University address its backlog of academic facilities needs. Both Federal and private sources of support have also seen sharp increases, with the $40 million gift from Dr. and Mrs. Arnold M. Beckman to create the Beckman Institute for Advanced Science and Technology, and a $30 million Federal appropriation for a plant and animal biotechnology laboratory being only the most prominent examples.

Together, these capital resources provide for a truly significant amount of activity--yet that total represents only about one-third of the deficiency amount identified in the Building Condition Audit. As exciting and encouraging as the recent flurry of facilities activity has been, the University's overall capital requirements must be viewed in a long-term context. Major building deficiencies continue to exist, especially for the laboratory sciences: the clinical sciences at Chicago, the environmental sciences at Urbana-Champaign; and life sciences and chemistry at both campuses, to name only the most immediate. Serious deficiencies remain in key utilities support structures at both campuses; major remodeling projects at both locations require multiple phases to complete; and new land acquisition needs have emerged from the long-range work of campus master planners. From the perspective of effective attention to long-term

capital needs, perhaps the most crucial element in the process is to secure a steady flow of planning funds each year for major capital projects. Such an approach recognizes the need for a multi-year solution to the considerable backlog of facilities needs which remain at the University of Illinois.

Table 4 provides a detailed listing of the University's top-priority capital budget projects for FY 1989. The list totals $74.6 million, and it is composed primarily of major remodeling projects and planning initiatives for new facilities to be constructed in future years. The Capital Budget section of this document outlines each project in much greater detail.

Meeting the full range of the University's comprehensive capital needs will require sustained support for perhaps a decade. Recent initiatives such as the repair and renovation program supported through Build Illinois, the major construction projects now under way with State appropriations, private gifts, and projected Federal funding all provide encouraging opportunities to begin the attack on crucial facilities needs at both campuses. Continuing that progress in FY 1989, especially by including planning funds to assure multi-year attention to those long-standing and severe needs remains near the top of the University's most critical budget requirements.

TABLE 4
UNIVERSITY OF ILLINOIS
FY 1989 CAPITAL BUDGET REQUEST
PRIORITY LIST
(Dollars in Thousands)

| Priority | Campus | Project | Budget Category | FY 1989 Request | Cumulative Cost | | |
|---|---|---|---|---|---|---|---|
| | | | | | University | Chicago | Urbana |
| 1 | C | Clinical Sciences Building Remodeling | REMD | $8,200.0 | $ 8,200.0 | $ 8,200.0 | |
| 2 | U | Util. Infrastruct. Upgrade/Water System Imprv. | UTIL | 2,470.0 | 10,670.0 | | $2,470.0 |
| 3 | U | Life Sciences Research Laboratory | PLAN | 1,880.0 | 12,550.0 | | 4,350.0 |
| 4 | C | Engineering Research Facility | EQUIP | 5,800.0 | 18,350.0 | 14,000.0 | |
| 5 | C | Molecular Biology Research Facility | PLAN | 2,670.0 | 21,020.0 | 16,670.0 | |
| 6 | U | English Building Remodeling | REMD | 3,530.0 | 24,550.0 | | 7,880.0 |
| 7 | C | Alumni Hall Remodeling-Phase 2 | REMD | 4,024.0 | 28,574.0 | 20,694.0 | |
| 8 | U | New Building Equipment-4 Buildings | EQUIP | 925.0 | 29,499.0 | | 8,805.0 |
| 9 | U | Noyes Laboratory Remodeling | REMD | 2,310.0 | 31,809.0 | | 11,115.0 |
| 10 | C/U* | Administrative Computing Elect. Improve. | UTIL | 1,996.0 | 33,805.0 | 22,690.0 | |
| 11 | U | Remodel Environmental Sciences-Phase 2 | REMD | 4,350.0 | 38,155.0 | | 15,465.0 |
| 12 | U | Commerce-Education Building | PLAN | 1,730.0 | 39,885.0 | | 17,195.0 |
| 13 | C | Architecture and Art Addition | PLAN | 1,030.0 | 40,915.0 | 23,720.0 | |
| 14 | U | Core Campus Land Acquisition | LAND | 1,600.0 | 42,515.0 | | 18,795.0 |
| 15 | C | Business Administration Building | PLAN | 1,500.0 | 44,015.0 | 25,220.0 | |
| 16 | C | Land Acquisition/Site Development | LAND/SITE | 3,000.0 | 47,015.0 | 28,220.0 | |
| 17 | U | Electrical Engineering Research Lab. | PLAN | 1,153.0 | 48,168.0 | | 19,948.0 |
| 18 | C | Associated Health Professions | REMD | 6,110.0 | 54,278.0 | 34,330.0 | |
| 19 | C | Remodel College of Medicine West-Phase 1 | REMD | 8,948.0 | 63,226.0 | 43,278.0 | |
| 20 | C | HSC Campus Emergency Power Dist.-Phase 3 | UTIL | 1,190.0 | 64,416.0 | 44,468.0 | |
| 21 | U | Campus Site Improvements | SITE | 1,510.0 | 65,926.0 | | 21,458.0 |
| 22 | U | Compound Semiconductor Microelec. Center | EQUIP | 500.0 | 66,426.0 | | 21,958.0 |
| 23 | U | Campus Police Station | BLDG/UTIL | 2,030.5 | 68,456.5 | | 23,988.5 |
| 24 | C | Remodel Pharmacy Building | REMD | 1,750.0 | 70,206.5 | 46,218.0 | |
| 25 | U | Digital Computer Laboratory Addition | EQUIP | 500.0 | 70,706.5 | | 24,488.5 |
| 26 | U | Mechanical Engineering Laboratory | REMD | 3,700.0 | 74,406.5 | | 28,188.5 |
| 27 | U | Main Library Remodeling | PLAN | 170.0 | 74,576.5 | | 28,358.5 |
| | | **Build Illinois Requests** | | | | | |
| ** | C/U | Repair and Renovation Program-Phase 4 | REMD | 7,834.0 | | | |

*Because this project serves the needs of both the Chicago and Urbana-Champaign campuses, the cost may be applied on an equal basis to both. For the purpose of this table, the entire project cost will be included under Chicago.

**Build Illinois projects are non-prioritized.

# RESTORATION OF
# FY 1988 BASE REDUCTIONS

## RESTORATION OF FY 1988 BASE REDUCTIONS ($17,978,200)

"Three years ago, Illinois launched a major effort to strengthen its educational system at all levels to prepare our young people to compete in the world of tomorrow. For three years, Illinois led the nation in the educational reform movement. We are now in danger of being the first to become a dropout."

President S. O. Ikenberry
July 20, 1987

As President Ikenberry indicated in his "Statement in Response to Cuts in Education Funding," the State of Illinois has taken a step backward in its move to improve and enhance the education of its citizens. All levels of education were affected by the Governor's reductions in General Revenue Fund appropriations approved by the General Assembly. Specifically, the University of Illinois finds itself operating at a level that is $18 million less in General Revenue support approved by the General Assembly and $17 million less than the FY 1987 appropriation. If those funds cannot be quickly restored, the University's progress toward educational improvement will be set back substantially.

Analyzing the change in funding for the University from the Governor's original budget recommendation to his final actions, potential University funding decreased $60 million. The original budget provided funds for salary improvements to assist the University in its goal of achieving third place among Big Ten salaries. It also included cost increases to restore the purchasing power lost to inflation and programmatic increases to continue the University's efforts to provide its students and the citizens of Illinois the best of higher education. Among those program improvements were increased efforts for minority recruitment, improved undergraduate education, matching funds for the operations of the National Center for Supercomputing Applications and the Beckman Institute for Advanced Science and Technology, and, importantly, increased funding for the already financially stressed University Hospital.

All of the above programs were advances above the FY 1987 operational level. The Governor's actions not only eliminated those much needed advancements, but also imposed reductions that place the University's General Revenue support 4% below last year's level. To complicate budget requirements further, there are also approximately $6 million in unavoidable costs that require funding in FY 1988. This brings the total of FY 1988's budget shortfall to $23 million below FY 1987 appropriation levels. Among the unavoidable costs are approximately $4.2 million in salary requirements, $1.1 million for the operation and maintenance of new buildings to be opened in FY 1988, and $250,000 for Federal Medicare requirements for new employees.

The University has taken several actions to achieve a balanced budget under these restrictions. Among them are base reductions to all units within the University, the elimination of funds set aside for remodeling and equipment purchases, and a proposed tuition increase to be implemented at mid-year.

The impact of these reductions will be felt in every unit within the University. Base budgets in each academic and administrative unit have been reduced by approximately 2%, with administrative units bearing a heavier share of the reduction than instructional units. To balance unit budgets after these reductions, vacant positions have been eliminated, expense and program budgets cut, and, in some cases, layoffs will be required.

A portion of the total reduction will come from the elimination of University resources which were available to provide for remodeling and equipment purchases. The loss of these funds will have an immediate impact upon academic programs at both campuses, and will increase the renovation and equipment deficiencies which have plagued the University for more than a decade. For example, with the increased number of personal computers being used for instructional purposes comes the need to modify existing space to provide access for all students. In the past the renovation funds now eliminated were used to create the personal computer labs for both Rhetoric and Engineering on the Urbana-Champaign campus. In Chicago, a computer lab was created for the College of Business, classroom equipment was purchased for the Chemical Engineering department, and the roof was

repaired for one of the central lecture halls. With the elimination of these resources, units will have to curtail plans for these types of vital advancements.

Even after these budget reduction measures, unavoidable cost increase requirements remain. To help meet these requirements it will be necessary to implement a mid-year tuition increase to balance the FY 1988 budget. As has been done in the past with mid-year increases, students who receive grants from the Illinois State Scholarship Commission will not be assessed for the increase.

Perhaps more damaging, in the long run, than any of these individual actions is the potential harm done to the University's ability to attract and retain top-quality faculty and staff. If the FY 1988 budget reductions signal a retreat from the priority which educational reform and enhancement appeared to have in Illinois, it will take years to repair the damage in the State's elementary schools, high schools, colleges, and universities.

To ease the danger of such a loss, and to blunt the impact which the cuts have already had on academic programs, immediate restoration of the cuts is required. In his statement announcing his budget cuts, the Governor himself signaled a willingness to support restoration of funds for education, if revenue forecasts improve. It is critical that restoration take place immediately, so that the foundation of support previously achieved can be rebuilt. With that base of support restored, attention can then be turned to FY 1989 budget priorities and decisions. For the University of Illinois, restoration will require $17,978,200.

# FY 1989 OPERATING BUDGET REQUEST

CONTINUING COMPONENTS

## SALARY AND BENEFIT INCREASES
## ($45,802,200)

The salary and fringe benefits program of the University of Illinois has a direct impact on its ability to attract, retain, and reward high quality faculty and staff. Accordingly, the University strives to achieve a compensation program which accomplishes these objectives and in so doing supports the overall quality of the institution. The quality of the University's academic programs as measured by several national assessments places it among the country's top institutions of higher education, and among the top three Big Ten universities; and the University has established the latter benchmark as a minimum objective for its faculty compensation program. Similarly, the University has worked to improve its compensation programs for nonacademic employees to achieve a competitive position in the markets for these employees.

To compete successfully in the external markets for academic and nonacademic employees, the University must support the quality of its academic programs, as well as ensure that it maintains a competitive position relative to peer institutions who seek equally well-qualified faculty and staff. Erosion in the competitiveness of salaries, or of fringe benefits, increases the number of talented employees likely to accept more attractive offers at other institutions or in the private sector; it reduces the ability of the University to attract the best-qualified candidates to new or vacant positions; and it undermines the productivity and morale of current staff. Seriously reduced funding levels in FY 1988 have eroded the competitiveness of both salaries and benefits, and the University's compensation increase request for FY 1989 addresses these concerns directly. The University has no more important budget priority for FY 1989 than recovering salary and compensation competitiveness.

The University's preliminary budget request was based upon the assumption that the Governor's FY 1988 budget for higher education would be enacted. That budget, which provided for a general salary increase of 6%, was contingent upon passage of a tax increase for FY 1988. As has already been discussed, no tax increase was adopted, and the final budget outcome had a dramatic impact upon the University's overall need for salary

increase funds in FY 1989. The base budget reductions imposed for FY 1988 require the University to reduce unit operating budgets to the extent that no general salary increases can be granted in FY 1988. On the other hand, salary increase programs at other Big Ten institutions have been successful; and as a result, the University's competitive position has been severely weakened. Thus, the University's FY 1989 salary increase request has been revised to reflect the increased funding requirements necessary to offset in part the deterioration which will occur in the University's competitive position in the current year.

In FY 1987, the University of Illinois ranked fourth in average cash salary among Big Ten institutions and lagged the third place institution by 2.4%. Whereas a salary increase of 6% would have allowed the University to maintain its position in FY 1988, the absence of a salary increase will cause the University's position to deteriorate. Although final salary increase percentages will not be available until later in the FY 1988 fiscal year, projections indicate that increases will average approximately 6.5% at other Big Ten institutions, greatly intensifying pressure from the competitive market.

The discussion which follows provides background information concerning the University's competitive position in FY 1987 and prior years, as well as projections for FY 1988. All projections are based upon FY 1987 base data and tentative information concerning FY 1988 salary and benefit increases at other Big Ten institutions. Because of the tentative nature of FY 1988 data, care should be taken in making precise interpretations about FY 1988 salary rankings. The general trend, however, is unmistakable: the University will lose a portion of its salary competitiveness in FY 1988.

To assess the University's competitive standing, numerous salary and compensation analyses are performed annually to determine the University's overall ranking among its peers. Due to the varied nature of the University workforce, separate analyses are performed for academic and nonacademic staffs. Cash salary and employer contributions to fringe benefits for academic employees are assessed through comparisons with Big Ten and other peer institutions, while nonacademic salary and benefits comparisons are made with appropriate employee groups outside the University.

Faculty Salaries

In recent years prior to FY 1988, the University of Illinois made some progress toward achieving the goal of third place among Big Ten institutions in average cash salary. The table below displays the University's average salary relative to third place in the Big Ten for FY 1979 through FY 1987. Salaries displayed represent nine-month salaries for full-time budgeted faculty, and are for all academic ranks combined, weighted to the University's distribution of faculty by rank and term of appointment.

University Average Salary Relative
To Third Place In The Big Ten

| Fiscal Year | Illinois | Third Place | Dollar Difference | Percent Difference |
|---|---|---|---|---|
| FY 1979 | $23,249 | $23,676 | $ 427 | 1.8% |
| FY 1980 | 25,187 | 25,485 | 298 | 1.2 |
| FY 1981 | 27,592 | 28,018 | 426 | 1.5 |
| FY 1982 | 30,171 | 31,021 | 850 | 2.8 |
| FY 1983 | 31,640 | 33,733 | 2,093 | 6.6 |
| FY 1984 | 34,563 | 36,048 | 1,485 | 4.3 |
| FY 1985 | 37,050 | 38,654 | 1,604 | 4.3 |
| FY 1986 | 40,235 | 41,262 | 1,027 | 2.6 |
| FY 1987 | 42,448 | 43,481 | 1,033 | 2.4 |

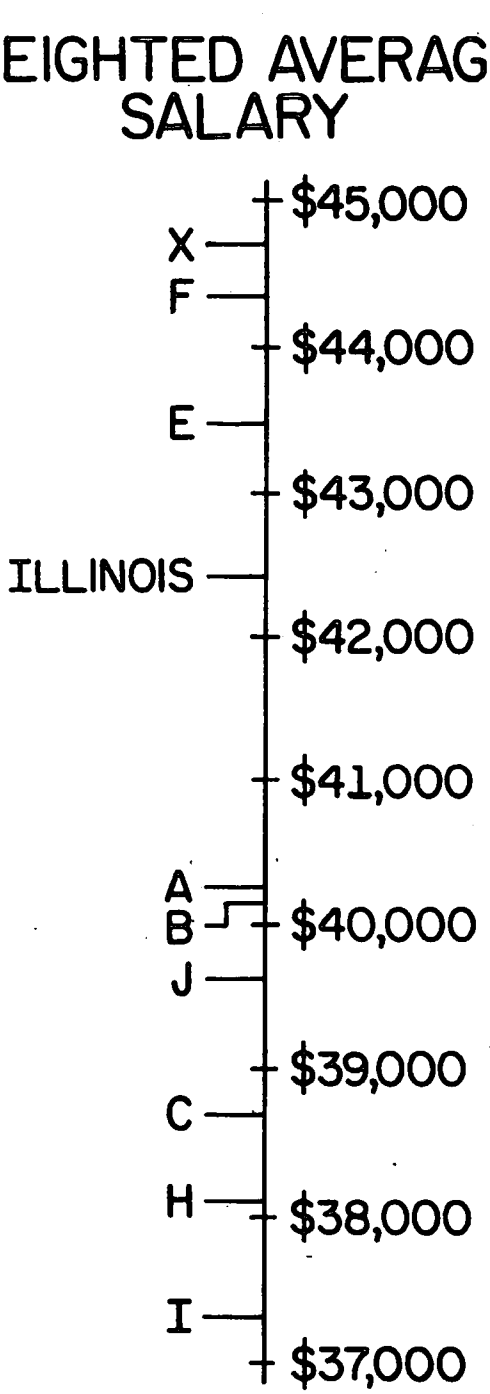
(It should be noted that the average salaries shown for FY 1982 and FY 1983 have been adjusted to represent rate increases in effect during those years rather than actual cash increases.)

In FY 1987, the University of Illinois lagged behind the third place institution by 2.4%, a slight improvement over the 2.6% gap experienced in FY 1986. While a substantial gain over the FY 1983 gap of 6.6%, the University continued to find itself farther behind third place than in the years preceding FY 1982 when the gap was below 2%.

Figure 3 displays the FY 1987 ranking of Big Ten faculty salaries graphically. Note that while the top three institutions are rather closely clustered, the University of Illinois' fourth place position lags below the top cluster. Note as well that the top four institutions--including the University of Illinois--are placed a considerable distance above the remaining institutions. There is clearly a sizeable competitive gap between these four institutions and the rest of the Big Ten universities. It is critically important for the University to close the salary gap to the top institutions. Should the top two institutions move significantly above the rest, the University's competitive position would be damaged, regardless of whether a third place ranking had been achieved.

FIGURE 3

# FY 1987 AVERAGE SALARY AMONG BIG TEN UNIVERSITIES



Finally, note that between FY 1984 and FY 1987, the University was successful in its efforts to improve faculty salaries. Yet those institutions with which the University must compete were also successful in increasing their salaries as well, intensifying the pressure for maintaining competitive faculty salaries.

Table 5 displays average salaries of faculty at the Big Ten institutions for FY 1986 and FY 1987. All salaries are displayed on a nine-month basis for all ranks combined, and are weighted to the distribution of faculty rank and term of appointment at the University of Illinois. Additionally, the relative ranking of each Big Ten institution is displayed, as well as the percent increase in weighted average cash salary.

As mentioned above, the University of Illinois maintained its fourth place rank in FY 1987. While the University received an overall increase in average salary of 5.5%, the other Big Ten institutions averaged a 6.5% increase. Salary increases at the top three institutions averaged 5.5%, keeping the University of Illinois' relative ranking virtually unchanged from the prior year.

While the FY 1988 appropriation to the University of Illinois provided no increment for general salary increases, current information indicates that FY 1988 salary increases at peer Big Ten institutions will average approximately 6.5% as displayed in the table which follows:

Estimated FY 1988 Salary Increases At
Big Ten Institutions

| Institutions | Estimated FY 1988 Salary Increase |
|---|---|
| Illinois | 0.0% |
| I | 5.0% |
| C | 10.5% |
| F | 6.0% |
| H | 10.0% |
| A | 5.0% |
| E | 5.0% |
| B | 5.0% |
| J | 6.5% |
| X | 6.5% |
| MEAN | 5.8% |
| MEAN LESS ILLINOIS | 6.5% |

Based upon preliminary data, the University's FY 1988 salary ranking is expected to drop, perhaps to as low as eighth place, depending upon the

TABLE 5
AVERAGE SALARIES FY 1986 - FY 1987
BIG TEN INSTITUTIONS

(9-month basis)

| Institution | FY 1986 Weighted Average Salary | Rank | FY 1987 Weighted Average Salary | Rank | Percent Increase |
|---|---|---|---|---|---|
| ILLINOIS | $40,235 | 4 | $42,448 | 4 | 5.5% |
| I | 34,683 | 10 | 37,324 | 10 | 7.6 |
| C | 36,697 | 7 | 38,712 | 8 | 5.5 |
| F | 41,819 | 2 | 44,345 | 2 | 6.0 |
| H | 35,496 | 9 | 38,107 | 9 | 7.4 |
| A | 38,168 | 5 | 40,257 | 5 | 5.5 |
| X | 42,531 | 1 | 44,719 | 1 | 5.1 |
| E | 41,262 | 3 | 43,481 | 3 | 5.4 |
| B | 37,388 | 6 | 40,158 | 6 | 7.4 |
| J | 36,245 | 8 | 39,634 | 7 | 9.4 |
| MEAN | $38,452 | | $40,919 | | 6.4% |
| MEAN LESS ILLINOIS | $38,254 | | $40,749 | | 6.5% |

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

Data represents total institutions' full-time faculty, excluding clinical departments, whose primary responsibilities are teaching, research or public service. Weighted to the distribution of faculty rank and term of appointment at the University of Illinois.

---

Distances to 3rd Place--Average Salaries

| | FY 1986 | FY 1987 |
|---|---|---|
| ILLINOIS | $40,235 | $42,448 |
| 3rd Place | 41,262 | 43,481 |
| $ Difference | $ 1,027 | 1,033 |
| % Difference | 2.6% | 2.4% |

precise increases granted at other Big Ten institutions. Figure 4 displays the actual FY 1987 and projected FY 1988 ranking of Big Ten faculty salaries graphically. Note that the University of Illinois' ranking drops from fourth place in FY 1987 to a projected ranking of fifth place in FY 1988. Far more importantly, note that the University's ranking drops from near the top cluster of institutions to the lower half of the scale where it is clustered tightly with four of the other Big Ten institutions. It is possible that any (or all) of the other institutions in this cluster could surpass the University of Illinois in FY 1988.

Equally important to note is the increase in the size of the gap to third place in FY 1988. Although the precise size of the gap can not be calculated until final information on FY 1988 salaries is obtained from peer institutions, the gap to third place in average faculty salary will increase dramatically from 2.4% in FY 1987 to an estimated 7.5% in FY 1988 as displayed in Figure 5. Although progress toward closing the gap was made from FY 1984 to FY 1987, in FY 1988 the gap to third place will reach its widest level in the last ten years.

Salary increases tied to inflation projections of 5% represent the best current estimate of FY 1989 salary progress for the other Big Ten institutions. An increment of this magnitude plus an additional 4.5% to reduce the gap to third place represents the University of Illinois' assessment of salary increase needs for FY 1989. It is urgent that a substantial portion of this gap be closed in FY 1989 before the University's competitiveness is permanently eroded. Even with an increase of this magnitude, the University will not have regained the competitive position it had achieved through FY 1987. Additional funds for continued recovery of competitiveness will be required beyond FY 1989.

FIGURE 4

# TENTATIVE AVERAGE SALARY AMONG BIG TEN UNIVERSITIES

## WEIGHTED AVERAGE SALARY

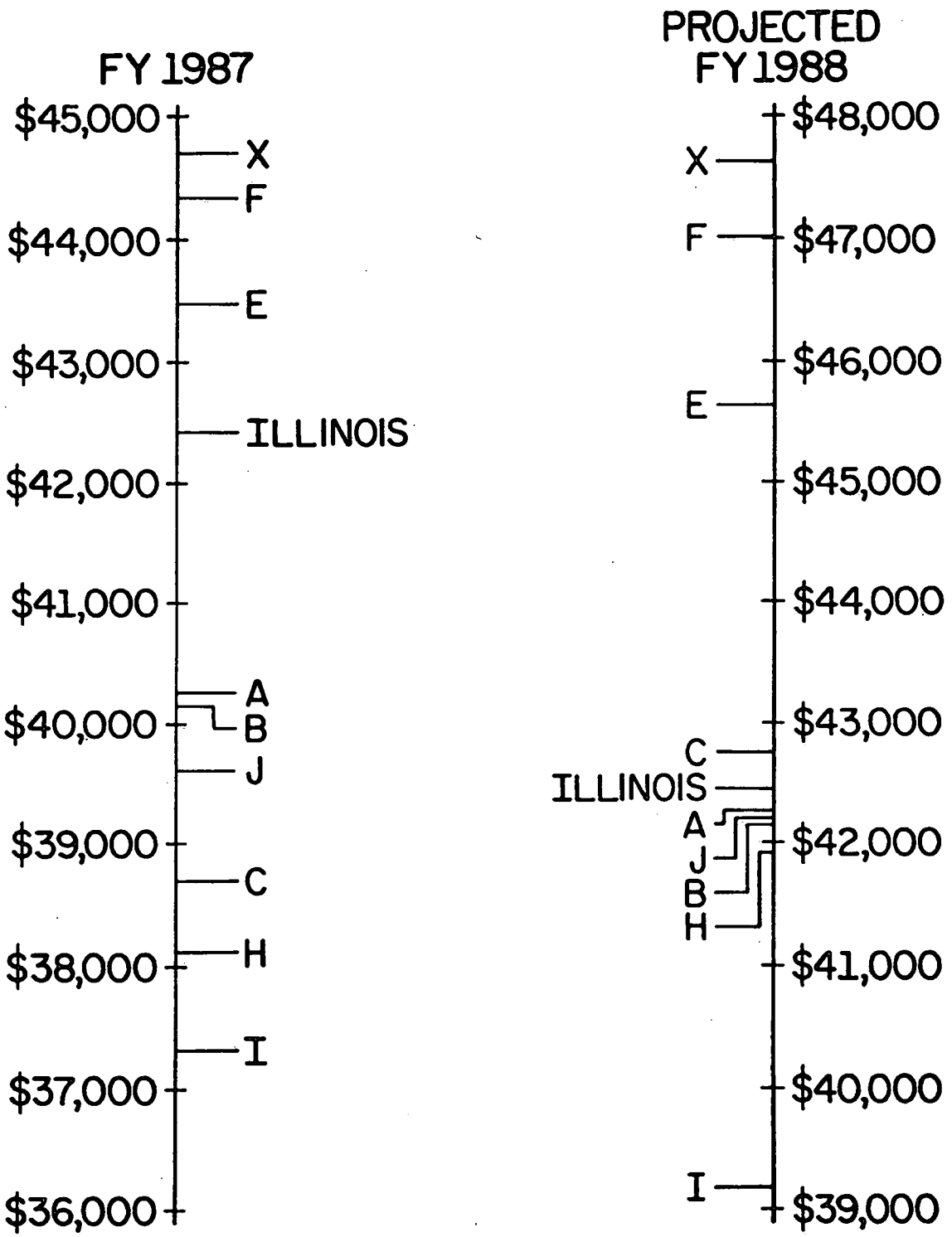
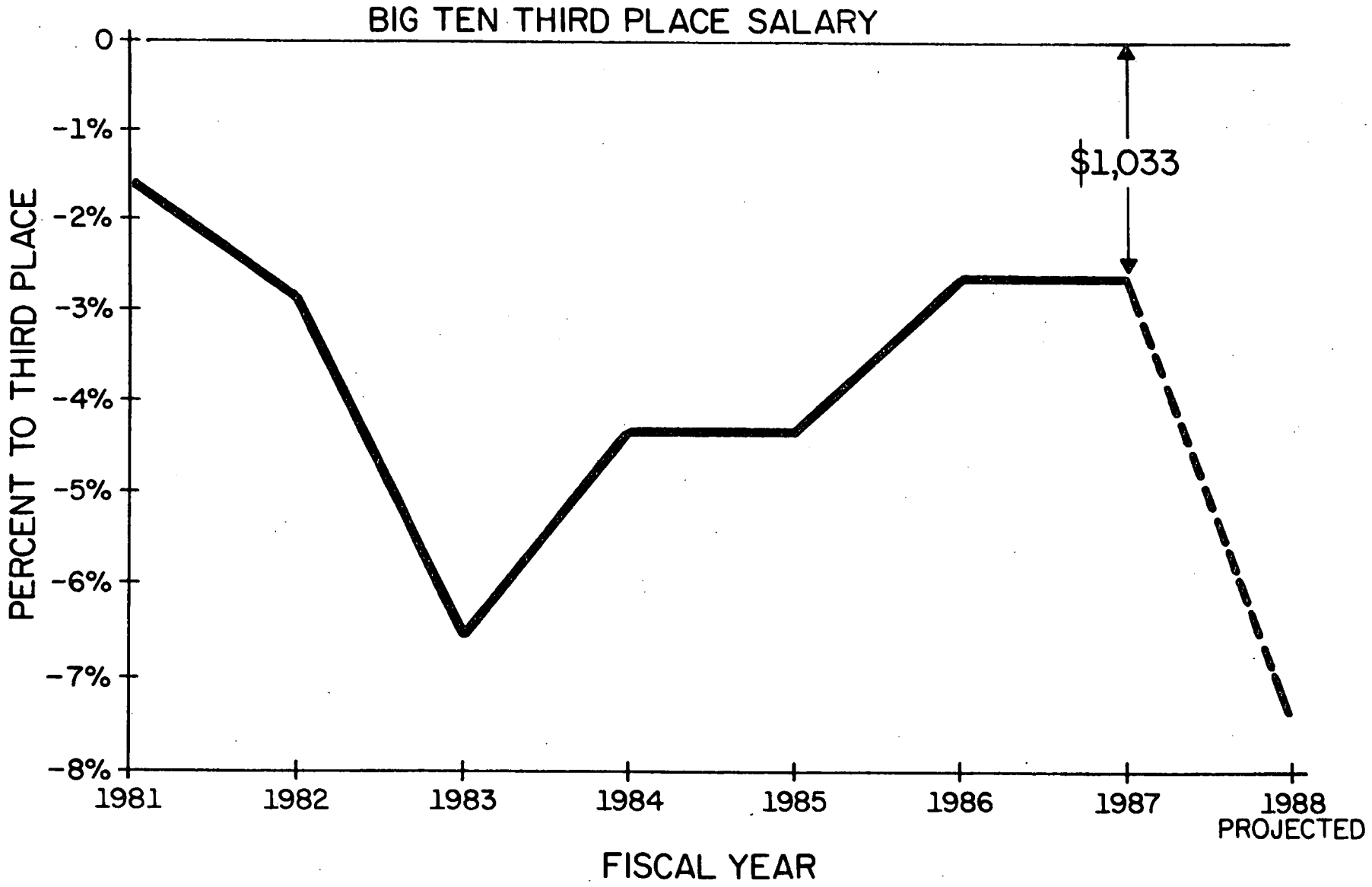


FIGURE 5

# U of I AVERAGE FACULTY SALARIES vs. THIRD PLACE BIG TEN AVERAGE



Faculty Fringe Benefits

To evaluate the compensation program available to faculty and staff, compensation must be viewed as a package consisting of both direct cash salary and fringe benefits components. Clearly, those employees whom the University seeks to attract and retain view the competitiveness of the University's compensation program in terms of both components. Although direct cash salary is the central, most visible element within the compensation program, fringe benefits are essential in completing the compensation package. As the competition for top-ranked faculty and staff has intensified over the past several years, all elements of the compensation package have come under close scrutiny.

While the University participates in various comparative analyses to evaluate its ranking in terms of cash salaries, the competitiveness of the fringe benefits program is more difficult to assess. The adequacy of the fringe benefits program varies based on each individual's unique financial situation and personal need for benefits. Employees assess the competitiveness of the fringe benefits program on the basis of both the amount of the employer's contribution to the cost of fringe benefits and the benefit coverage provided. The adequacy of the employer's contribution is judged not only on the amount contributed by the employer, but also the amount which the employee must contribute to purchase the provided coverage. Benefit coverage is assessed through comparisons of various benefit limits including allowable services, maximum benefits, deductibles, and required out-of-pocket expenses. To maintain a competitive benefits program, the University must give sufficient attention to all of these program elements.

In general, fringe benefits programs vary among employers in the specific coverages offered, and it is difficult to assess the value of these coverages in quantitative terms. Consequently, the amount of the employer's contribution to fringe benefits is most often used to measure differences among programs. While most market competitors offer a variety of supplemental benefits, a core of basic coverages is generally offered in all university benefits plans. It is this core of basic coverages which is most often used for comparison purposes. The fringe benefits usually included in comparative analyses are the employer's contribution to life, health, dental, and disability insurance programs, along with contributions to the institution's employee retirement plan.

Whereas the gap to third place in average cash salary has been widened as a result of FY 1988 funding levels, the distance to third place in total compensation is far greater. Table 6 compares the University's ranking among Big Ten institutions for FY 1987 based on weighted average salary and weighted average compensation. Weighted average compensation is calculated by adding the dollar value of the employer's contribution to fringe benefits to weighted average cash salary. The employer's contribution to fringe benefits is also displayed as a percent of average cash salary.

Although the University ranked fourth among Big Ten institutions in average cash salary in FY 1987, its average faculty compensation ranked seventh. The gap to third place in total compensation was 8.6%. In the years from FY 1979 through FY 1987, the University of Illinois has continually ranked poorly compared to other Big Ten institutions, ranking no higher than seventh place in total compensation. Due to the State's fiscal crisis in FY 1983, the University's ranking fell sharply to fifth place in average cash salary and tenth place in total compensation. Successful efforts in the years from FY 1984 to FY 1987 to improve faculty salaries also helped to improve the University's total compensation position, and in FY 1987, the University was able to regain a seventh place ranking.

Figure 6 displays the University's relative position in both average cash salary and total compensation. Note that while most other institutions retain the same relative competitive position in the total compensation comparisons as in the salary comparisons, the University of Illinois' position drops dramatically. In the compensation comparisons, it is clear that the top two institutions are significantly ahead of the others. It is equally clear that the University of Illinois is clustered near the bottom of the rankings, rather than in the lower range of the top ranked institutions, as in the salary comparisons. The University's low ranking in the amount of its employer contribution to fringe benefits substantially weakens its competitive standing in terms of total compensation.

Again, the total compensation figures in Table 6 and Figure 6 represent the combination of average cash salaries and employer contributions to a set of common fringe benefits. When the latter category is separated from salaries, and fringe benefit contributions are reviewed on their own, the University of Illinois data are even more dismal. For FY 1987, the

TABLE 6
AVERAGE COMPENSATIONS FY 1987
BIG TEN INSTITUTIONS

(9-month basis)

| Institution | FY 1987 Weighted Average Salary | Rank | FY 1987 Weighted Average Compensation | Rank | Benefits as a Percent of Average Salary |
|---|---|---|---|---|---|
| ILLINOIS | $42,448 | 4 | $47,670 | 7 | 12.3% |
| I | 37,324 | 10 | 46,921 | 10 | 25.7 |
| C | 38,712 | 8 | 47,426 | 8 | 22.5 |
| F | 44,345 | 2 | 54,095 | 1 | 22.0 |
| H | 38,107 | 9 | 47,265 | 9 | 24.0 |
| A | 40,257 | 5 | 50,211 | 5 | 24.7 |
| X | 44,719 | 1 | 53,289 | 2 | 19.2 |
| E | 43,481 | 3 | 51,787 | 3 | 19.1 |
| B | 40,158 | 6 | 50,380 | 4 | 25.5 |
| J | 39,634 | 7 | 49,328 | 6 | 24.5 |
| MEAN | $40,919 | | $49,837 | | 21.8% |
| MEAN LESS ILLINOIS | $40,749 | | $50,078 | | 22.9% |

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

Data represents total institutions' full-time faculty, excluding clinical departments, whose primary responsibilities are teaching, research, and public service. Weighted to the distribution of faculty rank and term of appointment at the University of Illinois.

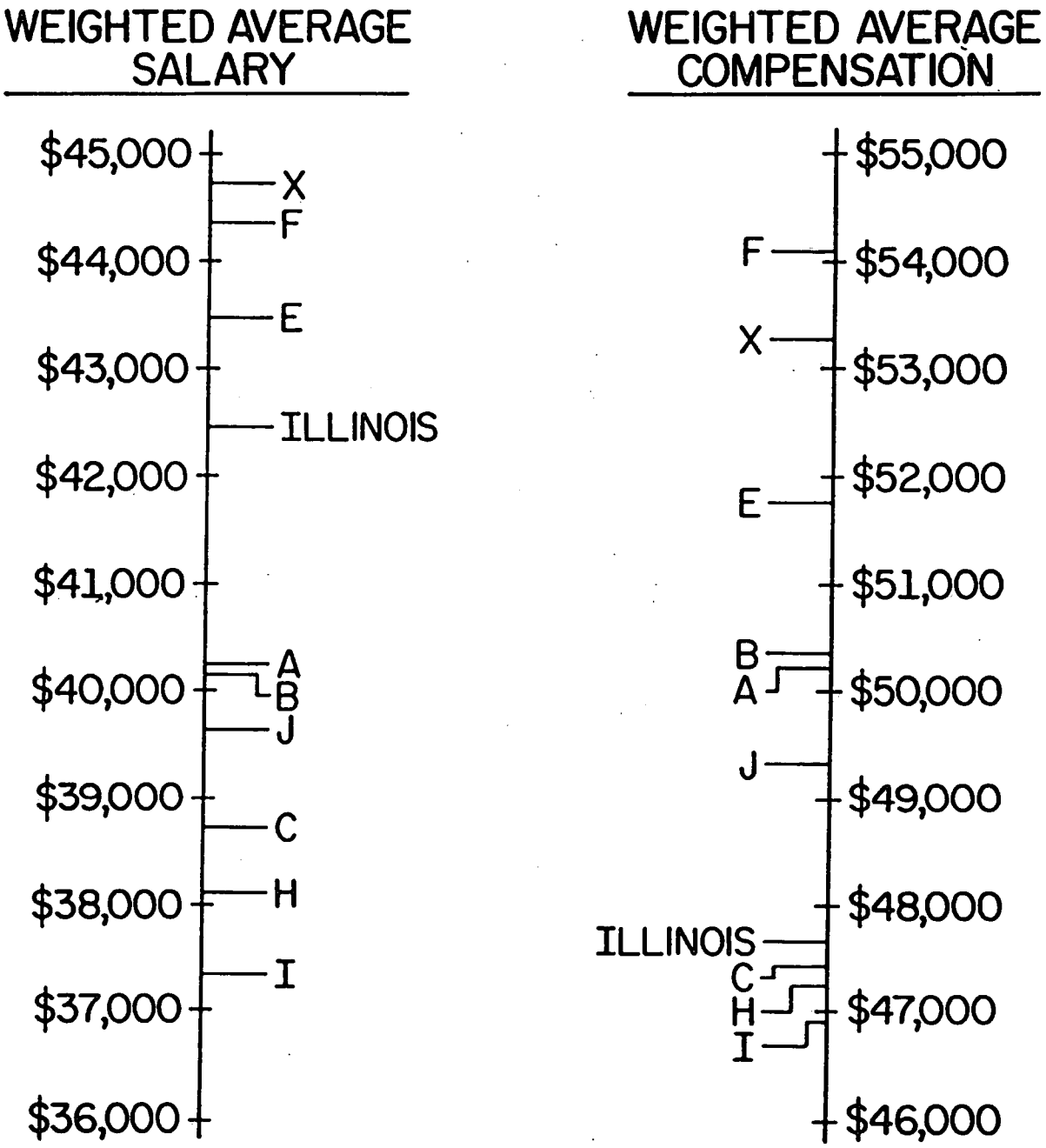
---

Distances to 3rd Place--Average Compensation

| | FY 1986 | FY 1987 |
|---|---|---|
| ILLINOIS | $44,678 | $47,670 |
| 3rd Place | 48,983 | 51,787 |
| $ Difference | 4,305 | 4,117 |
| % Difference | 9.6% | 8.6% |

FIGURE 6

# FY 1987
# AVERAGE SALARY & COMPENSATION AMONG BIG TEN UNIVERSITIES



University ranked last in the percent of average salary contributed to fringe benefits, contributing only 12.3% compared to employer contributions averaging 23% for other Big Ten institutions. While some of this difference is attributable to the fact the University does not participate in Social Security, the University also lags behind other Big Ten institutions in the amount paid for other elements of the fringe benefits package.

A recent comparison of FY 1987 employer contributions to fringe benefits in the Big Ten yielded the following information.

1. The University of Illinois ranks last in overall employer contributions to retirement.

2. The University of Illinois is competitive in regard to its employer contributions to employee health insurance, but ranks last in employer contributions to dependent health insurance.

3. The University of Illinois ranks last in the amount of employer-paid life insurance.

4. The University of Illinois ranks last in the percent of salary ensured under the long term disability plan.

5. Five of the Big Ten institutions grant a partial reduction in tuition and fees to staff dependents. The University of Illinois offers no tuition waiver of any kind for dependents of employees.

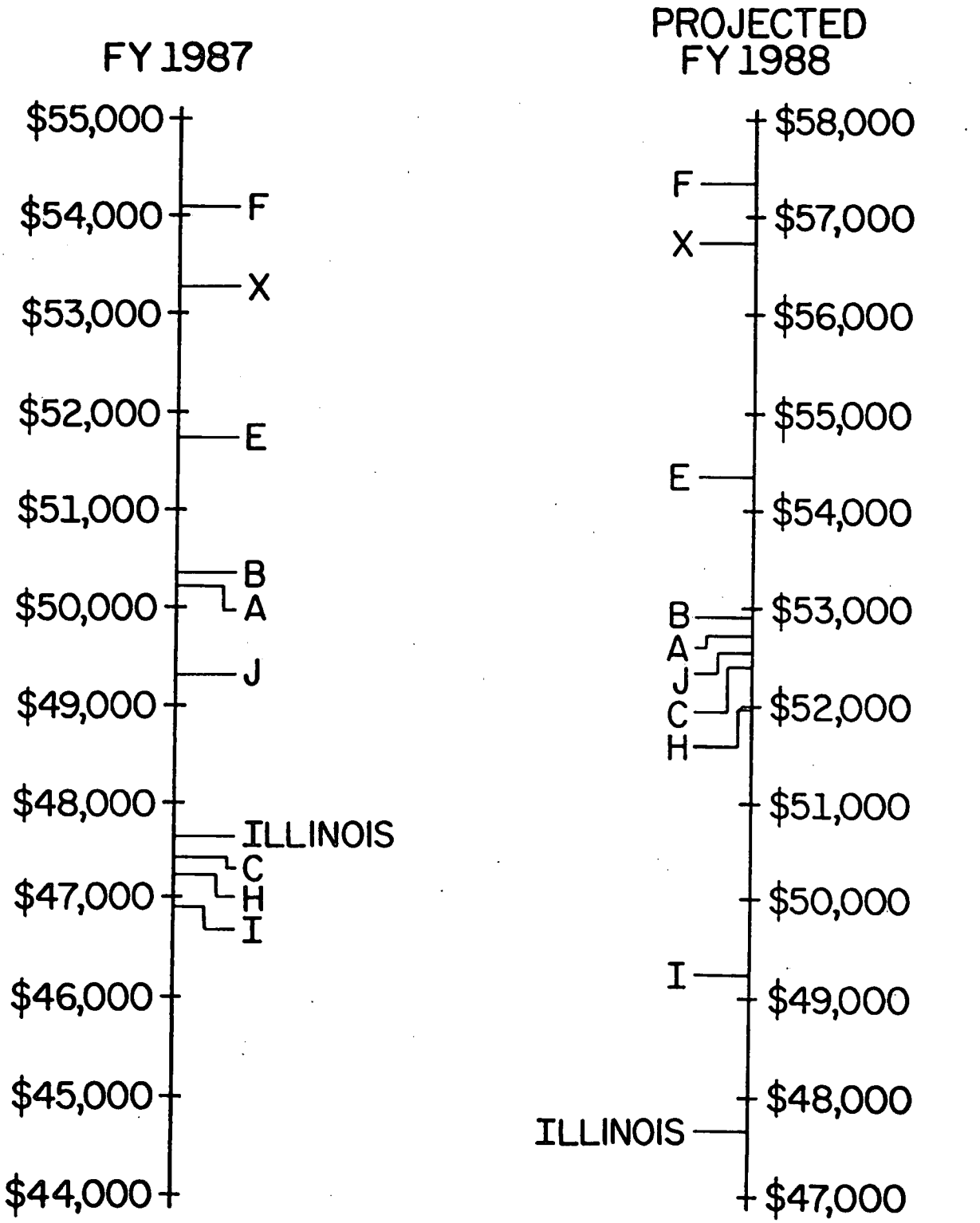
Projections of total compensation for FY 1988 are even more disappointing. Although there have been no major changes at the University of Illinois or at other Big Ten institutions to impact the employer contribution to fringe benefits, the University's ranking in total compensation is expected to fall to last in the Big Ten as a result of deterioration in the cash salary component of the total compensation package (see Figure 7). The University's low ranking in the amount of its employer contribution to fringe benefits substantially weakens its competitive standing in terms of faculty compensation. When the cash salary component of total compensation is also weakened, the University's overall ranking is dramatically decreased.

To be competitive, the fringe benefits package offered by the University must not detract from the salary component which is closer to a level commensurate with the overall quality of the University. A recent survey of University faculty and staff indicated that they do indeed recognize

FIGURE 7

# TENTATIVE AVERAGE COMPENSATION AMONG BIG TEN UNIVERSITIES

## WEIGHTED AVERAGE COMPENSATION



that the University's fringe benefits program is deficient, compared with fringe benefits offered by peer institutions--a perception that is borne out by the comparative data just cited. It has become clear that the University must address the adequacy of its fringe benefits program if it is to continue to compete successfully for top faculty members.

Nonacademic Salary Comparisons

For nonacademic staff, annual salary comparisons are normally made with employers outside the University who are most competitive for the services of that 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 salary range midpoints for comparable employment levels, is incomplete at this time. However, preliminary market data show increases ranging from 2% to 5% depending upon the assumed markets for the wide range of employee groups.

The data in the table which follows compare selected University of Illinois grade midpoints with estimated market midpoints.

University Of Illinois Grade Midpoints
Compared To Market Midpoints

| Grade/ Location | UI FY 1987 Midpoint | Projected Market as of 9/1/87 | UI FY 1988 Grade Midpoint | % Behind Market |
|---|---|---|---|---|
| 5 Chicago | $11,449 | $12,995 | $11,449 | 13.5% |
| 5 Urbana | 10,579 | 12,100 | 10,579 | 14.4 |
| 14 (both) | 16,999 | 19,840 | 16,999 | 16.7 |
| 19 (both) | 21,983 | 26,030 | 21,983 | 18.4 |
| 33 (both) | 45,452 | 54,450 | 45,452 | 19.8 |

(Salaries displayed represent University and market midpoints for employees within each pay grade. Actual average 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 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 1983 - FY 1987

| | FY 1983 | FY 1984 | FY 1985 | FY 1986 | FY 1987 | Projected FY 1988 |
|---|---|---|---|---|---|---|
| Chicago Campus | -8.57% | -5.58% | -5.11% | -6.40% | -5.23% | -9 to 10% |
| Urbana-Champaign | -20.99% | -17.40% | -14.83% | -14.30% | -15.30% | -19 to 20% |

These comparisons make no attempt to adjust salaries for regional differences in the 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 behind those of other comparable employers. The lack of salary increase funds in FY 1988 will only compound these deficiencies, widening the gap between market salaries and University of Illinois salaries to as much as 20%.

For FY 1989, salary increase funding is requested to keep pace with the projected level of inflation and to recover ground lost in FY 1988 by reducing a portion of the gap between salaries of the University's nonacademic employees and external market salaries.

Nonacademic Fringe Benefits

The previous discussion of fringe benefits compared the University of Illinois' fringe benefits program to fringe benefit programs offered by other Big Ten institutions. However, the University recognizes that the fringe benefits offered to its nonacademic employees are perhaps more appropriately compared to the benefits provided to employees in the private sector. To assess its competitive standing in the market for nonacademic employees, the University participates in several benefit surveys of the local market. Results of these studies indicate that while benefits for University nonacademic staff are generally equal to or greater than other Big Ten and local employers for "time-off" related benefits (holidays,

vacation, sick leave), University benefits are less competitive than other employers for employee life insurance, dependent health insurance, and retirement.

Due to the diverse nature of the University's nonacademic workforce, it is difficult to draw specific conclusions concerning nonacademic compensation. The competitiveness of the University's compensation program varies for the wide range of nonacademic employee classifications and salary levels. The University is more competitive in the markets for some employee classifications than for others. However, salary comparisons with both local and State markets indicate that the University of Illinois lags behind the market at all salary levels.

The University's fringe benefits program for nonacademic employees, while perhaps more competitive, is still deficient in some areas of the package, particularly insurance-related benefits. When fringe benefits are combined with salaries for nonacademic employees, it is clear that the University's compensation program is also deficient for nonacademic employees. Further analyses are under way to attempt to determine more precisely the extent to which the University's fringe benefits program for nonacademic employees lags behind benefit programs for appropriate comparison groups.

FY 1989 Benefits Improvement Request

As outlined in the comparative data cited above, the University of Illinois' compensation program continues to be seriously deficient in comparison to the compensation programs offered by peer competitors, exacerbated by the lack of funding in FY 1988. While the cash salary component of the University's faculty compensation program had reached a competitive level in the past, the University's contribution to the cost of fringe benefits has been far less than the contributions made by other Big Ten institutions. Whereas past efforts to improve the University's compensation program have focused on improvements to cash salary, comparisons indicate a strong necessity to direct the University's efforts toward increasing its contributions to fringe benefits as well.

The University's FY 1988 budget request proposed a multi-year phased program for the improvement of fringe benefits. The FY 1988 request included a request for incremental funds equal to approximately 2% of the

Personal Services Base to be used to finance benefit improvements, in addition to the request for funds to increase cash salaries. However, as a consequence of reduced funding in FY 1988, the University was once again unable to focus funding toward the improvement of fringe benefits.

The University's overall objective for FY 1989 is to recover ground lost in FY 1988 and to enhance its salary and fringe benefits programs to become more competitive with its peers. Although there exists a crucial need to regain a competitive position in terms of cash salary, the need to improve the University's fringe benefits package must also remain a priority. A multi-year phased program for the improvement of fringe benefits is again proposed. Although the external labor market is different for academic and nonacademic employees, the University recognizes that salary and compensation deficiencies exist for both. To address the needs of all employees, the FY 1989 budget request seeks an additional 2% in incremental funds to target its compensation improvement program toward resolving the most pressing deficiencies of each employee group.

Current information indicates no significant changes in the fringe benefits packages offered at other Big Ten institutions. Thus, an addition of $7.8 million to the funds which the University of Illinois is able to provide for fringe benefits would begin the improvement of the University's competitive position with respect to total compensation. If the University is unable to secure funds to address specific improvements in the fringe benefits program available to its employees, the only alternative is to secure more substantial improvements in cash salaries, improving its competitive position in total compensation through only one component of the total compensation program.

Medicare Contributions

Public Law 99-272 which was signed by the President on April 7, 1986, requires mandatory participation in Medicare by all State and local government employees in positions not covered for Social Security beginning employment after March 31, 1986. These employees and their employers are liable for equal portions of the FICA Medicare Tax. The University's FY 1989 request includes an increment of $550,000 to provide for the University's increased liability for Medicare contributions.

State Universities Retirement System (SURS)

Among the benefit comparisons cited above, the health of the State Universities Retirement System (SURS), as well as the University's relative competitiveness among peer institutions with respect to retirement benefits, has been a matter of prime concern for several years for both individual employees and for leaders within higher education institutions and the SURS system. Any discussion of fringe benefit improvements for higher education in Illinois must include a strong call for adequate funding of the existing SURS program to ensure that existing benefits will remain secure. Appendix I contains a more complete discussion of the SURS funding situation.

It should also be understood, however, that while achieving adequate funding for SURS remains a key concern for FY 1989 and for future years, funding improvements for SURS will not, in and of themselves, improve either the benefits available to University employees or the University's competitive position among peer institutions. It is urgent that the University move forward on both fronts. The adequacy of SURS fiscal support must be assured. So, too, must improvements in the University's competitive position in total compensation be achieved.

FY 1987 Improvements to Fringe Benefits

Effective October 1, 1986, the State of Illinois instituted a dental insurance plan for all employees and their dependents who were covered under the University's health insurance plans. The State paid 100% of the basic plan's premium cost for both employees and their dependents. The basic plan covered only preventive and diagnostic care, but additional comprehensive coverage was available at the employee's expense. A comparison of the plan's provisions revealed that they were comparable to those dental benefits offered at other Big Ten institutions. While initiation of a dental program has been a benefit for many State employees, the degree of participation in the program by dentists varied widely across the State, making it difficult for some employees to realize the full benefits of the program. For this reason, as well as others, the State severed its dental contract as of June 30, 1987, and established its own self-insured dental plan. The new plan provides University employees with essentially the same basic coverage as previously offered under the prior program, but it does

not include any provisions for supplemental coverage. It remains to be seen what impact the State's new dental plan will have on the dental benefit for University employees.

FY 1989 Improvements to Fringe Benefits

The Department of Central Management Services is currently considering implementation of a "cafeteria style" benefits plan. Such a plan would allow State employees to "custom design" their fringe benefit selections to more closely adhere to their individual needs. While a July 1, 1988 target date had been established for implementation, constraints on the department's budget in FY 1988 have resulted in deferral of the plan. Until more is known, it is impossible to evaluate the impact such a plan would have on the quality of fringe benefits currently provided to University of Illinois employees and their dependents. As with other benefit improvements, adequate resources must be available before such a plan is implemented. It is encouraging, however, that the Department is considering such an option.

## PRICE INCREASES
## ($8,976,300)

As in other sectors of the economy, higher education continues to experience inflationary pressures which reduce the strength of its existing financial resource base and decrease its ability to maintain high quality programs and services. Fortunately, these pressures have diminished from the double digit inflation rates of the early 1980's to rates which are comparatively low. Growth in inflation as measured by the Consumer Price Index was 3.7% in FY 1985, 4.1% in FY 1986, and 4.2% in FY 1987; and recent projections indicate that FY 1988 inflation growth will average approximately 4.8%. Moderation in annual inflation growth is important, since it contributes to the current stability of the State and national economy. It is important to recognize, however, that rates have only moderated, and that inflation must still be addressed budgetarily by the University and the State.

Funding is requested annually by the University to finance expected price increases of goods and services required for the basic operation of on-going academic and support programs. Price increase requests are based upon a variety of inflation projections; and due to special circumstances producing unusual inflation rates, differential price increases are sought for certain categories of expense items.

For FY 1988, the University requested a general price increase increment of 4.5%, which was intended to maintain the purchasing power of the allocation to the University by roughly matching the projected level of inflation. Additionally, the University requested separate increments for price increases in two important budget areas: utilities (7.45%) and library acquisitions (12.0%). However, the University's FY 1988 budget allocation, as signed by the Governor, required an overall base reduction of 4% as described in the introduction to this document. These reductions will create a serious deficiency in the area of price increase funding, as no incremental funding will be available to meet inflationary price increase demands. The University's request for price increase funding in FY 1989 has been revised accordingly to reflect the increased funding requirements necessary to recoup FY 1988 losses, as well as respond to FY 1989 inflationary price increases.

The University's FY 1989 request for general price increase funding is for a 7.5% increase. This request is composed of a 5% increment intended to roughly match the projected FY 1989 inflation rate and an additional 2.5% increment to partially restore purchasing power lost in FY 1988. As in past years, the University is also requesting separate price increase increments for the areas of utilities and library materials acquisitions.

Since FY 1975, in response to disportionately high increases in the price of fossil fuels, the State has recognized and supported a differential utilities price increase. However, due to moderation which has occurred in the fossil fuels market, the utilities price increase in FY 1989 is estimated at a level more nearly comparable to the general price increase level, for the first time in many years. The utilities price increase request for FY 1989 is for an overall increase of 7.1%.

State support of the concept of differential price increases for library acquisitions has been intermittent, with the appropriation of special increases in FY 1979 and FY 1980, and again in FY 1985, FY 1986, and FY 1987, but with no special funding provided in the intervening years. In recent years, library materials increases have regularly outstripped general price increases by as much as 200%, most pronounced in the area of foreign serials. The University of Illinois Library, as one of the largest academic research libraries in the country, is particularly impacted by the severe price increase pressures on acquisitions. Recognition of this problem is absolutely critical if the University is to maintain the current quality of its collections, and their value not only to the University, but to other libraries throughout the State. For FY 1989, the University is requesting an increment of 20% to respond to the differential market for library materials. Further discussions of this request, as well as the general and utilities price increase requests, are included in the narrative sections that follow.

General Price Increases - ($5,151,700)

The University of Illinois, like all other enterprises in the economy, faces annual price increases in the goods and services which it requires to maintain its operations. The general price increase portion of the budget request addresses the impact of these price increases on the wide variety of goods and services consumed by the University for instructional, research, administrative and maintenance purposes. The spectrum of these goods and services ranges from office equipment and paper to circuit components and supercomputer maintenance. As a major research institution with specific demands for laboratory and office automation, the University faces an increasing demand for sophisticated supplies and equipment to support highly specialized initiatives in virtually all academic disciplines.

The expanse of activities conducted by the University suggests that no single market measure can adequately predict the effect of price increases on the University. Thus several inflation indices and economic indicators are used to estimate changes in the cost of operations. The University analyzes a variety of common and specialized economic indicators which measure inflationary trends and their impact on business, government, and academia. The price indices used are "market basket" indices which estimate nominal changes in the dollar price to commodity ratio. Holding the type and quantity of commodities in the "market basket" constant over time provides an indicator of changes in the amount of resources required to maintain a constant level of consumption.

Each inflation index is unique in its attempt to estimate the actual inflation rate and its impact on various sectors of the national economy. Dependent upon the specific pattern of consumption which it estimates, each index varies in its "market basket" of selected goods or services and the weighted costs assigned to these items. Indices vary from broad measures such as the Consumer Price Index (CPI) which estimates general cost increases to the individual consumer to specialized indices which measure price changes for particular segments of the economy. The Higher Education Price Index (HEPI), published by Research Associates, is a specialized index which measures the impact of inflation on the higher education sector.

Indices examined by the University in formulating its budget request include the Consumer Price Index, the Higher Education Price Index, and the Gross National Product Price Deflator (GNP). The CPI measures what individual consumers pay for the goods and services they consume. Since energy costs are addressed in a separate section of this request, the CPI less energy is used for purposes of this comparison. The HEPI measures changes in the levels of general expenditures which colleges and universities make from current funds for items supporting instructional programs and departmental research including data processing, communications, transportation, supplies, books, periodicals, and other materials. The GNP Price Deflator measures the growth in the GNP which is attributable to factors other than the real growth of goods and services.

Although all three indices share a common model, they vary in the composition of their market baskets and in their sensitivity to changing economic conditions. Historically, however, a high degree of correlation has existed between the economic trends estimated by each index, as evidenced by the results below.

In estimating the impact of inflation, and in developing its request for general price increase funding, the University analyzes its historical financial base relative to these inflation trends. Projections are used to estimate the potential erosion in purchasing power anticipated for the budget year and the additional revenue needed to sustain current purchasing levels.

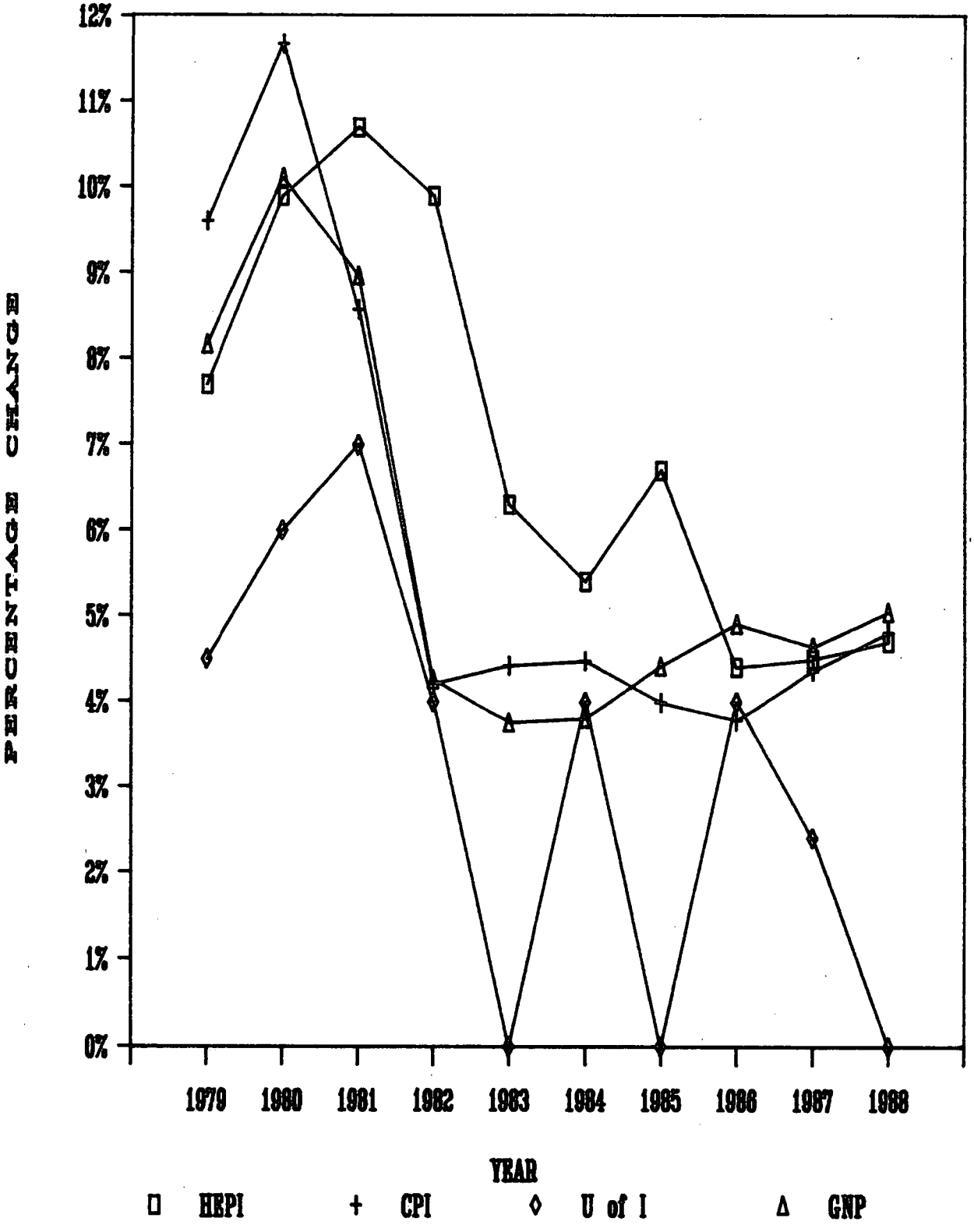
According to the measures described above, the inflation rate, excluding energy, has remained at approximately 4% during the past five years. The CPI less energy for FY 1986 increased by 4.1%. In the first quarter of 1987, it rose by an annual rate of 4.2%. Based upon current projections, this trend is expected to continue through FY 1989. Predictions for the forthcoming year reflect a stable inflationary rate of 4.2% to 5%.

Since FY 1979, there has been a large gap between actual University appropriations and past inflationary trends. Figure 8 provides a graphic display of historical trends as reported by the CPI, GNP, HEPI, and actual University appropriations over the past ten years. Though the annual inflation rate has stabilized at 4% to 5% in recent years, the University's allocation of incremental funds for general price increase funding has

FIGURE 8

# ANNUAL INFLATION INCREASES

## VERSUS UNIVERSITY APPROPRIATIONS



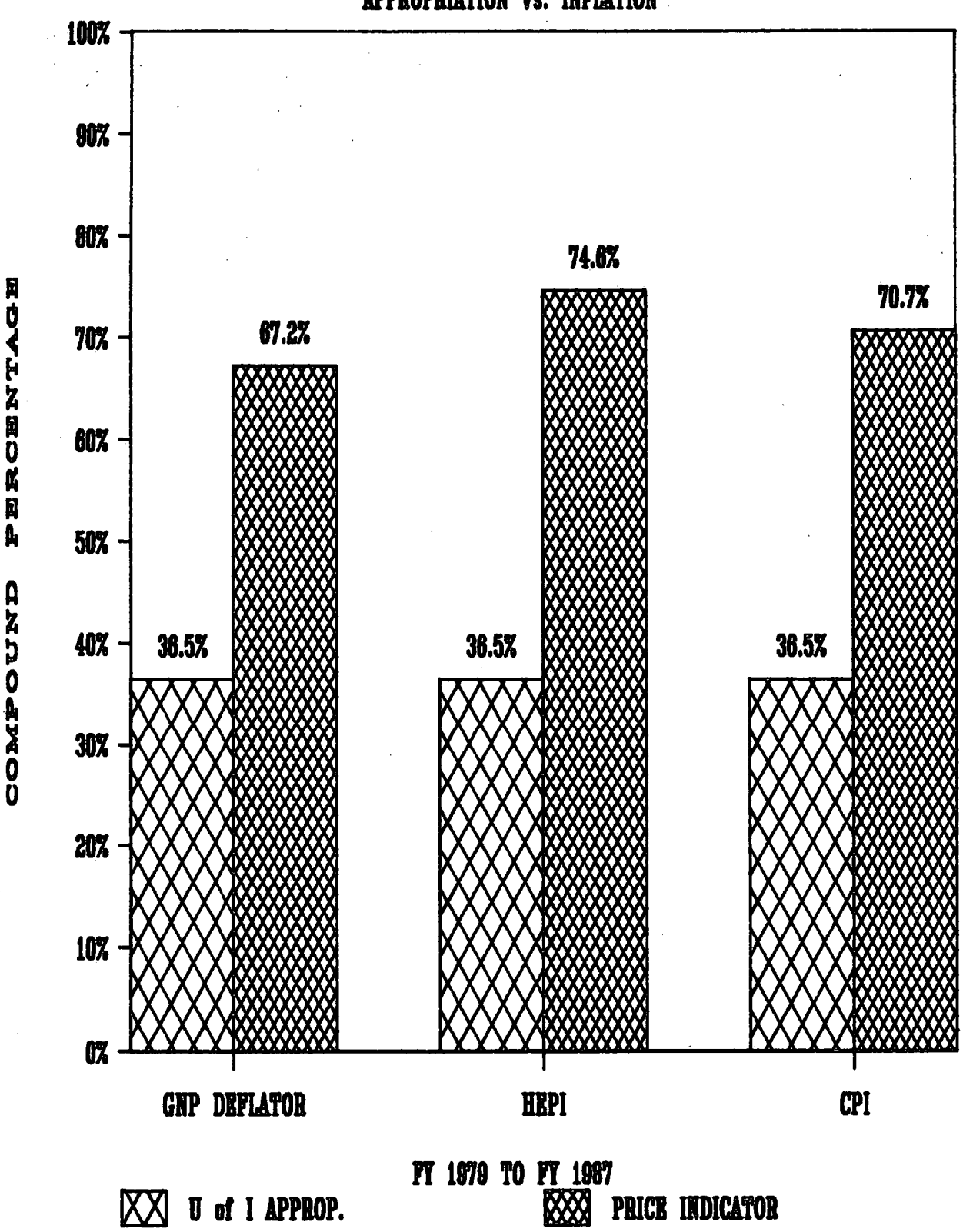
continued to lag inflation. In three of the last six years--FY 1983, FY 1985, and FY 1988--the University received no incremental funding at all to meet inflationary demands. In FY 1987, inflation was estimated to be 4.2%. The University received only a 2.4% increase, lagging the inflation rate by over 1.5%. Whereas the inflation rate is now estimated to be near 5% in FY 1988, reductions in the University's base budget as signed by the Governor allow for no incremental funding for general price increases.

The compound effect of this inflation gap over time is displayed in Figure 9. For the ten year period ending in FY 1987, the compounded increases in the HEPI, CPI, and GNP indicators are twice that of the general price increase received by the University over the same time period. The lack of funding in FY 1988 extends the size of this inflation gap even further.

For FY 1989, the University is requesting an increment for general price increase funding of 7.5%. This request is composed of a 5% increment which will roughly match the projected inflation rate and is intended to maintain the purchasing power of the allocation to the University, and an additional 2.5% increment to partially restore the purchasing power which the University is expected to lose in FY 1988.

FIGURE 9

# CUMULATIVE IMPACT OF INFLATION



Utilities Price Increase - ($2,420,000)

Providing utilities service at the University of Illinois is a complex process from many perspectives: from the sheer size of the physical plants which define two major instructional and research enterprises in locations 150 miles apart, and with additional separate campuses and other activities throughout the State; from the sophistication of the academic programs carried out at those locations, often with energy-intensive requirements and special service needs; and from the myriad of technical factors which affect the supply and cost of the raw materials necessary to provide heat, light, power, and other utilities services to those programs.

Fueled primarily by natural gas and secondarily by fuel oil, three power plants on the two campuses produce the steam and chilled water required to meet the heating and cooling demands of approximately 280 buildings. Electricity demands of the University are met through the purchase of electricity from four different power companies. At the Urbana-Champaign campus a supplementary source of electricity is available when the steam produced at Abbott Power Plant is passed through steam turbine generators to "cogenerate" electricity prior to its distribution through the campus network.

Projecting consumption rates for all utilities budget components requires consideration of a number of important factors. The inclusion of new buildings and facilities within the capital plant, additional consumption driven by major remodeling and renovation efforts and the acquisition of energy intensive sophisticated equipment, and decreases in consumption attributed to energy conservation projects all must be evaluated. In addition, a wide variety of cost factors must be considered, ranging from market competitive pricing, as is now associated with the commodity cost of natural gas, to the strict rate structuring involving six different rates for electricity costs.

Utilities support of research and instructional programs operated on the two campuses and two medical school sites consumes $34 million--approximately 6.4% of the total State appropriation to the University. As a portion of the University budget excluding personal services, the amount represented by utilities requirements rises to 28.6%. It is within this context of complexity and financial and structural significance presented above that the FY 1989 utilities increment request is introduced.

The FY 1989 utilities increment request of $2.42 million represents a 7.1% increase over the anticipated FY 1988 utilities costs. The FY 1989 request is projected from estimates of base consumption levels and expected costs for the various components which comprise the utilities budgets at both campuses of the University. These estimates are derived from market trend analyses of the commodities and services in the utilities budget; the review of negotiated contracts, energy trade publications, and projected price indices; and consultations with University Operation and Maintenance directors.

The incremental utilities budget request for FY 1989 is characterized by (1) the highest crude oil prices since early 1986; (2) continued increases in the cost of electricity, driven in part by public utilities nuclear power plant construction; (3) continued increases in the consumption of electricity at both campuses; and (4) an increase in the cost of sewer service at Urbana-Champaign. Each of these components and their respective impacts upon the FY 1989 utilities budget increment are examined in turn in the discussion which follows.

Tracking the price path of crude oil through 1986, most notable are the sharp fluctuations which occurred from a high of $27 per barrel in January to a low of $10 in the late summer, followed by an upward movement to a seemingly costly $18 per barrel by year end. While this trend of volatile price escalations and deflations has now become less erratic, any Mid-East crisis that interrupts the production or transportation of oil could significantly increase its cost.

Currently, crude oil prices are maintaining a price of $19 per barrel, supported by the apparent success of the production and price accords established by the Organization of Petroleum Exporting Countries (OPEC) at the end of 1986. Projected price indices estimate the cost for crude oil during FY 1989 will average about $21 per barrel. This cost, as a factor of the fuel oil price per gallon in accordance with the local fuel oil supplier's estimation, results in a projected 8% increase for this commodity.

Natural gas prices have demonstrated moderate fluctuations that are primarily seasonal in nature or that have been affected by speculation regarding the Federal Energy Regulatory Commission (FERC) ruling on contract carriage of natural gas. The continued opportunity to direct

purchase natural gas, along with favorable supply estimates, contribute to the projection of no unusual cost increases for this contractual service. Price indices for natural gas show projections in the range of a general inflationary unit cost increase on the average of 4%.

This average also reflects some caution regarding transportation costs for natural gas during the heating season of FY 1989. There has been some discussion within FERC regarding the possibility of instituting a plan for pipeline "capacity auctions," which ultimately could mean that transportation costs as a portion of the natural gas unit cost could increase by as much as 20%, particularly during the high demand heating season. An increase of this size in the transportation portion of the total cost would result in a 1% overall increase in the University's expense for natural gas.

Finally, this review of the costs and consumption of heating fuels which will support the campuses of the University during FY 1989 is not complete without noting the prospects for coal usage at Urbana-Champaign. Dependent upon a successful completion of the coal reconversion project at the Abbott Power Plant in FY 1988, projections assumed within the FY 1989 request are for a full year of coal use at the Urbana-Champaign campus.

Much has been accomplished by the University over the past several years toward moderating cost increases in these utilities budget components through such actions as negotiating natural gas direct purchase contracts and initiating the Abbott Power Plant boiler reconversion project. However, because of the regulatory environment which currently prescribes the distribution of electricity, the University has been unable to make similar advances in the purchase of electricity. As a result, the University is vulnerable to the significant price increases instituted by the electrical utility companies from which electricity is available.

Overall, unit costs for electricity at Chicago and Urbana-Champaign are driven in large part by the planned or proposed inclusion of the costs of construction of Byron II, Braidwood I and II, and Clinton nuclear power plants within the service area rate bases. Industry analysts, State sponsored consumer agencies, and utility rate economists have all projected that the absorbed costs of these power plants could ultimately result in increased costs for electricity ranging from 40% to 60% above the rates presently being charged at Chicago and Urbana-Champaign.

The short term outlook, extending to and including FY 1989, projects rate increases at Chicago and Urbana-Champaign of 10% and 6%, respectively, over FY 1988 rates. This projection incorporates the planned full power commercial operation of Clinton and the resultant petition by Illinois Power of the Illinois Commerce Commission (ICC) for a rate increase which could be instituted by August, 1988. For Chicago, the projection responds to the expectation that Commonwealth Edison will file a traditional rate increase request in response to the ICC's rejection of a prior rate request. Commonwealth Edison representatives state that a rate increase of 27% could be required; however, industry analysts expect that a rate increase of 10% is a more reasonable number to incorporate into cost planning equations.

The overall need for energy, and especially for electricity, is also driven in part by the growth in academic programs which occurred between FY 1984 and FY 1987. Contributing to this increase are expanded hours of operation, increased utilization of sophisticated equipment for academic and administrative purposes, and, beyond all other reasons, the renovation and remodeling efforts to upgrade previously inadequate space. Bringing new or improved space on-line, which through revitalization can now meet the productivity levels of the people who work, teach, and study at the campuses, creates an increased demand upon the cooling and electrical systems which support these areas.

A specific example of increased electrical demand is the more than 1,000% increase experienced at the Astronomy building at Urbana-Champaign as a result of the installation of the Cray X-MP computer. Less dramatic, but nonetheless significant, increases of 25%, 55%, and 67% have occurred in the Clinical Sciences, College of Nursing, and Associated Health buildings of the Chicago campus, all related to increased occupancy permissible through renovation. A 9% increase in the electrical consumption of the Lecture Center at Chicago has been experienced due to increased evening use. This continuation of expanded use and the upgrade of technologically sophisticated areas will maintain an increased electrical consumption rate through FY 1989 and beyond.

The non-energy components of the utilities budget, water and sewer, have within the last two budget years experienced large rate increases which, as described by the service companies, more accurately reflect the

cost of service. In FY 1988 at Urbana-Champaign, a 15% increase in the cost for water will be realized. During FY 1989, the expense for sewer service at that campus will increase by 48%. Similar in justification to the water rate increase, that the new rates more accurately reflect the cost of service provision, FY 1989 sewer expenses at Urbana-Champaign will increase by approximately $200,000 over FY 1988 levels. While such an expense is small in relation to a total campus need of roughly $15 million, rate increases of 48% represent a sharp departure from previous costs and, absorbed into the utilities base, become recurring expenses of the University.

The combined effects of these estimated consumption needs and the projected commodities and utility rate increases described above yield an estimated composite increase of 7.1% for FY 1989, a $2.42 million increment above the University's FY 1988 overall utilities base. As has been the case for several years, the various elements of the utilities budget will require careful monitoring throughout the FY 1989 budget development process. The continued volatility of the fuel and electricity markets could require adjustments to the projections upon which the current incremental request is constructed.

Library Price Increases - ($1,404,600)

The Libraries of the University of Illinois are central to the support of academic programs and research activities throughout the University. In addition to serving the immediate needs of the local constituency, the Libraries act as a Statewide resource for both on-site visitors and remote users of the vast interlibrary loan system in which the Libraries participate. For the Libraries to meet their continuing obligations, it is essential that adequate funding be provided to maintain an appropriate level and quality of acquisitions. This funding must be maintained to meet annual price increase needs as well as to meet demands on the libraries budgets from increased Statewide usage of the collection, the explosion of information and knowledge being published in traditional and new formats, and new and expanded campus programs requiring additional library resources.

As the third largest academic research library in the country, the UIUC Library serves a University which grants the third largest number of doctoral degrees in the nation and has an outstanding record of academic achievement and public service. It is a Statewide resource which reaches out through an advanced computerized network of academic libraries (LCS) and 18 State and regional library networks to serve every citizen in Illinois. In 1986 by lending 122,803 volumes through interlibrary loans, primarily to the Statewide networks, the UIUC Library was second in lending among all members of the Association of Research Libraries (ARL). This volume of lending represented a 56.6% increase over the FY 1980 rate. In that same year the UIUC Library dropped from number eight to number ten among ARL libraries in binding and materials expenditures--a fundamental measure of the degree to which existing collection quality and size are maintained. It is significant that the third largest collection, lending the second highest number of titles in 1986, ranked only tenth in binding and materials expenditures.

One of the problems in securing adequate annual price increases has been that, with few exceptions, the funds available for library materials have been based on inflationary factors much more in line with the Consumer Price Index and other general price indexes. Such indexes do not reflect the actual cost of acquiring research materials from within the United States and throughout the world. Library materials increases regularly

outstrip general price increases, sometimes by more than 200%. This has been harmful to both the libraries and their users, especially in the last ten years, when the costs of published materials have escalated dramatically, particularly in the areas of science and technology. During the period from 1978 to 1984, the price of U.S. scientific books increased by 125%, and prices for U.S. books in engineering and technology increased by 165%. Equally serious in its impact upon the libraries budgets was the increase in the price of U.S. technology and science serial titles--an average of 11.5% per year from 1977 to 1986. Since many of the new and expanded programs recently added to the campus budgets are in highly technical fields which are highly dependent upon serials literature (e.g., supercomputing, genetics, biotechnology, artificial intelligence, etc.) the cost of providing and maintaining current materials has grown far more rapidly than have funds available for acquisitions in these areas.

Further exacerbating the problem is the traumatic effect on the Libraries' current allocation caused by the impact of a drastic depreciation of the U.S. dollar against foreign currencies. Differential pricing employed by foreign dealers for books and journals supplied to North American libraries has also had a negative impact on our materials budget. The University regularly monitors the prices of foreign materials and the negative and disturbing impact that increases in this area are having on the UIC and UIUC library budgets. Based on an extensive sample of actual UIUC library unit costs for the period of July 1, 1985 - March 1, 1986, as compared to the unit costs for FY 1985, foreign monographs increased by 29% and foreign journal subscriptions increased by 19%.

According to Faxon, the nation's leading serial subscription agency, the rise in the cost of journals and other serials for 1986 was 19% for American serials and 22% for foreign serials. This heavy increase continued into FY 1987, when foreign serials increased by an average of 20% for materials supplied by Faxon, and by 40% and 57%, respectively, for those supplied by vendors in Germany and Japan. In FY 1988, price increases can be expected to rise by at least 10% if there is no further decline in the dollar. The University of Illinois Libraries expend more than half of their library materials budget on serials, of which approximately 54% at UIC and 45% at UIUC are for foreign journals. If one applies only the 10% increase mentioned above to the FY 1988 library materials budget base, as

illustrated in Table 7, the required price increase for the dollar decline equals almost one half of the projected increase required for inflation alone. It should be emphasized that the dramatic decline of the dollar since FY 1985 has not been included in price increases for these previous three years.

The Libraries' inability to keep pace with the dramatic, upward spiralling costs of serials and monographs has been further compounded by the zero price increase in FY 1988 brought about by State budget constraints. The Libraries preliminary FY 1989 materials budget request was for 13%. An additional 7% will be required in FY 1989 to help re-establish basic purchasing power lost to inflation in the Libraries' FY 1988 materials base.

An overall 20% increase in the library materials base is necessary for FY 1989. This increase will cover projected inflation, budget constraints caused by the continuing decline of the dollar, and purchasing power lost to inflation in FY 1988. It must be emphasized that this increase will not provide the resources required to respond to library needs related to new and rapidly expanding areas of academic interest: biotechnology, robotics, artificial intelligence/cognitive science, microelectronics, materials science, biomedical and pharmaceutical engineering, genetics, magnetic resonance imaging, etc. These and other needs are addressed in the programmatic section of the budget request.

The University of Illinois Libraries have already been forced into shifting their budgets away from a comparatively even split between monographs and serials to a current allocation of 54% at UIC and 61% at UIUC for serials. Present expenditure patterns suggest this proportion will rise significantly without additional funds. Correction of the imbalance without additional funds would require extensive cancellation of journals--a process which would seriously damage the integrity of the Libraries' collections of both serials and monographs. The 20% requested for price increases is essential if the erosion of the actual purchasing power of the library materials budget is to be slowed and the Libraries' ability to serve students, faculty, and patrons throughout the State is to be maintained.

TABLE 7
UNIVERSITY OF ILLINOIS LIBRARIES
PRICE INCREASE FOR INFLATION AND DOLLAR DECLINE
FY 1989

| | Chicago | | | | Urbana-Champaign | | | | Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total FY 1988 State Acquisitions Base | | $2,879,950 | | | | $4,143,010 | | | | $7,022,960 | | |
| | Base Components | Projected Price Increase | Dollar Decline | Total Campus Increase | Base Components | Projected Price Increase | Dollar Decline | Total Campus Increase | Base Components | Projected Price Increase | Dollar Decline | Total Increase |
| Serials | $1,552,293 | | | | $2,535,522 | | | | $4,087,815 | | | |
| Foreign Serials | $844,447 | | | | $1,140,885 | | | | $1,985,332 | | | |
| Price Increase(10%) | | $84,445 | | | | $114,089 | | | | $198,534 | | |
| Dollar Decline(10%) | | | $84,445 | $168,890 | | | $114,089 | $228,178 | | | $198,534 | $397,068 |
| Domestic Serials | $707,846 | | | | $1,394,537 | | | | $2,102,383 | | | |
| Price Increase(10%) | | $70,785 | | $70,785 | | $139,454 | | $139,454 | | $210,239 | | $210,239 |
| Monographs | $1,327,657 | | | | $1,607,488 | | | | $2,935,145 | | | |
| Foreign Monographs | $292,085 | | | | $562,621 | | | | $854,706 | | | |
| Price Increase(7%) | | $20,446 | | | | $39,383 | | | | $59,829 | | |
| Dollar Decline(10%) | | | $29,209 | $49,655 | | | $56,262 | $95,645 | | | $85,471 | $145,300 |
| Domestic Monographs | $1,035,573 | | | | $1,044,867 | | | | $2,080,440 | | | |
| Price Increase(7%) | | $72,490 | | $72,490 | | $73,141 | | $73,141 | | $145,631 | | $145,631 |
| Subtotal Price Inc. & Dollar Decline | | $248,166 | $113,654 | $361,820 | | $366,067 | $170,351 | $536,418 | | $614,233 | $284,005 | $898,238 |
| FY 1988 Deficiency (7%) | | | | $201,596 | | | | $290,011 | | | | $491,607 |
| TOTAL FY 1989 Library Price Increase | | | | $563,416 | | | | $826,429 | | | | $1,389,845 |

## OPERATION AND MAINTENANCE OF NEW AREAS ($5,361,100)

Within the past two years, the University of Illinois has attracted $185 million in State, Federal, and private resources to construct new facilities which will begin to address very serious academic space problems on both University campuses. During the next two or three years, completion of the Beckman Institute, Microelectronics Center, Digital Computer Laboratory Addition, Krannert Art Museum Addition, Plant and Animal Biotechnology Laboratory, Plant Sciences Greenhouse Complex, Talbot Laboratory remodeling, and Animal Science Laboratory Addition will add approximately 854,000 gross square feet of space to the Urbana-Champaign campus, along with smaller amounts for support space in the new chiller facility for the North Campus and the Motor Pool. At the Chicago campus, the new Engineering Research Laboratory, the Chicago Technology Park Research Center, and the conversion of the former Staff Apartment facility to academic use will add 260,250 gross square feet of space. The addition of this significant amount of space, much of it containing complex and sophisticated laboratories, will carry a substantial requirement for increased operations and maintenance support in the period from FY 1989 to FY 1991.

Operations and maintenance requirements include such elements as building systems operations and janitorial services, grounds maintenance, security, transportation, fire protection, mail and other services, along with the provision of heat, light, power, and other utilities. Given the complexity of much of the new or remodeled space coming on-line over the next several years and the unique operating requirements of many of the academic programs housed in these new facilities, operations and maintenance support will take on critical funding priority.

The estimated total expenditure required to meet FY 1989 operation and maintenance support of new areas is $5,361,100. A total of 12 projects, comprising approximately 809,000 GSF of new or significantly remodeled space, are submitted for either full or partial funding of the annual costs of operation and maintenance.

The costs associated with each project are based upon factors pertaining to the specific types and uses of space in each project, the expected costs of the commodities and services which are necessary to

support each operation and maintenance function and, more obviously, the expected date upon which occupancy of the structure will occur. Estimates are determined by staff from the Operation and Maintenance Divisions at each campus in conjunction with those professionals responsible for the design and construction of the project. In addition, staff from the departments which will utilize the new space are consulted regarding specific space requirements.

Each project included in this request is described in the following narrative and is presented in the cost summary data shown on Table 8.

## Urbana-Champaign Campus
## ($4,345,000)

Beckman Institute

Remarkable in the flexibility of building design, the Beckman Institute includes many areas which function on multipurpose levels. Common areas such as lounges will serve as informal meeting space for staff from various disciplines to permit shared insights into the Institute's broad research goals of exploring the many forms of intelligence. Office and laboratory space has been designed to accommodate the programmatic shifts which will inevitably occur as this research evolves. An advanced electronic networking system is designed to transmit voice, data, and video images throughout the office and laboratory areas. Through the use of innovative design features such as removable floor tiling which permits easy access to cable routing in office and laboratory areas, and a cable tray system throughout the lab portion of the building, the system is designed to be dynamic and permit adaptation to developing technologies.

The comprehensive programmatic design that centers upon the study of intelligence, from the atomic level to complex and hierarchical systems of organization, is reflected in the structural and functional capabilities of the building itself. Within the 313,000 GSF of the Beckman Institute building, a broad range of space facilities have been provided, including animal holding facilities, a variety of scientific laboratories (chemical and biochemical "wet" labs, computer workstations, robotics labs, and many instrumentation facilities), spaces with "clean room" capabilities, human

subject interview rooms, along with offices, informal meeting areas, and graduate seminar rooms. An auditorium and seminar rooms, and reception and dining facilities have been designed to support conferences of international scope and stature.

The flexibility and adaptability of the building are characteristics vital to the research mission of the Beckman Institute. With a goal of becoming the preeminent institute within its field, the Beckman Institute requires research space which can respond to and support the dynamic programs it will house. Construction of the Beckman Institute is well under way, with initial occupancy scheduled for September 1, 1988. Thus, operation and maintenance support will be required during ten months of FY 1989, at a total cost of $2,959,590.

Chinese Swine Research Center

Providing 22,700 GSF of swine breeding, farrowing, and finishing facilities, this project presents opportunities for studying the characteristics of Chinese swine breeds not now under study in any part of the United States. Chinese swine breeds are recognized for their large litters, rapid maturity, and superior market weight--factors which could significantly enhance U.S. swine production if they can be successfully incorporated into U.S. swine herds. Constructed adjacent to the existing Moorman Swine farm, the Chinese Swine Research Center will enhance efficient use of existing research facilities and equipment, while concurrently creating a separate structure to keep this breed distinct from domestic swine varieties. The request of $48,610 is the balance of this project's annual operation and maintenance support which will be required during five months of FY 1989.

Krannert Art Museum Addition

The addition to the Krannert Art Museum, 21,500 GSF of exhibit and display preparation space, requires an above average level of security protection because of the irreplaceable nature of many of the Museum's proposed showcases. Additionally, the expansion of the Museum has necessitated the coordination of and increased the capacity of the mechanical and utility systems within the entire Krannert Art Museum to allow for stream-

lined and efficient utility service provision. This new space requires funding of the balance of the FY 1988 request, representing eight months of operation and maintenance support in FY 1989 of $82,630.

Microelectronics Center

The Microelectronics Center will provide 91,083 GSF of office, laboratory, and graduate seminar space for research in the field of compound semiconductors. Initial research emphasis will be in the areas of optoelectronics, microwave systems, and high speed computers with research laboratory requirements for 10,000 GSF of clean rooms, where the leading edge of semiconductor chip design and production will be carried out. Specialized operation and maintenance of these rooms is heavily oriented toward provision and repair of the laminar flow hoods, exhaust fans, exhaust scrubbers, cleaning pumps and numerous air filters, along with overall building security and the utilities services required by the exhaust and makeup air systems. Scheduled for occupancy in May, 1989, the FY 1989 Operation and Maintenance request for the Microelectronics Center is $210,120 for two months of operation in FY 1989.

Motor Pool and Garage

The new motor pool and garage facility located in the southwest portion of the campus will service the Urbana-Champaign campus fleet which in total exceeds 1,500 vehicles, and will house a portion of the fleet. Described by the dual functions of storage and repair service, the new area will consist of a 20,000 GSF garage featuring 21 mechanic work bays and a storage area, with a paved and fenced enclosure for 350 vehicles. Provision of operation and maintenance services for the garage and lot, in addition to the utilities service, will commence when occupancy occurs in September, 1988. The FY 1989 request comprises ten months of the annual cost, for a sum of $75,760.

North Campus Chiller Building

The North Campus Chiller Building, as part of the north campus utility infrastructure upgrade, is a subsidiary heating and cooling plant which will provide heat, ventilation, and air-conditioning to approximately 500,000 GSF of new space, including the Beckman Institute, the Digital

Computing Laboratory, and the Microelectronics Center. Functioning as the distribution center for these utilities to the north campus structures, the facility will meet and maintain, on a continual basis, the stringent and varied heating and cooling requirements of areas such as the clean rooms of the Microelectronics Center and the computer engineering facilities of the Digital Computer Laboratory. The facility will require 24-hour per day staffing and operation. The chiller building itself will occupy 13,200 GSF and will be operational during FY 1989 for a period of 11 months, requiring $445,600 in operation and maintenance support funds.

Orr Center Animal Unit

Final funding of the annual operation and maintenance support for the Orr Center Animal Unit will require an expenditure of $7,600 during FY 1989. Located in Pike County, this facility provides opportunities for handling, husbandry, and management of a beef cow herd consisting of some 100 to 200 animals. Support of combined operations and residential quarters, in addition to storage areas for machinery and silage, comprises a total of 18,800 GSF for this unit.

Plant Sciences Greenhouse Complex

The Plant Sciences Greenhouse Complex, primarily composed of a 56,883 GSF environmentally adaptable greenhouse together with headhouse space of 44,731 GSF, provides the opportunity for agricultural advancements of regional and national scope. Plant pathology research will utilize soil temperature tanks to study the effects of soil temperature and humidity on pests and diseases which are transmitted through the soil. Studies of photosynthesis oriented toward high crop yield will make particular use of the multitude of environmental controls provided within the greenhouse. First funded for planning in FY 1984, and subsequently allocating a portion of the annual operation and maintenance support in FY 1988, the project requires the balance of these funds in FY 1989. This request represents a six month expense of $463,430.

Talbot Laboratory Remodeling

Significant remodeling in conjunction with the crane bay reconversion project supported by Build Illinois has resulted in the functional expansion of 6,850 GSF within Talbot Laboratory. Further reconversion efforts will result in the addition of 23,000 GSF of new space within the open crane bay. Housing the Center for Supercomputing Research and Development, the expanded space demands an intensive level of utilities support, specifically electricity. Air-conditioning, a sophisticated air intake and exhaust system, and the electrical needs to power the equipment related to computing research efforts contribute to a high operation and maintenance demand within Talbot Laboratory. The new area, comprising three floors of primarily laboratory space, will have a similarly high utilities demand. The operation and maintenance support of these new and significantly remodeled areas are represented by the FY 1989 request for two months of support at a cost of $28,330.

Converted Willard Airport Terminal

Construction of the new Willard Airport Terminal will permit the vacated terminal building to be operated and utilized by the University Institute of Aviation. The transfer of this building, currently operated independently, to the academic programs of the Institute results in a request for operation and maintenance funds for this new University facility. Pilot training faculty and staff offices will be established in the new space, along with briefing rooms, a small auditorium, and administrative support space. Coinciding with occupancy of the new terminal at Willard Airport, the inclusion of this area within the University's operation and maintenance base will occur in May, 1989. The FY 1989 request for funds in support of this 25,000 GSF structure to be utilized by the Institute of Aviation is $23,330 for two months of service.

Chicago Campus
($1,016,100)

Chicago Technology Park Research Center

Located within the 56 acre Chicago Technology Park is the Chicago Technology Park Research Center. The Research Center is a medical and high-technology research and development incubator facility sponsored by the University of Illinois, Rush-Presbyterian-St. Luke's Medical Center, and the State of Illinois Medical Center Commission. Constructed by the State, the incubator facility provides entrepreneurs the opportunity to develop nascent technologies with industrial or commercial applications. It is the intent of the Research Center to encourage innovative and ambitious scientists to develop their ideas within the educational and economic mainstream of the University of Illinois and the City of Chicago, and as such provide a seed bed for the ultimate development of corporations that will contribute to the State's economic development.

The facility offers affordable office and laboratory space, with the atmosphere of a cooperative produced through the existence of areas with common uses and a system of shared use of expensive office and lab equipment. Operation and maintenance support of the facility will comprise utilities for the structure, excluding each tenant's requirements for electricity. Similarly excluded are security requirements above the campus average and janitorial services for each tenant's space. Included within maintenance support of this facility are refuse and snow removal, general security, and grounds maintenance. The operation and maintenance requirements of this 56,000 GSF structure are represented by the FY 1989 request for 12 months of support at a cost of $504,200.

Converted Staff Apartment Building

The transfer and significant remodeling of an auxiliary dormitory has permitted the Chicago campus' Business Office to consolidate its activities within the 96,250 GSF of this structure. The concurrent vacation of space in University Hall and the College of Pharmacy building will permit these areas to resume support of academic functions. The request of $511,900 is the balance of this project's annual operation and maintenance support which will be required during six months of FY 1989.

TABLE 8
FY 1989 REQUEST FOR OPERATION AND MAINTENANCE
SUPPORT FOR NEW AREAS

| Project | GSF | Total Annual Cost | Total Unit Cost $/GSF | Date of Occupancy | No. Months Funding | FY 1989 Amount |
|---|---|---|---|---|---|---|
| Urbana-Champaign | | | | | | |
| Beckman Institute | 313,000 | $3,551,510 | $11.35 | September 1988 | 10 | $2,959,590 |
| Chinese Swine Research Center | 22,700 | 116,665 | 5.14 | December 1987 | 5 | 48,610 |
| Krannert Art Museum Addition | 21,500 | 123,945 | 5.76 | March 1988 | 8 | 82,630 |
| Microelectronics Center | 91,083 | 1,260,720 | 13.84 | May 1989 | -2 | 210,120 |
| Motor Pool | 20,000 | 90,910 | 4.55 | September 1988 | 10 | 75,760 |
| North Campus Chiller Building (a) | 13,200 | 486,110 | 36.83 | August 1988 | 11 | 445,600 |
| Orr Center Animal Unit | 18,800 | 30,400 | 1.62 | October 1987 | 3 | 7,600 |
| Plant Sciences Greenhouse Complex | 101,614 | 926,860 | 9.12 | January 1988 | 6 | 463,430 |
| Talbot Laboratory Remodeling | 29,850 | 169,980 | 5.70 | May 1989 | 2 | 28,330 |
| Converted Willard Airport Terminal | 25,000 | 139,980 | 5.60 | May 1989 | 2 | 23,330 |
| Subtotal | | | | | | $4,345,000 |
| Chicago | | | | | | |
| Chicago Technology Park Research Ctr. | 56,000 | $ 504,200 | $ 9.00 | March 1987 | 12 | $ 504,200 |
| Converted Staff Apartment Building | 96,250 | 1,023,800 | 10.64 | January 1988 | 6 | 511,900 |
| Subtotal | | | | | | $1,016,100 |
| TOTAL UNIVERSITY | | | | | | $5,361,100 |

(a) Includes equipment maintenance and personnel for 24 hour operation.

# PROGRAMMATIC REQUESTS

## PROGRAMMATIC REQUESTS

The 1980's have been years in which significant physical and programmatic growth have taken place on each of the University of Illinois' campuses. This growth has been supported by new State funds, enriched by growth in federal and private monies, and augmented by the realigning of existing institutional resources. These successes have created a base from which further efforts to expand and improve instructional, research, and public service programs can be extended. The University has built a momentum in program development that can lead to new initiatives that will not only improve the educational experiences of our students and the environment within which new scientific, technological, intellectual, and cultural advances can be made, but will also benefit the short- and long-term economic development of our State and nation.

This momentum has been halted, at least temporarily, by the outcome of the FY 1988 appropriations process. As discussed in the introduction to this document, no new programmatic funds were appropriated by the legislature; and the Governor subsequently reduced General Revenue Funds and Agriculture Premium funding by 4% below FY 1987 levels. It is thus imperative that the programmatic funding being requested by the University of Illinois be given the utmost consideration, so that the momentum of the past four years can be regained.

Most of the physical and programmatic growth realized during the 1980's has served as means to ends which have yet to be realized. Given the limited incremental resources available to the State to spread among all agencies, few of the initiatives proposed by the University have been fully implemented as initially planned. Yet, what <u>has</u> been initiated has reaped significant tangible and intangible returns on the investment made.

The tangible returns are relatively easy to find. They range from the formation of the two supercomputer centers on the Urbana-Champaign campus that were made possible through the leveraging of campus and new State funds to match grants from the Federal government, to the establishment of the Beckman Institute in which the State matched a major private gift. The intangible returns are as easy to find, but they are often not as quantifiable. Examples include the increased number of students who are able to

pursue some of the finest engineering educational programs in the nation, made possible through Engineering Revitalization efforts; and the increased numbers of minority students throughout the State who are better prepared for the academic rigors of a higher education than they would have been, had they not been able to participate in the University's Principal's Scholars and Saturday College early outreach programs. These programmatic improvements can be easily quantified, but their residual benefits to the State can not.

Throughout the 1980's, attempts have been made to weigh the ever changing situational, economic, and intellectual contexts at play within the University, the State, and the nation in developing programmatic requests designed to best match these contexts. And though the individual initiatives within the major programmatic themes which serve as the focal points for new and expanded initiatives at the University of Illinois have changed over the past decade, the major themes themselves have remained relatively static.

This is again the case for FY 1989, as the University of Illinois is proposing new and expanded program initiatives under the following main themes:

I. Promoting Instructional Excellence
II. Scientific and Technological Advances
III. Minority Access
IV. Engineering Revitalization
V. Library Improvements
VI. Academic and Institutional Support Services

Initiatives outlined within the Promoting Instructional Excellence theme address cooperative efforts to improve the ability of elementary and secondary schools to provide quality education, the expansion of general undergraduate educational curricula, meeting specific areas of student enrollment demand, enhancing existing curricular options, and augmenting existing instructional support activities.

The Scientific and Technological Advances are described under three subheadings: those having to do with pioneering advances in basic research, others having to do with the application of those pioneering advances, and the technology transfer efforts of the University in making these advances available to those who are most in need of them.

Under the Minority Access theme the "pipeline problem" which faces both minority students and higher education in their joint quest to increase both the aggregate numbers and success rates of minorities in their educational endeavors is addressed from both an early outreach and a retention perspective.

The fourth main theme is a request to continue the efforts initiated in FY 1984 to revitalize the engineering curricula at both campuses. Progress has been made toward many of the initial goals the campuses set, but there is still ground to be covered in seeing them through to their fruition.

With respect to Library Improvements, arguments are presented for increasing funding in order to address both the growing inability of the University of Illinois Libraries to keep pace with the rise in costs of serial and monographic materials and to permit the Libraries to keep pace with the programmatic growth into new areas of inquiry, both of which have been prevalent throughout this decade.

The final theme addresses a most critical issue to the University, that of providing adequate support services to the institution's academic programs. Initiatives are outlined that will permit the campuses to be more responsive, healthy, safe, and secure environments in which the University's educational enterprises can operate.

The amounts requested by each campus, for each programmatic theme, are listed in Table 9.

TABLE 9
FY 1989 PROGRAM BUDGET REQUEST
(Dollars in Thousands)

| | | Chicago | Urbana-Champaign | Central Administration | Total University |
|---|---|---|---|---|---|
| I. | Promoting Instructional Excellence | $4,400.0 | $ 3,200.0 | | $ 7,600.0 |
| II. | Scientific and Technological Advances | 1,900.0 | 5,870.0 | $1,000.0 | 8,770.0 |
| III. | Minority Access | 400.0 | 500.0 | | 900.0 |
| IV. | Engineering Revitalization | 800.0 | 1,000.0 | | 1,800.0 |
| V. | Library Improvements | 500.0 | 700.0 | | 1,200.0 |
| VI. | Academic and Institutional Support Services | 1,000.0 | 1,500.0 | | 2,500.0 |
| | TOTAL | $9,000.0 | $12,770.0 | $1,000.0 | $22,770.0 |

# EXPANDED/IMPROVED PROGRAMS
# I. PROMOTING INSTRUCTIONAL EXCELLENCE

## PROMOTING INSTRUCTIONAL EXCELLENCE
## ($7,600,000)

During the past few years there have been numerous calls for reform and upgrading of the quality of education being offered in the United States. These calls have ranged from those focusing on preschool, primary, elementary, and secondary education to those focusing on the general quality of the undergraduate educational experience. Regardless of the level of their focus, they have been consistent in their criticism of the educational enterprise as being both too "soft" and too "narrow."

In particular, the conception of the role of higher education as simply a technical training ground prior to the beginning of a career has proven to be far too narrow a mission in a society in which new knowledge is created at a dizzying pace. In many cases, the initiatives outlined below seek a balance and equilibrium in the swing of the curricular pendulum between a seventeenth century notion of an elitist, classical education for a limited few and the late twentieth century notion of particularized technical training for entrance into the workforce.

The initiatives proposed by both the Chicago and Urbana-Champaign campuses to promote instructional excellence are intended to meet a variety of instructional needs, ranging from assisting elementary and secondary schools in providing quality educational opportunities for their full range of students to initiatives which will strengthen the quality of education offered at the University of Illinois. They seek as well to meet existing student demand for undergraduate, graduate, and professional programs and to enrich other present curricular offerings through the development and expansion of academic programs and the provision of instructional support.

These efforts to promote instructional excellence are integral to the continuing economic development of the State of Illinois. With changes in society taking place at an increasingly rapid pace, it is important that the citizenry of the State of Illinois be prepared not only to carry out the working demands of our present economy, but that they also be well prepared to change, adapt, and develop as the world and economy around them continue to change at geometric rates.

Promoting instructional excellence at the University of Illinois is a significant means by which this end can be realized. The vast majority of

the University's 65,000 plus students are Illinois residents and a significant proportion of its graduates remain in Illinois not only to begin, but to conduct the entirety of their careers. Providing these students with quality undergraduate, graduate, professional, and continuing education programs which stress not only narrow technical competencies, but broader, more transcendent skills will help to ensure the State's ability to meet the developing and ever changing challenges which will be faced into the foreseeable future.

Promoting Instructional Excellence at the Elementary and Secondary Levels

Many students reach college unprepared for not only the rigors of their chosen disciplinary major, but also less than prepared to tackle the general tasks associated with being a university student. Remedial programs are one option for addressing this problem, but this is more a methodology which treats the symptoms than attempts to develop a cure for the underlying, central malady.

To better address this problem, in September 1987, the University of Illinois at Chicago will establish the Center for Urban Educational Research and Development (CUERD) in the College of Education. The Center will be dedicated to the improvement of educational opportunities for children and youth, with particular attention to the problems and dilemmas associated with elementary and secondary schools in the Chicago metropolitan area. Schools in the Chicago area will be partners in this undertaking, and large numbers have expressed a keen interest in joining UIC in this endeavor. The goal of the Center will be to work toward a better understanding of these problems and their potential solutions by (1) conducting research addressed to critical educational issues; (2) making available conceptually coherent and intellectually rigorous professional growth programs for educational professionals in urban environments; (3) coordinating the transfer of educational interventions from the university to the schools, and from school to school; (4) developing a model of technology transfer; and (5) implementing programs to enhance minority preparation for and representation in higher education.

CUERD will coordinate knowledge production, technology transfer, and dissemination across a number of disciplines. It will draw on faculty expertise across the campus to provide interventions that focus on

educational problems, the physical well-being and health of children, and on conditions in homes and neighborhoods that influence school effectiveness. Because CUERD will be an interdisciplinary, interactive, comprehensive organization, it will provide a coordinated and vigorous attack on the problems of educational systems through an amalgam of rigorous and imaginative research, the meaningful transfer of educational technology, and public service.

The Center's primary purpose will be to improve the quality of education in urban schools through programmatic and sustained research focused on schools as organizations, teachers and administrators, children, the process and content of instruction, and the relationship of schools to their communities. A major priority will be the impact this work has upon minority students, their academic and social achievement, and their readiness to succeed in post-secondary educational programs and employment. The Center's research will be conducted by teams composed of university faculty members, school personnel, and community agents.

Promoting Instructional Excellence through the Enhancement of Basic and Fundamental Skills

First and foremost among the needs for improving the quality of educational opportunities at the University level are initiatives which respond to the need to enhance and improve the general undergraduate curriculum. The critical importance of basic and fundamental skills which transcend disciplinary expertise--thinking and problem solving; clear, cogent, and concise writing; and critical reading and analysis--are recognized as integral facets of the undergraduate educational experience. They are increasingly being understood to be vital elements in the education of those whom we expect to enter the workforce and help to stimulate our State and national economies. They are skills and practices to be nurtured in conjunction with the development of technical/professional expertise in a particular discipline. The goal of both campuses is to reinvigorate the undergraduate educational experience to place it on a par with the quality of graduate and professional educational programs offered at the University of Illinois.

Efforts to date have shown the effectiveness of both computer assisted writing laboratories and "writing across the curriculum" programs. Yet

more needs to be done in these areas. Continued development of interactive and cross-disciplinary efforts which will enhance the abilities of our students to communicate both effectively and efficiently in all disciplinary specialties is imperative. Both campuses are developing programs which will incorporate expanded writing instruction into the entirety of the undergraduate curricula. Faculty with special expertise in teaching writing and communication skills are working in conjunction with faculty from the cognate disciplines to develop the most beneficial means of enhancing student writing within various discipline clusters.

The improvement of the delivery of instruction at the earliest undergraduate levels is of equal importance. Both campuses propose the continued development of new curricular options which stress the development of ideas and their synthesis through reading, discussion, and writing, rather than the prevalent information transmission and regurgitation mode of instruction which most freshmen and sophomores face in meeting their general educational requirements. These initiatives, which will promulgate increased faculty-student interactions, will include seminar courses for freshmen and sophomores taught by tenure stream faculty and the development of more integrative core curricula within various colleges.

Additional faculty are sought for core academic departments which have significant service components as well as sizable major populations. These departments include Biological Sciences, Chemistry, Physics, Mathematics, Statistics, Computer Science, Political Science, and Sociology. Through these additions, the campuses will be able to reduce presently overloaded lecture and laboratory sections to more reasonable class sizes, thus enabling more personalized and interactive instruction.

Changing market demographics necessitate that the University aggressively recruit faculty in these areas now, while there are still outstanding new Ph.D.'s available. Within the next few years a combination of factors will make it significantly more difficult to hire faculty in these areas. By the early 1990's a large majority of the faculty hired to serve the swelling ranks of academe following World War II and fueled by the post-war baby boom will be reaching retirement age, causing a large increase in the demand for new talent nationwide. Corresponding to this increased demand is the fact that graduate enrollments in these disciplines--with individuals preparing themselves specifically for faculty

positions--are on the decline. Thus, when demand reaches its peak in the early to mid 1990's, supply will have ebbed to a point where the competition for any new Ph.D. will be intense.

Promoting Instructional Excellence Through Meeting Student Demand for Present Curricular Offerings

A second set of important needs met by the initiatives from each campus are responses to specific areas of student demand. These include not only demand for selected undergraduate curriculums, but also for graduate, professional, and continuing education programs offered by the University.

Four areas where there is particularly heavy student demand, which is presently not being met, are in the business, communications, public policy, and health professions curricula. There are acute needs to expand the availability of offerings not only to those individuals who wish to major in these disciplines, but also to individuals majoring in other areas who would benefit from exposure to the rudimentary principles of these high demand disciplines.

The demand for these curricula stem from a variety of forces which include the changing market demand for university graduates with broader skill backgrounds, the need to provide existing programs at different times of the day to accommodate students forced to finance their education by working full- or part-time while attending the University, and the demand for offerings of programs at remote sites to accommodate both individual student and regional educational concerns.

Specifically, there are heavy demands, at both campuses, for business-related curricula, both by students wishing to major in this area, and from students with other majors who recognize the need to have an understanding of business practices and theory in order to complement and maximize the training they are receiving in their own discipline concentrations. As well, practicing health professionals from the Chicago area, and throughout the State, are in need of the University to provide more accessible continuing professional educational opportunities and programs leading to an advanced degree for them to successfully continue and enhance their present practices of service to the citizens of Illinois.

Promoting Instructional Excellence Through Enhancements to Present Curricular Offerings

During the middle portion of the 1980's, curricular enhancements have been focused primarily toward engineering and scientific fields. There is a distinct need to balance these past efforts by implementing similar curricular enhancements in the social sciences, arts, and humanities.

Initiatives to encourage curricular developments which make use of new instructional technologies, to promote interdisciplinary instructional efforts, and to aid in the augmentation of present curricular offerings to include a broader and more far reaching understanding of particular disciplines are needed to provide more integrative and contemporary educational opportunities to students at the University of Illinois. Special efforts in this vein are under way at both campuses to provide this interdisciplinary and integrative type of education to Illinois' top high school graduates through honors programs. These campus-wide programs, which work in a complementary fashion with the various discipline-based honors programs, are striving to provide close, interactive, broadly-based, intellectually challenging, and individually stimulating integrative educational opportunities. Too many of Illinois' best high school graduates now leave the State to find these types of educational experiences at expensive private schools.

Changing economic conditions--globally and here in Illinois--are causing increased curricular attention in new areas within existing disciplines. Such phenomena as the explosion of the international business community, the growth and attention being paid to commodities futures, and the need for better marketing and distribution of Illinois raw materials and finished products are leading to curricular developments at the undergraduate, graduate, and professional levels, which are attempting to better prepare students and practicing professionals to cope and exploit these phenomena in the interests of promoting global economic development. The latter two phenomena are of particular concern to the agricultural community of Illinois.

Efforts need to be increased to further integrate the use of microcomputers into nonscience and nonengineering curriculums. Students in the social sciences, arts, and humanities can greatly benefit from the availability of microcomputers for use as analytical, design, and problem

solving tools in their studies. Not only will this necessitate the expansion of present microcomputer laboratory facilities, it also necessitates the development of better orientation and instructional support services for faculty who wish to integrate the use of microcomputers into their courses.

Increasingly, interdisciplinary research and instruction, which by definition crosses the standard boundaries of single discipline-based instruction, has brought about exciting new insights into both old and new areas of inquiry. In the most recent past "interdisciplinary" has typically meant a melding of various physical and natural sciences, but the fruits of new partnerships can be just as bountiful within the arts, humanities, and social sciences.

Efforts in the humanities and social sciences which are attempting to bring a more expansive, global perspective to today's most pressing scientific, political, and social problems are already under way. However, there is a need to expand these efforts and provide support to faculty who are working together to develop these multiperspectival approaches to addressing issues and problems of historical, current, and future concern. These cross-pollenization efforts are spawning new courses which intertwine a variety of discipline-bound perspectives on issues and provide students with opportunities to expand their knowledge and develop skills and problem solving strategies in ways which traditional, single-discipline approaches to instruction in these areas have failed to provide. As a result, the University's graduates will be that much better prepared to face and take an active role in not only how these issues will interact with their chosen careers, but also in their lives as citizens of the State and nation.

Promoting Instructional Excellence Through Instructional Support Enhancements

Central to the success of instructional programs at the University of Illinois are initiatives which provide support to these efforts. These supports range from providing ample and adequate configurations of equipment, hardware, and software to implement the curricular expansions and enhancements described above, to providing orientation, curricular enhancement, and professional development services and opportunities. Programs are being designed to improve the classroom teaching skills of new and

continuing instructional staff to assist in conducting courses in a variety of formats and settings. Efforts are also being expanded to assure the verbal competencies of non-native English speaking teaching staff.

Many of the initiatives described above will require computer, simulation, and other types of laboratory course sections. In order for these initiatives to work, not only do the labs need to exist physically and be adequately equipped, there is a great demand for them to be available for student use for extended periods of time, thus necessitating significant increases in staffing.

In addition, some of the initiatives described above, and some of the ongoing curricular activities at both campuses, have as key elements the development of extensive cooperative educational programs where students can have the opportunity to practice what they have learned in the classroom in more "real" situations. Students majoring in business, engineering, architecture, the health professions, and various other curricula benefit enormously from opportunities to experience first hand how the principles and theories they have learned apply in actual problem solving situations. These types of developments will necessitate significant coordination activities by the departments and colleges as they are involved with community, business, industry, and governmental partners in seeking out and developing the most beneficial practica, internship, and apprenticeship opportunities for University students.

Budget Summary of Initiatives at Chicago

| | | |
|---|---|---|
| 100.00 FTE Academic Staff | | $ 2,500,000 |
| 20.00 FTE Nonacademic Staff | | 400,000 |
| Wages and Fellowships | | 200,000 |
| Expenses | | 500,000 |
| Equipment | | 800,000 |
| | TOTAL | $ 4,400,000 |

## Budget Summary of Initiatives at Urbana-Champaign

| | | |
|---|---|---|
| 75.00 FTE Academic Staff | | $ 2,100,000 |
| 10.00 FTE Nonacademic Staff | | 150,000 |
| Wages | | 25,000 |
| Expenses | | 275,000 |
| Equipment | | 650,000 |
| | TOTAL | $ 3,200,000 |

# EXPANDED/IMPROVED PROGRAMS
# II. SCIENTIFIC AND TECHNOLOGICAL ADVANCES

## SCIENTIFIC AND TECHNOLOGICAL ADVANCES
## ($8,770,000)

Revolutionary changes are taking place in the areas of science and technology which affect not only the practice of science, commerce and industry today, but which, when looked back upon 30 years hence, will be seen as crucial events in the history of scientific, commercial, and industrial development. For more than 100 years, the University of Illinois has been pioneering scientific and technological advances which have directly affected the way in which society functions.

Recent efforts in biotechnology, artificial intelligence, cognitive science, robotics, supercomputing, and toxicology not only continue the University's tradition of being on the cutting-edge of science and technology, but they also impact the economic development of the State and the nation. Additionally, the "critical mass" of research and researchers in these fields is beginning to effect curricular enhancements for the training of the next generation of scholars who will delve even further into what is yet unknown.

The University's efforts in applying pioneering advances in science and technology research are also important to the development of new and enhanced economic markets. Research and design work to better account for human factors in complex system design is employing advances in artificial intelligence, cognitive science, robotics, and supercomputing to develop safer, more stable, and less perplexing interactions between humans and machines (in air-traffic control, nuclear reactor control, etc).

Similarly, efforts to incorporate many of the same principles into the design of more functional devices and systems are permitting the handicapped to lead more independent and productive lives. Genetic research on livestock, and efforts in value-added agriculture, are making use of the latest advances in biotechnology and bioprocessing and employing them in efforts not only to enhance production but also to find new and more ecologically suitable end products from the raw materials found naturally and produced in abundance throughout Illinois.

Advances being made in science and technology at the University of Illinois, and those on the verge of being made, will impact not only the State's and the nation's economy in the long term, but are already

producing tangible benefits. The initiatives which are outlined below are in some cases enhancements and expansions of ongoing projects which have already paid rich dividends on the State's initial investment, while others are new efforts which promise to open still further doors of intellectual and instructional advancement, and ultimately economic development.

Pioneering Advances in Science and Technology

Many efforts presently under way at both campuses of the University of Illinois are at the forefront of science and technology. Generally interdisciplinary in their approach to investigating these phenomena presently on the fringes of our understanding, these efforts are concentrated around basic and fundamental research in the biological and life sciences and in advanced computational research, with particular emphasis on the development of the next generation of advanced computational devices and in the instruction and training of users of these facilities at remote sites. Because of the interdisciplinary approach to investigation in these endeavors, bringing together researchers from a wide variety of cognate, complementary, and supplementary disciplines, most of these pioneering research efforts are coordinated and conducted through research centers.

At UIC, faculty with expertise in microbiology, molecular biology, biochemistry, genetics, biology, chemistry, medicine, dentistry, anatomy, physiology, dermatology, histology, oncology, pathology, and pediatrics have been drawn together in research efforts which can generally be called biotechnology. Their efforts to date, which focus in large part on recombinant DNA technology, have led to advances in the understanding and treatment of such diseases as hemophilia, sickle cell anemia, arthritis, cancer, and periodontal disease. Present expertise needs to be augmented with additional faculty, research, and technical staff as well as additional support and administrative staff to manage, administer, and support the activities of the centers.

The present equipment and personnel of the Research Resources Center, which provides centralized facilities and laboratories for support of faculty and graduate student research and teaching in these and other endeavors, is unable to meet user demand. The need for augmenting this facility, to provide additional economies of scale and space, making

available expensive and sensitive instrumentation without unnecessary duplication throughout the campus, is strong.

To date, some of these high technology instruments and their peripheral and accessory components have been purchased with nonrecurring State and other governmental funding. Additional major equipment needs will be met by using campus resources for cost-sharing on Federal grants and contracts. Some of the present equipment is aging, but advances in technology and in the development of new components, if incorporated into the instruments can expand their versatility and extend their useful lifetimes and make them capable of performing more refined experiments. However, such modifications require adequate professional and technical staffing and an ongoing program of upgrading existing equipment--in addition to acquisition of new instruments--for which incremental funds are sought.

At UIUC there is also a wide variety of faculty--drawn from the Colleges of Agriculture, Engineering, Liberal Arts and Sciences, and Veterinary Medicine--pioneering scientific and technological advances in biotechnology. Efforts to date, utilizing techniques in molecular biology and recombinant DNA research, have been successfully applied to the development of pesticide resistant crops, the production of medicinally important hormones, amino acid and vitamin production for nutritional supplementation, development of new antibiotics, the utilization of antibody molecules as diagnostic tools, and the production of enzyme and other proteins targeted for specific medical and nutritional benefits.

Intermediate between the application of these benefactions and their development is the scale-up to production which involves product composition and yield, on-line computer monitoring of production, material and cell harvesting, separation methodologies, product purification, etc. These areas of commercialization in their broadest context can be referred to as bioprocessing--the next major area of development in biotechnology which the campus proposes to pursue. At UIUC, the juxtaposition on campus of intensive value-added agricultural activities with the College of Agriculture's Sponsored Research Incubator facility is combining to create a fertile environment for ideas and developments which will enhance the Illinois economy. For example, efforts are under way which promise to lead to the production of more ecologically sound, biodegradable plastics made from corn.

Three other areas of important, interdisciplinary research which both campuses are pursuing are artificial intelligence/cognitive science, magnetic resonance imaging, and supercomputing. The long-term goal of artificial intelligence--to make it possible for computers to perform tasks that require the intelligent use of knowledge--is coming closer to realization through integrating the pioneering advances being made in not only artificial intelligence, but also in cognitive psychology, theoretical linguistics, and other disciplines. These advances are leading to a critical mass of understanding which should allow computers and computer-controlled devices (e.g., scientific or industrial robots) to perform tasks for which humans are inherently unsuited--tasks that are too dangerous and/or cognitively or physically impossible.

Magnetic resonance and its applications have come to play a central role in a number of areas within the life sciences and the field of medicine. The interdisciplinary nature of this field, the complex and expensive equipment required, and the special expertise needed to develop new equipment and techniques and to guide research projects have stimulated the development of new integrated programs in many institutions. The program being developed at the University of Illinois covers a broad spectrum: the basic theory of image formation; the development of mathematical algorithms and instrumentation; novel applications in the fields of plant, animal and human physiology, pharmacology, and biophysics; as well as the development of new areas of usefulness in medicine.

Through a significant infusion of Federal grant support, combined with reallocated campus resources and new State dollars, the University is making a dramatic and decisive move toward providing state-of-the-art facilities and a comprehensive research environment through which major computing breakthroughs can be made in American universities. The University's Center for Supercomputing Research and Development has teamed with the National Center for Supercomputing Applications (NCSA) to provide the University of Illinois with supercomputing leadership unmatched at any university in the nation. The two centers are bringing together, in a university setting, many of the world's best scientists, engineers, computer designers, and computational algorithm developers. As a result of this environment, the University is already realizing major breakthroughs in scientific and engineering problems including new computer algorithms,

software, designs, and theory. University faculty are also involved in the preparation of an entire new generation of researchers and graduate students skilled in the use of supercomputers, both locally and at remote sites.

The total National Science Foundation (NSF) commitment to the NCSA during the five-year period from May 1, 1985 through April 30, 1990 totals $43.9 million. In negotiating NSF support for the center, the University agreed to contribute a total of $4.35 million over the life of the agreement in non-recurring funds, to be provided as one $350,000 installment for remodeling, and five $800,000 allocations to help meet operating expenses. Funds to meet this commitment will be generated from existing campus resources.

Additionally, the State agreed to contribute a total of $14 million over the period of agreement, with the understanding that by FY 1989 there would be a recurring base of $4 million that would allow the Center to continue operations if the NSF is unable to fund the Center after April 30, 1990. The State's commitment to the Center began in FY 1986 with a $1 million appropriation, which was to be incremented by $1 million in each of the next three fiscal years. The second $1 million increment was appropriated in FY 1987. However, as a result of severe budget constraints in FY 1988, the $1 million committed for the current year was not provided. To satisfy the terms of the cooperative agreement with NSF and to minimize the negative impact on NCSA which the loss of the third $1 million increment will have in FY 1988, the campus will attempt to temporarily provide a portion of this commitment. For FY 1989 the University seeks a $2 million increment to fulfill the balance of the State's commitment: $1 million to compensate for the increment not received in FY 1988, and $1 million to complete the State's obligation for FY 1989.

Crucial to the interdisciplinary research efforts of both campuses are facilities adequate to house the researchers and their laboratories in relative proximity to one another in order to foster the easy interchange of ideas and expertise. At the Urbana-Champaign campus, construction is under way on the Beckman Institute, which will serve as the physical focal point of the University's interdisciplinary efforts to pioneer advances in science and technology. The incremental program funds sought for FY 1989 will support the programmatic and administrative operation of the

Institute. The FY 1989 request includes the addition of $770,000 which was not provided in FY 1988. Without these funds, it will be impossible to operate this unique facility.

Remodeling is currently under way at the Agricultural Bioprocessing Facility (formerly called the Dairy Manufacturers Building) to provide space for value-added agriculture research. Both the Digital Computer Laboratory addition and the federally financed USDA Biotechnology Building are in the advanced planning stages. Efforts should begin by FY 1989 to facilitate the remodeling of the School of Life Sciences Research Facility, which will provide additional research and instructional space for individuals working in the life sciences.

At Chicago, modest remodeling of space in the old hospital has made some inroads into the need for centralized facilities for the centers pursuing biotechnological research, but there is still a great need for new space which is more appropriate to the needs for more advanced wet labs, dry labs, and clean rooms than can be created from space in old buildings. To meet this need, a Molecular Biology Building is described in the capital requests section of this budget request.

Applications of Pioneering Advances in Science and Technology

The potential applications of the advances taking place in science and technology at the University of Illinois and elsewhere throughout the world are virtually endless. However, the University of Illinois, by virtue of its strength in a number of disciplines which are natural complements to the research taking place in biotechnology, artificial intelligence/ cognitive science, magnetic resonance imaging, and supercomputing, is particularly well situated to apply these advances in ways which will have a significant impact on our society and our economy.

For instance, scientific and technological advances in a number of these areas have the potential to have an enormous impact on research which responds to the aging of our society. The U.S. Bureau of the Census has reported that the nation's median age rose from 27.9 years in 1971 to 31.2 years in 1984. Scientific and medical advancements continue to increase expected average life span so that by the year 2030, there will be 65 million baby-boomers alive. While today one in every eight Americans is considered "elderly," then it will be one in every five. At UIC, a group

of faculty from a number of disciplines is working to identify ways in which the elderly can be helped to remain healthy, independent, and productive for as long as possible.

By building on results of the research efforts described above and conducting further research of an interdisciplinary nature these faculty are endeavoring to provide an intellectual milieu in which to facilitate important gerontological breakthroughs and to enhance the quality of clinical care and services to the community. The development of a model long-term health care program for the elderly and empirical research into the impact of care-management services upon program utilization, the influence of care-giver support groups on the well-being of the elderly, and the effects of Alzheimer's disease on family members are a few examples of the types of aging initiatives which need to be expanded.

Further applications and resultant research efforts of advances at the University of Illinois are also taking place in applied genetic research on various forms of livestock; the development of more efficient and effective complex systems in which humans must interact with machines in order to facilitate more orderly and efficient means of production and control; and the development of efforts to deal with toxicologic threats to the maintenance of our environment.

Technology Transfer of Pioneering Advances in Science and Technology

The initiatives outlined above seek to advance science and technology through both basic and applied research. Implicit in these endeavors are related efforts which provide curricular enhancements and new instructional opportunities for undergraduate and graduate students. These instructional activities, which develop as a natural outgrowth of the institution's research efforts, are the first line of technology transfer which the University of Illinois undertakes: the transfer of technology as embodied by our graduates who will serve the State and the nation as both a well-qualified workforce and as the next generation of scholars and researchers necessary to sustain the revitalization of the economy.

The University seeks, however, through centrally administered programs which draw on the expertise of faculty at both campuses, to provide the citizens, government, businesses, and industries of the State with two other critical forms of technology transfer:

1. Continuing education and professional development activities, which keep the skills of those presently in the workforce up-to-date and on the cutting edge; and
2. Direct technical consultation from University researchers to industry, as well as joint industry/University research ventures which both have the potential to create new products and services which can ultimately lead to the further expansion of the State's economy.

These initiatives are designed to meet these service and outreach needs State-wide, with special emphasis on the western Chicago suburbs (DuPage County). The primary focus of the plan is to extend professional educational opportunities to this region that has experienced rapid demographic, commercial, and industrial growth and to continue similar opportunities already under way in the Rockford area, a region that has experienced industrial decline. Ancillary to these programs are plans to provide important technology transfer in the form of policy analysis to State and Federal government officials and legislators, as well as for State-wide dissemination of this research to policymakers, professionals, and the public.

The University will focus on four major areas of activity in which it has special expertise to assist in meeting these needs: science and technology; engineering; business and related executive training; and health care.

Budget Summary of Initiatives at Chicago

| | | |
|---|---|---|
| 40 FTE Academic Staff | | $ 1,200,000 |
| 8 FTE Nonacademic Staff | | 200,000 |
| Expenses | | 325,000 |
| Equipment | | 175,000 |
| | TOTAL | $ 1,900,000 |

## Budget Summary of Initiatives at Urbana-Champaign

| | | |
|---|---|---|
| 70 FTE Academic Staff | | $ 2,500,000 |
| 40 FTE Nonacademic Staff | | 870,000 |
| Expenses | | 2,000,000 |
| Equipment | | 500,000 |
| | TOTAL | $ 5,870,000 |

## Budget Summary of Initiatives at Central Administration

| | | |
|---|---|---|
| 5 FTE Academic Staff | | $ 250,000 |
| 3 FTE Nonacademic Staff | | 50,000 |
| Expenses | | 650,000 |
| Equipment | | 50,000 |
| | TOTAL | $ 1,000,000 |

# EXPANDED/IMPROVED PROGRAMS
## III. MINORITY ACCESS

## MINORITY ACCESS
## ($900,000)

Population demographics indicate that the decline in the number of high school graduates will continue until at least 1998. However, because the drop in birth rates after the "baby boom" was not the same for all racial and ethnic groups, an increasingly larger proportion of each year's traditional pool of college applicants will be minorities, particularly Blacks and Hispanics, well into the twenty-first century.

Higher education is already faced with a "pipeline problem" with relation to minority students: too few of this growing population are going on to higher education, and even fewer are reaching and completing graduate and professional school. Large numbers of minority students are unprepared for the rigors of a university education, though they may have "completed" the prerequisite twelve grades of formal education. Far too many minority students never reach this stage of "completion," and all too many of those who do are lacking in the essential skill and content competencies required to compete with non-minority students who are more typically the products of "better" suburban public, private, and parochial school systems. Thus, though there will be increasingly larger numbers of college age minority students from which colleges and universities may draw potential students in the years to come, unless steps are taken to assist these increasing numbers of minorities in preparing for college, the pipeline problem will only be exacerbated by these changing demographics.

As early as elementary school, minority students--especially those in urban, public school systems--are found to lag behind in skill development and content mastery. As they progress through the system these early developed deficiencies are compounded with the result that by the end of their high school years the affected students simply are not adequately prepared to step directly into higher education.

The University of Illinois has been working for some time to help address this problem. Special programs designed to smooth the transition between high school and higher education have been functioning for a number of years. Outreach activities to minority students in high schools, and even junior high, to help in skill development and content mastery have met

with success. Retention efforts designed to provide support to minority students throughout their collegiate careers have also been embarked upon.

Expanded efforts in minority access must also address the need for assistance to minority students who are attempting to prepare for and pursue academic careers. Attention must, therefore, be paid to the terminus of the pipeline problem. Typically, the means to this terminus has been understood in terms of programs and services to assure that those students who enter the university have a reasonable opportunity of succeeding and exiting with a degree. This notion, however, neglects to consider that one reason why institutions have such a difficult time in attracting minority students is the lack of minority faculty present on campus. Thus, the real terminus of the pipeline problem is at the level of preparing minority students to take on faculty responsibilities. To begin addressing this need the University of Illinois proposes to initiate a post-doctoral fellowship program specifically for minorities who harbor faculty aspirations, but who need an opportunity for further scholarly development before they can successfully compete for tenure track openings.

These efforts are important not only in helping to produce a more adequately prepared minority applicant pool and for insuring that the necessary assistance is provided to minority students so that they earn a degree, but these efforts also have a bearing on the economic vitality of the State of Illinois. The changing demographics which are affecting the mix of students in the applicant pool for higher education will also dictate that the population which produces the State of Illinois' tax and revenue base will also continue to become increasingly minority. Thus, efforts to better prepare minorities for entrance into higher education, and to see that they have reasonable opportunities to succeed once they have matriculated, will in the long term also ensure a more stable and productive workforce and revenue base for the State.

Increasing Minority Access Through Early Outreach Programs

The University of Illinois has been involved in early outreach programs to increase the State-wide pool of adequately prepared minority high school graduates since 1975. UIUC initiated efforts in the Principal's Scholars Program in 1975, and UIC began its Saturday College Program of early outreach in 1979. Initially these programs were designed to work

exclusively with minority high school students, but over the years they have expanded to include support services for parents, teachers, principals, and staff members, as well as expansion to include pre-high school students in the developmental activities of these initiatives. The success rates of the programs are quite high in terms of the numbers of participants who go on to pursue a higher education. Historically, less than half of the students who participate in either campus' early outreach programs, and who go on to college, attend one of the campuses of the University of Illinois. This is truly a recruitment program for all of higher education.

At both campuses there is a need to expand outreach activities to reach more minority students. New FY 1989 funds will permit programmatic expansion to meet three specific needs. First, there is a need to expand presently successful early outreach activities further down into the pre-high school years. An expansion of the junior high and middle school early outreach programs is necessary, as are increased activities at the elementary school level. Second, the Saturday College Program at UIC, which has to date been a health sciences related initiative should be expanded to include all colleges on the campus in efforts to expose minority students to a fuller variety of the options available to them in higher education. Third, there is a need to expand the present outreach activities to new geographic areas within the State presently underserved by either campus' initiatives. Particularly, increased efforts in the Rockford area, and the initiation of programs in the Springfield area, are needed to meet locally expressed interest and demand for these initiatives.

Increasing Minority Access Through Enhanced Retention Efforts

Many minority students are admitted to the University needing assistance to help them make the transition from high school to college, and to maintain satisfactory progress through their college careers to graduation. Even among minority students who arrive at the University with what seems to be adequate preparation, such as the students involved in the President's Award Program, there is often a need for special retention services. For, in spite of relatively high academic qualifications, their initial academic performances at the University have been found to be below that of nonminority students with comparable entrance credentials.

Both campuses presently offer underprepared students summer bridge and transitional programs that should be expanded to serve more Black and Hispanic students. Incremental funds will provide for proactive monitoring systems at the college level in which each student is assigned an advisor who is responsible for closely monitoring their academic performance and for intervening whenever necessary. Additionally, follow-up services, employing successful minority graduate and undergraduate students, will provide intensive academic tutoring for these students. These tutors will not only serve as role models to minority undergraduates at the beginning of their university careers, but they will also provide tangible evidence of minority students who have succeeded in academe.

Particular attention must be paid to retention efforts among minority students who enter curricula such as business and medicine. With the heavy emphasis on quantitative skills necessary to complete these curricula, minority students are often severely disadvantaged. Programs are under way which shift the emphasis of academic support from high risk students to high risk courses; these efforts will also be expanded. As well, successful retention efforts for educationally disadvantaged minority medical students will be expanded for the College of Medicine's programs at Rockford, Peoria, and Urbana-Champaign.

The success of the campuses in attracting and retaining minority students is causing a major increase in the workload of the Student Financial Aid Offices. The processing, monitoring, and careful review of scholarship and other awards to this increasing body of minority students has simply overdrawn the present resources of these offices. It is imperative that the success of the University's initiatives in improving minority student access not be thwarted by its inability to provide thorough and timely financial aid services to these students. A modest level of new funds will be used to meet this support need.

## Budget Summary of Initiatives at Chicago

| | | |
|---|---|---|
| 15 FTE Academic Staff | | $ 300,000 |
| 2 FTE Nonacademic Staff | | 25,000 |
| Wages | | 10,000 |
| Expenses | | 50,000 |
| Equipment | | 15,000 |
| | TOTAL | $ 400,000 |

## Budget Summary of Initiatives at Urbana-Champaign

| | | |
|---|---|---|
| 15 FTE Academic Staff | | $ 325,000 |
| 3 FTE Nonacademic Staff | | 50,000 |
| Wages | | 50,000 |
| Expenses | | 75,000 |
| | TOTAL | $ 500,000 |

# EXPANDED/IMPROVED PROGRAMS
# IV. ENGINEERING REVITALIZATION

## ENGINEERING REVITALIZATION
## ($1,800,000)

Between FY 1984 and FY 1987 the Engineering Revitalization Program has infused approximately $10.6 million into the Colleges of Engineering at the University of Illinois. These budget enhancements have enabled both Colleges to move significantly toward fulfillment of their development plans which underlay the Engineering Revitalization initiative. Most conspicuously, these funds have improved the educational environment in the Colleges by reducing student/faculty ratios. Through a combination of reallocating vacated positions and utilizing new funds provided for revitalization, both Colleges have been successful in attracting top quality new faculty from the nation's premier engineering schools into curricular areas which are vital to current engineering studies. Faculty salaries, at all levels, are now fairly competitive with each College's peers. Additionally, these revitalization funds have helped to provide needed equipment and support for teaching assistants and other support personnel.

As the description of student/faculty ratios below makes clear, the revitalization efforts begun in FY 1984 have not yet been completed. However, as later sections depict how funds used to hire new faculty have had dramatic impacts on curricular enrichment, the quality of faculty being attracted to the University of Illinois, and the success which the Colleges' faculties have had in generating outside support for their research efforts, it becomes clear that continued efforts to reduce these student/faculty ratios will produce similar, and perhaps even more pronounced effects on the University's efforts in engineering.

### Decreased Student/Faculty Ratios

It is evident that the funds provided in response to the multiyear revitalization requests have been put to good use, since class sizes are declining. Each department is working to reduce them further, to more appropriate levels. This reduction in class sizes, without reducing total enrollments, does more than merely provide each College with additional faculty and bring student/faculty ratios into closer proximity with what is found at peer institutions, though these are in themselves important results. Most crucially, the reduction in class sizes brings them closer

into line with generally accepted norms for laboratory type courses, which prevail in the engineering curricula.

At UIC, student/faculty ratios have dropped to 15.3 to 1, well on the way to the goal of 13 to 1 established at the outset of the revitalization efforts. At UIUC, a study conducted during the summer of 1986 found that in relation to their peers, the ratio of equivalent students per faculty-staff-man-years was 13.65 to 1, while the comparable figure for all institutions surveyed combined was 11.16 to 1. Thus, there is still further ground to be gained in order for both campuses to compare favorably with their peers.

At UIC, to reach the targeted student/faculty ratio will require an additional 30.00 FTE faculty over the remaining years of Engineering Revitalization. UIUC projects hiring an additional 50.00 FTE faculty, to reduce its ratio to approximately 12 to 1.

Curricular Enrichment

Revitalization efforts were undertaken with a blueprint of contemporary academic programs to serve as a magnet for attracting quality faculty and students and to fulfill the Colleges' educational missions, thereby better serving public and private constituencies. It was understood from the outset of the revitalization effort, that for the University to maintain and enhance its national prominence in research and academic programs related to engineering, changes would need to be implemented to the curricula early in the 1980's. Progress in implementing the plan and building the programs identified has been remarkable and provides a foundation for even greater accomplishments as the follow-up phases of revitalization are implemented and the Colleges' national reputations continue to climb.

The targeted areas in which new faculty have been hired and are both enriching the curriculum and generating significant research advances are: advanced manufacturing systems; microelectronics; robotics; new engineering materials and unconventional processing; biological processing systems; energy studies; and supercomputing.

Attraction and Retention of Faculty

Revitalization funding has not only made it possible for each campus to increase the total number of faculty in its College of Engineering, but to accomplish these increases by hiring top quality new graduates from the best engineering programs throughout the country, as well as the best available faculty from other outstanding colleges of engineering. UIC has increased its faculty by 22.00 FTE since 1984, and UIUC by 40.00 FTE.

In large part these new additions were made possible by the infusion of new monies which permitted the Colleges to succeed in the intensely competitive academic marketplace for engineering faculty. The Engineering Revitalization funds received to date have also made it possible to retain faculty whom the University would have been in danger of losing if salary compression problems had not been addressed.

Equipment and Support Personnel

Revitalization funds have also made it possible for the Colleges to provide these new and continuing faculty with the kind of support--equipment and technical and other support personnel--necessary to permit them to seek out extramural research support from a considerable basis of strength. At UIC, this has meant an increase from roughly $22,000 in outside research support per faculty member two years ago to approximately $30,000 per faculty member in FY 1987. At UIUC, which began from a stronger position when revitalization was first initiated, annual extramural research support has increased from $30 million in FY 1982 to $49 million in FY 1986.

Budget Summary of Initiatives at Chicago

| | | |
|---|---|---|
| 10 FTE Academic Staff | $ | 300,000 |
| 8 FTE Nonacademic Staff | | 225,000 |
| Expenses | | 75,000 |
| Equipment | | 200,000 |
| TOTAL | $ | 800,000 |

## Budget Summary of Initiatives at Urbana-Champaign

| | | |
|---|---|---|
| 17 FTE Academic Staff | | $ 575,000 |
| 4 FTE Nonacademic Staff | | 50,000 |
| Wages | | 75,000 |
| Expenses | | 250,000 |
| Equipment | | 50,000 |
| | TOTAL | $ 1,000,000 |

# EXPANDED/IMPROVED PROGRAMS
# V. LIBRARY IMPROVEMENTS

## LIBRARY IMPROVEMENTS
## ($1,200,000)

The Libraries of the University of Illinois are central to the instructional, research, and public service missions of its two campuses. To support the University's multidimensional mission, the Libraries must acquire materials in all formats and languages of the world by collecting comprehensively from a vast number of areas of knowledge. The results of that collecting must be made available to library users in an efficient and timely manner. To support campus needs, the Libraries maintain high-use public facilities; respond to a diverse clientele ranging from under-prepared undergraduates to research and clinical faculty; maintain cooperative relationships with other libraries; act as a Statewide resource for both on-site users and remote users of its vast interlibrary loan system; and work to make an ever-increasing amount of information available in a wide variety of formats. The materials budget of the Library is crucial to the Library's ability to provide these services.

The University Library at Chicago is a complex organization, with nine locations in four cities. Its collections consist of more than 1.3 million items, including 15,000 periodicals. Computer search capabilities of world scientific and medical literature are available in Chicago and at branches in Peoria, Rockford, and Urbana-Champaign. The Library of the Health Sciences, one of the larger medical library units in the nation, serves the University and various affiliated institutions throughout the State; and it is the regional medical library for 2,700 medical libraries in 10 states from North Dakota to Ohio.

The University Library at Urbana-Champaign is the third largest academic research library in the country and serves a campus which grants the third largest number of doctoral degrees in the nation. The Library is internationally recognized, not only for the size of its collections, but also for the scope and quality of its holdings. Its collections consist of more than 10.5 million items, including seven million bound volumes; only Harvard and Yale have larger academic collections. UIUC's main library with 38 departmental branches serves as a prime State resource for scholarly knowledge through ILLNET, the State's computerized interlibrary loan system.

For FY 1989, the University is requesting incremental funding to address acute acquisition needs. There has been rapid academic programmatic expansion at both campuses into new scientific and technological areas. Faculty and student demand for current, comprehensive literature pertinent to these areas of study is heavy, because they are integral to the instructional and research programs developing on each campus. As the campuses expand into new areas such as biotechnology, artificial intelligence, supercomputing and cognitive science, the need for scholarly materials in these areas increases dramatically. However, because of significant increases in the costs of serials and monographs and the elemental need to maintain current library holdings, the Library has been unable to keep pace with the demand for new materials. Both the Chicago and Urbana-Champaign Libraries require additional incremental resources, beyond yearly price increases, to address these programmatically driven acquisition needs.

As described in the price increase section of this request, library price increases have outpaced general price increase levels in recent years. The cost of all materials, especially foreign titles and publications, is rising much faster than the Consumer Price Index. The average annual price increase for U.S. periodicals over the last decade has been 11.2%, while foreign periodicals increased by 20% in FY 1987. The price increase for medical periodicals, of major importance to UIC's collections, averaged 12.9% annually over the same time period. These increases have necessitated a careful evaluation of each title regularly acquired by the Library and the curtailment of acquisitions to only those deemed essential and most critical, at the risk of creating gaps in important library holdings. This problem is compounded by the fact that the rate increase for serials has out-paced that for monographic publications, creating a growing imbalance between serial acquisitions and monographic acquisitions. At Urbana-Champaign, for example, serials acquisitions now account for 61% of the library's materials expenditures. If left unchecked this imbalance will grow as serial price increases absorb a disproportionate amount of the acquisitions budget, to the long-term detriment of the library collection as a whole.

Financial pressures on the library's budget are such that it has proven difficult to maintain an appropriate level of current acquisitions

and next to impossible to deal with the demands associated with new and expanding research and instructional programs. Increments requested in FY 1989 will enable the Libraries to begin to address material demands in already established areas and the urgent need for expansion of its collections in new and emerging areas.

The UIC Library will focus its efforts toward purchasing materials which support programs of special significance to the UIC campus including biomedical and pharmaceutical engineering, computer design, molecular and cellular biology, genetics, and the neurosciences. Additionally, collections must be strengthened in those areas where Ph.D. programs have been recently established or for which research centers are planned. These include anthropology, Black studies, criminal justice, education, business, and the history of architecture and art. The expansion of national universities, research institutes and publishers in underdeveloped countries is receiving increasing attention by western scholars; and publications relating to all aspects of minority and third world cultures are of increasing interest to UIC faculty and students. In addition to these direct acquisition needs, there is also a need for support staff to coordinate the selection of materials, eliminate the present cataloging backlog, and prepare new materials for use in a timely fashion.

At the Urbana-Champaign campus, a number of new programs have been added to its instructional and research endeavors and other programs have expanded rapidly over the past several years placing tremendous demands on the library's material budget. Microelectronics, biotechnology, supercomputing, artificial intelligence, cognitive science, music, Western European studies, and the Undergraduate Library lead these high-growth areas. The incremental funds requested in FY 1989 will be focused toward increasing materials demands in these and other established areas, and toward reversing the imbalance between serials and monographic publications mentioned above.

## Budget Summary of Initiatives at Chicago

| | | |
|---|---|---|
| 3.00 FTE Academic | $ | 90,000 |
| 2.00 FTE Nonacademic | | 40,000 |
| Monographs, Serials, and Binding | | 370,000 |
| TOTAL | $ | 500,000 |

## Budget Summary of Initiatives at Urbana-Champaign

| | | |
|---|---|---|
| Monographs, Serials, and Binding | $ | 700,000 |

# EXPANDED/IMPROVED PROGRAMS
# VI. ACADEMIC AND INSTITUTIONAL SUPPORT SERVICES

## ACADEMIC AND INSTITUTIONAL SUPPORT SERVICES ($2,500,000)

Over the past decade, the expansion of University of Illinois programs and physical plant has forced support service units (those units that exist primarily to provide required and specialized services to the University's academic community) to dramatically increase their range and level of services. The initiatives which follow from the Chicago and Urbana-Champaign campuses highlight some of the most pressing support needs of each campus. These range from expansion of student services support, to enhancements of ancillary academic support services, to augmentation of support services which provide a safe and secure environment in which the University's students, faculty, and staff can most productively live, learn, and work. Many of the initiatives are designed to meet externally mandated demands on the University to provide various compliance activities.

Areas such as Environmental Health and Safety are highlighted because both campuses are faced with a rapid increase in research efforts involving potentially hazardous materials as well as increasing costs and regulations associated with the handling and disposal of these materials. Security units at each campus are faced with the need for increased security patrols as a result of campus expansion activities and growing theft rates which stem in part from expanded acquisitions of computers used in both instruction and research. Further, the addition of thousands of square feet of new facilities has exacerbated the critical nature of the long-standing funding deficiencies which each campus faces in attempting to keep pace with maintenance and repair work that has been deferred far too long.

While the initiatives referenced above address campus support needs relating to health, safety, security, facilities, and student services, the University must also assure a productive work environment for staff members. The implementation of expanded employee assistance/incentive programs is one way in which the work environment can be enhanced to assist staff in their efforts to be productive on behalf of the University.

Safety and Security Activities

Safety on and about campus is a paramount consideration of students, faculty, and staff. The expanding campus--at both Chicago and Urbana-Champaign--requires an adequate level of security be provided by unarmed security patrols, additional police officers, modern communications equipment, and an expanded escort service. Without an adequate number of officers to patrol the campus and its surroundings, security is jeopardized and the performance and morale of students, faculty, and staff deteriorate.

The massive introduction of computer hardware and software across the campuses substantially increases the University's exposure to loss through thefts, burglary, fire, and other hazards. To assist in combating this increased exposure, the University proposes a low-cost approach to expanding the security force: the initiation of a late-night patrol program consisting of unarmed security guards who will work each night from 11:00 p.m. to 7:00 a.m. In addition extra daytime patrols during University break periods will give more intensive coverage to campus laboratories and buildings during these times of reduced building occupancy.

Malfunction and failures of outdated and worn communications and alarm monitoring systems pose a threat to the University community and to police personnel. Present equipment was adequate 20 years ago; but in those 20 years the equipment has aged and the campuses have expanded. There is a significant need to upgrade to today's sophisticated security devices, such as computerized entry systems, which are readily available at reasonable costs.

The Red Car escort service at UIC provides a safe after-hours means of transportation to and from University facilities and functions, not only for students, faculty, and staff, but for campus visitors as well. This program will be expanded with FY 1989 incremental funds from its current partial schedule to include service during all hours of darkness. Presently, the Red Car operates from 6:30 p.m. until 2 a.m., and again during the early morning hours of 6:15 a.m. until 7:30 a.m.

Extremely high and dramatically increasing costs make it imperative to have a well-managed, safe, and cost-effective program for the disposal of radioactive waste materials which are produced as a result of the University's research and clinical efforts. Incremental funds are necessary to augment existing resources to minimize the quantity of waste held in

storage, and to dispose of the waste in a safe, routine, timely, and cost-effective manner.

Disposal of the waste (appropriate packaging, shipping by a licensed carrier, and ultimate disposal at a licensed facility) is governed by University policy as well as an increasingly complex set of Federal, State, and local laws. Until recent years, the cost of disposal was $1 to $2 per cubic foot. However, heightened national concerns about nuclear waste disposal have ballooned current costs to $45 per cubic foot. Federal surcharges will increase this to $88 per cubic foot by 1990.

An aggressive waste-management program to use all safe, legal, and practical means of volume reduction has been initiated on a small scale, but needs to be expanded. This program includes separation of long- from short-lifetime wastes, on-site storage and disposal of decayed short-lifetime wastes, and compaction and shipping of only long-lifetime wastes. The program has the potential to reduce the annual hazardous waste volume of the University by over 60%, with a corresponding reduction in shipping and storage charges.

Activities to Respond to Deficiencies and Deferrals in Operations and Maintenance

Fundamental to the goals of teaching, research, and service is the necessity of suitable space in which to perform these activities. High rates of inflation and a history of underfunded operations and maintenance functions have combined to produce a deteriorating physical plant. Fiscal constraints require allocation of resources to the most urgent and pressing problems; routine preventive building maintenance and service is, thus, deferred.

Deferred maintenance has been a compounding problem for the University since FY 1971, at which time annual funds to maintain the campuses fell below appropriate levels. The current level of inadequacy of operation and maintenance support is determined through a comparison of recent funding data with a theoretically adequate standard obtained by applying prevailing inflation rates and productivity adjustments to the FY 1971 base, thus yielding an annual preventive maintenance deficiency for FY 1986 of $5.6 million University-wide. Inflation of this deficiency to FY 1989

dollars results in a discrepancy of $5.9 million. Table 10 illustrates the calculation of this deficiency.

This nearly two-decade long history of underfunded operation and maintenance activities, particularly evident in the functions of building and grounds maintenance and janitorial services, has resulted in the deferral of repair and renovation to the point where it impacts upon the ability of the Physical Plant to meet daily functional demands. For FY 1989, the Eye and Ear Infirmary and the Behavioral Sciences Building have been determined to be the facilities most in need of urgent attention at UIC. At UIUC, efforts will focus on Lincoln Hall and the Institute of Aviation.

Historical underfunding of the operations and maintenance costs of new facilities when they come on-line, compounded by programmatic space expansions have led to severe problems associated with operating various University facilities which augment the academic, research, and public service programs of the institution. Three particular facilities are in need of special attention to provide funding to support both their instructionally-related activities and their general operating activities: the Krannert Center for the Performing Arts; the Kinkead Addition to the Krannert Art Museum; and the Animal Research Unit of the Orr Agricultural Research and Demonstration Center.

Externally Mandated Compliance Activities

The proliferation of externally mandated reporting requirements placed on the University of Illinois by both State and Federal agencies is causing a critical overload on the staffs of a number of University service units. For example, the administration of student financial aid is influenced by both internal and external policy changes in requirements and procedures. These changes usually necessitate computer programming changes, revision and updating of student information materials, retraining of staff at all levels, the coordination with other units impacted by these changes, and ever increasing demands to counsel with the affected students.

Financial aid counselors perform the validation and verification of student files to evaluate aid eligibility and prepare all necessary supporting documents. The workload of each counselor has increased markedly

TABLE 10
FY 1989 PROJECTED OPERATION & MAINTENANCE DEFICIENCY
FOR PREVENTIVE MAINTENANCE ONLY (a)

| | Chicago | Urbana-Champaign | Total |
|---|---|---|---|
| 1. FY 1986 Deficiency (b) | $3,026,566 | $2,123,006 | $5,149,572 |
| 2. Add: Impact of Inflation on Deficiency (FY 1987) 4.2% | 127,116 | 89,166 | 216,282 |
| 3. Less: FY 1987 Incremental Dollars | 0 | 0 | 0 |
| 4. FY 1987 Projected Base Deficiency | $3,153,682 | $2,212,172 | $5,365,854 |
| 5. Add: Impact of Inflation on Deficiency (FY 1988) 4.8% | 151,377 | 106,184 | 257,561 |
| 6. Less: FY 1988 Incremental Dollars | 0 | 0 | 0 |
| 7. FY 1988 Projected Base Deficiency | $3,305,059 | $2,318,356 | $5,623,415 |
| 8. Add: Impact of Inflation on Deficiency (FY 1989) 4.5% | 148,728 | 104,326 | 253,054 |
| 9. FY 1989 Projected Base Deficiency | $3,453,787 | $2,422,682 | $5,876,469 |
| % Distribution by Campus | 58.8% | 41.2% | 100.0% |

(a) Preventive maintenance consists of janitorial services, building maintenance and grounds maintenance activities.

(b) The UIC deficiency does not include an amount for janitorial services at the hospital because this function is financed by the hospital.

in the last two years due to changes in Federal and State regulations requiring an increasing number of validations and to an increased demand for financial aid services. For example, in FY 1984 validations were required for less than one-third of Pell award recipients, but in FY 1986 two-thirds required validations. Additionally, beginning with FY 1987, all guaranteed loan applications required validation.

In addition to performing validations, financial aid counselors advise students, parents, high school counselors, and the general public regarding more general matters of financial aid through individual conferences, telephone conversations, and group sessions. The fact that each application for any form of financial aid now requires approximately 50% more time to complete than two years ago, has resulted in not only a serious backlogging of financial aid applications, but also in significantly lengthened periods of anxiety for each applicant. The addition of academic professional staff will alleviate this backlog and allow all financial aid counselors to begin resumption of many of the outreach activities which have been necessarily curtailed over the past two years.

Another area where increased compliance activities are draining existing resources from needed, proactive efforts is in the Office of Affirmative Action Programs. In addition to overseeing campus compliance with Federal, State, and University Affirmative Action policies and guidelines, the Office is the principal unit responsible for educating campus personnel on these policies and the University's legal obligations in this area. The Office also often serves as the campus intermediary and liaison with minority groups and others representing persons who are members of protected classes. In addition, the staff prepare special reports for various units on campus, as well as for external agencies, as necessary.

Expanding the educational programs of the Office is an especially high priority at the Chicago campus. Such programs will target campus administrators and staff and will specifically address the definition of UIC's policies on Affirmative Action, sexual harassment, legal obligations of the campus, and new interpretations of the law. It is vitally important that the Office develop into a more proactive enterprise than one that simply meets the "letter" of compliance activities and reacts when problematic situations arise.

Another area where externally mandated compliance activities will significantly increase the workload of several administrative service units relates to the Immigration Reform and Control Act of 1986. This Act puts new restrictions on the hiring of foreign citizens and requires the University to extensively document all candidates for employment (both foreign nationals and U.S. citizens) to determine eligibility and to maintain detailed records on all new employees.

The Act makes illegal the hiring, recruiting, or referring for a fee of an unauthorized alien; the continuing employment of an unauthorized alien; or the hiring, recruiting, or referring for a fee any person without following the detailed recordkeeping requirements of the Act. Civil and criminal penalties can be imposed on employers who violate the Act.

The Personnel Services Office and all satellite personnel services units (Campus Auxiliary Services, Physical Plant, and the University Hospital) will be responsible for documenting eligibility for employment and maintaining required records of all U.S. citizens being considered for employment by the University. These units will need incremental funding to support the additional academic professional and clerical support staff necessary to implement UIC's compliance with these procedures.

Budget Summary of Initiatives at Chicago

| | | |
|---|---|---|
| 6 FTE Academic Staff | $ | 175,000 |
| 13 FTE Nonacademic Staff | | 375,000 |
| Wages | | 25,000 |
| Expenses | | 300,000 |
| Equipment | | 125,000 |
| TOTAL | $ | 1,000,000 |

## Budget Summary of Initiatives at Urbana-Champaign

| | | |
|---|---|---|
| 13 FTE Academic Staff | | $ 350,000 |
| 8 FTE Nonacademic Staff | | 125,000 |
| Wages | | 500,000 |
| Expenses | | 475,000 |
| Equipment | | 50,000 |
| | TOTAL | $ 1,500,000 |

# SPECIAL SERVICES FUNDING

## SPECIAL SERVICES FUNDING
## ($780,600)

The University of Illinois provides three particular areas of special services to the citizens of the State of Illinois, two of which are supported with special funds: the Division of Services for Crippled Children; the County Board Matching program; and the Illinois Fire Service Institute. Incremental funding is required for all three special services in FY 1989.

Division of Services for Crippled Children

A major activity of the Division of Services for Crippled Children (DSCC) is the provision and support of medical services to children with special health care needs who meet specified medical eligibility criteria. These criteria are categorical; that is, they recognize certain medical and surgical conditions as eligible for services while others are exempted. As a result of advances in medical knowledge it is clear that certain conditions now considered ineligible for DSCC services are very closely related, both in origin and management need, to others which are currently considered eligible. Legal counsel has indicated that failure to include these closely related conditions could be considered an arbitrary and capricious act.

DSCC will use new incremental funds to extend medical services to children with systemic lupus erythematosus (SLE) and other related disorders which have been arbitrarily excluded in the past, and to children with adrenogenital syndrome, now identified by a new Illinois newborn screening program. In addition, DSCC currently provides diagnostic and treatment services to children with a variety of genetic and metabolic conditions discovered through the mandated State newborn screening program. On July 1, 1987, a new component of this program will begin screening all newborns in Illinois for the adrenogenital syndrome. It is anticipated that approximately 300 infants, who will require further evaluation and services, will be discovered each year through this screening program. This follow-up service is an expected collaborative activity by DSCC and is significant to the success of the State newborn screening program.

Expansion of eligibility criteria to include all presentations of SLE and closely related disorders will increase DSCC's costs for direct support

by approximately $110,000 annually. The added costs to DSCC brought about by the expansion of the State newborn screening program will amount to at least $117,000 (300 cases x $390 per evaluation and follow-up). One nurse consultant at an annual salary of $23,000 will be required to support the additional case management and service needs generated by these program increases. Indirect costs will be borne through reallocation of existing federal support. Thus, total incremental funding needed for FY 1989 totals $250,000.

County Board Matching

Under the County Cooperative Extension Law of 1963, amended in 1979, the State, through the University of Illinois, is required to provide appropriations from the Agriculture Premium Fund (APF) to match allocations from county sources in support of County Extension work. The State money now supplements county funds at a dollar for dollar matching rate, a change from the one-third State match in earlier years, and shown in Table 11.

County or multicounty extension councils are established according to guidelines approved by the University of Illinois Board of Trustees. The councils submit budgets to the appropriate county governing board. The county executive councils forward proposed county or multicounty 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 accounts and are used with the APF matching funds in a manner consistent with the approved budgets. Trust funds are used to pay costs such as rent, utilities, some salaries, program materials, and local travel of the more than 100 County Extension offices.

The FY 1987 increment was inadequate to match the county funds which increased to approximately $3.6 million. The State was undermatched by approximately $160,000. Incremental funds for FY 1988 were requested in the amount of $100,000. Unless there is a downturn in local support, that level of funding is not likely to be sufficient to meet the State law requirement for fully matching county contributions in that year either. In fact, recent increases in tax levies helping to support agricultural programs in several counties will make more--not less--county revenues available in FY 1988 than were earlier anticipated. To further exacerbate this problem, in FY 1988 there are fewer State dollars available to match

TABLE 11
AGRICULTURAL PREMIUM FUND COUNTY BOARD MATCHING

| Budget Year[1] | County Sources | APF State Match | Change in APF Allocations | Total |
|---|---|---|---|---|
| 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%) | 422,300 | 4,727,300 |
| 1983-84 | 2,800,000 (50%) | 2,800,000 (50%) | 672,700 | 5,600,000 |
| 1984-85[2] | 2,845,000 (50%) | 2,845,000 (50%) | 45,000 | 5,690,000 |
| 1985-86[3] | 2,990,000 (50%) | 2,990,000 (50%) | 145,000 | 5,980,000 |
| 1986-87[3] | 2,997,300 (50%) | 2,997,300 (50%) | 7,300 | 5,994,600 |
| 1987-88[4] | 2,877,300 (50%) | 2,877,300 (50%) | (120,000) | 5,754,600 |

[1]Numbers reflect agreed upon budgets for counties and budgeted APF County Board Match funds, with the exception of 1986-87, which are estimates.

[2]Change from previous listing reflects decrease in local funds offered as match for APF County Board Matching money; and $244,000 one-time shift to support Rural Route programs approved by legislature and Governor Thompson in 1985 regular legislative session.

[3]Change from previous listing. Reflects decrease in local funds offered as match for APF County Board Matching money; and $400,000 shift to support Rural Route program (recurring basis) approved by legislature and Governor Thompson in "veto" session of legislature (fall of 1985).

[4]Decrease due to Governor's line item veto reduction of APF by 4%.

county sources than in FY 1987 due to the General Assembly approving no increment in APF funding and the Governor's subsequent line item veto reduction of APF funding by 4%.

Incremental funds for FY 1989 are requested in the amount of $450,000 to match anticipated increasing revenues from Illinois counties. Several local tax levies passed in spring 1987 that have enhanced the ability of local counties to increase their portion of the match, and several more levies are on the November ballot. The incremental amount requested for FY 1989 represents a 15.6% increase in the State matching contribution over the FY 1988 level.

Illinois Fire Service Institute

Since the passage of the Illinois Fire Service Institute Act (Public Act 81-1147, effective July 1, 1980), the University of Illinois has received a direct appropriation from the Fire Prevention Fund for the operation of the Institute. Previously, monies had been received through a contract with the Office of the Illinois State Fire Marshal. The monies received from the Fire Prevention Fund are used for three major purposes:

1. To continue conducting programs of training and education for paid and volunteer fire fighters and officers on campus, and at regional and local sites throughout Illinois.
2. To provide adequate teaching and training facilities for the Institute.
3. To permit program growth and improvement.

Additional incremental funds for FY 1989 will be required to meet anticipated salaries and operational costs. One new faculty member will be necessitated by program growth, especially in the area of hazardous material incident mitigation. As the new facilities presently being constructed are completed, operation and maintenance costs will increase.

Based upon current revenue projections, growth of the Fire Prevention Fund for FY 1989 is estimated to be about 5%, increasing the total fund to just under $9 million. The University of Illinois' share of the fund (1/8) would be $1,115,800. The FY 1988 appropriation is $1,035,200, resulting in a total increment of $80,600 needed for FY 1989.

# APPENDICES

APPENDIX I

## RETIREMENT
## ($106,783,000)

The level of funding of the State Universities Retirement System has been a source of significant concern during the past several years. As a result of legislation passed in 1967, annual appropriations for the System are required to cover the projected costs of future benefits plus interest on the System's existing unfunded liability (i.e., future pension costs for employees still working). This statutory level of funding has never been reached and, in effect, part of the State's obligation to cover retirement costs of current employees has been shifted to future years.

There was, however, some movement towards an improved level of retirement funding from FY 1979 through FY 1981. In each of those years the State's contribution was at or above the "gross payout" level of funding. At that level, the State's contribution covered all of that year's benefits and administrative expenses. The System was then able to add the employees' contributions as well as interest and dividend income to the System's assets to help offset the costs of future benefits earned by current employees.

The improved funding was, unfortunately, short-lived. As the State's economy worsened, so did the funding for the Retirement System. From FY 1982 through FY 1987 funding dropped significantly below the "gross payout" level. While these reductions were seen as necessary to prevent disastrous cuts in operating funds, it must be remembered that the State has been borrowing against the future. Eventually the State will have to make up for those cuts; the longer it waits to meet these obligations, the more it will cost and the greater the impact will be on the operating budget in all sectors of the higher education budget, including the University of Illinois.

The University will continue to analyze the State's funding of the State Universities Retirement System. The fiscal soundness of the System is an issue of considerable importance to the institution and its staff.

It is a matter of long-standing policy of the Board of Trustees of the University of Illinois that the request for incremental funds for Retirement be set at the amount needed to achieve the statutory funding level. The University's FY 1988 Retirement appropriation is $32,217,000. Based on data from SURS, the estimated statutory level for FY 1989 is $139.0 million. Therefore, an increment of $106,783,000 is requested for FY 1989.

APPENDIX II

BASES AND CALCULATIONS FOR
FY 1989 CONTINUING COMPONENTS INCREASES
(Dollars in Thousands)

| | | |
|---|---|---|
| I. | Compensation Improvement | |
| | A. Salary Increase | |
| | 1. FY 1988 Base | : $414,208.4 |
| | a. 95% of Base | : $393,497.9 |
| | 2. FY 1989 Percentage Increase | : 9.5% |
| | 3. FY 1989 Increment (On 95% of Base) | : $ 37,382.3 |
| | B. Fringe Benefit Improvements | |
| | 1. FY 1989 Percentage Increase | : 2% |
| | 2. FY 1989 Increment (on 95% of Base) | : $ 7,869.9 |
| II. | General Price Increase | |
| | A. FY 1988 Base | : $ 68,690.4 |
| | B. FY 1989 Percentage Increase | : 7.5% |
| | C. FY 1989 Increment | : $ 5,151.7 |

D. Note: The General Price Increase Base includes the following objects of expenditure: Contractual Services, Travel, Commodities, Equipment, Telecommunication Services, Operation of Automotive Equipment, Awards & Grants, Hospital and Medical Services and Appliances, Permanent Improvements, CES Expenses, and Prairie State Games.

| | | |
|---|---|---|
| III. | Utilities Price Increase | |
| | A. FY 1988 Base | : $ 34,076.1 |
| | B. FY 1989 Percentage Increase | : 7.1% |
| | C. FY 1989 Increment | : $ 2,420.0 |
| IV. | Library Price Increase | |
| | A. FY 1988 Base | : $ 7,023.0 |
| | B. FY 1989 Percentage Increase | : 20.0% |
| | C. FY 1989 Increment | : $ 1,404.6 |

SPECIAL ADDENDUM
UNIVERSITY OF ILLINOIS HOSPITAL

SPECIAL ADDENDUM
UNIVERSITY OF ILLINOIS HOSPITAL
($5,000,000)

The University of Illinois Hospital (UIH) is a multi-functional academic health center providing instruction to over 2,500 undergraduate and graduate students; conducting research in the health and medical fields; and providing high quality health care to many Illinois citizens. As is the case for other academic health centers throughout the country, UIH, when compared with non-teaching hospitals, provides specialized care to a population with a broader spectrum and greater severity of illness, and handles a larger proportion of financially needy patients. Such factors place these multi-functional health centers in a very sensitive financial position, because revenues are often inadequate to cover the full range of services provided. Although costs in teaching hospitals are expected to be higher because of instructional activities and specialized care provided, it can be shown that UIH charges are closely in line with other major teaching hospitals in the Chicago area.

Since FY 1964, direct State support (through University appropriations) has decreased from 96% ($7.2 million) of Hospital revenue to 14.0% ($16.1 million) in FY 1987. In that period, UIH has become increasingly dependent on revenues generated from collections from third party payers and from patients. This shift in sources of support has made UIH extremely vulnerable to changes in funding policies by Federal Medicare/Medicaid and the State of Illinois' public assistance programs, as well as the reimbursement rates of private insurance companies and the competitive pricing generated by health maintenance organizations. A recent study calculated that in FY 1986, UIH lost $16.3 million as a result of changed policies within these government programs. Of that amount over $14.3 million is derived from the Illinois public assistance I-CARE program. As shown in the table which follows, that is by far the largest amount lost by any of the major teaching hospitals in the Chicago area.

Losses as a Result of Changes
in the I-CARE Program
FY 1986
(Dollars in Millions)

| | |
|---|---|
| University of Illinois | $14.3 |
| A | 9.0 |
| B | 7.7 |
| C | 6.7 |
| D | 4.9 |

Contributing further to UIH's revenue instability is the fact that over 20% of UIH patients are categorized as "medically indigent." These are individuals who cannot afford private insurance, but who do not qualify for governmental health benefit programs. As a result, UIH goes unreimbursed for the health care services provided to these patients. Recent studies of UIH estimated that as much as $30 million in uncompensated care is provided each year. As this "medically indigent" sector of patients increases with the continuing changes in Federal and State health care laws, UIH will experience larger and larger losses if it continues to provide the same amount of uncompensated care.

Using data from the study mentioned above, median costs of over 30 hospitals located in the Chicago area have been calculated, a summary of which is shown below.

Median Costs Per Patient Day
Hospitals Located Within the City of Chicago
FY 1985

| | |
|---|---|
| Major Teaching Hospitals | $593.00 |
| Univ. of Illinois Hospital | 618.07 |
| Teaching Hospitals | 415.00 |
| Non-Teaching Hospitals | 382.52 |

This table provides two significant results regarding costs per patient day. First, costs at UIH are only 3.5% above the median costs for this group of eight major teaching hospitals.

Second, when the median cost per patient day of the major teaching hospital group is compared with that of the non-teaching hospital group, it can be shown that it costs approximately $210 more per patient day to run a major teaching hospital. Again, these greater costs are attributable to the fact that teaching hospitals typically provide more sophisticated or

complex medical services to a group of patients with more severe medical problems than are found in non-teaching hospitals, and to the need to provide for the delivery of instruction along with provision of health care. Thus, the stress on operating revenues which UIH faces because of the large medically indigent population it serves is compounded by the requirement to maintain an effective teaching program.

For several years UIH has experienced cash revenue shortfalls which have not only drained Hospital resources, but University finances as well. As the table below details, at the end of FY 1984, UIH had a cash balance of $13.9 million. Since then, financial difficulties have reduced this balance to a deficit of $9.7 million.

University of Illinois Hospital
Analysis of Year End Cash Balances
FY 1985 - FY 1987
(Dollars in Millions)

| | FY 1985 | FY 1986 | FY 1987 |
|---|---|---|---|
| Cash Balance, Beginning of Year | $ 13.9 | $ 6.2 | $(5.8) |
| Cash Shortfall | (7.7) | (12.0) | (3.9) |
| Cash Balance, End of Year | $ 6.2 | $(5.8) | $(9.7) |

Earlier estimates for FY 1987 projected a cash revenue shortfall of $12.3 million; however, as a result of continuing efforts by UIH and the University, current projections estimate a shortfall of $3.9 million. Further, based upon maintaining the same levels of service and patient mix, initial budget projections for FY 1988 estimate a shortfall of $21 million. As outlined in the discussion which follows, changes have been enacted to project a balanced budget for FY 1988. While achieving a balanced budget is an essential step, that alone is not sufficient to recover the severe cash deficit which still confronts the Hospital. Nor is it acceptable to balance the budget by continuing to defer important programmatic advances or remodeling and equipment needs. It is equally unacceptable to employ measures which adversely affect the patient levels and mix necessary to

maintain high quality health professions education programs.

Because of these excessive drains on University resources, several actions have been taken or are being examined in an attempt to control the expenditures of cash and, more importantly, to increase the receipt of cash for the services rendered by UIH. Budget cutting measures that have been taken to date include:

FY 1987

- In July and September, 1986, a total of 211 positions were eliminated resulting in a reduction of $4.6 million from the FY 1987 operating budget.
- The original FY 1987 budget was reduced an additional $2.5 million in other operating expenses.
- The requirement that UIH pay the employer's contribution to the State Universities Retirement System (SURS) has been eliminated. For FY 1987, this amounted to approximately $3.5 million.
- Similar options with respect to health and life insurance contributions are being examined in FY 1988.

FY 1988

- Additional reductions of Hospital and clinic employees will be required. At this point, 129 positions, including 68 in the nursing staff, have been eliminated.
- Effective in July, 1987, potential clients of UIH are being refused admission unless they can prove financial support in the form of third-party insurance or qualified governmental public assistance such as Medicare/Medicaid or Illinois' I-CARE program. Of course, if there is a life-threatening situation, admission is granted and treatment administered. The results of this policy will be to reduce patient days and the number of active hospital beds as shown below.

| | Original Projection | Change | Current Operating Budget |
|---|---|---|---|
| Hospital Beds | 440 | (90) | 350 |
| Patient Days | 121,000 | (21,000) | 100,000 |

Along with reducing the expenditure side of the operating budget, there have also been several efforts to increase the revenue side. They include:

- Holding the State Department of Corrections responsible for the services provided to its inmates. In prior years, there has been

no reimbursement for the costs of services provided at UIH by the Department of Corrections, as there is for services provided by other hospitals throughout the state. Current estimates are that these costs are approximately $1.5 million annually. If reimbursement cannot be secured, Corrections patients may not be treated at UIH.

- Negotiations are continuing between the University and the Illinois Department of Public Aid (IDPA). In Illinois, the IDPA contracts with hospitals to provide a fixed number of patient days at a set rate. The University is currently attempting to increase the number of patient days per year it receives from IDPA.

- In the past UIH has continued accepting patients after reaching the predetermined limit with IDPA. However, once IDPA has paid for the contracted number of patient days, payments are curtailed. As a result, from May 15, 1987, through the end of FY 1987, UIH turned away qualified IDPA patients who were not true emergencies or in cases where no danger would exist for the patient. Such action may have to be repeated in FY 1988 if an increase in I-CARE days cannot be achieved or other means of cost reimbursement found.

- Finally, in the FY 1988 budget request, the University originally sought a $10 million supplement to the Hospital's State appropriation. However, the Board of Higher Education included only a $3 million increment in their recommendations to the Governor. The University's appropriation bill as signed by the Governor does not include any incremental dollars for the University Hospital. The University's FY 1989 operating budget request renews this effort to secure additional direct State support as one means of restoring the Hospital's overall budget to a more appropriate level.

As stated above, the present financial position of UIH is seriously deficient from a revenue perspective. Costs, on the other hand, have been dramatically reduced over the past two years. They can be cut no further without seriously damaging the scope and quality of the support which the Hospital provides to the University's health professions instructional programs. Such support is absolutely essential to the continued provision of health professions education at the University of Illinois. At the same time further cost reductions will have a very serious negative impact upon the level and quality of health care services available to a significant population of Illinois citizens. In addition, short term cost reductions in remodeling and equipment replacement can not be prolonged without serious risk to the overall quality of care.

The University of Illinois Board of Trustees has reaffirmed that the primary mission of UIH is to provide instructional and research support for the education of health professions students, and the Board has directed the Hospital to pursue admissions policies consistent with this primary mission. The fiscal circumstances which now confront the Hospital present a serious and long term threat to the Hospital's ability to meet its primary mission, as well as to its closely related mission to provide health care services to Illinois citizens. At a minimum, the Hospital faces a $10 million gap between its requirement to provide instructional support for health professions education, and the capacity of its revenue generating systems to produce sufficient fiscal resources to carry out that mission. This systemic revenue deficit has already been pared down by cost-cutting measures. It is essential that the problem be met by additional revenue-producing measures as well.

Two alternatives to improve UIH's revenue problems are being pursued vigorously. Indirect support can be provided through payment for services by the Department of Corrections and by modifications to the IDPA contract for the current and future years. Direct State support through incremental appropriations to the University of Illinois is also essential to preserve the Hospital's role in instructional and research support.

For FY 1989 the University seeks an increment of $5 million as the first portion of a two-year program to relieve the systemic revenue deficit which threatens to erode the scope and quality of virtually all health professions programs at the University of Illinois at Chicago. A second $5 million increment will be sought for FY 1990. These funds will help to return the Hospital to a minimum level of fiscal stability from which future decisions about individual program shifts or improvement can be made.

# FISCAL YEAR 1989 CAPITAL BUDGET REQUEST

# FY 1989 CAPITAL BUDGET REQUEST

## Introduction

The University's FY 1989 Capital Budget request, not unlike the request for FY 1988, is composed of two major sections: (1) regular capital and (2) Build Illinois. Consistent with last year's request, upgrading facilities through new construction or major remodeling continues to be a high priority for FY 1989. Both the regular capital request and the Build Illinois section reflect these needs in the project selection.

Of the $74.6 million need described in the regular capital portion, over $42.9 million or nearly 58% is devoted to remodeling projects. Equally important in the request, planning funds of $10.1 million (14%) for additional construction or remodeling projects, representing approximately $155 million in future needs, are also included for FY 1989. These two categories make up nearly three quarters of the regular capital request and represent the backlog of University initiatives designed to renovate, upgrade, and expand current facilities to meet new instructional and research space requirements.

Appropriations from the Build Illinois Repair and Renovation program have provided the University with $7.8 million annually in FY 1986, FY 1987, and FY 1988. This program has provided the University with a critical source of support for minor repair and renovation projects and is expected to continue through FY 1990. The types of projects that have been included in the past and that are proposed again for FY 1989 include the realignment of space to meet changing programmatic needs, the remodeling of space to restore old or heavily worn facilities, and the replacement of building and campus utility systems. This program has allowed each campus a measure of flexibility uncharacteristic of the regular capital funding process. Although a list of individual projects is included in this request, minor changes in the specific projects to be funded or in what elements a project will include may be made, depending on the priorities which are most critical to the University at the time that the funds become available. This measure of flexibility is extremely important, since it enables the University to address needs which emerge as programmatic priorities shift or as new needs evolve.

With the loss of operating budget funds which in past years have been available for other renovation and remodeling needs, the Build Illinois renovation program takes on even greater significance for FY 1989.

Emphasis of the FY 1989 Capital Request

Remodeling funds are necessary to reconfigure existing space to meet instructional and research requirements which arise as advances in knowledge make teaching and research facilities obsolete or inadequate. As the usefulness of facilities deteriorates either from age or advancing technologies, the instruction which students receive diminishes in quality; scientists and researchers may look for more modern facilities away from the University; and potential new faculty and students are reluctant to join an institution with inadequate facilities or instructional support. If the University is to maintain its competitive position at the leading edge of advances in scientific and technological research as well as the quality of its instructional programs, then the University must support its faculty and academic programs with state-of-the-art facilities.

Each project in the request has been reviewed by campus and University officials and by the University Planning Council. At both the Chicago and the Urbana-Champaign campuses, the capital request emphasizes the advancement of research in science and engineering disciplines. Although substantial funding has been obtained for high technology initiatives in the past, additional funding is necessary to continue the progress which the State has made in providing a "critical mass" of facilities that can help to propel the State into stable, long-term economic growth.

The 27 projects that comprise the University's FY 1989 regular capital request are displayed in Table 1 in priority order. Of that total, 16 projects provide high technology or science support, as do 17 of the 26 projects in Build Illinois. Complete descriptions of the projects that make up the FY 1989 request are included in the latter portion of this section.

The data which follow summarize the current request in tabular form and provide an update of current and historical capital appropriation activities. More specifically, in addition to the priority list in Table 1, Table 2 provides a breakdown of the request by budget category and

by campus; Table 3 illustrates the financial impact of the FY 1989 projects for future year requirements for the campuses; and Table 4 details the cost per square foot that is anticipated for new buildings and major remodeling projects requested for FY 1989.

Status of Ongoing Projects

To understand the direction and emphases of the FY 1989 request, it is important to view the request in the context of past capital appropriations, especially those which were approved for FY 1988. Table 5 provides a summary of actions on capital budget requests from FY 1984 through the FY 1988 appropriation, and Table 6 shows the construction status of recent appropriations through FY 1987.

The projects included in the FY 1988 capital appropriation bills are shown below along with their approved funding levels.

| | |
|---|---|
| **Regular Capital** | |
| Chicago | |
| Energy Conservation | $ 458,782 |
| Urbana-Champaign | |
| Beckman Institute Equipment | $ 3,000,000 |
| Federal Research Facility Site | 1,000,000 |
| Utility Infrastructure Upgrade | 3,779,000 |
| Energy Conservation | 88,354 |
| TOTAL Regular Capital | $ 8,326,136 |
| **Build Illinois** | |
| Animal and Dairy Sciences Addition | $ 2,000,000 |
| R & R Projects | 7,834,000 |
| TOTAL Build Illinois | $ 9,834,000 |
| All University Total FY 1988 | $18,160,136 |

The University's number one priority for FY 1988, Clinical Sciences Remodeling, was not included in appropriations legislation. The need for new and remodeled facilities continues to rank at the very top of the University's unmet budget needs for FY 1989, and the Clinical Sciences

Remodeling is again at the top of the FY 1989 priority list. This critical remodeling project typifies the backlog of renovation needs which so urgently require attention, along with the construction of new facilities to replace outmoded and unusable buildings and to support the expansion of a number of programs important to the State's overall economic development.

TABLE 1
UNIVERSITY OF ILLINOIS
FY 1989 CAPITAL BUDGET REQUEST
PRIORITY LIST
(Dollars in Thousands)

| Priority | Campus | Project | Budget Category | FY 1989 Request | Cumulative Cost University | Chicago | Urbana |
|---|---|---|---|---|---|---|---|
| 1 | C | Clinical Sciences Building Remodeling | REMD | $8,200.0 | $ 8,200.0 | $ 8,200.0 | |
| 2 | U | Util. Infrastruct. Upgrade/Water System Imprv. | UTIL | 2,470.0 | 10,670.0 | | $2,470.0 |
| 3 | U | Life Sciences Research Laboratory | PLAN | 1,880.0 | 12,550.0 | | 4,350.0 |
| 4 | C | Engineering Research Facility | EQUIP | 5,800.0 | 18,350.0 | 14,000.0 | |
| 5 | C | Molecular Biology Research Facility | PLAN | 2,670.0 | 21,020.0 | 16,670.0 | |
| 6 | U | English Building Remodeling | REMD | 3,530.0 | 24,550.0 | | 7,880.0 |
| 7 | C | Alumni Hall Remodeling-Phase 2 | REMD | 4,024.0 | 28,574.0 | 20,694.0 | |
| 8 | U | New Building Equipment-4 Buildings | EQUIP | 925.0 | 29,499.0 | | 8,805.0 |
| 9 | U | Noyes Laboratory Remodeling | REMD | 2,310.0 | 31,809.0 | | 11,115.0 |
| 10 | C/U* | Administrative Computing Elect. Improve. | UTIL | 1,996.0 | 33,805.0 | 22,690.0 | |
| 11 | U | Remodel Environmental Sciences-Phase 2 | REMD | 4,350.0 | 38,155.0 | | 15,465.0 |
| 12 | U | Commerce-Education Building | PLAN | 1,730.0 | 39,885.0 | | 17,195.0 |
| 13 | C | Architecture and Art Addition | PLAN | 1,030.0 | 40,915.0 | 23,720.0 | |
| 14 | U | Core Campus Land Acquisition | LAND | 1,600.0 | 42,515.0 | | 18,795.0 |
| 15 | C | Business Administration Building | PLAN | 1,500.0 | 44,015.0 | 25,220.0 | |
| 16 | C | Land Acquisition/Site Development | LAND/SITE | 3,000.0 | 47,015.0 | 28,220.0 | |
| 17 | U | Electrical Engineering Research Lab. | PLAN | 1,153.0 | 48,168.0 | | 19,948.0 |
| 18 | C | Associated Health Professions | REMD | 6,110.0 | 54,278.0 | 34,330.0 | |
| 19 | C | Remodel College of Medicine West-Phase 1 | REMD | 8,948.0 | 63,226.0 | 43,278.0 | |
| 20 | C | HSC Campus Emergency Power Dist.-Phase 3 | UTIL | 1,190.0 | 64,416.0 | 44,468.0 | |
| 21 | U | Campus Site Improvements | SITE | 1,510.0 | 65,926.0 | | 21,458.0 |
| 22 | U | Compound Semiconductor Microelec. Center | EQUIP | 500.0 | 66,426.0 | | 21,958.0 |
| 23 | U | Campus Police Station | BLDG/UTIL | 2,030.5 | 68,456.5 | | 23,988.5 |
| 24 | C | Remodel Pharmacy Building | REMD | 1,750.0 | 70,206.5 | 46,218.0 | |
| 25 | U | Digital Computer Laboratory Addition | EQUIP | 500.0 | 70,706.5 | | 24,488.5 |
| 26 | U | Mechanical Engineering Laboratory | REMD | 3,700.0 | 74,406.5 | | 28,188.5 |
| 27 | U | Main Library Remodeling | PLAN | 170.0 | 74,576.5 | | 28,358.5 |
| | | **Build Illinois Requests** | | | | | |
| ** | C/U | Repair and Renovation Program-Phase 4 | REMD | 7,834.0 | | | |

*Because this project serves the needs of both the Chicago and Urbana-Champaign campuses, the cost may be applied on an equal basis to both. For the purpose of this table, the entire project cost will be included under Chicago.

**Build Illinois projects are non-prioritized.

TABLE 2
SUMMARY OF THE FY 1989 CAPITAL BUDGET REQUEST
BY CAMPUS AND CATEGORY
(Dollars In Thousands)

| Category | Chicago | Urbana-Champaign | Total |
|---|---|---|---|
| Buildings, Additions, and/or Structures | | $ 1,990.5 | $ 1,990.5 |
| Land | $ 1,500.0 | 1,600.0 | 3,100.0 |
| Equipment | 5,800.0 | 1,925.0 | 7,725.0 |
| Utilities | 3,186.0 | 2,510.0 | 5,696.0 |
| Remodeling | 29,032.0 | 13,890.0 | 42,922.0 |
| Site Improvements | 1,500.0 | 1,510.0 | 3,010.0 |
| Planning | 5,200.0 | 4,933.0 | 10,133.0 |
| TOTAL | $46,218.0 | $28,358.5 | $74,576.5 |

TABLE 3
UNIVERSITY OF ILLINOIS
FUTURE FUNDING IMPLICATIONS OF THE
FY 1989 CAPITAL BUDGET REQUEST
(Dollars in Thousands)

| Priority | Campus | Project | Budget Category | FY 1989 Request | FY 1990 Costs | Cost for FY 1991 and Beyond |
|---|---|---|---|---|---|---|
| 1 | C | Clinical Sciences Building Remodeling | REMD | $8,200.0 | | |
| 2 | U | Util. Infrastruct. Upgrade/Water System Imprv. | UTIL | 2,470.0 | $ 3,545.0 | |
| 3 | U | Life Sciences Research Laboratory | PLAN | 1,880.0 | 30,486.1 | $2,500.0 |
| 4 | C | Engineering Research Facility | EQUIP | 5,800.0 | | |
| 5 | C | Molecular Biology Research Facility | PLAN | 2,670.0 | 33,140.0 | 2,500.0 |
| 6 | U | English Building Remodeling | REMD | 3,530.0 | 690.0 | 4,650.0 |
| 7 | C | Alumni Hall Remodeling-Phase 2 | REMD | 4,024.0 | 750.0 | 3,970.0 |
| 8 | U | New Building Equipment-4 Buildings | EQUIP | 925.0 | 600.0 | |
| 9 | U | Noyes Laboratory Remodeling | REMD | 2,310.0 | | 4,070.0 |
| 10 | C/U | Administrative Computing Elect. Improve. | UTIL | 1,996.0 | | |
| 11 | U | Remodel Environmental Sciences-Phase 2 | REMD | 4,350.0 | 600.0 | |
| 12 | U | Commerce-Education Building | PLAN | 1,730.0 | 28,676.6 | 2,000.0 |
| 13 | C | Architecture and Art Addition | PLAN | 1,030.0 | 12,320.0 | 1,250.0 |
| 14 | U | Core Campus Land Acquisition | LAND | 1,600.0 | 1,504.0 | 1,450.0 |
| 15 | C | Business Administration Building | PLAN | 1,500.0 | 18,620.0 | 1,250.0 |
| 16 | C | Land Acquisition/Site Development | LAND/SITE | 3,000.0 | 3,000.0 | |
| 17 | U | Electrical Engineering Research Lab. | PLAN | 1,153.0 | 18,469.6 | 1,500.0 |
| 18 | C | Associated Health Professions | REMD | 6,110.0 | | 5,947.0 |
| 19 | C | Remodel College of Medicine West-Phase 1 | REMD | 8,948.0 | 3,825.0 | 24,009.0 |
| 20 | C | HSC Campus Emergency Power Dist.-Phase 3 | UTIL | 1,190.0 | 200.0 | 400.0 |
| 21 | U | Campus Site Improvements | SITE | 1,150.0 | 3,025.0 | 10,505.0 |
| 22 | U | Compound Semiconductor Microelec. Center | EQUIP | 500.0 | 250.0 | |
| 23 | U | Campus Police Station | BLDG/UTIL | 2,030.5 | 50.0 | |
| 24 | C | Remodel Pharmacy Building | REMD | 1,750.0 | 1,605.0 | 1,412.0 |
| 25 | U | Digital Computer Laboratory Addition | EQUIP | 500.0 | 1,000.0 | |
| 26 | U | Mechanical Engineering Laboratory | REMD | 3,700.0 | 700.0 | |
| 27 | U | Main Library Remodeling | PLAN | 170.0 | 1,700.0 | 200.0 |
| | | TOTAL | | $74,576.5 | $164,756.3 | $67,613.0 |

TABLE 4
FY 1989 CAPITAL BUDGET REQUEST
COST PER SQUARE FOOT OF NEW BUILDING AND MAJOR REMODELING PROJECTS BY CAMPUS

| | Project Cost* | Gross Square Feet | Net Assignable Square Feet | Efficiency NASF/GSF | $/GSF | $/NASF |
|---|---|---|---|---|---|---|
| **Chicago** | | | | | | |
| Major Remodeling | | | | | | |
| Clinical Sciences Building | $ 8,200,000 | | 58,939 | | | $139.13 |
| Alumni Hall - Phase 2 | 4,024,000 | | 21,455 | | | 187.56 |
| Associated Health Professions | 6,110,000 | | 107,500 | | | 56.74 |
| College of Medicine West - Phase 1 | 8,948,000 | | 121,800 | | | 73.46 |
| Pharmacy Building | 1,750,000 | | 16,800 | | | 104.17 |
| **Urbana-Champaign** | | | | | | |
| New Buildings | | | | | | |
| Campus Police Station | 2,030,500 | 11,485 | 6,575 | .57 | 176.80 | 308.82 |
| Major Remodeling | | | | | | |
| English Building | $ 3,530,000 | | 22,500 | | | $156.89 |
| Noyes Laboratory | 2,310,000 | | 111,469 | | | 20.72 |
| Environmental Science - Phase 2 | 4,350,000 | | 36,730 | | | 118.43 |
| Mechanical Engineering Laboratory | 3,700,000 | | 48,083 | | | 76.95 |

*Project cost excludes moveable equipment.

TABLE 5
HISTORY OF RECENT CAPITAL BUDGET REQUESTS

| | FY 1984 | FY 1985 | FY 1986 | FY 1987 | FY 1988 |
|---|---|---|---|---|---|
| Campus Requests | | | | | |
| Chicago | $11,146,900 | $17,775,400 | $26,253,500 | $19,564,400 | $24,177,000 |
| Urbana-Champaign | 9,884,600 | 23,032,100 | 18,556,500 | 39,148,900 | 33,643,800 |
| TOTAL | $21,031,500 | $40,807,500 | $44,810,000 | $58,713,300 | $57,820,800 |
| IBHE Recommendations | | | | | |
| Chicago | $ 4,289,300 | $ 4,255,400 | $11,712,800 | $ 8,869,100 | $18,393,000 |
| Urbana-Champaign | 5,635,500 | 10,447,500 | 9,140,000 | 29,718,800 | 18,589,000 |
| TOTAL | $ 9,924,800 | $14,702,900 | $20,852,800 | $38,587,900 | $36,982,000 |
| Appropriation[1] | | | | | |
| Chicago | $ 660,000 | $ 757,700 | $14,112,800 | $22,499,900 | |
| Urbana-Champaign | 350,000 | 4,378,800 | 20,045,300 | 28,817,400 | 4,779,000 |
| TOTAL | $ 1,010,000 | $ 5,136,500 | $34,158,100 | $51,317,300 | $ 4,779,000 |
| Appropriations for Special Projects | | | | | |
| Food Production Research | $ 2,254,500 | $10,116,100 | $ 600,000 | | |
| Energy Conservation | 4,549,200 | 1,642,100 | | $ 296,400 | $ 547,136 |
| Build Illinois R & R | | | 7,834,000 | 7,834,000 | 7,834,000 |
| Build Illinois - Major Projects | | | 1,700,000 | 14,500,000 | 2,000,000 |
| Fire Service Institute | | | 2,600,000[2] | | |
| Beckman Institute | | | 10,000,000 | | 3,000,000 |
| Pollution Control Equipment | | | | 800,000 | |
| TOTAL | $ 6,803,700 | $11,758,200 | $22,734,000 | $23,430,400 | $13,381,136 |
| Total University of Illinois | | | | | |
| Appropriation | $ 7,813,700 | $16,894,700 | $56,892,100 | $74,747,700 | $18,160,136 |

[1]Excludes Special Projects and Energy Conservation.
[2]The Fire Service Institute will make an annual payment of $218,400 for a period of 24 years to the State of Illinois for debt service associated with this appropriation.

TABLE 6
STATUS OF CAPITAL PROJECTS
FY 1983 - FY 1987
AS OF AUGUST 1987
(Dollars In Thousands)

| | Project Cost | Estimated Completion Date | Status |
|---|---|---|---|
| **FY 1983 Appropriations** | | | |
| Urbana-Champaign | | | |
| Abbott Power Plant - Coal Conversion | $21,900.0 | 1/89 | 80% complete. |
| FY 1983 TOTAL | $21,900.0 | | |
| **FY 1984 Appropriations** | | | |
| Chicago | | | |
| Hazardous Waste Incinerator | $ 457.1 | N/A | Project bid 4/87. |
| FY 1984 TOTAL | $ 457.1 | | |
| **FY 1985 Appropriations** | | | |
| Chicago | | | |
| Pharmacy A-C Planning | $ 433.2 | 4/89 | Design development; bids anticipated 11/87. |
| Library Renovation Planning (includes Relocate OAR) | 324.5 | 12/88 | Design development. |
| Energy Conservation | 781.5 | 12/87 | 50% complete. |
| Subtotal | $ 1,539.2 | | |
| Urbana-Champaign | | | |
| Plant Sciences Greenhouse Complex | $10,116.1 | 6/88 | 68% complete. |
| Utility A-C System, Animal Science Lab | 354.6 | 9/86 | Complete. |
| Roofs, various buildings | 524.2 | 6/86 | Complete. |
| Energy Conservation | 860.6 | 12/87 | 50% complete. |
| Subtotal | $11,855.5 | | |
| FY 1985 TOTAL | $13,394.7 | | |
| **FY 1986 Appropriations** | | | |
| Chicago | | | |
| Pharmacy Building Remodeling & A-C | $ 5,218.0 | 4/89 | Design development; bids anticipated 11/87. |
| Office of Admissions and Records | 1,149.8 | 12/88 | Design development (coordinated with Library Renovation). |
| Engineering Research Building (planning) | 2,400.0 | 9/90 | Design development. |
| Library Renovation | 5,345.0 | 12/88 | Design development. |
| Build Illinois | 3,284.9 | 6/88 | 30% complete. |
| Subtotal | $17,397.7 | | |

TABLE 6 (cont.)

| | Project Cost | Estimated Completion Date | Status |
|---|---|---|---|
| Urbana-Champaign | | | |
| Fire Service Institute | $2,600.0 | 6/89 | Funds released 1/21/87. Design development. |
| Swine Research Center | 1,745.3 | 8/89 | Schematic design. |
| Environmental Sciences Building | 3,500.0 | 8/89 | Schematic design. |
| Digital Computer Lab Addition | 1,100.0 | 11/89 | Contract documents. |
| Animal and Dairy Science Lab | 1,000.0 | 12/88 | Design development. |
| Microelectronics Center | 13,700.0 | 5/89 | Contracts awarded 6/87. |
| Food for Century III | 600.0 | 6/87 | Complete. |
| Beckman Institute | 10,000.0 | 1/89 | 10% complete. |
| Build Illinois | 4,549.1 | 2/89 | 80% complete. |
| Orr Farm Purchase | 700.0 | 7/88 | 50% complete: land purchased, facilities under design. |
| Subtotal | $39,494.4 | | |
| FY 1986 TOTAL | $56,892.1 | | |
| FY 1987 Appropriations | | | |
| Chicago | | | |
| Engineering Research Facility | $22,499.9 | 9/90 | Funds unreleased. |
| Energy Conservation | 296.4 | N/A | Funds unreleased. |
| Build Illinois (R & R) | 3,284.9 | 12/88 | Funds released 4/6/87. A/E selection. |
| Subtotal | $26,081.2 | | |
| Urbana-Champaign | | | |
| Digital Computer Lab Addition | $17,417.4 | 11/89 | Funds released 5/11/87. Contract documents. |
| Utility System Upgrade | 9,410.0 | 11/88 | Contract documents. |
| Motor Pool Relocation | 1,990.0 | 9/88 | Contracts awarded by CDB 6/87; 10% complete. |
| Build Illinois (R & R) | 4,549.1 | 12/88 | Funds released 4/6/87. A/E selection. |
| Animal and Dairy Science Addition (Build Illinois) | 14,500.0 | 12/88 | Funds unreleased. |
| Pollution Control Equipment | 800.0 | N/A | Funds lapsed 7/87. |
| Subtotal | $48,666.5 | | |
| FY 1987 TOTAL | $74,747.7 | | |

FY 1989 CAPITAL PROJECTS
CHICAGO CAMPUS

Clinical Sciences Building Remodeling - ($8,200,000)

The College of Medicine at the University of Illinois at Chicago is in the midst of a long-term effort to improve both the quality and the amount of medical research which its faculty conducts. For the past five years, the College has been actively recruiting department heads and a core group of faculty who are committed to the expansion of the College's overall level of research, to the improvement of the College's competitive ability to attract research support from external agencies, and to maintaining the excellence which has characterized its teaching programs. Research expenditures in the College of Medicine have steadily increased and now exceed $10 million, accounting for nearly one-quarter of the total research expenditures for the entire Chicago campus.

While the College has made good progress in its efforts to expand research activity, the recruitment program is by no means finished. As scientific knowledge expands, new fields of research are continually being developed; and the College must also develop research expertise in these new areas if it is to improve its competitive position among the nation's major research institutions.

Modern facilities are essential to achieve excellence in medical education and research. Good researchers can be attracted and retained only if adequate facilities are available to support their research efforts. The facilities must be designed to accommodate advances in scientific research, which is now heavily reliant upon sophisticated equipment and instrumentation. Further, laboratories must be properly configured, and they must be specifically equipped with more extensive utilities services than are currently available in most existing space. Overall, it must be recognized that in the area of health-related research, there are few needs which are more important or more urgent than providing adequate research space.

The College of Medicine at Chicago occupies parts of ten buildings at the Health Sciences Center. Only one-third of this space was actually designed and built for academic and research purposes; the remaining

two-thirds was designed for other activities. While some remodeling has occurred (the Genetics Center suite in the College of Medicine - East Tower, for example), a great deal of the space remains unsuited for medical research activities. This is the case with space in the Clinical Sciences Building which was formerly a hospital-patient care facility. Consequently, major remodeling is needed if this space is to be useful in developing the College's medical research programs.

As the mode of teaching in the College of Medicine has changed from that of utilizing the talents, knowledge, and expertise of practicing physicians and surgeons to that of full-time teaching faculty with research interests, the need for larger amounts of various types of facilities has grown. Yet, the College's acquisition of space at the Health Sciences Center has come largely as a result of new buildings being built for the College of Dentistry, the Library of the Health Sciences, and the University of Illinois Hospital. Consequently, the need for remodeling and upgrading of space for College faculty and researchers has been a continuing matter, to the point that it represents the highest capital budget priority for both the Chicago campus and the University.

What can be accomplished in terms of research findings and medical advances, as well as support funding for sponsored research endeavors, if a continuing program of facilities remodeling, upgrading, and modernization is funded can only be imagined at this time, but a simple straight-line projection indicates at least a $700,000 increase in sponsored research per year for the College of Medicine alone.

The Clinical Sciences Building (CSB) is a 14-story 240,000 GSF structure which housed the University Hospital prior to construction of the Replacement Hospital in 1981. Floors 1 through 4 are, at present, utilized for various hospital functions--ambulatory clinics, service laboratories, medical records and hospital patient accounts. Floors 5 through 14 have been assigned to the College of Medicine; floor 4 will be subsequently assigned to the College as other space becomes available for various hospital functions.

The College of Medicine has assigned this space to three major clinical departments and intends to create therein a modern, up-to-date academic and scientific research facility.

It was ascertained by a consulting architectural & engineering firm that the building's electrical and mechanical systems, first installed in the 1950's, would be inadequate to support the kinds of equipment and research activities planned for the 1990's. Therefore, funds were requested and appropriated to renovate or replace major plumbing, piping, and electrical risers in the core areas of the building. Funds for this project were released during FY 1986, and the new installations will become available to serve new laboratories and research service facilities in the near future.

However, as space is remodeled and upgraded, lateral distribution systems for each floor must be planned and installed to connect the new risers to various points of use. New mechanical rooms must be created on each floor to serve remodeled space with central heating, ventilation, air-conditioning, and electrical power. New central public rest room facilities must be created, and this work must be accomplished concomitant with corridor and space remodeling.

Floors 5 through 14 have been assigned to the College of Medicine's Departments of Surgery, Medicine, and Pediatrics to serve as primary academic and research space. These departments are themselves subdivided into sections or divisions, and insofar as possible, these sections or divisions have been assigned contiguous space on the various floors. This project will not only upgrade mechanical and electrical systems throughout the floors, but will create new and, in some cases, refurbish existing facilities for these units (i.e., modern research laboratories and support facilities, faculty and administrative offices, and upgraded corridors). As new restrooms are developed, many old facilities that served the former inpatient functions of the space will be remodeled and the space converted to academic and research uses. While each floor contains approximately 10,000 square feet--including corridors, mechanical rooms, and stairwells--the assignable space that will result as the remodeling project is completed will total about 6,800 assignable square feet per floor.

It should be noted that some remodeling has already been accomplished, or has been planned and funded. Therefore, the total project for remodeling and upgrading of floors 5 through 14 (100,000 GSF), originally

estimated to cost upwards of $10 million, has been reduced to approximately $8 million.

The College of Medicine has been held back from development of its full potential in service and scientific research, primarily because of a lack of appropriate physical space. Major areas of societal concern, almost of necessity, have been neglected because there is no space in which to locate people and activities. Major fields of research endeavor have been bypassed because of a serious lack of research laboratory facilities, principally in the clinical departments.

The Departments of Medicine, Surgery, and Pediatrics, with their many subdivisions and sub-specialities, have been especially hard hit by these space shortages. With construction of a new hospital building, and the acquisition of vacated former hospital space by the College of Medicine, at least a part of this space deficiency can be remedied, if remodeling funds can be made available to adequately remodel and upgrade the Clinical Sciences Building. The Departments of Medicine, Surgery, and Pediatrics have been moving ahead with plans to consolidate their endeavors, to fill in missing areas of research and academic pursuits. For example, the Division of Surgical Oncology, of the Department of Surgery, with a significant space assignment in the CSB, will be able to bring together a core of researchers and equipment that will result in doubling or tripling of its present effort in researching the causes and potential cures of cancer. With the remodeled CSB space, the Department of Pediatrics will be able to begin or expand treatment and research efforts in a number of areas heretofore almost completely neglected--Neonatal Nephrology and Pediatric Cardiology, to name only two. The space commitment to the Department of Medicine, with a complement of some 70 active academics and researchers, will just begin to match the space allocations of other Big Ten universities.

Direct research support grants, and research training contracts awarded to the College of Medicine faculty annually, bring many millions of dollars into the University of Illinois at Chicago Health Sciences Center. These funds fully or partially provide salary support for hundreds of people, with additional funding support for the research equipment and supplies to conduct the research projects and training programs. (Note: College of Medicine direct research grants and training contracts totaled

approximately $12.2 million in 1983; and indirect cost reimbursement funds totaled $4.3 million in 1983, for a grand total of $16.5 million.)

Physical facilities adequate to pursue today's highly sophisticated research in clinical medicine are certain to make the College of Medicine more competitive in its efforts to attract external funding to support medical research. Completion of the Clinical Sciences Building remodeling will directly affect research activities in the following areas:

1. Department of Medicine, Hematology Section
2. Department of Medicine, Hypercalcemia of Malignancy
3. Department of Medicine, Tumor Metastasis Laboratory
4. Department of Medicine, Tumor Cloning Laboratory
5. Department of Medicine, Section of Rheumatology
6. Department of Pediatrics
7. Department of Surgery

No capital project is of greater importance to the facilities needs of the University of Illinois at Chicago than is the long awaited remodeling of the Clinical Sciences Building.

College of Engineering Research Facility - Equipment - ($5,800,000)

Planning and construction for the College of Engineering Research Facility were funded in Fiscal Years 1986 and 1987 respectively. The project is currently in design, and construction is scheduled to start by January 1988 with the completion scheduled for March 1990. To help meet the moveable equipment needs of this new facility, the University is requesting $5.8 million for FY 1989.

Moveable equipment funds approved in FY 1989 are expected to be available for use by January 1989. This will allow approximately one year for specifying, ordering, manufacture, and delivery of furnishings and long lead-time equipment needed for this new facility.

Molecular Biology Research Building - Planning - ($2,670,000)

The biological and biomedical sciences are currently in the midst of a major revolution, brought about by the techniques and concepts of molecular biology and molecular genetics. No area in the life sciences has been left untouched by this revolution, which has been driven primarily by the developing capabilities in recombinant DNA and gene cloning. (The term

molecular biology is used here in a limited sense, to denote those areas of fundamental and applied research involving recombinant DNA technology.)

Molecular biology research has become a central theme in all areas of the life sciences. In addition to providing basic information on fundamental principles of biological organization and activity, the research has applications in areas as diverse as human health, the environment, agriculture, and energy production. In the area of human health, for example, recombinant DNA research has provided major insights into the molecular basis of human disease, dramatic new methods of treatment based on gene therapy, the production of important pharmaceuticals and vaccines by means of genetic engineering, and significantly improved methods of diagnosis by means of molecular probes. The tremendous commercial implications of recombinant DNA research have been proven, and an entire new industry of genetic engineering has developed within the span of a few years. By now, genetically engineered reagents have become the preferred means of treating a variety of human diseases, including diabetes, dwarfism, and some forms of cancer. Clearly, molecular biology has implications and applications for many different disciplines in several departments and colleges within the University.

In addition to its impact on the research and educational capabilities of the University, a first rank molecular biology program will greatly facilitate the University's efforts to help Illinois capitalize on the current biotechnology revolution and to support and stimulate the growth of the biotechnology industry in the State. Other states such as California and Massachusetts have demonstrated that strong research programs within the University community can significantly stimulate the growth of the State's biotechnology industry.

The University of Illinois at Chicago has developed some strong areas of concentration in molecular biology. To take advantage of these areas of strength for future growth and to develop a solid foundation of molecular biology research for the entire academic community, it is essential that the University provide a major new research facility for molecular biology.

A new building for molecular biology research will also provide a vehicle through which major campus goals can be achieved in the areas of interdisciplinary campus-wide expansion of molecular biology research into

new departments, faculty recruitment and retention, advanced training, visibility to the outside community, and university-industrial relations.

The principal feature of the proposed new molecular biology research building is its interdisciplinary nature. The building will be shared by faculty from a number of different departments and colleges from across the campus. In addition, the molecular biology community in the building could serve as the focus for expansion of molecular biology into basic science and clinical departments.

Bringing together the community of molecular biology researchers in a new building will also have a significant impact on education and training activities at the University. The concentration of molecular biology research within a single building will provide a most attractive training situation for students at all levels, including undergraduates, graduate students and postdoctoral trainees in basic and clinical science disciplines. Thus, the recruitment of top students and trainees by many departments and colleges at the University will be enhanced by the new building.

The facility plan for this focus in molecular biology is to provide a building sized to accommodate the consolidation of existing programs in Genetics, Biological Sciences, Microbiology and Immunology, Biological Chemistry and other departments. It must also provide for expansion of these programs and the development of new programs. The program is projected to accommodate 50 faculty and 450 research staff who will attract approximately $5 million of grant support yearly.

Facility needs for research in molecular biology are determined by the size and composition of "research teams," the configuration of basic laboratory-office modules, the amount and distribution of shared research facilities, and provision of general support needs. Research in molecular biology requires a substantial amount of environmental control dependent on special equipment and facilities. The research teams and their facility resources are organized to provide a modular organization of facilities and functions and to provide an efficient and effective research environment.

Research teams will vary in size from five to fifteen persons with the most frequent groupings consisting of about ten people. Research teams consist of a faculty member as a principal investigator and a supporting research staff. These research teams are accommodated in standard

laboratory and office modules, supported by shared-use facilities and general support facilities.

Basic laboratory modules contain laboratory bench space with utility services, hoods, and equipment common to most molecular biology laboratory procedures. Each laboratory will have integral offices for faculty and support staff.

The shared-use and general support facilities will consist of research resources characterized by the high cost of equipment, special environmental requirements, special technical service needs, and usage by various research teams.

These 50 faculty positions will generate a total of 50 research teams, and based on a standard ratio of five research personnel per basic laboratory module, 100 modules requiring 57,000 net assignable square feet (NASF) will be required.

The resulting space requirements for shared-use and general facilities needed to support the laboratory and office space yields an additional 59,000 NASF. These facilities, totaling 116,000 NASF are expected to be designed into a building with an efficiency factor of 60%. This efficiency will yield a building envelope containing approximately 193,000 gross square feet.

The estimated space by U.S. Office of Education Room Type is summarized as follows:

| U.S.O.E Room Types | NASF |
|---|---|
| Non-Class Lab and Service | 78,000 |
| Office and Office Services | 9,000 |
| Seminar/Conference | 3,000 |
| Library and Study | 2,000 |
| Special Use | 15,000 |
| General Use | 5,000 |
| Supporting Facilities | 4,000 |
| TOTAL | 116,000 |

The building will be equipped with special utility services and features including:

Recirculating, reverse-osmosis deionized water
Emergency electric power
Zoned heating, ventilation, and air-conditioning
Fume hood exhaust manifolding
Safety alarm systems

Piped carbon dioxide and liquid nitrogen
Laboratory gases
Passenger and service drive
Roof-top greenhouses
Below-grade parking

Construction of the building is estimated to cost approximately $33 million including fees and fixed equipment and will be requested for FY 1990.

As described above, the proposed building, by providing a focus for molecular biology research, offers significant important advantages including: (1) interdisciplinary, campus-wide interactions among faculty, (2) expansion of molecular biology research into new departments, (3) improved faculty recruitment and retention, (4) expanded educational opportunities, (5) visibility to the outside community, and (6) enhanced University-industrial relations. At the national level, the proposed building will allow the University to compete with other institutions in the development of centers of excellence in molecular biology research. The highest quality researchers and students will be concentrated in these centers of excellence, and the universities and regions that have developed such centers will benefit academically and economically. Given a new building for molecular biology, the University of Illinois at Chicago is well positioned to develop as a major center of excellence in this increasingly important field of research.

Alumni Hall Remodeling - Phase II - ($4,024,000)

Alumni Hall, formerly a garment manufacturing and wholesale warehouse, was purchased in 1980 with endowment funds donated to the University. The building was constructed in two phases, the South Wing in 1910 and the North Wing in 1920. The building contains a total of 154,000 GSF and occupies a strategic site at the north end of campus, immediately adjacent to the major train and expressway networks into Chicago.

Immediately following its acquisition, some endowment funds and locally-held funds were used to initiate remodeling to provide office space for Intercollegiate Athletics, the Alumni Association, the U of I Foundation Office, the Office for Capital Programs, the Center for Urban Transportation, the Center for Law and Justice, the Survey Research Laboratory

and the Energy Resources Center. A large part of the south portion of the building has been serving as a temporary warehouse for the Business Office Stores operations, and most of the north portion of the building as office, classroom and studio space for the Art and Design programs of the College of Architecture, Art and Urban Planning. Approximately $3 million was invested in the purchase and early renovation. In FY 1985, an energy conservation project funded a new chiller to supply chilled water to the existing air-conditioning systems.

Early plans for the Chicago campus included provision of a student services building that was never constructed. For more than 20 years the campus has endured the hardship of dispersed activities while attempting to support a student body in need of extraordinary support services. Many UIC students are on campus only long enough to attend classes. More than three-fourths of the students are employed while attending school, and nearly one-fourth attend classes in the evening. As the number of part-time students has grown, it has become increasingly necessary to create opportunities for students to register for classes, pay tuition, apply for financial aid, and obtain information without having to move from one end of the campus to the other.

In FY 1986, a major renovation project ($1.15 million) was approved to provide for the relocation of the Office of Admissions and Records and the Office of School and College Relations. This project is the first phase of a major renovation plan to convert the south wing of Alumni Hall to a student services facility to accommodate Student Placement Services, Dean of Students, Student Financial Aid, Student Employment, Student Legal Services, Student Development Services, Foreign Student and Staff Affairs, Student Accounts Receivable, the Alumni Career Center, and other student service programs. Locating student services staff in one building will create a new student traffic "center" for the campus, thereby enhancing UIC's image in the community. More importantly, it will allow students to obtain assistance and information regarding admissions, student records, financial aid policies, and student development programs without having to traverse the campus during busy periods and evening hours.

To plan effectively for the renovation, the architectural firm of O'Donnel, Wicklund and Pigozzi was employed to conduct a total building

study and develop a "Master Building Renovation Plan." The study, undertaken cooperatively with the Office for Capital Programs, the Physical Plant Department, building users, the College of Architecture, Art and Urban Planning, and the campus administration, identified building space use plans, code requirements, building service needs, and building infrastructure requirements. The plan described a three-phase remodeling program of which phase one consists of approved FY 1986 and FY 1987 projects ($2,456,300), phase two is requested for FY 1989, and a future phase three request is planned for FY 1990.

Central to the building renovation plan is construction of a central service and transportation core; installation of new heating, ventilation and air-conditioning systems; electrical upgrading; code corrections; window replacement; and structural repairs. These improvements are essential support to the proposed space remodeling. This building renovation plan will provide a desirable facility, strategically located, able to service the long-term needs of the campus.

Upon completion of the consolidation plan, a total of approximately 40,000 square feet of existing office space will be vacated by student affairs functions for reassignment to the Colleges of Engineering, Liberal Arts and Sciences, Business Administration, the Library, and the campus administration. These space transfers are a critical element of the campus master space plan.

Administrative Computing Electrical Improvements - ($1,996,000)

This project provides for the installation of facilities to generate autonomous emergency electrical power for the Administrative Computer Center located in the Roosevelt Road Building. Power conditioning to computers as well as an uninterrupted power source will be provided, thus eliminating undesired electrical harmonics and unstable voltage levels. This facility will also provide the standby electrical power necessary to prevent the loss of data that would occur in the event of a power outage of either the local utility company's electrical service or the power distribution network that serves the building.

The project calls for the installation of two complete UPS (uninterrupted power source) units, one with a rating of 400 KVA and the other with

750 KVA, which will provide power for a duration of 15 minutes when the normal power is at fault or lost. The 400 KVA UPS Drive will be wired to the Hi-Frequency System and the 750 KVA Drive will support all other computer facilities including the air-conditioners used to cool the computers. These two UPS Drives will be in service at all times; consequently, all incoming electrical power will be properly filtered by these systems to provide clean power for computer operations. Furthermore, as part of the project, two diesel engine driven generators with a synchronized controller will be installed to provide full capacity operation when the normal source of electrical power fails. This system will remain in continuous operation until the normal power source is restored. When completed, this project will provide adequate electrical protection for the University's Administrative Computer Center to guard against sudden loss of power, which could cause both the loss of key data and damage to computing equipment. It will also protect against the loss of power for prolonged periods of time, which could cause serious disruption of all major administrative processes supported by the Computer Center (payroll, purchasing, student record systems, hospital systems, etc.).

Architecture and Art Building Additions - Planning - ($1,030,000)

The College of Architecture, Art and Urban Planning (AAUP) has an established reputation for outstanding academic programs. For example, the Department of History of Architecture and Art is currently the largest and most diverse such program for undergraduates. The department includes faculty with expertise in film, photography and design. The School of Urban Planning and Policy is officially recognized by the American Planning Association and currently maintains a distinguished and productive faculty. In fact, annual expenditures for the School's research have grown from $316,000 in 1984 to $634,000 in 1986. Yet, despite its progress and outstanding academic programs, the College continues to lack adequate physical facilities.

The Architecture and Art Building was designed to be completed in two distinct phases. Based on the original design, the second phase of the building construction would account for 60% of the total required space and

would include faculty offices, seminar and classrooms, a resource center and gallery, and additional instructional laboratory space. However, the second phase was never implemented. One result of not initiating the second phase of construction has been the dispersal of the College's units to six different campus locations, including leased space. Some of the units in the College have been moved as many as six times in the last 20 years.

The current lack of proximity between units makes it difficult to operate joint programs that require close faculty collaboration. Failure to address the problem will create more acute problems in the future, especially as programs in Architecture, Urban Planning, and affiliated centers become more interdisciplinary.

Furthermore, there are now major graduate programs in Architecture and Art and Design which were not part of the original curricula. There is also a new graduate program in the History of Architecture and Art. In 1977, the College of Architecture and Art and the College of Urban Sciences merged to form the current College of Architecture, Art and Urban Planning. The current College also includes the Center for Urban Economic Development, and the Nathalie Voorhees Center for Neighborhood and Community Improvement. No additional space was acquired to house these new programs, however. At present, there are 62 full-time and 50 adjunct faculty in Architecture and Art, and a total of 20 faculty offices. Seminar and teaching assistant spaces are non-existent. Since 1975, graduate programs in AAUP have grown from 68 students to almost 300 students in 1986 with no increase in physical facilities.

The proposed Architecture and Art Building Additions will help provide the space required to accommodate the College's programs and will relocate the College's dispersed faculty, students, and administration from six different locations to two campus locations. The proposed building additions would satisfy the College's most urgent space needs and help to promote greater program efficiency and effectiveness for AAUP.

The proposed Architecture and Art Building Additions will provide 41,200 NASF of offices, classrooms, laboratories, and special use space. Some portion of the existing 23,000 square feet of space AAUP now uses in the Behavioral Sciences Building, Henry Hall, and University Hall will

become available to existing units where there are also critical space shortages. The 6,600 square feet of leased space will also be vacated.

The new additions will be added to the north and south of the existing Architecture and Art Building at locations which are adjacent to existing horizontal and vertical circulation and where provisions were made for additions in the original building planning and construction.

College of Business Administration Building - Planning - ($1,500,000)

The planning for construction of a new building to house the College of Business Administration (CBA) is proposed in FY 1989.

The CBA at the University of Illinois at Chicago was established as a business education program in the post-World War II period at Navy Pier in Chicago. The program was relocated to the Chicago Circle Campus in 1965, and achieved its college status thereafter. Thus, the College has a 40-year history of development during which it has brought together a distinguished faculty in accounting, economics, finance, management, marketing, information systems, and business administration. Recent years have also seen the development of its graduate studies and research programs. Assessing its role as a major public research university's business college in urban Chicago, a regional, national and international center of commerce and industry, the CBA is addressing the growing importance of business and economics in social institutions.

The College is also adopting significant research and graduate training initiatives to expand the potential of the CBA as a productive participant in the revitalization and growth of the Illinois economy. Specifically, the CBA is developing research programs in the areas of commodities and futures trading and theoretical and applied approaches to critical issues and problems, with particular emphasis on those factors which influence the economic and social fabric of the State of Illinois. These expanded research programs will have a direct impact upon the instructional programs within the College at both the advanced undergraduate and graduate levels. Special efforts will also be made to disseminate the knowledge developed in these programs to the broader public through publications, lectures, seminars and workshops, as well as direct communication with government

organizations, private firms, groups, and individuals through executive training programs.

The College of Business Administration is comprised of six academic departments, a number of research programs, and undergraduate and graduate degree programs with 3,238 students and 108 FTE academic staff in FY 1987. The graduate program has grown from 21 master's degree students in FY 1975, to 522 master's and 43 Ph.D. students in FY 1986 while undergraduate enrollments have remained stable.

These developments have occurred in the absence of facility resources to support the growth of the College. The College has progressed over the past 10 to 15 years in anticipation of new and expanded facility resources. There are many program activities that cannot be considered for implementation or growth at this time due to a lack of space. Faculty office and research space is now being acquired by conversion of conference rooms and by leasing of commercial space. The College occupies four floors in University Hall and one floor in a converted classroom building that totals approximately 26,000 NASF.

Based on comparative data from other Big Ten institutions, a business school with this number of undergraduate majors, graduate students, credit hours, and faculty requires a 133,000 GSF facility to accommodate the College's requirements.

Land Acquisition/Site Development - ($3,000,000)

Acquisition and development of land south of the Physical Education Building must be exercised quickly before speculation and private development make it impossible to achieve. At this stage of the master development planning, it is apparent that a good portion of the available site is required to provide for the athletic, physical education and recreation needs of the campus. Future developments in the sciences and engineering will share this need. The cost of vacant land in this area is valued from $2-$16 per square foot. The current campus interest is in approximately one million square feet of vacant land. The $3,000,000 must be viewed as a preliminary estimate for acquisition and development of the site pending property appraisals, tax delinquency findings, zoning considerations, and acquisition processing.

Associated Health Professions Building Remodeling - ($6,110,000)

The College of Associated Health Professions is currently located in several buildings which span across a three block area. Communication barriers among faculty, students, and administrators exist on both inter- and intradepartmental levels. Relocating these departments to one building would facilitate greater interdisciplinary collaboration in research and in service. In addition, consolidation would create a more efficient use of space in the scheduling of classes and conferences, more efficient use of research and teaching equipment, and a substantial reduction in faculty and staff travel time between locations.

The College of Associated Health Professions Building (formerly the 1919 West Taylor Street building) experienced a decline in use for patient care programs during the late 1970's, and therefore provides a feasible site for the College of Associated Health Profession's expansion and consolidation.

The College of Associated Health Professions Building is an "H" shaped eight story building, constructed as a tuberculosis hospital in the early 1950's. The building has approximately 183,000 GSF and 107,500 NASF of space. Since the building was first acquired in June of 1975, the need for a major upgrade has been evident. Some academic projects proposed for this facility have been postponed due to inadequate electrical power, while others have been conducted only through the aid of innovative logistical maneuverings. The current phase of the building upgrade represents a continuing effort to correct facility deficiencies and provide useable facilities for the College of Associated Health Professions.

The Associated Health Professions Building houses a variety of campus programs dependent on this building remodeling, including the College of Associated Health Professions, the Family Practice Department and Clinic, the Child Care Center, the Early Outreach Program, the Obstetrics Clinic, the Division of Services for Crippled Children, and the Sickle Cell Center.

Many of the building occupants require more adequate electric power, air-conditioning, window replacement, and general building improvements such as code corrections and elevator renovation. The College of Associated Health Professions also requires space renovation to accommodate the relocation of two additional departments and development of its most

promising research endeavors: metabolism, computerized anatomical imaging, collaborative research in physical therapy and nutrition, and kinesiology.

Initial upgrading and modernization of electrical services in the building began with the allocation of funds in FY 1979 and FY 1980. Completion of this modernization has provided adequate electrical service for future needs to most floors. Current and future building occupants will be unable to fully utilize the newly provided electrical services or to service new program requirements without the installation of electrical control panels and supplemental wiring. A project approved in FY 1987 will distribute electrical power on floors two, three, and four to accommodate the needs of the Biocommunications Arts, Occupational Therapy, and Physical Therapy departments. A second project approved for funding in FY 1987 will remodel part of the sixth floor for the Department of Nutrition and Medical Dietetics.

The overall project proposed for FY 1989 is the first of two phases required to restore and upgrade the building for permanent use. This phase addresses three distinct components:

1. Electrical power distribution;
2. Installation and distribution of a central air-conditioning systems;
3. Window replacement and tuck-pointing

The second phase of work will address elevator renovations, code corrections and the balance of the electrical distribution and window replacement work.

Renovate College of Medicine West Building - Phase 1 - ($8,948,000)

The Basic Medical Sciences departments, which have occupied space primarily in the College of Medicine West for many years, have been "land-locked" with little or no opportunities for expansion. Internal remodeling of space vacated by other campus units has constituted the only feasible method of providing new space. Although researchers in the medical sciences departments are well-funded and highly motivated, a major deficiency facing the departments is the lack of adequate, modern facilities.

The department heads of the Basic Medical Sciences departments have identified a number of important research goals which they hope to achieve during the next five years. For example, the Department of Biological

Chemistry plans to develop data which help to explain how the primary nucleotide sequence can signal the intricate phases of differentiation seen with embryonic organogenesis. Special facilities required to conduct the department's planned research are presently unavailable to the department. If the Basic Medical Sciences departments remain unable to satisfy their own basic research requirements, then the College will be unable to attract new, young and vigorous faculty/researchers and the resources they develop or bring with them.

To build the College of Medicine's Basic Medical Sciences departments and to strengthen its research efforts, new or remodeled facilities are required. Since the remodeling of the College of Medicine East Building in the mid and late 1970's, the research productivity of faculty and researchers who occupy the remodeled space has increased dramatically. Thus, the remodeling of the College of Medicine East Building played a major role in facilitating an increase in the research productivity of the College of Medicine. Furthermore, as a result of increased productivity within the College, the reputations of faculty, researchers and the University of Illinois have all been favorably promoted.

The College of Medicine West facility requires a major program of renovation, remodeling, and upgrading. The program must involve a major effort in which first the building systems (HVAC, utilities, etc.) are upgraded, and the structure and building enclosure are restored. Interior space remodeling should be considered as a second phase of the project.

The College of Medicine West Tower (CMW) is comprised of two buildings (908 and 909) built in 1925 and 1930, respectively. The buildings contain 229,200 GSF and 121,800 NASF of space and are located on the Health Sciences Center campus, at Polk and Wolcott Streets. The buildings were constructed as academic and library facilities for the Colleges of Medicine and Dentistry.

The buildings are currently being used by the College of Medicine Administration, and by six departments of the College (Anatomy, Biological Chemistry, Pathology, Pharmacology, Physiology and Biophysics, and Preventive Medicine) for faculty offices, instructional programs, and research activities. The remodeled space will continue to be used, although much more efficiently, by the same departments.

The campus commissioned an architectural and engineering firm, John Victor Frega and Associates, to develop a comprehensive plan for renovation. This plan, which was completed and published in February 1987 and proposes a multiphased renovation project, is the basis of this FY 1989 request. The multiple-phased project is estimated to cost approximately $37 million.

The building systems must be converted to a variable air volume central heating and cooling operation; new electrical circuitry must be provided; a new plastic pipe, treated water system must be installed; and the existing manual elevators require automation. The initial phase of the project will upgrade mechanical services and utilities for each floor of the building including heating, air-conditioning equipment, special exhaust, laboratory utilities systems, water and waste systems, and electrical power. Local floor distribution of the systems will be accomplished as the individual floors are remodeled.

HSC Emergency Electric Power Distribution - Phase 3 - ($1,190,000)

The proposed emergency electric power distribution for the Health Sciences Center (HSC) represents a multiphased program to provide autonomous emergency electrical power to health care and research laboratory facilities. Upon completion of the project, the University will be in compliance with State, local, and national requirements which govern emergency electrical power for health care and research facilities. The distribution of standby electrical power in the event of a prolonged power outage of the utility company will provide electrical service to the connected buildings.

The initial phase of the program, scheduled for implementation in FY 1987, will furnish and install a third 1100 KVA emergency generator at the Central Refrigeration Plant of the Health Sciences Center. Subsequent phases include the extension of the electric power distribution system and the addition of a fourth 1100 KVA emergency generator dedicated to academic research activities.

Phase 2 of the project will install a new multi-cell high voltage cable duct between the existing generator facility located at the Central

Refrigeration Building to the Clinical Sciences Building. This phase of the project will be funded by the allocation of local funds in FY 1988.

Phase 3 of the project, requested herein, includes the installation of a new double ended switchgear located in the Clinical Sciences Building. This phase of the project will also provide for the cable interconnections to the existing standby emergency facilities located in the Clinical Sciences Building, Clinical Sciences North Building, Clinical Sciences South Building, Campus Health Services Building, and the Neuropsychiatric Institute.

Remodel Pharmacy Building - ($1,750,000)

Since the Pharmacy Building was constructed, there have been major changes in the programs of the College of Pharmacy. A new pharmacy curriculum, the Doctor of Pharmacy degree program, was approved for implementation in FY 1984. The new Pharm.D curriculum is a six-year program composed of two years of pre-pharmacy and four years of professional education. Previously, the faculty of the College taught several basic science courses (e.g., physics, organic chemistry, history, anatomy, etc.); whereas, in the new curriculum, these courses are a component of the pre-pharmacy requirements available at the undergraduate level. The undergraduate curriculum has undergone significant changes with much less emphasis on wet laboratory instruction and greater emphasis on the social, behavioral/administrative and biological sciences, and the professional practice of pharmacy. As a result of this major curricular change and the corresponding reduction in class size, there is no longer a need for the large laboratories designed in the early 1950's. Some of these laboratories should be modernized into smaller laboratories for computer applications, faculty offices, and laboratories for research. With the increased emphasis on high technology research among its faculty, the conversion of unneeded undergraduate laboratory space into areas where high technology research can be conducted by students and faculty is a high priority goal of the College.

Another high priority goal of the College is to increase the level of research funding from external sources including pharmaceutical corporations and international organizations such as the World Health Organization. Completion of this capital improvement project will also make the

College more competitive in attracting research project money sponsored by the National Institutes of Health, the National Cancer Institute, and the National Science Foundation.

The College of Pharmacy faculty and administration have recently prepared a space plan for all College of Pharmacy space. This space plan is incorporated in a 4-phase redevelopment and renovation program for this building.

- Phase I is comprised of the renovation of the building HVAC systems, the Pharmacy Practice Simulation Laboratory, and the Computer Applications and Robotics Laboratory, all funded in FY 1986.

- Phase II of the plan, requested for FY 1989 and described herein, addresses the highest priority office and research laboratory needs.

- Phase III, scheduled for FY 1990, will address the need for new flexible student laboratories and classroom space.

- Phase IV, scheduled for FY 1991, will address lecture room and office renovations in the basement and on the first floor.

The projects described below are a direct result of this study and have the highest priority. Four of the areas (rooms 237, 304, 346 and 404) are large undergraduate laboratories which need to be remodeled as faculty office and research space. Rooms 501-510 are graduate research laboratories which need to be modernized for conducting high technology research. Room 133, a former manufacturing pharmacy area, is to be remodeled for offices and research laboratories for the Clinical Pharmacokenetics Laboratory. Room 237 will be remodeled for the Department of Pharmacy Practice. Room 304 will be remodeled for the Program for Collaborative Research in the Pharmaceutical Sciences. Room 346 will be remodeled for the Department of Pharmacodynamics, and room 404 will be remodeled for the Department of Medicinal Chemistry and Pharmacognosy. A total of 16,800 NASF is involved in this remodeling phase.

The College of Pharmacy Space Management Plan Report of February 1984 showed that the College had a deficiency of approximately 9,000 square feet of office and research space, but a corresponding excess of 20,000 square feet of teaching laboratory space. This office and research space deficiency has grown considerably over the past two years as new research

initiatives have been implemented. Research activities have increased 74% from FY 1983 to FY 1986, reaching $1.88 million in annual expenditures in FY 1986. The conversion of teaching areas to office and research space will alleviate current deficiencies and will position the College of Pharmacy for leadership in related biotechnology research.

FY 1989 CAPITAL PROJECTS
URBANA CAMPUS

Utility Infrastructure Upgrade - ($2,470,000)

The completion of numerous remodeling projects, the recent addition of new major buildings, and the addition of new equipment with increased power requirements have combined to strain the limits of the existing electrical, chilled water, sanitary sewer, and steam distribution systems of the Urbana-Champaign campus. To support current facility and program growth, it is essential that the third phase of upgrading the utility infrastructure at the Urbana-Champaign campus be completed to provide the improvements required to service the campus' expanded utility needs.

Phase I of this project, funded in FY 1987, provided funds for the planning and construction of a north campus utility building to provide electrical, steam, and chilled water distribution for three new north campus projects: the Beckman Institute, the Digital Computer Laboratory Addition, and the Microelectronics building. Phase I further provided planning funds for steam and condensate line modifications to provide adequate capacity to supply the north and south campus steam needs. And, finally, Phase I provided planning for a new electrical distribution center and the installation of a feeder line to the proposed distribution center to supply the electrical needs of the south campus area where the new Federal Biotechnology Center, Greenhouse complex, and Animal and Dairy Science Addition are to be constructed.

Phase II, appropriated for FY 1988, provides funds for steam line modifications; electrical distribution center construction; construction of a chilled water line cross-connection between two existing air-conditioning centers to share peak loads; and finally, planning for a new sewer line to support the new construction under way on the south campus.

Phase III, the FY 1989 request, consists of the following five parts: redistribution of electrical loads on the south campus to the new distribution center, completion of the steam line extensions for the north campus, construction of a new sewer line, installation of a new water line on the south campus, and planning for an expansion of the Library Air-Conditioning Center.

The electrical portion of this request represents the final phase of the south campus electrical distribution project. This portion of the project involves load center redistribution to correct current overloading problems occurring in new and existing buildings on the south campus. The completion of this electrical project will allow the Urbana-Champaign campus to redistribute loads throughout the south and central campus electrical infrastructure, ensuring the supply of adequate electrical power. The estimated cost of this portion of the project is $285,000.

The steam and condensate portion of the project involves the improvement of the existing steam system to provide adequate steam pressure to the north campus. The first step will be to upgrade an existing steam line dedicated to service the north campus. This upgrade includes the enlargement and replacement of pressure reducing valves, isolation valve replacement, and the establishment of a "backpacking" station between the high pressure steam system and the utilities pressure system to help increase steam pressure capacity at the north campus area. The second part of the steam line upgrade involves the installation of new steam lines between Abbott Power Plant and Oak Street and between Euclid Street and Sixth Street in the existing Gregory Drive steam tunnel, and a new utility steam pressure main from the Observatory Building to Green Street. These improvements are needed to increase the steam capacity to the north campus. The estimated cost of this portion of the project is $905,000.

The sanitary sewer portion of this FY 1989 request involves construction of a new sewer line to provide adequate service to the buildings served by the currently undersized sanitary sewer located under Mathews Avenue. The exact location of the new line will be determined in the project planning phase, approved for FY 1988. The new sanitary sewer will be designed to accommodate the recent construction of the Plant Sciences Greenhouse, along with the recently funded Animal Sciences Laboratory Addition and the Federal Biotechnology Laboratory, while relieving the existing capacity problem. This portion of the project is estimated to cost $810,000.

The water systems portion of this request involves the installation of approximately 3,500 feet of 12-inch water main for improved water service to the southeast campus area. It is proposed that a new connection be made to the Northern Illinois Water Corporation main near the corner of Race

Street and Windsor Road. This new connection has been previously recommended by the University consulting engineers to improve the general campus fire protection and water quality. This portion of the project cost is estimated at $320,000.

The chilled water portion of this project will plan the expansion of the campus chilled water capacity needed to serve the new buildings on the south campus while providing additional capacity for the buildings currently connected to the Library Air-Conditioning Center. The FY 1988 project to interconnect the Student-Staff Center with the Library Air-Conditioning Center will solve the existing overloading problem, but it allows virtually no excess capacity for anticipated needs such as air-conditioning in David Kinley Hall and Bevier Hall, or for converting various stand-alone building systems to the Library Air-Conditioning Center as the various buildings' chilling equipment fails. The Life Sciences Research Laboratory and the WILL Radio-TV Building could be served by the increased capacity of this project and the flexibility provided by the FY 1988 interconnection of the Student-Staff and Library Air-Conditioning Centers. It is anticipated that the actual construction, to be requested in FY 1990, will cost approximately $2 million. The estimated cost of the planning portion of the project will be $150,000.

In summary, these funds are needed to complete projects initiated in the first two phases and to plan additional systems for future construction. These improvements will have a long-term positive effect upon the expanding research programs of the Urbana-Champaign campus by providing basic utility capacities to implement these programs, which will benefit the economy of the area and the State of Illinois.

Life Sciences Research Laboratory - Planning - ($1,880,000)

Scientists are now able to isolate, study and move genetic information. The very first industrial application of this knowledge involved the isolation of the genetic information for human insulin, a drug used for the treatment of diabetes. This meant that insulin could be manufactured through a synthetic process. This breakthrough came at a critical time, when population health trends indicated that the number of diabetics in the population was increasing faster than the supply of porcine and bovine pancreas, animal organs previously used to produce insulin.

It once took 500,000 sheep to provide less than 1 mg of the growth hormone somatostatin. Now it is possible to produce twice that amount in under 24 hours, in an area smaller than that occupied by a half-gallon container of milk.

Likewise, the clotting factor required by hemophiliacs, and a bovine growth hormone to stimulate weight gain in cattle are presently under genetic development. Overall, there are presently over two dozen products in clinical trials that are produced through genetic engineering.

Many other major developments of genetic engineering are also under way. One of the most notable of these, and one which has major implications for global food production, involves the ability to create superior agricultural products. For example, hormones produced from cloned genes could be used to improve the growth rates or reproductive capabilities of farm animals.

In other areas the very first experiments involving the introduction of foreign genetic information into humans are being conducted, with the object of correcting specific genetic defects in diseased human cells. Examples of diseases that respond to such techniques are Lesch-Nyhan disease, adenosine deaminase (bubble baby syndrome), and Tay-Sachs (hypercholesterolanemia). Other well-publicized examples of the use of this technology involve the release of genetically engineered organisms into the environment to detoxify chemical wastes, digest oil spills, and prevent ice-crystal formation when crops are exposed to temperatures slightly below freezing.

Aside from the direct health related implications of genetics research, recent scientific discoveries are extremely important to the economy of the State of Illinois. Estimates currently available suggest that by the turn of the century, direct industrial sales emanating from such work will approximate $64 billion. There are currently over 300 <u>new</u> companies engaged in biotechnology research. Established companies have invested heavily in this new area. For example, DuPont has just dedicated a new $85 million biological research laboratory, and biological research is the fastest growing area of its several hundred million dollar per year research budget. Monsanto constructed a new $150 million biological research facility and is spending over $200 million a year on life sciences research. In addition, Upjohn, Searle, Eli Lilly, Abbott, Pittsburgh Plate

Glass, Kodak, W. R. Grace & Company, and Corning Glass are placing heavy emphasis on biological research. At Princeton, Michigan, Michigan State, Indiana, Maryland, Rutgers, and Berkeley to mention only a few, new basic life sciences research facilities are currently under way. Based upon the rapid advancement of basic life sciences research, it would appear that $64 billion in industrial sales related to new biotechnological discoveries by the year 2000 may be an underestimate.

The companies mentioned previously are coming to UIUC and the other top schools in the country to hire young scientists and support personnel to work in these new areas of research. The University, as an employer, cannot compete directly with industry for these people on a purely monetary base. Nor can the University presently compete with industry in providing facilities for research. It takes from $100,000 to $150,000 of set-up funds to operate a new, adequately equipped laboratory. Because the life sciences are highly technical, special, and often times newly designed facilities are required for these research efforts. The University struggles in each instance to establish a new faculty member. Its facilities are outmoded and do not readily adapt to new research activities. The requisite space is currently lacking to provide the necessary atmosphere required to educate and retain the future researchers.

For the next several decades it is anticipated that basic life science research will profoundly affect numerous other disciplines important to the campus. To be competitive, proper facilities must be available in order to attract and retain the best faculty and students so that the full benefit of research in this vital area will be retained on this campus and within the State of Illinois.

The School of Life Sciences has experienced a severe space shortage for the past decade and the current shortage approximates 75,000 NASF. However, the space problems of the School of Life Sciences extend far beyond the existing and projected space deficiency. Much of the space currently assigned to the School is outdated and is totally inappropriate for modern research and teaching.

Buildings which were planned and constructed just 30 years ago were designed prior to the biological revolution. The use of radioactivity for biological experiments, the growth of animal and plant viruses, tissue culture facilities, large scale fermentation facilities, sterile rooms,

transfer rooms, etc., were virtually unknown 30 years ago, yet they represent a very basic need in today's research environment. Life sciences research, particularly in the areas of molecular and cell biology, genetics, virology, biophysics, and microbiology is highly technique-oriented, relying on the use of the most sophisticated equipment.

The proposed solution to the space problem in life sciences includes constructing a new Life Sciences Research Laboratory of 140,000 NASF. Planning funds ($1.88 million) are requested for FY 1989 to prepare for the construction of the first phase of the building in FY 1990. This initial phase would include 80,000 NASF and would cost approximately $30.5 million. This cost includes $535,000 for utility extensions for telephone, steam, and electrical systems. The second phase of the facility, at 60,000 NASF, is tentatively scheduled for construction in FY 1995 at an estimated cost (in current dollars) of $19 million.

The Life Sciences Research Laboratory, Phase I will include the following types of space:

| Room Type and USOE Code | NASF in Proposed Building |
|---|---|
| Research Lab (250, 255) | 62,860 |
| Office (310, 315) | 14,810 |
| Animal Rooms (570, 575) | 2,330 |
| TOTAL | 80,000 |

Upon completion of this project, the School of Life Sciences will vacate 3,500 NASF in Davenport Hall and 11,762 NASF in Harker Hall. The vacated space will be reassigned to other expanding units that require additional space.

English Building Remodeling - ($3,530,000)

In 1975 an architect was hired and a master plan was developed to convert the English Building to its new and permanent use. The plan that was developed calls for the remodeling of the English Building in four phases at a total cost of $9.7 million. When the job is completed, the Department of English will have all new facilities within the original exterior walls at a cost of 40-50% less than the cost of a new facility of the same size.

In total, 61,940 NASF (118,140 GSF) will undergo remodeling. The entire program involves the addition of 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 associated with office and classroom space. To date, only the first two phases of the remodeling have been completed in the English Building. The unremodeled portion of this building is in deplorable condition because of the extended delays in funding this important project.

The third phase of the work, which is currently being proposed, involves the 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 floors in the areas to be remodeled. A total of 22,500 NASF of space will be converted into office space and classrooms.

There will be an equipment request in FY 1990 to support this remodeling request. Because of the period of time necessary to complete a project of this size, equipment funds will be requested the year after the remodeling funds are approved.

New Building Equipment - 4 Buildings - ($925,000)

This request is for the purchase of equipment for four individual small building projects scheduled for completion in FY 1989. These projects are the Car Pool Facility, the Chinese Swine Research Center, the Willard Terminal Building, and the Environmental Sciences Building. The general type of equipment to be purchased for each project is indicated in the following brief descriptions.

The Car Pool Facility equipment request ($75,000) is for modernizing the operation of the campus car pool. The equipment request involves computerization of maintenance and gas usage records, additional electronic diagnostic equipment to maintain the electronically sophisticated vehicles the University is acquiring, and new office equipment to improve the office functions and appearance.

The Chinese Swine Research Center equipment request ($150,000) relates to and supports the Chinese Swine Research Center Project of the College of

Agriculture. The major portion of the equipment to be purchased will consist of metal pen sections, gates, feeding systems, and livestock waterers. There will be some general support equipment purchases for both the headquarters building and swine facilities.

The Willard Terminal Building equipment request ($300,000) will support the construction of a new Terminal Building located at the Willard Airport in Savoy. The major portion of equipment to be purchased will be for office and waiting area spaces. Office furniture and equipment will consist of desks, chairs, file cabinets, and accessories while the public areas of the Terminal will require moveable lounge furniture, tables, and miscellaneous furnishings. This moveable furniture for the waiting areas will allow the airport staff to best accommodate passenger traffic in the terminal facility.

The Environmental Sciences Building equipment request ($400,000) involves the purchase of relatively expensive equipment items needed to fully utilize the remodeled space on the third floor of the Environmental Sciences Building for the Institute of Environmental Studies. The equipment to be purchased will include such items as an ultracentrifuge, plant growth chambers, laminar flow hoods, a multichannel analyzer, a liquid scintillation system, and animal caging. This equipment supports the first phase of remodeling approved in FY 1986 scheduled for completion in the spring of 1989.

Noyes Laboratory Remodeling - Planning - ($2,310,000)

Noyes Laboratory was built in two sections which date back to 1902 and 1917 respectively. Since the beginning of the century, when the building was constructed, the discipline of chemistry and the nature of the facilities it requires, have changed markedly, leaving Noyes Laboratory out-of-date. Severe deficiencies exist in the utilities and ventilation systems of the building; temperature and humidity control is virtually non-existent; the sizes and shapes of rooms and the furnishings in them do not relate to their functions, and the number and quality of fume hoods are inadequate. In sum, the building is a dismal place in which to work. These deficiencies not only make it very difficult to conduct a modern teaching and research program in chemistry, but the environment is unattractive and the safety of the space is in question. Although every

program in Noyes Laboratory is affected in some way or another, several specific examples follow to illustrate some of the limitations that exist.

One of the current research programs in inorganic chemistry is heavily involved in fossil fuel desulfurization. (This program is relevant to issues such as coal beneficiation and, in the longer term, acid rain.) By necessity, much of this research involves work with the malodorous organo-sulfur compounds found in fossil fuels. Unfortunately, the hood, ventilation, and plumbing systems in Noyes Lab severely limit this work because sulfurous fumes vented in their hoods re-enter rooms located above, and dilute wastes flushed down the drain produce strong odors in neighboring laboratories. Progress is severely restricted because this work must be carried out at night when the area is largely unoccupied. Wholesale improvements in the hood, ventilation, and plumbing systems would be required in order to make this research routine.

Lasers are fast becoming an important tool in the study of molecular structure and dynamics. Several research groups in physical chemistry use lasers and the Department has established a central laser facility for general use. For lack of any other location, the central lab was constructed in Noyes Laboratory. Unfortunately, deficiencies in the building greatly impair its usefulness. Proper lay-out of experiments is hampered by the size and shape of the laboratory; building vibrations interfere with the alignment of the laser beams; poor temperature control causes changes in calibrations; and dust in the air scatters the laser light, making it necessary to work with reduced laser power and sensitivities. Individuals working with lasers in their own research labs in Noyes Laboratory have similar difficulties. Work goes on in these laboratories, but it is clearly very inefficient and relatively crude compared to what could be done in modernized facilities.

The above two examples illustrate a broad range of problems that the conditions in Noyes Laboratory present. In these cases, the faculty and students involved try to work around these difficulties so that some research progress can be made. Unfortunately, this is the norm in Noyes Laboratory rather than an isolated situation. Similar problems plague the teaching laboratories in the building as well. Because of the environment, it has been necessary to "water down" or even eliminate the institutional

experiments being conducted. This, of course, diminishes the educational experience of the students and ultimately the reputation of the University.

There are a number of important activities that presently cannot be conducted at all in Noyes Laboratory. The inadequate hood and ventilation systems clearly make it risky to do any work involving highly toxic gases. The severe dust and general uncleanliness of the Laboratory make it impossible to do certain work in the areas of tract analysis, surface studies, and radiopharmaceuticals. The absence of isolation facilities imposes significant restrictions on genetic engineering experiments that the biophysical chemists need to pursue.

The School of Chemical Sciences at UIUC has long been one of the world's major sources of well-trained, highly-qualified chemistry graduates. That role is now jeopardized by the negative impact Noyes Laboratory has on the Department's ability to attract the best faculty and students. Future developments in the Chemical sciences will depend primarily on the continued availability of a pool of talented people. Anything that works to reduce that pool will clearly have a major negative technological and economic impact on the State and Nation.

Because the School of Chemical Sciences currently has a space deficiency of 109,000 NASF, it is impossible to remodel large sections of space at any one time because of the lack of surge space needed for those scientists whose space is being remodeled. This means that remodeling in Noyes Laboratory must be phased over a number of years.

Environmental Sciences Building Remodeling - ($4,350,000)

Since the completion of the new Veterinary Medicine Basic Sciences Building, the former veterinary education facility has remained unoccupied. After careful study, it has been determined that with appropriate remodeling this building will make an excellent home for the Department of Geology and the Institute for Environmental Studies. Both of these units are currently accommodated in substandard space, much of which is not suitable for modern research or instruction.

The old Veterinary Medicine Building (49,445 NASF) was constructed in 1952, and although it is sound structurally, the building has no central air-conditioning or ventilation systems. The building is equipped with only five fume hoods which do not meet current code requirements. The

proposed new occupants require approximately 25 fume hoods which will require a major heating, ventilation and air-conditioning improvement for the building.

An architectural firm has developed schematic plans for the remodeled building. The plan includes joining the Veterinary Medicine Annex to the main structure, adding approximately 2,500 NASF to the building and making the Annex a functionally useable part of the main structure. The Institute for Environmental Studies will occupy the third floor of the building (15,460 NASF), and the remainder of the facility (36,730 NASF) will be devoted to the Department of Geology and the Geology Library.

The first phase of the project was approved in FY 1987 in the amount of $3,500,000. The first phase renovation involves the installation and/or replacement of major mechanical systems in addition to finishing the third floor area for the Institute for Environmental Studies. This request, the final phase of the project, involves completing the remaining three floors of the building for Geology. This final phase is vital not only to complete the project, but also because it will vacate some 36,000 NASF in the center of campus (Natural History Building) which will be used to help relieve the serious space shortage experienced by the School of Chemical Sciences until a more permanent solution can be realized. Also, the vacated space in the Natural History Building would be used to solve the ever increasing need to provide instructional computer laboratories. The FY 1989 request has a related moveable equipment request for the Institute for Environmental Studies.

Commerce-Education Building - Planning - ($1,730,000)

The facilities to be provided by this proposed building will solve the space shortages of a number of campus academic units as well as provide for the consolidation of a number of fragmented units. The additional and improved office space provided by this project will allow the College of Commerce to hire additional faculty to offset the excessive number of teaching assistants currently employed, thus restoring the student/staff ratio to a more respectable level and thereby satisfying various accrediting agencies. The Library space provided by this project will allow the Commerce Library to be centrally located to serve the College's faculty, staff, and students. This project would partially upgrade and consolidate

the College of Education from seven locations to four. This project would upgrade and consolidate the Graduate School of Library and Information Science into a single facility. This project would totally consolidate the Departments of Urban & Regional Planning and Landscape Architecture as well as the Urban Planning and Landscape Architecture Library from nine locations into a single facility. Besides correcting the aforementioned campus space deficiencies and fragmentation problems, this project also begins the overall plan to permanently relocate units to implement the South Campus Master Plan and to begin the development of an east-west axis as proposed in the Plan.

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

| Room Type and USOE Code | NASF in Proposed Building |
|---|---|
| Classroom (110) | 5,000 |
| Office (310, 315, 350) | 54,000 |
| Class Laboratory (210, 215) | 20,000 |
| Non-Class Laboratory (250, 255) | 6,000 |
| Lounge (650) | 1,000 |
| Stack (420) | 10,000 |
| Reading (410) | 10,000 |
| Service and Office (310, 315, 350, 440) | 2,000 |
| TOTAL | 108,000 |

When this building is completed and occupied, the College of Commerce will vacate approximately 3,900 NASF in the Forest Science Laboratory and 5,500 NASF in the Armory, and the College's Library will vacate approximately 9,600 NASF in the Main Library; the College of Education will vacate 5,200 NASF in the Armory, 4,000 NASF in the Fine Arts-Commerce Annex, 6,600 NASF in 805 W. Pennsylvania, and 3,400 NASF in 51 E. Armory; the Graduate School of Library and Information Science will vacate 1,800 NASF in the Armory and 6,600 NASF in David Kinley Hall; the Departments of Urban & Regional Planning and Landscape Architecture will vacate approximately 23,000 NASF in nine locations; and the Urban Planning and Landscape Architecture Library will vacate 1,200 NASF in Mumford Hall.

The College of Commerce will receive the vacated space on the fourth floor of David Kinley Hall; the University Library will receive the vacated space in Mumford Hall; some of the houses vacated by Education, Urban & Regional Planning, and Landscape Architecture will be used to replace other

low quality houses (which will be razed), and the remaining houses will be either reassigned to solve the space requirements of other needy units or retained as surge space.

The total planning cost, including the initial steps in construction document development, is estimated to be $1,730,000. It is anticipated that funds for constructing this building will be included in the FY 1990 Capital Budget Request.

Core Campus Land Acquisition - ($1,600,000)

The campus has initiated an update of its long-range land use and needs plan. The original plan was last revised in the early 1970's, and preliminary review of the current update has confirmed that many premises of the 1970's plan remain accurate and important. Certain issues, such as research parks, athletic facilities, and agricultural needs have changed somewhat, but the general overall acquisition boundaries of the earlier plan are still meaningful. It is apparent, however, that few actual land acquisitions for satisfying that plan have been accomplished. As a result, a large number of properties which ultimately will be needed by the Urbana-Champaign campus have not yet been acquired.

It is extremely important that a multi-year Land Acquisition Plan be immediately implemented for the Urbana-Champaign campus. Building sites need to be acquired for projects now proposed for the College of Engineering, School of Life Sciences, College of Communications, and others. The Sasaki Report, an Urbana-Champaign long range planning model, calls for considerable land acquisition east of the Beckman Institute to adequately accommodate the future growth of the Institute and the College of Engineering. Retaining a compact, cohesive campus is important for an overall economical campus operation to reduce wasted effort by faculty, staff, and students, as well as the physical plant operation.

A second reason for immediate action involves availability and acquisition costs of many locations. Of the properties included on the University's long-range needs list, few have been materially improved in the past 15 years. This "status quo" condition is about to change, however, since the existing buildings on most of the locations under consideration have outlived their current usefulness. Replacing existing structures with new student apartment complexes is becoming quite attractive to current owners

and private investors. Upgrading a given location immediately increases the value of that location approximately ten-fold and can make the acquisition and clearing of a site for University use very costly in the long term.

The FY 1989 land acquisition request for $1.6 million involves the acquisition of 18 critical locations that appear to be prime targets for commercial/apartment development. If these properties are not acquired by the University and commercial improvements are allowed to proceed, the acquisition cost of these 18 properties will increase substantially, and the use of adjacent University-owned land will become quite limited. Most of the properties are located in areas of the existing campus where current College of Engineering or School of Life Science improvements are planned.

Electrical Engineering Research Laboratory - Planning - ($1,153,000)

This proposed building will give the Urbana-Champaign campus an opportunity to develop an environment in which overlapping and mutually compatible program strengths can be enhanced. The Departments of Computer Science, Electrical and Computer Engineering, and selected units in the multidisciplinary Coordinated Science Laboratory, span the spectrum from theory to application. In common facilities, these programs would have greater potential to generate new endeavors than the same units operating alone. While this facility will primarily serve the research missions of the Electrical and Computer Engineering and the Coordinated Science Laboratory programs, it will improve and expand graduate education while enhancing specialized upper level undergraduate programs and projects.

This building will serve as a part of a link from the Beckman Institute to the current Electrical Engineering Building for scientists and engineers in the electrical and computer engineering fields. Along with the Beckman Institute, the Microelectronics Center, and the Digital Computer Laboratory Addition, this building will provide the modern facilities needed to reinforce and enhance the campus' reputation in electrical and computer engineering while forming the foundation for lasting preeminence in these fields.

Currently, the programs to be included in this facility have a space deficit of 76,000 NASF, which is further exacerbated by the poor quality of the existing space. Upon completion of this building, because of their

antiquated and deteriorated state, the Electrical Engineering Annex (11,200 NASF) and the Electrical Engineering Research Laboratory (33,350 NASF) will be razed to provide areas for more suitable uses. The space vacated in the Coordinated Science Laboratory will be reassigned to the Department of Physics and the Materials Research Laboratory, which in turn will solve some of the space problems of those units. The building, as proposed, will act largely as a vehicle to relocate programs of mutual interest and upgrade the space in programs requiring more sophisticated space.

Campus Site Improvements - ($1,510,000)

This request is for site and landscaping improvements made necessary because of recent construction on the north and south campus areas. The four areas of major concern are the north campus between University Avenue and Springfield Avenue and between Green Street and University Avenue, the south campus, and overall campus site improvements.

The North Campus - University Avenue to Springfield Avenue portion of this request will provide site improvements within a 26-acre unimproved area of the north campus. Currently, this area houses the Hydrosystems Laboratory, Newmark Laboratory, Digital Computer Laboratory, and Kenney Gymnasium and Annex. By May of 1989, over 536,000 GSF of new buildings will be completed within this area including the Beckman Institute, the Microelectronics Center, the Digital Computer Laboratory Addition, and the Central Chiller.

Total site improvements for this area are estimated to cost $4.3 million. Of this, $3.01 million in non-State funds will be sought for the Beckman Institute and for the pedestrian allee leading from Springfield Avenue to the Beckman facility.

Remaining areas requiring drainage, sidewalks, bike paths, lighting, landscaping and site furnishings include the Springfield Avenue pedestrian crossing and the east-west circulation corridors. These site improvements are necessary to make this area an integral part of the University of Illinois campus and are estimated to cost $1.29 million.

The North Campus - Green Street to Springfield Avenue portion of this request will provide for the development and implementation of site improvements in an area which houses the undergraduate and administrative

center and is the gateway to the College of Engineering. The North Campus Master Plan recommends that these uses be maintained in a more enhanced setting by removing surface parking and developing a pedestrian zone more suitable for a high student use area.

Planning for development of this area will guide decision-making for siting of the Engineering Library, demolition of obsolete structures, and drainage improvements along the Boneyard Creek, and will address all site related issues such as circulation, lighting, landscape, and site furnishings. The project is estimated to have a $1.1 million construction cost, to be requested for FY 1990. The planning portion of this request is estimated to cost $60,000 and is being requested for FY 1989.

The South Campus Site Development portion of this request will provide for site improvements in the area which houses the undergraduate and administrative center of the College of Agriculture. Current plans affecting this area include the removal of all Motor Pool and Garage activities, the relocation of Goodwin Avenue south of Gregory Drive, the demolition of additions to the old Agricultural Engineering Building, the demolition of the Animal Genetics Building, the closure of Lorado Taft Drive, and the proposed construction of the future Agriculture Library and the Agricultural Communications Building.

In the next few years there will be many changes in the use of this area. The most significant change will be the transition from a service area to a high intensity use area for students. As the College of Agriculture continues to grow, more and more area on the periphery of the Agriculture campus will be designated for service and parking. According to the master plan, this area has been designated as a long-term student activity area. The near-term benefit is an opportunity to develop a safe and well-defined pedestrian path to accommodate heavy student traffic from the residence halls at the southwest corner of the campus to the central core.

Planning for site development in this area needs to begin immediately to ensure that near-term projects will permit the satisfactory development of a long-term plan. The planning portion of this request is estimated to cost $60,000 and is being requested for FY 1989. The construction portion of this request is estimated to cost $940,000 and will be requested for FY 1990.

The Campus Site Improvements portion of this request involves a category of site improvements meant to improve the general appearance of and ability to maintain the Urbana-Champaign campus. The FY 1989 request is for landscape and site improvements throughout the campus.

Among the improvements planned for FY 1989 is the reforestation of Illini Grove to begin a gradual replacement of existing trees. Although Illini Grove is still an attractive area, in 10 years or so many species will have reached the end of their lives, requiring a major replacement project. By using a phased approach, the trees will be replaced gradually, thus avoiding an unattractive transition period when Illini Grove would look like a nursery instead of the attractive recreation area that it has been for the past 40 years.

Also included would be the replacement of some of the sidewalks leading into buildings and the improvement of parkways between sidewalks and street curbs. Many of the walks are in poor condition due to age and are no longer favorably located to respond to current traffic patterns. Many of the parkways are either mud or loose rock and detract from the quality of the campus.

The final landscape improvement proposed for FY 1989 is a continuation of the street tree planting on campus. The recent master planning effort reinforced the importance of the street trees in giving structure and identity to the campus on our prairie setting. It is proposed that tree plantings be continued in a phased approach.

The Campus Site Improvements portion of this request for FY 1989 is estimated to cost $100,000. A similar request will be made for FY 1990 for $200,000.

Compound Semiconductor Microelectronics Center - Equipment - ($500,000)

This equipment request supports the construction of the Compound Semiconductor Microelectronics Center. The major portion of the equipment to be purchased will be needed for the office areas, with additional limited equipment purchases required for the laboratory areas. Most major research equipment will be provided by the researchers through external funding. It is estimated that the total moveable equipment needs for this facility will range from $5 to $6 million dollars, with less than

$1 million required from State capital funds. The researchers presently have a substantial portion of this required equipment. There will be an FY 1990 equipment request of approximately $250,000 to provide the remaining equipment funds needed to occupy the building, for office equipment and laboratory equipment that cannot be funded through grants or gifts.

Campus Police Building - ($2,030,000)

The Campus Police Building will create new facilities for the Police Department. The building which the Police Department 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, the Police Department was assigned space in the nearby Engineering Research Laboratory and a frame house at 1207 W. Springfield. The Engineering Research Laboratory space is primarily basement space which floods, experiences extreme temperature fluctuations, and is poorly arranged. The space at 1207 W. Springfield is used for investigative staff and evidence storage, and it is not secure.

The new facility will replace the inadequate facilities currently used by the Police Department, 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. Additionally, the relocation of the Police Department is becoming even more vital because the new North Campus Master Plan indicates that the existing Campus Police Station is on a portion of the site where the proposed Engineering Library is to be located.

The Campus Police Building is programmed to contain the following types and amounts of space:

| Room Type | NASF in Proposed Building |
|---|---|
| Office | 3,905 |
| Lounge | 1,030 |
| Locker | 1,050 |
| Storage | 280 |
| Other Supporting Facilities | 310 |
| TOTAL | 6,575 |

Upon completion of this project, the existing Campus Police Station (2,027 NASF) and 1207 W. Springfield (1,213 NASF) will be vacated by Campus Security and razed. Additionally, Campus Security will vacate its presently assigned space in the Engineering Research Laboratory (1,720 NASF), and that space will be reassigned for a more appropriate use.

Digital Computer Laboratory Addition - Equipment - ($500,000)

This request supports the construction of the Digital Computer Laboratory Addition. The equipment request for this building involves the purchase of library equipment, computer terminal equipment, and equipment for instructional laboratories and offices. Typical office equipment that will be requested will include desks, chairs, bookcases, and file cabinets. Instructional laboratories will be equipped with tables, chairs, carrells and computer terminal equipment. This moveable equipment will allow teaching and office staff to best utilize the newly constructed space. The funds in this initial request will help secure items requiring long lead-time purchases. Because of shorter purchase lead times of other items, there will be an additional request of approximately $1 million for FY 1990 to purchase the balance of the equipment needs.

Mechanical Engineering Laboratory Remodeling - ($3,700,000)

The Mechanical Engineering Laboratory is a building of approximately 48,000 NASF constructed in 1905 with an addition in 1917. The continued use of the building was in question until the recent North Campus Master Plan prepared by Sasaki & Associates was completed. Sasaki & Associates recommended that this building be retained, forming the east edge of the Engineering Quadrangle. In that location it will serve the needs of the Mechanical Engineering Department as well as other departments such as Aeronautical & Astronautical Engineering that are related in scope and educational content.

This building was originally built as a part of the University Physical Plant and served in that capacity until the early 1950's. Because of the original construction and use of the building, it requires major remodeling to bring it up to modern standards. The basic structure of the building is acceptable but the interior space needs upgrading. The renovation would include either complete roof replacement, including structure,

or a major renovation of the existing roof. The internal remodeling would realign the floor levels of the building making them more accessible and useful for instructional laboratories, research laboratories, and office space. The renovation requires a new central heating and cooling system for the entire building. The programs currently envisioned to occupy the space are in the fields of thermal sciences, thermal dynamics, and air and water flow research as well as other related research fields. It is anticipated that additional laboratories will be developed with approximately 780 square feet to 900 square feet modules with central utility chases serving the rooms. The concept involves constructing rooms for current use with the ability to easily adapt them to future uses. The current plan creates a lower office and wet laboratory level with at least one area being devoted to a high ceiling laboratory (two stories high) for use in fluid flows research. The second level will have 12 offices/laboratories of less than 300 square feet each, four office laboratories at 360 square feet, and two office laboratories at 600 square feet. The proposed use would meet the current needs and requirements of the Mechanical Engineering staff with allowances for anticipated future growth. When the remodeling of this facility is completed, it will serve the Mechanical & Industrial Engineering Department research needs in thermal sciences, thermal systems, and fluid and air flow research.

Main Library Remodeling - Planning - ($170,000)

This project involves planning for the remodeling of 22,500 NASF of the east portion of the fourth floor of the Main Library. Because of current area occupation and the minimal area for movement, the architect must phase the work so that only one-third of the space will be remodeled at any one time. It will be necessary to relocate staff and books around the construction area to keep the library areas available to staff and students.

This project will correct several areas of code deficient construction and will increase staff efficiency. Efficiency will be enhanced when the smaller libraries located on the fourth floor are relocated to the second floor's larger areas, allowing the staff to cover more than one library. The fourth floor would then be developed into a landscaped office area

giving some relief to the very crowded conditions existing in the acquisitions and cataloging functions currently located on the second floor.

The total planning cost including working drawings is estimated to be $170,000. It is anticipated that construction funds will be requested for FY 1990.

FY 1989 BUILD ILLINOIS PROJECTS
CHICAGO CAMPUS

Architecture Studios Remodeling - ($150,000)

This project provides for the remodeling of Architecture Studio rooms B100, B552, 2100, 4100, 4300, and 5300 in the Architecture and Art Building (AAB). This remodeling will allow for more productive use of existing facilities and will help satisfy a long-standing space deficiency for the School of Architecture. These spaces in AAB were not designed for their present use and are far below minimum standards for classroom and studio functions, particularly in relation to lighting and acoustics.

This project will bring spaces assigned to Architecture Studio activity up to the minimal light, acoustic, ventilation, and electrical requirements. It will provide for separation of large spaces, additional electrical circuits, task lighting, and informal jury and display space.

Collaborative Research Laboratory NMD-PT - ($232,800)

This project will remodel space in room 125 of the Associated Health Professions Building into wet laboratory space for a collaborative research program between the Departments of Nutrition and Medical Dietetics (NMD) and Physical Therapy (PT). The goals and objectives of the new program are to investigate the effects of exercise and diet on metabolic balance in normal young, normal elderly, and diabetic obese individuals. The remodeled area will also provide the wet laboratory resources for NMD to use in support of its Food Metabolism Research Unit and for PT to use in support of its Kinesiology (Human Movement) Lab.

The project scope provides for the demolition of existing walls; the removal of obsolete equipment; and the installation of new laboratory furniture, shelving, lighting, ceiling, plumbing and ventilation.

Bioinstrumentation Facility Phase III - ($301,300)

This project will provide space for an electronic test equipment laboratory for the Research Resource Center (RRC) as a replacement for rooms 156 and 169 in the Benjamin Goldberg Research Center (BGRC) which are being assigned to the Academic Computer Center.

The proposed replacement space, rooms W67 and W25 in Clinical Sciences North (960 NASF), are to be remodeled and renovated to accommodate four biomedical electronic engineers and test equipment used in the design and construction section of the Bioinstrumentation Facility. Remodeling will consist of the removal of a washroom and lockers, the installation of floor and ceiling tiles, painting, distribution of electrical service and the installation of temperature controls compatible with the use of the test equipment. All equipment and furniture at the present location in BGRC will be moved to the new laboratory.

Office Construction for LCMDB, 4th Floor SEL - ($150,000)

A major component of the biotechnology initiatives at the Chicago campus has been the Laboratory for Cell, Molecular, and Developmental Biology (LCMDB). The LCMDB brings together faculty and students in the most promising areas of microbiology, physiology, ecology, entomology, plant sciences, vertebrae biology, mammalian tissue culture, and evolutionary and population genetics research.

LCMDB has developed a multiple-phased, comprehensive plan for converting underutilized teaching laboratories, common areas, and a storage room to productive research space. The scope of the plan contains 16 remodeling components valued at approximately $1.5 million. The remodeling plan was initiated in FY 1985 and continued in FY 1986 with the use of local funds. The use of FY 1987 and FY 1988 Build Illinois funds is planned for the third and fourth increment of this plan respectively.

This phase of the plan will develop offices for the Laboratory on the 4th floor of the Science and Engineering Laboratory (SEL) and will require $150,000 in FY 1989.

Remodel Physics High Bay Phase III, 2nd Floor SES - ($300,000)

The Physics Department's success in attracting outside funding, its quality research, and its demonstrated commitment to quality teaching have earned the backing of a number of noteworthy supporters. Indeed, support from diverse sectors such as private industry, the Federal government, and academic research agencies reveals widespread recognition of the value of physics research at the University of Illinois at Chicago.

The Physics Department's success results from a recognition of its applied research potential. For example, laser microchips, semiconductors, and data-based computer applications provide enormous opportunities for collaborative scientific projects between the University and numerous government and private sector agencies.

The Physics Department's continued success will depend upon its ability to attract funding support. Faculty must be provided with the required equipment and space facilities if the Department is expected to perform. Sophisticated technological research requires the availability of adequate equipment and space.

The proposed High Bay - Phase III project will remodel the space created by the Physics High Bay - Phase I and II projects. The Physics High Bay - Phase III project will entail the remodeling of 3,000 NASF on the second floor of the Physics High Bay area in the Science and Engineering South Building (SES) for ion implantation and device construction labs.

Organic Chemistry Remodeling - ($300,000)

The Department of Chemistry urgently needs additional research laboratory space. The most pressing need is in organic chemistry, where the Department is currently recruiting a senior synthetic organic chemist requiring space for a research group of approximately 20 student and post-doctoral co-workers.

The Department currently does not have any available space appropriately equipped which it could offer a work group of this size. This project is designed to provide this requisite space and equipment for synthetic organic chemistry research by remodeling rooms 3209 and 3210 in the Science and Engineering Laboratories Building (SEL) by creating partitions and installing the necessary plumbing, electrical, and ventilation systems.

Microbiology Research Remodeling - MSA - ($146,000)

Since the Medical Sciences Addition (MSA) was designed some 25 years ago, the way in which microbiological research is conducted has changed from single individuals working in small office laboratory suites to research teams using large modern laboratory facilities. Such teams, organized and functioning in well-equipped laboratories and with adjacent support facilities, are able to manage productive research programs. This

project provides for the remodeling of 1,000 NASF of small underutilized office laboratory suites, located on the 8th floor of MSA, into two large modern research laboratories. This remodeling will include electrical, plumbing, and ventilation upgrades.

Pharmacodynamics Research Facility Room 346E - ($385,000)

The southeast quadrant/room 346, on the third floor of the Pharmacy Building, is currently used as an undergraduate pharmacology laboratory. This activity is going to be moved to room 440 of the Pharmacy Building, space more suitable for this lab. As a result, the vacated room 346, approximately 700 GSF, will be used as a research laboratory for graduate students in Pharmacodynamics. The entire room will be remodeled into several modular research laboratories and offices for faculty and graduate students. The current physical facilities are inadequate for biological type research. However, once remodeled, this space will effectively be utilized for expanding faculty research in the important areas of drug toxicity and pharmacodynamics.

Roof Replacement - 3 Buildings - ($1,019,500)

The backlog of deferred maintenance has resulted in the campus' inability to maintain the existing campus roofs effectively. The deterioration of facilities, the majority of which are well over 20 years old, has made spot roof repairs no longer feasible. Consequently, continuous leaks, affecting the progress of regular classes and research activities, are apparent in several buildings.

This FY 1989 project will provide funds to repair the tile roofs of the College of Medicine East and West Towers and the Clinical Sciences North Building.

Masonry Repairs - 4 Buildings - ($300,300)

This project will provide for masonry repairs on the College of Medicine West Tower, Clinical Sciences Building, Medical Sciences Addition, and the Neuropsychiatric Institute. Mortar in brick joints of these buildings is loose and deteriorating rapidly. Water infiltration is causing damage to building interior surfaces and will soon cause structural

damage. This project entails cutting out all loose mortar in the joints and tuck-pointing the facilities.

FY 1989 BUILD ILLINOIS PROJECTS
URBANA-CHAMPAIGN CAMPUS

Mechanical Engineering Laboratory - Thermal Fluids - ($400,000)

This project involves the remodeling of rooms 114 and 115 in the Mechanical Engineering Laboratory to develop laboratories for instruction and research in heat transfer, fluid mechanics, combustion, and related areas of thermal-fluids. Approximately 4,500 NASF of large, open laboratory area is to be subdivided into several smaller laboratory rooms of 225, 450, or 900 NASF. These laboratories will require upgrades in the electrical service for computers and instruments including raceways for data and instrumentation lines; environmental controls (temperature and humidity); and other utilities such as water, gas, air, vacuum, sewer, etc.

Planning funds for the remodeling outlined above were received for FY 1988.

Psychology Laboratory - Expansion of Library - ($500,000)

This project involves the remodeling of the north and west porticoes and the center atrium of the Psychology Laboratory to provide a library for the Department of Psychological Sciences. This project will greatly improve library services to the faculty and students of the Department and provide additional study area for the students. This, in turn, will free space in the Education and Social Sciences Library in the Main Library building which will help meet the increasing space needs of those collections.

This project involves enclosing the north portico of the Psychology Laboratory and expanding the current enclosure of the west portico. The existing "garden" in the center atrium will be preserved by remodeling the atrium with the addition of a mezzanine on the east and south walls, and arranging for proper entryways and pathways that will allow the atrium to be combined with the two enclosed porticoes into a library facility. Some minor remodeling will also be necessary on the eighth floor to convert the existing library into office space after the Psychology Library is completed. A feasibility study has been completed by the building's architects, and they have concluded that the building can structurally support the proposed modifications.

Planning funds for the project outlined above were received for FY 1988.

Law Building - Library Improvements - ($450,000)

This project involves the remodeling of room 5A in the Law Building basement to create a rare book room. In addition to remodeling, compact shelving will be purchased to maximize the efficiency of the remodeled area. The present area used for a rare book room provides a minimum of security and a lack of climatic control, factors that are essential when providing space for a collection of rare books. With the installation of compact shelving, the need for storing a portion of the collection in boxes or in off-site storage will be eliminated. To provide adequate lighting within the rare book room, existing lighting fixtures will be rearranged. Approximately 6,930 NASF of space will be remodeled and equipped as a part of this project.

Medical Sciences Building - Enclose Porticoes, Planning - ($40,000)

This project is a request for funds to plan the remodeling of the west and north porticoes and the realignment of some underutilized areas in the building to increase the building efficiency. The Medical Sciences Building was originally designed for a one year program with an approximate class size of 130 students. However, in 1978 the College of Medicine at Urbana-Champaign became a four year medical school and now has an entering class of 131 students and a second, third and fourth year class of 25 students each. This change to a four year school was not accompanied by an appropriate physical alteration in the Medical Sciences Building and as a result, the building has become seriously inadequate in size and configuration.

This project involves enclosing the west and north porticoes of the Medical Sciences Building adding approximately 2,600 square feet of new useable space to the building. A new 1,100 square foot classroom and space for a portion of the Library of Health Sciences will be programmed into this new space. The new enclosure will provide an after hour access to the Library that will eliminate the existing security problem of having the entire building open during low use hours.

The total planning cost of this project is estimated to be $40,000.

Veterinary Medicine - Completion of Unfinished Space - ($500,000)

In September 1981, the Veterinary Medicine Basic Sciences Building was completed and occupied. Because of funding problems during the initial construction phase, it was decided that approximately 27,000 NASF of space would be shelled and completed at a later date. In November, 1986, approximately 11,120 NASF of first floor shelled area was completed. This multi-phased Build Illinois Project involves the completion of the remaining 15,880 NASF on the second and third floors. In FY 1987, planning funds were approved to initiate the final phase. Upon its completion, the remodeled area will provide the College of Veterinary Medicine with desperately needed research and office space for its research staff and graduate students.

HVAC Improvements Phase II - Psychology Laboratory - ($310,000)

This project is the second phase required to correct deficiencies in the ventilation system at the Psychology Laboratory Building. This phase consists of separating the office and laboratory reheat systems throughout the nine floors of the building and then balancing all air and water components of the HVAC system in the building.

Ventilation Improvements Phase I - Morrill and Burrill Hall - ($350,000)

This project is designed to improve some of the building ventilation problems in both Morrill and Burrill Hall. As originally designed, these buildings had oil bath filter systems that subsequently became functionally inadequate. An improved system was installed but unfortunately, the oil and dust from the original equipment remained in the duct system. As a result, there is currently a problem with this material being transported through the system that creates a "dirt" shower in laboratories and offices causing contamination of important research projects. The project consists of cutting access holes for clearing the ducts, cleaning the duct system, installing an enhanced filtering system, and replacing several severely deteriorated ducts.

Plaza Deck Replacement Phase I - Undergraduate Library - ($600,000)

This project will provide a new roof surface, the replacement of brick pavers, and improvements to the drainage system at the Undergraduate

Library. The roof and plaza deck pavers have been a continuing maintenance problem since the building opened in 1969. The roof has always leaked and is getting progressively worse. If improvements are delayed much longer, continued water infiltration will deteriorate the structural integrity of the building and will result in a much larger and costlier remodeling project. Interim brick paver repairs are presently required on an annual basis. The total plaza deck replacement project is expected to be completed in two phases with a request for the final phase in FY 1990.

Elevator Replacement - Architecture Building - ($210,000)

This project replaces a circa 1927 elevator installed in the Architecture Building with a reliable, maintainable, and code conforming system accessible to all floors of the Architecture Building for students, staff, faculty, and handicapped persons. A modern elevator car will be installed with selective controls, an automatic leveling system, and power door controls for ease of operation by paraplegics. The improvement will allow easy access to all five floors of the building. This request is part of an overall program to replace obsolete elevators on campus which are inadequate and difficult to maintain.

Masonry Repairs - Geological Survey Laboratory - ($100,000)

This project will provide for masonry repairs on the Geological Survey Lab Building originally constructed in 1942. Mortar in brick joints in the chimney areas and the east and west buttress walls is loose and deteriorating rapidly. Water infiltration is causing damage to building interior surfaces and woodwork and will soon cause structural damage. This project entails cutting out all loose mortar in joints and tuck-pointing and caulking the joints and cracks.

Temperature Control Rehabilitation Phase II - Law Building - ($300,000)

This project provides for the replacement of the temperature control system of the Law Building. Originally constructed and equipped in 1955, the existing system has reached its useful life expectancy and requires modernization to coordinate its function with the replacement air-conditioning system being provided under the FY 1988 Build Illinois Program.

The project will include replacement of controllers, thermostats, pneumatic tubing, the air compressor, and the refrigerated dryer.

Replace Absorption Equipment & Cooling Tower - Band Building - ($275,000)

This project includes the replacement of the absorption air-conditioning unit and cooling tower originally installed when the Band Building was constructed in 1956. The components have reached the end of their useful life and replacement parts are no longer manufactured or available. The equipment must be replaced in order to provide air-conditioning and humidity control that will prevent the deterioration of climate sensitive musical instruments stored in the building.

Waste Pipe Replacement Phase III - Noyes Laboratory - ($60,000)

This project is a continuation of the replacement of waste piping in research labs, runouts, and risers in Noyes Laboratory. Waste piping consisting of hubbed cast iron has a very short life when exposed to today's organic chemicals. This iron piping exists in nearly any wet laboratory that is 50 years old or older. The waste piping in the research laboratories in Noyes Laboratory will be replaced with a much more durable fused joint polypropylene plastic piping.

Planning Funds for FY 1990 Projects - ($100,000)

These funds are requested to plan future R&R projects including the replacement of the elevator in Noyes Laboratory, the repair of steam and condensate lines, waste piping replacement projects in various research laboratory buildings, and future air-conditioning replacement projects on the Urbana-Champaign campus.

Upgrade Central Fire Alarm System - Fire Station - ($150,000)

This project will upgrade the existing central fire alarm work station facility and equipment at the fire station to improve function and reliability. Because of the increasing number of automatic alarm devices being installed in new and remodeled areas, new microprocessor based equipment is needed at the central alarm work station. This project provides for the remodeling of the existing facility and installation of the new equipment.

Elevator Installation - University High School - ($204,100)

This remodeling project is part of an overall program to comply with Federal and State laws requiring that all programs be accessible to handicapped persons. University High School is a four story 41,730 GSF permanent University of Illinois building that should conform with standards set by Section 504 of the Rehabilitation Act of 1973. Since it is not possible to relocate activities scheduled in the building to other accessible areas of the campus, accessible facilities are needed.

This project involves the installation of an elevator in University High School and the renovation of a rest room to meet code requirements. Planning funds for this project have been received for FY 1988.