

## **AGENDA**

Senate Consultative Committee  
September 22, 1988  
12:30 - 3:00  
Regents Room, Morrill Hall

1. (12:30) Reports of the Chairs
  - Senate Finance Committee
  - Student Senate Consultative Committee
  - Faculty Consultative Committee
2. (12:45) Agenda items for the year
3. (1:15) Role of the Committee in the presidential search interviews
4. (1:35) Criteria for ranking capital request items (Enclosure)
5. (2:00) Report of the Computing Committee (Enclosure)
6. (2:30) Discussion with President Sauer



UNIVERSITY OF MINNESOTA  
TWIN CITIES

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117 Pleasant Street S.E.  
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17 June 1988

Professor W. Phillips Shiveley  
Chair, Faculty Consultative  
Committee  
Department of Political Science  
1414 Social Sciences  
Minneapolis Campus

Dear Professor Shiveley:

Enclosed is the first report of the Senate Committee on Computing and Information Systems. The Committee organized itself in February 1988 and this represents the reflections of the members following extended meetings with computing leaders on the several campuses since then. It includes a number of recommendations on computing needs in the University and comments on several proposals made recently by other committees.

We recognize that some important changes need to take place on all campuses. We believe that computing at the University, especially on the Twin Cities campus, is in a chaotic state. The changes for a more coherent environment should be carefully introduced, and therefore, we recommend a central agent to oversee these changes.

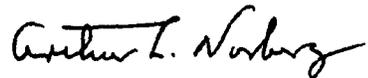
The changes needed go beyond governance, however. In a time when we can expect our students to go from the University to organizations that have sophisticated computing systems, we are placing them at a disadvantage if we do not provide better computing capability than we have in the University now. We must also provide for better and greater access. There is a large number of faculty and students who do not have access at the moment. Therefore, we present a discussion of needs and an estimate of expenditure levels required. These expenditures represent what should be done centrally in the University; they do not include any items that might be required by departments to achieve their academic missions.

Even though we are adamant about the need to upgrade and increase access by the students to computing, we do not believe this should be provided to the students free, any more than we formerly thought we should provide free typewriters. This must become part of the educational expense, however regrettable may be an increase in student tuition and fees.

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The committee will continue its deliberations in the coming academic year. Meantime, we are ready to assist the administration of the University with the evaluation of our report and the implementation of its recommendations.

Sincerely,



Arthur L. Norberg  
Chair  
Senate Committee on Computing  
and Information Systems

ALN:jj

Enclosure: Report Number 1

A PROPOSAL FOR IMPROVING THE COMPUTING ENVIRONMENT  
AT THE UNIVERSITY OF MINNESOTA

REPORT NUMBER 1  
OF THE  
UNIVERSITY SENATE COMMITTEE ON COMPUTING AND INFORMATION SYSTEMS

15 JUNE 1988

MEMBERS OF THE COMMITTEE:

Neil Anderson  
John Chipman  
Steven Cornelius  
Russell Hobbie  
V. Rama Murthy  
Arthur Norberg, Chair  
James Olson  
Donald Ross  
John Sullivan  
George Wilcox

## INTRODUCTION

Computing, by which we mean the range of activities using all types of information technology, is now a necessity in all academic disciplines and administrative offices. Word processing with computing machines is ubiquitous. In most disciplines, the use of spreadsheets is a normal part of training and research. Investigators and clinicians in the health sciences use information technology in virtually every aspect of biomedical activity from patient care to basic research. Recognizing the need to control financial and administrative affairs of the University, attention to costs and data needs has increased markedly, especially in the past few months. Hence, more attention needs to be paid to how computing is governed, financed, and distributed.

In many respects, each of the many computing activities in the University evolved independently, sometimes relying on different machines and software and sometimes on different structures and procedures. While in the beginning this may have been appropriate and permissible, increasingly such separation is expensive and often counterproductive. A few years ago as major changes in computing began to be felt, problems began to appear in the University's approach to using and providing computing services. The emergence of these problems brought into focus the need to have an organized and coherent policy to govern the expansion and availability of computing.

As the University's attention to computing increased, so did concern among faculty and student groups about access, flexibility, compatibility with academic priorities, and impact on other programs owing to competition for funds. The University Senate responded to this concern by establishing this committee to monitor University policies and administration of computing, telecommunications, and information systems and to recommend needed changes. In its first few months of activity, the committee reviewed computing activities on the several campuses through meetings with heads of computing centers and reports of other committees which concerned themselves with various aspects of computing. This committee concluded that computing is in almost a chaotic state at the University. At the same time, the committee recognized that computing is central to the academic mission and administrative functions of the University. This importance makes reorganization and increased funding a necessity. We offer a series of recommendations that, if accepted, can guide University policy over the next few years to eliminate the disarray, and several budgetary suggestions that, if funded, would greatly enhance our capability to serve our academic mission over the next two decades. Failure to change substantially the organization of computing and to increase its level of funding by a large increment will cause the University to fall from its position as a competitor with Big Ten class universities and become a second or third rate institution within a decade.

This report is seen as the first of several on policies for computing at the University of Minnesota. We believe it is imperative to issue this first report at this time because of the converging view among a number of people concerned with this matter that changes in several areas of computing should be begun immediately and a central officer should be appointed at the

University to oversee computing planning. We, too, believe that such an officer should be appointed. To facilitate the planning for computing and to guide the University in making the appointment, this report reviews our findings about the state of computing and recommends a set of principles that should guide that officer and central administrators in planning for the reorganization of computing at the University.

#### PRINCIPLES TO GOVERN PLANNING

Two elements of computing should be kept firmly in mind when considering changes in the overall system.

First, we should recognize that computing is vital and important in all areas of activity in the University. Thus, computing facilities and services of all kinds and for a wide range of purposes must be available.

Second, computing is still a rapidly changing combination of technologies, a circumstance that many expect to continue at a constant or increasing rate; a diversity of structures will be essential to satisfy the needs and desires of the users.

Four principles should guide planning for computing in the University:

One, computing facilities and services will need to be accessible to everyone on campus who needs them.

Two, the overall system should be flexible to meet the needs of the many users in many situations. This statement implies that the entire computing facility should be seen as one system.

Three, the system should be transparent to the user. Regardless of the task to be performed, the user should not have to select a particular center or equipment to perform the task. The system should be capable of directing the commands of a user to an available host.

Four, the system should be transcendent. Any user should be able to access data bases, send electronic mail or compute on another facility through the network provided at the University. Perhaps more important, any user should be able to get help, encouragement and technical advice through a single user-services center.

Presently, the University has a series of centers that provide some mainframe computer services to some users but lack the flexibility and transparency we believe is needed. Some number of personal computers, workstations and minicomputers are connected to these centers and to each other by a campus-wide ethernet computer network. The network system is not transparent; a user identifies a single machine for a single purpose. If that machine is in full use at that moment, the frustration is like that

experienced when getting a busy signal on a telephone. A user, depending on his or her level of sophistication with computing, can obtain access to systems outside the campus, but it is not easy; in short, transcendancy is not available.

The committee observed that on the Duluth campus an attempt has been made to create a system that is governed by several of these principles. Accessibility seems to be a cornerstone of their planning. Their system has some flexibility for the user and it is relatively simple to get access to data bases elsewhere. In trying to see how the committee's proposed principles could be applied, administrators should examine the Duluth campus system as a first approximation to a model for a campus system.

#### PROBLEMS WITH UNIVERSITY COMPUTING

The committee would like to call attention to seven problems that need attention.

##### 1. Lack of coordination in policy and management

No single University administrator below the President oversees all (or even most) information-related functions of the University. Academic Computing Services and Systems (ACSS) (including the Microcomputer and Workstation Group), Health Sciences Computing Services (HSCS), St. Paul Computing Services (SPCS), Minnesota Supercomputer Institute, and Telecommunications all report to the office of the Associate Vice President for Academic Affairs, and the Associate Vice President is chairman of the Board of Directors of the Minnesota Supercomputer Center, Inc. (MSC). The Twin Cities Libraries automation office, Duluth, Morris and Administrative Information Services (AIS) report to other officers of the University. Moreover, the Graduate School and Continuing Education and Extension have significant administrative computing responsibility, as does Student Support Services; the first two report indirectly to Academic Affairs and the latter to Student Affairs. It is essential to bring all these information-related activities under the direction of a single administrator--in our proposal: the Chief Information Officer.

Under the current state of affairs, individual centers and special interest groups must approach several branches of central administration for support of their respective programs. Often, the more assertive groups receive support at the expense of other groups which are no less deserving of support. In the past, academic computing has been under-represented in these settings. This results not from lack of attention by central administration nor from any malice of the individual groups; rather it results from the current complex organization of University computing. This organization, based on historical roots going back two decades, currently characterizes most computing service providers. Directors of these service centers have historically been

rewarded for giving parochial interests precedence over attention to system-wide goals and problems. Under other circumstances, competition among these centers might eventually have led to a more manageable number of providers, but delay in the attainment of this state has retarded access by new users and impeded productivity of present and future users for an unacceptable period of time.

## 2. Administrative computing resources grossly exceed those for academic computing

A survey of other large universities reveals that the University of Minnesota bases too much of its computing on recharges and an insufficient amount is spent on academic computing. This situation has developed partly because academic and administrative computing have reported to different vice presidents, but radically different funding arrangements and the exceptionally large number of students and staff at the University have also made an impact.

AIS provides data processing services to administrators in most units of the University. Currently AIS encourages departments to acquire or lease relatively expensive terminals to access its IBM mainframes for accounting and student record information. Owing to the security issues in Student Support Services' implementation of the Regents' registration policy, AIS has not been able to make its data bases accessible through a campus-wide network to relatively inexpensive personal computers already in many offices. This policy, together with high charges to colleges and departments and slow turn-around of AIS services, has caused several campuses and colleges to implement their own accounting and record keeping systems, fostering redundancy and increasing costs. The development of security procedures based on encrypting software rather than hardware may curb the cost of access to AIS data.

## 3. Decreasing income from non-University mainframe use

The academic computing budget at the University amounts to \$12M annually. Changes in the patterns of use of computers require that we completely rethink the funding of this activity. Although increases in microcomputer use were predicted to bring about decreases in mainframe use, in fact all computing activity has continued to rise.

Use of mainframe computers, such as those maintained by ACSS, SPCS and HSCS, by faculty and students has increased over the past three years. However, use of these machines by outside groups has decreased substantially. Historically, these outside users had subsidized internal users owing to higher rates charged to the outsiders. We predict that the trend of outside users to migrate to their own machines will continue; the University must develop policies to replace revenue from this source.

As the University's computer network expands, we predict that the number of mainframe users will increase. The advent of new services such as electronic mail, LUMINA, and data base searching together with the ease of access provided by network connections will increase demand for mainframe services. Therefore, total demand for central computing will continue to increase; to meet that demand, budgets must go up.

There is duplication of support staff, software, peripherals and overhead at several centers providing similar service on similar machines. Moreover, there is duplication in purchases. Coordination of many of these items should result in cost savings for the University.

#### 4. Increasing microcomputer and network costs

The principal need in the University is for access to equipment. Faculty and students need greater access to microcomputers. The increasing number of microcomputer users on campus will need to obtain greater access to data and services through networking. It is the network, therefore, that is most in need of development, but it has neither clear central management nor adequate funding. There is a strong need for a uniform policy for network development and a single office to direct it.

The All-University Committee for Network and Communications Planning has predicted large increases in networked connections among faculty and has recommended that this development be subsidized centrally. A modern network will, subsequently, lead to a demand for more microcomputers and for high-performance workstations, and to more user questions to be answered by the Microcomputer Group of ACSS. This group is currently underfunded and understaffed, and this situation will only get worse in the future.

Student microcomputer access fees on the Twin Cities campus are not managed uniformly or equitably. For example, the laboratories receiving assistance from the current office of Information Systems require purchase of quarterly access cards. On the other hand, Health Sciences does not require the access cards for use of computers in the Biomedical Library. The revenue from sale of the cards, approximately \$100,000 per year, is an insignificant part of the Microcomputer Group's budget. We recommend the cards be eliminated. Moreover, we call attention to proposals from the All-University Committee for Network and Communications Planning and committees of the Institute of Technology and the College of Liberal Arts on the Twin Cities campus for significantly larger fees (from \$100 to \$300 per student per quarter) as a short-term measure to finance the student access changes we have proposed.

#### 5. Unequal access to computers among disciplines and colleges

This is especially a problem on the Twin Cities Campus. Faculty and students in some disciplines have access to a number of microcomputers, sophisticated workstations and minicomputers. Developments in networking

and personal computer software now make computers indispensable for nearly all disciplines. The University must fund an active program to provide more computers and network access to those disciplines historically removed from computing.

6. Supercomputers are expensive and controversial

Supercomputing is technology-driven. Maintenance of our current position in the national competition requires that we have the newest and most powerful computers. Although this posture is expensive, it is mandated politically by the state's position in the field of supercomputing. Therefore, supercomputing represents a potential point of conflict between external forces and internal academic priorities.

Supercomputers are not perceived by most faculty as accessible, and many faculty question their worth to the University at large. There is a perception that there has been insufficient academic outreach by the Minnesota Supercomputer Institute. More functions and programs should be initiated to involve more faculty from more disciplines in supercomputing. The wealth of Minnesota achievements in supercomputing should be communicated in lay terms to the entire university faculty. Supercomputing must be intellectually appreciated as part of a continuum of computing from very small to very large.

7. The Duluth, Morris, Crookston and Waseca campuses are underfunded

The campuses outside the Twin Cities have insufficient budgets for computing. For example, the Waseca campus computing budget has not increased since 1982! In spite of this, the campuses have tried to keep up with the computing needs of faculty and students. But as these needs grow, as more computing cycles are demanded, as library automation becomes a necessity in the campus information center, as educational objectives of students change and access to outside data bases must be available, the campuses simply do not have the budgets to serve their missions. More hardware and software is needed. There exists a strong need for high speed dedicated lines to implement networked connections among the campuses for both academic and administrative data processing.

**SPECIFIC CHANGES RECOMMENDED**

The committee's recommendations fall into two categories. The first set addresses the problems associated with the need for coordination among units, especially in wider and longer-range planning. The second set are budgetary in nature and primarily address those immediate needy areas that are connected to academic computing. We are aware of needed changes in some other areas such as within departments and colleges and Administrative Information Services; the committee did not analyze those needs. Our report is confined to those needs that can be addressed directly by the central

administration of the University.

### Policy Planning and Coordination

1. It is our belief that practically everyone who thinks about present computing would agree to the two aspects of the present computing world given above, namely, that computing is a vital and important activity in all disciplines and that computing is a diversified technology that continues to change rapidly. It is the firm belief of this committee that if we do not do more than catch up with current events in computing, five years from now we will be in worse condition than we are now.

This problem is all the more poignant in that the University has never had a systematic and coherent policy or planning process for computing. We believe that the central officers of the University, in close consultation with campus officers, the various colleges, and the Senate, should develop a detailed, carefully written policy for computing along with a five-year plan for its implementation. To aid in this process, we proposed the set of principles above.

2. The present structure of computing in the University emphasizes centers, though the effect of this is less dramatic and might be satisfactory on campuses other than the Twin Cities Campus. The future, however, is with users. Thus, new policies should be designed based on services to more faculty, staff, and students. Greater flexibility and more transparency must be a greater component of these new policies. Issues such as hardware and budget should follow, rather than lead the policy and planning process.

3. We have considered how the principles might become a more integral part of the policy and planning process at the University and agree with the All-University Committee for Network and Communications Planning that it is time for a substantial restructuring of the planning process. Therefore,

We recommend that there should be a Chief Information Officer at the level of an Associate Vice President for Academic Affairs and Vice Provost. The Chief Information Officer should be responsible for the organization, planning, budgeting and coordination of all central computing and the network. The directors of all computer centers (including Administrative Information Services and the Minnesota Supercomputer Center) should report to the Chief Information Officer. The director of Telecommunications should also report to the Chief Information Officer.

The Chief Information Officer would refine and implement the policies we have outlined and promote a broad program for achieving a user-oriented, readily adaptable system. This will require changes in the present system, increased funds for the key problem areas we have indentified, and added funding for new plans.



## Computing Needs

The need to maintain a high standard of computing in the University pervades all areas of the University. We ascertained that four areas need to be addressed immediately: networking, library automation, a growing population of users on campuses, and the underfunding of all campuses. Needs overlap, such as networking and library automation; other needs are separate, such as enhancement of telecommunications services to improve our networking capability. To show how these new needs affect the University's central budget for computing, we have assembled a chart of the base budgets for the principal computing activities and campuses and the added budgets required. Since some proposals are still in the planning stages in various units of the administration and some areas of computing have not been adequately investigated, our dollar amounts are definitely underestimates. We hope that our estimates will provide a beginning for the discussion of the overall University needs in computing. We offer a brief description of each of these needs.

### Networking

Networking for many purposes is already in an advanced stage at many U.S. universities. Perhaps more important, sophisticated networks are common in most of the organizations where our students will work, whether it be a law firm, corporation, or government agency. The University of Minnesota began its network development some years ago, but has a long way to go to serve the academic mission of the University as we approach the end of the 20th Century. The recent deliberations of the All-University Committee for Network and Communications Planning resulted in an outline of some of the problems and needs in this area. This Senate committee offers strong support for a number of the All-University Committee's recommendations having to do with the network and central services.

The Network system should provide a central, coherent, if not single, Electronic Mail and Document Distribution System, free to all users.

Local area networks should be uniform on all campuses of the University, and they should be compatible with the network's backbone.

The University should continue to be involved in two regional networks: MRNet and CICNet, and to provide access to a range of other networks.

In addition, we accept the All-University Committee's budget estimates for changes in the network and its operation. For the networking side of this activity, some \$2,000,000 will be needed in both years of the next biennium, and about \$5,000,000 annually for the next biennium (see Appendix 1). To this we must add \$285,000 to the annual Telecommunications budget for additions to and management of the fiber backbone.

## Library Automation

The various campuses of the University are engaged in automating their library catalogs and adding automated databases to their collections. The biggest project of this kind is the LUMINA system on the Twin Cities Campus. The basic system, data on library holdings, began operation this academic year. An effective system requires a number of additions: circulation data, orders outstanding, access to databases through the system. Since no cost data was supplied to the committee for these enhancements, we cannot include such figures in our total estimate of funds needed. But we do wish to note the importance of this activity to academic activities on the Twin Cities campus and to the region. Similar systems with comparable needs are in development at each of the other campuses. We have included the library automation needs of other than the Twin Cities Campus in the separate aggregate figures for the campuses.

## Serving Faculty and Student Needs

There are still many faculty and students in the University who do not have access to computing. Given the increasing emphasis in our society upon the use of computing, our academic objectives must include a greater emphasis on computing. Potentially, there are 30,000 more students who need to be served on the Twin Cities campus alone. In addition, we estimate that 10,000 faculty and staff require workstations for access.

Two things have to be done to serve this population. First, it is necessary to preserve and upgrade the central facilities used by present faculty and students. The computing center directors on the Twin Cities campus have estimated the increased cost for this to be \$18,000,000 over the next four years. Comparable figures, relative to population, were provided by the other campuses.

Second, it is necessary to provide more workstations to access these central facilities. The committee, using the data assembled by the All-University Committee, predicted the need for 4,800 new faculty workstations at an average cost of \$5,000 each, workstation acquisition will require \$24,000,000 over the next four years. (One caution should be added here. Some departments and colleges on the Twin Cities campus are planning to address this problem also. It is possible that some of their budget requests for faculty workstations will be duplicates of this budget item by the committee.)

The committee estimated that an additional 30,000 students will seek access to computing over the next four years. If we assume that 20 students share each workstation and that the average cost per workstation is the same, \$5,000, the total cost for new student equipment will be \$7,500,000, again spread over four years. This latter might be appropriately covered, in part at least, by the sort of tuition surcharge mentioned above. This figure does not take into account the greater demands on user services provided by the various groups on campus. There will also need to be an increase in their budgets, and we included this in the Computing Centers' line of our

budget (see Appendix 1).

The committee requested the Duluth, Morris, Crookston, and Waseca campuses to make similar assessments. Their data is included in the aggregated figures given for academic computing in Appendix 1.

#### CONCLUSION

Computing technology continues to change rapidly and demand for access in the University to more and different technology is growing at the same rate. The committee found that the present computing environment in the University is not sufficient, both in its governance and extent of access, to meet these changes. We found that more will need to be done over the next four years to increase accessibility to and flexibility of computing in the University and to other centers of computing and data around the world. To do this more money will need to be invested in computing.

The committee estimates that in 1988-89 at least an additional \$17,200,000 must be added to the computing budget of 1987-88 (an increase of 30%), bringing the total budget for computing to \$69,400,000. Two-thirds of this increase would be spent to increase access; the rest would be for increased flexibility with a little for governance. We hasten to repeat that not all of this increase need come from University funds; some can be obtained from fees and chargebacks. The budget for 1991-92 must grow by \$25,700,000 to \$77,900,000 to achieve the goals set forth in our report. We realize that these are substantial sums, but they were not arrived at without considerable thought for the needs of our faculty and students in a highly technological world in which sophisticated computer systems are ubiquitous.

APPENDIX 1: EXPENDITURE BUDGETS REQUIRED

(\$ millions)

	<u>86-87</u>	<u>87-88</u>	<u>88-89</u>	<u>89-90</u>	<u>90-91</u>	<u>91-92</u>
OFFICE OF THE CHIEF INFORMATION OFFICER	NA	NA	0.42	0.45	0.48	0.51
ACADEMIC COMPUTING						
Information Systems	12.00	12.50	12.50	12.50	12.50	12.50
MSI Academic	.95	.95	.90	.90	.90	.90
Computing Centers	--	--	4.00	4.35	4.71	5.12
Student Workstations (new, 30,000 new users) (likely in domain of ACSS)	NA	NA	1.50	2.00	2.00	2.00
Faculty Workstations (new, 24m over 4 yrs.)	NA	NA	6.00	6.00	6.00	6.00
Networks (inc. mailer)	--	--	2.00	3.00	4.10	5.30
Library	--	no budget data supplied				
Total TC campus	12.00	13.45	27.22	29.20	30.69	32.33
Total UMD	--	1.40	3.20	4.38	5.49	6.75
Total Morris, Crookston, Waseca	--	0.57	0.68	0.89	0.96	0.79
TOTAL ACADEMIC COMPUTING (rounded)	--	15.40	31.20	34.50	37.10	39.90
MSC	12.50	12.50	12.50	12.50	12.50	12.50

The committee believes the matter of funding for the MSC is not within its province to assess.



APPENDIX 2: INCOME ESTIMATES PROJECTION

(\$ MILLIONS)

	<u>86-87</u>	<u>87-88</u>	<u>88-89</u>	<u>89-90</u>	<u>90-91</u>	<u>91-92</u>
INCOME						
INCOME (TC only)	23.00	22.50e	22.50	22.50	22.50	22.50
MSC	12.50	12.50	12.50	12.50	12.50	12.50
INCREASED CHARGEBACKS	NA	NA	1.00	1.50	2.00	3.00
REVENUES STUDENT FEES	--	--	1.50	2.00	2.00	2.00
REVENUE FROM WORKSTATION PURCHASES	--	--	1.50	1.50	1.50	1.50
REVENUE FROM NON-0100 NODES	--	--	0.27	0.54	0.81	1.08
TOTAL PROJECTED INCOME (TWIN CITIES ONLY)	35.50	35.00	39.27	40.54	41.31	42.58



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August 22, 1988

TO: President Richard Sauer  
FROM: Clinton Hewitt *CHH*

As you suggested, I have listed below the criteria to be used in ranking Capital Projects in the 1989-91 Legislative Request for Capital Improvements. This is essentially the list I mentioned during my brief comments at our meeting. I want to emphasize that, from my viewpoint, the establishment of priorities for Capital Projects is both an art and a science, and one that must eventually employ intangible factors such as the views of distinguished campus academicians, the judgment of senior administrators, impact of community sentiment and, sometimes, the influence of donors. Each criterion for ranking Capital Projects, although listed in the following order of importance, could be assigned different values before applying them to each Capital Project to determine its final ranking.

1. Projects that will eliminate health, fire and other safety hazards.
2. Projects that are consistent with University-wide goals and academic planning objectives that incorporate currently projected student, faculty and staff levels.
3. Projects which were requested under a "phase" concept (i.e., Green Hall Remodeling, Phase II or Phase II of a three phased water distribution program).
4. Previous rankings as indentified in the 1988 Legislative Request for Capital Improvements.
5. Projects that provide a "cost avoidance" in operation through energy conservation, improved maintenance and improved utility systems.
6. Projects that eliminate architectural barriers by providing access and opportunity to the handicapped.
7. Projects that serve a broad range of campus constituents, rather than a single department (i.e., Basic Biomedical Sciences/Biomedical Engineering Center).

8. Projects which are compatible with the campus Long Range Development Plan (i.e., historical preservation, Campus Beautification).
9. Projects for which matching grants from non-State sources are available to partially finance the project, projects supported by donors, or self-amortizing projects.

While it is important to employ criteria as a testing mechanism, I think that in the final analysis, the priority selection of projects is a "sorting out" process that must take into account other factors and policy decisions. It, of course, would be difficult to argue that a health, fire and safety hazard project should not be given top priority. However, the weighing of other factors, such as academic objectives can move them closer together.

CNH/co

cc: Vice Presidents  
Chancellor Lawrence Ianni  
Chancellor John Imholte  
Chancellor Donald Sargeant  
Chancellor Edward Frederick